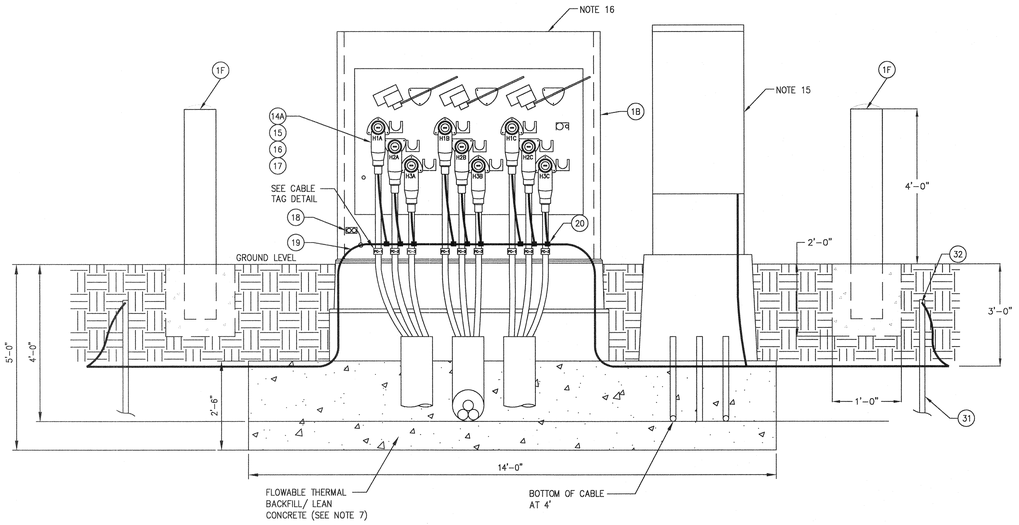
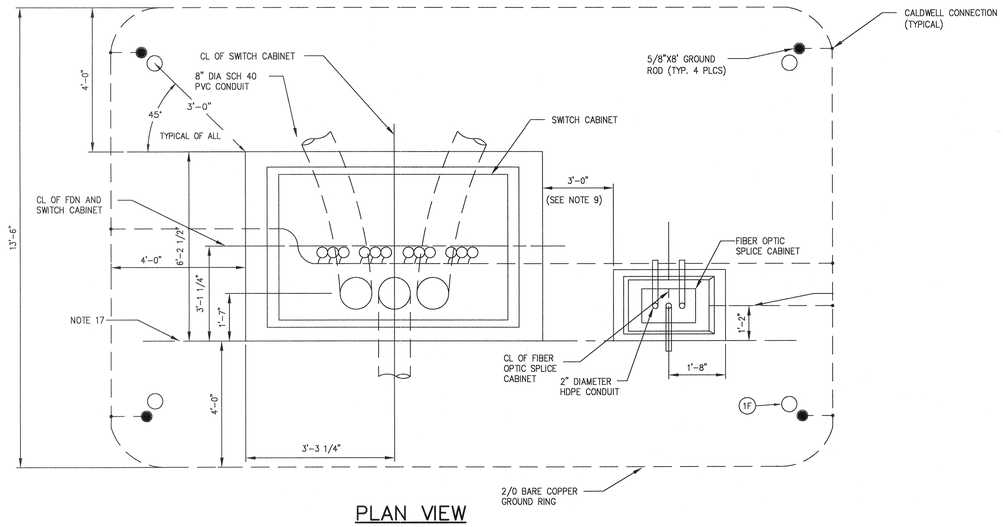


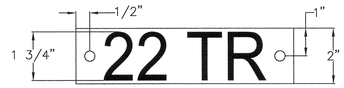
PROFILE VIEW

N.T.S.
(TYPICAL OF ALL)



PLAN VIEW

N.T.S.
(TYPICAL OF ALL)



NOTES:

1. SIGN BACKING FOR EXTERIOR SIGNS SHALL BE 1/8 IN ALUMINUM OR EQUAL.
2. USE SELF TAPPING SCREWS TO MOUNT SIGNAGE ON TRANSFORMER AND SWITCH DOORS.

TRANSFORMER TAG DETAIL

PC-1

CABLE TAG DETAIL

BILL OF MATERIALS - SWITCH CABINET, 3-WAY, 35 kV, 600A

ITEM	QUANTITY	UNIT	DESCRIPTION	MANUFACTURER	CATALOG
1F	4	EA	BOLLARD 5 1/2" O.D. X 6'-0", CONCRETE FILLED, PAINTED YELLOW OR PROVIDE YELLOW COVERS		
14A	*	EA	ELBOW ASSEMBLY KIT, 600 AMP, 35kV, 1/0 AWG AL, 345 MILS	COOPER	TP635G13CCS1
14B	*	EA	ELBOW ASSEMBLY KIT, 600 AMP, 35kV, 350kcmil AL, 345 MILS	COOPER	TP635M19CCS2
15	*	EA	ELBOW ASSEMBLY KIT, 600 AMP, 35kV, 4/0 AWG AL, 345 MILS	COOPER	TP635K16CCS1
16	*	EA	ELBOW ASSEMBLY KIT, 600 AMP, 35kV, 750 kcmil AL, 345 MILS	COOPER	TP635R25CCS1
17	*	EA	ELBOW ASSEMBLY KIT, 600 AMP, 35kV, 1000 kcmil AL, 345 MILS	COOPER	TP635T27CCS1
18	2	EA	LUG, COMPRESSION, COPPER, 2 HOLE, 2/0 AWG FOR GROUND CONNECTION	BURNDY	YGHA26-2N
19	90	FT	WIRE, 2/0 COPPER BARE, STR		
20	13	EA	CONNECTOR, COPPER COMPRESSION #6-1/0 TO #6-1/0		
26	6	EA	FLT IND, 3 PH, TST PT MTD, 600 AMP, W/ RMT IND, 800 A TRIP	POWER DELIVERY PRODUCTS	40-3115-000-08
31	4	EA	GROUND ROD, 5/8" x 8'	BLACKBURN - OE	6258
32	4	EA	CONNECTOR, COPPER, 1/2"-5/8" ROD TO 1/0-2/0	HUBBELL/ ANDERSON	GC103-02
64	3	EA	8" SCH 40 PVC 90 DEGREE ELBOW, 48" RADIUS		
			OWNER FURNISHED EQUIPMENT		
1B	1	EA	SWITCHGEAR, PADMOUNT, 38kV PUFFER GAS, 3-WAY W/ 20" CABLE COMPARTMENT	G&W ELECTRIC	SPRAM-33-396F-40P1
25A	1	EA	PAD/VAULT, 3-WAY SWITCH		

* SEE SINGLE LINE DRAWING E-SL-30 FOR PROPER ELBOW SIZING
** SEE FIBER TOPOLOGY DRAWING E-FL-30 FOR SWITCH CABINETS WITH FIBER CABINETS

NOTES:

1. INDICATE DESTINATION FOR EACH CIRCUIT.
2. NOT USED
3. BOND GROUND RODS TO ALL APPLICABLE GROUNDING LUGS ON SWITCH CABINET.
4. EACH SET OF MV CABLES WILL BE TERMINATED ONTO A SINGLE SET OF BUSHINGS. NO PIGGYBACKING OF ELBOWS.
5. SWITCH CABINET ENCLOSURE OVERALL DIMENSIONS ARE SHOWN ONLY. SEE MANUFACTURER SPECIFICATIONS FOR DETAILED DIMENSIONS.
6. FOR ANCHOR SIZING AND LOCATION, REFER TO SWITCH CABINET MANUFACTURER'S DRAWINGS.
7. FLOWABLE THERMAL BACKFILL/LEAN CONCRETE BASE SHALL HAVE A MAXIMUM THERMAL RESISTIVITY OF 60 RHO.
8. MINIMUM BENDING RADIUS FOR 2" HDPE CONDUIT IS 24". MINIMUM BENDING RADIUS FOR 8" SCH 40 PVC IS 48". CONTRACTOR TO VERIFY MINIMUM BENDING RADIUS FOR POWER CABLE.
9. A MINIMUM SEPARATION BETWEEN SWITCH CABINET AND FIBER ENCLOSURE OF 3' IS REQUIRED TO ALLOW FOR 180 DEGREE OPENING OF BOTH ENCLOSURE DOORS.
10. AREA UNDER PAD SHALL BE EXCAVATED TO A DEPTH NECESSARY TO REACH FIRM, UNDISTURBED MATERIAL, WHICHEVER IS DEEPER. IF FIRM MATERIAL HAS NOT BEEN REACHED WITHIN A DEPTH OF 5 FEET, EXCAVATE 1 FOOT BEYOND THE PERIMETER OF THE PAD AND BACKFILL THE ENTIRE EXCAVATED AREA WITH CLEAN, NON-EXPANSIVE SOIL, COMPACTED TO 90% OF MAXIMUM DENSITY. SOIL SHALL BE PLACED IN LAYERS NOT MORE THAN 6" THICK BEFORE COMPACTION. MAXIMUM DENSITY AND IN PLACE DENSITY TO BE DETERMINED PER ASTM D-1556 AND ASTM D-1557.
11. BACKFILL AROUND GROUND CONDUCTOR WITH 4" OF WELL COMPACTED SELECT NATIVE WILL WITH NO ROCKS LARGER THAN WHAT WOULD PASS THROUGH A #4 SCREEN.
12. MINIMUM DISTANCE BETWEEN GROUND RODS IS 10 FEET.
13. SEAL CONDUIT AFTER CABLE INSTALLATION.
14. DIRECTIONAL FAULT INDICATORS TO BE LOCATED AT BASE OF EACH DEAD BREAK CONNECTOR ELBOW. FAULT INDICATORS ARE TO BE INSTALLED ON ANY GENERATOR CABLES. REFER TO E-SL-30 FOR LOCATIONS.
15. SEE E-FS-31 FIBER OPTIC SPLICE CABINET FOR DETAILS AND BILL OF MATERIAL FOR FIBER CABINET.
16. INSTALL TAG ON FRONT OF CABINET. SEE DETAILS.
17. MARK EACH PHASE WITH COLOR TAPE AS FOLLOWS:
    - H1(A)=BLACK, H2(B)=RED, H3(C)=BLUE

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NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	BNK	RJG	CSF	7/8/11	60% DELIVERABLE
B	BNK	RJG	CSF	8/16/11	85% DELIVERABLE
C	BNK	CSF	CSF	9/20/11	90% DELIVERABLE
0	BNK	CSF	JLM	10/4/11	ISSUED FOR CONSTRUCTION
1	NJG	[illegible]	[illegible]	12/11/12	CONSTRUCTION REVISIONS

KENNETH J. BENOIT 6506 REGISTERED PROFESSIONAL ENGINEER NORTH DAKOTA DATE 2-21-13

CLIENT	7/8/11	8/16/11	9/20/11	10/4/11				
BID								
CONSTRUCTION								
PERMITTING								
RELEASED TO/FOR	A	B	C	0	1	2	3	
	DATE RELEASED							

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Scale	N.T.S
Date	07/08/11
Drawn	BNK
Checked	CSF
Designed	RJG
Approved	JLM

minnesota power AN ALLETE COMPANY
Bison
A WIND ENERGY INITIATIVE OF MINNESOTA POWER IN NORTH DAKOTA

BISON 3 WIND PROJECT
MORTON & OLIVER COUNTIES, NORTH DAKOTA

34.5KV COLLECTOR SYSTEM
3-WAY SWITCH CABINET DETAIL

BARR PROJECT No. 34/33-1006
CLIENT PROJECT No.
DWG. No. E-SD-30
REV. No. 1

Images in Drawing