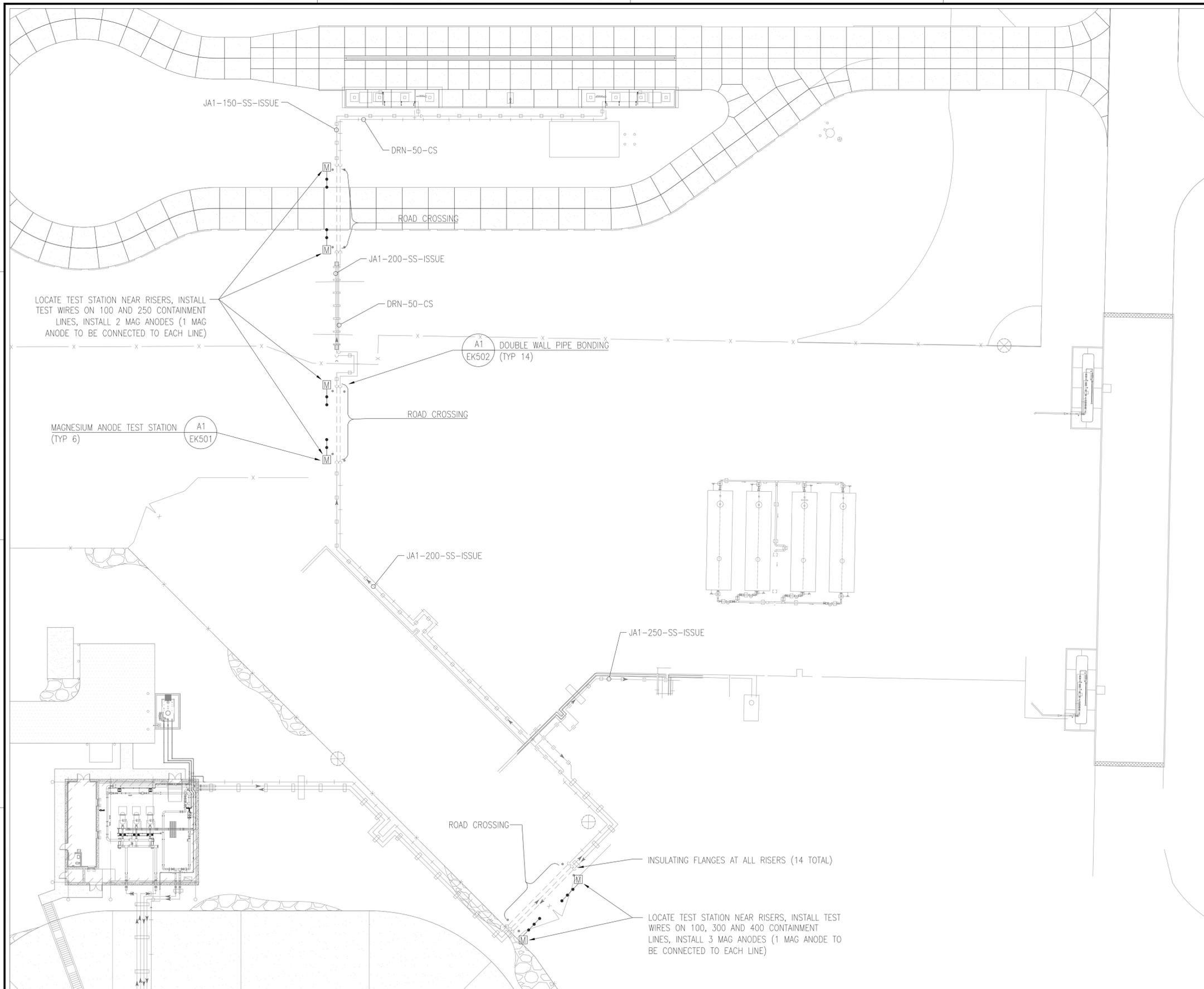


FILE NAME: C:\Users\jason\Documents\14047148\14047148.dwg sub 012816\14047148.dwg (jibouti) design\100% sub 012816\14047148.dwg LAYOUT NAME: CP PLAN PLOTTED: Thursday, January 28, 2016 - 9:46pm USER: Jason



- NOTES:**
- FOR ADDITIONAL LEGEND AND ABBREVIATIONS, SEE DRAWINGS C-001, S-001, E-001 & M-001.
 - ALL BURIED FUEL PIPING SHALL BE ELECTRICALLY ISOLATED FROM ALL FOREIGN METALLIC STRUCTURES WITH INSULATING FLANGES/UNIONS. SEE INSULATING FLANGE DETAIL C1 / EK502. REFER TO MECHANICAL DRAWINGS FOR INSULATING FLANGE/UNION LOCATIONS.
 - ALL NEW BURIED FUEL CONTAINMENT PIPING SHALL BE BONDED TO THE FUEL CARRIER PIPING AT EACH RISER. SEE DOUBLE WALL PIPE BONDING DETAIL A1 / EK502.

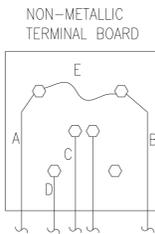
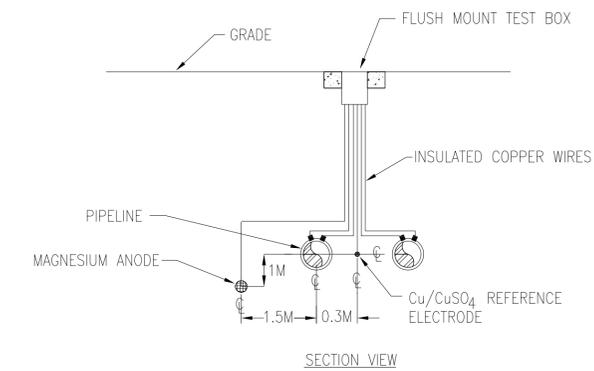
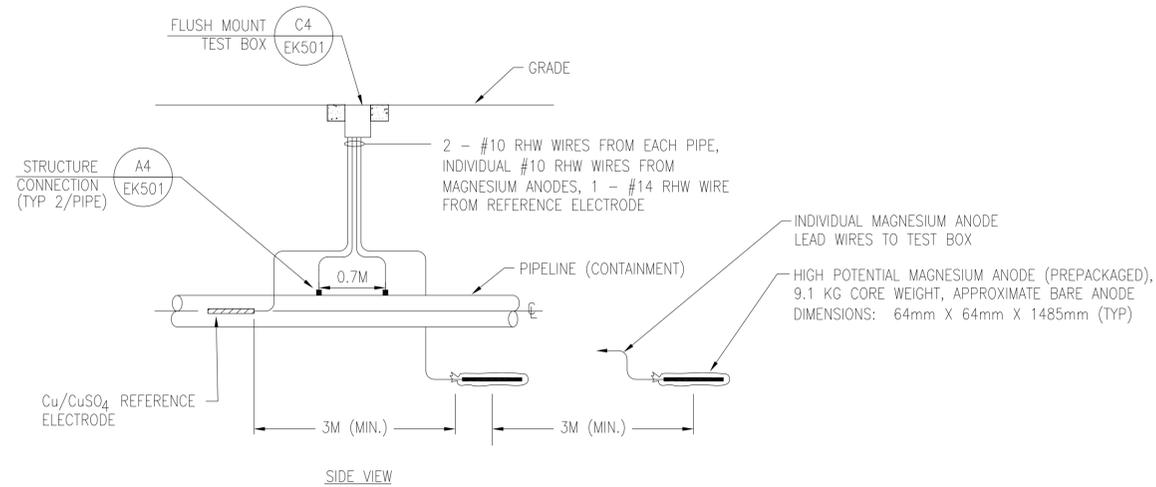
LEGEND - CATHODIC PROTECTION

- [R] RECTIFIER
- [J] JUNCTION BOX
- [M] MAGNESIUM ANODE TEST STATION
- [C] CASING TEST STATION
- #4 Δ PERMANENT REFERENCE ELECTRODE
- NEW CATHODIC CABLE OR CONDUIT
- - - EXISTING CATHODIC CABLE OR CONDUIT
- MAGNESIUM ANODE
- IF /-|-/ DIELECTRIC INSULATING FLANGE
- IU /-|-/ DIELECTRIC INSULATING UNION
- TYP TYPICAL
- C CONDUIT
- TW POLYVINYL-CHLORIDE CABLE INSULATION
- RHW CROSS-LINKED POLYETHYLENE CABLE INSULATION
- HMWPE HIGH MOLECULAR WEIGHT POLYETHYLENE CABLE INSULATION
- THWN THERMOPLASTIC CABLE INSULATION, MOISTURE AND HEAT RESISTANT
- DIA DIAMETER
- W/ WITH
- MAG MAGNESIUM

PLAN NORTH
CATHODIC PROTECTION PLAN
 SCALE: 1:300



APPROVED	DATE
DESCRIPTION	SYM
 NAVFAC	
 JASON M. KADLEC ENGINEER No. 54738	
KACE P.O. BOX 1248 KADLEC ASSOCIATES 1111 11th St. S.E. CORROSION ENGINEERS FT. RUSSELL, VA 22034-1248 WWW.KACEASSOCIATES.COM E-INFO@KACEASSOCIATES.COM	
 Brockenbrough ENGINEERING • CONSULTING	
APPROVED	A/E REF
FOR COMMANDER NAVFAC	
ACTIVITY	
EMAIL BY ANDREA LEMON	
SATISFACTORY TO	DATE 04/04/2016
DES JMK	DRW JMK
CHK DET	LET/RER
BRANCH MANAGER	
CHIEF ENG/ARCH EJG	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NORFOLK, VIRGINIA DIBOUTI AFRICA CAMP LEMONNIER DESC 1701/P-1701 CONSTRUCT FUEL STORAGE FACILITIES CATHODIC PROTECTION PLAN	
SCALE:	AS NOTED
PROJECT NO.:	
WORK ORDER NO.:	
NAVFAC DRAWING NO.:	14047148
SHEET	184 OF 186
EK101	
DRAWING REVISION: 10 MARCH 2009	



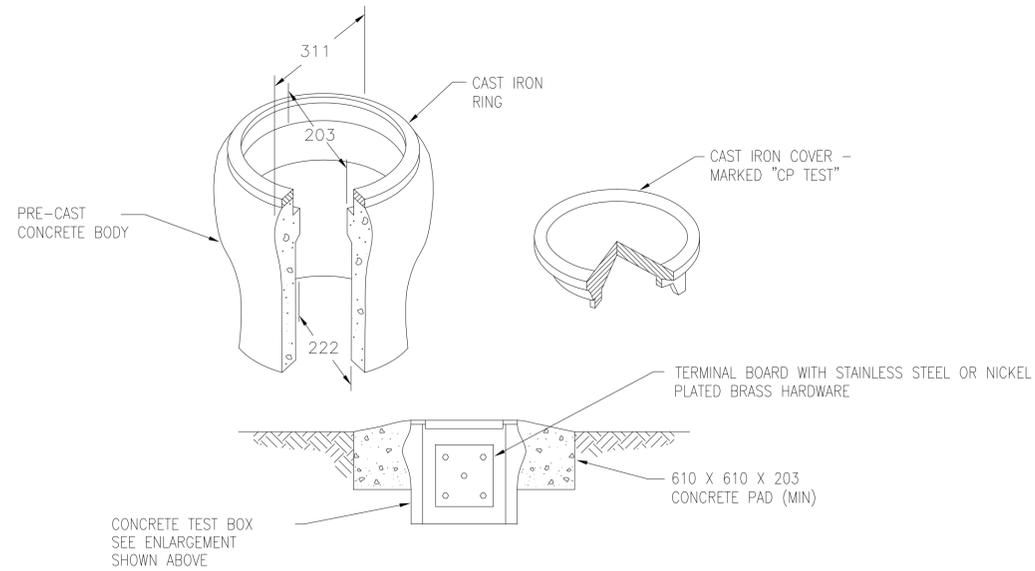
WIRE	GAUGE	INSULATION	CONNECTION
A	#10	RHW/BLACK	ANODE
B	#10	RHW/WHITE	400 CS FUEL
C	#10	RHW/WHITE	400 CS FUEL
D	#14	RHW/YELLOW	REF. ELECT.
E	#10	RHW/WHITE	JUMPER

- NOTES:**
- LABEL ALL WIRES/CABLES WITH PERMANENT TAGS. LABEL AS SHOWN IN "CONNECTION" COLUMN ABOVE.
 - DO NOT BOND ANODES TO PIPELINE. CORROSION ENGINEER WILL BOND ANODES TO PIPELINE AFTER NATIVE STATE SURVEY HAS BEEN COMPLETED.

WIRING SCHEDULE

- NOTES:**
- SEE CATHODIC PROTECTION PLAN FOR NUMBER OF ANODES AT EACH TEST STATION LOCATION.
 - DO NOT BOND ANODES TO PIPELINE. CORROSION ENGINEER WILL BOND ANODES TO PIPELINE AFTER NATIVE STATE SURVEY HAS BEEN COMPLETED.
 - BOTTOM OF TEST STATION SHALL EXTEND INTO NATIVE SOIL. DO NOT FILL BOTTOM OF TEST STATION WITH CONCRETE.
 - IF TEST STATION IS LOCATED IN GRASS/SOIL AREA SET TEST STATION IN CONCRETE PAD (610 X 610 X 100 THICK MINIMUM).
 - INSTALL 2 TEST WIRES ON EACH PIPE AT EACH TEST STATION LOCATION. SEE CATHODIC PROTECTION PLAN FOR NUMBER OF PIPES AT EACH TEST STATION LOCATION.
 - CENTER REFERENCE ELECTRODE BETWEEN PIPELINES IF THERE ARE 2 PIPELINES AT MAGNESIUM ANODE TEST STATION LOCATION.
 - PROVIDE 1 TEST BOARD PER PIPE AT EACH TEST STATION AS REQUIRED (OR IF THERE ARE AN EXCESSIVE NUMBER OF TEST WIRES).

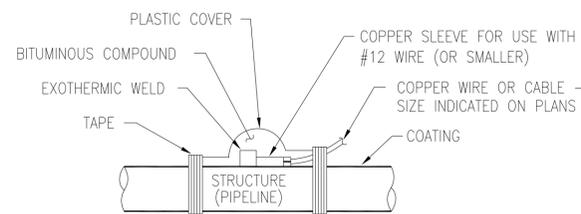
MAGNESIUM ANODE TEST STATION A1
SCALE: NONE EK101



NOTES:

- PROVIDE FLUSH MOUNT TEST STATIONS IN CONJUNCTION WITH NEW CONCRETE INSTALLATION. BOTTOM OF TEST STATION SHALL EXTEND INTO NATIVE SOIL. DO NOT FILL BOTTOM OF TEST STATION WITH CONCRETE OR OTHER DEBRIS.
- ALL WIRING SHALL BE OF SUFFICIENT LENGTH TO EXTEND 610 MIN ABOVE FINISHED GRADE.
- PROVIDE PERMANENT TAGS TO IDENTIFY EACH CABLE: "REFERENCE ELECTRODE, CS RETURN, CS SUPPLY, TRANSFER PIPE, MAG ANODE"
- PROVIDE 1 TEST BOARD PER PIPE AT EACH TEST STATION AS REQUIRED (OR LARGER TEST BOARD) AT LOCATIONS WITH MULTIPLE PIPES AND / OR MULTIPLE MAGNESIUM ANODE BANKS.

FLUSH MOUNT TEST BOX C4
SCALE: NONE EK501



NOTES:

- BOLTED CONNECTION MAY BE USED IN LIEU OF EXOTHERMIC WELD FOR ABOVE GRADE CONNECTIONS ONLY.
- REMOVE TANK OR PIPE COATING FOR APPROXIMATELY 20 SQUARE CENTIMETERS. TANK OR PIPE SURFACE TO BE CLEAN, BRIGHT, AND DRY. USE FILE.
- EXOTHERMIC WELD TO STRUCTURE, 15 GRAM CHARGE MAXIMUM.
- REMOVE SLAG AND CLEAN WELD AREA WITH DENATURED ALCOHOL. COAT EXPOSED COPPER AND STEEL WITH APPROVED PAINT COATING FOR TANK/PIPELINE EXTERIOR.

STRUCTURE CONNECTION A4
SCALE: NONE EK501, EK502

DATE	DESCRIPTION	BY	APPR



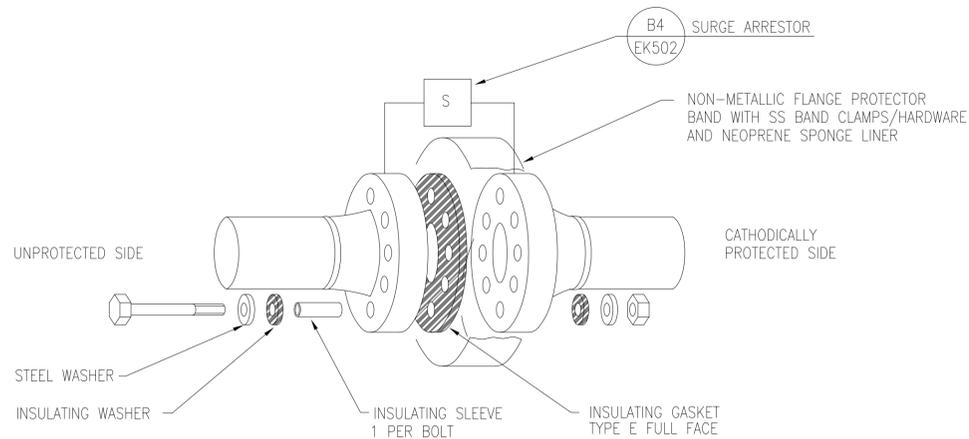
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KADLEC ASSOCIATES
CORROSION ENGINEERS
WWW.KACEASSOCIATES.COM

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ENGINEERING • CONSULTING

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE
DES JMK DRW JMK CHK DET
BRANCH MANAGER
CHEF ENG/ARCH
<<OO>>

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
CAMP LEMONNIER
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA
DJBOUTI AFRICA
DESC 1701/P-1701
CONSTRUCT FUEL STORAGE FACILITIES
CATHODIC PROTECTION DETAILS

SCALE: AS NOTED
PROJECT NO.:
WORK ORDER NO.:
NAVFAC DRAWING NO. 12027149
SHEET 185 OF 186
EK501



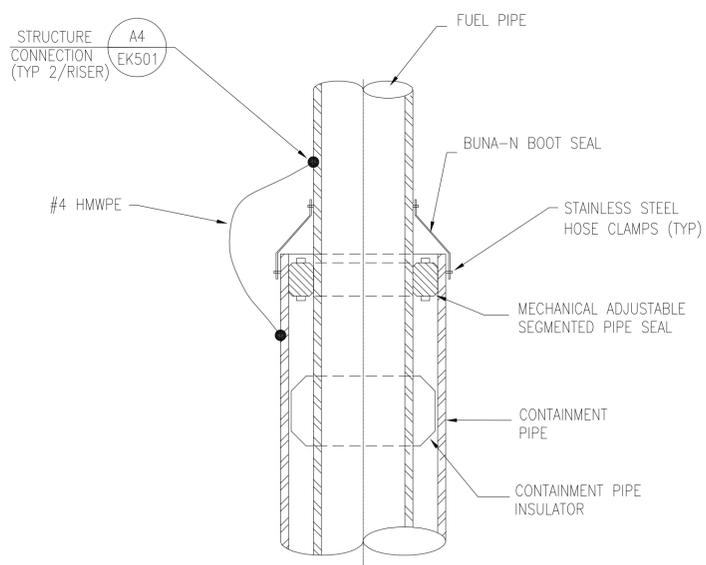
NOTES:

1. TEST EACH FLANGE WITH CERTIFIED FLANGE INSULATION TESTER. SUBMIT REPORT TO CONTRACTING OFFICER. SEE SPECIFICATIONS.
2. SEE MECHANICAL DRAWINGS FOR INSULATING FLANGE LOCATIONS.

INSULATING FLANGE

SCALE: NONE

EK101 **C1**



NOTES:

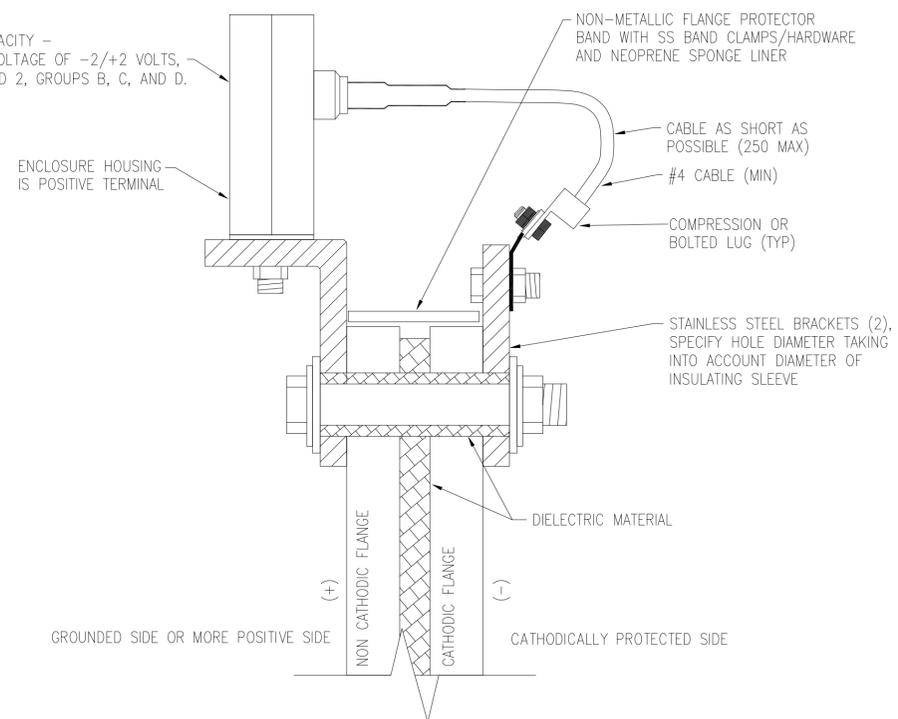
1. INSTALL BOND CABLE AT ALL NEW WORK PIPE RISERS (14 TOTAL).

DOUBLE WALL PIPE BONDING

SCALE: NONE

EK101 **A1**

SURGE ARRESTOR, 3.7 kA CAPACITY -
RATING: NEGATIVE BLOCKING VOLTAGE OF -2/+2 VOLTS,
UL LISTED, CLASS 1, DIV. 1 AND 2, GROUPS B, C, AND D.



NOTES:

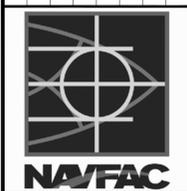
1. GRIND FLANGE TO BARE METAL. APPLY CORROSION INHIBITOR TO ALL CONTACT POINTS BETWEEN BRACKET, LUGS, CABLE, AND BOLTS.
2. INSTALL SURGE DEVICE USING CORRECT POLARITY AS SPECIFIED BY MANUFACTURER.

SURGE ARRESTOR

SCALE: NONE

EK502 **B4**

DATE	DESCRIPTION	BY	APPR



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WWW.KACEASSOCIATES.COM E-INFO@KACEASSOCIATES.COM

Austin Brockenbrough
ENGINEERING • CONSULTING
A/E I/P/D

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE
DES JMK DRW JMK CHK DET
<<P/M/DW>>
BRANCH MANAGER
CHEF ENG/ARCH
<<OO>>

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
CAMP LEMONNIER

NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA
DJBOUTI AFRICA

DESC 1701/P-1701
CONSTRUCT FUEL STORAGE FACILITIES
CATHODIC PROTECTION DETAILS

SCALE: AS NOTED
PROJECT NO.:
WORK ORDER NO.:
NAVFAC DRAWING NO. 14047150
SHEET 186 OF 186
EK502
DRAWING REVISION: 10 MARCH 2009

FILE NAME: C:\Users\jason\Documents\14047150.dwg PLOTTED: Thursday, January 28, 2016 - 9:47pm USER: jason