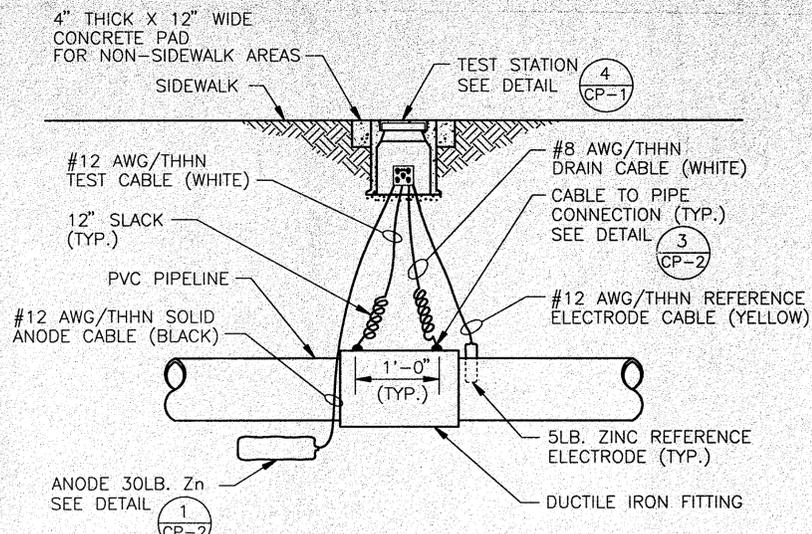


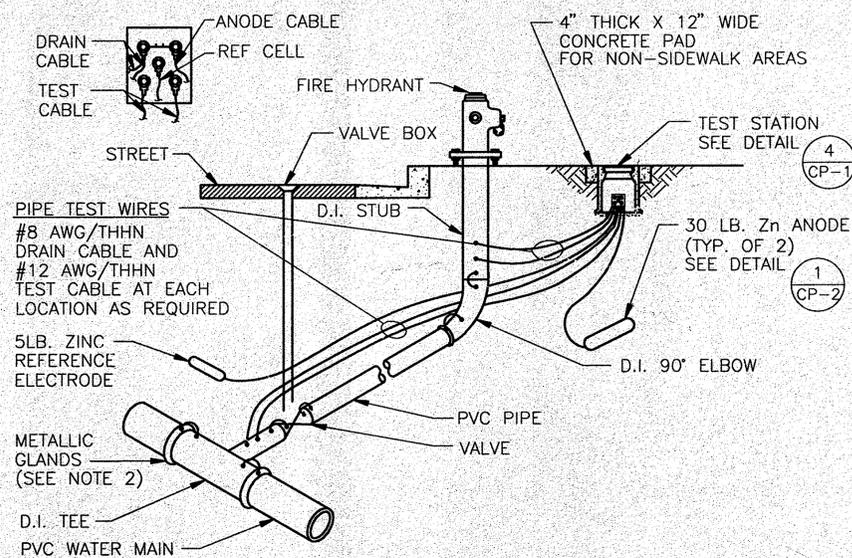
- NOTE: 1. INSTALL ONE 30LB. ZINC ANODE PER TEST STATION AND CONNECT THE ANODE TO THE PIPE THROUGH THE TEST STATION.  
 2. INSTALL ANODES A MINIMUM OF ONE FOOT FROM THE PIPELINE AND FIVE FEET BELOW PIPE INVERT.  
 3. INSTALL REFERENCE ELECTRODE 6" FROM EDGE OF PIPELINE.  
 4. CONCRETE ENCASED PIPES SHALL BE ALL D.I.P.. NO TEST STATION ANODES OR BONDING REQUIRED.  
 5. REFER TO DETAIL 2, SHEET CP-2 FOR JOINT BONDING.

**PVC PIPE WITH DUCTILE IRON FITTINGS** (1) CP-1  
 BONDED DUCTILE IRON FITTINGS  
 N.T.S.



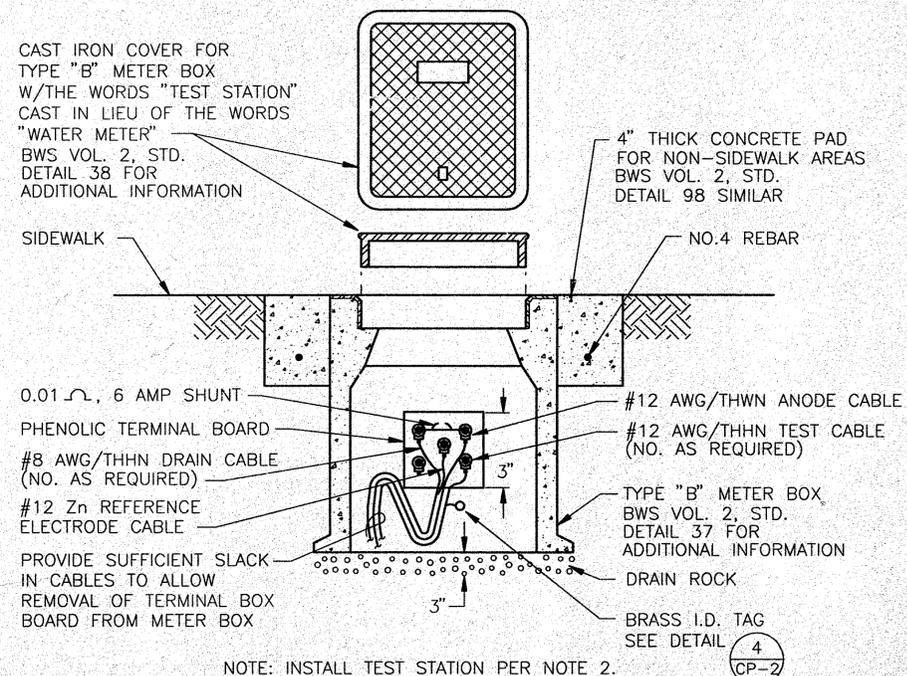
- NOTE: 1. INSTALL ONE 30LB. ZINC ANODE PER TEST STATION AND CONNECT THE ANODE TO THE PIPE THROUGH THE TEST STATION.  
 2. INSTALL ANODES A MINIMUM OF ONE FOOT FROM THE PIPELINE AND FIVE FEET BELOW PIPE INVERT.  
 3. INSTALL REFERENCE ELECTRODE 6" FROM EDGE OF PIPELINE.  
 4. REFER TO DETAIL 2, SHEET CP-2 FOR JOINT BONDING.

**PVC PIPE WITH DUCTILE IRON FITTINGS** (2) CP-1  
 N.T.S.



- NOTE: 1. BOND WIRES SHALL BE INSTALLED AS SHOWN FOR DUCTILE IRON TEE'S AND FITTINGS.  
 2. BOND METALLIC GLAND RINGS TO TEE.  
 3. REFER TO DETAIL 2, SHEET CP-2 FOR JOINT BONDING.

**FIRE HYDRANT CATHODIC PROTECTION** (3) CP-1  
 N.T.S.



NOTE: INSTALL TEST STATION PER NOTE 2.

**TEST STATION** (4) CP-1  
 N.T.S.

- NOTES: 1. THE CATHODIC PROTECTION SYSTEM FOR THE DUCTILE IRON FITTING SHALL CONSIST OF 30-POUND ZINC ANODES INSTALLED AT EACH OF THE LOCATIONS LISTED BELOW.

**TEST STATION LOCATIONS**

NIMITZ HIGHWAY  
 77+58.42 - SEE DETAIL 5, SHEET CP-1

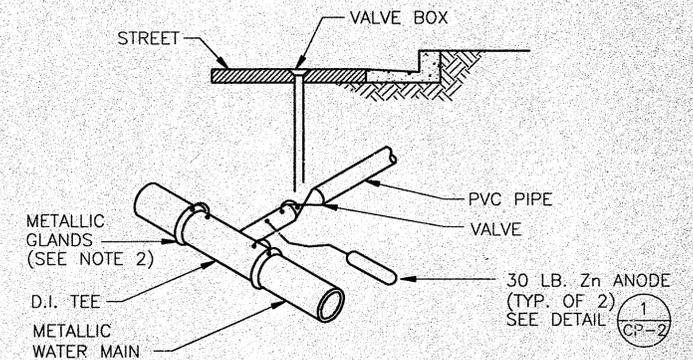
ALAKAWA STREET

- 0+04 - SEE DETAIL 5, SHEET CP-1
- 1+00 - SEE DETAIL 2, SHEET CP-1
- 2+50 - SEE DETAIL 3, SHEET CP-1
- 4+50 - SEE DETAIL 1, SHEET CP-1
- 5+00 - SEE DETAIL 3, SHEET CP-1
- 7+40 - SEE DETAIL 1, SHEET CP-1
- 7+80 - SEE DETAIL 3, SHEET CP-1
- 8+16 - SEE DETAIL 1, SHEET CP-1
- 8+75 - SEE DETAIL 5, SHEET CP-2

2. THE ANODE LEADS SHALL BE CONNECTED TO THE PIPELINE DRAIN LEAD IN A FLUSH MOUNTED TEST STATION. ALL TEST STATIONS SHALL BE INSTALLED OUT OF TRAFFIC LANES AND BEHIND CURB STREET CURB (PREFERABLY BETWEEN THE CURB AND THE SIDEWALK) TO ALLOW SAFE ACCESS FOR TESTING.

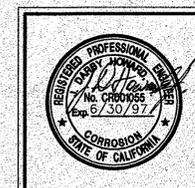
3. UP TO 5, 12-INCH DIAMETER DUCTILE IRON PIPE FITTINGS CAN BE BONDED AND PROTECTED WITH ONE 30-POUND ZINC ANODE AS SHOWN ON DETAIL 1 OF THIS SHEET.

4. BOND 45' D.I. FITTING AT STA. 1+25 TO 45' FITTING AT STA. 1+00 WITH (1) #2 AWG/HMWPE BOND WIRE.



- NOTE: 1. BOND WIRES SHALL BE INSTALLED AS SHOWN FOR DUCTILE IRON TEE'S AND FITTINGS.  
 2. BOND METALLIC GLAND RINGS TO TEE.  
 3. REFER TO DETAIL 2, SHEET CP-2 FOR JOINT BONDING.

**TAPPING TEE W/ VALVE** (5) CP-1  
 N.T.S.



REVISION	DATE	BRIEF	BY	APPROV
	9/19/96	REVISED TEST STATION LOCATION NOTES	MJE	J.D. HOWARD

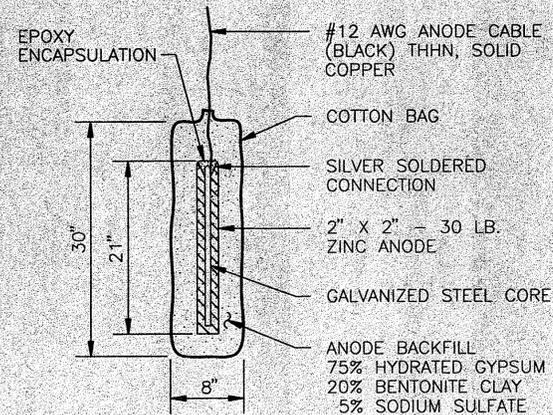
**M & E PACIFIC, INC.**  
 ENGINEERS & ARCHITECTS  
 HONOLULU, HAWAII

**DOLE IWILEI CANNERY**  
**ALAKAWA ST. EXTENSION**  
 HONOLULU, HAWAII

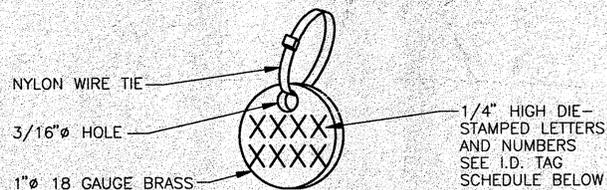
**CATHODIC PROTECTION DETAILS**  
**CP-1**

DRAWN BY: J. HEADLEY ENGINEER J.D. HOWARD

APPROVED BY: *J.D. Howard*



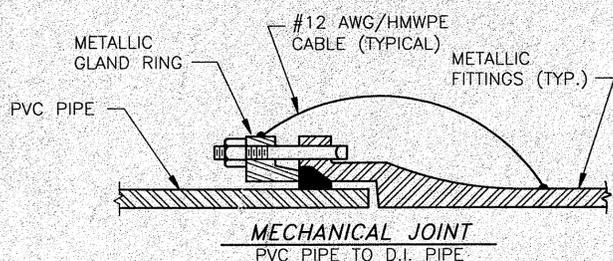
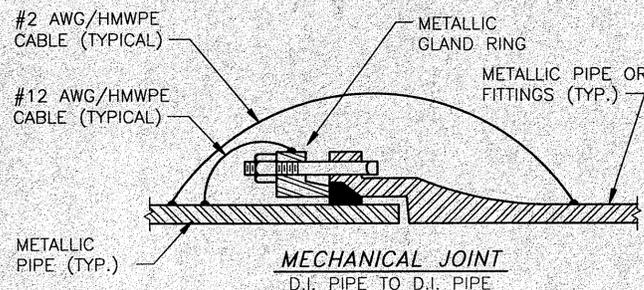
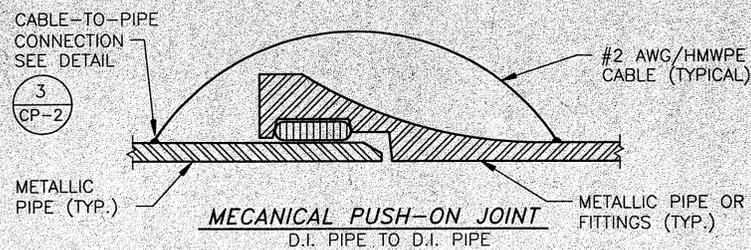
PREPACKAGED ZINC ANODE (1) CP-2  
N.T.S.



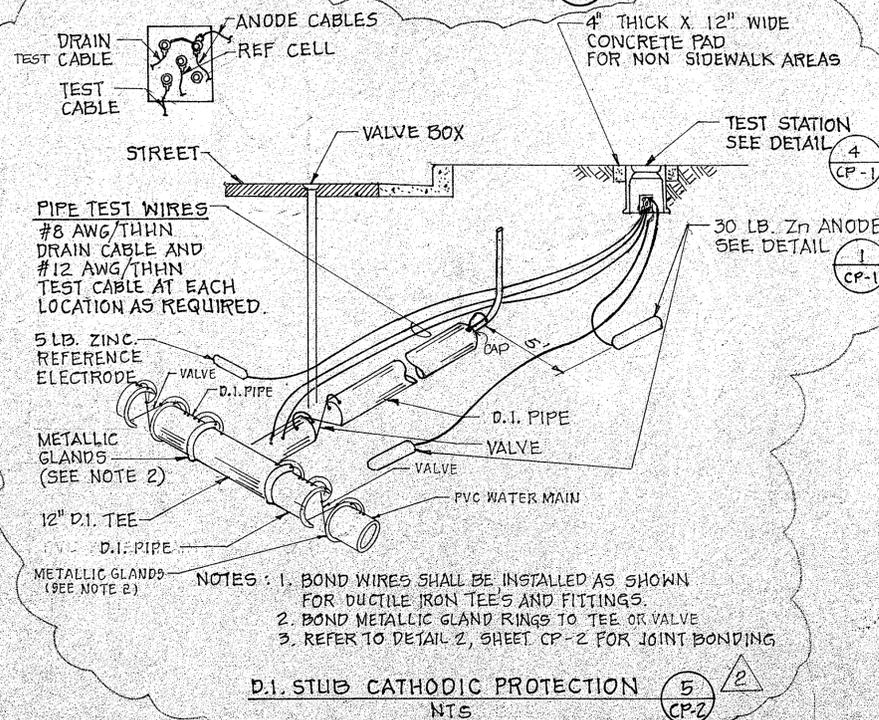
2

I.D. TAG SCHEDULE	
12" x 12" DUCTILE IRON TEE — 12" x 12" TEE	
6" FIRE HYDRANT LATERAL	6" FH
16" x 12" DUCTILE IRON TEE	16x12" TEE
ZINC REFERENCE ELECTRODES	ZINC REF
30 LB. ZINC ANODE	30 Zn

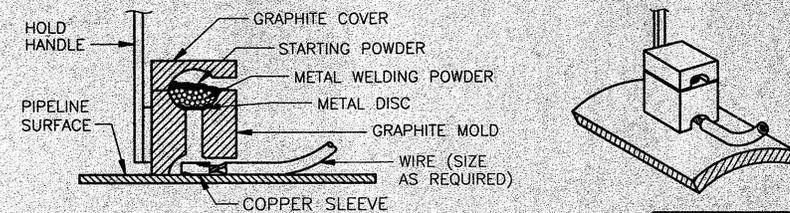
BRASS IDENTIFICATION TAG (4) CP-2  
N.T.S.



JOINT BONDING (2) CP-2  
N.T.S.



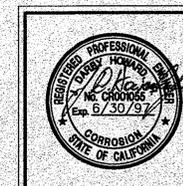
D.I. STUB CATHODIC PROTECTION (5) CP-2  
N.T.S.



- STEP 1. FILE STRUCTURE CONNECTION AREA (3 IN. x 3 IN.) TO SHINY METAL.
- STEP 2. STRIP INSULATION FROM WIRE. ATTACH SLEEVE AND CRIMP.
- STEP 3. HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR AND IGNITE WITH FLINT GUN.
- STEP 4. REMOVE SLAG FROM CONNECTION AND PEEN WELD FOR SOUNDNESS.
- STEP 5. COVER CONNECTION AND EXPOSED STRUCTURE SURFACE WITH A BITUMINOUS COATING COMPOUND AND PLASTIC SHIELD.

- NOTES: 1. ALL WIRE WELDS SHALL BE INSTALLED MINIMUM OF 12 INCHES APART.  
2. STANDARD WELD CARTRIDGES SHALL BE USED FOR STEEL SURFACES, FOR DUCTILE IRON AND CAST IRON, USE XF-19 WELD METAL OR EQUIVALENT.

CABLE-TO-PIPE CONNECTION (3) CP-2  
N.T.S.



REVISION	DATE	ADDED DETAIL 5/CP-2	BY	APPROVED
2	3/19/94		NHE	J.D. HOWARD

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CATHODIC PROTECTION DETAILS  
CP-2

DRAWN BY: J. HEADLEY ENGINEER: J.D. HOWARD

APPROVED BY: [Signature]