FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-87	1987	3	8

DRAINAGE NOTES:

1. Existing drainage system shall be functional at all times during construction. Contractor shall furnish materials, equipment, labor, tools, and incidentals necessary to accomplish maintenance of flow. The cost shall be incidental to the various contract items.
2. Contractor shall verify the locations of all existing culverts in the field. Any existing culverts damaged during construction shall be repaired or replaced by the contractor at his expense.
3. Concrete shall be Class A unless otherwise noted.
4. Location of Manhole Rungs for Type "B" Grated Drop Inlet shall be determined by the Engineer.
5. For typical detail of reinforcing steel around 24" and 36" Culvert See Plan sht. no. 6.
6. Grass Swale located along 36" culvert shall not be measured separately but shall be considered incidental to imported borrow.
7. Existing elevations are based on B.M. Datum MSL = R-13 = 11.565' (Vertical Control Data Book dated August, 1973)

Drain Sta. 0+00 to Drain Sta. 0+62

Construct: Type "A" G.D.I. (For detail, See Plan sht. no. 5)
Type "B" G.D.I. (For detail, See Plan sht. no. 6)
Install: 36" Culvert (For Profile, See Plan sht. no. 4)

Estimated Quantities

Removal of Existing Concrete Wall	L.S.
Imported Borrow	83 C.Y.
Structural Excavation	53 C.Y.
Bed Course Material	14 C.Y.
36" Culvert (Steel Spiral Rib Pipe, Sheet Thickness, 0.079 Inch)	58 L.F.
Type "A" Grated Drop Inlet, 3.00 feet to 3.99 feet	1 Ea.
Type "B" Grated Drop Inlet, 4.00 feet to 4.99 feet	1 Ea.

Drain Sta. 0+62 to Drain Sta. 1+22±

Construct: Type "B" G.D.I. (For detail, see Plan sht. no. 6)
Install: 36" Culvert (For Profile, See Plan sht. no. 4)

Estimated Quantities

Imported Borrow	40 C.Y.
Structural Excavation	51 C.Y.
Bed Course Material	13 C.Y.
36" Culvert (Steel Spiral Rib Pipe, Sheet Thickness, 0.079 Inch)	56 L.F.
Type "B" Grated Drop Inlet, 4.00 feet to 4.99 feet	1 Ea.

Drain Sta. 1+22± to Drain Sta. 2+44±

Construct: Type "B" G.D.I. (For detail, See Plan sht. no. 6)
Install: 36" Culvert (For Profile, See Plan sht. no. 4)

Estimated Quantities

Imported Borrow	41 C.Y.
Structural Excavation	132 C.Y.
Bed Course Material	28 C.Y.
36" Culvert (Steel Spiral Rib Pipe, Sheet Thickness, 0.079 Inch)	118 L.F.
Type "B" Grated Drop Inlet, 4.00 feet to 4.99 feet	1 Ea.

Drain Sta. 2+44± to Drain Sta. 4+17±

Construct: Type "B" G.D.I. (For detail, See Plan sht. no. 6)
Install: 36" Culvert (For Profile, See Plan sht. no. 4)

Estimated Quantities

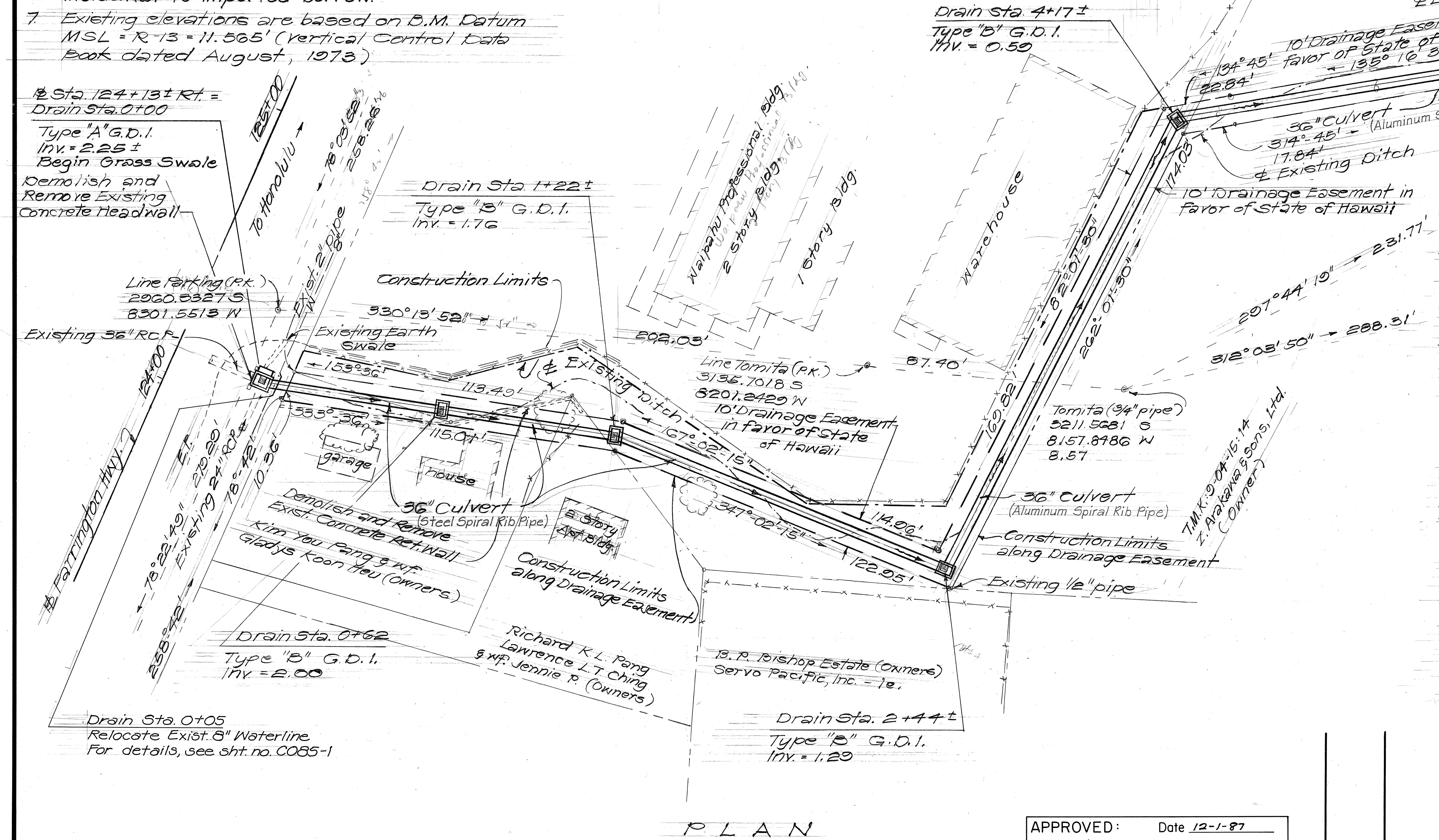
Imported Borrow	81 C.Y.
Structural Excavation	206 C.Y.
Bed Course Material	40 C.Y.
36" Culvert (Aluminum Spiral Rib Pipe, Sheet Thickness, 0.075")	169 L.F.
Type "B" Grated Drop Inlet, 4.00 feet to 4.99 feet	1 Ea.

Drain Sta. 4+17± to Drain Sta. 6+33±

Construct: Type "C" C.B. (For detail, See Plan sht. no. 7)
Install: 36" Culvert (For Profile, See Plan sht. no. 4)

Estimated Quantities

Imported Borrow	166 C.Y.
Structural Excavation	264 C.Y.
Bed Course Material	50 C.Y.
36" Culvert (Aluminum Spiral Rib Pipe, Sheet Thickness, 0.075")	212 L.F.
Type "C" Catch Basin, 5.00 feet to 5.99 feet	1 Ea.



PLAN

APPROVED: Date 12-1-87
R. Nagato
Chief, Planning & Engineering, BWS

DATE	REVISION
11/27/87	Additional Note for 8" Waterline Relocation

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

FARRINGTON HIGHWAY
DRAINAGE IMPROVEMENTS
Vicinity of Kapakahi Stream
Project No. 7101A-02-87

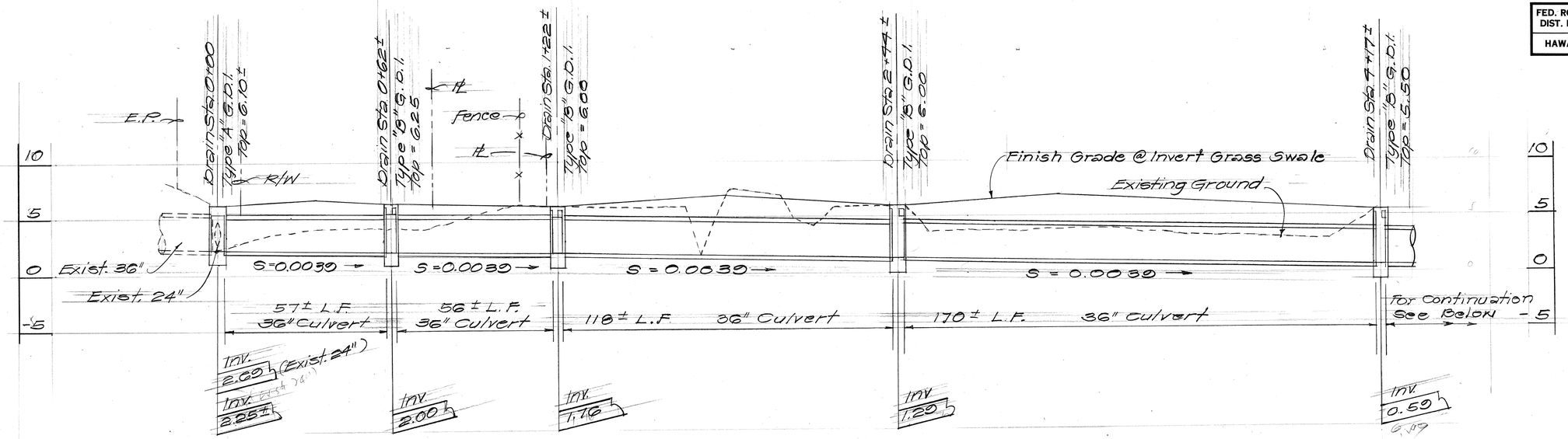
Scale: As Noted Date: Oct. 1986

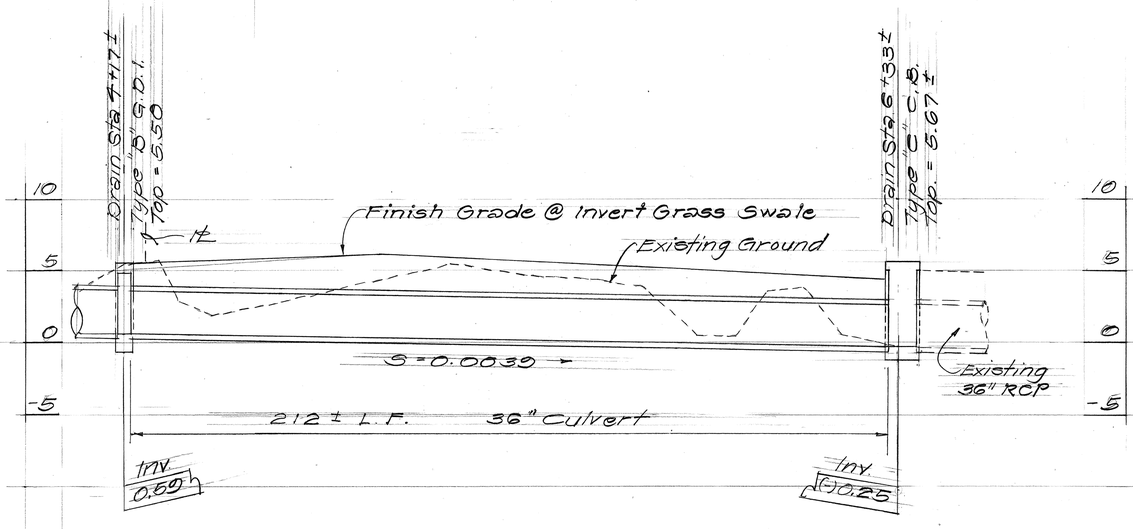
SHEET No. OF SHEETS

C03

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-87	1987	4	8





PROFILE ℄ 36 inch CULVERT

Scale: Horiz. 1" = 20'
Vert. 1" = 5'

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

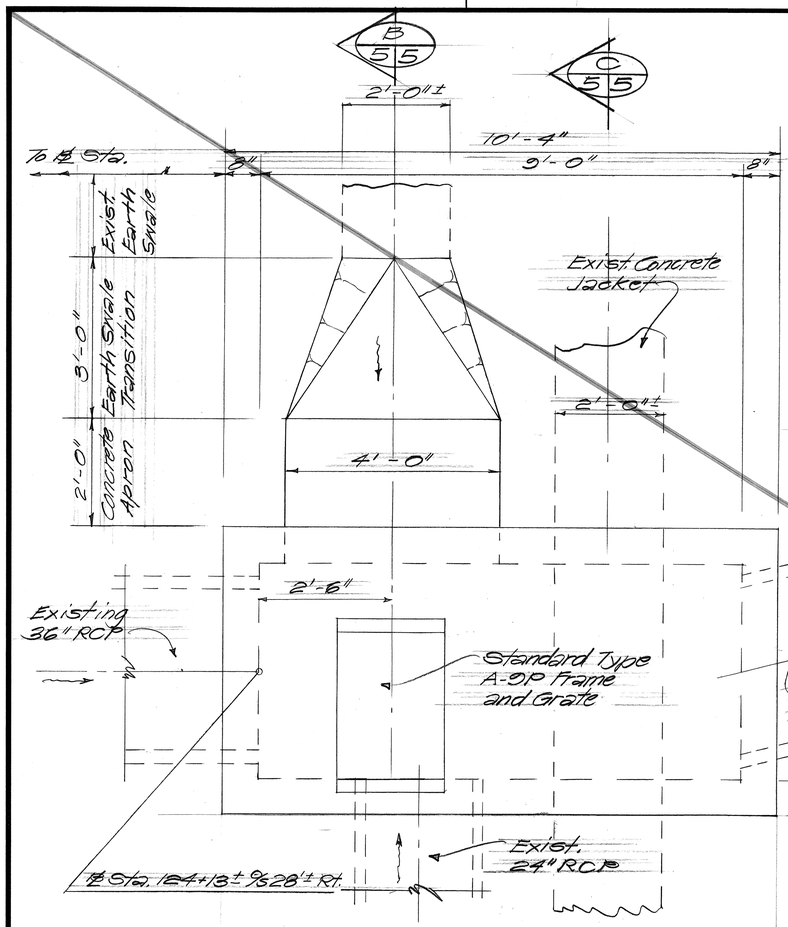
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
FARRINGTON HIGHWAY
DRAINAGE IMPROVEMENTS
Vicinity of Kapakahi Stream
Project No. 7101A-02-87

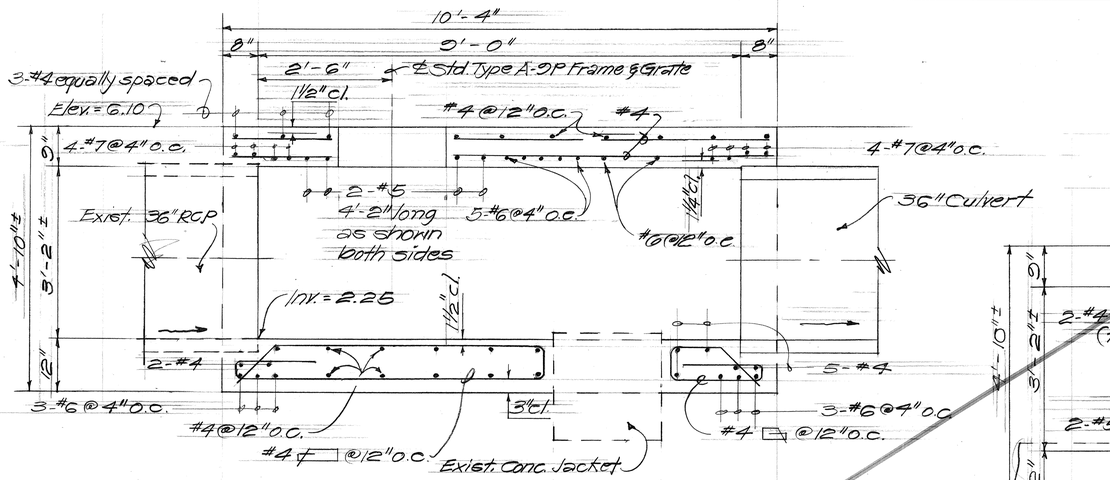
Scale: As Noted Date: Oct. 1986

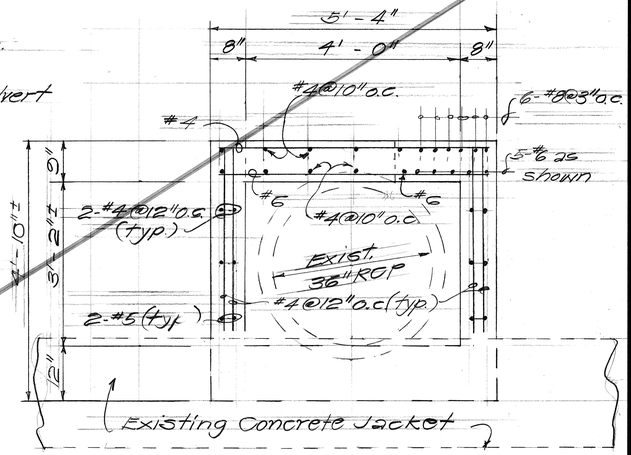
SHEET No. 4 OF SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-87	1987	5	8



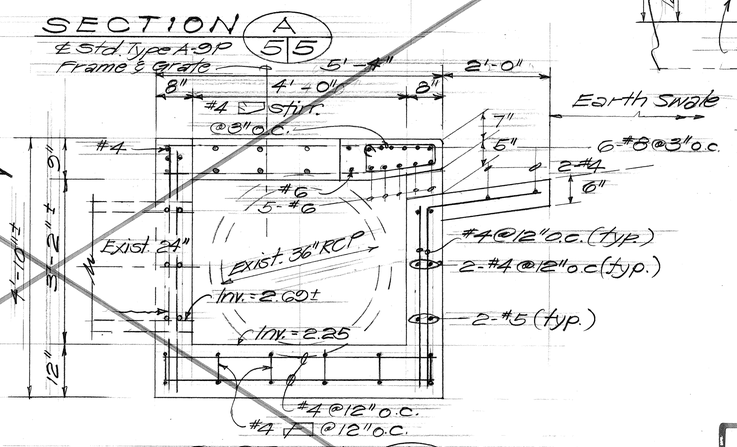
PLAN



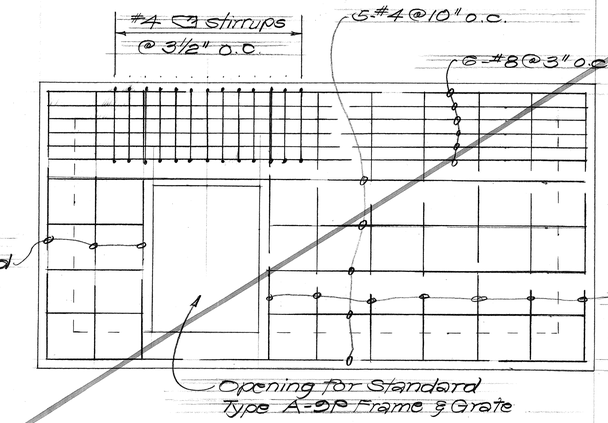


SECTION C 5|5

SECTION A 5|5

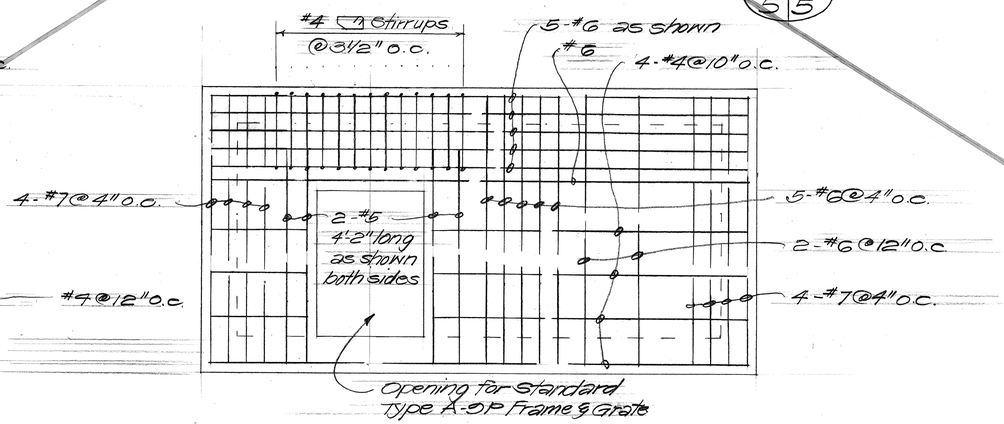


SECTION B 5|5



TOP LAYER

DETAILS OF TOP SLAB REINFORCING



BOTTOM LAYER

DETAILS OF TOP SLAB REINFORCING

DETAILS OF TYPE A GRATED DROP INLET

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

SUPERSEDED BY PLAN SHEET C.0.5

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

FARRINGTON HIGHWAY
DRAINAGE IMPROVEMENTS
Vicinity of Kapakahi Stream
Project No. 7101A-02-87

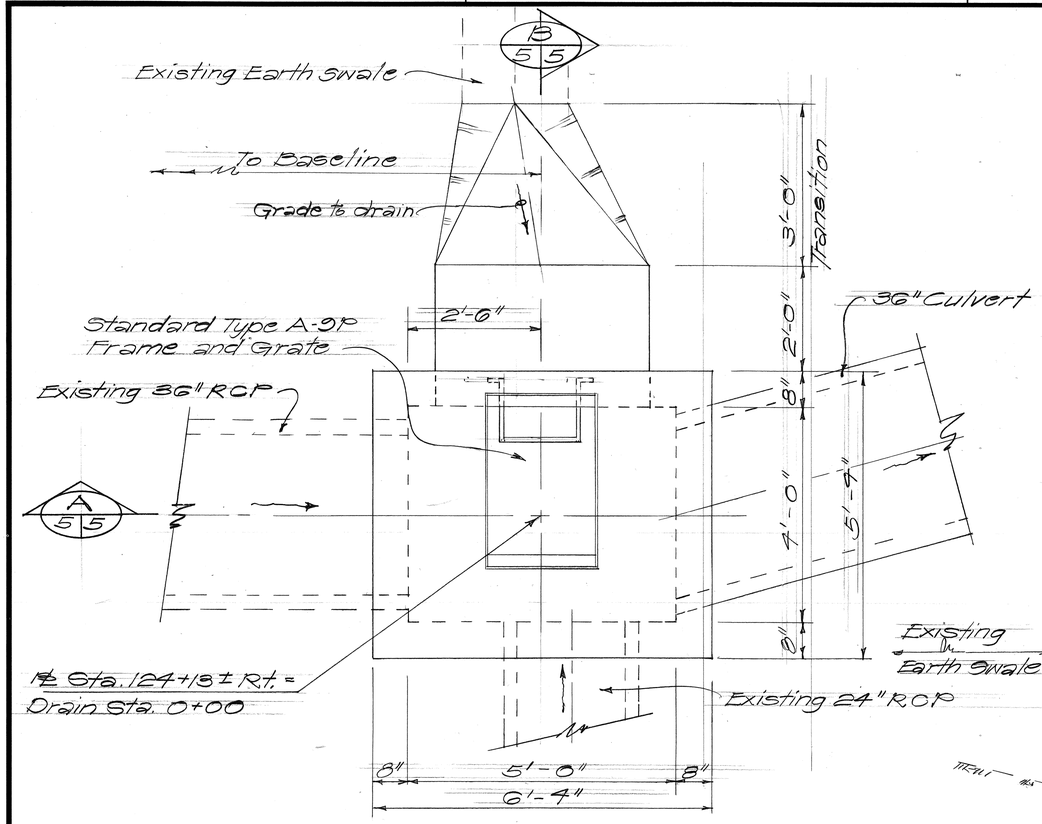
Scale: As Noted Date: Oct. 1986

SHEET No. OF SHEETS

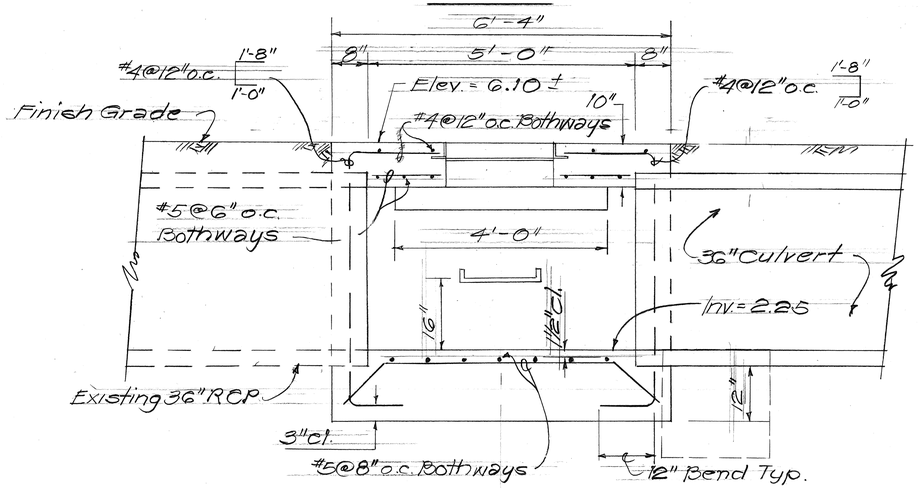
5

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-87	1987	5	8



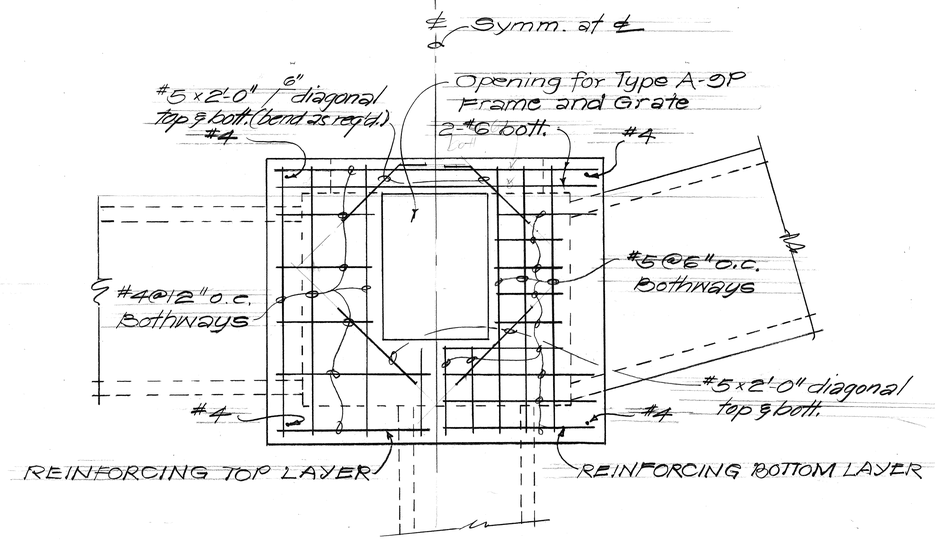
PLAN



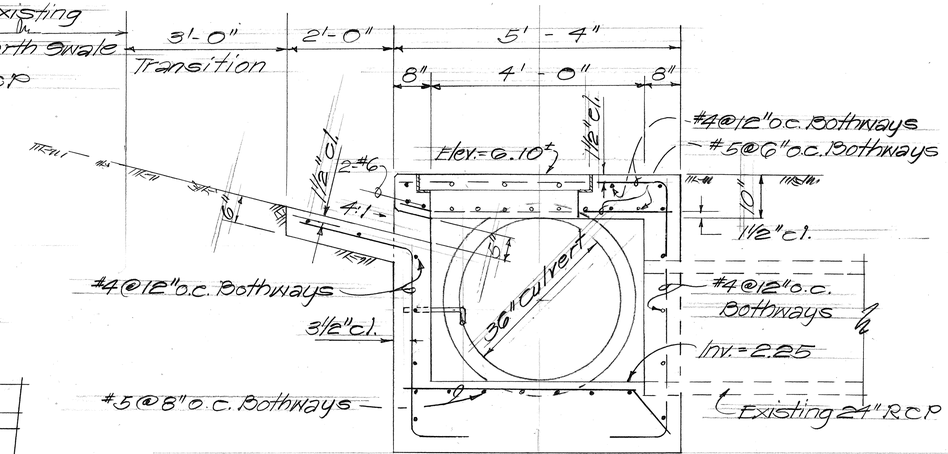
SECTION A 5 5

DETAILS OF TYPE "A" GRATED DROP INLET

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



PLAN VIEW OF REINFORCING STEEL



SECTION B 5 5

DATE	REVISION
11/3/87	Supersede Plan Sheet 5, Changed Type "A" G.D.I. detail

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
FARRINGTON HIGHWAY
DRAINAGE IMPROVEMENTS
Vicinity of Kapakahi Stream
Project No. 7101A-02-87

Scale: As Noted Date: Nov, 1987

SHEET No. #5 OF 8 SHEETS

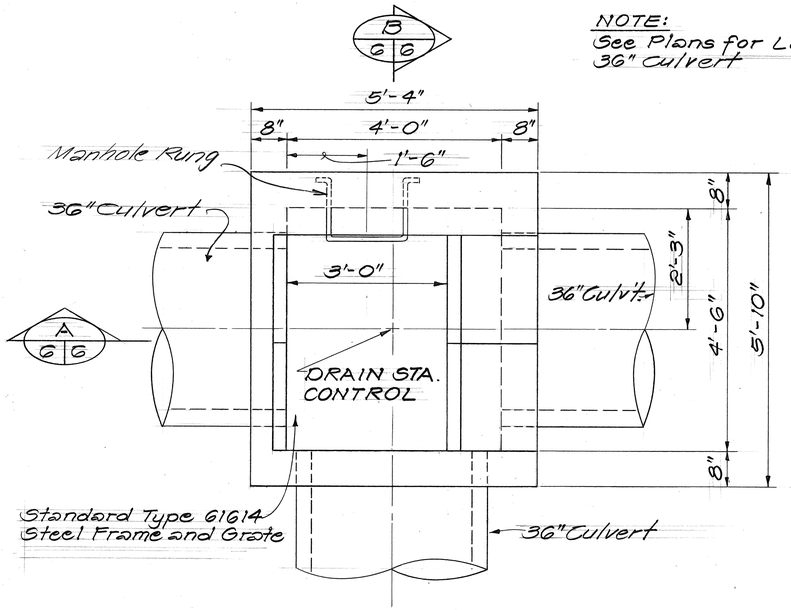
C.O. 5

ORIGINAL PLAN | NOTE BOOK | No.

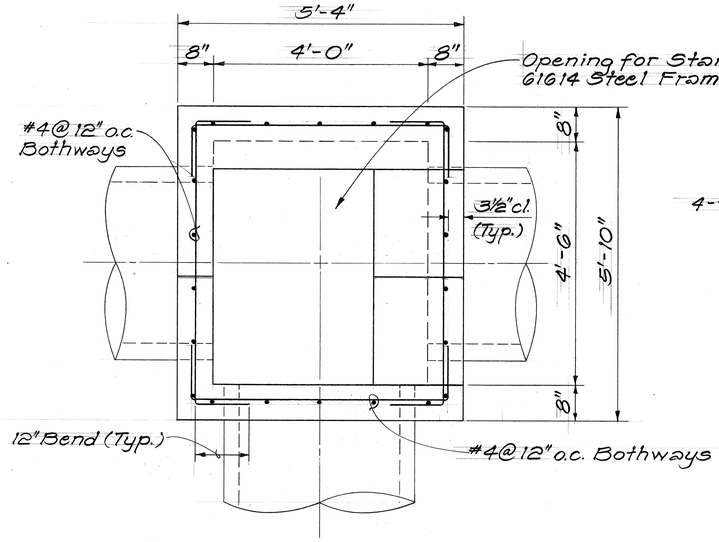
SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-87	1987	6	8

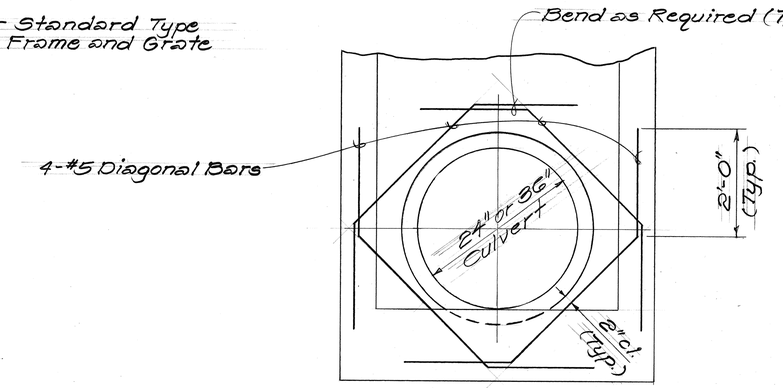
NOTE:
See Plans for Location of 36" Culvert



PLAN

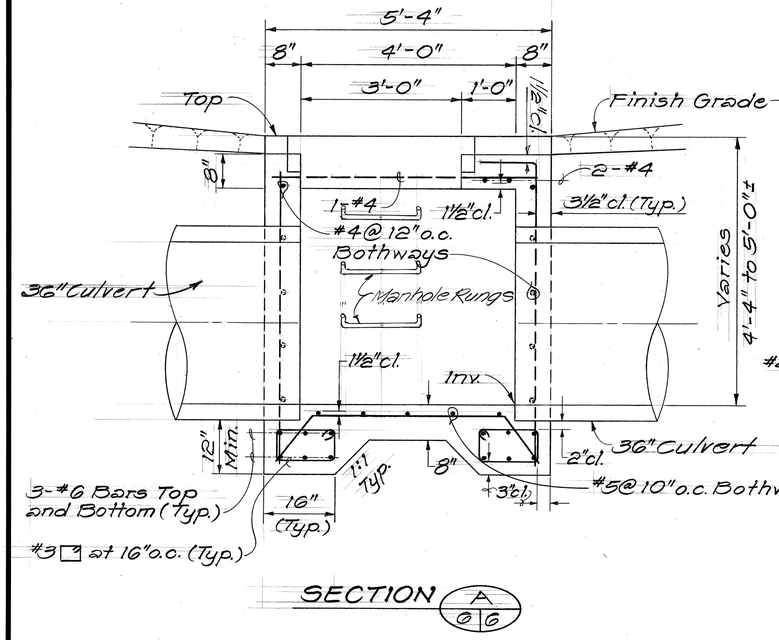


PLAN VIEW OF WALL REINFORCING

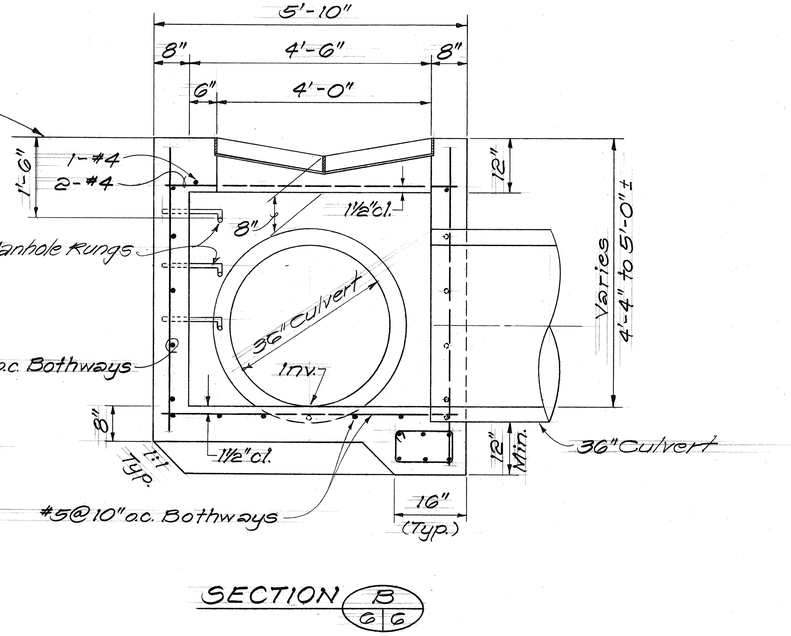


TYPICAL DETAIL OF ADDED REINFORCING AT 24" AND 36" CULVERT OPENINGS

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



SECTION A 6 6



SECTION B 6 6

TYPICAL DETAILS OF TYPE "B" GRATED DROP INLET

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

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

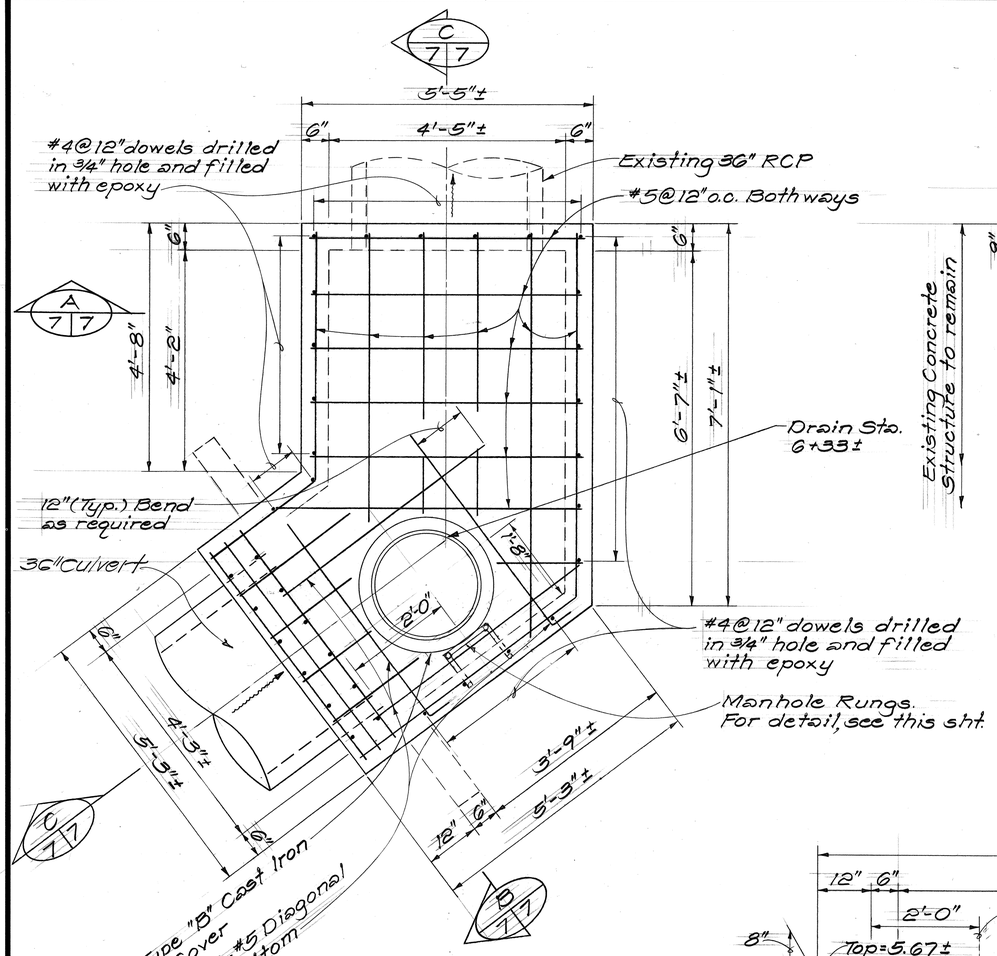
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

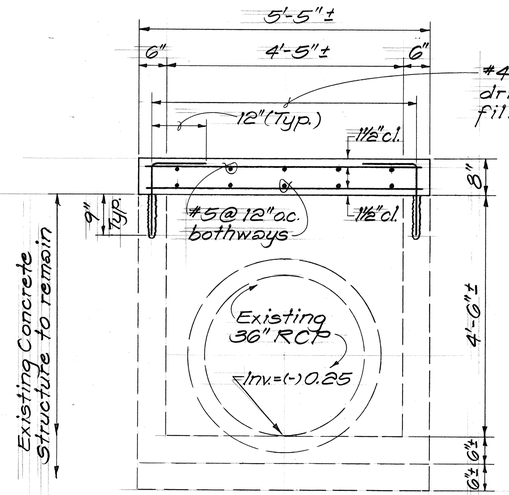
DRAINAGE DETAILS
FARRINGTON HIGHWAY
DRAINAGE IMPROVEMENTS
Vicinity of Kapakahi Stream
Project No. 7101A-02-87

Scale: As Noted Date: Oct. 1986

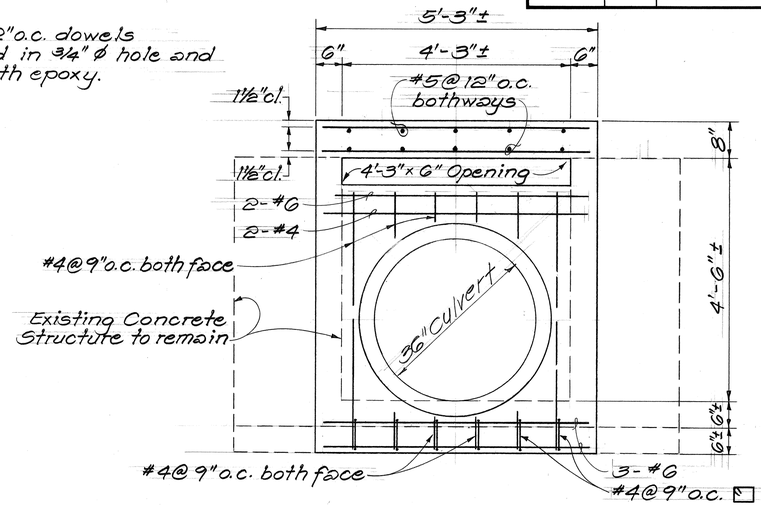
SHEET No. OF SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-87	1987	7	8

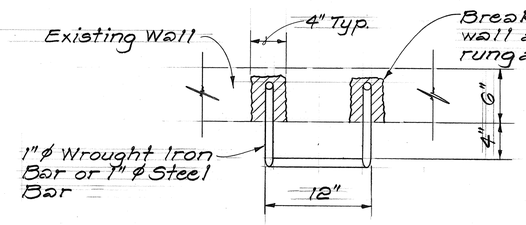




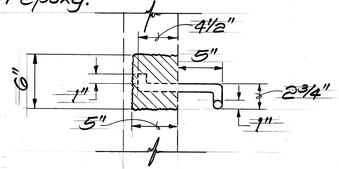
SECTION A
Scale: 3/4"=1'-0" 7 7



SECTION B
Scale: 3/4"=1'-0" 7 7

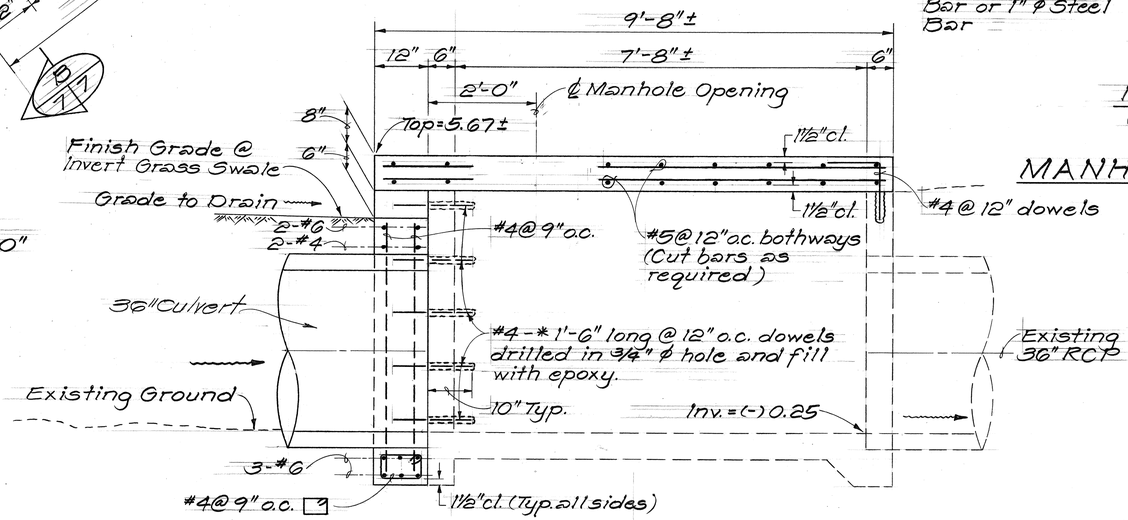


PLAN VIEW
Scale: 1½"=1'-0"



SIDE VIEW
Scale: 1½"=1'-0"

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



SECTION C
Scale: 3/4"=1'-0" 7 7

MANHOLE RUNG FOR TYPE "C" CATCH BASIN

DETAILS OF TYPE "C" CATCH BASIN

Scale: As Noted

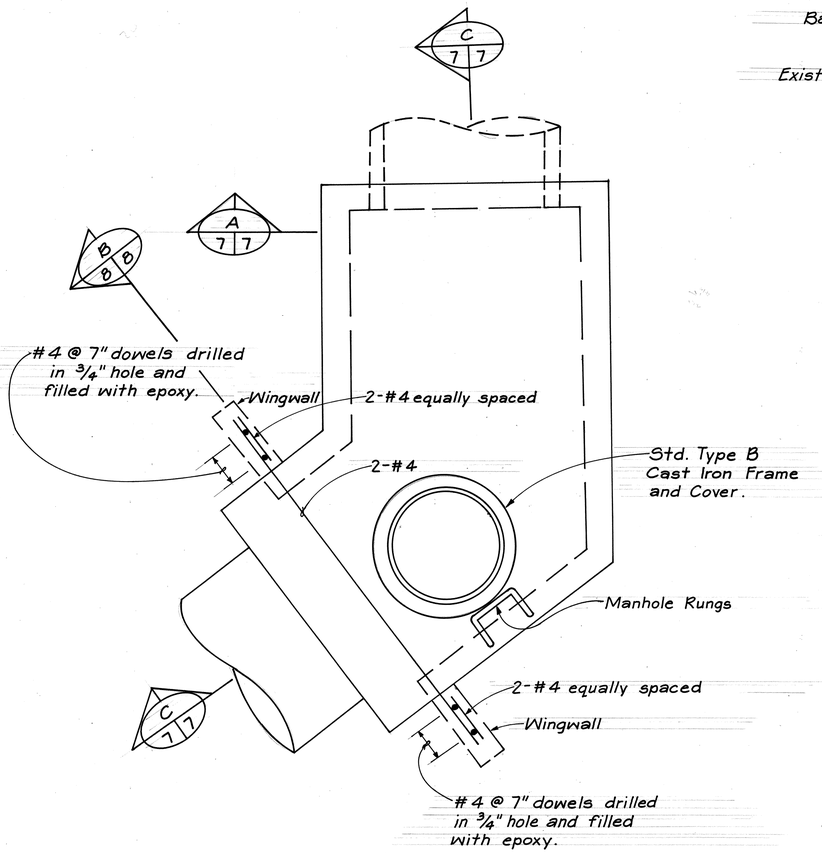
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	TRACED BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

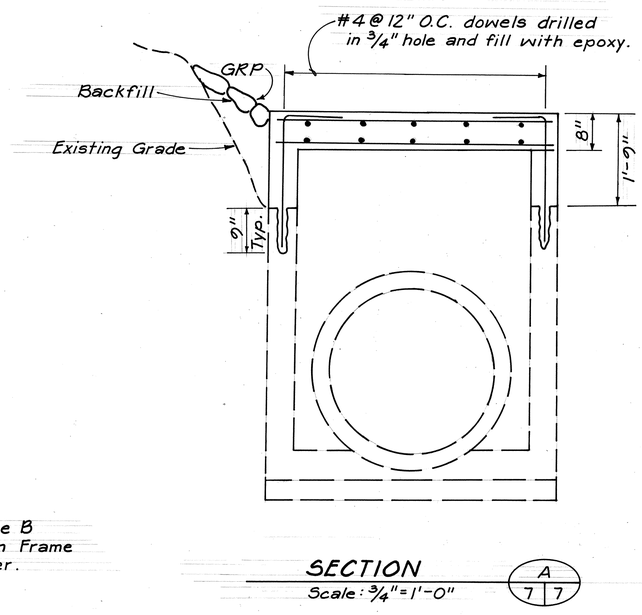
DRAINAGE DETAILS
FARRINGTON HIGHWAY
DRAINAGE IMPROVEMENTS
Vicinity of Kapakahi Stream
Project No. 7101A-02-87
Scale: As Noted Date: Oct. 1986

SHEET No. OF SHEETS

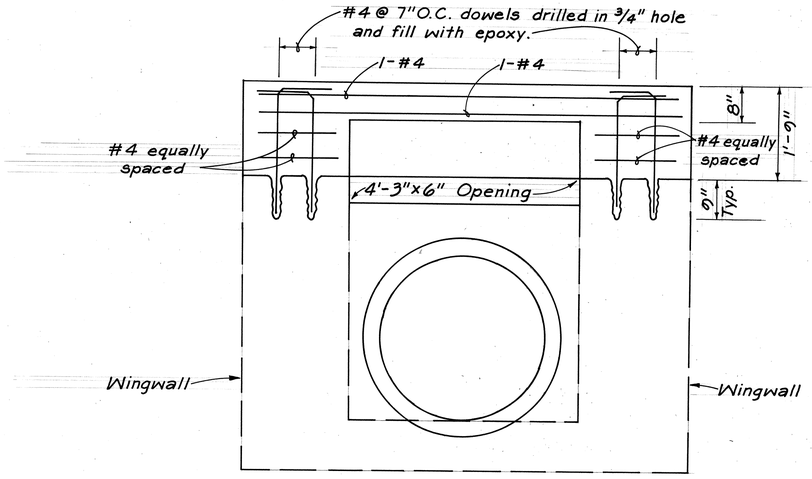
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-87	1987	7S-1	8



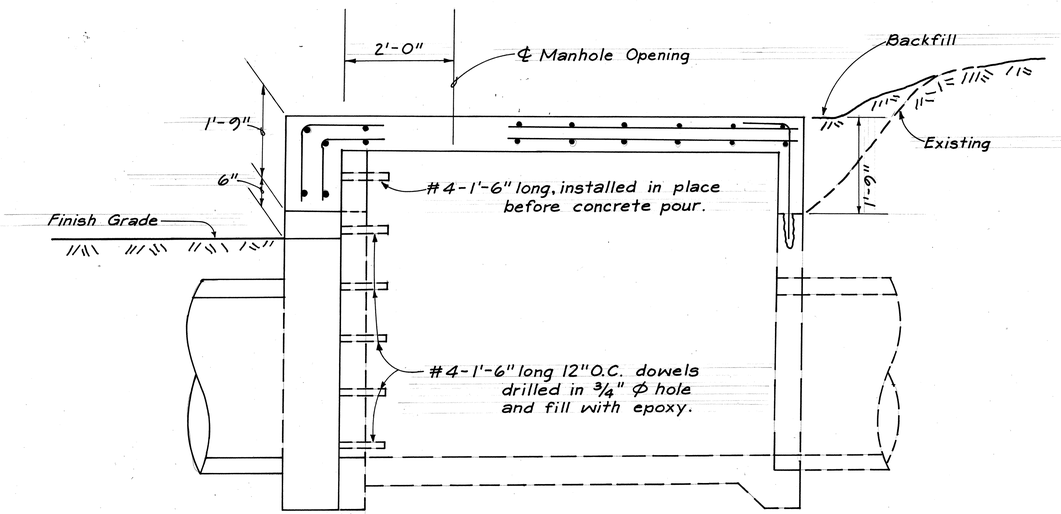
PLAN
Scale: 3/4" = 1'-0"



SECTION
Scale: 3/4" = 1'-0"
A 7 7



SECTION
Scale: 3/4" = 1'-0"
B 8 8



SECTION
Scale: 3/4" = 1'-0"
C 7 7

DETAILS OF REVISED TYPE 'C' CATCH BASIN
REVISION: RAISE WALLS 1'-9"

Note: This tracing prepared during "As-Built" posting.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

REVISED TYPE 'C' CATCH BASIN

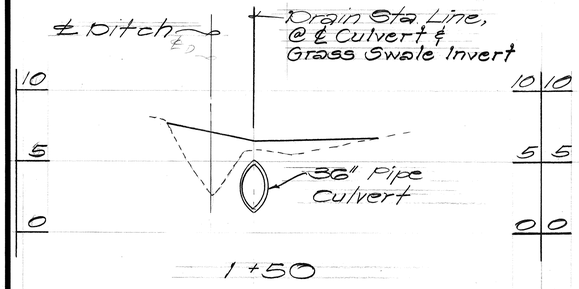
FARRINGTON HIGHWAY
DRAINAGE IMPROVEMENTS
PROJECT NO. 7101A-02-87

Scale: As Shown Date: Oct., 1986

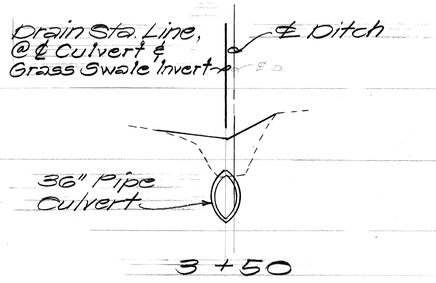
SHEET No. 1 OF 1 SHEETS

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

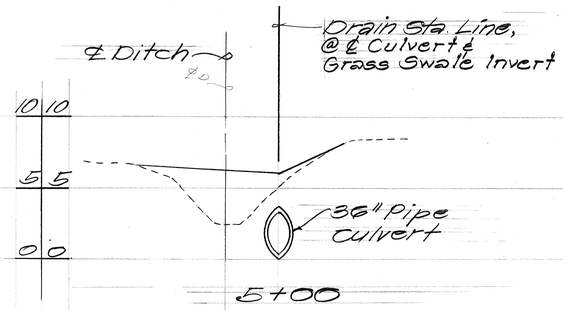
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-87	1987	8	8



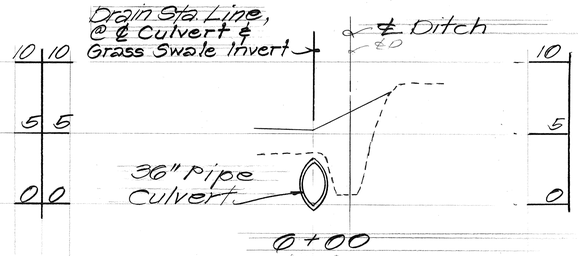
1+50



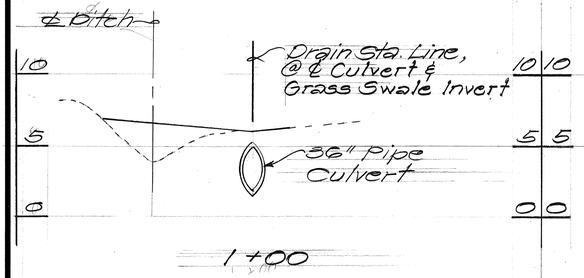
3+50



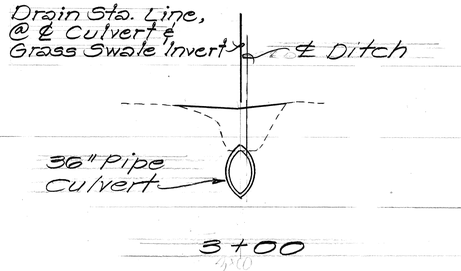
5+00



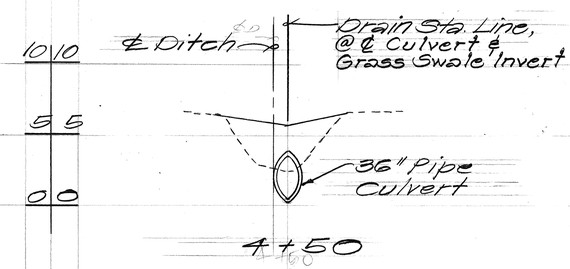
6+00



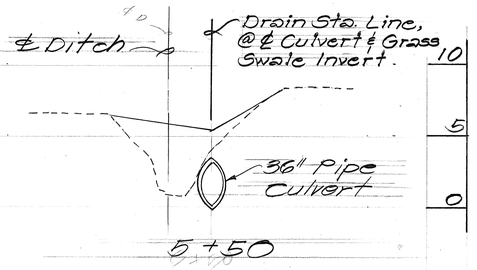
1+00



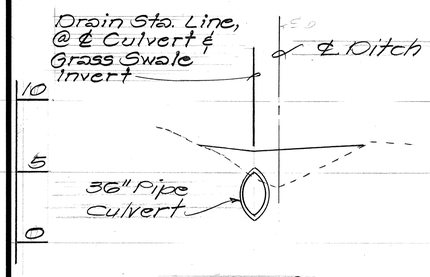
3+00



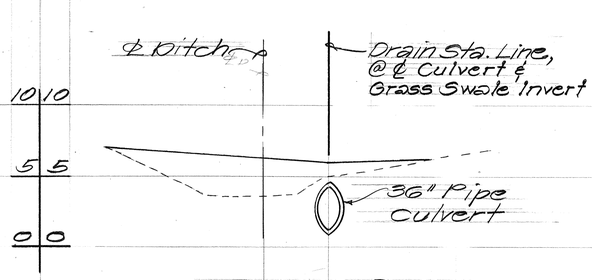
4+50



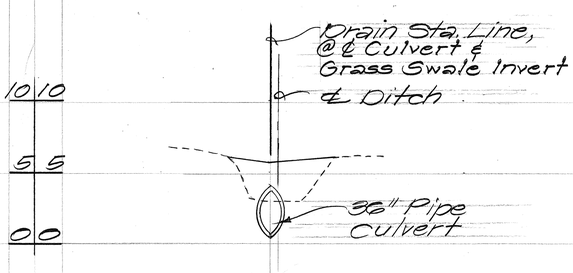
5+50



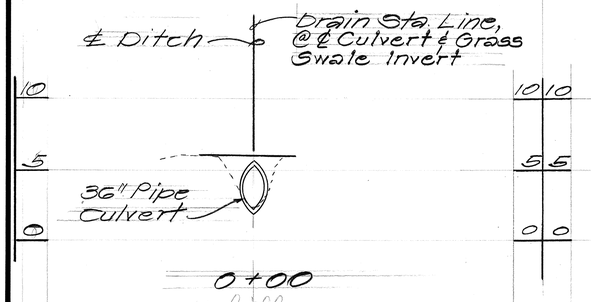
0+50



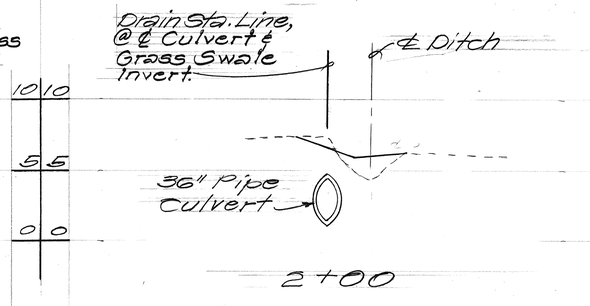
2+50



4+00



0+00



2+00

CROSS SECTIONS FOR 36 INCH CULVERT

Scale: Horiz. 1" = 10'
Vert. 1" = 5'

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
FARRINGTON HIGHWAY
DRAINAGE IMPROVEMENTS
Vicinity of Kapakahi Stream
Project No. 7101A-02-87

Scale: As Noted Date: Oct. 1986

SHEET No. 8 OF SHEETS

FED. ROAD DIST. NO.	STATE	~~FED. AID~~ PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-87	1987		

WATER NOTES

1. Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the Standard Specifications For Road And Bridge Construction, dated 1985, as amended, of the Hawaii Highway Division, Department of Transportation and the City and County of Honolulu Board of Water Supply's "Water System Standards", Volumne1, dated 1985, and the "Approved Material List and Standard Details For Water System Construction", Volumne2, dated 1985, and all subsequent amendments and additions.

2. Test pressure shall be prevailing line pressure, joints left exposed for 24 hours to check for leaks prior to backfill.

3. The contractor shall chlorinate the entire inside surface of each pipe and fitting with disinfection solution of 5 ounces of sodium hypochlorite mixed with 10 gallons of water.

4. The contractor shall notify B.W.S. Planning and Engineering Division, Construction Section one week prior commencing work on the water system.

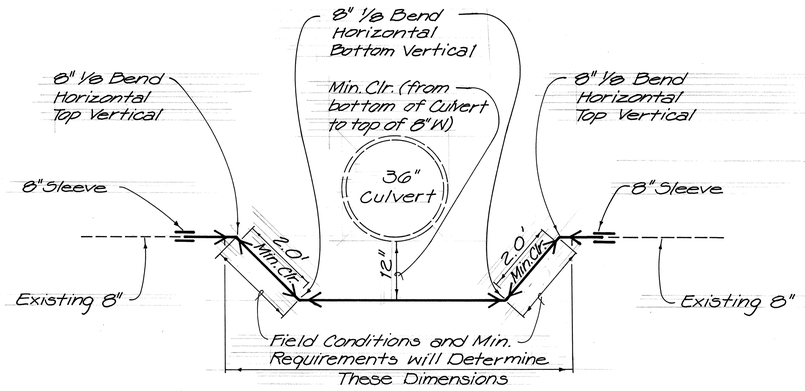
5. The Contractor shall be responsible for the protection of all water lines during construction. The Contractor shall be especially careful when excavating behind water lines tees and bends wherever there is a possibility of water line movement due to removal of the supporting earth beyond the existing reaction blocks. The Contractor shall take whatever measure he deems necessary to protect the water lines, such as constructing special reaction blocks (with B.W.S. approval) and/or modifying his construction methods.

6. The existence and location of underground utilities and structures as shown on the plans are from the latest available data but is not guaranteed as to the accuracy or the encountering of other obstacles during the course of the work. The Contractor shall be responsible and shall pay for all damages to existing utilities.

7. Prior to installation, the contractor shall submit for approval by Board of Water Supply, the manufacturer's certification that all cast iron (gray or ductile) fittings for the project conform in all respects to the Water System Standards, dated 1985.

8. All plans approved by the Board of Water Supply are based solely on the adequacy of the water supply. All other features of the water system, such as lines, grades, fittings etc., and drainage and other features of improvements shall not be the responsibility of the Board of Water Supply.

9. Relocation of existing 8"w to be done after 9:00 p.m. with a maximum shutdown time of 6 hours.



℄ Sta. 124+13 ± Rt.

ADJUST EXISTING 8" WATER
2 - 8" 1/8 D.I. Bends (Horizontal Bottom Vertical)

2 - Conc. Blks.

MATERIALS FOR CONNECTION
2 - 8" 1/8 D.I. Bends (Horizontal Top Vertical)
16 - L.F. 8" D.I. PIPE, CL. 52
2 - 8" Sleeves, 12" Long
2 - Conc. Blks. w/ Structural Struts

SCHEMATIC PLAN VIEW

Not to Scale

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

APPROVED: Date 12-1-87

R. Nagata

Chief, Planning & Engineering, BWS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WATER NOTES
SCHEMATIC PLAN VIEW
FARRINGTON HIGHWAY
DRAINAGE IMPROVEMENTS
Vicinity of Kapakahi Stream
Project No. 7101A-02-87

Scale: As Noted Date: Nov. 1987

SHEET No. OF SHEETS

C08S-1