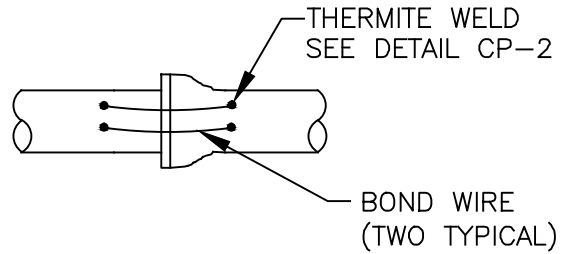
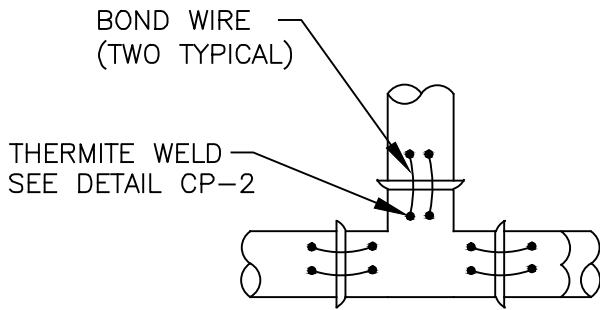


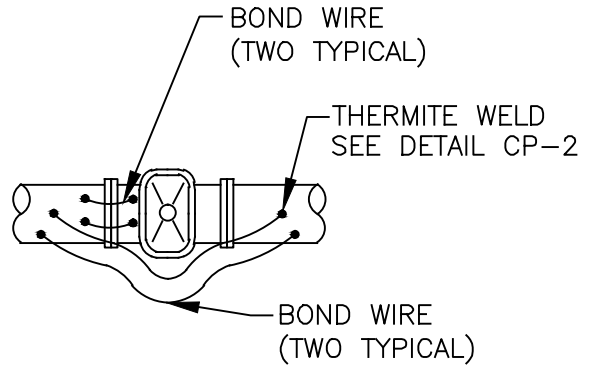
TYPICAL BONDING OF BEND
REDUCER OR SOLID SLEEVE



TYPICAL PIPE JOINT BOND



TYPICAL BONDING OF TEE



TYPICAL BONDING OF VALVE

NOTES:

1. THERMITE WELD BONDING WIRES TO TOP OF PIPE OR FITTING.
2. BOND WIRE LENGTH SHALL BE A MAXIMUM OF 18" UNLESS APPROVED BY THE ENGINEER. LEAVE SLACK IN ALL CABLES.
3. TWO BOND WIRES SHALL BE USED ACROSS EACH PIPE JOINT.
4. COAT ALL THERMITE WELDS AND EXPOSED COPPER IN ACCORDANCE WITH LOUDOUN WATER'S APPROVED MATERIALS LIST.
5. WIRE SIZE FOR BONDING WIRES SHALL BE AS FOLLOWS:
 PIPES 36" IN DIAMETER & SMALLER - AWG #4
 PIPES LARGER THAN 36" DIAMETER - AWG #2

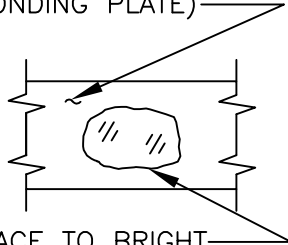
OCT.
2016

BONDING OF PIPE AND FITTING

CP-1

LOUDOUN WATER

STRUCTURE (TOP OF PIPE, FITTING OR STEEL BONDING PLATE)

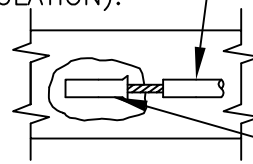


STEP 1

CLEAN SURFACE TO BRIGHT METAL AT WELD LOCATION BY MECHANICAL GRINDER

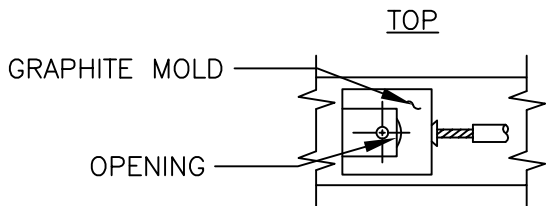
STRANDED COPPER WIRE (WITH THWN OR HMWPE INSULATION).

STEP 2

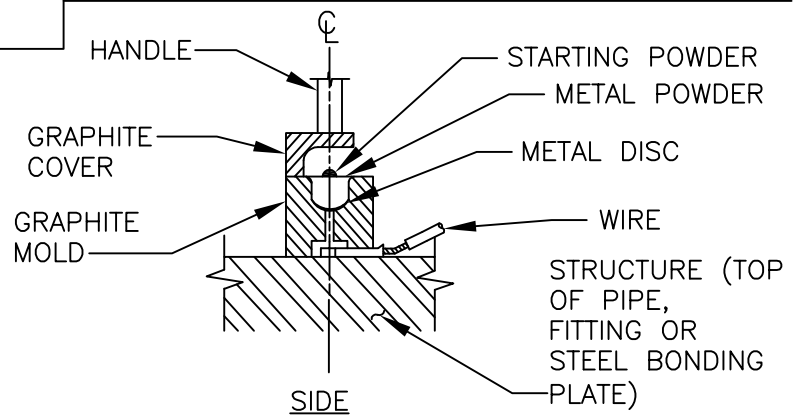


ADAPTER SLEEVE

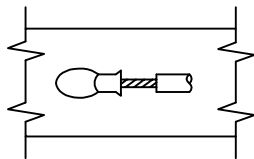
STRIP INSULATION FROM WIRE AND INSTALL ADAPTER SLEEVE.



HOLD GRAPHITE MOLD FIRMLY OVER ADAPTER SLEEVE WITH OPENING AWAY FROM OPERATOR—IGNITE STARTING POWDER.



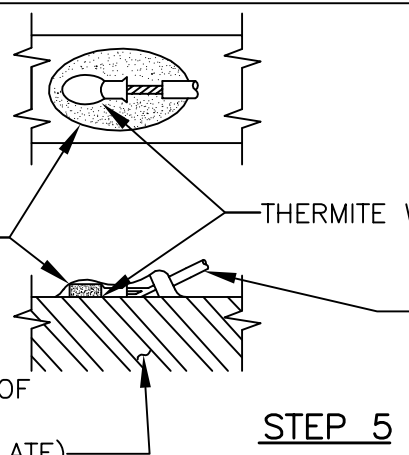
STEP 3



REMOVE SLAG FROM CONNECTION. THOROUGHLY CLEAN WELD AREA.

STEP 4

PRIME AND COAT ALL EXPOSED METAL AT WELD AREA.



STEP 5

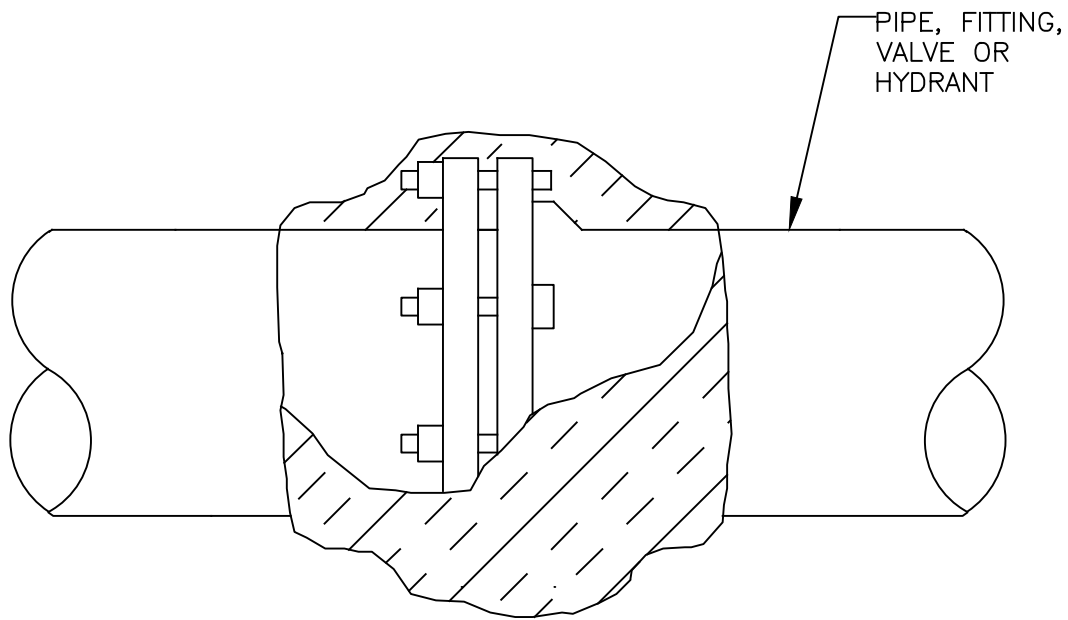
NOTES:

1. THERMITE WELDS MADE TO STEEL OR DUCTILE IRON PIPE SHALL BE COATED IN ACCORDANCE WITH LOUDOUN WATER'S APPROVED MATERIALS LIST.

APR.
2010

THERMITE WELD

CP-2



MECHANICAL JOINT

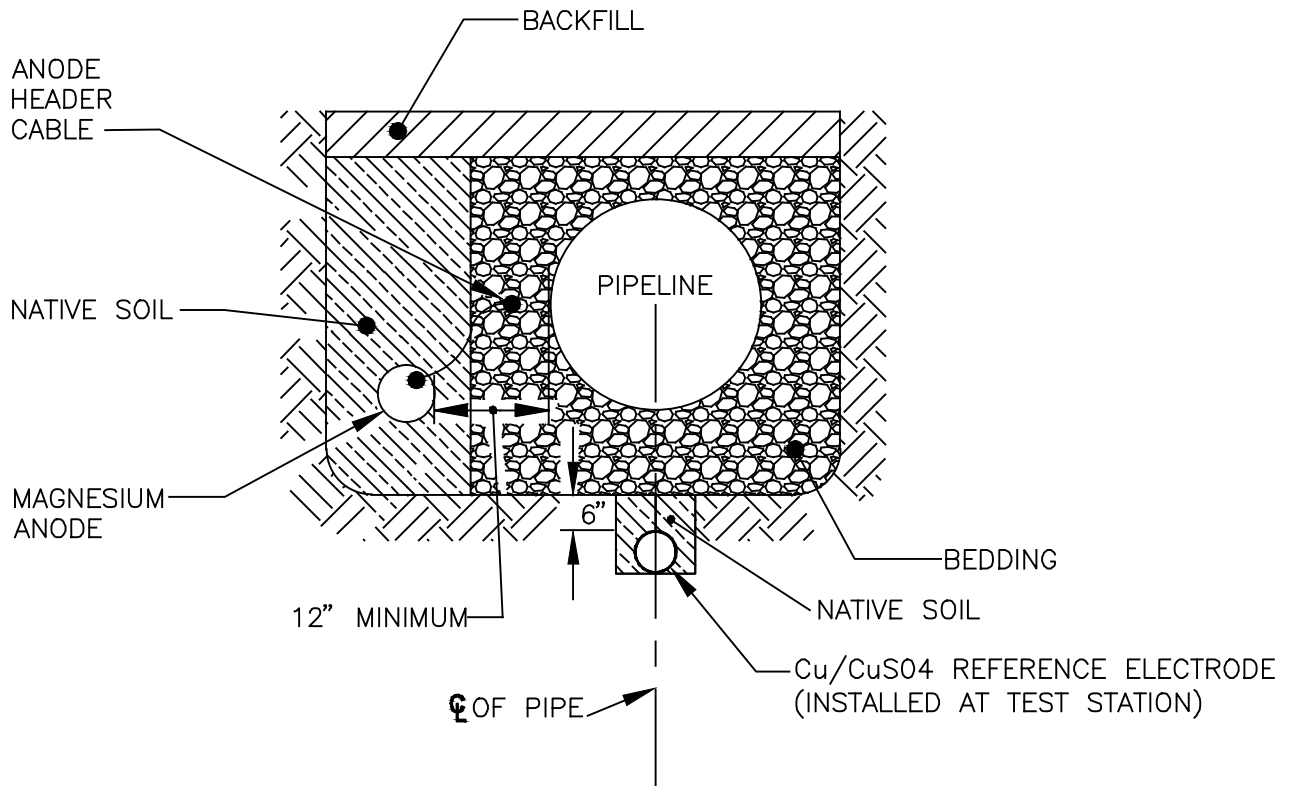
NOTES:

1. APPLY PRIMER, WAX TAPE, AND OUTER WRAP IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. PROFILING MASTIC NOT REQUIRED.

OCT.
2016

COATING OF MECHANICAL JOINTS

CP-3

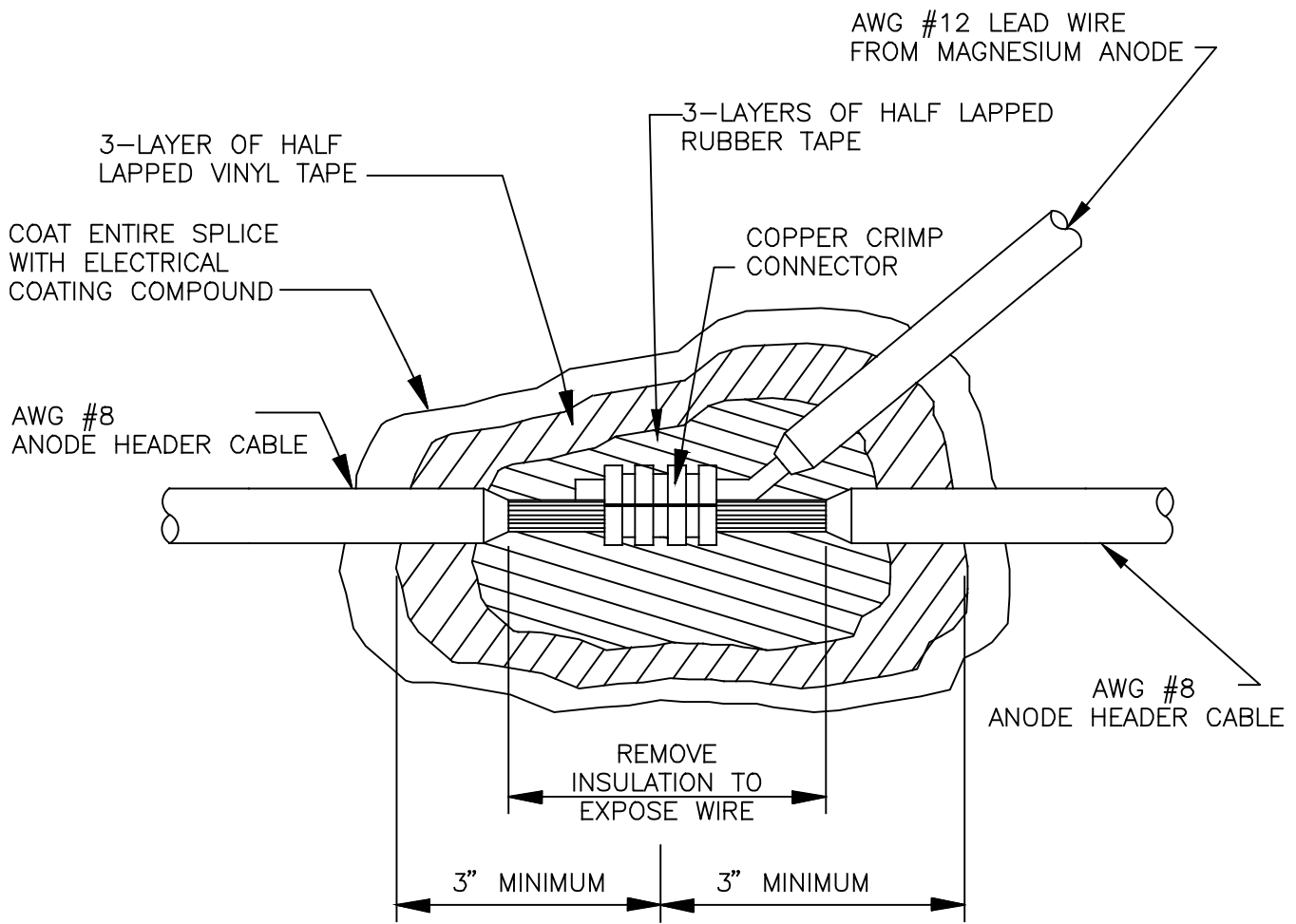


INSTALL ANODES AND REFERENCE ELECTRODES IN SOIL BACKFILL. DO NOT BACKFILL ANODES OR REFERENCE ELECTRODES WITH BEDDING MATERIAL.

OCT.
2016

ANODE PLACEMENT

CP-4

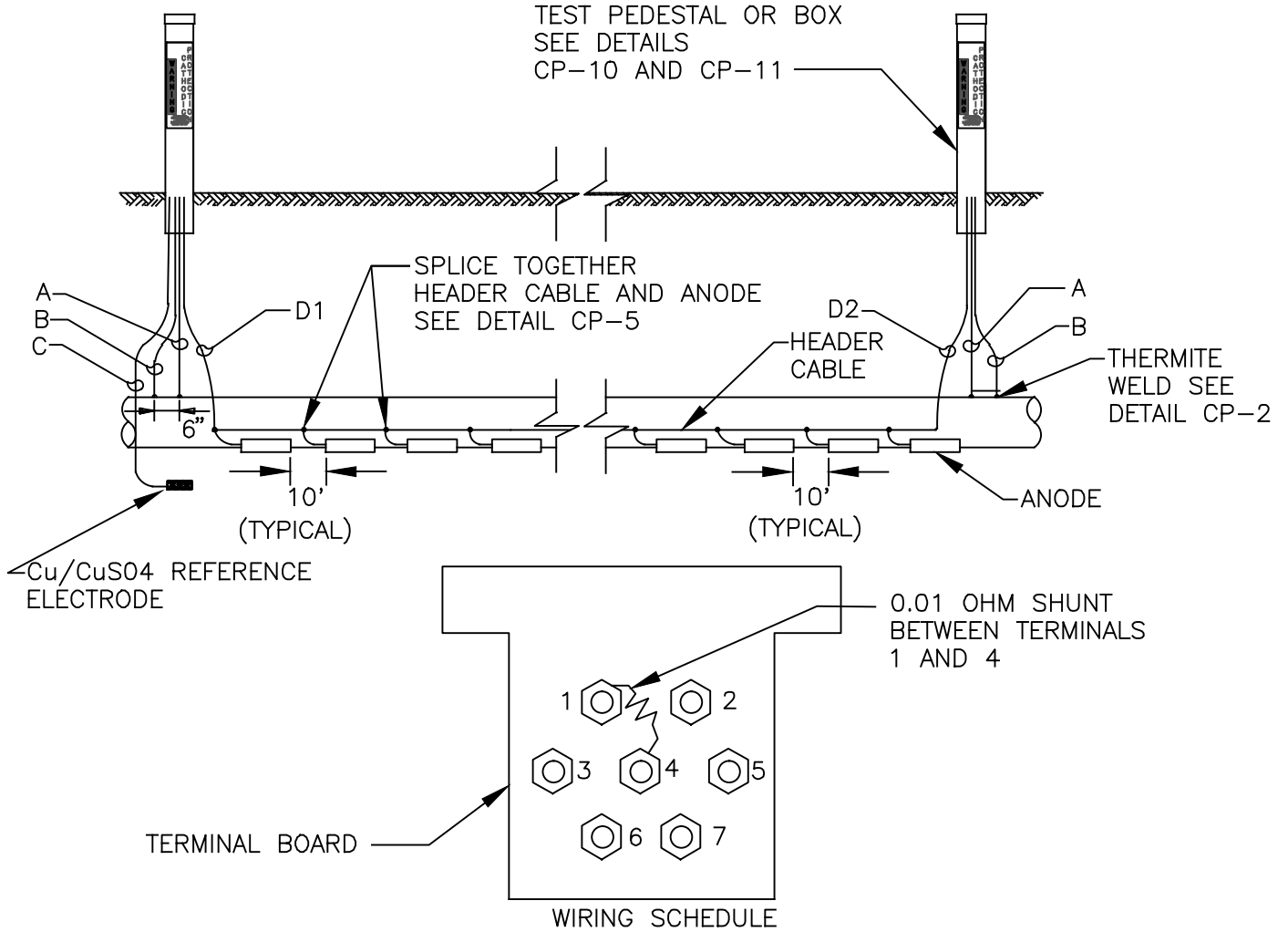


OCT.
2016

SPLICE OF ANODE TO HEADER
CABLE

CP-5

LOUDOUN WATER



DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE OF INSULATION	COLOR OF INSULATION
NEW PIPE	A	1	#8	THWN	BLUE
	B	3	#10	THWN	BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	RHW	YELLOW
ANODE HEADER CABLE	D1,D2	4	#8	HMWPE	BLACK

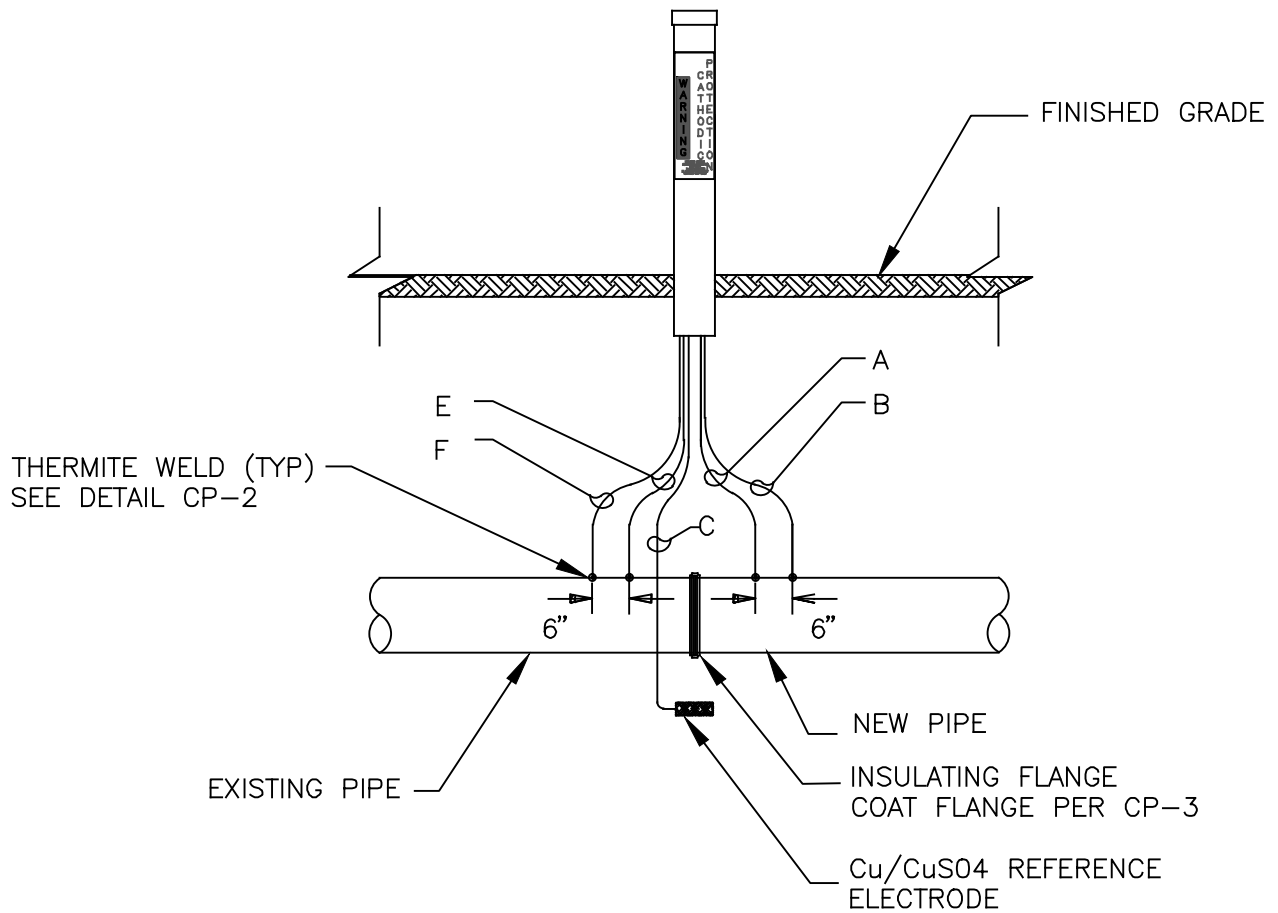
NOTES:

1. INSTALL PREPACKAGED MAGNESIUM ANODES. SEE DETAIL CP-4.

OCT.
2016

ANODE BED AND TEST STATION

CP-6



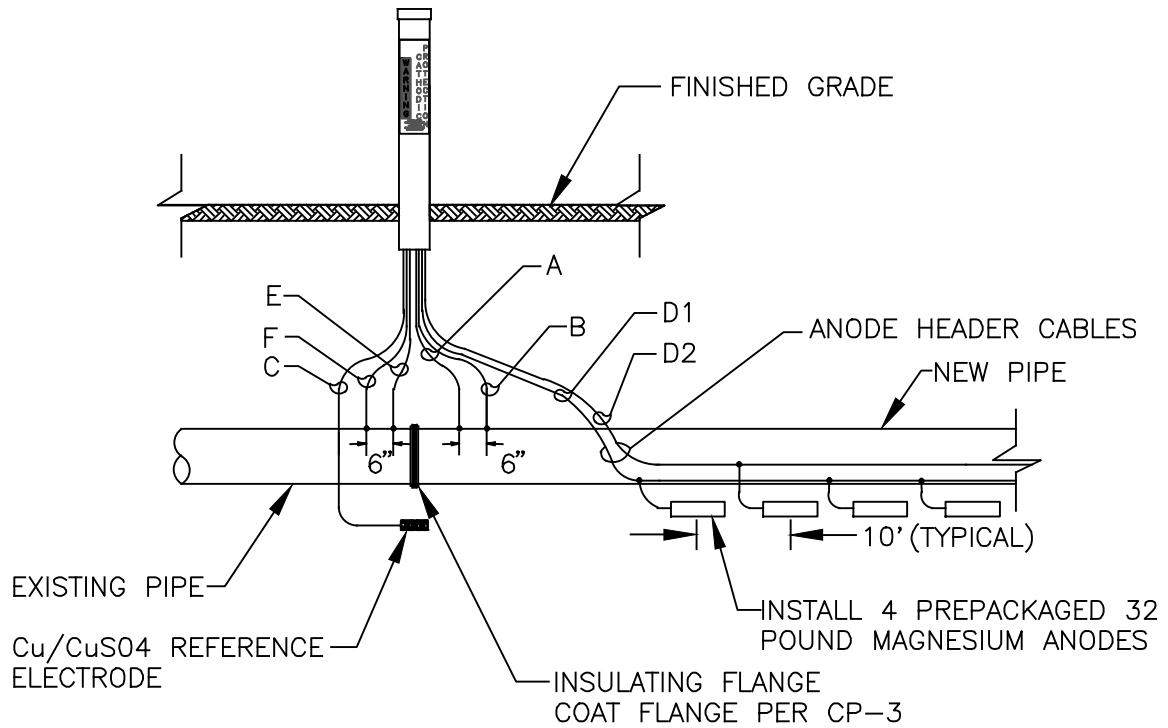
WIRING SCHEDULE

DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE OF INSULATION	COLOR OF INSULATION
NEW PIPE	A	1	#8	THWN	BLUE
	B	3	#10	THWN	BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	RHW	YELLOW
EXISTING PIPE	E	2	#8	THWN	WHITE
	F	5	#10	THWN	WHITE

OCT.
2016

INSULATING FLANGE
TEST STATION

CP-7



WIRING SCHEDULE

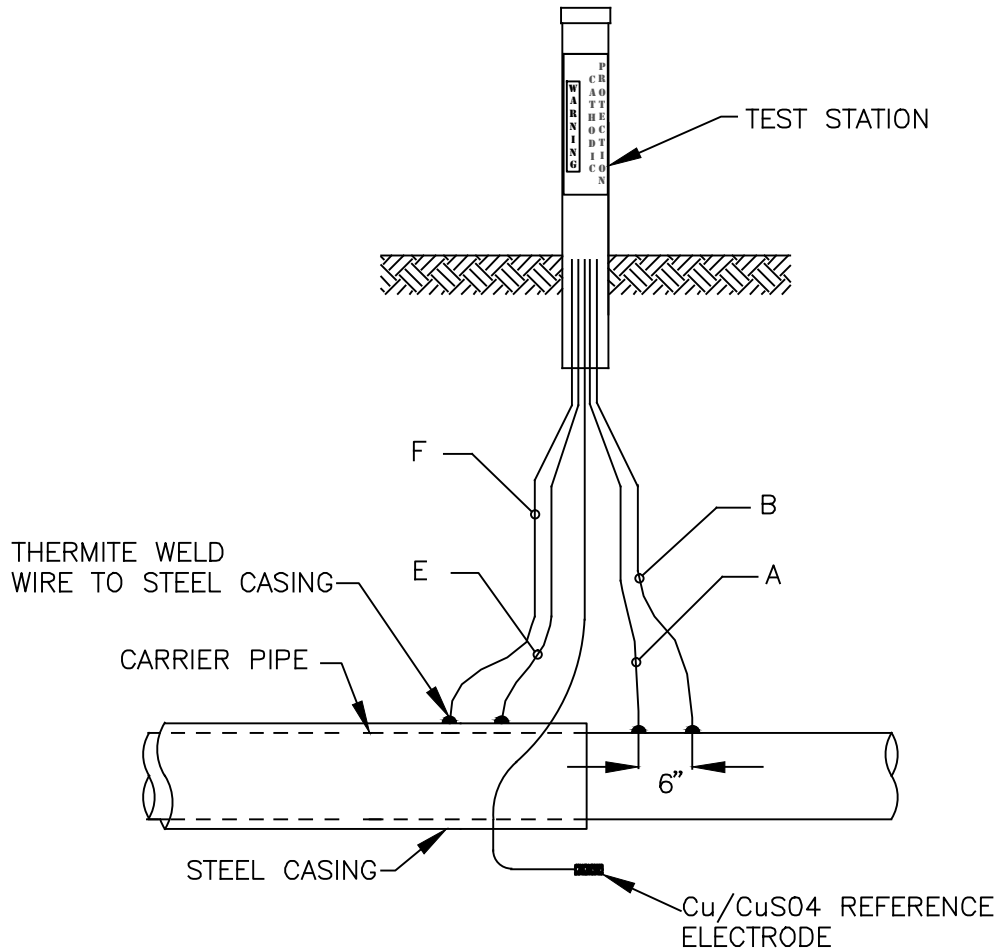
DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE OF INSULATION	COLOR OF INSULATION
NEW PIPE	A	1	#8	THWN	BLUE
	B	3	#10	THWN	BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	RHW	YELLOW
ANODE HEADER CABLE	D1	4	#8	HMWPE	BLACK
	D2	4	#8	HMWPE	BLACK
EXISTING PIPE	E	2	#8	THWN	WHITE
	F	5	#10	THWN	WHITE

INSTALL 0.01 OHM SHUNT BETWEEN TERMINALS 1 AND 4.

OCT.
2016

INSULATING FLANGE
TEST STATION WITH ANODES

CP-8



WIRING SCHEDULE

DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE OF INSULATION	COLOR OF INSULATION
NEW PIPE	A	1	#8	THWN	BLUE
	B	3	#10	THWN	BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	RHW	YELLOW
CASING PIPE	E	2	#8	THWN	WHITE
	F	5	#10	THWN	WHITE

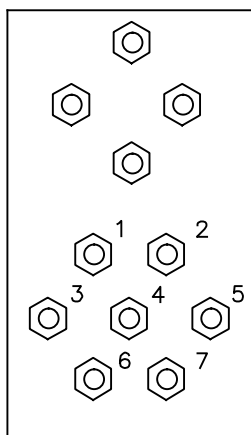
NOTES:

1. CARRIER PIPE WITHIN STEEL CASING DOES NOT REQUIRE POLYETHYLENE ENCASEMENT, BUT ALL JOINTS MUST BE BONDED.

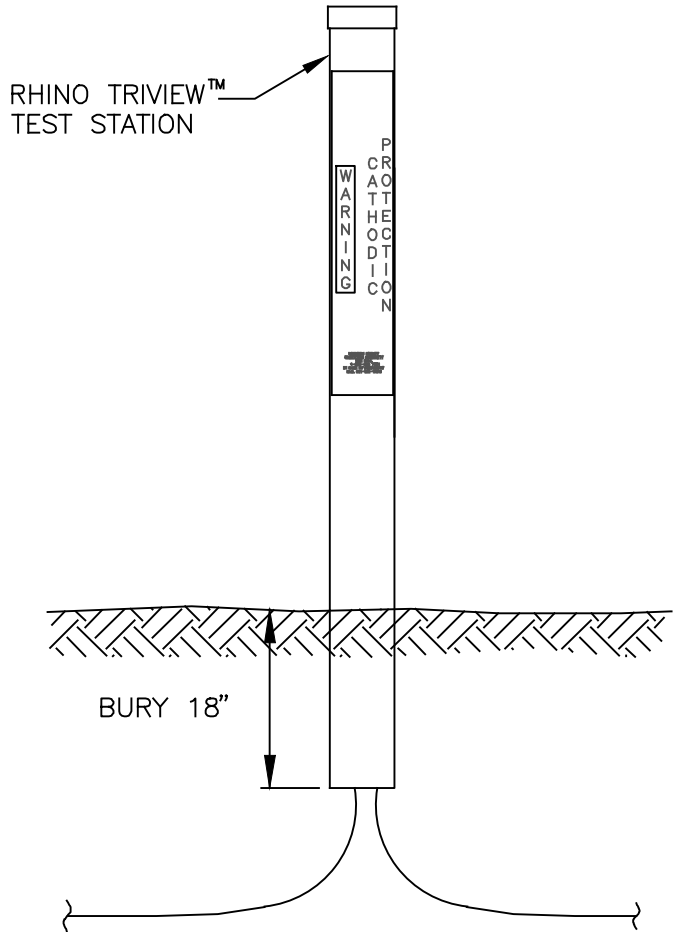
APR.
2017

TEST STATION AT STEEL CASING

CP-9



TERMINAL BOARD



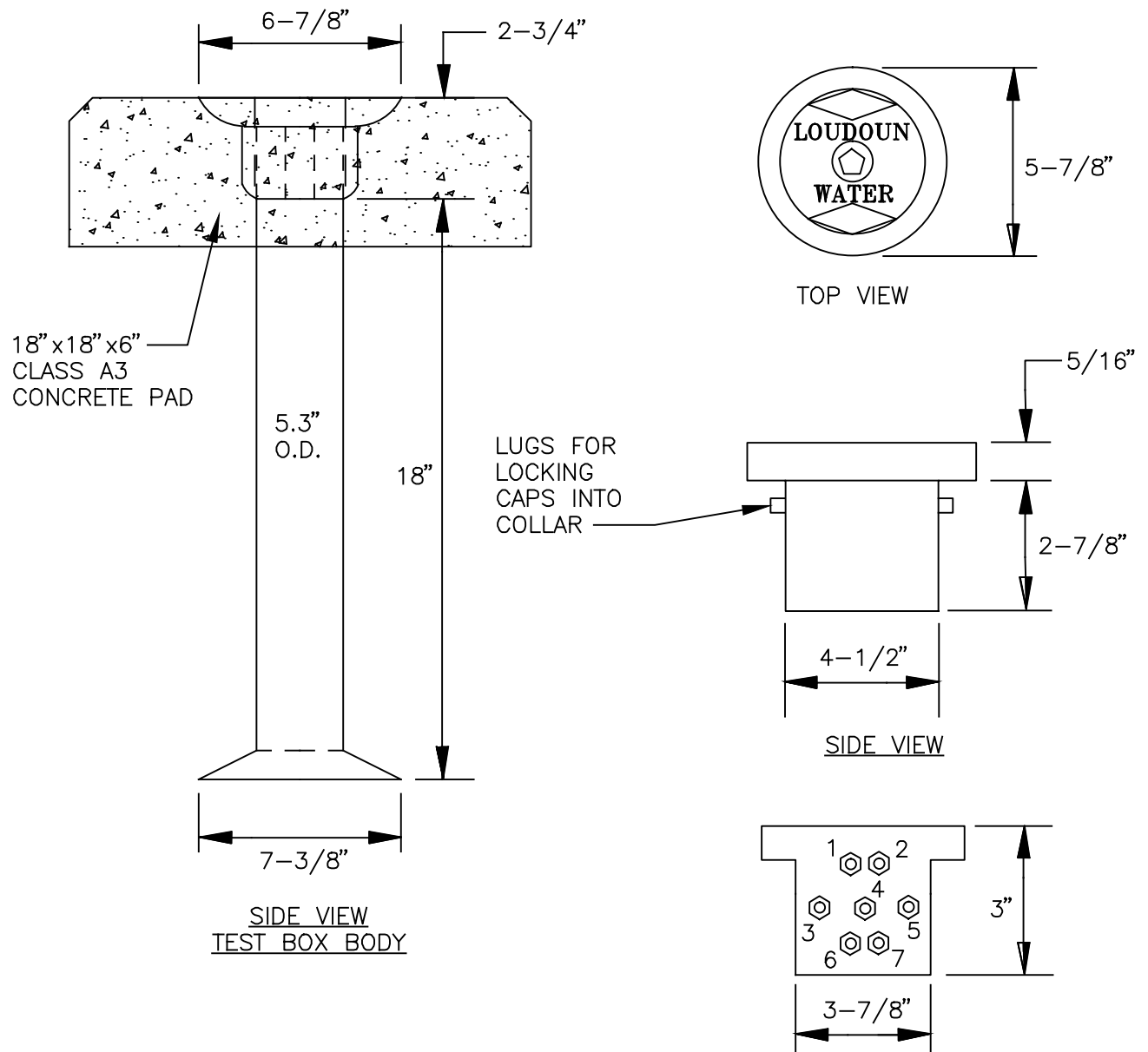
NOTES:

1. PROVIDE 54" TRACER PEDESTAL WITH INTERNAL TERMINAL BOARD BY RHINO MARKING AND PROTECTION SYSTEMS. SELECT COLOR ACCORDING TO UTILITY: BLUE (WATER), GREEN (SEWER), PURPLE (REUSE).

OCT.
2016

TEST STATION
BY PEDESTAL

CP-10



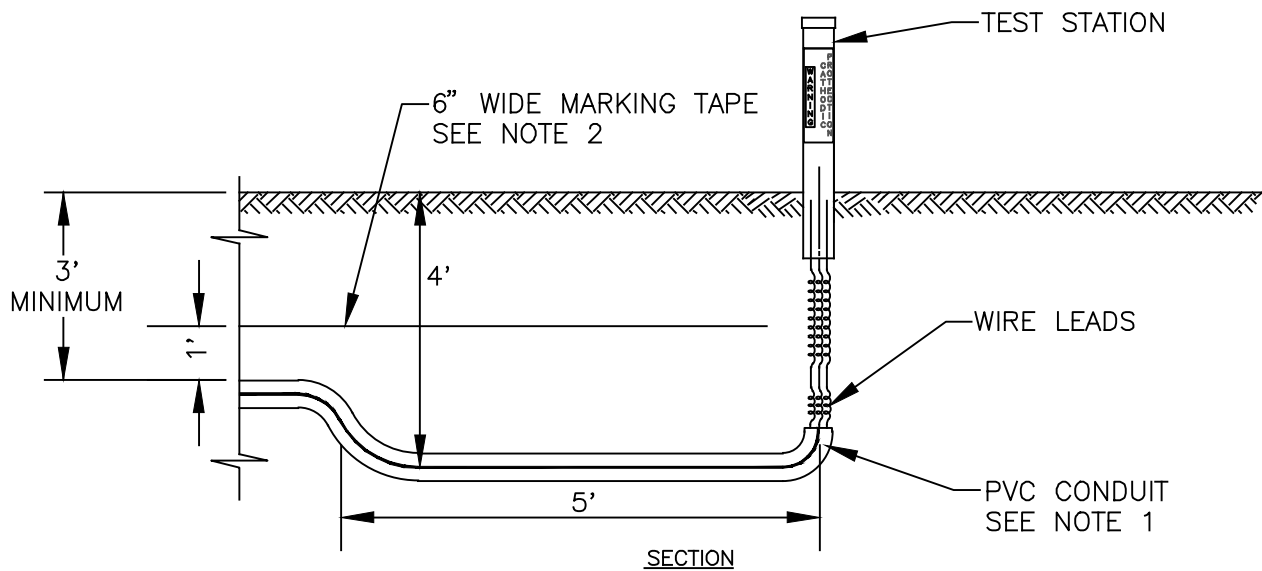
NOTES:

1. TO BE USED ONLY WHERE TEST STATION BY PEDESTAL IS NOT FEASIBLE.
2. CONCRETE PAD NOT REQUIRED IN PAVEMENT.

OCT.
2016

TEST STATION BY BOX AT GRADE

CP-11



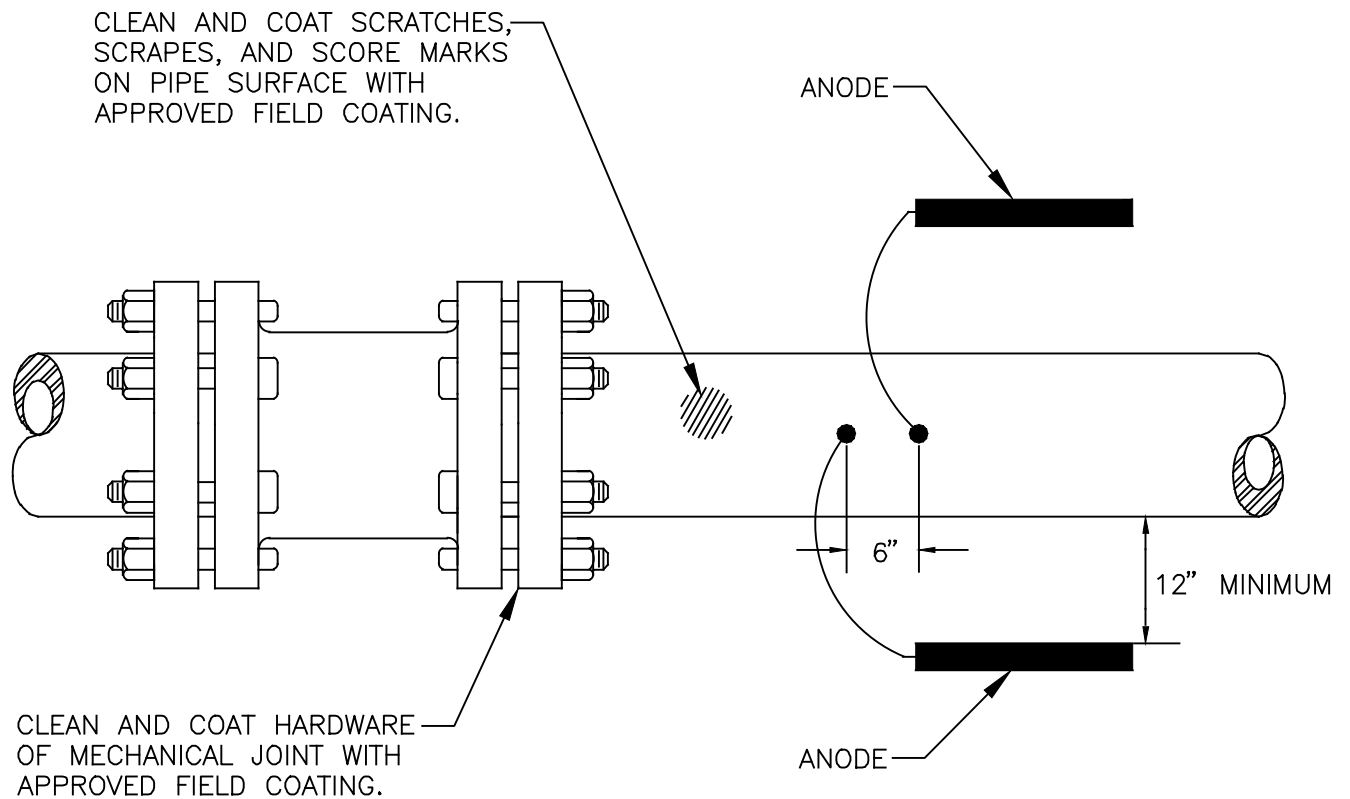
NOTES:

1. IF TEST STATION IS NOT DIRECTLY OVER WATER MAIN, ROUTE WIRES FROM PIPE TRENCH TO STATION THROUGH PVC CONDUIT. CONDUIT IS NOT REQUIRED FOR WIRES IN PIPE TRENCH.
2. MARKING TAPE SHALL READ, "CATHODIC PROTECTION CABLE BURIED BELOW."

OCT.
2016

TEST STATION
—
OFFSET FROM PIPELINE

CP-12



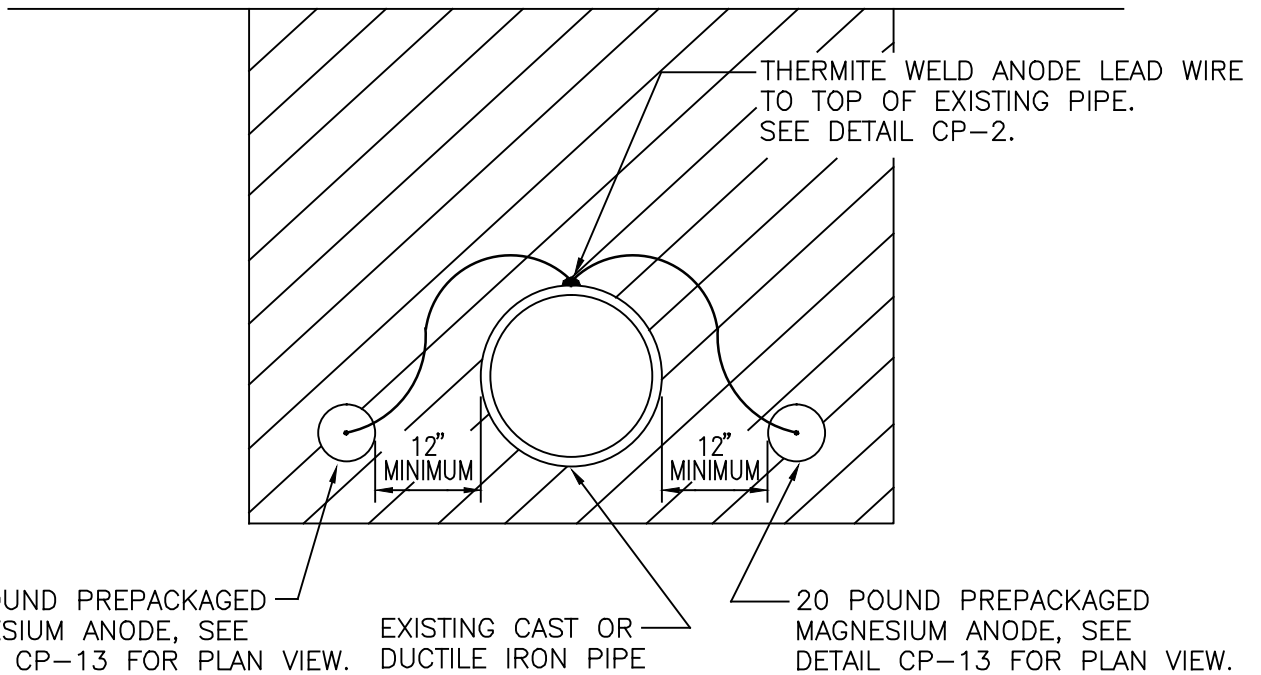
NOTES:

1. INSTALL ANODES IN THE VACINITY OF ALL REPAIRED PIPE FAILURES DUE TO CORROSION.
2. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF THE PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CP-14.
3. "HOT SPOT" CATHODIC PROTECTION TO BE APPLIED TO CAST AND DUCTILE IRON PIPING. DO NOT INSTALL ON COPPER PIPING.

OCT.
2016

HOT SPOT PROTECTION
—
COATING AND ANODE

CP-13



SECTION VIEW

NOTES:

1. INSTALL ANODES ON BOTH SIDES OF PIPE. SEE DETAIL CP-13.
2. INSTALL ANODES IN NATIVE SOIL. DO NOT BACKFILL ANODES WITH SAND OR STONE.
3. PRESOAK ANODE WITH FIVE GALLONS OF WATER AFTER PLACEMENT AND BEFORE BACKFILLING.

OCT.
2016

HOT SPOT PROTECTION
—
ANODE PLACEMENT

CP-14