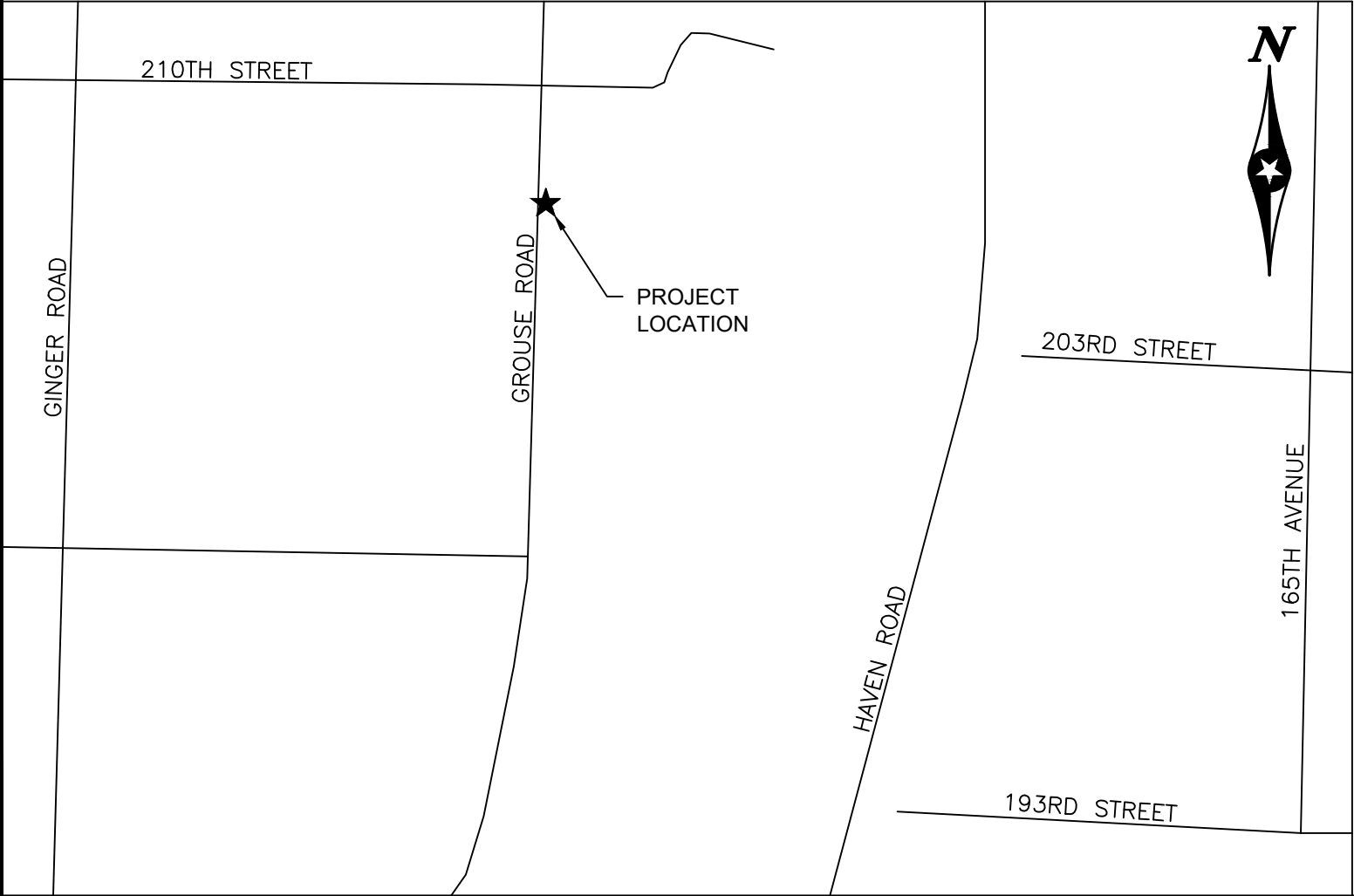


INDEX	
PAGE NUMBER	DRAWINGS NAME
1	TITLE
2	SITE PLAN
3	DETAILS
4	CONNECTION DETAILS
5	ELECTRICAL SCHEMATIC
6	BILL OF MATERIALS

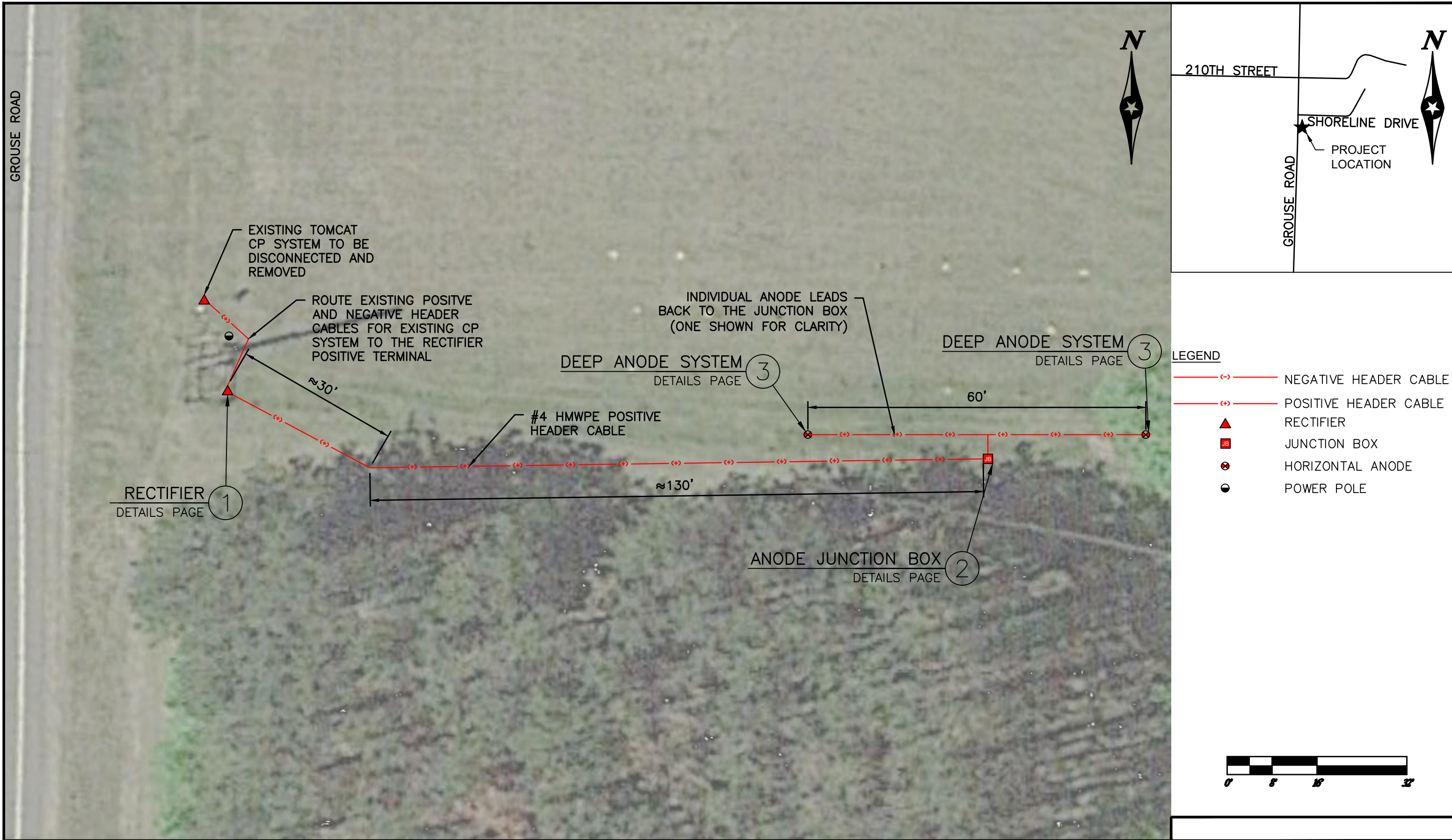
CAMP RIPLEY GROUND BED
AND RECTIFIER
MORRISON COUNTY, MN
T40N, R32W



		R1	08/01/17	ISSUED FOR REVIEW	JSS	JAM	BTF
REFERENCE DRAW. NO.	REFERENCE DRAWING TITLE	REV	DATE	DESCRIPTION	DES	CHK	APP



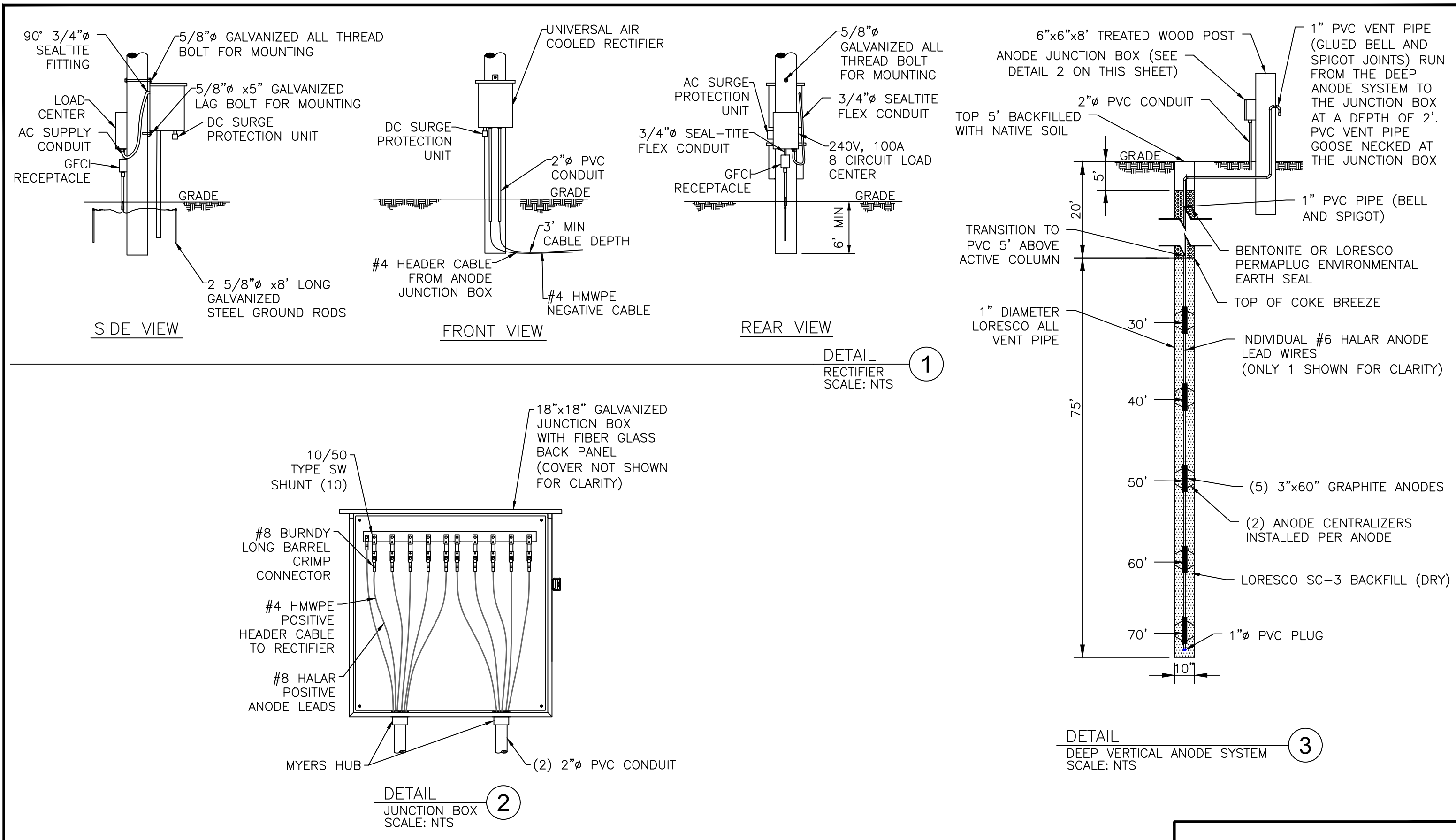
DRAWING TITLE: CAMP RIPLEY GROUND BED TITLE SHEET LITTLE FALLS, MN			
SCALE: NONE	WR NUMBER: 17141.1-5.1-001-R1	DRAWING NO.:	REV: R1



		R1	08/01/17	ISSUED FOR REVIEW	JSS	JAM BTF
REFERENCE DRAW. NO.	REFERENCE DRAWING TITLE	REV	DATE	DESCRIPTION	DES	CHK APP



DRAWING TITLE: CAMP RIPLEY GROUND BED PLOT PLAN LITTLE FALLS, MN			
SCALE: 1"=16'	WR NUMBER: 17141.1-5.3-001-R1	DRAWING NO.:	REV: R1



									 <p>EXCELLENCE & INTEGRITY 130 West Superior Street, Suite 500, Duluth, MN 55802 www.LSConsulting.com 218.727.3141</p>	DRAWING TITLE: <p>CAMP RIPLEY DETAILS CARLTON COUNTY, MN</p>			
		R1	07/31/17	ISSUED FOR INTERNAL REVIEW	CEF	JAM	BTF						
REFERENCE DRAW. NO.	REFERENCE DRAWING TITLE	REV	DATE	DESCRIPTION	DES	CHK	APP			SCALE: NTS	WR NUMBER: 17141.1-5.6-001-R1	DRAWING NO R1	REV R1

STEP ONE:
REMOVE A 2" SECTION OF COATING, FILE SURFACE TO BRIGHT METAL AND DRY.

STEP TWO:
LEAVE SLACK IN CABLE TO REDUCE STRAIN ON THERMITE WELD.

STEP THREE:
STRIP INSULATION FROM WIRE, SLIP ON ERICO CAB133-1K COPPER SLEEVE (#12 WIRE AND SMALLER) AND CRIMP.

PLACE AGAINST METAL SURFACE.

STEP FOUR:
PLACE PREPARED WELDER OVER WIRE AND HOLD FIRMLY WHILE MAKING CONNECTION.

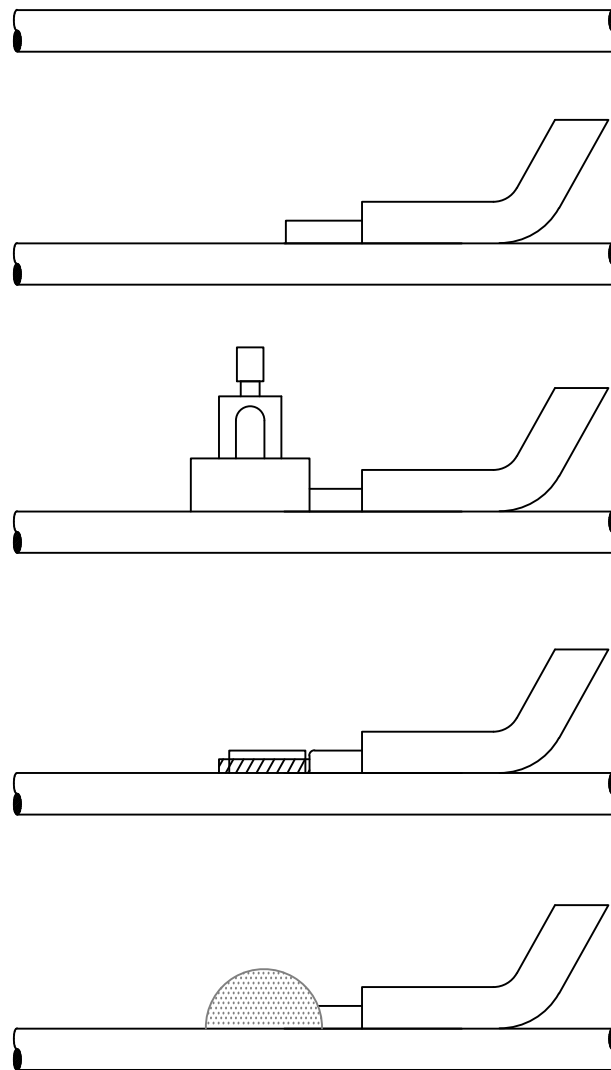
APPLY SPARK TO SIDE OF WELDER WITH FLINT GUN.

STEP FIVE:
HOLD AND LET COOL.

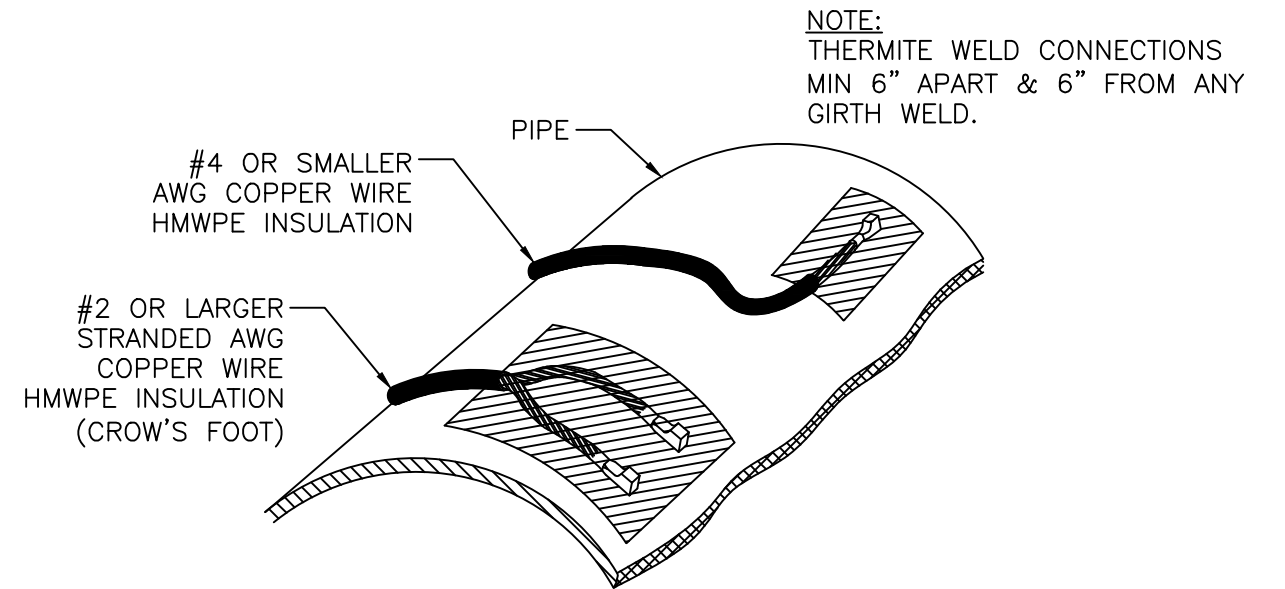
STEP SIX:
REMOVE CARBON MOLD.

STEP SEVEN:
AFTER WELD HAS COOLED, HIT WELD WITH HAMMER TO ENSURE WELD IS INTACT.

STEP EIGHT:
PROTECT CADWELD USING COMPANY APPROVED COATING.



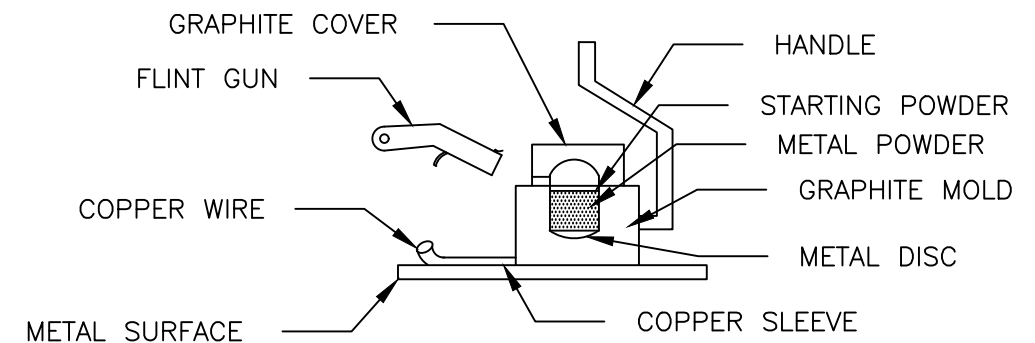
CABLE TO PIPE CAD WELD TYPICAL
NTS



NOTES:

MAXIMUM CADWELD CHARGE OF CA-15 CADWELD PLUS ACCEPTABLE ALTERNATIVE.

PIPE CONNECTION AND COATING TYPICAL
NTS

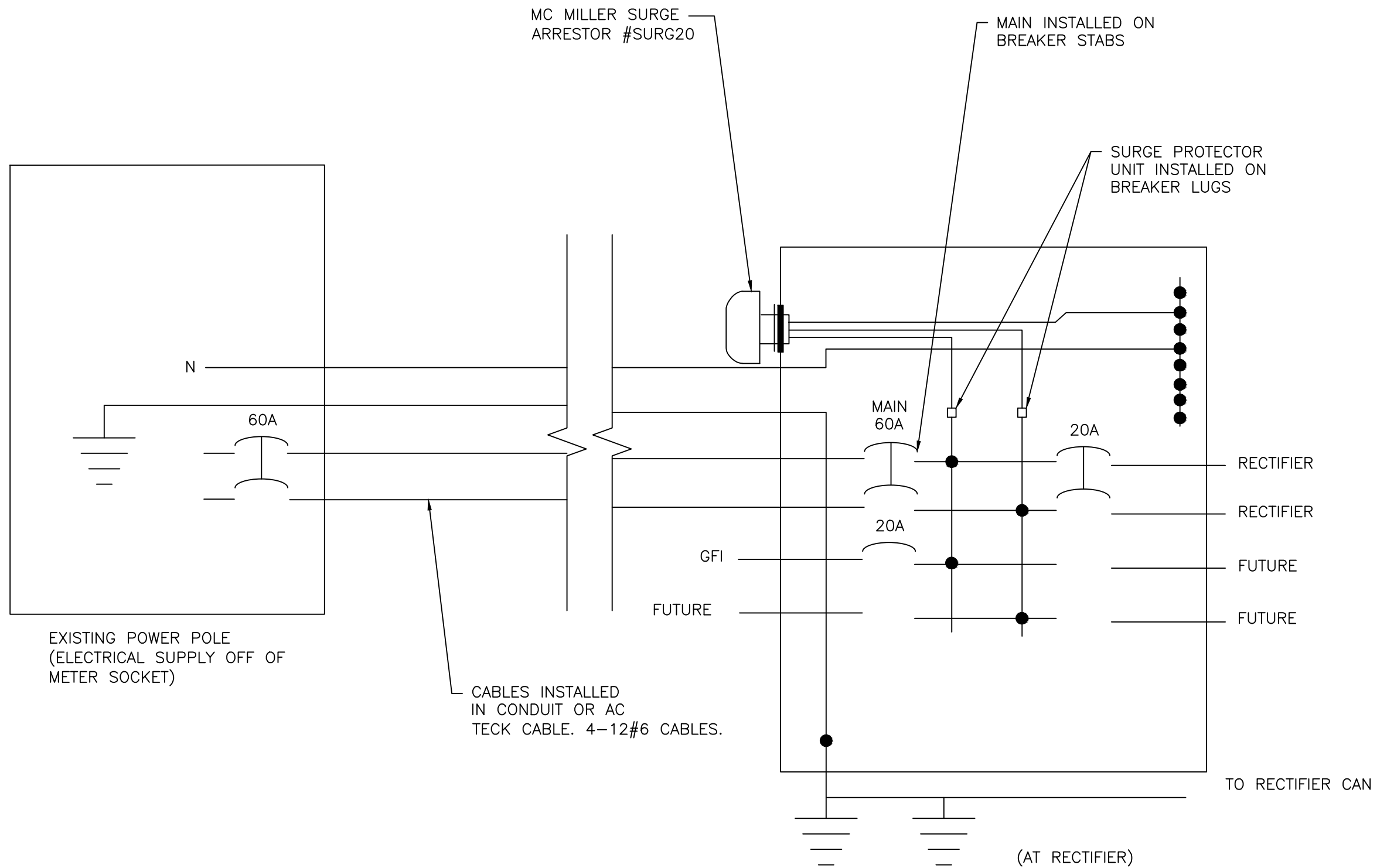


PREPARING THERMITE WELDER
NTS

		R1	08/01/17	ISSUED FOR REVIEW	CEF	JAM BTF
REFERENCE DRAW. NO.	REFERENCE DRAWING TITLE	REV	DATE	DESCRIPTION	DES	CHK APP



DRAWING TITLE: CAMP RIPLEY GROUND BED CONNECTION DETAILS LITTLE FALLS, MN			
SCALE: NTS	WR NUMBER: 17141.1-5.6-002-R1	DRAWING NO.:	REV. R1



		R1	08/01/17	ISSUED FOR REVIEW	CEF	JAM	BTF
REFERENCE DRAW. NO.	REFERENCE DRAWING TITLE	REV	DATE	DESCRIPTION	DES	CHK	APP



DRAWING TITLE: CAMP RIPLEY GROUND BED ELECTRICAL DETAILS LITTLE FALLS, MN			
SCALE: NONE	WR NUMBER: 17141.1-5.2-001-R1	DRAWING NO.:	REV. R1

MERC CAMP RIPLEY GROUND BED BILL OF MATERIALS			
TAG	QUANTITY	UNIT	DESCRIPTION
1	1	EACH	LABOR AND MATERIALS TO DRILL THE ANODE BED (SUPPLIED BY DRILLING SUB-CONTRACTOR)
2	10	EACH	3" X 60" CENTER CONNECTED GRAPHITE ANODE, WITH 150' #6 STRANDED COPPER WIRE WITH HALAR INSULATION
3	20	EACH	ANODE CENTRALIZERS
4	150	50LB BAGS	LORESCO SC-3 COKE BREEZE
5	40	50LB BAGS	LORESCO PERMAPLUG ENVIORMENTAL EARTH SEAL
6	220	FEET	1" ALL-VENT DEEP ANODE VENT PIPE
7	100	FEET	1" RIGID PVC CONDUIT
8	20	FEET	2" RIGID PVC CONDUIT
9	1	EACH	MISCELLANEOUS PVC MATERIALS
10	1	EACH	10"X10"X12' GREEN TREATED MOUNTING POST
11	1	EACH	6"X6"X8' GREEN TREATED MOUNTING POST
12	1	EACH	18"X18" 16 GAUGE GALVANIZED, VENTALATED JUNCTION BOX WITH LOCKABLE LATCH, INCLUDING COPPER BUSS BAR, 10A/50MV HOLLOWAY TYPE SW SHUNTS, 1 HEADER LUG
13	1	EACH	18"X18" 16 GAUGE GALVANIZED, VENTALATED JUNCTION BOX WITH LOCKABLE LATCH, INCLUDING COPPER BUSS BAR, 10A/50MV HOLLOWAY TYPE SW SHUNTS, 1 HEADER LUG
14	11	EACH	100A 120/240V LUG TYPE LOAD CENTER WITH 8 CIRCUITS, 1 60A MAIN, 2 20A BREAKERS, 1 15A BREAKER
15	1	EACH	CRIMP CONNECTIONS
16	320	FEET	#4 AWG HMWPE CABLE (BLACK)
17	320	FEET	YELLOW OR RED WARNING TAPE WITH "BURIED ELECTRIC CABLE" PRINT
18	1	EACH	UNIVERSAL AIR-COOLED RECTIFIER, GALVANIZED AND LOCKABLE CABINET
19	2	EACH	MC MILLER 275V SURGE PROTECTOR (1 FOR AC, 1 FOR DC)
20	2	EACH	5/8" X 8' GALVANIZED GROUNDING ROD
21	1	EACH	GFCI RECEPTACLE: MIDWEST #U010C010
22	1	EACH	MISCELLANEOUS ELECTRICAL SUPPLIES
23	2	EACH	5/8" X 12" GALVANIZED ALL THREAD BOLT FOR MOUNTING RECTIFIER
24	2	EACH	1" GALVANIZED PIPE STRAPS
25	2	EACH	2" GALVANIZED PIPE STRAPS
NOTE: ALL MISC HARDWARE, PRIMERS, ADHESIVES, CONNECTORS, FASTENERS,TAPES, SPLICING MATERIALS, COUPLINGS, AND FITTINGS NECESSARY FOR THE COMPLETION OF THIS PROJECT SHALL BE PROVIDED BY THE CONTRACTOR WHETHER SPECIFICALLY ITEMIZED OR NOT.			

		R1	08/01/17	ISSUED FOR REVIEW	CEF	JAM	BTF
REFERENCE DRAW. NO.	REFERENCE DRAWING TITLE	REV	DATE	DESCRIPTION	DES	CHK	APP



DRAWING TITLE: CAMP RIPLEY GROUND BED BILL OF MATERIALS LITTLE FALLS, MN			
SCALE: NONE	WR NUMBER: 17141.1-5.8-001-R1	DRAWING NO.:	REV. R1