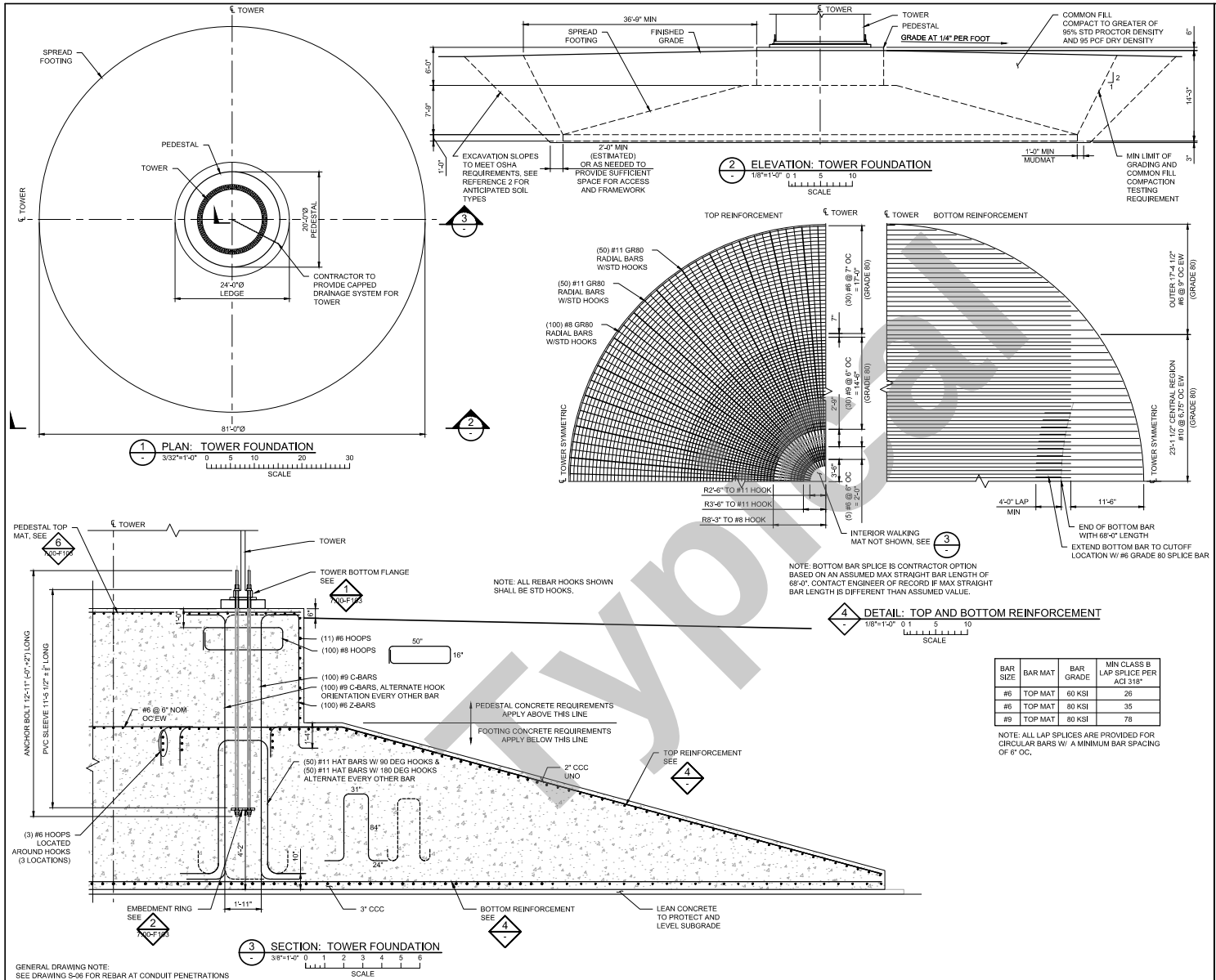
APPENDIX G – FOUNDATION DRAWINGS



BAR SIZE	BAR MAT	BAR GRADE	MIN CLASS B LAP SPLICE PER ACI 318*
#6	TOP MAT	60 KSI	26
#6	TOP MAT	80 KSI	35
#9	TOP MAT	80 KSI	78

NOTE: ALL LAP SPLICES ARE PROVIDED FOR CIRCULAR BARS W/ A MINIMUM BAR SPACING OF 6" OC.

GENERAL DRAWING NOTE:
SEE DRAWING S-06 FOR REBAR AT CONDUIT PENETRATIONS

BUILDING AND DESIGN CODES:

INTERNATIONAL BUILDING CODE 2015, INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS.
BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318, 2014, AMERICAN CONCRETE INSTITUTE.

WIND TURBINE AND TOWER:

MANUFACTURER:
MODEL: V163
POWER OUTPUT: 4.5 MW
TURBINE HUB HEIGHT: 113m
ROTOR DIAMETER: 163m

DESIGN SERVICE LOADS:

UNFACTORED SERVICE LOADS DUE TO EXTREME WIND CONDITION CLASS IEC S:
(APPLY 1.35 LOAD FACTOR TO LOADS SHOWN BELOW TO OBTAIN FACTORED LOADS)
OVERTURNING MOMENT, MXY = 118,800 KN-M = 87,622 FT-KIPS
HORIZONTAL BASE SHEAR, HXY = 1,011 KN = 227 KIPS
VERTICAL TOWER LOAD, WZ = 5,462 KN = 1,228 KIPS

UNFACTORED SERVICE LOADS DUE TO ABNORMAL EXTREME WIND CONDITION CLASS IEC S:
(APPLY 1.10 LOAD FACTOR TO LOADS SHOWN BELOW TO OBTAIN FACTORED LOADS)
OVERTURNING MOMENT, MXY = 151,200 KN-M = 111,519 FT-KIPS
HORIZONTAL BASE SHEAR, HXY = 1,280 KN = 288 KIPS
VERTICAL TOWER LOAD, WZ = 5,422 KN = 1,219 KIPS

UNFACTORED SERVICE LOADS DUE TO NORMAL OPERATING WIND CONDITION CLASS IEC S:
OVERTURNING MOMENT, MXY = 98,156 KN-M = 72,396 FT-KIPS
HORIZONTAL BASE SHEAR, HXY = 816 KN = 183 KIPS
VERTICAL TOWER LOAD, WZ = 5,469 KN = 1,230 KIPS

DESIGN FATIGUE LIFE: 40 YEARS

FOUNDATION DESIGN DATA:

FACTOR OF SAFETY AGAINST OVERTURNING: >1.5
MIN FACTOR OF SAFETY AGAINST SLIDING: >1.5
MIN FACTOR OF SAFETY AGAINST BEARING CAPACITY FAILURE: >2.26 ON EXTREME

REFERENCE DOCUMENTS:

1. "SITE-SPECIFIC FOUNDATION LOADS, V163-4.5 MW, MK4, 60 HZ 113M [TA37100] PANTHER GROVE WIND FARM, ILLINOIS, USA," DOCUMENT: 0145-8394 VER 00, DATE: 2023.06.11.
2. BARR ENGINEERING CO., "GEOTECHNICAL ENGINEERING REPORT PANTHER GROVE WIND ENERGY FACILITY", COPENHAGEN INFRASTRUCTURE PARTNERS, WOODFORD COUNTY, ILLINOIS, DATED JULY 2023.

MIN 28-DAY COMPRESSIVE STRENGTH CONCRETE:
FOOTING: 5500 PSI
PEDESTAL: 6000 PSI

MIN YIELD STRENGTH OF REINFORCING BAR:
60 KSI UNO

MIN STRENGTH OF ANCHOR BOLTS:
TENSILE STRENGTH 150 KSI YIELD STRENGTH 125 KSI

MIN 7-DAY COMPRESSIVE STRENGTH OF NON-SHRINK GROUT:
16,000 PSI

MIN YIELD STRENGTH OF EMBEDMENT RING:
50 KSI

MIN YIELD STRENGTH OF SPREADER PLATE:
50 KSI

ESTIMATED VOLUME OF CONCRETE:
861 CUBIC YARDS (FOOTING)
70 CUBIC YARDS (PEDESTAL)
931 CUBIC YARDS TOTAL

ESTIMATED WEIGHT OF STEEL REINFORCING:
55.3 TONS GRADE 80
14.8 TONS GRADE 60
70.1 TONS TOTAL (INCLUDES LAP SPLICE TONNAGE ESTIMATE)

DESIGN GROUNDWATER ELEVATION:
FULLY BUOYANT

LOAD SPREADER PLATE COATING:
SURFACE PREPARATION: PER COATING MANUFACTURER'S REQUIREMENTS
COATING SYSTEM TO MEET MINIMUM REQUIREMENTS OF ISO 12944 CORROSIVITY CATEGORY C3 WITH DURABILITY MEETING OR EXCEEDING FATIGUE DESIGN LIFE OF FOUNDATION

NOT FOR CONSTRUCTION
PROFESSIONAL ENGINEERING
CORPORATION 184.003666

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
B	KLT	CMM3	MBJ	12/8/2023	60% DESIGN
A	KLT	CMM3	MBJ	9/25/2023	30% DESIGN

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION, RECORD
DATE RELEASED: 9/25/23, 12/8/23
A B C 0 1 2 3

BARR
Project Office:
BARR ENGINEERING CO.
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Scale	AS SHOWN
Date	9/12/2023
Drawn	KLT
Checked	CMM3
Designed	CMM3
Approved	MBJ

CLIENT: COPENHAGEN INFRASTRUCTURE PARTNERS

PANTHER GROVE WIND, LLC

PROJECT: PANTHER GROVE WIND PROJECT
WOODFORD COUNTY, ILLINOIS

TITLE: 0' GWT SPREAD FOOTING FOUNDATION
PLAN, ELEVATION, SECTION, & DETAILS

BARR PROJECT No. 13A21003.00
CLIENT PROJECT No.
DWG. No. 7.00-F101-PGW
REV. No. B

CADD USER: Kristy L. Tollefson FILE: M:\ADEPT\WORK\LT\13A21003.01_PANTHER GROVE_7.00-F101.DWG PLOT SCALE: 1:2 PLOT DATE: 12/8/2023 4:16 PM