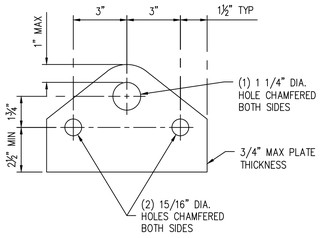
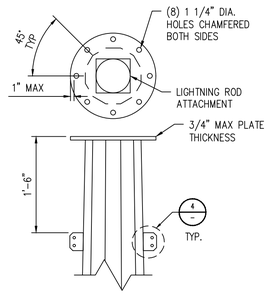
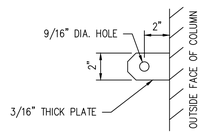


CONDUCTOR ATTACHMENT 1
SCALE: NONE

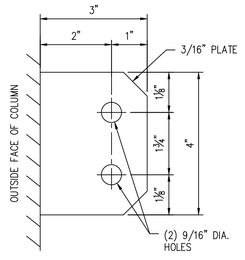


SHIELDWIRE ATTACHMENT 2
SCALE: NONE



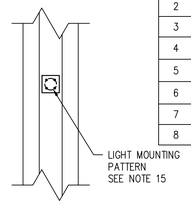
NOTE:
SEE NOTE 9 FOR GROUND TAB SPACING.

1-HOLE GROUND TAB 3
SCALE: NONE



NOTE:
SEE NOTE 9 FOR GROUND TAB SPACING.

2-HOLE GROUND TAB 4
SCALE: NONE



LIGHT MOUNT 5
SCALE: NONE

LOAD CASES							DESIGN LOADS IN KIPS (FOR STRUCTURAL STEEL DESIGN)								
DESCRIPTION		WEATHER CONDITIONS													
		TEMP (°F)	WIND (mph)	ICE (in)	W_{WIRE} (psf)	W_{STR} (psf)	V_{PA}	T_{PA}	L_{PA}	V_{SA}	T_{SA}	L_{SA}	V_{SB}	T_{SB}	L_{SB}
1	NESC 250B – HEAVY LOADING	0	40	0.50	4.00	10.00	0.46	0.77	1.65	0.16	0.57	1.24	0.24	0.94	3.20
2	NESC 250C – EXTREME WIND	60	105	0.00	28.22	31.05	0.25	0.63	1.17	0.08	0.34	0.67	0.10	0.48	1.50
3	NESC 250D – ICE & WIND	15	40	0.75	4.00	4.40	0.40	0.57	1.26	0.15	0.43	0.94	0.25	0.66	2.29
4	CONSTRUCTION	15	35	0.00	3.14	4.70	1.28	0.48	0.16	0.77	0.22	0.07	1.16	0.34	0.23
5	EXTREME ICE	32	0	1.00	0.00	0.00	0.47	0.64	1.52	0.19	0.50	1.18	0.34	0.70	2.72
6	DEFLECTION – EXTREME WIND	60	70	0.00	12.54	12.54	0.22	0.31	0.61	0.07	0.16	0.32	0.09	0.26	0.87
7	DEFLECTION – ICE & WIND	15	40	0.37	4.10	4.10	0.28	0.35	0.76	0.09	0.22	0.47	0.13	0.39	1.35
8	DEFLECTION – EXTREME ICE	32	0	0.50	0.00	0.00	0.31	0.35	0.82	0.10	0.21	0.50	0.16	0.36	1.37

DESIGN CONDITIONS:

AHEAD SPAN
CONDUCTOR WIRE: (1) – 1192.5 kcmil 45/7 ACSR "BUNTING"

WIND SPAN: 40 FT.
WEIGHT SPAN: 55 FT.
LINE ANGLE (ø): 0° – 25°
LIMITED BY: 1000 LB PER SUBCONDUCTOR @ NESC 250B HEAVY (INITIAL)

SHIELD WIRE: (1) – DNO 13045 AC–64/528 OPGW

WIND SPAN: 40 FT.
WEIGHT SPAN: 55 FT.
LINE ANGLE (ø): 0° – 25°
LIMITED BY: 750 LB PER WIRE @ NESC 250B HEAVY (INITIAL)

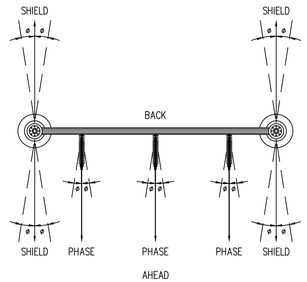
BACK SPAN
SHIELD WIRE: (1) – 3/8" 7 STRAND EHS STEEL BARE WIRE

WIND SPAN: 100 FT.
WEIGHT SPAN: 135 FT.
LINE ANGLE (ø): 0° – 15°
LIMITED BY: 4 FT SAG @ NESC 250B HEAVY (INITIAL)

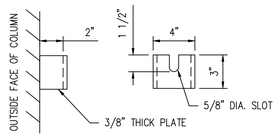
NOMENCLATURE:

LOAD DIRECTION
V: VERTICAL
T: TRANSVERSE
L: LONGITUDINAL

CONDUCTOR
P: PHASE
S: SHIELD

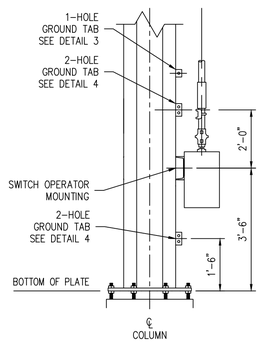


PLAN VIEW
SCALE: NONE

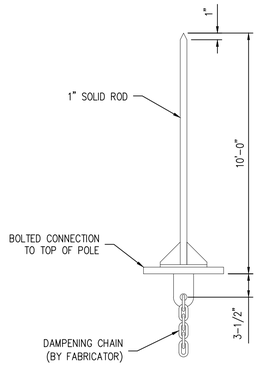


NOTE:
SEE NOTE 9 FOR OPGW DOWNLEAD CLAMP SPACING.

OPGW DOWNLEAD CLAMP 6
SCALE: NONE



SWITCH OPERATOR GROUNDING 7
SCALE: NONE

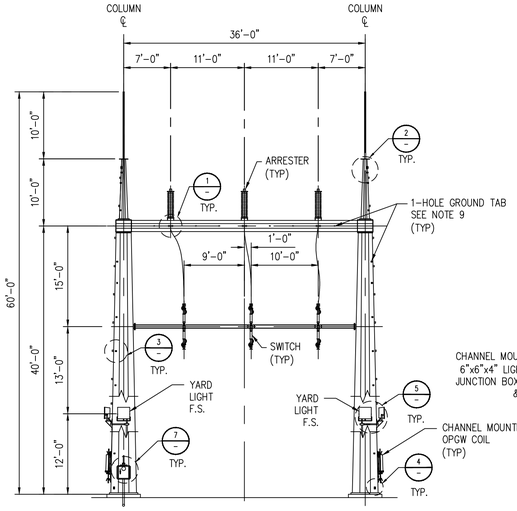


LIGHTNING ROD 8
SCALE: NONE

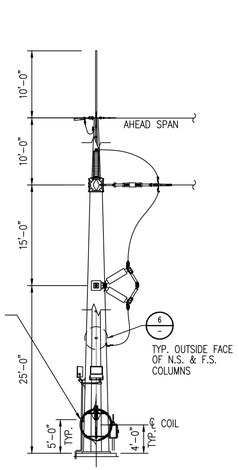
NOTE:
SEE NOTE 9 FOR OPGW DOWNLEAD CLAMP SPACING.

NOTES:

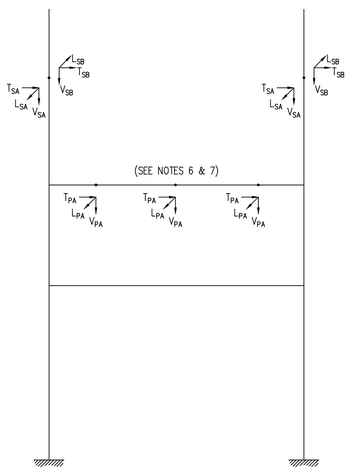
1. LOAD FACTORS THAT WERE APPLIED TO THE LOAD CASES:
   A. NESC 250B – HEAVY LOADING
      1.5 (VERT) 2.5 (TRANS) 1.65 (LONG)
   B. CONSTRUCTION
      1.5 (VERT) 1.5 (TRANS) 1.5 (LONG)
   C. DEFLECTION
      1.0 (VERT) 1.0 (TRANS) 1.0 (LONG)
   D. ALL OTHER LOAD CASES
      1.1 (VERT) 1.1 (TRANS) 1.1 (LONG)
2. THE WIND LOAD ON THE STRUCTURE SHALL BE APPLIED TO ALL MEMBERS WITH NO SHIELDING EFFECTS. WIND PRESSURE FOR EACH LOAD CASE SHALL BE APPLIED TO THE STRUCTURE IN THE DIRECTION WHICH YIELDS THE MOST CONSERVATIVE DESIGN.
3. W_{WIRE} IS THE WIND PRESSURE APPLIED TO THE WIRE AND W_{STR} IS THE WIND PRESSURE TO BE APPLIED TO THE STRUCTURE. A SHAPE FACTOR SHALL BE APPLIED TO THE WIND LOAD IN ACCORDANCE WITH ASCE 113 TABLE 3–9.
4. ICE LOADING SHALL BE APPLIED TO ALL SUBSTATION EQUIPMENT, RIGID BUS AND OTHER MISCELLANEOUS ITEMS ATTACHED TO THE STRUCTURE IN ACCORDANCE WITH ASCE 113 CHAPTER 3. ICE LOADING ON THE STRUCTURE ITSELF MAY BE IGNORED.
5. THETA (ø) IS THE PHASE AND SHIELD PULL OFF ANGLE AS SHOWN IN THE PLAN VIEW.
6. THE STRUCTURE SHALL BE DESIGNED FOR THE FOLLOWING CONFIGURATIONS FOR ALL LOAD CASES:
   A. ALL CONDUCTORS AND SHIELD WIRES INSTALLED.
   B. NO WIRES ATTACHED.
   C. ANY OTHER CONFIGURATION THAT CONTROLS THE STRUCTURE DESIGN, INCLUDING ANY ONE OR MULTIPLE CIRCUITS INSTALLED.
7. IN ADDITION TO THE LOADS SPECIFIED, STRUCTURES SHALL BE DESIGNED FOR THE FOLLOWING:
   A. AN UPLIFT LOAD OF 750 LBS AT ALL ATTACHMENTS IN PLACE OF V_P AND AN UPLIFT LOAD OF 500 LBS AT ALL ATTACHMENTS IN PLACE OF V_S.
   B. ALL ELECTRICAL EQUIPMENT SHOWN ON DRAWINGS XXXE2000, XXXE2001–1, XXXE2001–2, AND XXXE2001–3 FOR LOADING CONDITIONS SHOWN IN THE ABOVE TABLE WITH THE APPLICABLE LOAD FACTORS IN ASCE 113 TABLE 3–17.
8. DEFLECTION SHALL BE LIMITED BY ASCE 113 CLASS "A" STRUCTURES UP TO THE SWITCH MOUNTING AND CLASS "C" STRUCTURES FROM THE SWITCH MOUNTING TO TOP OF STRUCTURE UNDER THE DEFLECTION LOAD CASES. DEFLECTION AT THE TOP OF THE COLUMN SHALL NOT EXCEED HALF OF THE DIAMETER OF THE TOP OF THE COLUMN UNDER THE DEFLECTION LOAD CASES.
9. WELD 2–HOLE GROUND TABS TO OUTSIDE FACE OF COLUMNS AT 1'–6" BELOW TOP PLATE AND CONTINUE WITH 1–HOLE GROUND TABS AT 6'–0" MAX SPACING. WELD GROUND TABS TO BEAMS AT 4'–0" MAX SPACING. WELD 2–HOLE GROUNDING TABS TO OUTSIDE FACE OF COLUMNS AT 1'–6" ABOVE BASE PLATE. WELD OPGW DOWNLEAD CLAMPS TO SIDE FACE OF COLUMNS AT 3'–0" BELOW TOP PLATE AND CONTINUE WITH OPGW DOWNLEAD CLAMPS AT 4'–0" MAX SPACING.
10. TUBULAR STEEL SHALL BE USED FOR STRUCTURE DESIGN AND COMPLY WITH THE SPECIFICATIONS.
11. ANCHOR BOLTS AND TEMPLATES SHALL BE FURNISHED BY STEEL SUPPLIER.
12. STRUCTURE DESIGN SHALL CONSIDER AN ALLOWABLE FOUNDATION ROTATION OF 0.5 DEGREES.
13. STRUCTURE BASE PLATES SHALL INCLUDE PROVISIONS FOR CONDUIT PENETRATIONS IN THE CENTER OF THE BASE PLATE.
14. STRUCTURE SHALL BE DESIGNED TO REDUCE AND MINIMIZE WIND INDUCED OSCILLATIONS PRIOR TO INSTALLATION OF WIRES.
15. VENDOR SHALL DESIGN AND PROVIDE LIGHT MOUNTING BRACKET, BRACES AND HOOK.



115kV SINGLE BAY DEAD–END
TWO (2) REQUIRED SCALE: NONE



SIDE VIEW
SCALE: NONE



LOADING DIAGRAM
SCALE: NONE

no.	date	by	ckd	description
0	05/13/26	VTR	CCP	ISSUED FOR BID

PRELIMINARY NOT FOR CONSTRUCTION

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
LICENSEE NO. E-65

date	detailed
05/13/2026	T. BYINGTON
designed	checked
V. REED	C. PENNINGTON

Midwest Energy, Inc.
1330 Canterbury Rd.
Hays, Kansas 67601
(785) 625-3437

EAST HAYS SUBSTATION
115kV DEADEND
LOADING DIAGRAM

project	contract
193866	

drawing **XXXS8001-1** — rev. **0**

sheet 1 of 1 sheets
file XXXS8001-1.dwg

Scale For Microfilming: Millimeters / Inches