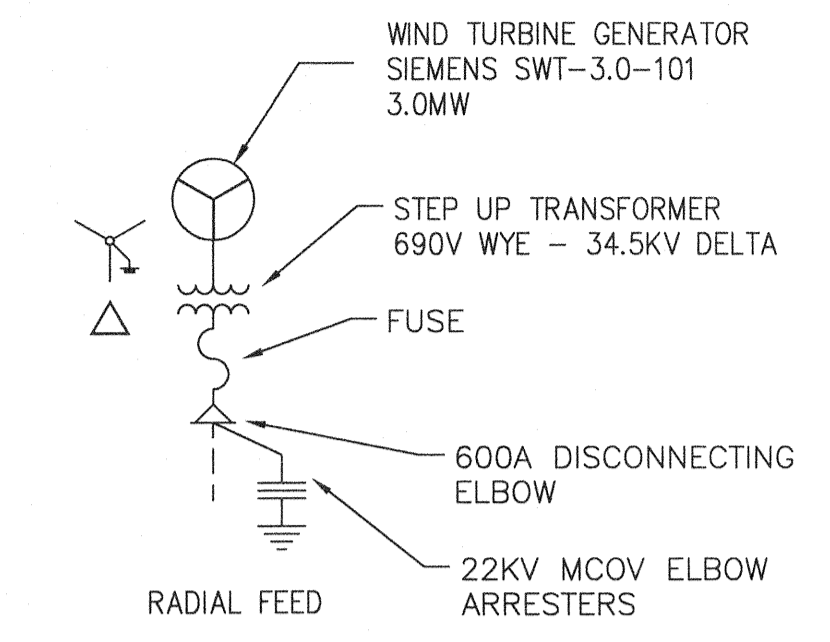


TYPICAL TURBINE / TRANSFORMER ARRANGEMENT



LEGEND

- ⊙ SIEMENS 3.0 WTG (WIND TURBINE GENERATOR)
- ⚡ 22KV MCOV ELBOW ARRESTERS
- ⊕ FAULT INDICATORS LOCATED ON ELBOW
- ⋯ FUSE
- ⊕ 600A DISCONNECTING ELBOW
- ⊕ 38KV SECTIONAL PADMOUNT SWITCH

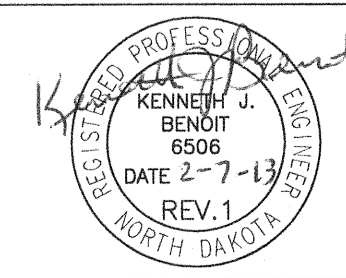
CABLE SIZES

- (1) UG 1000 STR AL, 35KV 100% EPR 1/3 CU CN
- (2) UG 750 STR AL, 35KV 100% EPR 1/3 CU CN
- (3) UG 350 STR AL, 35KV 100% EPR 1/3 CU CN
- (4) UG 4/0 STR AL, 35KV 100% EPR FULL CU CN
- (5) UG 1/0 STR AL, 35KV 100% EPR FULL CU CN

NOTES

1. CONDUCTOR LENGTHS ARE ACTUAL TRENCH LENGTH. END OF PVC PIPE AT START OF RUN TO END OF PVC PIPE AT END OF RUN.
2. CONDUCTOR SIZING BASED ON:
 - THERMAL STUDY AT AVERAGE AND WORST CASE RHO (APPROXIMATELY 180°C-CM/W)
 - EXPECTED FAULT CURRENT OF 15 KA
 - OVERALL COLLECTOR SYSTEM LOSSES OF 1.7% FULL OUTPUT (ASSUMING 0.6% FROM PMT)
3. CABLE SPLICE LOCATIONS NOT SHOWN.
4. COLLECTOR SYSTEM TRENCH WILL ALSO CONTAIN FIBER OPTIC CABLE.
5. NOT USED.
6. NOT USED.
7. PERMANENT METEOROLOGICAL TOWERS NOT SHOWN. POWER FOR MET TOWERS SUPPLIED FROM LOCAL DISTRIBUTION.

PIKE ENERGY SOLUTIONS, LLC.
 10101 Claude Freeman Drive, Suite 100W
 Charlotte, NC 28262
 ND License No. 954PE



CLIENT	7/1/11/7/8/11/21/18/4/11
BID	
CONSTRUCTION	
PERMITTING	
RELEASED TO/FOR	C D E O 1 2 3
	DATE RELEASED

BARR Engineering Co.
 Project Office: BARR ENGINEERING CO.
 4700 WEST 77TH STREET
 MINNEAPOLIS, MN.
 55435-4803
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Scale	N.T.S
Date	04/29/11
Drawn	RJG
Checked	CEG
Designed	RJG
Approved	JLM

MINNESOTA POWER
 AN ALLETE COMPANY
BISON
 A WIND ENERGY INITIATIVE OF MINNESOTA POWER IN NORTH DAKOTA

BARR PROJECT No. 34/33-1007	
CLIENT PROJECT No.	
34.5KV COLLECTOR SYSTEM SINGLE LINE	
DWG. No. E-SL-10	REV. No. 1

Images in Drawing