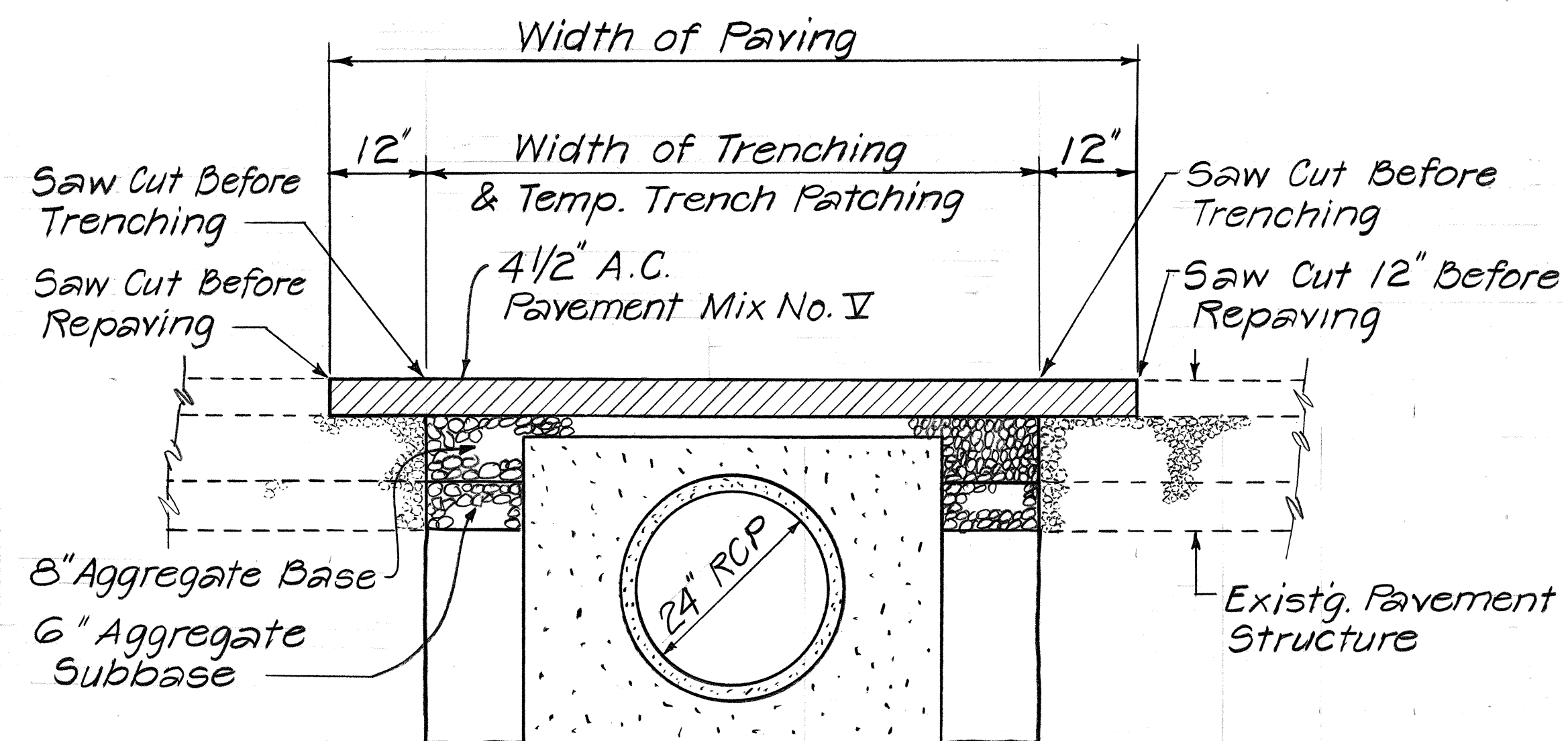


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	M-3400(3)	1989	7	9

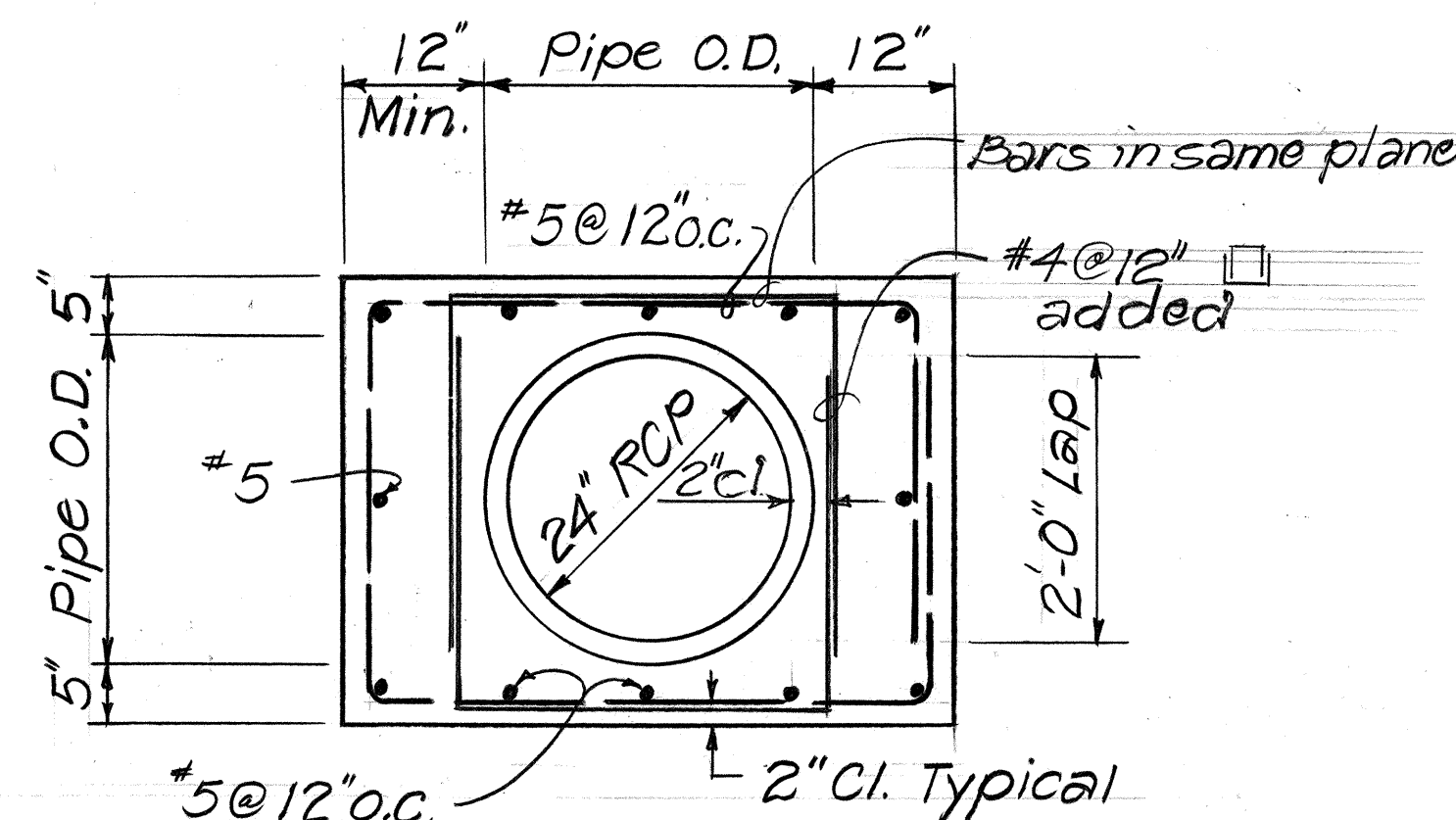


### TYPICAL PAVEMENT RESTORATION

N.T.S.

#### NOTE:

The Contractor shall provide a temporary cold mix patch if restoration work cannot be made within 24 Hours after backfill has been completed.



### CONCRETE JACKET DETAIL

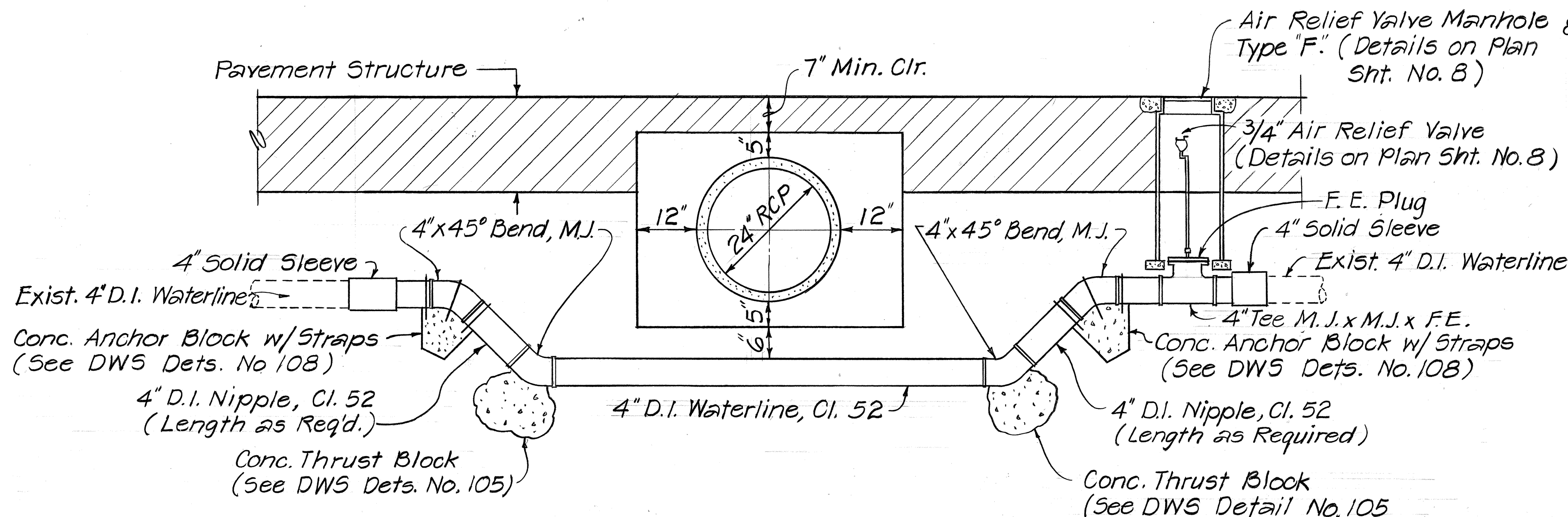
Scale: 3/4"=1'-0"

#### 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 Highways Division, Department of Transportation and the County of Maui, Department of Water Supply's "Water System Standards", Volume 1, dated 1985, and the "Approved Material List and Standard Details for Water System Construction", Volume 2, dated 1985 and all subsequent amendments and additions.
2. The existence and location of underground utilities and structures as shown on the plans are from the latest available data but the accuracy is not guaranteed. The encountering of other obstacles during the course of the work is possible. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.
3. Relocation of the 4-inch waterline shall be contracted on a lump sum basis for all equipment, tools, labor, materials and other incidentals necessary to complete the work. Payment will be made under Item No. 624.9000 - 4-Inch Waterline Relocation.
4. The Contractor shall notify the Dept. of Water Supply in writing one week prior to commencing work on the water system.
5. Minimum cover over water main, 6" or larger equals 3'-0". Minimum cover, for 4" or less = 2'-6"
6. Concrete for reaction blocks shall be Class "B"
7. All materials used and method of construction of water system facilities shall be in accordance with Department of Water Supply Standards. Contractor to obtain latest D.W.S. Standard Details before commencing construction.

8. The exact depth and location of existing waterlines, service laterals and other facilities are not known. It shall be the Contractor's responsibility to locate same, prior to trenching of new waterline. The cost of lowering, relocating, or adjusting existing waterline service laterals (unless otherwise noted) and other utilities shall be considered incidental to the cost of the new waterline and will not be paid for separately. Facilities damaged by the Contractor's operation shall be repaired immediately by the Contractor at his expense.

(Continued on next sheet)



### DETAIL - 4" WATERLINE RELOCATION

N.T.S.

DATE	_____
DESIGNED BY	_____
TRACED BY	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____
NO.	_____

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
<b>WATER NOTES &amp; MISCELLANEOUS DETAILS</b>
<b>KAHULUI BEACH ROAD</b> Drainage Improvements at Waiehu Beach Road F.A. Proj. No. M-3400(3) Scale: As Shown Date: Sept. 1988
SHEET No. 1 OF 2 SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	M-3400(3)	1980	8	9

NOTE:

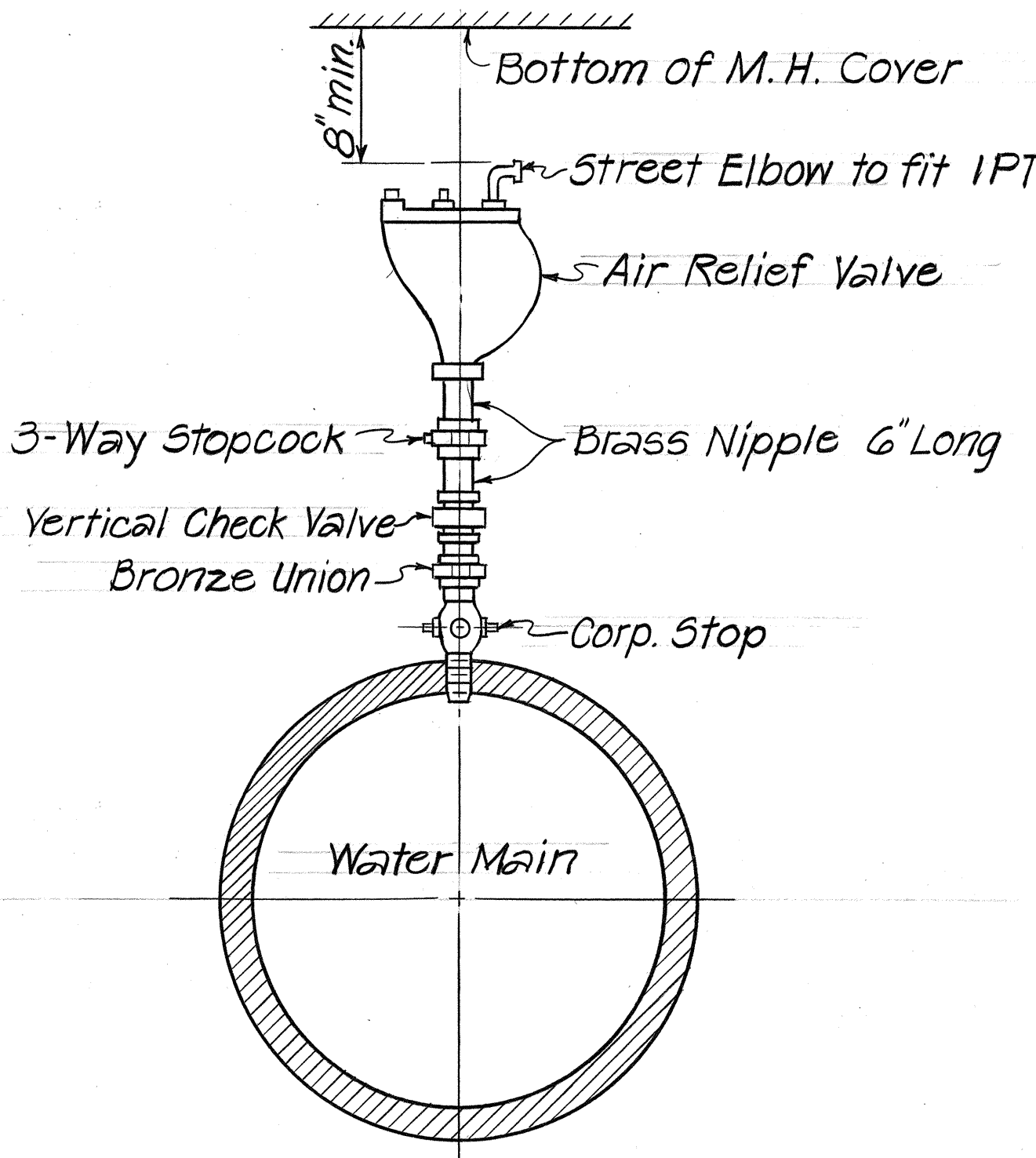
- For 2' air relief valve, size of corp. stop shall be 1 1/2"x2". Union, vertical check valve and nipple shall be 2". Vertical check valve required when air relief valve is immersed in water. Provide Type "F" Manhole (Plate 25R for buried installation)

WATER SUPPLY NOTES(CONTINUED)

9. CONNECTION TO DEPARTMENT OF WATER SUPPLY SYSTEM.
- A. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION, DEPTH, TYPE AND CONDITION OF THE EXISTING LINE BEFORE ORDERING MATERIALS FOR THE HOOKUP. HOWEVER, HE SHALL CHECK WITH THE DEPARTMENT OF WATER SUPPLY BEFORE EXCAVATING FOR VERIFICATION PURPOSES. HE SHALL BE RESPONSIBLE FOR FURNISHING THE CORRECT FITTINGS, ADAPTORS, NIPPLES AND OTHER MATERIALS, AS REQUIRED, FOR THE HOOKUP.
- B. WHENEVER FEASIBLE, MECHANICAL JOINT FITTINGS SHALL BE USED.
- C. AUTHORIZED DEPARTMENT OF WATER SUPPLY PERSONNEL WILL MAKE THE FINAL CONNECTION TO THE EXISTING LINE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED BY THE DEPARTMENT OF WATER SUPPLY FOR SAID WORK, INCLUDING THE COST OF PRESSURE TESTING.
- D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MATERIAL; EQUIPMENT AND LABOR FOR CHLORINATION, TRENCH EXCAVATION, BACKFILLING, PAVING, AND OTHER WORK NECESSARY TO COMPLETE THE HOOKUP, AS DIRECTED BY AND TO THE SATISFACTION OF THE DEPARTMENT OF WATER SUPPLY.
10. CONTRACTOR WILL SUBMIT AS-BUILT PLANS VIA CONSULTANT PRIOR TO ACCEPTANCE OF WATER SYSTEM.
11. ALL BURIED METALS TO BE WRAPPED WITH POLY-WRAP.
12. ALL NUTS AND BOLTS TO BE COATED WITH PAINT (ASPHALTUM).
13. THE CONTRACTOR SHALL SUBMIT MATERIALS LIST TO DEPARTMENT OF WATER SUPPLY FOR APPROVAL PRIOR TO CONSTRUCTION.
14. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF WATER SUPPLY BASEYARD PRIOR TO EXCAVATING FOR THE CULVERT INSTALLATION AND EXPOSING THE EXISTING 4-INCH WATERLINE, FOR THE PURPOSES OF VERIFYING THE CONDITION OF THE LINE. IF THE LINE IS DETERMINED TO BE IN-ACTIVE, THE CONTRACTOR SHALL CUT AND PLUG THE LINE IN LIEU OF RELOCATION AS DIRECTED BY THE DEPARTMENT OF WATER SUPPLY.

CHLORINATION OF WATER SYSTEM:

1. LIQUID CHLORINE OR CALCIUM HYPOCHLORITE, CONFORMING TO AWWA STANDARDS SHALL BE USED FOR THE CHLORINATION OF THE PROJECT.
2. PRIOR TO CHLORINATION, THE PROJECT SHALL BE THOROUGHLY FLUSHED.
3. THE INTERIOR SURFACES OF THE PROJECT SHALL BE EXPOSED TO THE CHLORINATING SOLUTION FOR A MINIMUM OF 24 HOURS AND THE CHLORINE RESIDUAL SHALL NOT BE LESS THAN 10 PPM AFTER SUCH TIME.
4. SHOULD CALCIUM HYPOCHLORITE BE USED, NO SOLID AND/OR UNDISSOLVED PORTION OF THE COMPOUND SHALL BE INTRODUCED INTO ANY SECTION OF THE PROJECT TO BE CHLORINATED.
5. AT THE END OF THE 24 HOUR PERIOD, REPRESENTATIVE SAMPLES SHALL BE TAKEN AND ANALYZED TO ASSURE A CHLORINE RESIDUAL OF AT LEAST 10 PPM.
6. SHOULD THE RESULTS INDICATE ADEQUATE CHLORINATION, THE PROJECT SHALL BE THOROUGHLY FLUSHED AND FILLED WITH WATER FROM THE EXISTING SYSTEM AND AGAIN TESTED FOR CHLORINE RESIDUAL. THE FLUSHING SHALL BE CONSIDERED ADEQUATE IF THE TEST RESULTS INDICATE THAT THE WATER IN THE PROJECT HAS A COMPARABLE CHLORINE RESIDUAL AS THE WATER IN THE EXISTING SYSTEM.
7. ON THE FIRST AND THIRD DAYS FOLLOWING THE ACCEPTABLE FLUSHING OF THE PROJECT, SAMPLES FROM REPRESENTATIVE POINTS IN THE PROJECT SHALL BE TAKEN AND SUBJECTED TO MICROBIOLOGICAL TESTS. POSITIVE RESULTS WILL NOT BE ACCEPTABLE AND THE PROCESS WILL BE REPEATED.
8. ANALYZES FOR RESIDUAL CHLORINE SHALL BE MADE IN ACCORDANCE WITH "STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER", AMERICAN PUBLIC ASSOCIATION, 13TH EDITION, PP. 117-123.
9. MICROBIOLOGICAL TESTS SHALL BE MADE IN ACCORDANCE WITH "STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER", AMERICAN PUBLIC HEALTH ASSOCIATION, 13TH EDITION, PP. 662-688.
10. ALL MEASUREMENTS FOR CHLORINE RESIDUAL AND MICROBIOLOGICAL TESTS SHALL BE PERFORMED BY A LABORATORY APPROVED BY THE DIRECTOR.
11. THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ALL OF THE FOREGOING.

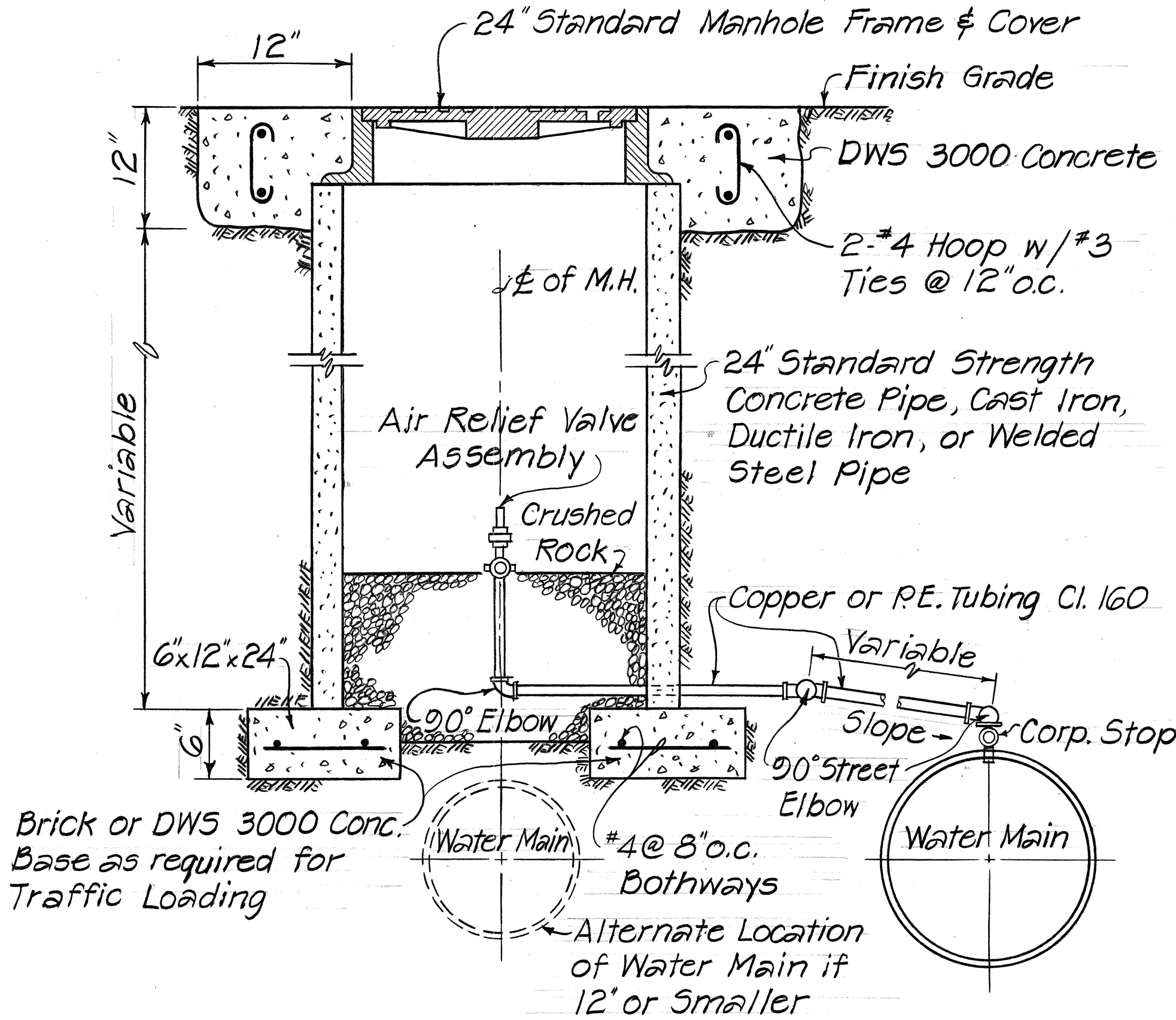


STANDARD CONNECTION FOR  
AIR RELIEF VALVE  
Not to Scale

MAUI	AIR RELIEF VALVE CONNECTION IN MANHOLE	STANDARD DETAILS	23 R
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NOTE:

- Position Air Relief Valve  
Assembly 4" Front or  
Back from Inside Wall of M.H.



SECTION THROUGH MANHOLE  
Not to Scale

MAUI	AIR RELIEF VALVE MANHOLE TYPE "F"	STANDARD DETAILS	25 R
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STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
<u>WATER NOTES &amp; MISCELLANEOUS DETAILS</u>	
<u>KAHULUI BEACH ROAD</u> <u>Drainage Improvements at Waiehu</u> <u>Beach Road</u> <u>F.A. Proj. No. M-3400(3)</u> <u>Scale: As Shown Date: Mar. 1980</u>	
SHEET No. 2 OF 2 SHEETS	

ORIGINAL PLAN	DATE
DESIGNED BY	
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	