

| FED. ROAD<br>DIST. NO. | STATE | FED. AID<br>PROJ. NO.          | FISCAL<br>YEAR | SHEET<br>NO. | TOTAL<br>SHEETS |
|------------------------|-------|--------------------------------|----------------|--------------|-----------------|
| HAWAII                 | HAW.  | I-HI-1(67):10<br>I-HI-1(66):10 | 1970           | 48           | 97              |

## LEGEND AND SPRINKLER HEAD SPECIFICATIONS

[illegible]

GENERAL NOTES:

1. Riser supports shall be  $\frac{1}{2}$ "  $\phi$  or  $\frac{3}{4}$ "  $\phi$  galvanized steel pipe or #6 reinforcing bar.
2. Final locations of valves, backflow preventers and vacuum breakers shall be determined by the Engineer.
3. Concrete reaction blocks and reinforced concrete jacket shall be Class B.
4. Minimum line size between sprinkler heads shall be as shown on the plans.
5. Pipe 4" in diameter and larger shall be cast iron. Installation & Payment shall be in accordance with the Requirements of Section G24, Water System of the Standard Specifications.
6. Line sizes up to and including 3" shall be galvanized steel pipe, copper pipe or P.V.C. pipe, except that pipe in the roadway and shoulder areas shall be copper.
7. Unless otherwise indicated on the plans the lateral for the sprinkler heads shall be located as follows:
  - G" - from Type 1 Swales and Retaining Walls.
  - 1' - from the R/W fence line.
  - 2' - from edge of shoulder where no swale or guard rail occurs.
  - 7' - from edge of shoulder where Type 2 (Fill Section) swale, or guard rail occurs.
8. Gate Valves shall be class 150.

LEGEND NOTES:

1. "PRESSURE" is the minimum pressure, in pounds per square inch, which is available at the base of the last head. The operating pressure of acceptable heads must not exceed this value when operating at the tabulated flow and radius.
2. "RADIUS OF COVERAGE" is the minimum radius at the tabulated pressure.
3. "FLOW" is the maximum flow, in gallons per minute, which is discharged at the tabulated pressure.
4. "SPACING" is the center to center spacing of sprinkler heads, unless otherwise noted or shown on the plans.
5. \*3 Indicates height of riser (top of riser to finish grade) in feet. One (1) foot when no designation is shown except for pop-ups where heads shall be installed flush with the finished grade.

### ESTIMATED QUANTITIES

|                                                 |                  |                             |
|-------------------------------------------------|------------------|-----------------------------|
| Structural Excavation                           | 2770 CY.         |                             |
| Class "B" Concrete                              | 52 CY.           |                             |
| Reinforcing Steel                               | 2900 Lbs.        |                             |
| 1/2" G.I. Pipe                                  | 660 L.F.         |                             |
| 3/4" G.I. Pipe                                  | 1250 L.F.        |                             |
| 3/4" Pipe Type II                               | 6255 L.F.        | Type I 6160 L.F. C.C.O. #17 |
| 1" Pipe Type II                                 | 4070 L.F.        | Type I 4300 L.F. C.C.O. #17 |
| 1 1/4" Pipe Type II                             | 3010 L.F.        | Type I 3240 L.F. C.C.O. #17 |
| 1 1/2" Pipe                                     |                  |                             |
| 2" Pipe                                         | 4450 L.F. *(60)  |                             |
| 2 1/2" Pipe Type II                             | 2680 L.F. *(150) |                             |
| 3" Pipe                                         | 6650 L.F. *(200) | Type I 1000 L.F. C.C.O. #17 |
| 4" Cast Iron Pipe                               | 1300 L.F. *(330) |                             |
| 6" Cast Iron Pipe                               | 600 L.F.         |                             |
| Cast Iron Fittings                              | 2280 L.F.        |                             |
|                                                 | 4315 Lbs.        |                             |
| S- 8 (Quarter, Half, Full) Sprinkler Head       | 155 Ea.          |                             |
| S- 12 (Quarter, Half, Full) Sprinkler Head      | 24 Ea.           |                             |
| S- 15 (Quarter, Half, Full) Sprinkler Head      | 46 Ea.           |                             |
| J- 20 Sprinkler Head (Part, Full)               | 37 Ea.           |                             |
| J- 25 Sprinkler Head (Part, Full)               | 78 Ea.           |                             |
| J- 30 Sprinkler Head (Part, Full)               | 23 Ea.           |                             |
| J- 40 Sprinkler Head (Part, Full)               | 470 Ea.          |                             |
| P- 40 Pop-Up Head (Part, Full)                  | 123 Ea.          |                             |
| 1 1/2" Angle Control Valve w/Type "A" Valve Box | 1 Ea.            |                             |
| 2" Angle Control Valve w/Type "A" Valve Box     | 9 Ea.            |                             |
| 2 1/2" Angle Control Valve w/Type "A" Valve Box | 11 Ea.           |                             |
| 2" Shut Off Valve w/Type "A" Valve Box          | 2 Ea.            |                             |
| 1 1/4" Atmospheric Vacuum Breaker               | 1 Ea.            |                             |
| 1 1/2" Atmospheric Vacuum Breaker               | 0 Ea.            |                             |
| 2" Atmospheric Vacuum Breaker                   | 33 Ea.           |                             |
| 3" Gate Valve w/Valve Box                       | 3 Ea.            |                             |
| 4" Gate Valve w/Valve Box                       | 3 Ea.            |                             |
| 6" Gate Valve w/Valve Box                       | 2 Ea.            |                             |
| 6" Backflow Prevention Unit                     | 3 Ea.            |                             |

\*( ) Indicates Lineal Feet of Pipe  
Roadway and Shoulder and  
See Note @ this sheet.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SPRINKLER S**

**INTERSTATE ROUTE**

\* ( ) Indicates Linear Feet of Pipe in the Roadway and Shoulder areas.  
See Note 6 this sheet.

**STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION**

## SPRINKLER SYSTEM

INTERSTATE ROUTE H-1  
PROJ. NO. I-HI-1(67):10

Date: July, 1969

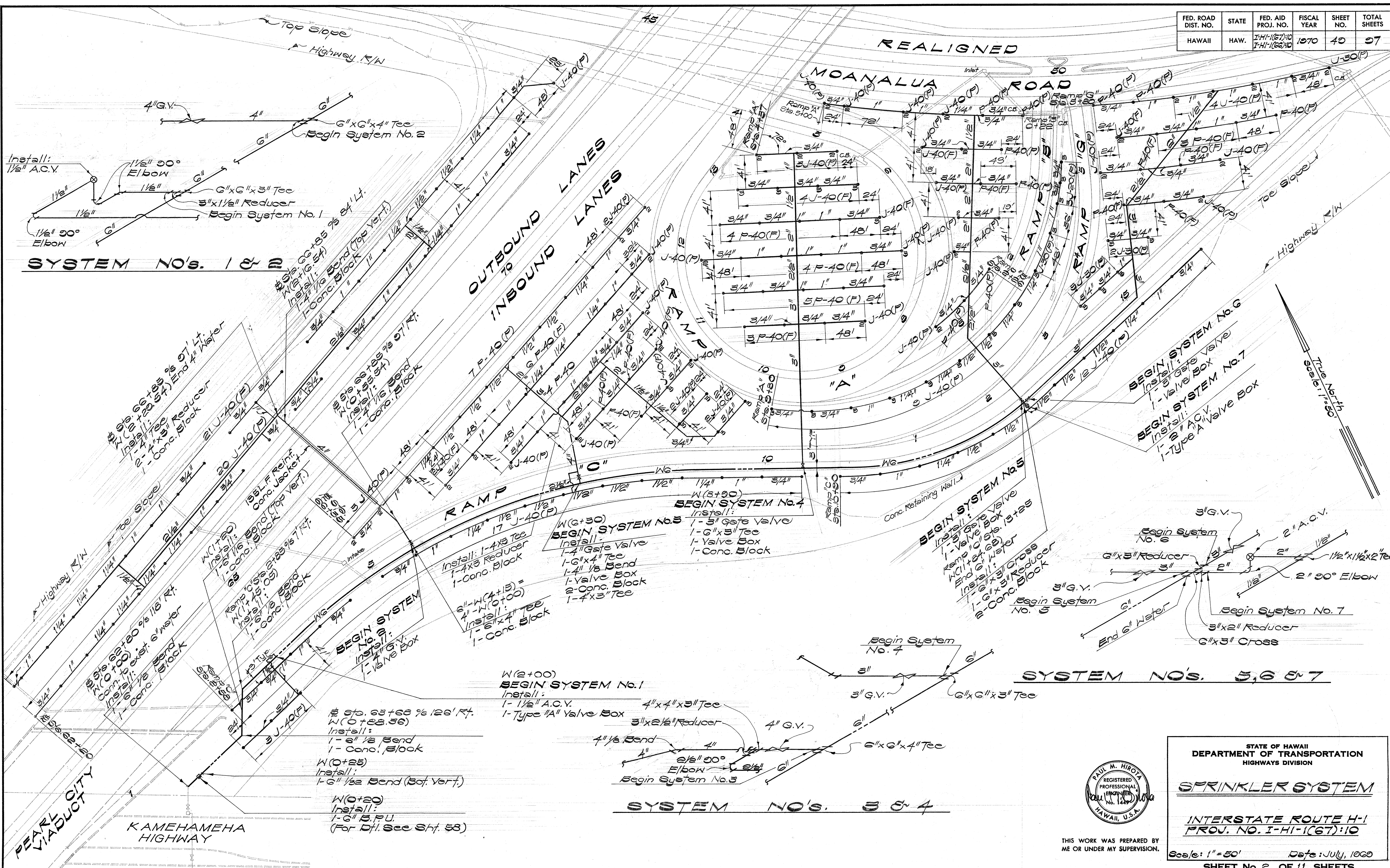
**SHEET No. 1 OF 11 SHEETS**

THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION.

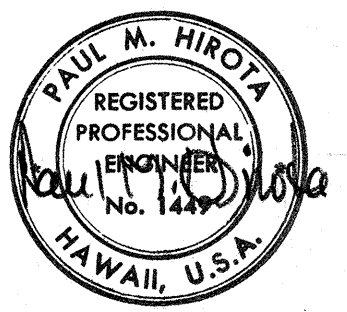
41 §

|                  |                                    |
|------------------|------------------------------------|
| ORIGINAL<br>PLAN | SURVEY PLOTTED BY _____ DATE _____ |
| NOTE BOOK        | DRAWN BY _____                     |
|                  | TRACED BY _____                    |
|                  | DESIGNED BY _____                  |
|                  | QUANTITIES BY _____                |
|                  | CHECKED BY _____                   |
|                  | No. _____                          |

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO.           | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|------------------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-H-1(67):10<br>I-H-1(66):10 | 1970        | 40        | 97           |



|               |       |
|---------------|-------|
| DATE          | _____ |
| ORIGINAL PLAN | _____ |
| DRAWN BY      | _____ |
| TRACED BY     | _____ |
| DESIGNED BY   | _____ |
| CHECKED BY    | _____ |
| NO.           | _____ |



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SPRINKLER SYSTEM**

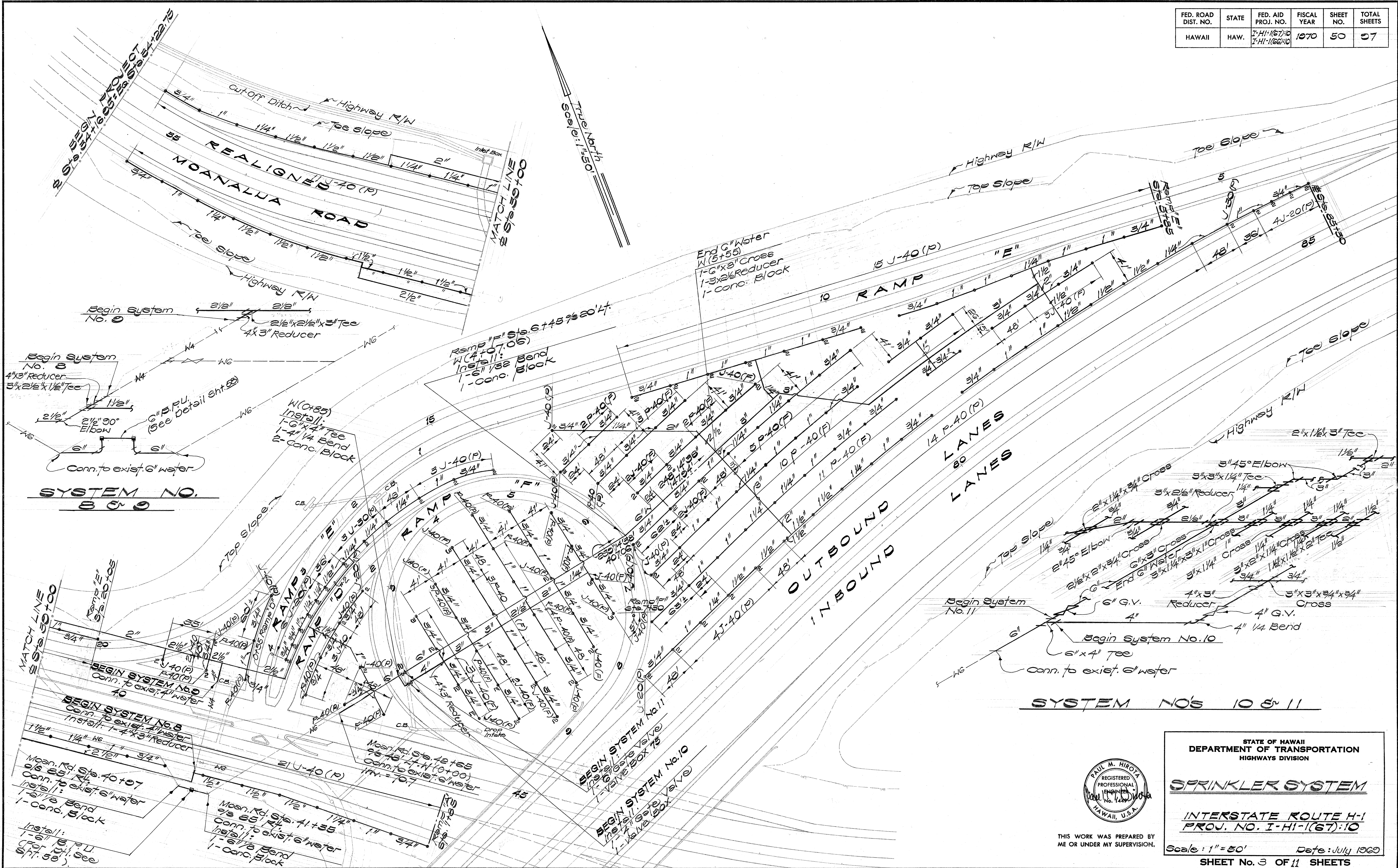
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PROJ. NO. I-H-1(67):10

Scale: 1" = 50' Date: JULY, 1969

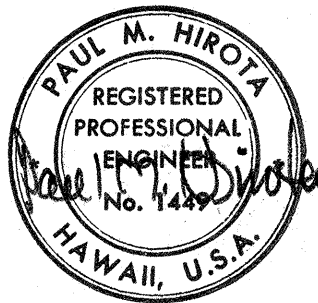
SHEET No. 2 OF 11 SHEETS

THIS WORK WAS PREPARED BY  
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| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO.             | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(67):10<br>I-HI-1(66):10 | 1970        | 50        | 57           |



| DATE          | BY |
|---------------|----|
| DESIGNED BY   |    |
| CHECKED BY    |    |
| NOTED BY      |    |
| ORIGINAL PLAN |    |
| TRACED BY     |    |
| DESIGNED BY   |    |
| CHECKED BY    |    |
| NOTED BY      |    |
| ORIGINAL PLAN |    |
| TRACED BY     |    |
| DESIGNED BY   |    |
| CHECKED BY    |    |
| NOTED BY      |    |



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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SPRINKLER SYSTEM**

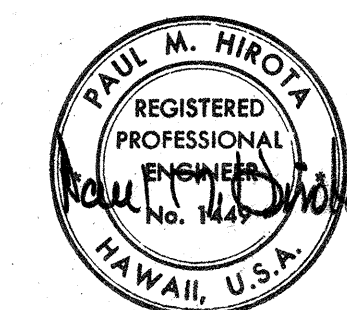
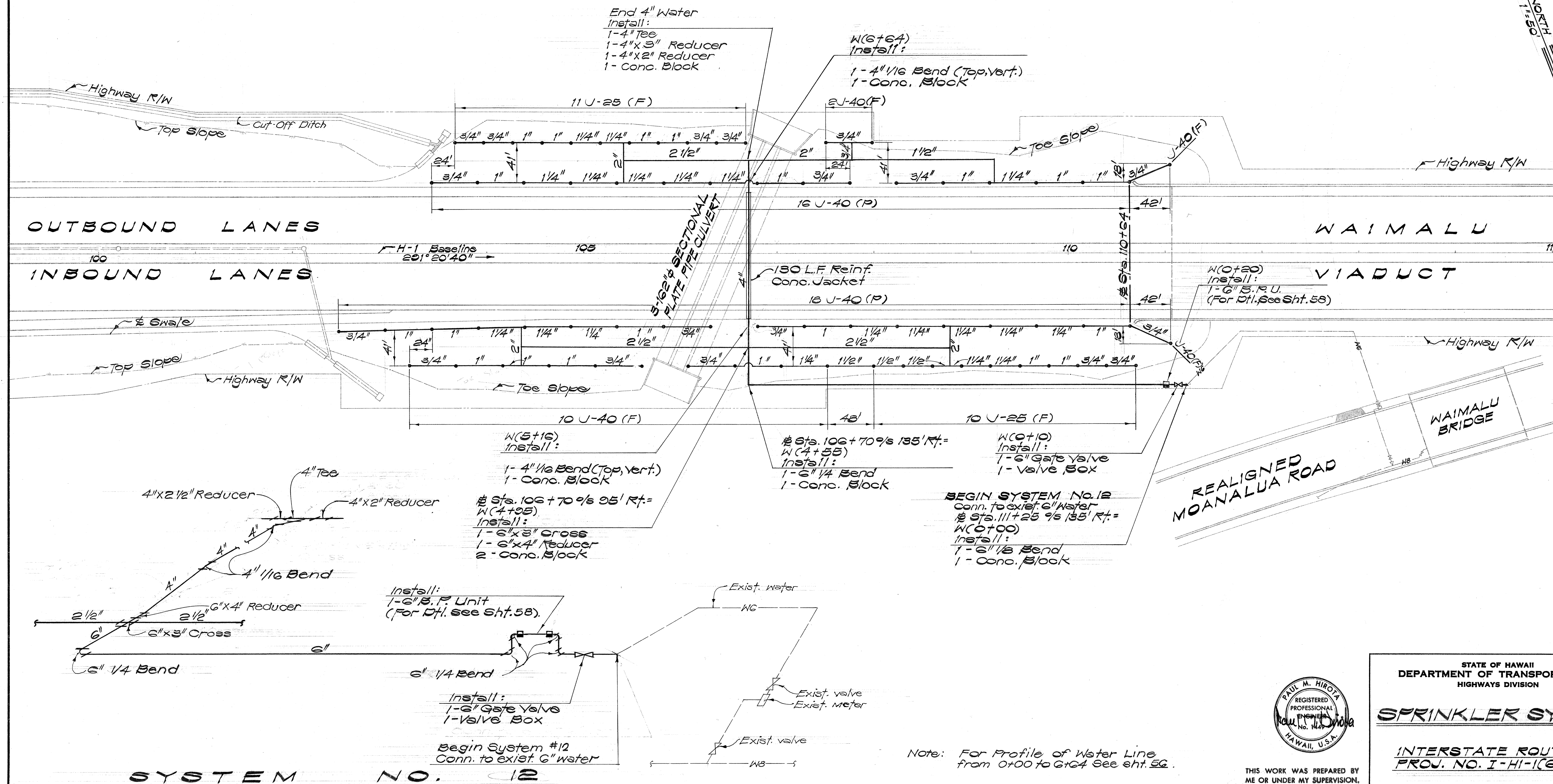
**INTERSTATE ROUTE H-1  
PROJ. NO. I-HI-1(67):10**

Scale: 1" = 50' Date: July 1969

SHEET No. 50 OF 57 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO.             | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(67):10<br>I-HI-1(66):10 | 1970        | 51        | 97           |

TRUE NORTH  
Scale: 1" = 50'



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STATE OF HAWAII  
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HIGHWAYS DIVISION

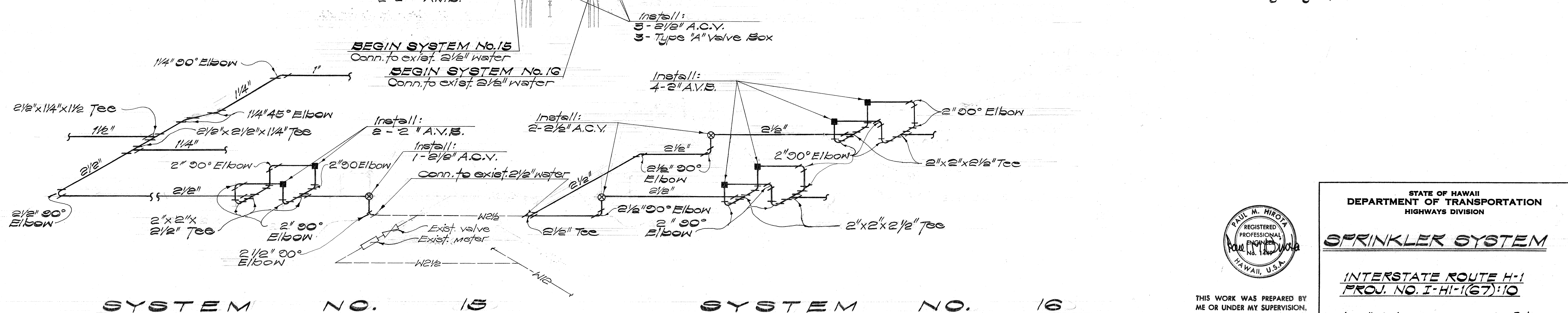
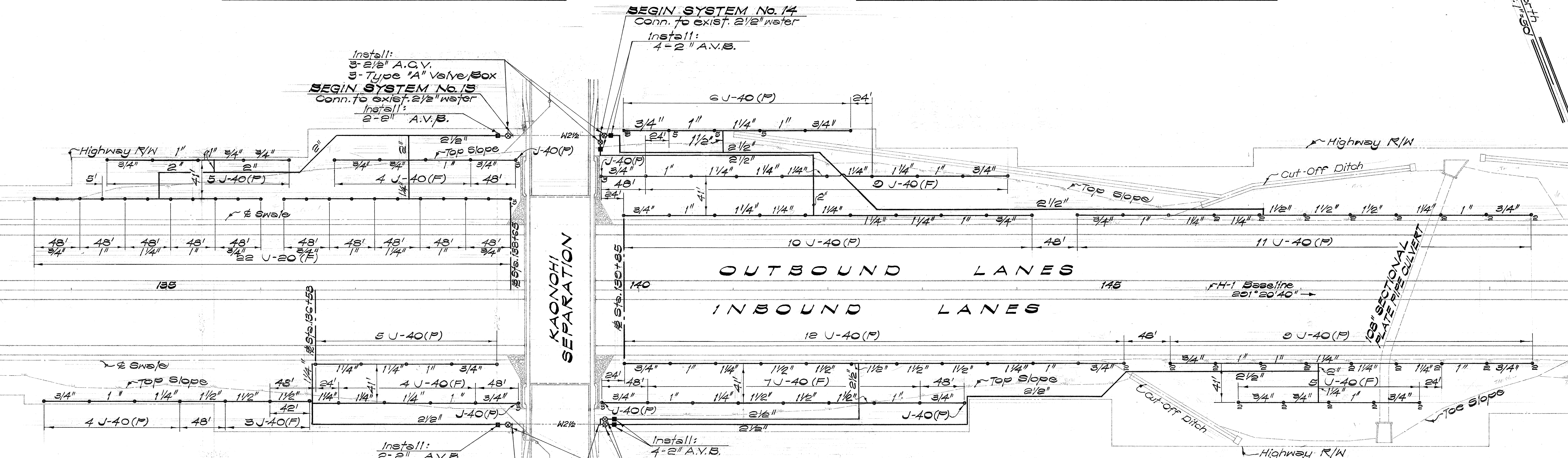
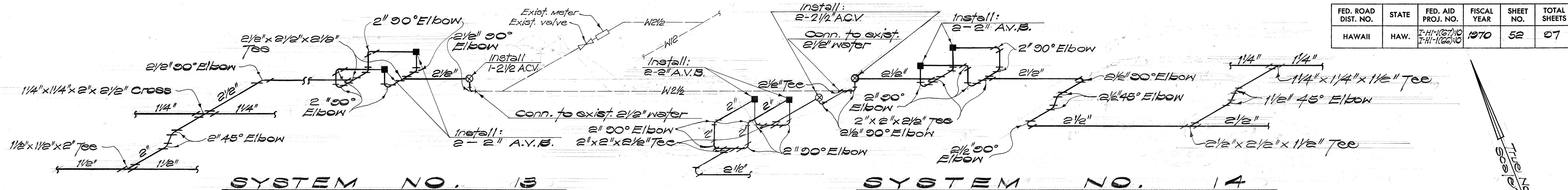
**SPRINKLER SYSTEM**

INTERSTATE ROUTE H-1  
PROJ. NO. I-HI-1(67):10

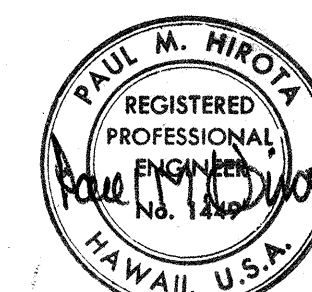
Scale: 1" = 50' Date: July 1969

SHEET No. 4 OF 11 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO.             | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(67):10<br>I-HI-1(66):10 | 1970        | 52        | 57           |



|             |       |
|-------------|-------|
| DATE        | ..... |
| DESIGNED BY | ..... |
| CHECKED BY  | ..... |
| NO.         | ..... |



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SPRINKLER SYSTEM**

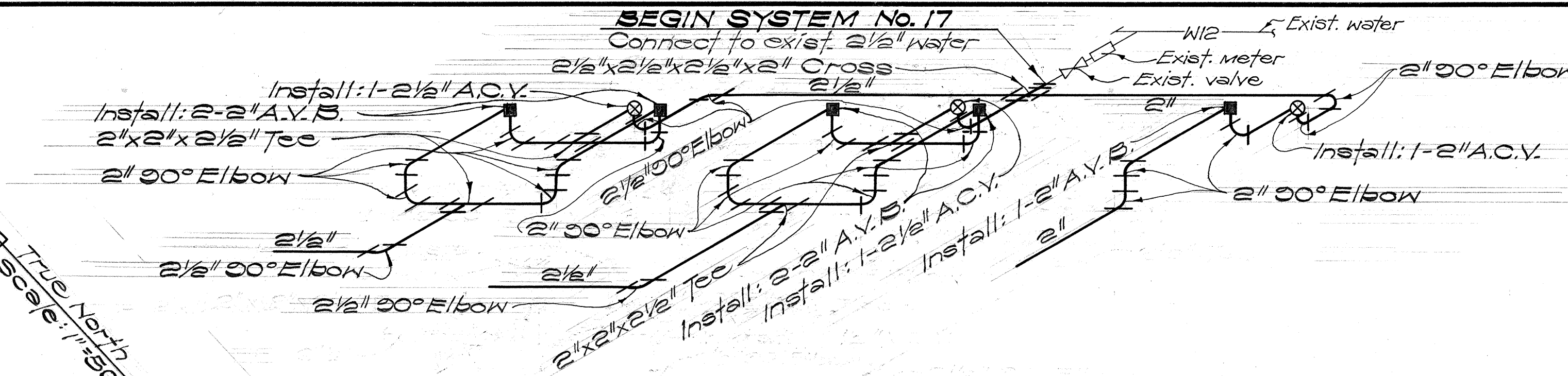
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PROJ. NO. I-HI-1(67):10

Scale: 1"=50' Date: July 1969

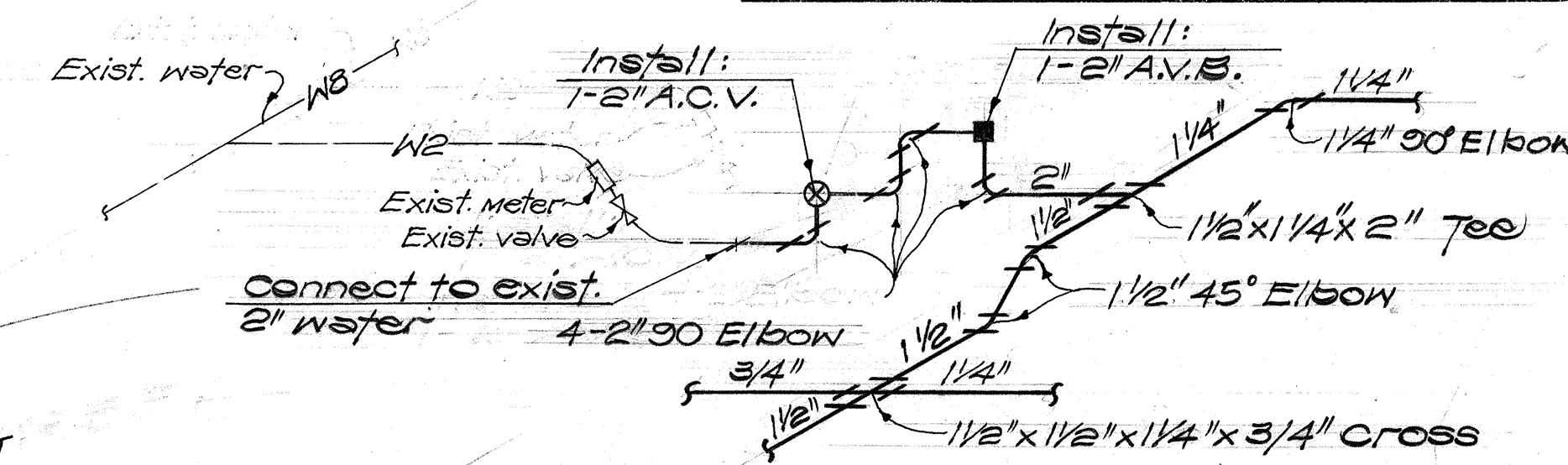
SHEET No. 5 OF 11 SHEETS

THIS WORK WAS PREPARED BY  
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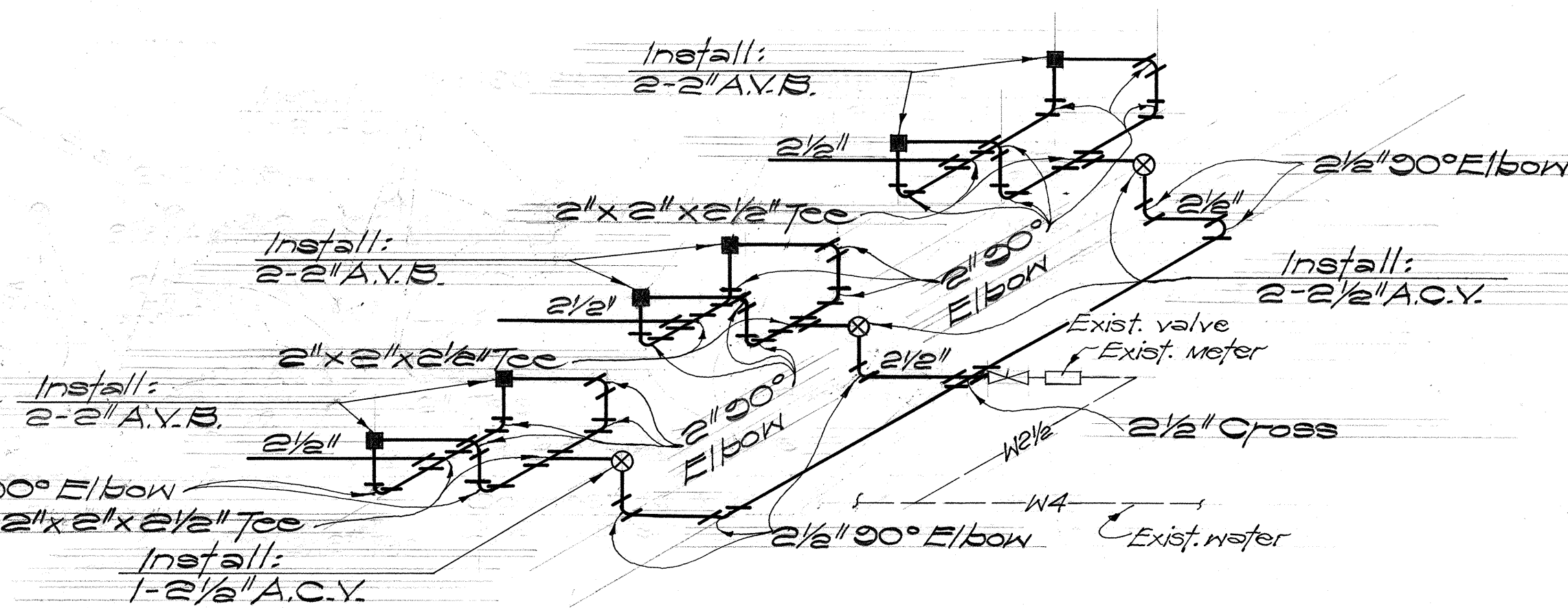
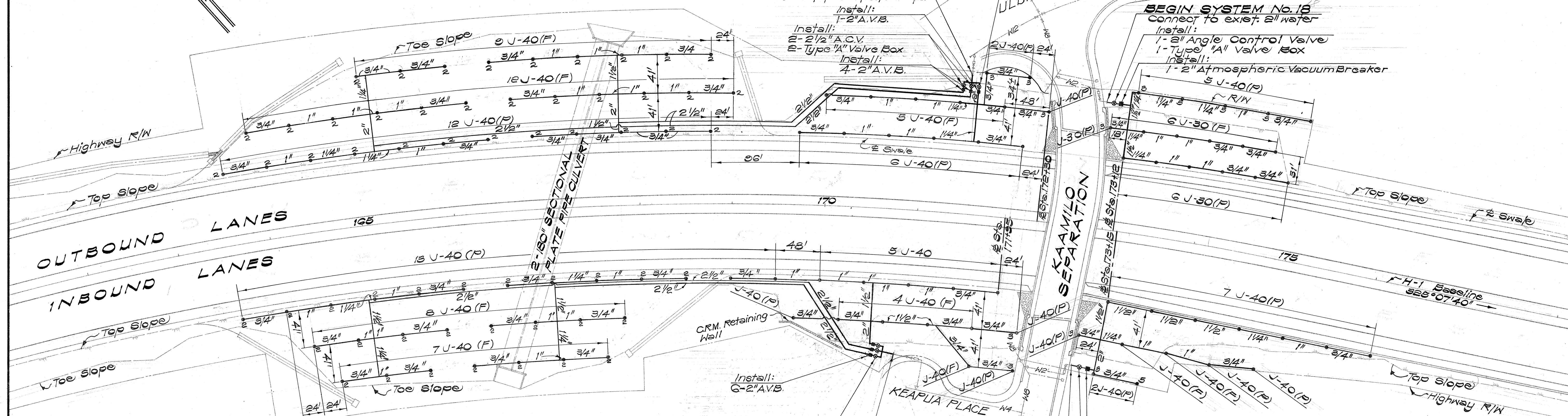
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO.             | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(67):10<br>I-HI-1(66):10 | 1970        | 53        | 97           |



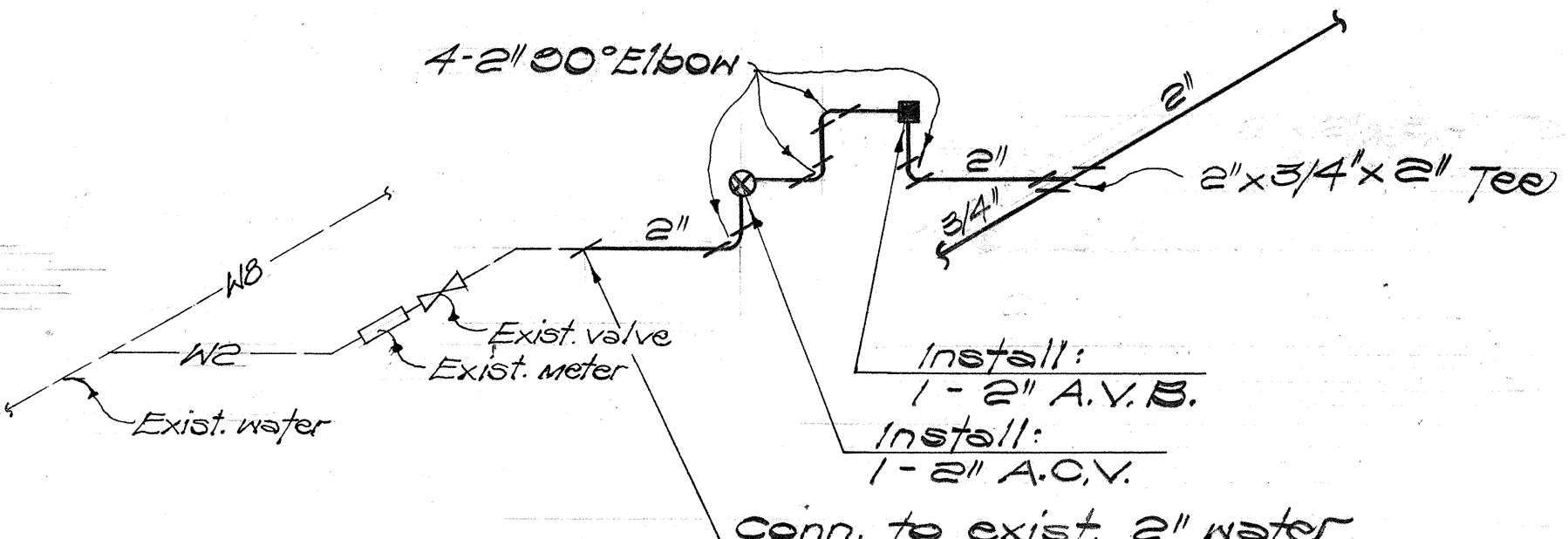
**SYSTEM NO. 17**



**SYSTEM NO. 18**

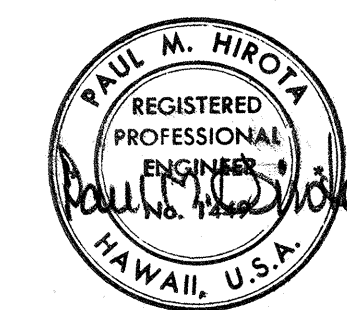


**SYSTEM NO. 19**



**SYSTEM NO. 20**

|               |       |
|---------------|-------|
| DATE          | _____ |
| DESIGNED BY   | _____ |
| CHECKED BY    | _____ |
| ORIGINAL PLAN | _____ |
| NOTE BOOK     | _____ |
| QUANTITIES BY | _____ |
| NO.           | _____ |



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SPRINKLER SYSTEM**

INTERSTATE ROUTE H-1  
PROJ. NO. I-HI-1(67):10

Scale: 1"=50' Date: July 1969

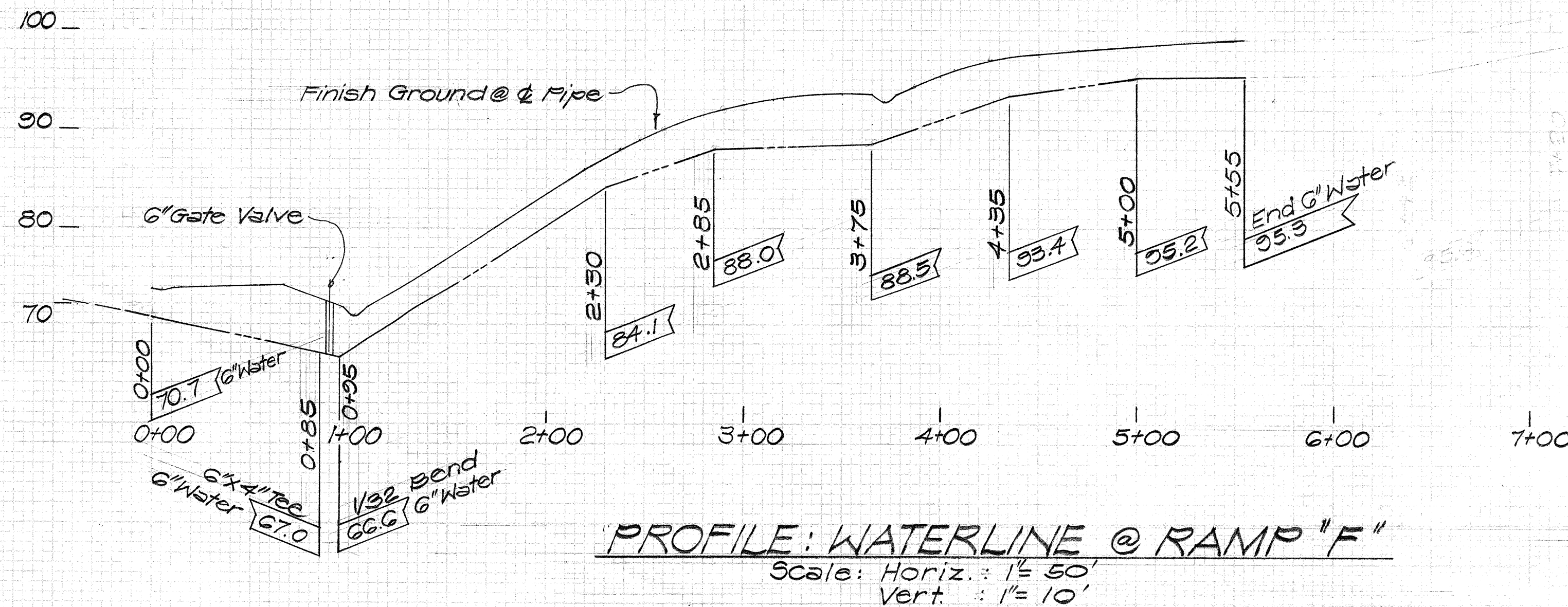
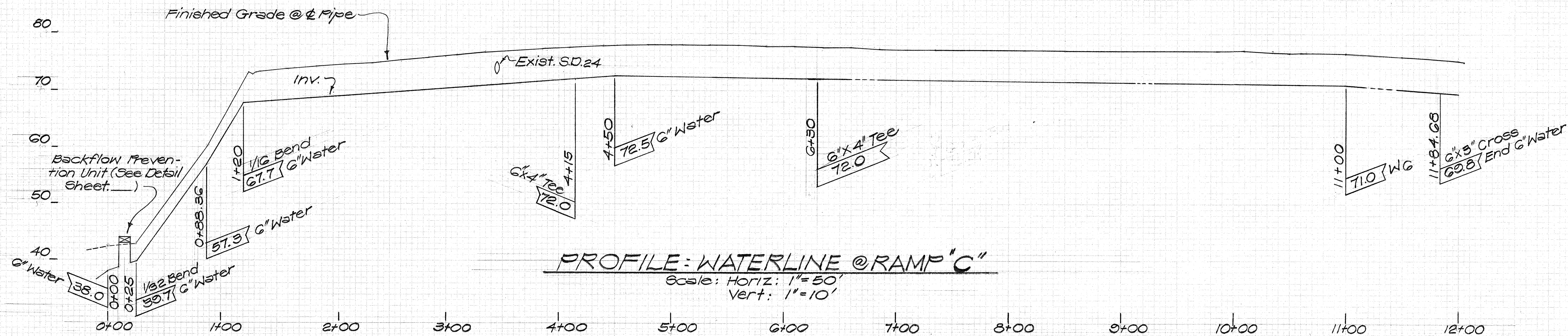
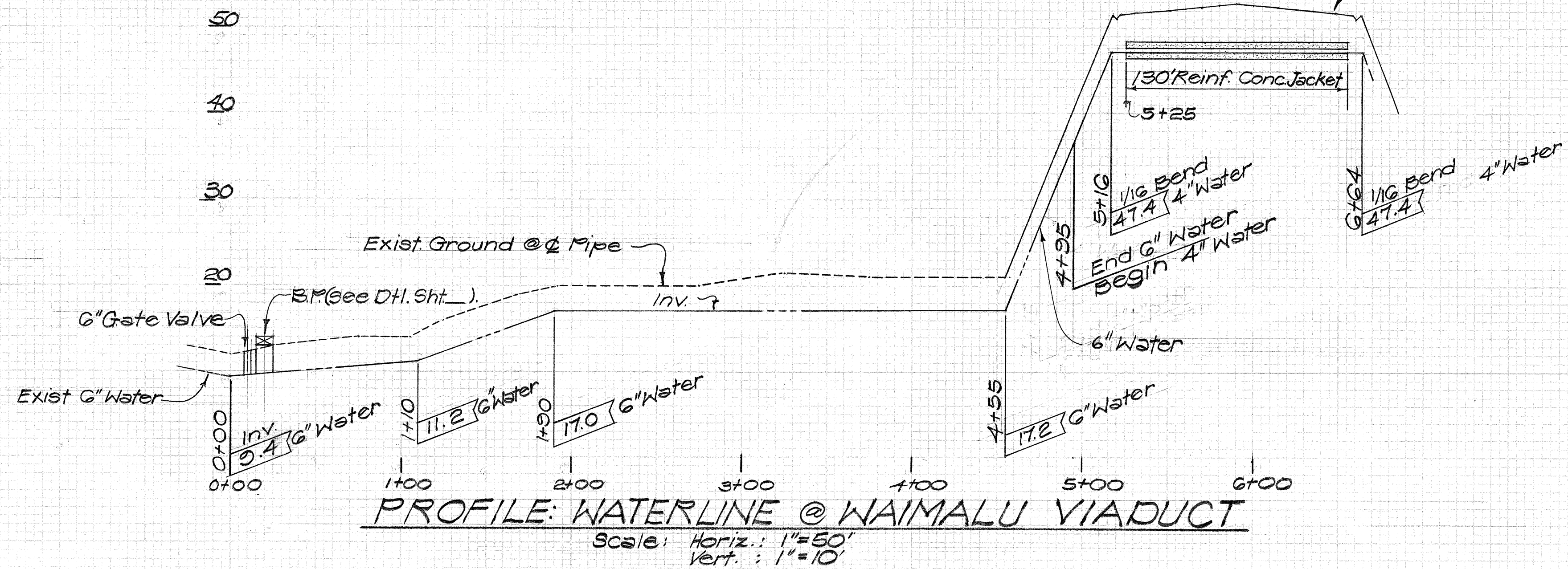
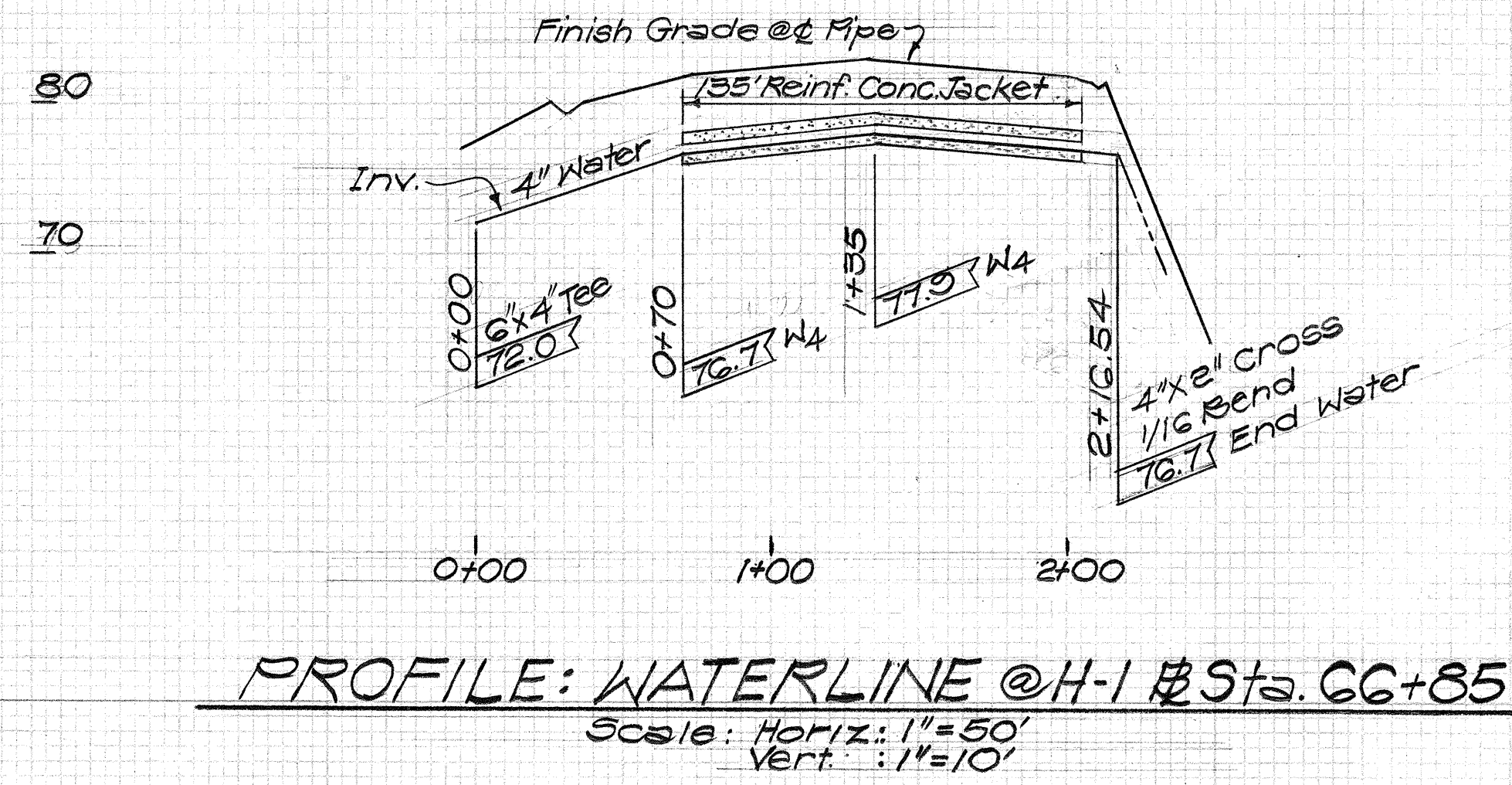
SHEET No. 6 OF 11 SHEETS

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| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO.             | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(67):10<br>I-HI-1(68):10 | 1970        | 56        | 57           |



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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

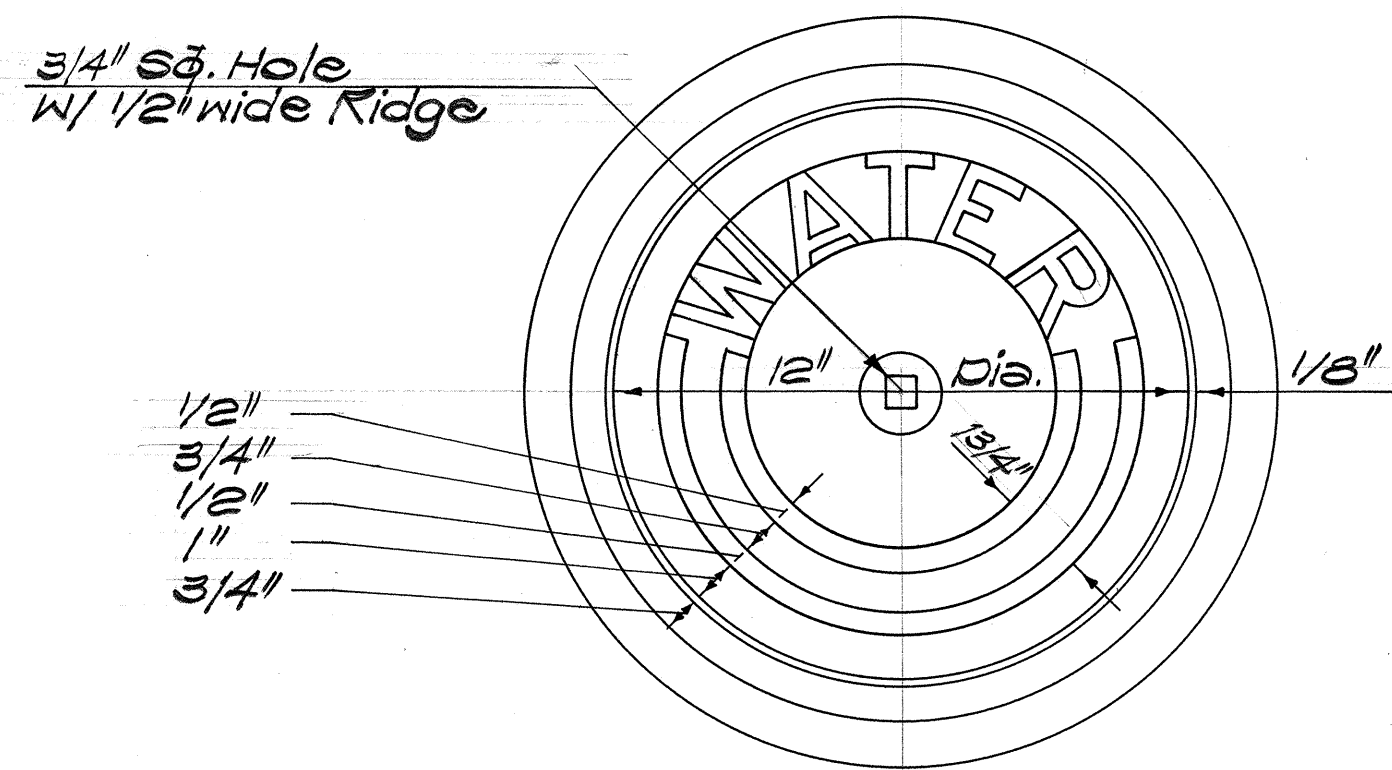
## SPRINKLER LINE PROFILES

INTERSTATE ROUTE H-1  
PROJ. NO. I-HI-1(67):10

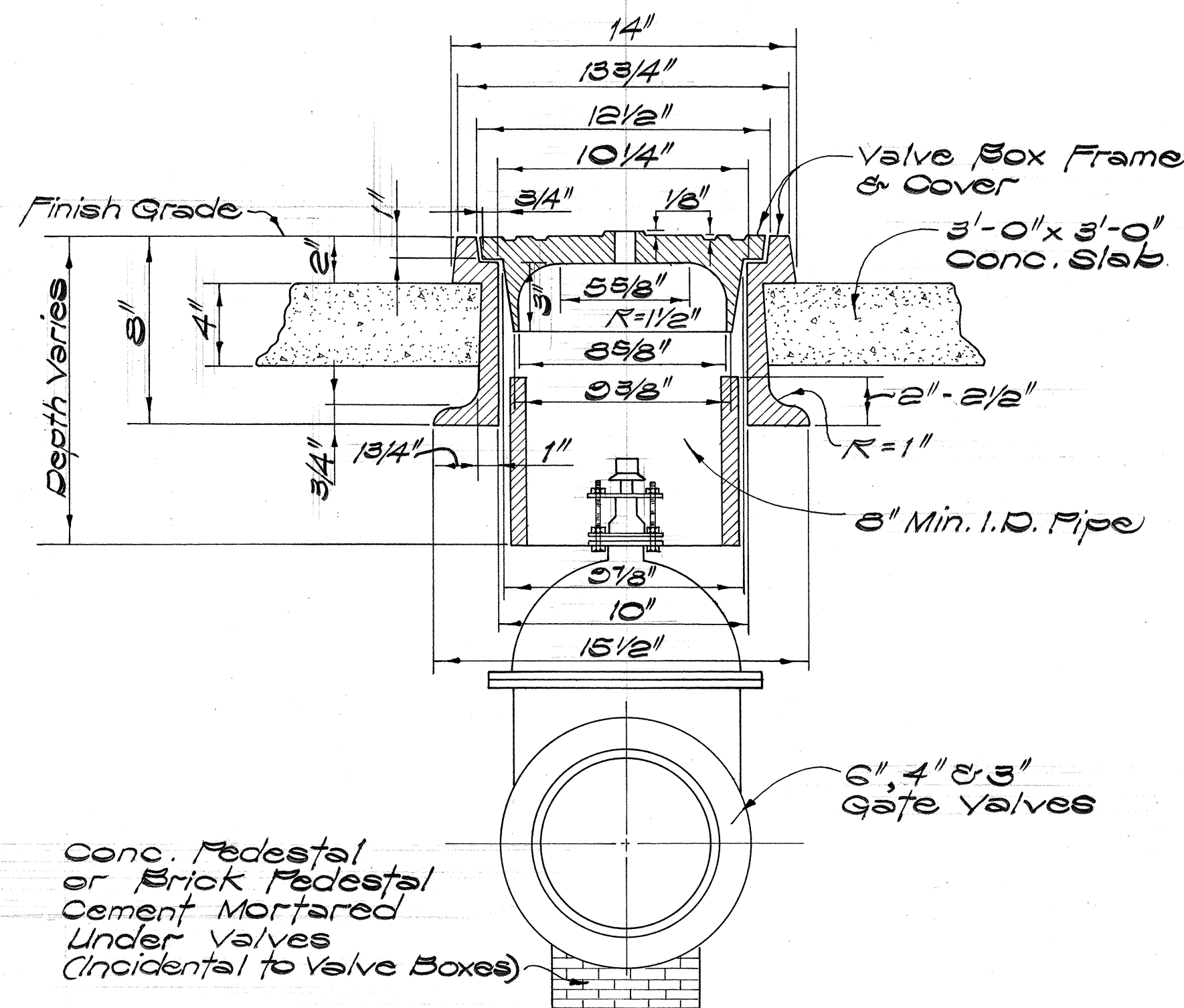
Scale As Shown Date: July, 1968

SHEET No. 5 OF 11 SHEETS

56



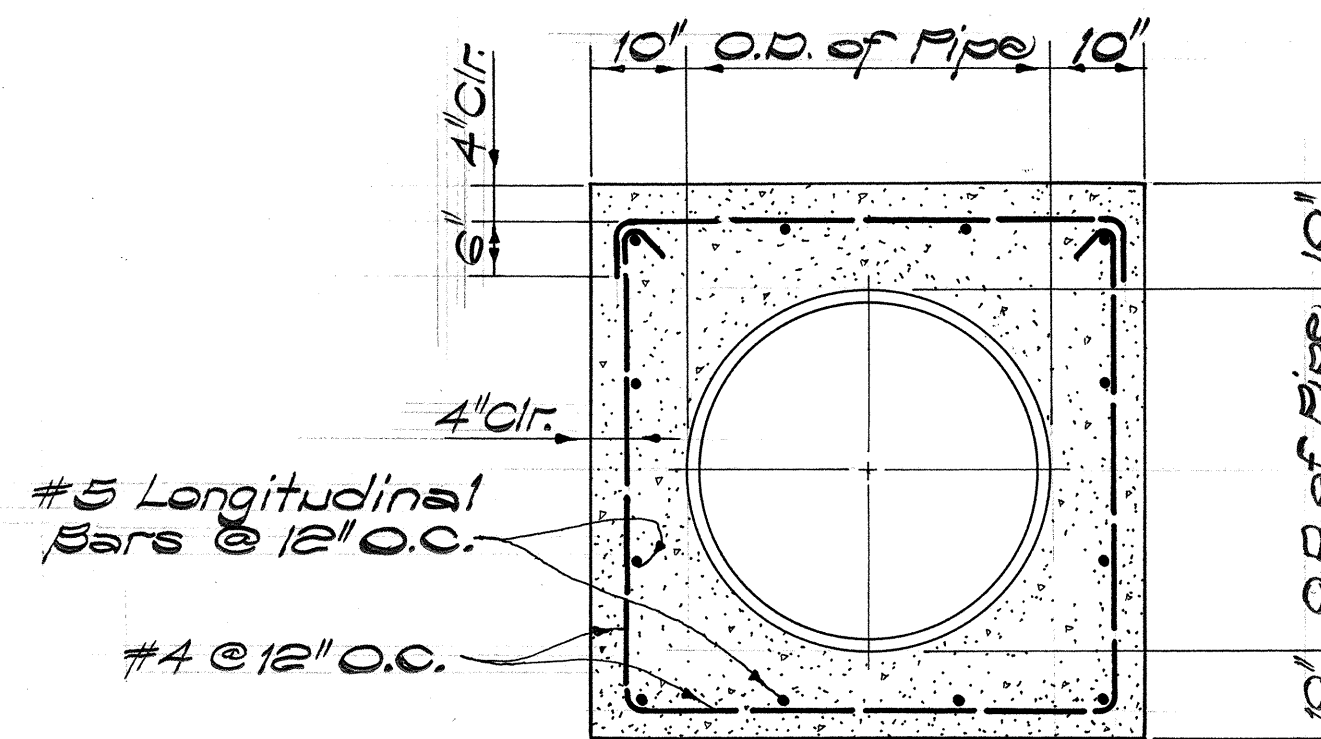
**CAST IRON FRAME & COVER**  
Not to Scale



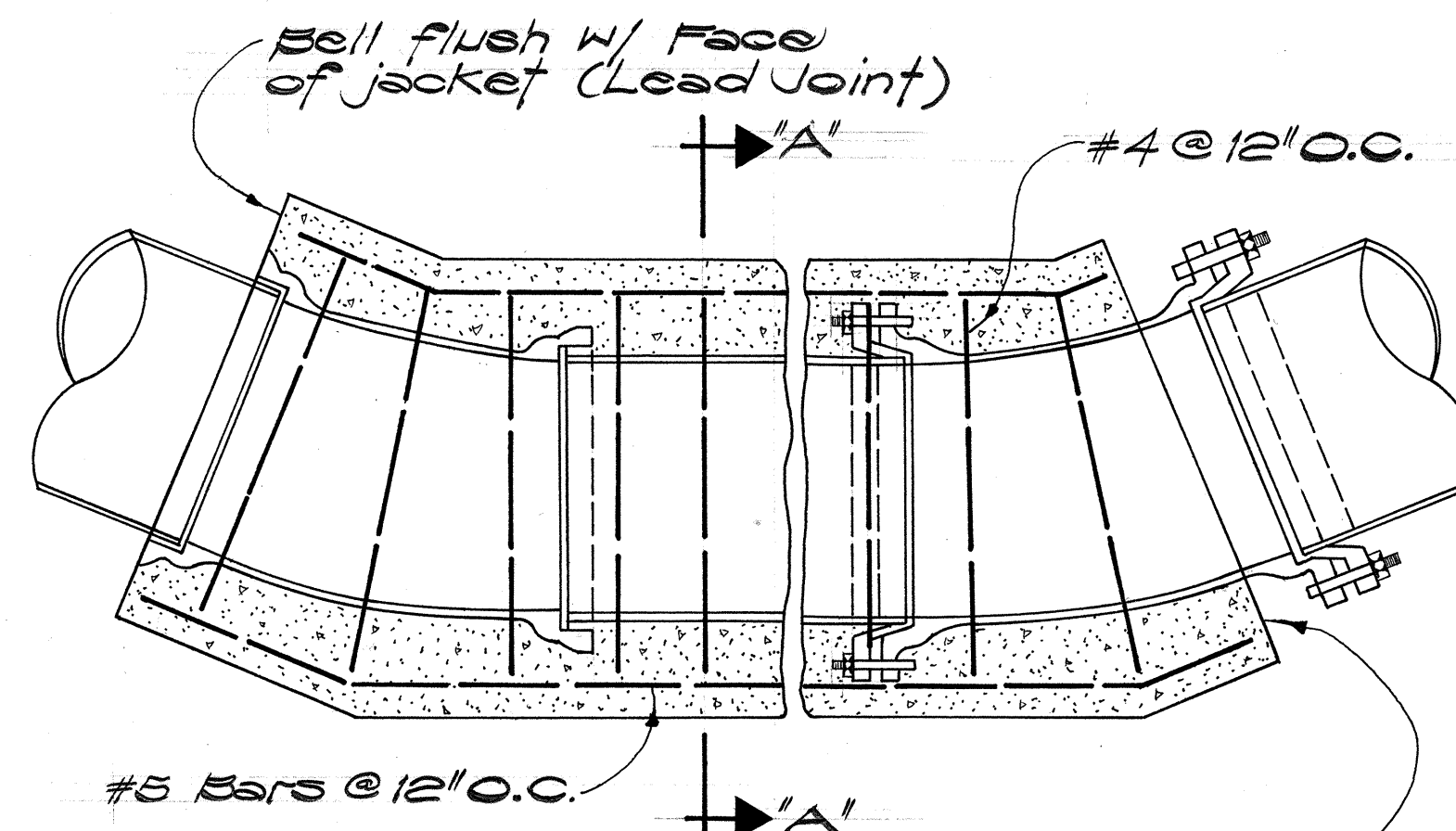
**INSTALLATION OF VALVE BOX FOR GATE VALVES**  
Not to Scale

**NOTE:**

1. All casting shall be made accurately to the dimensions shown. Seat and cover shall be ground where necessary to secure flat and true surfaces. The cover shall not rattle in any position. Minor changes in dimensions may be made to suit foundry conditions provided such changes are approved by the Engineer.
2. Offset word "WATER" on cover is 1 3/4" high, 1/8" deep.
3. The limit of blacksand backfill around the valve shall be the trench width x 4 ft. on each side of valve and fill 8" below finish grade. Payment for blacksand backfill shall be incidental to installing valve boxes.



**SECTION "A-A"**



**TYPICAL SECTION**

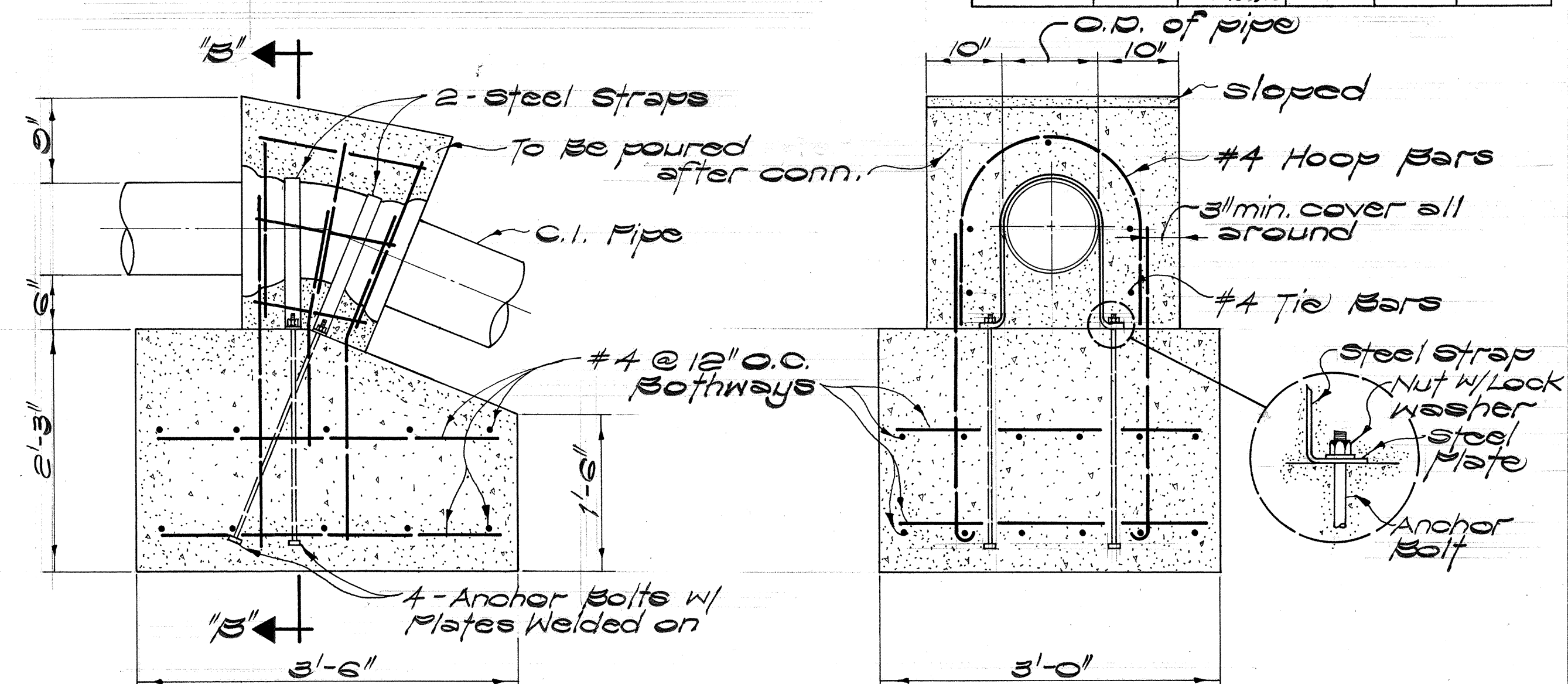
**NOTE:**

1. Jacket to be poured after completion of test. 2 1/2" depth of lead for lead joint pipe required at all embedded joints. Wherever construction joints are required 6" rubber or neoprene waterstops shall be installed. Waterstops shall be dumb bell type as approved by the Engineer.

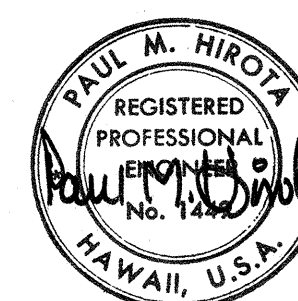
**REINFORCED CONCRETE JACKET DETAIL**  
Not to Scale

NOTE: Straps, anchor, bolts, nuts, washers, and plates shall be incidental to reinforcing steel.

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO.             | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(67):10<br>I-HI-1(66):10 | 1970        | 57        | 57           |



**ELEVATION SECTION "B-B"**  
**REINFORCED REACTION BLOCK FOR TOP VERTICAL BENDS**



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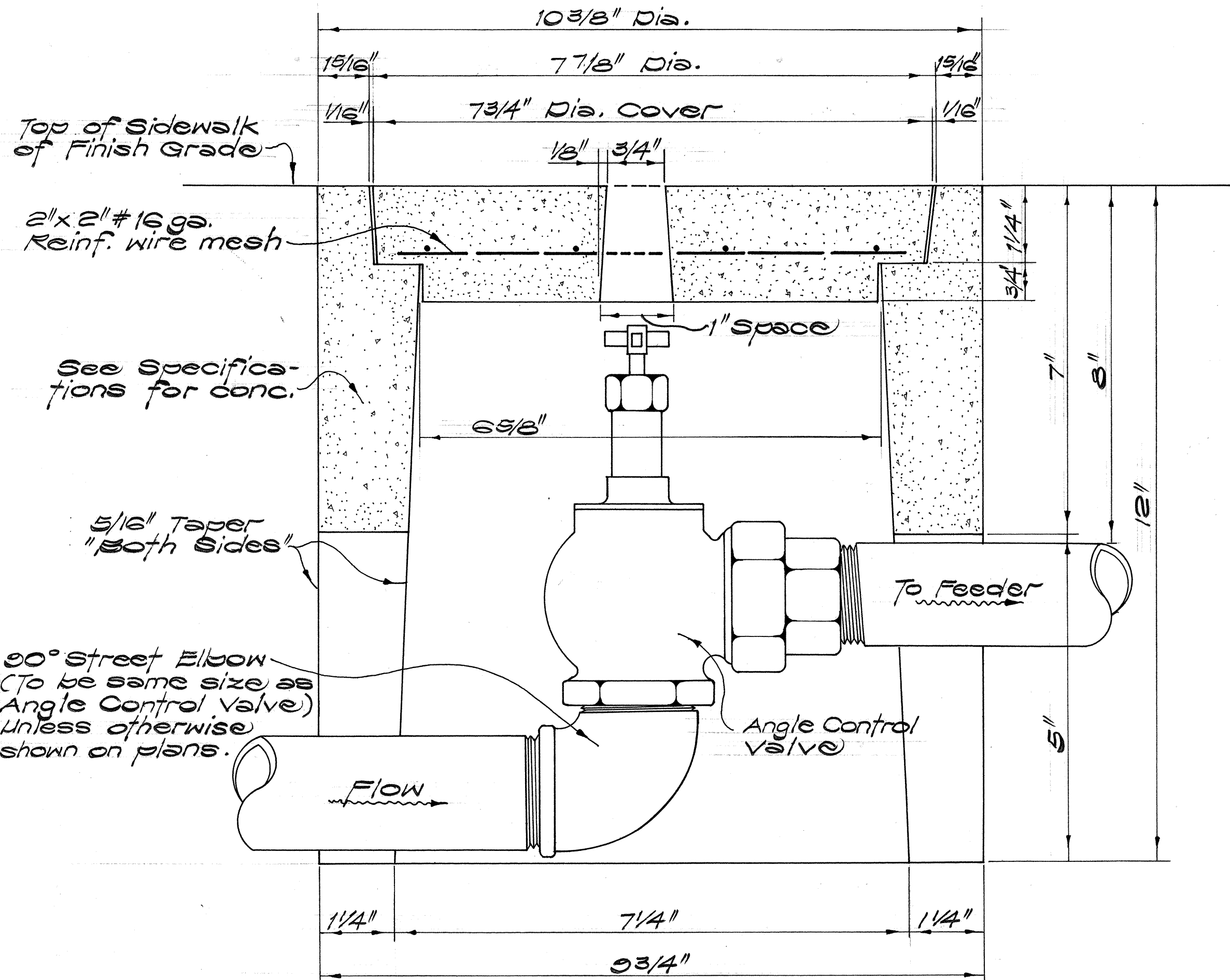
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**MISCELLANEOUS SPRINKLER DETAILS**

INTERSTATE ROUTE H-1  
PROJ. NO. I-HI-1(67):10

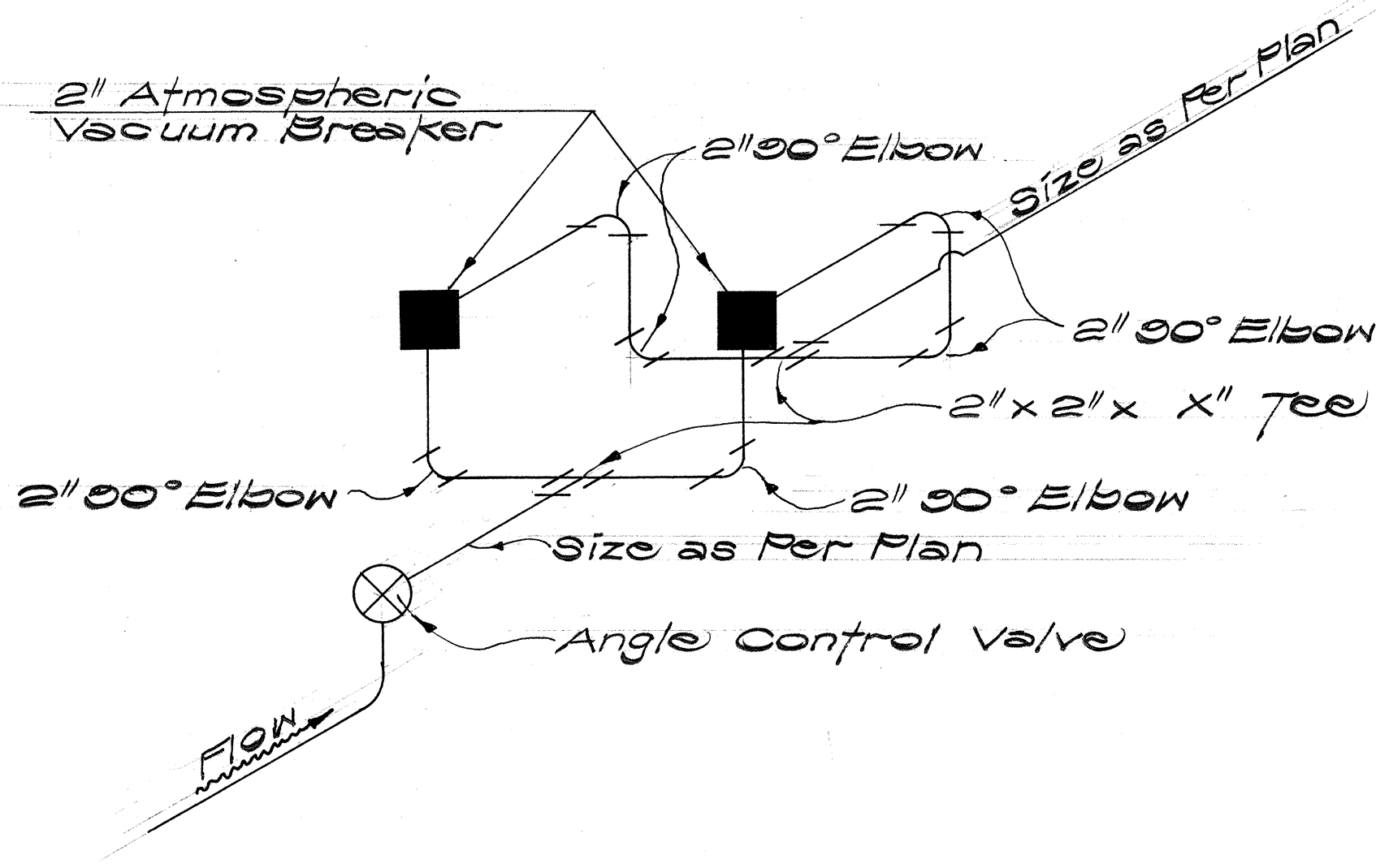
Scale: 1" = 50' Date: July 1969  
SHEET No. 10 OF 11 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO.             | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(67):10<br>I-HI-1(68):10 | 1970        | 58        | 97           |

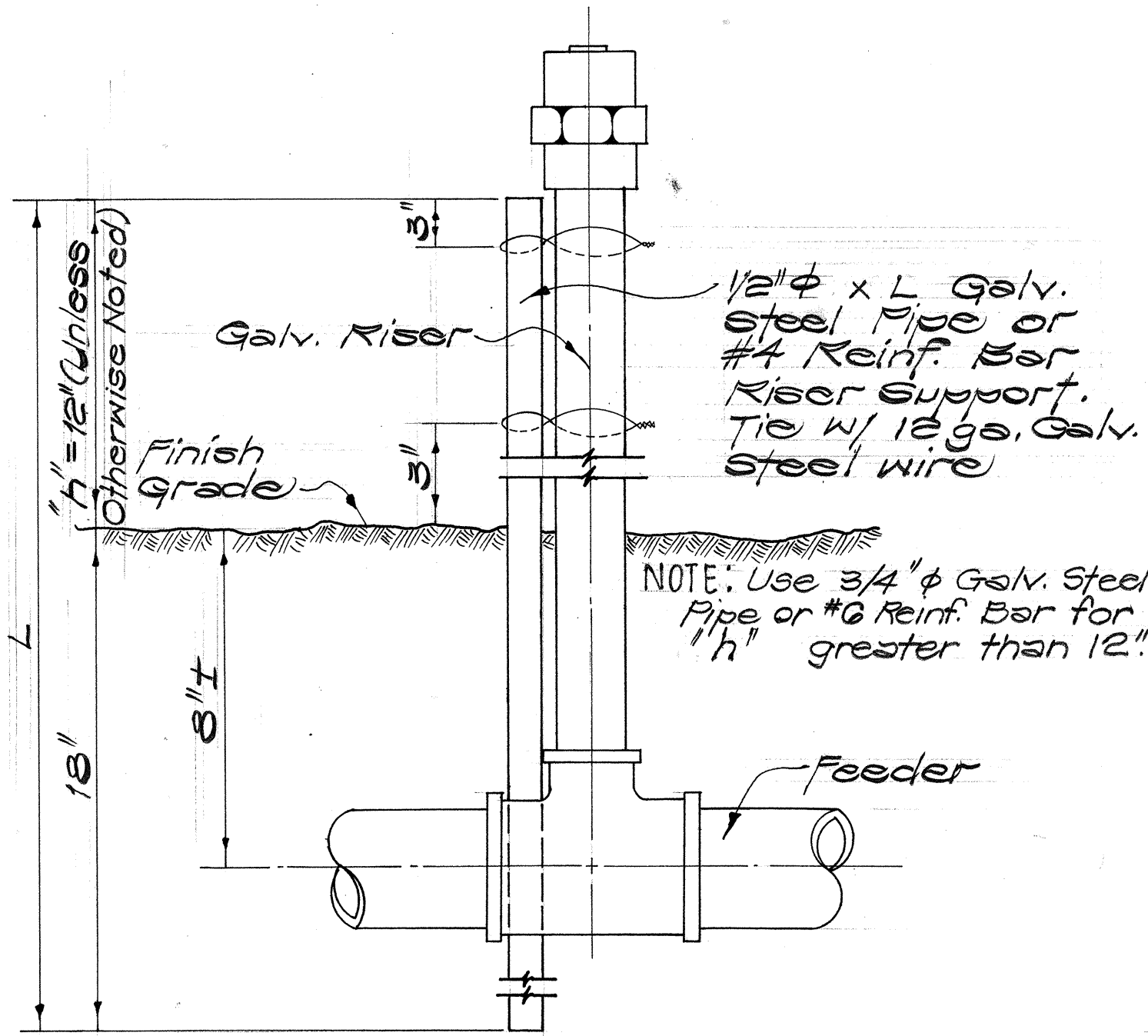


- NOTE:**
1. Location of side openings shall correspond to the location of the valve inlet and valve outlet.
  2. When the angle control valve is located in the sidewalk area, the valve shall be located at a sufficient depth so as to allow the cover to be replaced with the valve wide open.

**TYPE "A" VALVE BOX**  
Not to Scale

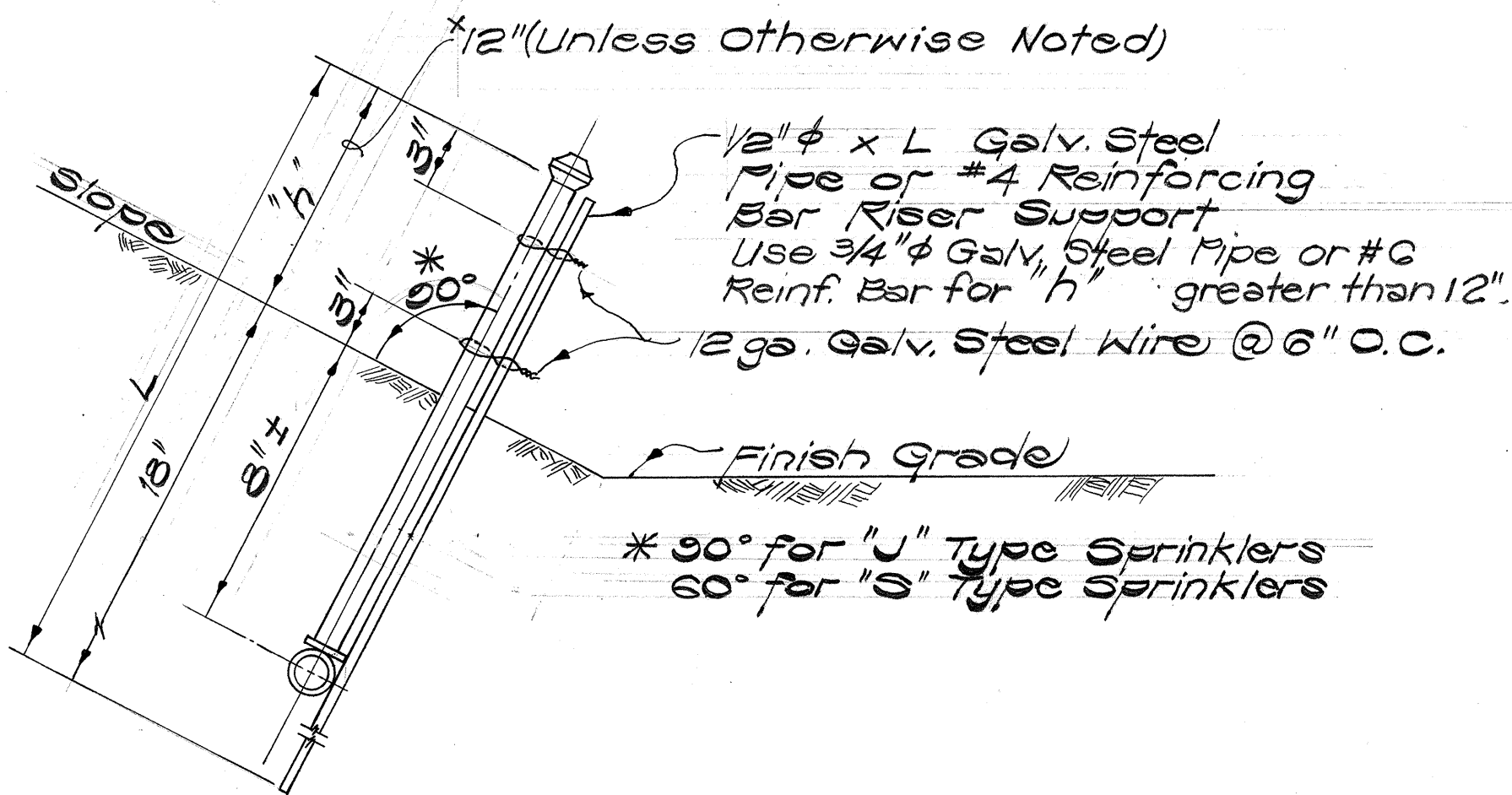


**DOUBLE - 2" VACUUM BREAKER (ATMOSPHERIC TYPE)**  
Not to Scale

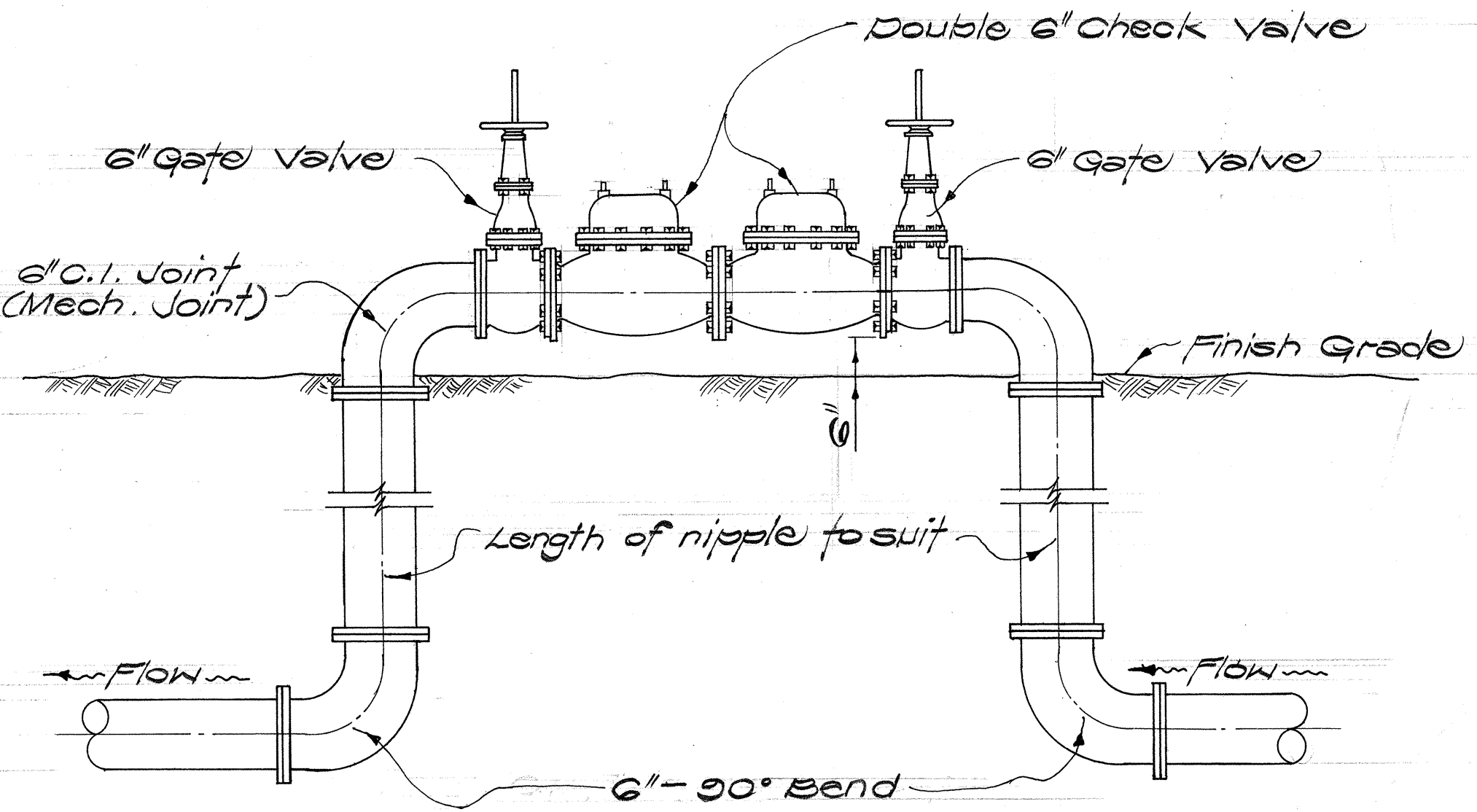


- NOTE:**
1. Riser less than 20" will not require support.
  2. Riser support shall be considered incidental to the various items of the sprinkler system.

**DETAIL OF SPRINKLER HEAD ON RISER**  
Not to Scale

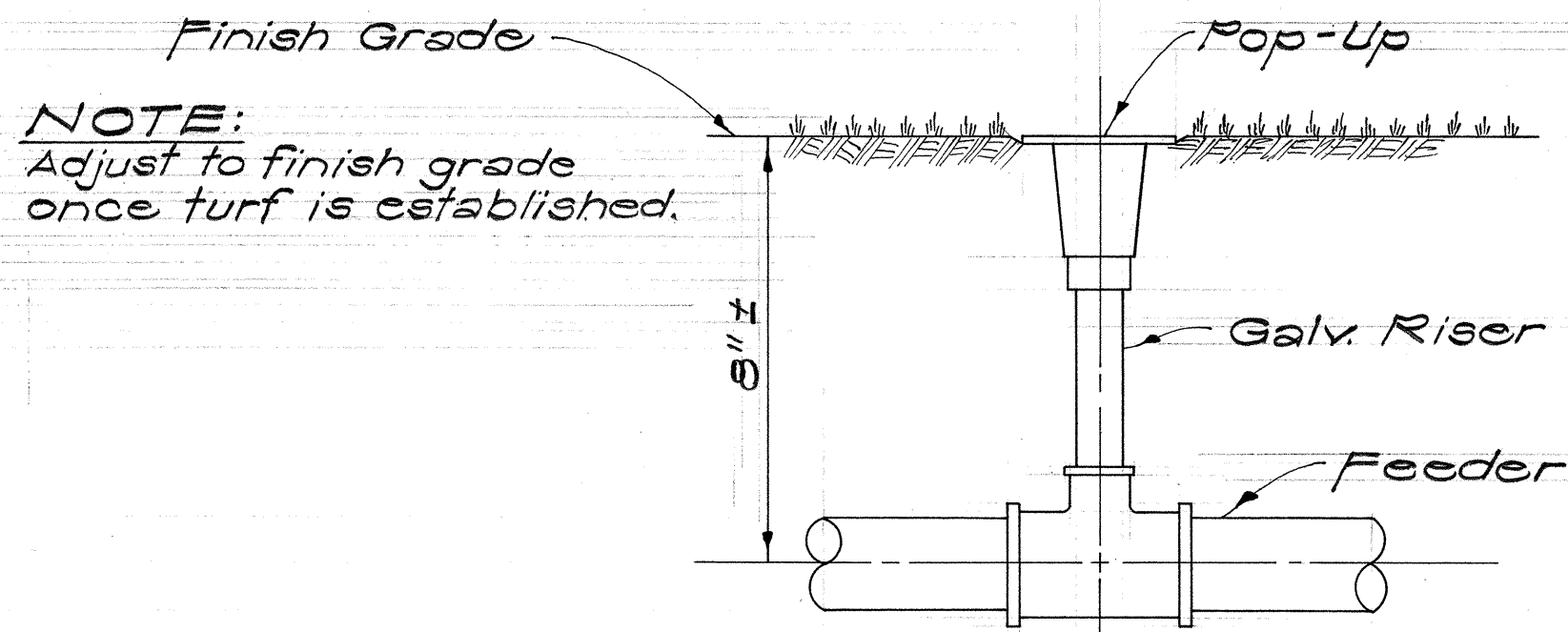


**INSTALLATION OF SPRINKLER ON SLOPE**  
Not to Scale



**BACKFLOW PREVENTION UNIT DETAIL**  
Not to Scale

- NOTE:** Backflow Prevention Unit Shown is for the purpose of illustration only. Details of actual unit selected may vary from that shown.



**DETAIL OF POP-UP INSTALLATION**  
Not to Scale



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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**MISCELLANEOUS  
SPRINKLER DETAILS**

INTERSTATE ROUTE H-1  
PROJ. NO. I-HI-1(67):10

Scale: As Shown      Date: July 1969  
SHEET No. 11 OF 11 SHEETS

|               |       |
|---------------|-------|
| ORIGINAL PLAN | DATE  |
| DRAWN BY      | ..... |
| TRACED BY     | ..... |
| CHECKED BY    | ..... |
| NO.           | ..... |