Robinson+Cole

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July 15, 2024

Melanie A. Bachman, Esq.
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Docket No. 515 – Application of The Towers, LLC for a Certificate of Environmental Compatibility and Public Need for the Construction, Maintenance and Operation of a Wireless Telecommunications Facility Located at, 180 School Road, Wilton, Connecticut**

Development and Management Plan Submission

Dear Attorney Bachman:

Enclosed please find fifteen (15) copies of the following:

1. Development and Management ("D&M") Plans prepared by On-Air Engineering for the approved telecommunications facility at 180 School Road in Wilton, Connecticut incorporating the Council's conditions of approval. Also enclosed are three (3) full size (24" x 36") sets of D&M plans.

2. Communications Structure Calculations and Communication Pole Record Drawings prepared by Valmont Structures dated July 10, 2024.

3. Geotechnical Investigation Report prepared by Delta Oaks Group dated February 26, 2024.

Together, this information constitutes the final D&M Plan submission for the approved telecommunications facility at 180 School Road in Wilton, Connecticut.

We respectfully request that this information be reviewed and this matter be placed on the next available Siting Council agenda for approval. Please feel free to contact me if you have any questions or require additional information. Thank you.

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Toni Boucher, First Selectman
Michael Wrinn, Town Planner
Douglas E. LoMonte, Esq. Town Attorney

ATTACHMENT 1

verizon

WIRELESS COMMUNICATIONS FACILITY

DEVELOPMENT AND MANAGEMENT PLAN
DOCKET NO. 515
VERTICAL BRIDGE SITE ID: US-CT-5055
VERIZON SITE NAME: WILTON SOUTH CT

TOWN OF WILTON
180 SCHOOL RD.
WILTON, CT 06897

PROJECT SUMMARY

VERTICAL BRIDGE SITE ID:	US-CT-5055
VERIZON SITE NAME:	WILTON SOUTH CT
SITE ADDRESS:	180 SCHOOL RD. WILTON, CT 06897
PROPERTY OWNER:	TOWN OF WILTON 238 DANBURY RD. WILTON, CT 06897
PARCEL ID:	59-3
TOWER COORDINATES:	41° 12' 15.2775" N 73° 26' 14.65" W
AMSL:	371.3 FT.
APPLICANT:	THE TOWERS, LLC 750 PARK OF COMMERCE DR, SUITE 200 BOCA RATON, FL 33487
VERTICAL BRIDGE CONTACT:	A.J. DESANTIS AJ.DESANTIS@VERTICALBRIDGE.COM
LEGAL/REGULATORY COUNSEL:	KENNETH C. BALDWIN, ESQ. ROBINSON & COLE, LLP (860) 275-8345

PROJECT DESCRIPTION

- INSTALLATION OF A 123 FT. MONOPINE/TOWER AND FENCED-IN COMPOUND AT GRADE
- INSTALLATION OF OUTDOOR EQUIPMENT CABINETS AND A PROPANE FUELED STANDBY GENERATOR LOCATED ON A 22'x10' CONCRETE PAD WITHIN THE COMPOUND
- INSTALLATION OF (12) PANEL ANTENNAS AND ASSOCIATED DEVICES ON THE MONOPINE/TOWER
- INSTALLATION OF CABLING FROM EQUIP. CABINETS TO ANTENNAS
- ELECTRIC/TELEPHONE SERVICES ROUTED UNDERGROUND
- FACILITY ACCESS FROM EXISTING OWNER'S PARKING LOT

VICINITY MAP

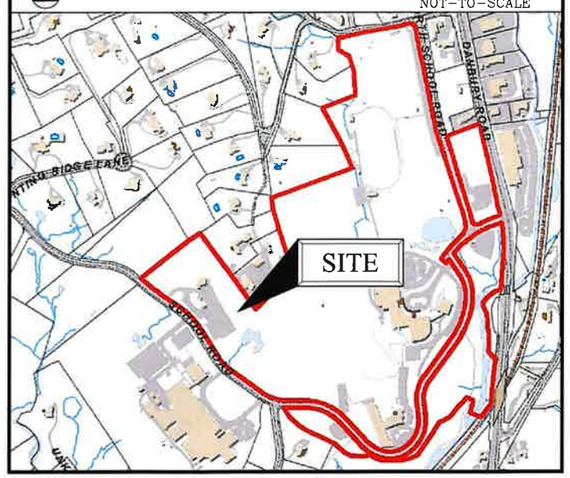
N

NOT-TO-SCALE

KEY MAP

N

NOT-TO-SCALE



DRAWING SCHEDULE

SHEET NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
C-1	SITE PLAN
C-2	SITE UTILITY PLAN & COMPOUND PLAN
C-3	WETLAND PROTECTION & EROSION CONTROL NOTES & DETAILS
C-4	COMPOUND PLAN, WEST ELEVATION & EQUIPMENT PLAN
C-5	ANTENNA PLAN & DETAILS
C-6	FENCE & SITE DETAILS
C-7	EQUIPMENT PAD/CANOPY PLAN & SECTIONS

verticalbridge
750 PARK OF COMMERCE DR.
BOCA RATON, FL. 33487

Cellco Partnership
d/b/a Verizon Wireless

verizon
WIRELESS COMMUNICATIONS FACILITY
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

On Air Engineering, LLC
88 Foundry Pond Road
Cold Spring, NY 10516
onair@optonline.net
201-456-4624

LICENSURE

STATE OF CONNECTICUT — DAVID A. WEINPAHL — NO. 22144 — LICENSED PROFESSIONAL ENGINEER

DAVID WEINPAHL, P.E.
CT LIC. NO. 22144

NO.:	DATE:	SUBMISSIONS
0	04.23.24	D&M FILING
1	06.18.24	REVISED PER CLIENT COMMENTS

DRAWN BY:	CHECKED BY:
MF	DW

VERTICAL BRIDGE SITE ID:
US-CT-5055

VERIZON SITE NAME:
WILTON SOUTH CT

PROJECT INFORMATION:
TOWN OF WILTON
180 SCHOOL RD.
WILTON, CT

DRAWING TITLE:
TITLE SHEET

SHEET NUMBER:
T-1

PROJECT SUMMARY TABLE		
DESCRIPTION	DISTANCE	NUMBER
EXISTING ACCESS DRIVE	N/A	
–VERIZON TO UTILIZE EXIST. PARKING LOT		
FOR FACILITY ACCESS		
HOMES WITHIN 1,000 FT. OF TOWER		3
TREES >10"ø TO BE REMOVED AT COMPOUND		10

TOWER SETBACK	
DESCRIPTION	DISTANCE
DISTANCE TO NEAREST OFFSITE RESIDENCE (RICHDALE DR.)	440'±
DISTANCE TO NORTH PROPERTY LINE	620'±
DISTANCE TO WEST PROPERTY LINE	245'±
DISTANCE TO EAST PROPERTY LINE	165'±

N/F
EMILIO ROBLES
& RENE ALDO
#21 RICHDALE DR

N/F
KNAPP PROPERTIES LLC
#24 RICHDALE DR

FENCE POST IN ROCK

100 FT WETLAND BUFFER LIMIT (TYP.)

PROPOSED COMPOUND

PROPOSED 123 FT. MONOPINE/TOWER WITHIN FENCED COMPOUND

LOW UPLAND REVIEW AREA

STORAGE CONTAINER

WETLANDS

EXISTING BUILDING

BOLLARD (TYP.)

CONCRETE

BITUMINOUS PAVEMENT

MANHOLE

AC PAD

CONC PAD

FUEL TANK

CONC. PAD

FENCE (TYP.)

EXISTING BUILDING

PROPOSED VERIZON ACCESS FROM EXISTING PARKING LOT; EXISTING (2) BUS PARKING SPACES TO BE RELOCATED

BM SE COR OF LP BASE EL=376.28 NAVD88

PROPOSED VERIZON ELECTRIC/TELCO CONDUITS ROUTED U/G

REMAINS OF STONE WALL

PROPOSED UTILITY POLE BY EVERSOURCE

PROPOSED PAVED (2) BUS PARKING SPACES (36'-0"x12'-0") BY VERIZON

CLP POLE 18014 (NEW)

CLP POLE 18014 (OLD)

EVERSOURCE POLE 18013 (OLD)

EVERSOURCE POLE 18013 (NEW)

SCHOOL ROAD (PUBLIC ROAD)

EVERSOURCE POLE 18579 (OLD)

EVERSOURCE POLE 18579 (NEW)

ENTRANCE TO SCHOOL

25' EVERSOURCE GAS EASEMENT

LEGEND:

MONITORING WELL
GUY ANCHOR
UTILITY POLE
LIGHT POLE
LIGHT BOLLARD
SPRINKLER VALVE
WATER GATE WG
HYDRANT
WATER MANHOLE
GAS GATE GG
HANDHOLE
ELECTRIC OUTLET/ CHARGING STATION
ELECTRIC MANHOLE
YARD DRAIN YD
CATCH BASIN CB
DRAINAGE MANHOLE
SEWER MANHOLE
TELEPHONE MANHOLE
SIGN
GATE
OVERHEAD WIRES
ELECTRIC LINE
GAS LINE
TELEPHONE LINE
STORM PIPE
COMBINED SEWER PIPE
SANITARY SEWER PIPE
WATER LINE
FIRE SERVICE
CHAIN LINK FENCE
IRON FENCE

1 / C-1 SITE PLAN
Scale: 1"=30'

GRAPHIC SCALE
0 15 30 60
1"= 30'

vertical bridge
750 PARK OF COMMERCE DR.
BOCA RATON, FL. 33487

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d/b/a Verizon Wireless
verizon
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PROJECT INFORMATION:

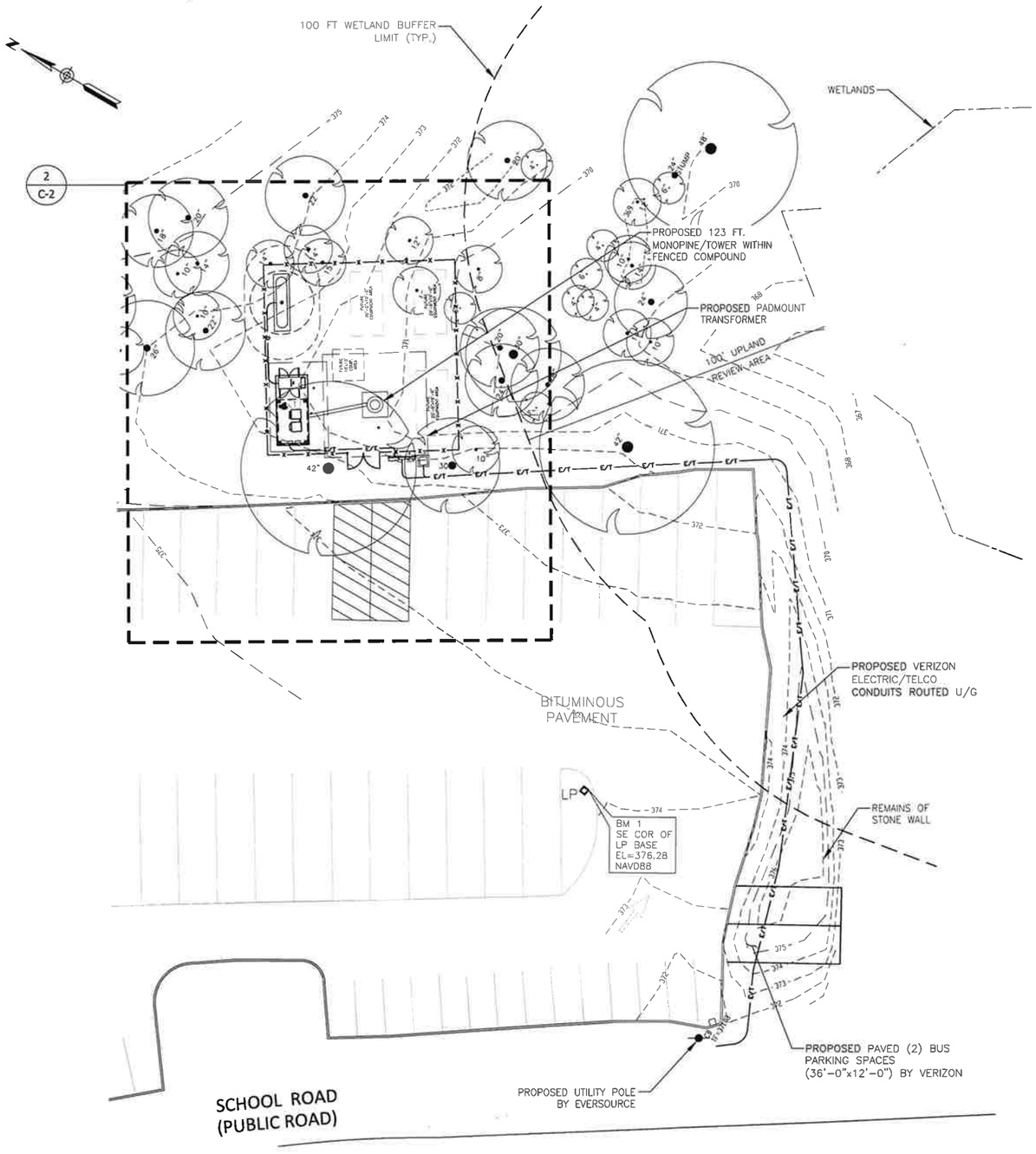
TOWN OF WILTON
180 SCHOOL RD.
WILTON, CT

DRAWING TITLE:

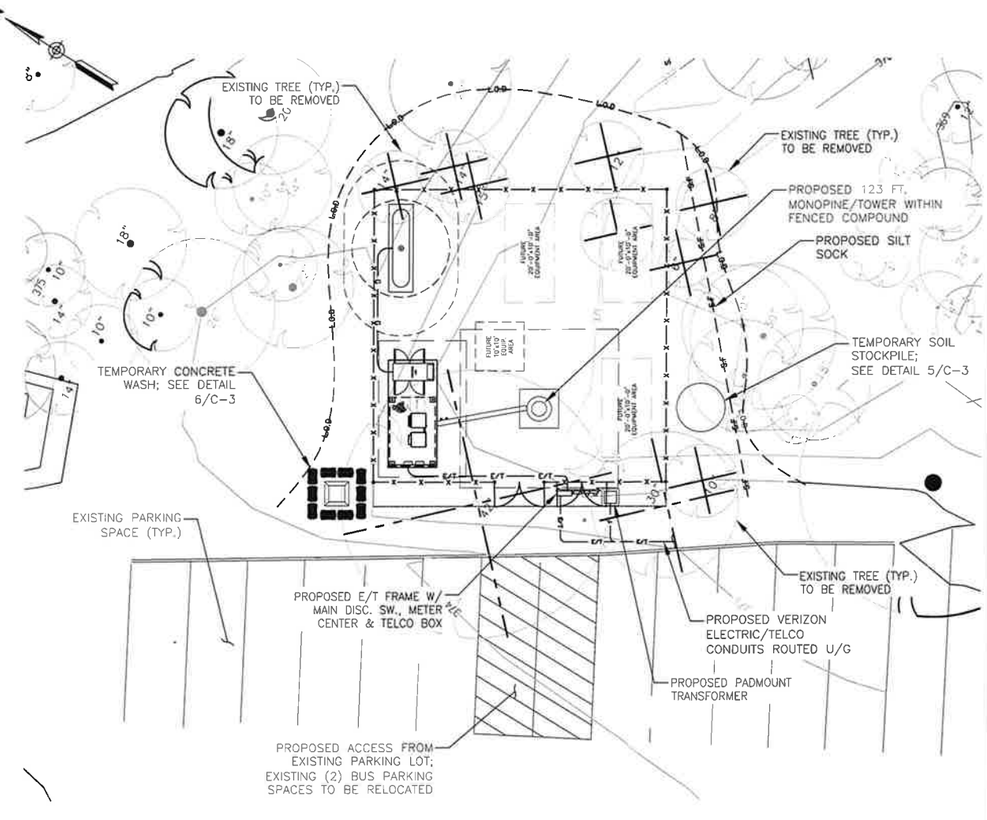
SITE PLAN

SHEET NUMBER:

C-1



1 C-2 **SITE UTILITY PLAN**
Scale: 1" = 20'-0"



2 C-2 **COMPOUND PLAN**
Scale: 1" = 15'-0"

HOURS OF CONSTRUCTION:
7AM–6PM MON–SAT
OR AS DETERMINED BY
THE LOCAL MUNICIPALITY

LEGEND

- PROPERTY LINE
- EXISTING WETLANDS
- WETLAND BUFFER LIMIT
- SILT FENCE — S.F. — S.F. —
- CONTOUR LINES — 325 — 325 —
- LIMITS OF DISTURBANCE — L.O.D. — L.O.D. —
- PROPOSED ELECTRIC TELCO — E/T — E/T —
- UTILITY POLE
- BOUNDARY POINT
- EXISTING TREES
- EXISTING TREES TO BE REMOVED

SITE PLAN NOTES:

1. SITE PLAN BASED ON FEBRUARY 2023 TOPOGRAPHICAL SURVEY BY CLOSE, JENSEN & MILLER.
2. THE TOWER/COMPOUND IS PROPOSED WITHIN A RELATIVELY FLAT AREA DIRECTLY BEHIND THE EXISTING ASPHALT BUS PARKING LOT. AS SUCH, THE REQUIRED EARTHWORK REQUIRED FOR CONSTRUCTION OF THE FACILITY WILL BE MINIMAL. THE ONLY REQUIRED EXCAVATION WILL BE FOR THE TOWER FOUNDATION AND CUT/FILL IS NOT REQUIRED.
3. THE PROPOSED TOWER/FACILITY ACCESS WILL BE FROM THE EXISTING PARKING LOT. TWO (2) BUS PARKING SPOTS WILL BE RE-CREATED/RE-LOCATED ON THE LOT AS NOTED.
4. A TOTAL OF (10) EXISTING TREES ARE PROPOSED FOR REMOVAL AROUND THE COMPOUND.
5. PROPOSED ELECTRIC/TELCO FACILITIES ARE PROPOSED UNDERGROUND. THE UTILITY DEMARC LOCATIONS ARE PRELIMINARY AND PENDING REVIEW BY THE UTILITY COMPANIES.

vertical bridge
750 PARK OF COMMERCE DR.
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DRAWING TITLE:
SITE UTILITY PLAN & COMPOUND PLAN

SHEET NUMBER:
C-2

WETLAND PROTECTION AND RESTORATION PROGRAM

A portion of the proposed underground utility route is located within the 100 ft. wetlands buffer and the proposed equipment compound is located just outside a second wetland 100 ft. buffer. The following Best Management Practices (BMP's) are recommended to avoid unintentional impact to wetland habitats during construction activities.

The wetland protection program consists of several components: use of appropriate erosion control measures to control and contain erosion while avoiding/minimizing wildlife entanglement; periodic inspection and maintenance of isolation structures and erosion control measures; education of all contractors and sub-contractors prior to initiation of work on the site; wetland protective measures; wetland restoration measures, and, reporting.

1. Erosion and Sedimentation Controls

a. All erosion and sedimentation controls shall conform to the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, DEP Bulletin 34.

b. Plastic netting used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the project. Temporary Erosion control products will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (net less) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.

c. Installation of silt fencing and/or other erosion control devices (i.e., straw wattles, compost filter socks, etc.) shall be performed by the Contractor prior to any earthwork. APT will inspect the work zone area prior to and following erosion control installation to ensure devices are properly installed.

d. Silt fencing shall consist of non-reinforced conventional erosion control woven fabric, installed approximately six inches below surface grade and staked at seven to ten-foot intervals using four-foot oak stakes or approved equivalent. The Contractor is responsible for daily inspections of the sedimentation and erosion controls for tears or breeches and accumulation levels of sediment, particularly following storm events that generate a discharge. The Environmental Monitor will provide periodic inspections of the sedimentation and erosion controls throughout the duration of construction activities only as it pertains to protection of rare species and nearby wetlands.

e. The extent of erosion controls will be as shown on the site plans. The Contractor shall have additional sedimentation and erosion controls stockpiled on site should field or construction conditions warrant extending devices. In addition to the Contractor making these determinations, requests for additional controls will also be at the discretion of the Environmental Monitor.

f. No equipment, vehicles or construction materials shall be stored outside of the exclusionary fencing or within 50 feet of wetlands or watercourses.

g. All silt fencing and other erosion control devices shall be removed within 30 days of completion of work and permanent stabilization of site soils so that reptile and amphibian movement between uplands and wetlands is not restricted. If fiber rolls/wattles, straw bales, or other natural material erosion control products are used, such devices will not be left in place to biodegrade and shall be promptly removed after soils are stable so as not to create a barrier to migrating wildlife. Seed from seeding of soils should not spread over fiber rolls/wattles as it makes them harder to remove once soils are stabilized by vegetation.

2. Wetland Restoration Measures

a. Flag or fence project limits of disturbance within all wetland areas and areas within 100 feet of wetlands prior to any work in wetland areas.

b. Locate staging areas and access points. Staging areas should be located at least 50 feet from the edge of the wetland. Install sediment barriers down slope of any staging areas or access points.

c. Swamp mats, timber mats, truck mats or similar devices shall be used during the crossings of wetlands. Such devices shall be installed prior to clearing, grubbing or excavation activities.

d. Clearing, grubbing and utility trenching activities may not commence in any stage or phase of the project until the erosion and sedimentation controls specified by this protection plan and as detailed on the project site plans have been installed and have been reviewed and approved by the Environmental Monitor to ensure erosion controls are properly installed.

e. Soil excavated from wetland areas shall be carefully removed with the roots intact. This soil should be placed in a separate stockpile to be reused during the wetland restoration work. Both wetland topsoil and subsoil shall be segregated into separate stockpiles.

f. Soil excavated from the utilities trench located within or adjacent to wetlands shall be temporarily placed on geotextile fabric.

g. Dewatering of the utility trench excavation shall be pumped to a sediment filter bag or temporary sediment basin, following requirements as noted in the Section 1.

h. Install pipe and trench plugs in wetland areas, as necessary, to prevent the trench from draining the wetland or changing its hydrology, as determined by the Environmental Monitor.

i. Backfill pipe trench. Backfill first with stockpiled wetland subsoil, with the top 12-inches of the excavated trench filled with the stockpiled wetland topsoil to match original surface grades.

j. No soil amendments such as agricultural lime, fertilizer, etc. will be used within wetland areas.

k. Compact backfill and grade the surface of the trench area to allow for positive drainage to soil erosion and sediment controls and to prepare disturbed areas for permanent trench restoration.

l. Original grades through wetlands must be restored after trenching and backfilling. Any excess fill materials must be removed from the wetland and not spread on-site.

m. Seed disturbed wetland areas with a New England Wet Seed Mix (New England Wetland Plants, Inc., or approved equivalent) at the manufacturers recommended seed rate. Mulch disturbed wetland areas with non-woven natural fiber erosion control blanket or 2 to 3 inches of clean straw mulch.

n. Seed disturbed upland areas with a New England Semi-Shade Grass and Forbs Mix (New England Wetland Plants, Inc., or approved equivalent) at the manufacturers recommended seed rate. Mulch disturbed areas with non-woven natural fiber erosion control blanket or 2 to 3 inches of clean straw mulch.

o. Maintain all erosion and sedimentation control devices until site work is complete and a uniform 70% perennial vegetative cover is established as confirmed the Environmental Monitor.

p. Remove all soil and erosion sediment control measures within 30 days upon establishment of a uniform 70% vegetative cover over the disturbed area. Re-grade and revegetate areas disturbed during the removal of the soil erosion and sediment controls.

WETLAND PROTECTION AND RESTORATION PROGRAM—CONTINUED

3. Contractor Education

a. Prior to work on site, the Contractor shall attend an educational session at the pre-construction meeting with APT. This orientation and educational session will consist of an introductory meeting with APT to understand the environmentally sensitive nature of the development site and the need to follow Protective Measures and Restoration Measures as described in Section 3 below.

4. Petroleum Materials Storage and Spill Prevention

a. Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the project's location within and proximity to sensitive wetlands.

b. A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.

c. The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.

i. Petroleum and Hazardous Materials Storage and Refueling

1. Refueling of vehicles or machinery shall occur a minimum of 100 feet from wetlands or watercourses and shall take place on an impervious pad with secondary containment designed to contain fuels.
2. Any fuel or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.

ii. Initial Spill Response Procedures

1. Stop operations and shut off equipment.
2. Remove any sources of spark or flame.
3. Contain the source of the spill.
4. Determine the approximate volume of the spill.
5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
6. Ensure that fellow workers are notified of the spill.

iii. Spill Clean Up & Containment

1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
3. Isolate and eliminate the spill source.
4. Contact the Connecticut Siting Council along with other appropriate local, state and/or federal agencies, as necessary.
5. Contact a disposal company to properly dispose of contaminated materials.

iv. Reporting

1. Complete an incident report.
2. Submit a completed incident report to the Connecticut Siting Council, along with other appropriate local, state and/or federal agencies, as necessary.

5. Herbicide and Pesticide Restrictions

a. The use of herbicides and pesticides at the proposed wireless telecommunications facility is strictly prohibited.

6. Reporting

a. Daily Compliance Monitoring Reports (brief narrative and applicable photos) will be submitted by the Environmental Monitor to Verizon Wireless for compliance verification for each inspection performed.

b. Following completion of the construction project, the Environmental Monitor will provide a Compliance Monitoring Summary Report to Verizon Wireless documenting implementation of the wetland protection and restoration program. Verizon Wireless will provide a copy of the Compliance Monitoring Summary Report to the Connecticut Siting Council for compliance verification.

SEEDING SPECIFICATIONS (NON-WETLAND AREAS)

A. IF GROUND HAS BEEN PREVIOUSLY MULCHED, MULCH MUST BE REMOVED OR ADDITIONAL NITROGEN MUST BE ADDED.

B. REMOVE ALL SURFACE STONES 2" OR LARGER AS WELL AS ALL DEBRIS SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLODS, CLUMPS, OR OTHER UNSUITABLE MATERIAL.

C. APPLY FERTILIZER AT 7.5 POUNDS PER 1,000 SQUARE FEET AND LIME AT 200 POUNDS PER 1,000 SQUARE FEET UNLESS SOIL TESTING FOR REQUIREMENTS IS PERFORMED.

D. NO MOWING IS TO BE UNDERTAKEN UNTIL THE MAJORITY OF THE VEGETATION IS AT LEAST 6" HIGH. MOWING SHOULD CUT THE TOP 1/3 OF VEGETATION. DO NOT UNDER ANY CIRCUMSTANCES CUT VEGETATION BELOW 3".

E. DO NOT APPLY ANY FORM OF WEED CONTROL UNTIL GRASS HAS BEEN MOWED AT LEAST 4 TIMES.

F. THESE SEEDING MEASURES ARE NOT TO BE USED ON SLOPES IN EXCESS OF 2:1 GRADING.

G. PERMANENT SEEDING MEASURES ARE TO BE USED INSTEAD OF TEMPORARY SEEDING MEASURES WHERE WORK IS TO BE SUSPENDED FOR A PERIOD OF TIME LONGER THAN 1 YEAR.

H. IF THERE IS NO EROSION, BUT SEED SURVIVAL IS LESS THAN 100 PLANTS PER SQUARE FOOT AFTER 4 WEEKS OF GROWTH, RE-SEED AS PLANTING SEASON ALLOWS.

I. ALL DISTURBED AREAS OUTSIDE THE PAVEMENT AREA SHALL BE LOAMED AND SEEDED IN ACCORDANCE WITH THE SUGGESTED SEEDING MIXTURES TABLE.

SUGGESTED SEEDING MIXTURES AND PRACTICES (NON-WETLAND AREAS)

AREAS WHERE SEED MIX APPLIES	SEEDING MIXTURES BY WEIGHT		RATE PER 1,000 SQ. FT.	SEEDING DATES
ALL LAWN AREAS	RED FESCUES KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	45% 45% 10%	1 LBS.	APRIL 1 – JUNE 15 OR AUG. 15 – OCT. 1
ROAD CUTS, FILLS, DIVERSION DITCHES, & STORMWATER BASINS	KENTUCKY TALL FESCUE REDTOP CREEPING RED FESCUE	47% 6% 47%	0.95 LBS.	APRIL 1 – JUNE 15 OR AUG. 15 – OCT. 1
WHERE TREES ARE TO BE RETAINED, THE SEED MIXTURE SHOULD BE ADAPTED FOR SHADY CONDITIONS.				
TEMPORARY SEEDING	ANNUAL RYEGRASS OR PERENNIAL RYEGRASS		1-1/2 LBS.	WITHIN 7 DAYS AFTER SUSPENSION OF GRADING WORK

SILT FENCE SPECIFICATIONS

A. SYNTHETIC FILTER FABRIC SHALL BE A PERVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER, ETHYLENE, OR SIMILAR FILAMENTS AND SHALL BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE FOLLOWING MINIMUM REQUIREMENTS:

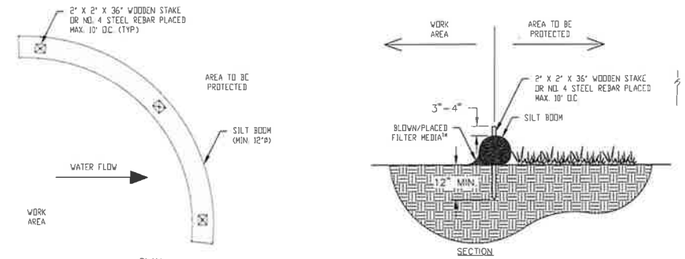
1. FILTERING EFFICIENCY	75 PERCENT (MIN)
2. GRAB TENSILE STRENGTH	100 POUNDS
3. ELONGATION AT FAILURE	15 PERCENT
4. MULLEN BURST STRENGTH	250 POUNDS PER SQUARE INCH
5. PUNCTURE STRENGTH	50 POUNDS
6. APPARENT OPENING SIZE	0.60mm< X <0.90mm
7. FLOW RATE	0.2 GALLONS PER SQUARE FOOT PER MINUTE
8. PERMITTIVITY	0.05 PER SECOND (MIN)
9. ULTRAVIOLET RADIATION STABILITY	70 PERCENT AFTER 500 HOURS OF EXPOSURE (MIN)

B. STAKES ARE TO BE MADE OUT OF HARDWOOD WITH A MINIMUM CROSS SECTIONAL AREA OF 1.5 SQUARE INCHES OR STEEL POSTS WITH A MINIMUM WEIGHT OF 0.5 POUNDS PER LINEAR FOOT.

C. TORN OR PUNCTURED GEOTEXTILES SHALL NOT BE USED.

D. ON SLOPES WHERE SURFACE FLOW FOLLOWS THE SILT FENCE LINE, PERPENDICULAR SILT FENCE CHECKS SHALL BE INSTALLED AT 50 FOOT INTERVALS.

E. LINES OF SILT FENCE SHOULD FOLLOW CONTOUR LINES 5-10 FEET DOWN GRADIENT FROM THE SLOPE. WHERE CONTOUR LINES CAN NOT BE FOLLOWED PERPENDICULAR WINGS SHOULD BE PLACED AT 50 FOOT INTERVALS.

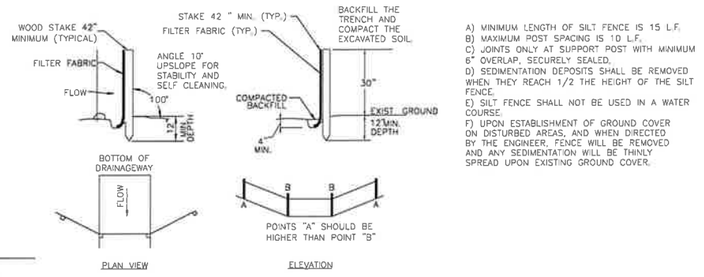


NOTES:
1. CONTRACTOR SHALL MAINTAIN SILT SOCK IN A FUNCTIONAL CONDITION AT ALL TIMES. SILT SOCK SHALL BE ROUTINELY INSPECTED.
2. IF DAMAGED, SILT SOCK SHALL BE REPAIRED OR REPLACED.
3. CONTRACTOR SHALL REMOVE SEDIMENT IN THE BASE OF THE UPSLOPE SIDE OF THE SILT SOCK WHEN ACCUMULATION HAS REACHED 1/2 OF EFFECTIVE HEIGHT, WHICH SHALL BE DETERMINED BASED ON TABLE 1 OR AS DIRECTED BY TOWN OR ENGINEER.
4. SILT SOCK SHALL BE MAINTAINED UNTIL DISTURBED AREA HAS BEEN PERMANENTLY STABILIZED AND CONSTRUCTION ACTIVITY HAS CEASED.

TABLE 1

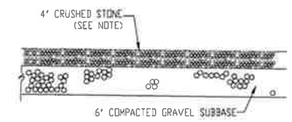
SILT BOOM DIAMETER	EFFECTIVE HEIGHT	HALF OF EFFECTIVE HEIGHT
12 INCHES	9.5 INCHES	4.8 INCHES
18 INCHES	14.5 INCHES	7.3 INCHES
24 INCHES	19 INCHES	9.5 INCHES

TYPICAL SILT SOCK
NTS

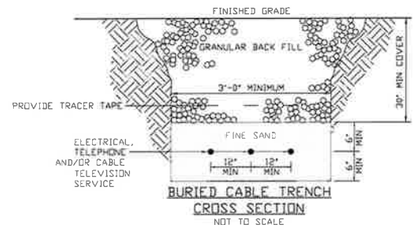


A) MINIMUM LENGTH OF SILT FENCE IS 15 L.F.
B) MAXIMUM POST SPACING IS 10 L.F.
C) JOINTS ONLY AT SUPPORT POST WITH MINIMUM 6" OVERLAP, SECURELY SEALED.
D) SEDIMENTATION DEPOSITS SHALL BE REMOVED WHEN THEY REACH 1/2 THE HEIGHT OF THE SILT FENCE.
E) SILT FENCE SHALL NOT BE USED IN A WATER COURSE.
F) UPON ESTABLISHMENT OF GROUND COVER ON DISTURBED AREAS, AND WHEN DIRECTED BY THE ENGINEER, FENCE WILL BE REMOVED AND ANY SEDIMENTATION WILL BE THINLY SPREAD UPON EXISTING GROUND COVER.

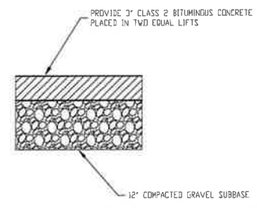
PLACEMENT AND CONSTRUCTION OF A SILT FENCE
NOT TO SCALE



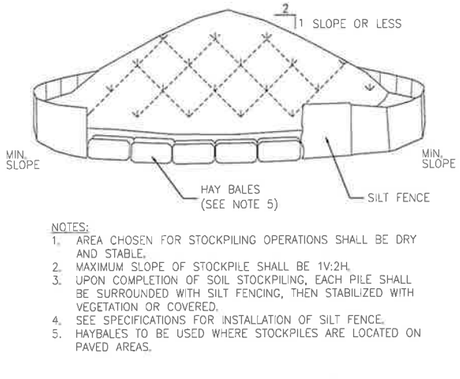
GRAVEL COMPOUND SURFACE
NOT TO SCALE



BURIED CABLE TRENCH CROSS SECTION
NOT TO SCALE

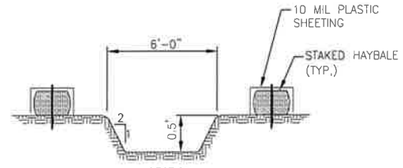


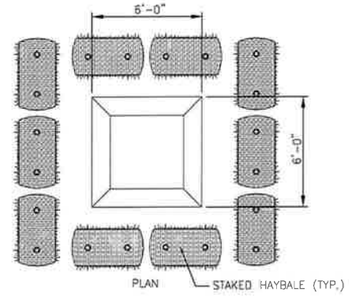
PARKING SPACE PAVEMENT DETAIL
NTS



NOTES:
1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 1V:2H.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH SILT FENCING, THEN STABILIZED WITH VEGETATION OR COVERED.
4. SEE SPECIFICATIONS FOR INSTALLATION OF SILT FENCE.
5. HAYBALES TO BE USED WHERE STOCKPILES ARE LOCATED ON PAVED AREAS.

TEMPORARY SOIL STOCKPILE DETAIL
NTS





TEMPORARY CONCRETE WASH DETAIL
NTS

vertical bridge
750 PARK OF COMMERCE DR.
BOCA RATON, FL. 33487

Cellco Partnership
d/b/a Verizon Wireless
verizon
WIRELESS COMMUNICATIONS FACILITY
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On Air Engineering, LLC
88 Foundry Pond Road
Cold Spring, NY 10516
onair@optonline.net
201-456-4624

LICENSURE

STATE OF CONNECTICUT — DAVID A. WEINPAHL — NO. 22144 — LICENSED PROFESSIONAL ENGINEER

DAVID WEINPAHL, P.E.
CT LIC. NO. 22144

NO.:	DATE:	SUBMISSIONS
0	04.23.24	D&M FILING
1	06.18.24	REVISED PER CLIENT COMMENTS

DRAWN BY:	CHECKED BY:
MF	DW

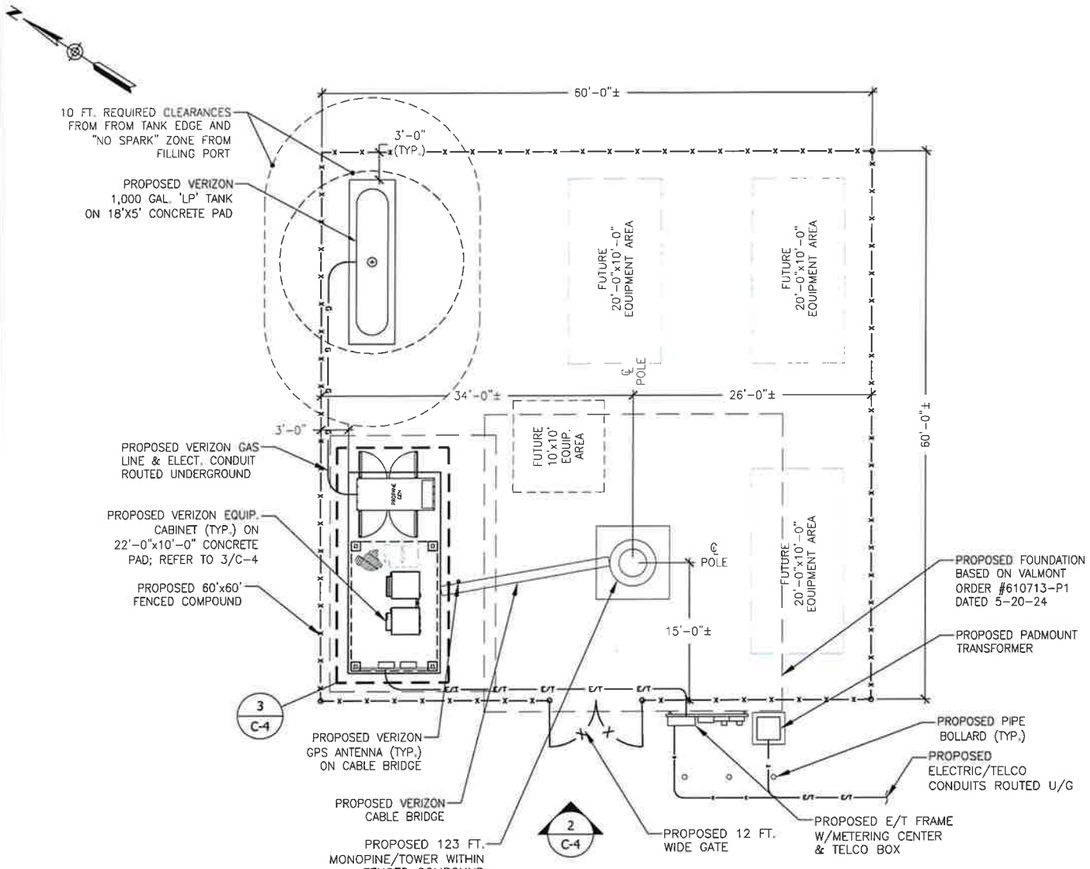
VERTICAL BRIDGE SITE ID:
US-CT-5055

VERIZON SITE NAME:
WILTON SOUTH CT

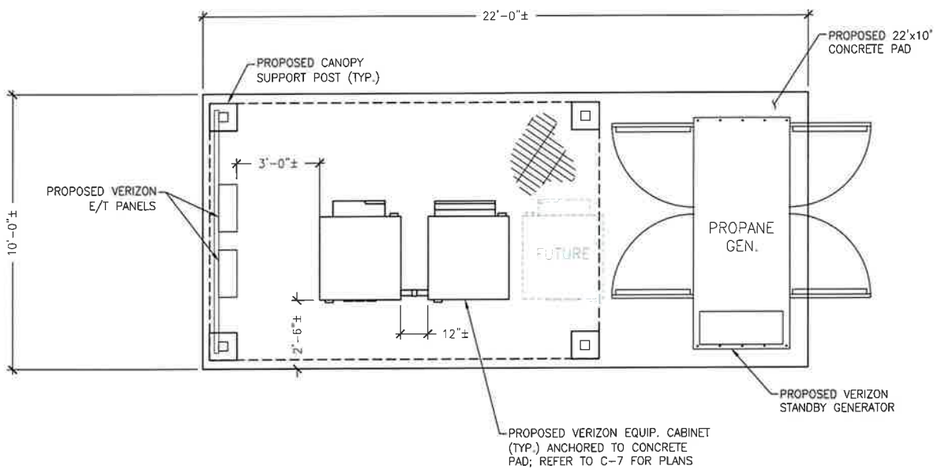
PROJECT INFORMATION:
TOWN OF WILTON
180 SCHOOL RD.
WILTON, CT

DRAWING TITLE:
WETLAND PROTECTION & EROSION CONTROL NOTES & DETAILS

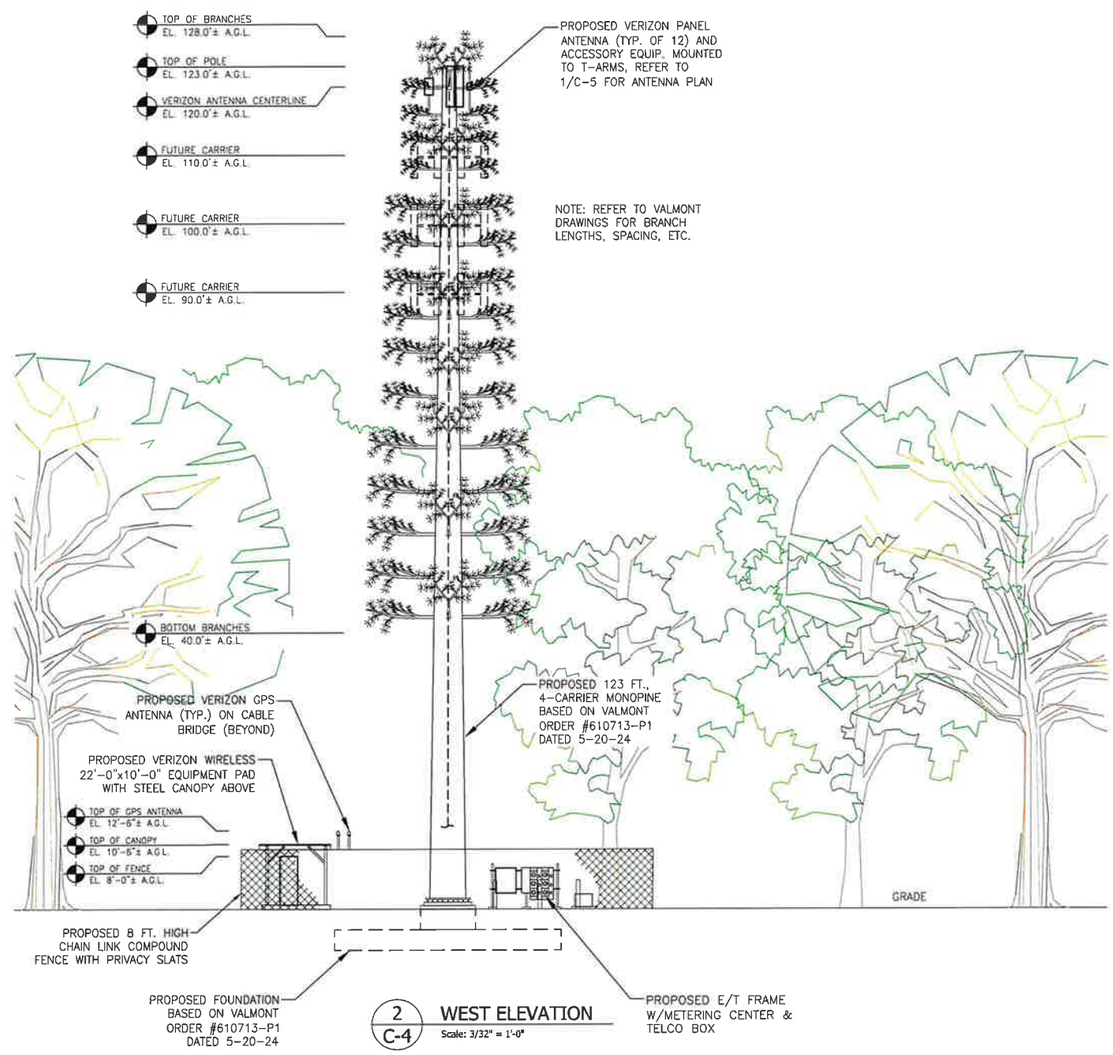
SHEET NUMBER:
C-3



1 C-4 **COMPOUND PLAN**
Scale: 3/32" = 1'-0"



3 C-4 **EQUIPMENT PLAN**
Scale: 3/8" = 1'-0"



2 C-4 **WEST ELEVATION**
Scale: 3/32" = 1'-0"

SEC. 16-50J-77. REPORTING REQUIREMENTS

(a) SUPERVISORY PERSONNEL.
THE CERTIFICATE HOLDER, OR FACILITY OWNER OR OPERATOR, SHALL SUBMIT TO THE COUNCIL CONTACT INFORMATION FOR THE PERSONNEL OF THE CONTRACTOR ASSIGNED TO THE PROJECT.

(b) NOTICE.
(1) THE CERTIFICATE HOLDER, OR FACILITY OWNER OR OPERATOR, SHALL PROVIDE THE COUNCIL, IN WRITING, WITH A MINIMUM OF TWO WEEKS ADVANCE NOTICE OF THE BEGINNING OF:
(A) CLEARING AND ACCESS WORK, AND
(B) CONSTRUCTION OF THE TOWER AND ASSOCIATED EQUIPMENT.
(2) THE CERTIFICATE HOLDER, OR FACILITY OWNER OR OPERATOR, SHALL PROVIDE THE COUNCIL WITH ADVANCE WRITTEN NOTICE WHENEVER A SIGNIFICANT MODIFICATION OF THE APPROVED D&M PLAN IN NECESSARY INCLUDING, BUT NOT LIMITED TO, A CHANGE IN THE LOCATION OF THE TOWER, ASSOCIATED EQUIPMENT, GUY WIRES, OR ACCESS ROAD. THE COUNCIL, OR ITS DESIGNEE SHALL PROMPTLY REVIEW THE CHANGES, AND THE COUNCIL SHALL APPROVE, MODIFY, OR DISAPPROVE THE CHANGES IN ACCORDANCE WITH SUBSECTION (d) OF SECTION 16-50J-75 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES.
(3) THE CERTIFICATE HOLDER, OR FACILITY OWNER OR OPERATOR, SHALL PROVIDE THE COUNCIL WITH A MONTHLY CONSTRUCTION PROGRESS REPORT, OR A CONSTRUCTION PROGRESS REPORT AT THE TIME INTERVALS DETERMINED BY THE COUNCIL, INDICATING CHANGES AND DEVIATIONS FROM THE APPROVED D&M PLAN. THE COUNCIL MAY APPROVE THE CHANGES AND DEVIATIONS OR REQUEST CORRECTIONS OR MITIGATING MEASURES.
(4) THE CERTIFICATE HOLDER, OR FACILITY OWNER OR OPERATOR, SHALL PROVIDE THE COUNCIL WITH WRITTEN NOTICE OF COMPLETION OF CONSTRUCTION AND SITE REHABILITATION.

(c) FINAL REPORT.
THE CERTIFICATE HOLDER, OR FACILITY OWNER OR OPERATOR, SHALL PROVIDE THE COUNCIL WITH A FINAL REPORT NOT LATER THAN 180 DAYS AFTER COMPLETION OF ALL SITE CONSTRUCTION AND SITE REHABILITATION. THIS FINAL REPORT SHALL IDENTIFY;
(1) ALL AGREEMENTS WITH ABUTTERS OR OTHER PROPERTY OWNERS REGARDING SPECIAL MAINTENANCE PRECAUTIONS;
(2) SIGNIFICANT MODIFICATIONS OF THE D&M PLAN THAT WERE REQUIRED BECAUSE OF THE PROPERTY RIGHTS OF UNDERLYING AND ADJOINING OWNERS OR FOR OTHER REASONS;
(3) THE LOCATION OF CONSTRUCTION MATERIALS WHICH HAVE BEEN LEFT IN PLACE IN THE FORM OF CULVERTS, EROSION CONTROL STRUCTURES ALONG WATERCOURSES AND STEEP SLOPES, AND CORDUROY ROADS IN REGULATED WETLANDS;
(4) THE LOCATION OF SPECIAL AREAS WHERE SPECIAL PLANTING AND RESEEDING HAVE BEEN DONE; AND
(5) AGREEMENTS BETWEEN THE CERTIFICATE HOLDER AND PUBLIC AGENCIES AUTHORIZING PUBLIC RECREATIONAL USE OF THE SITE TO THE EXTENT OF THE CERTIFICATE HOLDER'S PROPERTY RIGHTS THERETO.
(d) THE FINAL REPORT SHALL INCLUDE THE ACTUAL CONSTRUCTION COST OF THE TOWER AND ASSOCIATED EQUIPMENT, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING COSTS;
(1) CONSTRUCTION OF THE TOWER AND ASSOCIATED EQUIPMENT;
(2) SITE REHABILITATION; AND
(3) PROPERTY ACQUISITION FOR SITE OR ACCESS TO SITE.

verticalbridge
750 PARK OF COMMERCE DR.
BOCA RATON, FL. 33487

Cellco Partnership
d/b/a Verizon Wireless
verizon
WIRELESS COMMUNICATIONS FACILITY
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LICENSURE

STATE OF CONNECTICUT · DAVID A. WEINPAHL · LICENSED PROFESSIONAL ENGINEER · NO. 22144 · LICENSED

DAVID WEINPAHL, P.E.
CT LIC. NO. 22144

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DRAWN BY:	CHECKED BY:
MF	DW

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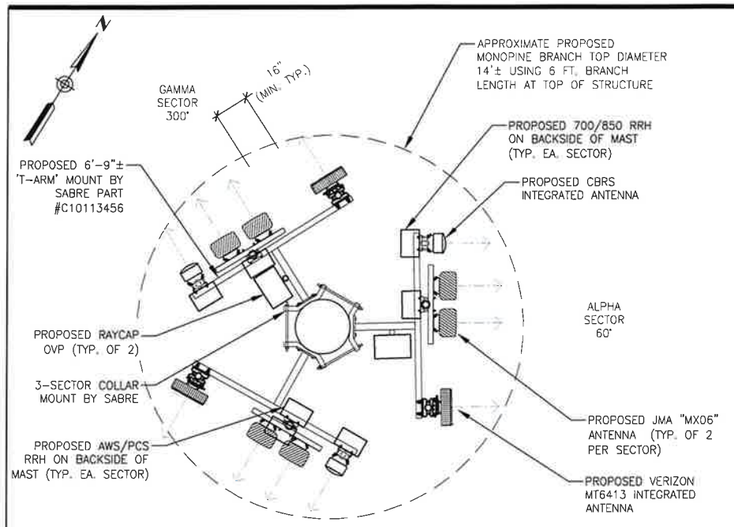
US-CT-5055

VERIZON SITE NAME:
WILTON SOUTH CT

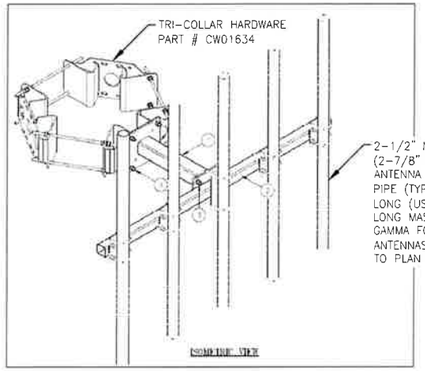
PROJECT INFORMATION:
TOWN OF WILTON
180 SCHOOL RD.
WILTON, CT

DRAWING TITLE:
COMPOUND PLAN, WEST ELEVATION & EQUIPMENT PLAN

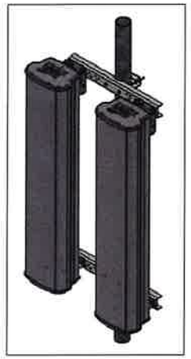
SHEET NUMBER:
C-4



1 C-5 ANTENNA PLAN @ 120 FT. A.G.L.
Scale: 3/8" = 1'-0"



2 C-5 ANTENNA MOUNTING DETAIL
Scale: N.T.S.



JMA ANTENNA SPECIFICATIONS		
MODEL #	SIZE	SECTOR
MX06FHG665-HG	72.0"Hx12.2"Wx7.5"D; 41 LBS.	ALPHA BETA
MX06FHC865-HC	95.9"Hx12.2"Wx7.5"D; 51 LBS.	GAMMA

3 C-5 JMA "MX06" ANTENNA DETAIL
Scale: N.T.S.

MT6413 ANTENNA SPECIFICATIONS			
HEIGHT	WIDTH	DEPTH	WEIGHT
28.9"	15.8"	5.51"	57.3 LBS

4 C-5 MT6413 INTEGRATED ANTENNA
Scale: N.T.S

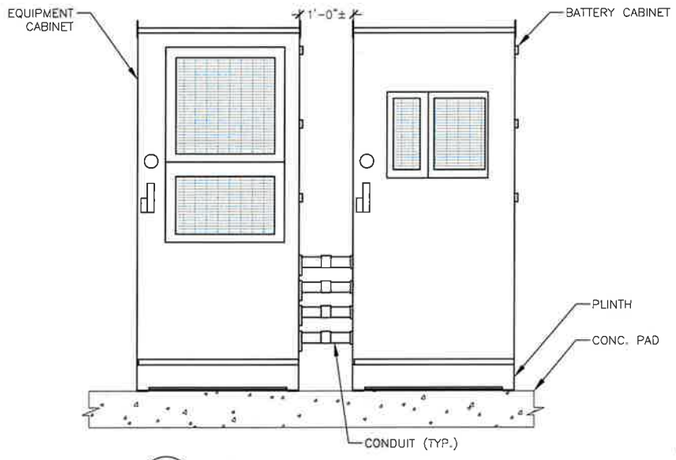
CBRS GEN 2 SPECIFICATIONS			
HEIGHT	WIDTH	DEPTH	WEIGHT
11.8"	8.7"	4.2"	15.4 LBS

* DIMS DO NOT INCLUDE "CLIP-ON" ANTENNA

5 C-5 CBRS INTEGRATED ANTENNA
Scale: N.T.S

KOHLER GENERATOR SPECIFICATIONS				
MODEL #	LENGTH	WIDTH	HEIGHT	WEIGHT
KG50/4P8X	101.8"	42.4"	53.7"	2,341 LBS

6 C-5 50kW KOHLER GAS GENERATOR
Scale: N.T.S.



7 C-5 EQUIPMENT CABINET ELEVATION
Scale: 3/4" = 1'-0"

KS-24119L-112A GPS ANTENNA SPECIFICATION			
HEIGHT	WIDTH	DIAMETER	WEIGHT
5"	16.06"	3.17"	0.6 LBS

*ALL MOUNTING OPTIONS FIT PIPES OF 1"-1.45" MAX. DIA.

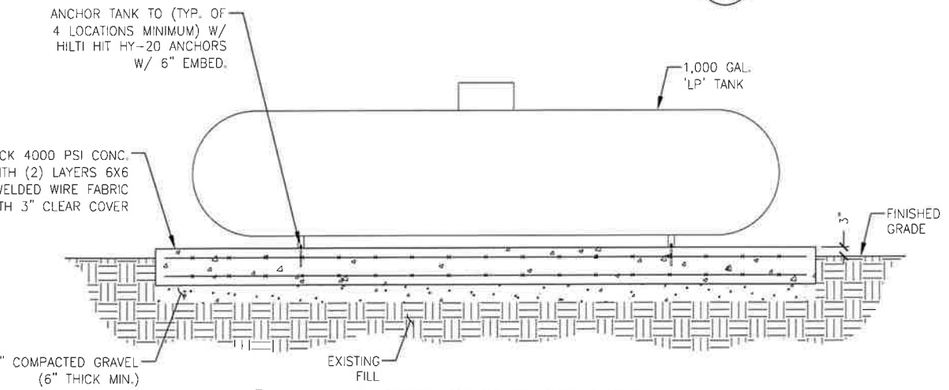
8 C-5 GPS ANTENNA DETAIL
Scale: 3/4" = 1'-0"

SAMSUNG RRH AWS/PCS ORAN SPECIFICATION			
HEIGHT	WIDTH	DIAMETER	WEIGHT
15"	15"	10"	74.7 LBS

9 C-5 RRH DETAIL - AWS/PCS
Scale: N.T.S

SAMSUNG RRH 700/850 ORAN SPECIFICATION			
HEIGHT	WIDTH	DIAMETER	WEIGHT
15"	15"	9.1"	70.3 LBS

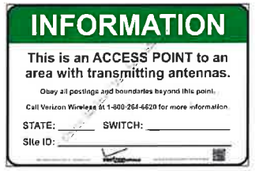
10 C-5 RRH DETAIL - 700/850
Scale: N.T.S



11 C-5 PROPANE TANK CONCRETE PAD DETAIL
Scale: 1/2" = 1'-0"

RAYCAP EQUIPMENT SPECIFICATIONS				
TYPE	HEIGHT	WIDTH	DEPTH	WEIGHT
12-OVP	29.5"	16.5"	12.6"	32 LBS
6-OVP	25.7"	15.3"	10.3"	26.9 LBS

12 C-5 CABLE DIST. BOX DETAIL
Scale: N.T.S



NOTE:
1. "GREEN" INFORMATION SIGN SHALL BE LOCATED AT COMPOUND ENTRY LOCATION AND VERIZON EQUIPMENT.
2. SIGN MEASURES 12"Wx8"H

13 C-5 VERIZON INFORMATION SIGN
Scale: N.T.S

NOTE:
1. "YELLOW" CAUTION SIGN SHALL BE LOCATED AT COMPOUND ENTRY LOCATION AND VERIZON EQUIPMENT.
2. SIGN MEASURES 12"Hx8"W

14 C-5 CAUTION SIGN
Scale: N.T.S

vertical bridge
750 PARK OF COMMERCE DR.
BOCA RATON, FL. 33487

Cellco Partnership
d/b/a Verizon Wireless
verizon
WIRELESS COMMUNICATIONS FACILITY
20 ALEXANDER DRIVE
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onair@optonlinc.net
201-456-4624

LICENSURE

STATE OF CONNECTICUT · DAVID A. WEINPAHL · NO. 22144 · LICENSED PROFESSIONAL ENGINEER

DAVID WEINPAHL, P.E.
CT LIC. NO. 22144

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MF	DW

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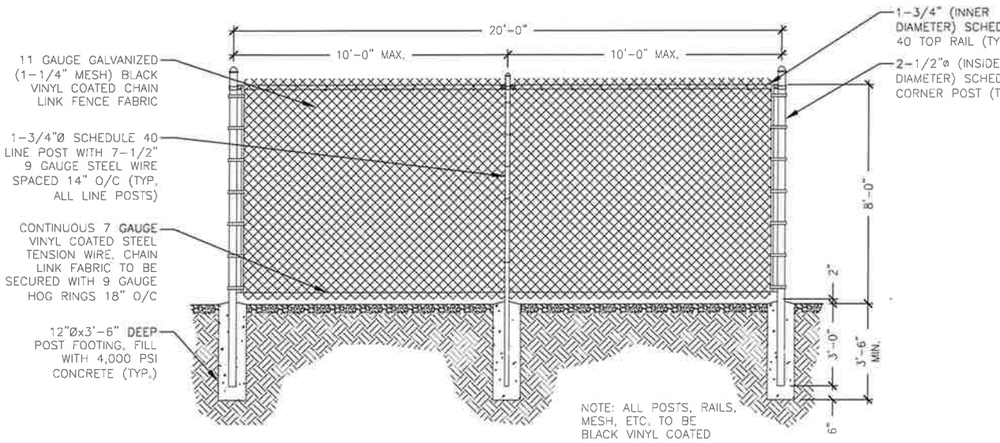
US-CT-5055

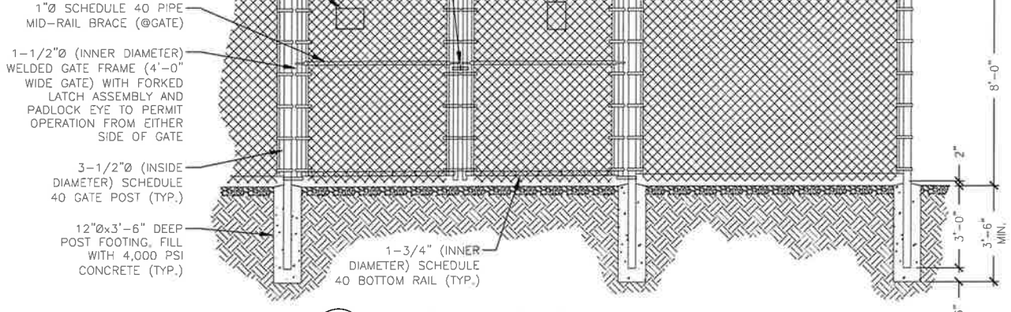
VERIZON SITE NAME:
WILTON SOUTH CT

PROJECT INFORMATION:
TOWN OF WILTON
180 SCHOOL RD.
WILTON, CT

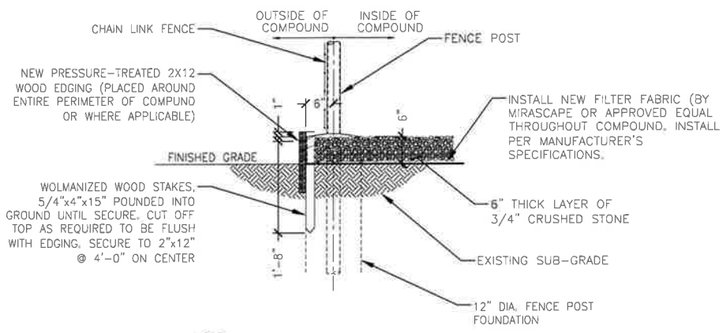
DRAWING TITLE:
ANTENNA PLAN & DETAILS

SHEET NUMBER:
C-5

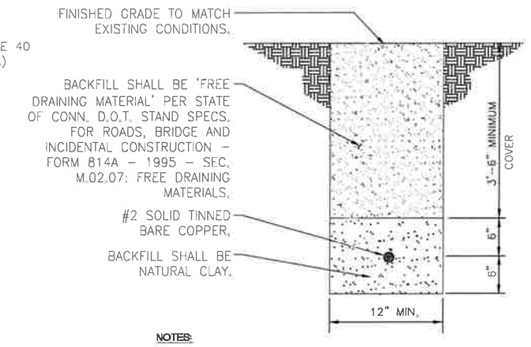




1 C-6 **CHAIN LINK FENCE AND ACCESS GATE DETAIL**
Scale: N.T.S.



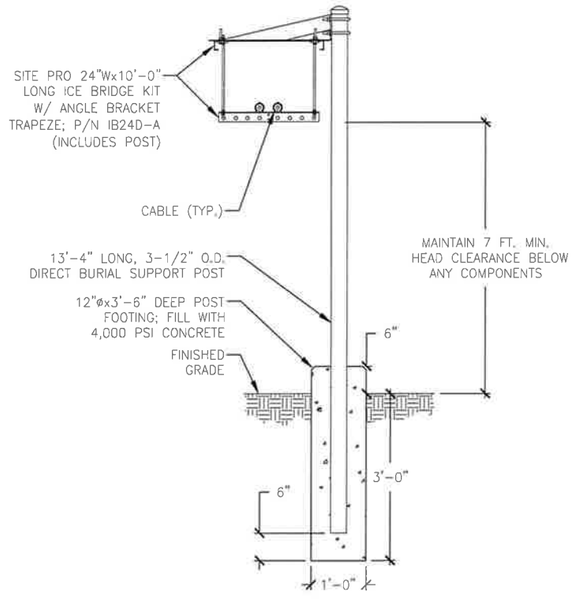
2 C-6 **GRADE DETAIL**
Scale: N.T.S.



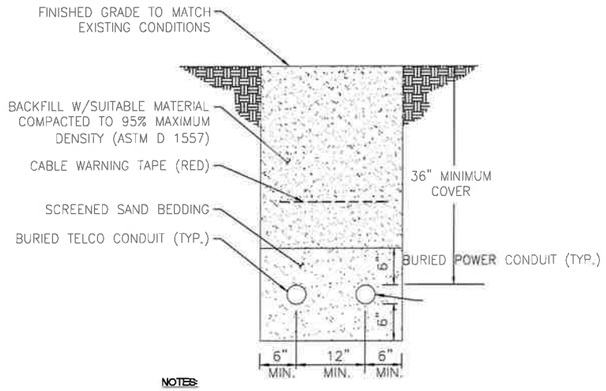
NOTES:

1. ENGINEER SHALL INSPECT PLACEMENT OF EGR CONDUCTOR PRIOR TO BACKFILLING.
2. MAINTAIN MIN. 2'-0" LINEAR CLEARANCE BETWEEN NATURAL CLAY BACKFILL AND THE FOLLOWING: FOUNDATION, UNDERGROUND PIPING/CONDUIT, UNDERGROUND SERVICES. IN THE CLEARANCE AREAS, USE EARTH BACKFILL INSTEAD.
3. EXERCISE HANDLING AND USE PRECAUTION OF BACKFILL MATERIAL PER MFR'S REQUIREMENTS.

3 C-6 **EGR TRENCH/BACKFILL DETAIL**
Scale: N.T.S.



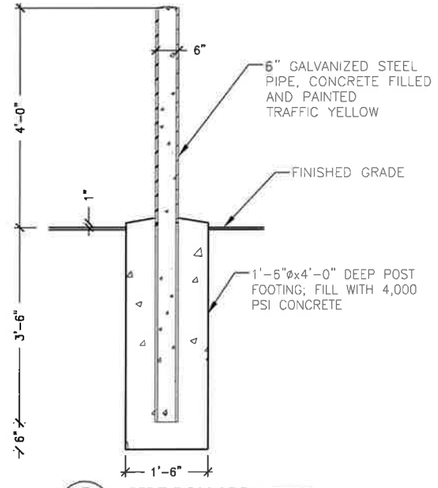
6 C-6 **CABLE BRIDGE DETAIL**
Scale: N.T.S.



NOTES:

1. THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
2. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.
3. REFER TO PLANS FOR FINAL QUANTITY OF CONDUITS (POWER & TELCO).
4. ALL CONDUITS SEPARATIONS SHALL BE IN ACCORDANCE WITH MEC & UTILITY CO. REQUIREMENTS.

4 C-6 **TYPICAL ELECTRICAL TRENCH DETAIL**
Scale: N.T.S.



5 C-6 **PIPE BOLLARD DETAIL**
Scale: N.T.S.

vertical bridge
750 PARK OF COMMERCE DR.
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US-CT-5055

VERIZON SITE NAME:
WILTON SOUTH CT

PROJECT INFORMATION:
TOWN OF WILTON
180 SCHOOL RD.
WILTON, CT

DRAWING TITLE:
FENCE & SITE DETAILS

SHEET NUMBER:
C-6

GENERAL STRUCTURAL NOTES:

1. ALL EQUIPMENT SHALL BE INSTALLED PLUMB AND LEVEL.

2. ALL WIDE FLANGE STRUCTURAL STELL SHALL CONFORM WITH A992 SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC CODE AND ASTM SPECIFICATION. STEEL SHALL CONFORM TO ASTM A-36. PIPE SHALL CONFORM TO ASTM A-501 OR ASTM TYPE EOR S A-53 (GRADE B).

3. ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED WELDS WITH WELDING ELECTRODES E-70XX OR SPECIFIED HIGH STRENGTH BOLTS TO BE ASTM A325, THREAD EXCLUDED FROM SHEAR PLANE.

4. ALL STEEL EXPOSED TO MOISTURE SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION PER ASTM A-123. ALL DAMAGED SURFACES, WELDED AREAS AND AUTHORIZED NON-GALVANIZED MEMBERS OR PARTS (EXISTING OR NEW) SHALL BE PAINTED WITH 2 COATS OF ZRC COLD GALVANIZING COMPOUND MANUFACTURED BY ZRC CHEMICAL PRODUCTS CO. QUINCY, MA. OR USE THERMAL SPRAYING WITH PLATTZINC 85/15 AS MANUFACTURED BY PLATT BROTHERS & COMPANY, WATERBURY, CT 1-800-752-8276.

5. ALL SHOP AND FIELD WELDING SHALL BE DONE BY WELDERS QUALIFIED AS DESCRIBED IN THE "AMERICAN WELDING SOCIETY'S STANDARD QUALIFICATION PROCEDURE" TO PERFORM THE TYPE OF WORK REQUIRED.

6. ALL PIPE SIZES ARE NOMINAL DIAMETER (INSIDE DIAMETER).

CAST-IN-PLACE CONCRETE:

1. ALL CONCRETE WORK SHALL CONFORM TO THE LATEST EDITION OF THE ACI BUILDING CODE.

2. ALL CONCRETE SHALL ATTAIN 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

3. READY MIX: COMPLY WITH ACI-301 AND ASTM C-94, ALL CONCRETE EXPOSED TO THE GROUND OR WEATHER SHALL BE AIR ENTRAINED.

4. COLD WEATHER CONCRETE POURING SHALL BE IN ACCORDANCE WITH ACI-306.

5. THROUGHOUT CONSTRUCTION THE CONCRETE WORK SHALL BE ADEQUATELY PROTECTED AGAINST DAMAGE DUE TO EXCESSIVE LOADING, CONSTRUCTION EQUIPMENT, MATERIALS OR THODS, ICE, RAIN, SNOW, EXCESSIVE HEAT AND FREEZING TEMPERATURES.

6. EARLY DRYING OUT OF CONCRETE, ESPECIALLY DURING THE FIRST 24 HOURS, SHALL BE CAREFULLY GUARDED AGAINST. ALL SURFACES SHALL BE PROTECTED USING MOIST CURING OR A MEMBRANE CURING AGENT APPLIED AS SOON AS FORMS ARE REMOVED OR FINISHING OPERATIONS ARE COMPLETE. CARE SHALL BE EXERCISED SO AS NOT TO DAMAGE COATING.

7. APPLY NON-SLIP BROOM FINISH IMMEDIATELY AFTER TROWEL FINISHING.

8. CONTRACTOR TO COORDINATE REQUIREMENTS OF STRUCTURAL, CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS INCLUDING ANY AND ALL PENETRATIONS SPECIFIED PRIOR TO POURING CONCRETE.

9. CONTRACTOR SHALL PROVIDE A 3/4" CHAMFER ON ALL CONCRETE SLABS.

REINFORCING:

1. ALL REINFORCING BAR SHALL CONFORM TO THE LATEST ACI CODE AND DETAILING MANUAL.

2. WHERE REINFORCING IS CALLED OUT IN THE CONSTRUCTION DOCUMENTS IT SHALL BE 3" CLEAR COVER (MINIMUM UNLESS OTHERWISE NOTED).

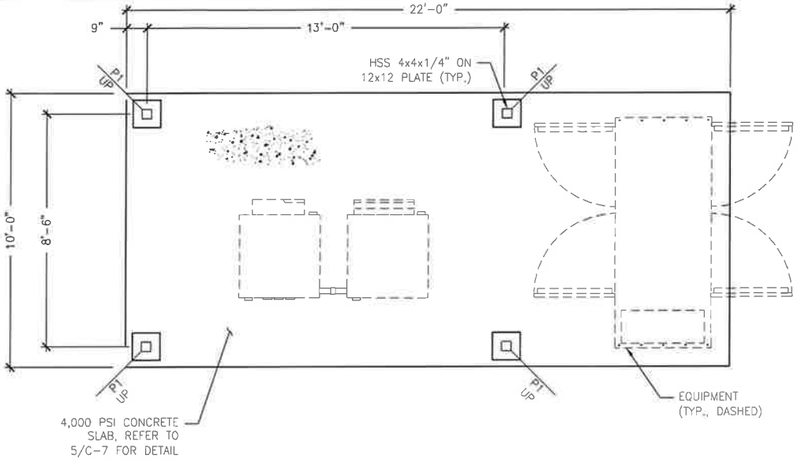
3. ALL BARS SHALL BE ASTM A-615, GRADE 60.

4. WELDED WIRE FABRIC SHALL BE ASTM A-185.

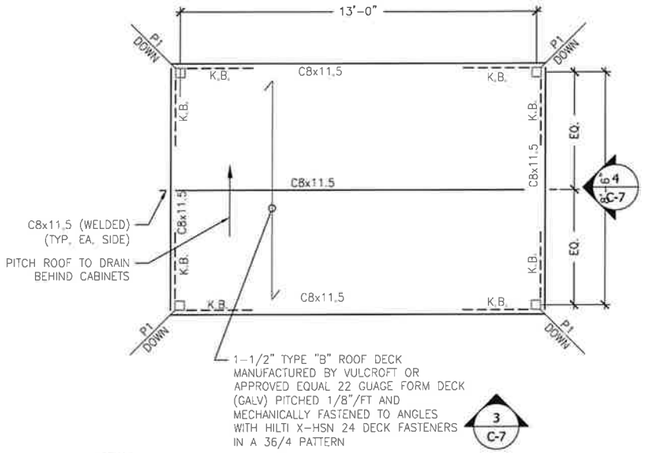
5. WHERE CONTINUOUS BARS ARE CALLED FOR, THEY SHALL BE RUN CONTINUOUSLY AROUND CORNERS AND LAPPED AT NECESSARY SPLICES OR HOOKED AT DISCONTINUOUS ENDS. LAP SHALL BE 40 BAR DIAMETERS.

FOUNDATION

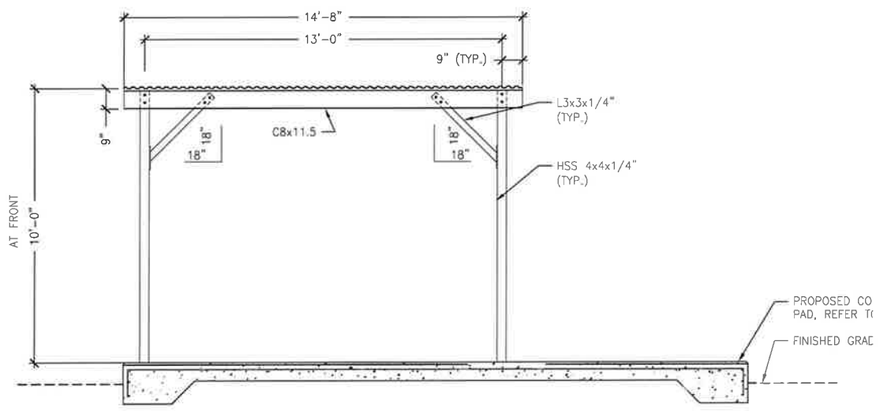
FOOTINGS SHALL BEAR ON UNDISTURBED SOIL AND /OR SUPERVISED COMPACTED FILL, FREE OF FROST,HAVING A MINIMUM ALLOWABLE BEARING CAPACITY OF 1 1/2 TONS PER SQUARE FOOT



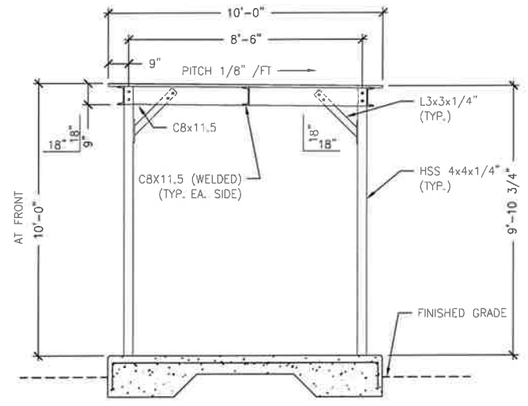
1 C-7 EQUIPMENT PAD PLAN
Scale: 1/4" = 1'-0"



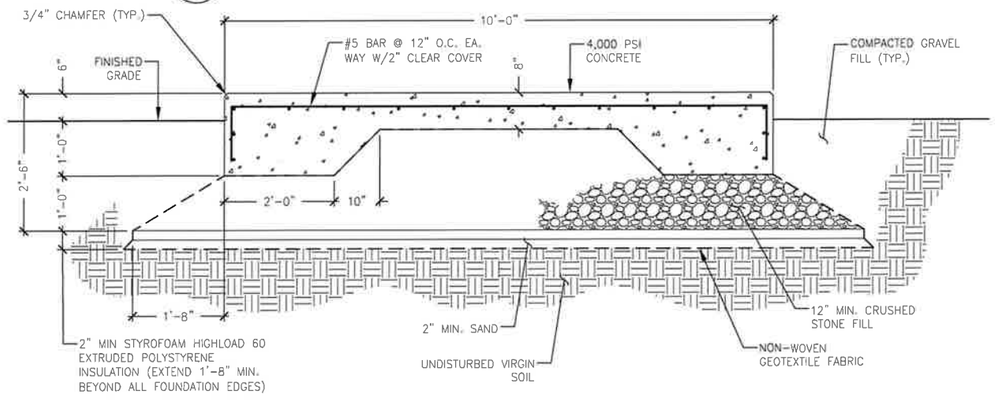
2 C-7 EQUIPMENT CANOPY ROOF FRAMING PLAN
Scale: 3/8" = 1'-0"



3 C-7 EQUIPMENT PAD AND CANOPY "LONG" ELEVATION
Scale: 3/8" = 1'-0"



4 C-7 EQUIPMENT PAD AND CANOPY "SHORT" ELEVATION
Scale: 3/8" = 1'-0"



NOTE: MINIMUM SAFE ALLOWABLE BEARING CAPACITY ON VIRGIN SOIL OR ENGINEER CONTROLLED COMPACTED FILL TO BE 3000 PSF.

5 C-7 CONCRETE SLAB SECTION
Scale: 3/4" = 1'-0"

PLAN NOTES

1. VERIFY ALL DIMENSIONS, ELEVATIONS, EXISTING FRAMING MEMBER SIZES AND GENERAL CONDITIONS PRIOR TO COMMENCEMENT OF WORK. NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES BETWEEN THESE DRAWINGS AND EXISTING CONDITIONS.

LEGEND

SYMBOL	DESCRIPTION
P1	INDICATES HSS4x4x1/4 ASTM A500 GR. B (Fy=48ksi) STEEL POST.
	INDICATES SPAN DIRECTION
K.B.	INDICATES L3x3x1/4 ASTM A36 (Fy=36ksi) STEEL ANGLE

vertical bridge
750 PARK OF COMMERCE DR.
BOCA RATON, FL. 33487

Cellco Partnership
d/b/a Verizon Wireless
verizon
WIRELESS COMMUNICATIONS FACILITY
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

On Air Engineering, LLC
88 Foundry Pond Road
Cold Spring, NY 10516
onair@optonline.net
201-456-4624

LICENSURE

STATE OF CONNECTICUT · DAVID A. WEINPAHL · NO. 22144 · LICENSED PROFESSIONAL ENGINEER

DAVID WEINPAHL, P.E.
CT LIC. NO. 22144

NO.:	DATE:	SUBMISSIONS
0	04.23.24	D&M FILING
1	06.18.24	REVISED PER CLIENT COMMENTS

DRAWN BY:	CHECKED BY:
MF	DW

VERTICAL BRIDGE SITE ID:
US-CT-5055

VERIZON SITE NAME:
WILTON SOUTH CT

PROJECT INFORMATION:
TOWN OF WILTON
180 SCHOOL RD.
WILTON, CT

DRAWING TITLE:
EQUIPMENT PAD/CANOPY PLAN & SECTIONS

SHEET NUMBER:
C-7

ATTACHMENT 2

Valmont Industries, Inc.
PO Box 358, 28800 Ida Street
Valley, NE 68064 USA
1-800-547-2151

Communication Structure Calculations
for
The Towers, LLC
US-CT-5055 - Wilton South CT, CT

610713-P1RevA

Monday, 20 May 2024

Prepared By:
Chandra Rao

Reviewed By:
CR

Nathan A Ross Date: 2024.07.10 20:45:44 -07'00'

Valmont Industries, Inc.
PO Box 358, 28800 Ida Street
Valley, NE 68064 USA
1-800-547-2151

Table Of Contents

Valmont Industries, Inc.
Project Summary
The Towers, LLC
610713

			Anchor Bolts			Shaft Diameters			Weight (lb)								Global Base Reactions For Pole Shaft Governing Load Case				
Structure Identifier	Pole Height (ft)	Emb. Length (ft)	Max Bolt Circle (in)	Anchor Bolt Length (in)	Qty	Base (in)	Ground Line (in)	Top (in)	Sect A	Sect B	Sect C	Sect D	Sect E	Sect F	Base Plate	Anchor Bolts	Load Case Identifier	Moment (in-kip)	Shear (kips)	Axial (kips)	Max Defl (in)
610713-P1RevANE	122.00	----	71.00	72	24	63.50	63.50	22.92	16077	11161	3261	----	----	----	2759	2629	WIND	97788	92.7	75.4	69

Valmont Industries, Inc.
Project Summary
The Towers, LLC
610713

Structure Identifier	Shaft Yield Stress (ksi)	Shaft Taper (in/ft)	Shaft Shape	Anchor Bolt Diameter (in)	Base Plate Width/ Length (in)	Base Plate Thickness (in)	Camber (in)	Length (ft)						Thickness (in)					
								Sect A	Sect B	Sect C	Sect D	Sect E	Sect F	Sect A	Sect B	Sect C	Sect D	Sect E	Sect F
610713-P1RevANE	65	0.346	18	2.25	77.00	3.50	0.0	48.75	51.08	34.08	----	----	----	0.563	0.500	0.313	----	----	----

Valmont Industries, Inc.
Project Summary
The Towers, LLC
610713

	Section Data																
Structure Identifier	"A" Base Diameter (in)	"A" Top Diameter (in)	"B" Base Diameter (in)	"B" Top Diameter (in)	"C" Base Diameter (in)	"C" Top Diameter (in)	"D" Base Diameter (in)	"D" Top Diameter (in)	"E" Base Diameter (in)	"E" Top Diameter (in)	"F" Base Diameter (in)	"F" Top Diameter (in)	"A"-"B" Joint Type	"B"-"C" Joint Type	"C"-"D" Joint Type	"D"-"E" Joint Type	"E"-"F" Joint Type
610713-P1RevANE	63.50	46.63	50.00	32.33	34.71	22.92	----	----	----	----	----	----	Slip Joint	Slip Joint		----	----

Valmont Industries, Inc.
Engineering Data

*** OVERVIEW ***

1 Structure design conforms to TIA-222-H including:
  120 mph Wind Speed (3 second gust, 700 year mean recurrence interval)
  50 mph Ice Wind (500 year mean recurrence interval)
  1.00 in ice thickness
  60.0 mph Basic Wind Speed with no ice for twist and sway
  Exposure Category C
  Risk Category II
  Topographic Category 1
  Site Elevation = 372 (ft) above mean sea level
  Spectral response acceleration at short periods, Ss = 0.24 and 1 sec, S1 = 0.06.
  Site class = D
2. Feedlines are assumed to be placed interior to the pole
3. Total pole height is 123.0 ft agl
4. Elevations are measured from top of base plate (approximately 1.0 ft agl)
5. Jurisdiction specified wind speed used
6. Designed to extend from 123' AGL to 143' AGL
7. Valmont standard handholes used
8. Shielding factor of 0.82 is used
9. Branches are not to scale and are for illustration purposes only

*** Structure Anchorage Information ***

Pole Height (ft):	122.0	Number of Anchor Bolts:	24
Bolt Circle (in):	71.00	Diameter of Anchor Bolts (in):	2.25
Base Shear (lbs):	92733	Length of Anchor Bolts (in):	72.00
Base Vertical (lbs):	78206	Projection Length (in):	12.75
Base Moment (in-kips):	97788	Template OD (in):	74.50

*** Loading Data***

			Without Ice		With Ice	
Qty	Description	ABP Height (ft)	EPA (ft^2)	Weight (lbs)	EPA (ft^2)	Weight (lbs)
1	42,000 SQ IN EPA	119.00	239.17	5833	478.33	11667
1	30,000 SQ IN EPA	108.00	170.83	4167	341.67	8333
1	30,000 SQ IN EPA	98.00	170.83	4167	341.67	8333
1	30,000 SQ IN EPA	88.00	170.83	4167	341.67	8333
1	5FT TOP BRANCH	122.00	2.25	33	4.50	66
3	4FT TOP BRANCH	122.00	5.40	78	10.80	156
2	8FT BRANCHES	39.00	7.20	100	14.40	200
1	5/8" X 10'	122.00	0.62	23	2.91	49
2	6' H.P (W/PM)(6GHz)	78.00	76.54	744	82.50	1420

*** Linearly Distributed Loading Data ***

		ABP Bottom	ABP Top	Without Ice		With Ice	
Qty	Description	Height (ft)	Height (ft)	EPA (ft^2)	Weight (lb)	EPA (ft^2)	Weight (lb)
74	6FT BRANCH	89.50	121.50	185.00	2960	370.00	5920
96	8FT BRANCH	57.00	105.00	345.60	4800	691.20	9600
73	10FT BRANCH	39.50	72.00	372.30	4818	744.60	9636

*** SUMMARY ***

Design Code: TIA-222-H

DESIGN SUMMARY

Height Above Base Plate	122'- 0.00"	Dia. at Top of Baseplate (in)	63.500	Pole Shaft Weight (lbs)	30499
		Top Diameter (in)	22.919		
		Pole Taper (in/ft)	0.34595	Shape:	18 Sides

Connections Between Sections	/First/	/Second/
Height Above Ground	48'- 9.00"	93'- 0.00"
Type	Slip Joint	Slip Joint
Overlap Length (in)	82	61
Maximum Axial Force (lbs)	91043	46530

Section Characteristics	/First/	/Second/	/Third/
Base Diameter (in)	63.500	49.999	34.710
Top Diameter (in)	46.635	32.327	22.919
Thickness (in)	0.56250	0.50000	0.31250
Length	48'- 9.00"	51'- 1.00"	34'- 1.00"
Weight (lbs)	16077	11161	3261
Yield Strength (ksi)	65.00	65.00	65.00
Section Shape	18 Sides	18 Sides	18 Sides

ANALYSIS SUMMARY

	Pt. of Fixity	Governing Level Sec.1	Governing Level Sec.2	Governing Level Sec.3	Pole Top
Governing Load Case	WIND	WIND	WIND	WIND	WIND
Height (ft)	0.00	0.00	48.75	93.00	122.00
Resultant Moment (in-kips)	97788	97788	44326	8224	11
Shear Force (lbs)	93441	93441	85410	43861	430
Axial Force (lbs)	74567	74567	48036	21220	122
Effective Yield Strength (ksi)	80.06	80.06	82.55	81.61	82.55
Combined Interaction Value	0.79	0.79	0.70	0.45	0.00
Total Deflection (in)	0.00	0.00	11.02	41.13	68.84

Note: Diameters are outside, measured across the flats
Forces and moments are reported in the local element coordinate system

*** POLE SHAFT POINT OF FIXITY REACTIONS ***

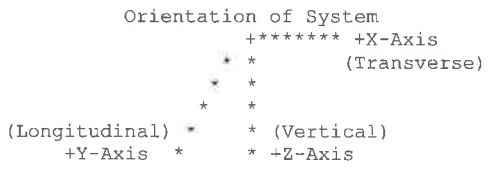
Loading Case Identifier	Moments About X-Axis (in-kips)	Moments About Y-Axis (in-kips)	Moments Resultant (X & Y) (in-kips)	Moments Torsional (in-kips)	Vertical Force (lbs)	Shear In X-Direction (lbs)	Shear In Y-Direction (lbs)	Shear Resultant (X & Y) (lbs)	Notes
WIND	62857	-74910	97788	42	75446	71037	59607	92733	
ICE + WIND	22396	-26690	34842	8	120150	24055	20185	31402	
T+S	14250	-16983	22169	9	62434	15896	13338	20750	
Seismic	1848	-2202	2875	0	78060	1491	1251	1946	
Seismic 2	1710	-2037	2660	0	52955	1491	1251	1946	

Note: Positive vertical force is downward.
Reactions are considered in the global coordinate system.

*** INPUT LOADS ***

Design Code TIA-222-H
Loading Case WIND (1.2 D + 1.0 Wo)

Basic Wind Velocity is 120.00 mph Ice Thickness 0.00
Wind Orientation is 40.0 Degrees Clockwise From +X Axis
Structure Weight Overload Factor is 1.200
Exposure C, Gust Factor 1.10
Risk Category II, Topographic Category 1, Crest Height 0.00 ft
Orientations are Measured Clockwise From +X Axis
Positive Y Axis is 90 Degrees Clockwise From +X Axis
Foundation Rotation of 0.50 Degrees
Elevation of structure base above surrounding terrain = 1.00 ft



Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
1	119.00	119.00	0.00	40.00	9158	7685	7000	239.17	1-42,000 sq i
2	108.00	108.00	0.00	40.00	6410	5379	5000	170.83	1-30,000 sq i
3	98.00	98.00	0.00	40.00	6279	5269	5000	170.83	1-30,000 sq i
4	88.00	88.00	0.00	40.00	6142	5154	5000	170.83	1-30,000 sq i
5	122.00	124.50	0.00	40.00	87	73	40	2.25	1-5ft Top Bra
6	122.00	124.00	0.00	40.00	209	175	94	5.40	3-4ft Top Bra
7	39.00	39.00	0.00	40.00	219	184	120	7.20	2-8ft Branche
8	122.00	125.00	0.00	40.00	24	20	28	0.62	1-5/8" x 10'
9	78.00	78.00	1.00	40.00	2684	2252	893	76.54	2-6' H.P
10	119.21	119.21	0.00	40.00	1012	849	508	26.43	6ft Branch
11	114.64	114.64	0.00	40.00	1004	843	508	26.43	6ft Branch
12	110.07	110.07	0.00	40.00	996	835	508	26.43	6ft Branch
13	105.50	105.50	0.00	40.00	987	828	508	26.43	6ft Branch
14	100.93	100.93	0.00	40.00	978	821	508	26.43	6ft Branch
15	96.36	96.36	0.00	40.00	968	813	508	26.43	6ft Branch
16	91.79	91.79	0.00	40.00	959	804	508	26.43	6ft Branch
17	102.60	102.60	0.00	40.00	1283	1077	576	34.56	8ft Branch

*** INPUT LOADS ***

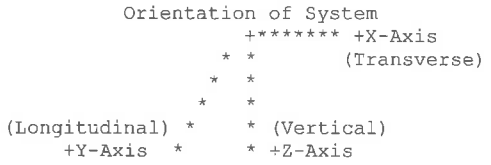
Loading Case WIND - Continued

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	Orientation of System
18	97.80	97.80	0.00	40.00	1270	1066	576	34.56	8ft Branch
19	93.00	93.00	0.00	40.00	1257	1055	576	34.56	8ft Branch
20	88.20	88.20	0.00	40.00	1243	1043	576	34.56	8ft Branch
21	83.40	83.40	0.00	40.00	1229	1031	576	34.56	8ft Branch
22	78.60	78.60	0.00	40.00	1214	1018	576	34.56	8ft Branch
23	73.80	73.80	0.00	40.00	1198	1005	576	34.56	8ft Branch
24	69.00	69.00	0.00	40.00	1181	991	576	34.56	8ft Branch
25	64.20	64.20	0.00	40.00	1164	977	576	34.56	8ft Branch
26	59.40	59.40	0.00	40.00	1145	961	576	34.56	8ft Branch
27	69.68	69.68	0.00	40.00	1822	1529	826	53.19	10ft Branch
28	65.04	65.04	0.00	40.00	1796	1507	826	53.19	10ft Branch
29	60.39	60.39	0.00	40.00	1769	1484	826	53.19	10ft Branch
30	55.75	55.75	0.00	40.00	1740	1460	826	53.19	10ft Branch
31	51.11	51.11	0.00	40.00	1709	1434	826	53.19	10ft Branch
32	46.46	46.46	0.00	40.00	1675	1406	826	53.19	10ft Branch
33	41.82	41.82	0.00	40.00	1640	1376	826	53.19	10ft Branch

*** INPUT LOADS ***

Design Code TIA-222-H
Loading Case ICE + WIND (1.2 D + 1.0 Wi + 1.0 Di)

Basic Wind Velocity is 50.00 mph Ice Thickness 1.00
Wind Orientation is 40.0 Degrees Clockwise From +X Axis
Structure Weight Overload Factor is 1.200
Exposure C, Gust Factor 1.10
Risk Category II, Topographic Category 1, Crest Height 0.00 ft
Orientations are Measured Clockwise From +X Axis
Positive Y Axis is 90 Degrees Clockwise From +X Axis
Foundation Rotation of 0.50 Degrees
Elevation of structure base above surrounding terrain = 1.00 ft



Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
1	119.00	119.00	0.00	40.00	3180	2668	14000	478.33	1-42,000 sq i
2	108.00	108.00	0.00	40.00	2226	1868	10000	341.67	1-30,000 sq i
3	98.00	98.00	0.00	40.00	2180	1829	10000	341.67	1-30,000 sq i
4	88.00	88.00	0.00	40.00	2133	1790	10000	341.67	1-30,000 sq i
5	122.00	124.50	0.00	40.00	30	25	79	4.50	1-5ft Top Bra
6	122.00	124.00	0.00	40.00	72	61	187	10.80	3-4ft Top Bra
7	39.00	39.00	0.00	40.00	76	64	240	14.40	2-8ft Branche
8	122.00	125.00	0.00	40.00	20	16	59	2.91	1-5/8" x 10'
9	78.00	78.00	1.00	40.00	502	421	1704	82.50	2-6' H.P
10	119.21	119.21	0.00	40.00	351	295	1015	52.86	6ft Branch
11	114.64	114.64	0.00	40.00	349	293	1015	52.86	6ft Branch
12	110.07	110.07	0.00	40.00	346	290	1015	52.86	6ft Branch
13	105.50	105.50	0.00	40.00	343	288	1015	52.86	6ft Branch
14	100.93	100.93	0.00	40.00	340	285	1015	52.86	6ft Branch
15	96.36	96.36	0.00	40.00	336	282	1015	52.86	6ft Branch
16	91.79	91.79	0.00	40.00	333	279	1015	52.86	6ft Branch
17	102.60	102.60	0.00	40.00	445	374	1152	69.12	8ft Branch

*** INPUT LOADS ***

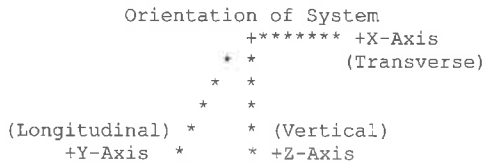
Loading Case ICE + WIND - Continued

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	Orientation of System EPA (ft^2)	
18	97.80	97.80	0.00	40.00	441	370	1152	69.12	8ft Branch
19	93.00	93.00	0.00	40.00	436	366	1152	69.12	8ft Branch
20	88.20	88.20	0.00	40.00	431	362	1152	69.12	8ft Branch
21	83.40	83.40	0.00	40.00	427	358	1152	69.12	8ft Branch
22	78.60	78.60	0.00	40.00	421	354	1152	69.12	8ft Branch
23	73.80	73.80	0.00	40.00	416	349	1152	69.12	8ft Branch
24	69.00	69.00	0.00	40.00	410	344	1152	69.12	8ft Branch
25	64.20	64.20	0.00	40.00	404	339	1152	69.12	8ft Branch
26	59.40	59.40	0.00	40.00	398	334	1152	69.12	8ft Branch
27	69.68	69.68	0.00	40.00	633	531	1652	106.37	10ft Branch
28	65.04	65.04	0.00	40.00	624	523	1652	106.37	10ft Branch
29	60.39	60.39	0.00	40.00	614	515	1652	106.37	10ft Branch
30	55.75	55.75	0.00	40.00	604	507	1652	106.37	10ft Branch
31	51.11	51.11	0.00	40.00	593	498	1652	106.37	10ft Branch
32	46.46	46.46	0.00	40.00	582	488	1652	106.37	10ft Branch
33	41.82	41.82	0.00	40.00	569	478	1652	106.37	10ft Branch

*** INPUT LOADS ***

Design Code TIA-222-H
Loading Case T+S (1.0 D + 1.0 Wo)

Basic Wind Velocity is 60.00 mph Ice Thickness 0.00
Wind Orientation is 40.0 Degrees Clockwise From +X Axis
Structure Weight Overload Factor is 1.000
Exposure C, Gust Factor 1.10
Risk Category II, Topographic Category 1, Crest Height 0.00 ft
Orientations are Measured Clockwise From +X Axis
Positive Y Axis is 90 Degrees Clockwise From +X Axis
Foundation Rotation of 0.50 Degrees
Elevation of structure base above surrounding terrain = 1.00 ft



Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
1	119.00	119.00	0.00	40.00	2049	1719	5833	239.17	1-42,000 sq i
2	108.00	108.00	0.00	40.00	1434	1203	4167	170.83	1-30,000 sq i
3	98.00	98.00	0.00	40.00	1405	1179	4167	170.83	1-30,000 sq i
4	88.00	88.00	0.00	40.00	1374	1153	4167	170.83	1-30,000 sq i
5	122.00	124.50	0.00	40.00	19	16	33	2.25	1-5ft Top Bra
6	122.00	124.00	0.00	40.00	47	39	78	5.40	3-4ft Top Bra
7	39.00	39.00	0.00	40.00	49	41	100	7.20	2-8ft Branche
8	122.00	125.00	0.00	40.00	5	5	23	0.62	1-5/8" x 10'
9	78.00	78.00	1.00	40.00	600	504	744	76.54	2-6' H.P
10	119.21	119.21	0.00	40.00	226	190	423	26.43	6ft Branch
11	114.64	114.64	0.00	40.00	225	188	423	26.43	6ft Branch
12	110.07	110.07	0.00	40.00	223	187	423	26.43	6ft Branch
13	105.50	105.50	0.00	40.00	221	185	423	26.43	6ft Branch
14	100.93	100.93	0.00	40.00	219	184	423	26.43	6ft Branch
15	96.36	96.36	0.00	40.00	217	182	423	26.43	6ft Branch
16	91.79	91.79	0.00	40.00	214	180	423	26.43	6ft Branch
17	102.60	102.60	0.00	40.00	287	241	480	34.56	8ft Branch

*** INPUT LOADS ***

Loading Case T+S - Continued

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	Orientation of System EPA (ft^2)	
18	97.80	97.80	0.00	40.00	284	238	480	34.56	8ft Branch
19	93.00	93.00	0.00	40.00	281	236	480	34.56	8ft Branch
20	88.20	88.20	0.00	40.00	278	233	480	34.56	8ft Branch
21	83.40	83.40	0.00	40.00	275	231	480	34.56	8ft Branch
22	78.60	78.60	0.00	40.00	272	228	480	34.56	8ft Branch
23	73.80	73.80	0.00	40.00	268	225	480	34.56	8ft Branch
24	69.00	69.00	0.00	40.00	264	222	480	34.56	8ft Branch
25	64.20	64.20	0.00	40.00	260	218	480	34.56	8ft Branch
26	59.40	59.40	0.00	40.00	256	215	480	34.56	8ft Branch
27	69.68	69.68	0.00	40.00	408	342	688	53.19	10ft Branch
28	65.04	65.04	0.00	40.00	402	337	688	53.19	10ft Branch
29	60.39	60.39	0.00	40.00	396	332	688	53.19	10ft Branch
30	55.75	55.75	0.00	40.00	389	327	688	53.19	10ft Branch
31	51.11	51.11	0.00	40.00	382	321	688	53.19	10ft Branch
32	46.46	46.46	0.00	40.00	375	314	688	53.19	10ft Branch
33	41.82	41.82	0.00	40.00	367	308	688	53.19	10ft Branch

*** INPUT LOADS ***

Design Code TIA-222-H
Loading Case Seismic (1.2 D + 1.0 Ev + 1.0 Eh)

Seismic analysis following the Equivalent Lateral Force Procedure
Risk Category: II
Site Class: D
Response Acceleration at short periods: 0.24
Response Acceleration at one second: 0.06
The above are used to obtain the acceleration and velocity based site coefficients Fa and Fv
Foundation Rotation of 0.00 Degrees
Elevation of structure base above surrounding terrain = 1.00 ft

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
1	119.00	119.00	0.00	40.00	0	0	7000	239.17	1-42,000 sq i
2	108.00	108.00	0.00	40.00	0	0	5000	170.83	1-30,000 sq i
3	98.00	98.00	0.00	40.00	0	0	5000	170.83	1-30,000 sq i
4	88.00	88.00	0.00	40.00	0	0	5000	170.83	1-30,000 sq i
5	122.00	124.50	0.00	40.00	0	0	40	2.25	1-5ft Top Bra
6	122.00	124.00	0.00	40.00	0	0	94	5.40	3-4ft Top Bra
7	39.00	39.00	0.00	40.00	0	0	120	7.20	2-8ft Branche
8	122.00	125.00	0.00	40.00	0	0	28	0.62	1-5/8" x 10'
9	78.00	78.00	1.00	40.00	0	0	893	76.54	2-6' H.P
10	119.21	119.21	0.00	40.00	0	0	508	26.43	6ft Branch
11	114.64	114.64	0.00	40.00	0	0	508	26.43	6ft Branch
12	110.07	110.07	0.00	40.00	0	0	508	26.43	6ft Branch
13	105.50	105.50	0.00	40.00	0	0	508	26.43	6ft Branch
14	100.93	100.93	0.00	40.00	0	0	508	26.43	6ft Branch
15	96.36	96.36	0.00	40.00	0	0	508	26.43	6ft Branch
16	91.79	91.79	0.00	40.00	0	0	508	26.43	6ft Branch
17	102.60	102.60	0.00	40.00	0	0	576	34.56	8ft Branch
18	97.80	97.80	0.00	40.00	0	0	576	34.56	8ft Branch

*** INPUT LOADS ***

Loading Case Seismic - Continued

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	Orientation of System EPA (ft^2)	
19	93.00	93.00	0.00	40.00	0	0	576	34.56	8ft Branch
20	88.20	88.20	0.00	40.00	0	0	576	34.56	8ft Branch
21	83.40	83.40	0.00	40.00	0	0	576	34.56	8ft Branch
22	78.60	78.60	0.00	40.00	0	0	576	34.56	8ft Branch
23	73.80	73.80	0.00	40.00	0	0	576	34.56	8ft Branch
24	69.00	69.00	0.00	40.00	0	0	576	34.56	8ft Branch
25	64.20	64.20	0.00	40.00	0	0	576	34.56	8ft Branch
26	59.40	59.40	0.00	40.00	0	0	576	34.56	8ft Branch
27	69.68	69.68	0.00	40.00	0	0	826	53.19	10ft Branch
28	65.04	65.04	0.00	40.00	0	0	826	53.19	10ft Branch
29	60.39	60.39	0.00	40.00	0	0	826	53.19	10ft Branch
30	55.75	55.75	0.00	40.00	0	0	826	53.19	10ft Branch
31	51.11	51.11	0.00	40.00	0	0	826	53.19	10ft Branch
32	46.46	46.46	0.00	40.00	0	0	826	53.19	10ft Branch
33	41.82	41.82	0.00	40.00	0	0	826	53.19	10ft Branch

*** INPUT LOADS ***

Design Code TIA-222-H
Loading Case Seismic 2 (0.9 D - 1.0 Ev + 1.0 Eh)

Seismic analysis following the Equivalent Lateral Force Procedure
Risk Category: II
Site Class: D
Response Acceleration at short periods: 0.24
Response Acceleration at one second: 0.06
The above are used to obtain the acceleration and velocity based site coefficients Fa and Fv
Foundation Rotation of 0.00 Degrees
Elevation of structure base above surrounding terrain = 1.00 ft

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
1	119.00	119.00	0.00	40.00	0	0	5250	239.17	1-42,000 sq i
2	108.00	108.00	0.00	40.00	0	0	3750	170.83	1-30,000 sq i
3	98.00	98.00	0.00	40.00	0	0	3750	170.83	1-30,000 sq i
4	88.00	88.00	0.00	40.00	0	0	3750	170.83	1-30,000 sq i
5	122.00	124.50	0.00	40.00	0	0	30	2.25	1-5ft Top Bra
6	122.00	124.00	0.00	40.00	0	0	70	5.40	3-4ft Top Bra
7	39.00	39.00	0.00	40.00	0	0	90	7.20	2-8ft Branche
8	122.00	125.00	0.00	40.00	0	0	21	0.62	1-5/8" x 10'
9	78.00	78.00	1.00	40.00	0	0	670	76.54	2-6' H.P
10	119.21	119.21	0.00	40.00	0	0	381	26.43	6ft Branch
11	114.64	114.64	0.00	40.00	0	0	381	26.43	6ft Branch
12	110.07	110.07	0.00	40.00	0	0	381	26.43	6ft Branch
13	105.50	105.50	0.00	40.00	0	0	381	26.43	6ft Branch
14	100.93	100.93	0.00	40.00	0	0	381	26.43	6ft Branch
15	96.36	96.36	0.00	40.00	0	0	381	26.43	6ft Branch
16	91.79	91.79	0.00	40.00	0	0	381	26.43	6ft Branch
17	102.60	102.60	0.00	40.00	0	0	432	34.56	8ft Branch
18	97.80	97.80	0.00	40.00	0	0	432	34.56	8ft Branch

*** INPUT LOADS ***

Loading Case Seismic 2 - Continued

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Orientation of System Force-Z (lbs)	EPA (ft^2)	
19	93.00	93.00	0.00	40.00	0	0	432	34.56	8ft Branch
20	88.20	88.20	0.00	40.00	0	0	432	34.56	8ft Branch
21	83.40	83.40	0.00	40.00	0	0	432	34.56	8ft Branch
22	78.60	78.60	0.00	40.00	0	0	432	34.56	8ft Branch
23	73.80	73.80	0.00	40.00	0	0	432	34.56	8ft Branch
24	69.00	69.00	0.00	40.00	0	0	432	34.56	8ft Branch
25	64.20	64.20	0.00	40.00	0	0	432	34.56	8ft Branch
26	59.40	59.40	0.00	40.00	0	0	432	34.56	8ft Branch
27	69.68	69.68	0.00	40.00	0	0	619	53.19	10ft Branch
28	65.04	65.04	0.00	40.00	0	0	619	53.19	10ft Branch
29	60.39	60.39	0.00	40.00	0	0	619	53.19	10ft Branch
30	55.75	55.75	0.00	40.00	0	0	619	53.19	10ft Branch
31	51.11	51.11	0.00	40.00	0	0	619	53.19	10ft Branch
32	46.46	46.46	0.00	40.00	0	0	619	53.19	10ft Branch
33	41.82	41.82	0.00	40.00	0	0	619	53.19	10ft Branch

Equivalent Lateral Force Values for Pole

W = 62,388 lbs
Cs = 0.03
Vs = 1,945 lbs
Sds = 0.26
Ev = 3,194 lbs
Fa = 1.60
Fv = 2.40
k = 1.78
f1 = 0.487 Hz

Distance From Fixity H (ft)	Weight Wx (lbs)	H^k	H^k * Wx	Load Distribution Factor	Lateral Seismic Force Fx (lbs)
122.00	134	5,078.52	680,522	0.0048	9
120.50	233	4,968.15	1,155,444	0.0082	16
119.00	6,256	4,858.83	30,396,860	0.2153	419
118.00	161	4,786.55	770,083	0.0055	11
115.82	196	4,630.71	905,814	0.0064	12
114.64	423	4,547.35	1,923,528	0.0136	27
113.32	227	4,454.67	1,011,364	0.0072	14
111.04	171	4,296.32	733,902	0.0052	10
110.07	423	4,230.28	1,789,407	0.0127	25
109.04	188	4,159.84	783,345	0.0055	11
108.00	4,167	4,089.91	17,042,659	0.1207	235
107.50	93	4,056.34	376,031	0.0027	5
106.25	141	3,972.94	561,148	0.0040	8
105.50	423	3,923.27	1,659,542	0.0118	23
104.05	281	3,828.00	1,073,823	0.0076	15
102.60	480	3,733.77	1,792,208	0.0127	25
102.30	59	3,714.40	220,130	0.0016	3
101.46	107	3,660.67	391,231	0.0028	5
100.93	423	3,626.41	1,533,973	0.0109	21
99.36	320	3,527.18	1,127,795	0.0080	16
97.80	4,647	3,429.16	15,935,301	0.1129	220
97.40	84	3,404.29	284,584	0.0020	4
96.68	68	3,359.63	227,503	0.0016	3
96.36	423	3,339.82	1,412,742	0.0100	19
94.68	361	3,237.18	1,170,145	0.0083	16
93.00	480	3,135.94	1,505,251	0.0107	21
92.39	343	3,099.67	1,062,332	0.0075	15
91.79	423	3,063.58	1,295,895	0.0092	18
89.89	1,097	2,952.27	3,239,298	0.0229	45
88.00	4,647	2,842.75	13,210,271	0.0936	182
87.50	191	2,814.13	536,569	0.0038	7
85.20	667	2,684.08	1,790,884	0.0127	25
83.40	480	2,584.19	1,240,412	0.0088	17

BY VALMONT INDUSTRIES FOR: THE TOWERS, LLC 122.0' POLE, SITE: US-CT-5055 - WILTON SOUTH CT, CT DATE 05/20/2024
Design Id: 610713-P1RevANE IMPAX 27.1.30.10
Equivalent Lateral Force Values for Pole

Distance From Fixity H (ft)	Weight Wx (lbs)	H^k	H^k * Wx	Load Distribution Factor	Lateral Seismic Force Fx (lbs)
82.70	266	2,545.79	677,217	0.0048	9
80.30	661	2,416.05	1,597,682	0.0113	22
78.60	480	2,325.95	1,116,454	0.0079	15
78.30	119	2,310.20	274,771	0.0019	4
78.00	744	2,294.50	1,707,111	0.0121	24
77.50	200	2,268.44	453,064	0.0032	6
75.40	652	2,160.42	1,407,885	0.0100	19
73.80	480	2,079.66	998,238	0.0071	14
72.90	375	2,034.83	763,004	0.0054	11
70.84	493	1,933.79	952,452	0.0067	13
69.68	688	1,877.87	1,291,972	0.0092	18
69.34	146	1,861.66	271,564	0.0019	4
69.00	480	1,845.51	885,843	0.0063	12
68.00	435	1,798.27	782,145	0.0055	11
66.02	434	1,706.22	741,268	0.0053	10
65.04	688	1,661.39	1,143,040	0.0081	16
64.62	187	1,642.48	307,185	0.0022	4
64.20	480	1,623.66	779,359	0.0055	11
63.10	499	1,574.58	785,049	0.0056	11
61.20	370	1,491.20	551,647	0.0039	8
60.39	688	1,456.60	1,002,140	0.0071	14
59.90	231	1,435.40	331,504	0.0023	5
59.40	480	1,414.34	678,882	0.0048	9
58.20	566	1,363.99	771,840	0.0055	11
56.38	299	1,288.94	385,376	0.0027	5
55.75	688	1,263.67	869,406	0.0062	12
53.88	914	1,189.17	1,087,465	0.0077	15
51.55	222	1,099.69	243,695	0.0017	3
51.11	688	1,082.83	744,987	0.0053	10
49.93	592	1,038.87	615,210	0.0044	8
47.88	937	964.20	903,520	0.0064	12
46.73	289	923.69	267,214	0.0019	4
46.46	688	914.31	629,045	0.0045	9
44.14	2,530	834.75	2,111,536	0.0150	29
41.82	688	758.38	521,765	0.0037	7
40.41	835	713.54	596,084	0.0042	8
39.00	100	669.90	66,990	0.0005	1
38.00	602	639.69	385,292	0.0027	5
34.50	1,543	538.81	831,140	0.0059	11
29.50	1,595	408.00	650,798	0.0046	9
24.50	1,648	293.36	483,350	0.0034	7
19.50	1,700	195.58	332,522	0.0024	5
14.50	1,753	115.56	202,537	0.0014	3

Equivalent Lateral Force Values for Pole

Distance From Fixity H (ft)	Weight Wx (lbs)	H^k	H^k * Wx	Load Distribution Factor	Lateral Seismic Force Fx (lbs)
9.50	1,805	54.53	98,434	0.0007	1
4.50	1,858	14.46	26,867	0.0002	0
1.00	758	1.00	758	0.0000	0

*** Properties ***

Connection Locations	Distance From Base (ft)	Diameter Across Flats (in)	Wall Thickness (in)	D/t Across Flats	w/t Across Flats	Moments of Inertia (in^4)	Area (in^2)
Top of Sect 3	122.00	22.919	0.3125	73.34	11.17	1447	22.42
	119.00	23.957	0.3125	76.66	11.75	1656	23.45
	117.00	24.649	0.3125	78.88	12.14	1806	24.14
	114.64	25.464	0.3125	81.49	12.60	1993	24.95
	112.00	26.379	0.3125	84.41	13.12	2219	25.85
	110.07	27.046	0.3125	86.55	13.50	2393	26.52
	108.00	27.762	0.3125	88.84	13.90	2591	27.23
	107.00	28.108	0.3125	89.95	14.10	2690	27.57
	105.50	28.627	0.3125	91.61	14.39	2844	28.08
	102.60	29.631	0.3125	94.82	14.96	3157	29.08
	102.00	29.838	0.3125	95.48	15.07	3224	29.28
	100.93	30.209	0.3125	96.67	15.28	3347	29.65
	97.80	31.291	0.3125	100.13	15.89	3724	30.73
	97.00	31.568	0.3125	101.02	16.05	3825	31.00
	96.36	31.790	0.3125	101.73	16.17	3907	31.22
	93.00	32.952	0.3125	105.45	16.83	4356	32.37
Top of Sect 2	93.00	32.327	0.5000	64.65	9.64	6462	50.51
	91.79	32.747	0.5000	65.49	9.78	6721	51.17
	88.00	34.056	0.5000	68.11	10.25	7574	53.25
	87.00	34.402	0.5000	68.80	10.37	7810	53.80
	83.40	35.648	0.5000	71.30	10.81	8703	55.78
	82.00	36.132	0.5000	72.26	10.98	9068	56.55
	78.60	37.308	0.5000	74.62	11.39	9996	58.41
	78.00	37.516	0.5000	75.03	11.47	10166	58.74
	77.00	37.862	0.5000	75.72	11.59	10453	59.29
	73.80	38.969	0.5000	77.94	11.98	11410	61.05
	72.00	39.592	0.5000	79.18	12.20	11974	62.04
	69.68	40.395	0.5000	80.79	12.48	12727	63.31
	69.00	40.629	0.5000	81.26	12.56	12953	63.68
	67.00	41.321	0.5000	82.64	12.81	13634	64.78
	65.04	42.001	0.5000	84.00	13.05	14327	65.86
	64.20	42.290	0.5000	84.58	13.15	14628	66.32
	62.00	43.051	0.5000	86.10	13.42	15442	67.53
	60.39	43.607	0.5000	87.21	13.61	16055	68.41
	59.40	43.951	0.5000	87.90	13.74	16442	68.95
	57.00	44.781	0.5000	89.56	14.03	17403	70.27
	55.75	45.213	0.5000	90.43	14.18	17917	70.96
	52.00	46.511	0.5000	93.02	14.64	19523	73.02
	51.11	46.819	0.5000	93.64	14.75	19919	73.51

*** Properties ***

Connection Locations	Distance From Base (ft)	Diameter Across Flats (in)	Wall Thickness (in)	D/t Across Flats	w/t Across Flats	Moments of Inertia (in^4)	Area (in^2)
	48.75	47.635	0.5000	95.27	15.04	20989	74.80
Top of Sect 1	48.75	46.635	0.5625	82.91	12.86	22052	82.25
	47.00	47.240	0.5625	83.98	13.05	22933	83.33
	46.46	47.426	0.5625	84.31	13.10	23207	83.67
	41.82	49.032	0.5625	87.17	13.61	25676	86.53
	39.00	50.008	0.5625	88.90	13.91	27258	88.28
	37.00	50.700	0.5625	90.13	14.13	28419	89.51
	32.00	52.430	0.5625	93.21	14.67	31463	92.60
	27.00	54.159	0.5625	96.28	15.21	34716	95.69
	22.00	55.889	0.5625	99.36	15.76	38187	98.78
	17.00	57.619	0.5625	102.43	16.30	41882	101.86
	12.00	59.349	0.5625	105.51	16.84	45808	104.95
	7.00	61.078	0.5625	108.58	17.38	49971	108.04
	2.00	62.808	0.5625	111.66	17.93	54380	111.13
Pt of Fixity	0.00	63.500	0.5625	112.89	18.14	56214	112.36

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case WIND

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
122.00	7	-9	11	0	329	276	430	122
119.00	19	-23	30	0	475	398	620	400
119.00	19	-23	30	0	11130	9338	14528	6659
117.00	245	-292	381	0	11230	9422	14659	6854
114.64	513	-611	797	0	11353	9525	14820	7088
114.64	513	-611	797	0	12386	10392	16168	7481
112.00	844	-1006	1313	0	12527	10510	16352	7761
110.07	1088	-1297	1693	0	12636	10601	16494	7965
110.07	1088	-1297	1693	0	13659	11459	17829	8363
108.00	1374	-1638	2138	0	13779	11560	17986	8588
108.00	1374	-1638	2138	0	20503	17201	26763	12830
107.00	1581	-1885	2460	0	20557	17247	26834	12954
105.50	1892	-2255	2944	0	20647	17322	26951	13123
105.50	1892	-2255	2944	0	21654	18168	28266	13542
102.60	2527	-3012	3932	0	21833	18318	28500	13877
102.60	2527	-3012	3932	0	23141	19415	30207	14329
102.00	2667	-3179	4150	0	23174	19442	30250	14414
100.93	2917	-3477	4539	0	23242	19500	30339	14542
100.93	2917	-3477	4539	0	24236	20333	31636	14976
97.80	3684	-4391	5732	0	24440	20504	31902	15358
97.80	3684	-4391	5732	0	32308	27106	42173	20123
97.00	3944	-4701	6137	0	32354	27144	42233	20243
96.36	4154	-4951	6463	0	32397	27180	42289	20324
96.36	4154	-4951	6463	0	33372	27998	43561	20788
93.00	5286	-6300	8224	0	33601	28191	43861	21220
93.00	5286	-6300	8224	0	34865	29251	45510	21730
91.79	5713	-6809	8888	0	34964	29334	45640	22140
91.79	5713	-6809	8888	0	35927	30142	46896	22611
88.00	7088	-8448	11028	0	36244	30408	47311	23924
88.00	7088	-8448	11028	0	43915	36843	57323	28799
87.00	7530	-8976	11716	0	43958	36880	57380	29111
83.40	9129	-10881	14203	0	44237	37114	57744	29910
83.40	9129	-10881	14203	0	45458	38138	59337	30459
82.00	9770	-11645	15201	0	45528	38197	59429	30878
78.60	11333	-13508	17633	0	45801	38426	59786	31669
78.60	11333	-13508	17633	0	47009	39440	61362	32216
78.00	11617	-13847	18075	0	47058	39481	61426	32358
78.00	11627	-13853	18086	42	49769	41755	64965	33036
77.00	12128	-14451	18866	42	49810	41790	65019	33379
73.80	13737	-16369	21369	42	50076	42014	65367	34159

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case WIND

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
73.80	13737	-16369	21369	42	51251	42999	66900	34753
72.00	14667	-17478	22817	42	51359	43090	67041	35311
69.68	15870	-18911	24688	42	51557	43257	67300	35901
69.68	15870	-18911	24688	42	53384	44789	69684	36651
69.00	16235	-19346	25255	42	53442	44838	69760	36826
69.00	16235	-19346	25255	42	54618	45825	71296	37379
67.00	17336	-20659	26969	42	54745	45932	71461	38015
65.04	18421	-21951	28656	42	54917	46076	71686	38536
65.04	18421	-21951	28656	42	56714	47584	74032	39300
64.20	18898	-22520	29399	42	56788	47646	74128	39524
64.20	18898	-22520	29399	42	57938	48611	75629	40102
62.00	20184	-24053	31399	42	58082	48733	75819	40820
60.39	21125	-25174	32863	42	58226	48853	76006	41264
60.39	21125	-25174	32863	42	59993	50336	78312	42040
59.40	21725	-25889	33797	42	60082	50410	78428	42317
59.40	21725	-25889	33797	42	61203	51351	79892	42922
57.00	23207	-27655	36102	42	61366	51488	80105	43725
55.75	23980	-28576	37305	42	61479	51583	80253	44084
55.75	23980	-28576	37305	42	63176	53007	82468	44964
52.00	26371	-31427	41026	42	63446	53234	82820	46227
51.11	26942	-32107	41914	42	63527	53302	82927	46492
51.11	26942	-32107	41914	42	65214	54718	85128	47326
48.75	28492	-33955	44326	42	65430	54899	85410	48036
48.75	28492	-33955	44326	42	65365	54844	85326	48186
47.00	29646	-35329	46120	42	65511	54967	85516	49391
46.46	29999	-35751	46670	42	65566	55014	85589	49737
46.46	29999	-35751	46670	42	67185	56372	87702	50651
41.82	33151	-39507	51574	42	67666	56775	88329	53684
41.82	33151	-39507	51574	42	69201	58064	90334	54696
39.00	35121	-41855	54638	42	69460	58281	90672	55698
39.00	35121	-41855	54638	42	69597	58396	90851	55988
37.00	36524	-43527	56821	42	69654	58445	90926	56973
32.00	40043	-47720	62295	42	69927	58674	91282	59197
27.00	43574	-51929	67789	42	70190	58895	91626	61480
22.00	47119	-56154	73304	42	70444	59108	91957	63822
17.00	50677	-60394	78839	42	70682	59309	92269	66221
12.00	54246	-64647	84391	42	70902	59493	92555	68677
7.00	57826	-68914	89961	42	71122	59679	92844	71189
2.00	61418	-73194	95549	42	71407	59918	93215	73657
0.00	62858	-74910	97788	42	71580	60063	93441	74567

BY VALMONT INDUSTRIES FOR: THE TOWERS, LLC 122.0' POLE, SITE: US-CT-5055 - WILTON SOUTH CT, CT DATE 05/20/2024
Design Id: 610713-P1RevANE IMPAX 27.1.30.10
Deflections for Pole

Loading Case WIND

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)
122.00	52.7	44.2	68.8	2.8	4.76
119.00	50.4	42.3	65.8	2.6	4.76
119.00	50.4	42.3	65.8	2.6	4.76
117.00	48.9	41.1	63.9	2.5	4.75
114.64	47.1	39.5	61.5	2.4	4.74
114.64	47.1	39.5	61.5	2.4	4.74
112.00	45.1	37.9	58.9	2.3	4.70
110.07	43.7	36.7	57.0	2.2	4.67
110.07	43.7	36.7	57.0	2.2	4.67
108.00	42.1	35.4	55.0	2.1	4.64
108.00	42.1	35.4	55.0	2.1	4.64
107.00	41.4	34.7	54.0	2.0	4.62
105.50	40.3	33.8	52.6	1.9	4.58
105.50	40.3	33.8	52.6	1.9	4.58
102.60	38.2	32.0	49.8	1.8	4.50
102.60	38.2	32.0	49.8	1.8	4.50
102.00	37.7	31.7	49.3	1.8	4.48
100.93	37.0	31.0	48.3	1.7	4.45
100.93	37.0	31.0	48.3	1.7	4.45
97.80	34.8	29.2	45.4	1.6	4.34
97.80	34.8	29.2	45.4	1.6	4.34
97.00	34.2	28.7	44.7	1.6	4.31
96.36	33.8	28.3	44.1	1.5	4.29
96.36	33.8	28.3	44.1	1.5	4.29
93.00	31.5	26.4	41.1	1.4	4.15
93.00	31.5	26.4	41.1	1.4	4.15
91.79	30.7	25.8	40.1	1.4	4.11
91.79	30.7	25.8	40.1	1.4	4.11
88.00	28.2	23.7	36.9	1.2	3.99
88.00	28.2	23.7	36.9	1.2	3.99
87.00	27.6	23.2	36.0	1.2	3.95
83.40	25.4	21.3	33.1	1.1	3.82
83.40	25.4	21.3	33.1	1.1	3.82
82.00	24.5	20.6	32.0	1.0	3.76
78.60	22.5	18.9	29.4	0.9	3.62
78.60	22.5	18.9	29.4	0.9	3.62
78.00	22.2	18.6	28.9	0.9	3.60
78.00	22.2	18.6	28.9	0.9	3.60
77.00	21.6	18.1	28.2	0.8	3.55
73.80	19.8	16.6	25.8	0.8	3.42

Deflections for Pole

Loading Case WIND

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)
73.80	19.8	16.6	25.8	0.8	3.42
72.00	18.8	15.8	24.6	0.7	3.33
69.68	17.6	14.8	23.0	0.6	3.23
69.68	17.6	14.8	23.0	0.6	3.23
69.00	17.2	14.5	22.5	0.6	3.20
69.00	17.2	14.5	22.5	0.6	3.20
67.00	16.2	13.6	21.2	0.6	3.10
65.04	15.3	12.8	19.9	0.5	3.01
65.04	15.3	12.8	19.9	0.5	3.01
64.20	14.9	12.5	19.4	0.5	2.97
64.20	14.9	12.5	19.4	0.5	2.97
62.00	13.8	11.6	18.1	0.5	2.87
60.39	13.1	11.0	17.1	0.4	2.79
60.39	13.1	11.0	17.1	0.4	2.79
59.40	12.7	10.6	16.5	0.4	2.74
59.40	12.7	10.6	16.5	0.4	2.74
57.00	11.6	9.8	15.2	0.4	2.62
55.75	11.1	9.3	14.5	0.4	2.56
55.75	11.1	9.3	14.5	0.4	2.56
52.00	9.6	8.1	12.6	0.3	2.38
51.11	9.3	7.8	12.1	0.3	2.33
51.11	9.3	7.8	12.1	0.3	2.33
48.75	8.4	7.1	11.0	0.2	2.21
48.75	8.4	7.1	11.0	0.2	2.21
47.00	7.8	6.6	10.2	0.2	2.13
46.46	7.7	6.4	10.0	0.2	2.10
46.46	7.7	6.4	10.0	0.2	2.10
41.82	6.2	5.2	8.1	0.2	1.88
41.82	6.2	5.2	8.1	0.2	1.88
39.00	5.3	4.5	7.0	0.1	1.75
39.00	5.3	4.5	7.0	0.1	1.75
37.00	4.8	4.0	6.3	0.1	1.65
32.00	3.6	3.0	4.7	0.1	1.42
27.00	2.5	2.1	3.3	0.1	1.18
22.00	1.7	1.4	2.2	0.0	0.96
17.00	1.0	0.8	1.3	0.0	0.73
12.00	0.5	0.4	0.6	0.0	0.51
7.00	0.2	0.1	0.2	0.0	0.29
2.00	0.0	0.0	0.0	0.0	0.08
0.00	0.0	0.0	0.0	0.0	0.00

BY VALMONT INDUSTRIES FOR: THE TOWERS, LLC 122.0' POLE, SITE: US-CT-5055 - WILTON SOUTH CT, CT DATE 05/20/2024
Design Id: 610713-P1RevANE IMPAX 27.1.30.10
Stresses for Pole

Loading Case WIND

Distance From Base (ft)	Nominal Axial Strength (lbs)	Nominal Flexural Strength (in-kips)	Nominal Shear Strength (lbs)	Nominal Torsional Strength (in-kips)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction
122.00	1,457,437	10,267	437,231	9,841	0.00	0.00	0.00	0.00	0.01
119.00	1,524,347	11,239	457,304	10,765	0.00	0.00	0.04	0.00	0.01
117.00	1,568,953	11,910	470,686	11,405	0.00	0.04	0.03	0.00	0.04
114.64	1,621,525	12,727	486,458	12,182	0.01	0.07	0.04	0.00	0.08
112.00	1,680,470	13,675	504,141	13,083	0.01	0.11	0.04	0.00	0.11
110.07	1,723,483	14,388	517,045	13,762	0.01	0.13	0.04	0.00	0.14
108.00	1,769,683	15,174	530,905	14,510	0.01	0.16	0.06	0.00	0.17
107.00	1,791,986	15,561	537,596	14,878	0.01	0.18	0.06	0.00	0.19
105.50	1,825,441	16,151	547,632	15,438	0.01	0.20	0.06	0.00	0.21
102.60	1,890,120	17,322	567,036	16,552	0.01	0.25	0.06	0.00	0.26
102.00	1,903,502	17,570	571,051	16,787	0.01	0.26	0.06	0.00	0.27
100.93	1,927,398	18,016	578,220	17,211	0.01	0.28	0.06	0.00	0.29
97.80	1,997,176	19,351	599,153	18,480	0.01	0.33	0.08	0.00	0.35
97.00	2,015,018	19,694	604,505	18,811	0.01	0.35	0.08	0.00	0.36
96.36	2,029,356	19,941	608,807	19,080	0.01	0.36	0.08	0.00	0.38
93.00	2,104,231	21,246	631,269	20,514	0.01	0.43	0.08	0.00	0.45
93.00	3,282,960	32,501	984,888	31,209	0.01	0.28	0.05	0.00	0.29
91.79	3,326,292	33,371	997,887	32,038	0.01	0.30	0.05	0.00	0.31
88.00	3,461,386	36,158	1,038,416	34,693	0.01	0.34	0.06	0.00	0.35
87.00	3,497,071	36,913	1,049,121	35,412	0.01	0.35	0.06	0.00	0.37
83.40	3,625,537	39,695	1,087,661	38,062	0.01	0.40	0.06	0.00	0.41
82.00	3,675,497	40,804	1,102,649	39,118	0.01	0.41	0.06	0.00	0.43
78.60	3,796,826	43,562	1,139,048	41,743	0.01	0.45	0.06	0.00	0.46
78.00	3,818,237	44,058	1,145,471	42,215	0.01	0.46	0.06	0.00	0.47
77.00	3,853,923	44,891	1,156,177	43,008	0.01	0.47	0.06	0.00	0.48
73.80	3,968,115	47,608	1,190,435	45,594	0.01	0.50	0.06	0.00	0.51
72.00	4,032,349	49,172	1,209,705	47,082	0.01	0.52	0.06	0.00	0.53
69.68	4,115,189	51,226	1,234,557	49,037	0.01	0.54	0.06	0.00	0.55
69.00	4,139,404	51,834	1,241,821	49,616	0.01	0.54	0.06	0.00	0.56
67.00	4,210,775	53,648	1,263,232	51,341	0.01	0.56	0.06	0.00	0.57
65.04	4,280,870	55,460	1,284,261	53,065	0.01	0.57	0.06	0.00	0.59
64.20	4,310,693	56,240	1,293,208	53,807	0.01	0.58	0.06	0.00	0.60
62.00	4,389,201	58,320	1,316,760	55,784	0.01	0.60	0.06	0.00	0.61
60.39	4,446,552	59,863	1,333,966	57,252	0.01	0.61	0.07	0.00	0.62
59.40	4,481,982	60,826	1,344,595	58,168	0.01	0.62	0.07	0.00	0.63
57.00	4,567,626	63,186	1,370,288	60,412	0.01	0.63	0.06	0.00	0.65
55.75	4,612,233	64,433	1,383,670	61,598	0.01	0.64	0.07	0.00	0.66
52.00	4,746,052	68,247	1,423,816	65,224	0.01	0.67	0.06	0.00	0.68
51.11	4,777,914	69,172	1,433,374	66,103	0.01	0.67	0.07	0.00	0.69
48.75	4,862,029	71,642	1,458,609	68,451	0.01	0.69	0.07	0.00	0.70

Stresses for Pole

Loading Case WIND

Distance From Base (ft)	Nominal Axial Strength (lbs)	Nominal Flexural Strength (in-kips)	Nominal Shear Strength (lbs)	Nominal Torsional Strength (in-kips)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction
48.75	5,346,485	76,884	1,603,945	73,574	0.01	0.64	0.06	0.00	0.65
47.00	5,416,740	78,930	1,625,022	75,521	0.01	0.65	0.06	0.00	0.66
46.46	5,438,247	79,561	1,631,474	76,122	0.01	0.65	0.06	0.00	0.67
41.82	5,624,638	85,142	1,687,391	81,429	0.01	0.67	0.06	0.00	0.69
39.00	5,737,907	88,625	1,721,372	84,742	0.01	0.69	0.06	0.00	0.70
37.00	5,818,199	91,137	1,745,460	87,130	0.01	0.69	0.06	0.00	0.71
32.00	6,018,928	97,570	1,805,678	93,246	0.01	0.71	0.06	0.00	0.72
27.00	6,219,657	104,222	1,865,897	99,569	0.01	0.72	0.05	0.00	0.74
22.00	6,420,386	111,094	1,926,116	106,099	0.01	0.73	0.05	0.00	0.75
17.00	6,621,115	117,727	1,986,335	112,837	0.01	0.74	0.05	0.00	0.76
12.00	6,821,845	124,040	2,046,553	119,783	0.01	0.76	0.05	0.00	0.77
7.00	7,022,574	130,455	2,106,772	126,935	0.01	0.77	0.05	0.00	0.78
2.00	7,223,303	136,966	2,166,991	134,296	0.01	0.78	0.05	0.00	0.79
0.00	7,303,595	139,597	2,191,078	137,298	0.01	0.78	0.05	0.00	0.79

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case ICE + WIND

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
122.00	3	-4	5	0	132	111	172	319
119.00	8	-9	12	0	191	160	249	694
119.00	8	-9	12	0	4168	3497	5441	15519
117.00	92	-110	144	0	4207	3530	5492	15779
114.64	193	-230	300	0	4256	3571	5556	16095
114.64	193	-230	300	0	4633	3887	6048	17092
112.00	317	-377	493	0	4687	3932	6118	17460
110.07	408	-486	635	0	4729	3968	6173	17735
110.07	408	-486	635	0	5101	4280	6659	18733
108.00	515	-614	801	0	5147	4319	6719	19037
108.00	515	-614	801	0	7661	6428	10000	28920
107.00	592	-706	921	0	7679	6444	10025	29071
105.50	708	-844	1102	0	7714	6472	10069	29298
105.50	708	-844	1102	0	8077	6777	10544	30299
102.60	945	-1127	1471	0	8145	6834	10632	30751
102.60	945	-1127	1471	0	8615	7229	11246	31884
102.00	997	-1189	1552	0	8625	7237	11260	31981
100.93	1091	-1300	1697	0	8651	7259	11293	32153
100.93	1091	-1300	1697	0	9007	7558	11758	33156
97.80	1376	-1639	2140	0	9083	7622	11857	33670
97.80	1376	-1639	2140	0	12000	10069	15665	44696
97.00	1472	-1755	2291	0	12014	10081	15683	44833
96.36	1550	-1847	2412	0	12030	10094	15704	44942
96.36	1550	-1847	2412	0	12375	10384	16154	45949
93.00	1970	-2348	3065	0	12459	10454	16264	46530
93.00	1970	-2348	3065	0	12905	10829	16847	47670
91.79	2128	-2536	3310	0	12944	10861	16897	48168
91.79	2128	-2536	3310	0	13284	11146	17341	49177
88.00	2637	-3142	4102	0	13406	11248	17500	50770
88.00	2637	-3142	4102	0	16238	13625	21196	61811
87.00	2800	-3337	4356	0	16240	13626	21199	62099
83.40	3391	-4041	5275	0	16342	13712	21332	63067
83.40	3391	-4041	5275	0	16767	14069	21888	64213
82.00	3627	-4323	5643	0	16777	14077	21900	64613
78.60	4203	-5010	6539	0	16875	14160	22029	65571
78.60	4203	-5010	6539	0	17298	14514	22580	66717
78.00	4308	-5134	6702	0	17315	14529	22603	66889
78.00	4321	-5150	6722	8	17847	14975	23297	68577
77.00	4501	-5364	7002	8	17845	14974	23295	68879
73.80	5078	-6051	7899	8	17941	15054	23420	69823

BY VALMONT INDUSTRIES FOR: THE TOWERS, LLC 122.0' POLE, SITE: US-CT-5055 - WILTON SOUTH CT, CT DATE 05/20/2024
Design Id: 610713-P1RevANE IMPAX 27.1.30.10
Forces and Moments for Pole in the Local Element Coordinate System

Loading Case ICE + WIND

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
73.80	5078	-6051	7899	8	18345	15393	23947	70975
72.00	5411	-6448	8417	8	18366	15411	23975	71532
69.68	5841	-6960	9086	8	18436	15470	24067	72244
69.68	5841	-6960	9086	8	19081	16010	24908	73882
69.00	5971	-7116	9289	8	19102	16028	24935	74093
69.00	5971	-7116	9289	8	19514	16374	25474	75239
67.00	6365	-7585	9902	8	19541	16396	25508	75883
65.04	6752	-8046	10504	8	19601	16447	25587	76511
65.04	6752	-8046	10504	8	20235	16979	26414	78151
64.20	6922	-8249	10769	8	20261	17000	26448	78421
64.20	6922	-8249	10769	8	20660	17336	26970	79570
62.00	7381	-8796	11482	8	20693	17363	27012	80306
60.39	7716	-9195	12004	8	20743	17405	27078	80839
60.39	7716	-9195	12004	8	21365	17927	27890	82481
59.40	7930	-9450	12336	8	21396	17953	27930	82814
59.40	7930	-9450	12336	8	21783	18278	28435	83967
57.00	8457	-10078	13157	8	21821	18310	28485	84799
55.75	8732	-10406	13584	8	21861	18343	28537	85230
55.75	8732	-10406	13584	8	22444	18832	29298	86885
52.00	9582	-11419	14906	8	22513	18890	29388	88223
51.11	9784	-11660	15221	8	22541	18914	29425	88542
51.11	9784	-11660	15221	8	23129	19407	30192	90191
48.75	10334	-12315	16077	8	23204	19470	30290	91043
48.75	10334	-12315	16077	8	23159	19433	30232	91062
47.00	10743	-12802	16712	8	23202	19469	30288	92394
46.46	10868	-12952	16907	8	23223	19486	30315	92802
46.46	10868	-12952	16907	8	23776	19950	31037	94462
41.82	11983	-14281	18643	8	23953	20099	31269	98026
41.82	11983	-14281	18643	8	24464	20527	31935	99698
39.00	12680	-15111	19726	8	24554	20603	32052	100873
39.00	12680	-15111	19726	8	24577	20623	32083	101134
37.00	13175	-15702	20497	8	24560	20608	32060	102014
32.00	14416	-17180	22427	8	24601	20642	32114	104227
27.00	15658	-18661	24360	8	24639	20675	32164	106508
22.00	16903	-20144	26296	8	24675	20705	32211	108856
17.00	18149	-21629	28234	8	24707	20731	32252	111269
12.00	19396	-23115	30175	8	24733	20753	32286	113744
7.00	20645	-24604	32118	8	24760	20776	32321	116277
2.00	21895	-26094	34063	8	24823	20829	32404	118845
0.00	22396	-26690	34842	8	24881	20878	32480	119863

BY VALMONT INDUSTRIES FOR: THE TOWERS, LLC 122.0' POLE, SITE: US-CT-5055 - WILTON SOUTH CT, CT DATE 05/20/2024
Design Id: 610713-P1RevANE IMPAX 27.1.30.10
Deflections for Pole

Loading Case ICE + WIND

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)
122.00	19.1	16.0	24.9	0.6	1.74
119.00	18.3	15.3	23.8	0.5	1.74
119.00	18.3	15.3	23.8	0.5	1.74
117.00	17.7	14.9	23.1	0.5	1.73
114.64	17.1	14.3	22.3	0.5	1.73
114.64	17.1	14.3	22.3	0.5	1.73
112.00	16.3	13.7	21.3	0.5	1.71
110.07	15.8	13.3	20.6	0.4	1.70
110.07	15.8	13.3	20.6	0.4	1.70
108.00	15.2	12.8	19.9	0.4	1.69
108.00	15.2	12.8	19.9	0.4	1.69
107.00	15.0	12.6	19.5	0.4	1.68
105.50	14.6	12.2	19.0	0.4	1.67
105.50	14.6	12.2	19.0	0.4	1.67
102.60	13.8	11.6	18.0	0.4	1.64
102.60	13.8	11.6	18.0	0.4	1.64
102.00	13.6	11.4	17.8	0.4	1.63
100.93	13.4	11.2	17.4	0.4	1.62
100.93	13.4	11.2	17.4	0.4	1.62
97.80	12.6	10.5	16.4	0.3	1.58
97.80	12.6	10.5	16.4	0.3	1.58
97.00	12.4	10.4	16.1	0.3	1.57
96.36	12.2	10.2	15.9	0.3	1.56
96.36	12.2	10.2	15.9	0.3	1.56
93.00	11.4	9.5	14.8	0.3	1.51
93.00	11.4	9.5	14.8	0.3	1.51
91.79	11.1	9.3	14.5	0.3	1.49
91.79	11.1	9.3	14.5	0.3	1.49
88.00	10.2	8.5	13.3	0.3	1.45
88.00	10.2	8.5	13.3	0.3	1.45
87.00	9.9	8.3	13.0	0.3	1.43
83.40	9.1	7.7	11.9	0.2	1.38
83.40	9.1	7.7	11.9	0.2	1.38
82.00	8.8	7.4	11.5	0.2	1.36
78.60	8.1	6.8	10.6	0.2	1.31
78.60	8.1	6.8	10.6	0.2	1.31
78.00	8.0	6.7	10.4	0.2	1.30
78.00	8.0	6.7	10.4	0.2	1.30
77.00	7.8	6.5	10.1	0.2	1.29
73.80	7.1	6.0	9.3	0.2	1.23

Deflections for Pole

Loading Case ICE + WIND

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)
73.80	7.1	6.0	9.3	0.2	1.23
72.00	6.8	5.7	8.8	0.2	1.20
69.68	6.3	5.3	8.3	0.2	1.17
69.68	6.3	5.3	8.3	0.2	1.17
69.00	6.2	5.2	8.1	0.2	1.15
69.00	6.2	5.2	8.1	0.2	1.15
67.00	5.8	4.9	7.6	0.1	1.12
65.04	5.5	4.6	7.2	0.1	1.09
65.04	5.5	4.6	7.2	0.1	1.09
64.20	5.3	4.5	7.0	0.1	1.07
64.20	5.3	4.5	7.0	0.1	1.07
62.00	5.0	4.2	6.5	0.1	1.03
60.39	4.7	3.9	6.1	0.1	1.00
60.39	4.7	3.9	6.1	0.1	1.00
59.40	4.5	3.8	5.9	0.1	0.99
59.40	4.5	3.8	5.9	0.1	0.99
57.00	4.2	3.5	5.5	0.1	0.94
55.75	4.0	3.3	5.2	0.1	0.92
55.75	4.0	3.3	5.2	0.1	0.92
52.00	3.5	2.9	4.5	0.1	0.85
51.11	3.3	2.8	4.4	0.1	0.84
51.11	3.3	2.8	4.4	0.1	0.84
48.75	3.0	2.5	3.9	0.1	0.79
48.75	3.0	2.5	3.9	0.1	0.79
47.00	2.8	2.4	3.7	0.1	0.76
46.46	2.7	2.3	3.6	0.1	0.76
46.46	2.7	2.3	3.6	0.1	0.76
41.82	2.2	1.9	2.9	0.1	0.68
41.82	2.2	1.9	2.9	0.1	0.68
39.00	1.9	1.6	2.5	0.0	0.63
39.00	1.9	1.6	2.5	0.0	0.63
37.00	1.7	1.4	2.2	0.0	0.59
32.00	1.3	1.1	1.7	0.0	0.51
27.00	0.9	0.8	1.2	0.0	0.42
22.00	0.6	0.5	0.8	0.0	0.34
17.00	0.4	0.3	0.5	0.0	0.26
12.00	0.2	0.1	0.2	0.0	0.18
7.00	0.1	0.0	0.1	0.0	0.10
2.00	0.0	0.0	0.0	0.0	0.03
0.00	0.0	0.0	0.0	0.0	0.00

Stresses for Pole

Loading Case ICE + WIND

Distance From Base (ft)	Nominal Axial Strength (lbs)	Nominal Flexural Strength (in-kips)	Nominal Shear Strength (lbs)	Nominal Torsional Strength (in-kips)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction
122.00	1,457,437	10,267	437,231	9,841	0.00	0.00	0.00	0.00	0.01
119.00	1,524,347	11,239	457,304	10,765	0.01	0.00	0.01	0.00	0.01
117.00	1,568,953	11,910	470,686	11,405	0.01	0.01	0.01	0.00	0.02
114.64	1,621,525	12,727	486,458	12,182	0.01	0.03	0.01	0.00	0.04
112.00	1,680,470	13,675	504,141	13,083	0.01	0.04	0.01	0.00	0.05
110.07	1,723,483	14,388	517,045	13,762	0.01	0.05	0.01	0.00	0.06
108.00	1,769,683	15,174	530,905	14,510	0.02	0.06	0.02	0.00	0.08
107.00	1,791,986	15,561	537,596	14,878	0.02	0.07	0.02	0.00	0.08
105.50	1,825,441	16,151	547,632	15,438	0.02	0.08	0.02	0.00	0.09
102.60	1,890,120	17,322	567,036	16,552	0.02	0.09	0.02	0.00	0.11
102.00	1,903,502	17,570	571,051	16,787	0.02	0.10	0.02	0.00	0.12
100.93	1,927,398	18,016	578,220	17,211	0.02	0.10	0.02	0.00	0.12
97.80	1,997,176	19,351	599,153	18,480	0.02	0.12	0.03	0.00	0.15
97.00	2,015,018	19,694	604,505	18,811	0.02	0.13	0.03	0.00	0.15
96.36	2,029,356	19,941	608,807	19,080	0.03	0.13	0.03	0.00	0.16
93.00	2,104,231	21,246	631,269	20,514	0.02	0.16	0.03	0.00	0.19
93.00	3,282,960	32,501	984,888	31,209	0.02	0.10	0.02	0.00	0.12
91.79	3,326,292	33,371	997,887	32,038	0.02	0.11	0.02	0.00	0.13
88.00	3,461,386	36,158	1,038,416	34,693	0.02	0.13	0.02	0.00	0.15
87.00	3,497,071	36,913	1,049,121	35,412	0.02	0.13	0.02	0.00	0.15
83.40	3,625,537	39,695	1,087,661	38,062	0.02	0.15	0.02	0.00	0.17
82.00	3,675,497	40,804	1,102,649	39,118	0.02	0.15	0.02	0.00	0.17
78.60	3,796,826	43,562	1,139,048	41,743	0.02	0.17	0.02	0.00	0.19
78.00	3,818,237	44,058	1,145,471	42,215	0.02	0.17	0.02	0.00	0.19
77.00	3,853,923	44,891	1,156,177	43,008	0.02	0.17	0.02	0.00	0.19
73.80	3,968,115	47,608	1,190,435	45,594	0.02	0.18	0.02	0.00	0.20
72.00	4,032,349	49,172	1,209,705	47,082	0.02	0.19	0.02	0.00	0.21
69.68	4,115,189	51,226	1,234,557	49,037	0.02	0.20	0.02	0.00	0.22
69.00	4,139,404	51,834	1,241,821	49,616	0.02	0.20	0.02	0.00	0.22
67.00	4,210,775	53,648	1,263,232	51,341	0.02	0.21	0.02	0.00	0.23
65.04	4,280,870	55,460	1,284,261	53,065	0.02	0.21	0.02	0.00	0.23
64.20	4,310,693	56,240	1,293,208	53,807	0.02	0.21	0.02	0.00	0.23
62.00	4,389,201	58,320	1,316,760	55,784	0.02	0.22	0.02	0.00	0.24
60.39	4,446,552	59,863	1,333,966	57,252	0.02	0.22	0.02	0.00	0.24
59.40	4,481,982	60,826	1,344,595	58,168	0.02	0.23	0.02	0.00	0.25
57.00	4,567,626	63,186	1,370,288	60,412	0.02	0.23	0.02	0.00	0.25
55.75	4,612,233	64,433	1,383,670	61,598	0.02	0.23	0.02	0.00	0.26
52.00	4,746,052	68,247	1,423,816	65,224	0.02	0.24	0.02	0.00	0.26
51.11	4,777,914	69,172	1,433,374	66,103	0.02	0.24	0.02	0.00	0.27
48.75	4,862,029	71,642	1,458,609	68,451	0.02	0.25	0.02	0.00	0.27

Stresses for Pole

Loading Case ICE + WIND

Distance From Base (ft)	Nominal Axial Strength (lbs)	Nominal Flexural Strength (in-kips)	Nominal Shear Strength (lbs)	Nominal Torsional Strength (in-kips)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction
48.75	5,346,485	76,884	1,603,945	73,574	0.02	0.23	0.02	0.00	0.25
47.00	5,416,740	78,930	1,625,022	75,521	0.02	0.24	0.02	0.00	0.25
46.46	5,438,247	79,561	1,631,474	76,122	0.02	0.24	0.02	0.00	0.26
41.82	5,624,638	85,142	1,687,391	81,429	0.02	0.24	0.02	0.00	0.26
39.00	5,737,907	88,625	1,721,372	84,742	0.02	0.25	0.02	0.00	0.27
37.00	5,818,199	91,137	1,745,460	87,130	0.02	0.25	0.02	0.00	0.27
32.00	6,018,928	97,570	1,805,678	93,246	0.02	0.26	0.02	0.00	0.28
27.00	6,219,657	104,222	1,865,897	99,569	0.02	0.26	0.02	0.00	0.28
22.00	6,420,386	111,094	1,926,116	106,099	0.02	0.26	0.02	0.00	0.28
17.00	6,621,115	117,727	1,986,335	112,837	0.02	0.27	0.02	0.00	0.29
12.00	6,821,845	124,040	2,046,553	119,783	0.02	0.27	0.02	0.00	0.29
7.00	7,022,574	130,455	2,106,772	126,935	0.02	0.27	0.02	0.00	0.29
2.00	7,223,303	136,966	2,166,991	134,296	0.02	0.28	0.02	0.00	0.29
0.00	7,303,595	139,597	2,191,078	137,298	0.02	0.28	0.02	0.00	0.30

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case T+S

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
122.00	2	-2	3	0	74	62	97	131
119.00	4	-5	7	0	107	90	140	364
119.00	4	-5	7	0	2513	2109	3281	6536
117.00	55	-66	86	0	2536	2128	3311	6697
114.64	116	-138	180	0	2564	2152	3347	6892
114.64	116	-138	180	0	2797	2347	3651	7307
112.00	191	-227	297	0	2829	2374	3693	7535
110.07	246	-293	382	0	2854	2395	3726	7706
110.07	246	-293	382	0	3085	2588	4027	8121
108.00	310	-370	483	0	3112	2611	4062	8309
108.00	310	-370	483	0	4631	3886	6045	12425
107.00	357	-426	556	0	4643	3896	6061	12518
105.50	427	-509	665	0	4664	3913	6088	12659
105.50	427	-509	665	0	4891	4104	6385	13076
102.60	571	-680	888	0	4932	4138	6438	13356
102.60	571	-680	888	0	5226	4385	6823	13827
102.00	602	-718	937	0	5234	4392	6832	13887
100.93	659	-785	1025	0	5250	4405	6853	13994
100.93	659	-785	1025	0	5474	4593	7145	14411
97.80	832	-992	1295	0	5520	4632	7206	14731
97.80	832	-992	1295	0	7297	6123	9526	19322
97.00	891	-1062	1386	0	7308	6132	9539	19406
96.36	938	-1118	1460	0	7317	6140	9552	19474
96.36	938	-1118	1460	0	7537	6324	9839	19893
93.00	1194	-1423	1858	0	7590	6368	9908	20254
93.00	1194	-1423	1858	0	7875	6607	10279	20728
91.79	1290	-1538	2008	0	7898	6627	10310	21071
91.79	1290	-1538	2008	0	8115	6809	10593	21490
88.00	1601	-1908	2491	0	8189	6871	10690	22587
88.00	1601	-1908	2491	0	9922	8325	12952	27183
87.00	1701	-2027	2647	0	9933	8334	12966	27378
83.40	2062	-2458	3208	0	9997	8388	13050	28045
83.40	2062	-2458	3208	0	10272	8619	13410	28522
82.00	2207	-2631	3434	0	10290	8634	13432	28793
78.60	2561	-3052	3984	0	10353	8687	13514	29454
78.60	2561	-3052	3984	0	10625	8915	13870	29930
78.00	2625	-3128	4084	0	10637	8925	13885	30049
78.00	2631	-3135	4093	9	11247	9437	14681	30776
77.00	2744	-3270	4269	9	11257	9446	14695	30981
73.80	3108	-3704	4835	9	11319	9497	14775	31633

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case T+S

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
73.80	3108	-3704	4835	9	11584	9720	15122	32112
72.00	3318	-3954	5162	9	11610	9742	15156	32492
69.68	3590	-4278	5585	9	11656	9780	15216	32984
69.68	3590	-4278	5585	9	12068	10126	15754	33665
69.00	3673	-4377	5713	9	12082	10137	15771	33811
69.00	3673	-4377	5713	9	12347	10360	16118	34287
67.00	3922	-4673	6101	9	12378	10386	16158	34728
65.04	4167	-4966	6482	9	12418	10419	16210	35162
65.04	4167	-4966	6482	9	12823	10760	16739	35844
64.20	4275	-5094	6650	9	12840	10774	16762	36031
64.20	4275	-5094	6650	9	13100	10992	17101	36509
62.00	4565	-5441	7102	9	13135	11021	17147	37013
60.39	4778	-5694	7434	9	13168	11049	17190	37383
60.39	4778	-5694	7434	9	13567	11384	17711	38065
59.40	4914	-5856	7645	9	13588	11401	17738	38296
59.40	4914	-5856	7645	9	13842	11614	18069	38775
57.00	5249	-6255	8166	9	13881	11647	18120	39347
55.75	5424	-6464	8438	9	13907	11670	18155	39646
55.75	5424	-6464	8438	9	14291	11992	18656	40334
52.00	5965	-7109	9280	9	14357	12046	18741	41257
51.11	6094	-7263	9481	9	14376	12062	18766	41478
51.11	6094	-7263	9481	9	14757	12382	19264	42163
48.75	6445	-7681	10027	9	14807	12425	19329	42755
48.75	6445	-7681	10027	9	14794	12414	19313	42763
47.00	6706	-7992	10433	9	14831	12445	19361	43704
46.46	6786	-8087	10557	9	14845	12456	19378	43993
46.46	6786	-8087	10557	9	15212	12764	19857	44682
41.82	7500	-8938	11668	9	15329	12862	20010	47212
41.82	7500	-8938	11668	9	15679	13156	20467	47906
39.00	7946	-9470	12362	9	15740	13207	20547	48741
39.00	7946	-9470	12362	9	15773	13235	20590	48850
37.00	8264	-9849	12857	9	15792	13251	20614	49465
32.00	9062	-10800	14098	9	15864	13311	20709	51027
27.00	9864	-11755	15345	9	15935	13371	20802	52641
22.00	10669	-12714	16597	9	16005	13430	20893	54307
17.00	11477	-13678	17855	9	16072	13486	20981	56026
12.00	12289	-14645	19118	9	16136	13539	21064	57797
7.00	13104	-15616	20386	9	16200	13594	21148	59620
2.00	13922	-16591	21659	9	16278	13659	21249	61490
0.00	14250	-16983	22169	9	16320	13694	21305	62247

Deflections for Pole

Loading Case T+S

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)
122.00	11.9	10.0	15.6	0.3	1.08
119.00	11.4	9.6	14.9	0.3	1.08
119.00	11.4	9.6	14.9	0.3	1.08
117.00	11.1	9.3	14.5	0.2	1.08
114.64	10.7	9.0	13.9	0.2	1.07
114.64	10.7	9.0	13.9	0.2	1.07
112.00	10.2	8.6	13.3	0.2	1.06
110.07	9.9	8.3	12.9	0.2	1.06
110.07	9.9	8.3	12.9	0.2	1.06
108.00	9.5	8.0	12.5	0.2	1.05
108.00	9.5	8.0	12.5	0.2	1.05
107.00	9.4	7.9	12.2	0.2	1.04
105.50	9.1	7.7	11.9	0.2	1.04
105.50	9.1	7.7	11.9	0.2	1.04
102.60	8.6	7.3	11.3	0.2	1.02
102.60	8.6	7.3	11.3	0.2	1.02
102.00	8.5	7.2	11.2	0.2	1.01
100.93	8.4	7.0	10.9	0.2	1.01
100.93	8.4	7.0	10.9	0.2	1.01
97.80	7.9	6.6	10.3	0.2	0.98
97.80	7.9	6.6	10.3	0.2	0.98
97.00	7.8	6.5	10.1	0.2	0.98
96.36	7.7	6.4	10.0	0.2	0.97
96.36	7.7	6.4	10.0	0.2	0.97
93.00	7.1	6.0	9.3	0.2	0.94
93.00	7.1	6.0	9.3	0.2	0.94
91.79	7.0	5.8	9.1	0.2	0.93
91.79	7.0	5.8	9.1	0.2	0.93
88.00	6.4	5.4	8.4	0.1	0.90
88.00	6.4	5.4	8.4	0.1	0.90
87.00	6.3	5.2	8.2	0.1	0.89
83.40	5.7	4.8	7.5	0.1	0.86
83.40	5.7	4.8	7.5	0.1	0.86
82.00	5.6	4.7	7.2	0.1	0.85
78.60	5.1	4.3	6.7	0.1	0.82
78.60	5.1	4.3	6.7	0.1	0.82
78.00	5.0	4.2	6.6	0.1	0.81
78.00	5.0	4.2	6.6	0.1	0.81
77.00	4.9	4.1	6.4	0.1	0.80
73.80	4.5	3.8	5.9	0.1	0.77

Deflections for Pole

Loading Case T+S

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)
73.80	4.5	3.8	5.9	0.1	0.77
72.00	4.3	3.6	5.6	0.1	0.75
69.68	4.0	3.3	5.2	0.1	0.73
69.68	4.0	3.3	5.2	0.1	0.73
69.00	3.9	3.3	5.1	0.1	0.72
69.00	3.9	3.3	5.1	0.1	0.72
67.00	3.7	3.1	4.8	0.1	0.70
65.04	3.5	2.9	4.5	0.1	0.68
65.04	3.5	2.9	4.5	0.1	0.68
64.20	3.4	2.8	4.4	0.1	0.67
64.20	3.4	2.8	4.4	0.1	0.67
62.00	3.1	2.6	4.1	0.1	0.65
60.39	3.0	2.5	3.9	0.1	0.63
60.39	3.0	2.5	3.9	0.1	0.63
59.40	2.9	2.4	3.7	0.1	0.62
59.40	2.9	2.4	3.7	0.1	0.62
57.00	2.6	2.2	3.4	0.1	0.59
55.75	2.5	2.1	3.3	0.1	0.58
55.75	2.5	2.1	3.3	0.1	0.58
52.00	2.2	1.8	2.9	0.0	0.54
51.11	2.1	1.8	2.8	0.0	0.53
51.11	2.1	1.8	2.8	0.0	0.53
48.75	1.9	1.6	2.5	0.0	0.50
48.75	1.9	1.6	2.5	0.0	0.50
47.00	1.8	1.5	2.3	0.0	0.48
46.46	1.7	1.5	2.3	0.0	0.48
46.46	1.7	1.5	2.3	0.0	0.48
41.82	1.4	1.2	1.8	0.0	0.43
41.82	1.4	1.2	1.8	0.0	0.43
39.00	1.2	1.0	1.6	0.0	0.40
39.00	1.2	1.0	1.6	0.0	0.40
37.00	1.1	0.9	1.4	0.0	0.37
32.00	0.8	0.7	1.1	0.0	0.32
27.00	0.6	0.5	0.7	0.0	0.27
22.00	0.4	0.3	0.5	0.0	0.22
17.00	0.2	0.2	0.3	0.0	0.17
12.00	0.1	0.1	0.1	0.0	0.12
7.00	0.0	0.0	0.0	0.0	0.07
2.00	0.0	0.0	0.0	0.0	0.02
0.00	0.0	0.0	0.0	0.0	0.00

Stresses for Pole

Loading Case T+S

Distance From Base (ft)	Nominal Axial Strength (lbs)	Nominal Flexural Strength (in-kips)	Nominal Shear Strength (lbs)	Nominal Torsional Strength (in-kips)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction
122.00	1,457,437	10,267	437,231	9,841	0.00	0.00	0.00	0.00	0.01
119.00	1,524,347	11,239	457,304	10,765	0.00	0.00	0.01	0.00	0.01
117.00	1,568,953	11,910	470,686	11,405	0.00	0.01	0.01	0.00	0.01
114.64	1,621,525	12,727	486,458	12,182	0.01	0.02	0.01	0.00	0.02
112.00	1,680,470	13,675	504,141	13,083	0.00	0.02	0.01	0.00	0.03
110.07	1,723,483	14,388	517,045	13,762	0.01	0.03	0.01	0.00	0.03
108.00	1,769,683	15,174	530,905	14,510	0.01	0.04	0.01	0.00	0.04
107.00	1,791,986	15,561	537,596	14,878	0.01	0.04	0.01	0.00	0.05
105.50	1,825,441	16,151	547,632	15,438	0.01	0.05	0.01	0.00	0.05
102.60	1,890,120	17,322	567,036	16,552	0.01	0.06	0.01	0.00	0.07
102.00	1,903,502	17,570	571,051	16,787	0.01	0.06	0.01	0.00	0.07
100.93	1,927,398	18,016	578,220	17,211	0.01	0.06	0.01	0.00	0.07
97.80	1,997,176	19,351	599,153	18,480	0.01	0.07	0.02	0.00	0.09
97.00	2,015,018	19,694	604,505	18,811	0.01	0.08	0.02	0.00	0.09
96.36	2,029,356	19,941	608,807	19,080	0.01	0.08	0.02	0.00	0.09
93.00	2,104,231	21,246	631,269	20,514	0.01	0.10	0.02	0.00	0.11
93.00	3,282,960	32,501	984,888	31,209	0.01	0.06	0.01	0.00	0.07
91.79	3,326,292	33,371	997,887	32,038	0.01	0.07	0.01	0.00	0.07
88.00	3,461,386	36,158	1,038,416	34,693	0.01	0.08	0.01	0.00	0.09
87.00	3,497,071	36,913	1,049,121	35,412	0.01	0.08	0.01	0.00	0.09
83.40	3,625,537	39,695	1,087,661	38,062	0.01	0.09	0.01	0.00	0.10
82.00	3,675,497	40,804	1,102,649	39,118	0.01	0.09	0.01	0.00	0.10
78.60	3,796,826	43,562	1,139,048	41,743	0.01	0.10	0.01	0.00	0.11
78.00	3,818,237	44,058	1,145,471	42,215	0.01	0.10	0.01	0.00	0.11
77.00	3,853,923	44,891	1,156,177	43,008	0.01	0.11	0.01	0.00	0.11
73.80	3,968,115	47,608	1,190,435	45,594	0.01	0.11	0.01	0.00	0.12
72.00	4,032,349	49,172	1,209,705	47,082	0.01	0.12	0.01	0.00	0.13
69.68	4,115,189	51,226	1,234,557	49,037	0.01	0.12	0.01	0.00	0.13
69.00	4,139,404	51,834	1,241,821	49,616	0.01	0.12	0.01	0.00	0.13
67.00	4,210,775	53,648	1,263,232	51,341	0.01	0.13	0.01	0.00	0.14
65.04	4,280,870	55,460	1,284,261	53,065	0.01	0.13	0.01	0.00	0.14
64.20	4,310,693	56,240	1,293,208	53,807	0.01	0.13	0.01	0.00	0.14
62.00	4,389,201	58,320	1,316,760	55,784	0.01	0.14	0.01	0.00	0.14
60.39	4,446,552	59,863	1,333,966	57,252	0.01	0.14	0.01	0.00	0.15
59.40	4,481,982	60,826	1,344,595	58,168	0.01	0.14	0.01	0.00	0.15
57.00	4,567,626	63,186	1,370,288	60,412	0.01	0.14	0.01	0.00	0.15
55.75	4,612,233	64,433	1,383,670	61,598	0.01	0.15	0.01	0.00	0.16
52.00	4,746,052	68,247	1,423,816	65,224	0.01	0.15	0.01	0.00	0.16
51.11	4,777,914	69,172	1,433,374	66,103	0.01	0.15	0.01	0.00	0.16
48.75	4,862,029	71,642	1,458,609	68,451	0.01	0.16	0.01	0.00	0.17

Stresses for Pole

Loading Case T+S

Distance From Base (ft)	Nominal Axial Strength (lbs)	Nominal Flexural Strength (in-kips)	Nominal Shear Strength (lbs)	Nominal Torsional Strength (in-kips)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction
48.75	5,346,485	76,884	1,603,945	73,574	0.01	0.14	0.01	0.00	0.15
47.00	5,416,740	78,930	1,625,022	75,521	0.01	0.15	0.01	0.00	0.16
46.46	5,438,247	79,561	1,631,474	76,122	0.01	0.15	0.01	0.00	0.16
41.82	5,624,638	85,142	1,687,391	81,429	0.01	0.15	0.01	0.00	0.16
39.00	5,737,907	88,625	1,721,372	84,742	0.01	0.15	0.01	0.00	0.16
37.00	5,818,199	91,137	1,745,460	87,130	0.01	0.16	0.01	0.00	0.17
32.00	6,018,928	97,570	1,805,678	93,246	0.01	0.16	0.01	0.00	0.17
27.00	6,219,657	104,222	1,865,897	99,569	0.01	0.16	0.01	0.00	0.17
22.00	6,420,386	111,094	1,926,116	106,099	0.01	0.17	0.01	0.00	0.18
17.00	6,621,115	117,727	1,986,335	112,837	0.01	0.17	0.01	0.00	0.18
12.00	6,821,845	124,040	2,046,553	119,783	0.01	0.17	0.01	0.00	0.18
7.00	7,022,574	130,455	2,106,772	126,935	0.01	0.17	0.01	0.00	0.18
2.00	7,223,303	136,966	2,166,991	134,296	0.01	0.18	0.01	0.00	0.19
0.00	7,303,595	139,597	2,191,078	137,298	0.01	0.18	0.01	0.00	0.19

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case Seismic

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
122.00	0	0	0	0	9	7	12	168
119.00	1	-1	1	0	24	20	31	458
119.00	1	-1	1	0	413	346	539	8281
117.00	9	-11	14	0	423	355	552	8482
114.64	19	-23	30	0	434	364	567	8726
114.64	19	-23	30	0	459	385	599	9255
112.00	32	-38	49	0	472	396	616	9539
110.07	41	-49	64	0	482	404	629	9753
110.07	41	-49	64	0	505	424	659	10282
108.00	52	-61	80	0	515	433	673	10517
108.00	52	-61	80	0	740	621	967	15728
107.00	59	-70	92	0	745	625	973	15844
105.50	70	-84	109	0	753	631	982	16021
105.50	70	-84	109	0	774	650	1011	16550
102.60	93	-111	145	0	789	662	1029	16900
102.60	93	-111	145	0	812	682	1060	17501
102.00	98	-117	153	0	815	684	1064	17575
100.93	107	-127	166	0	820	688	1071	17708
100.93	107	-127	166	0	840	705	1097	18237
97.80	134	-159	208	0	856	718	1117	18637
97.80	134	-159	208	0	1073	900	1401	24449
97.00	142	-170	221	0	1076	903	1405	24553
96.36	149	-178	232	0	1080	906	1409	24638
96.36	149	-178	232	0	1098	921	1433	25167
93.00	187	-222	290	0	1114	935	1454	25619
93.00	187	-222	290	0	1134	952	1480	26220
91.79	201	-239	312	0	1149	964	1500	26648
91.79	201	-239	312	0	1166	978	1522	27177
88.00	246	-293	383	0	1212	1017	1582	28550
88.00	246	-293	383	0	1399	1174	1826	34362
87.00	260	-310	405	0	1405	1179	1834	34600
83.40	311	-371	485	0	1431	1201	1868	35435
83.40	311	-371	485	0	1447	1214	1889	36035
82.00	332	-396	516	0	1456	1221	1900	36368
78.60	382	-455	595	0	1479	1241	1931	37195
78.60	382	-455	595	0	1495	1254	1951	37796
78.00	391	-466	609	0	1499	1258	1956	37944
78.00	398	-475	620	0	1524	1279	1989	38875
77.00	414	-493	644	0	1529	1283	1996	39125
73.80	463	-552	721	0	1550	1301	2024	39940

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case Seismic

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
73.80	463	-552	721	0	1564	1312	2041	40541
72.00	492	-586	765	0	1574	1321	2055	41010
69.68	529	-630	823	0	1589	1333	2074	41626
69.68	529	-630	823	0	1608	1349	2099	42487
69.00	540	-643	840	0	1613	1353	2105	42669
69.00	540	-643	840	0	1626	1364	2122	43270
67.00	573	-682	891	0	1636	1373	2136	43814
65.04	605	-721	941	0	1648	1383	2152	44357
65.04	605	-721	941	0	1666	1398	2175	45218
64.20	619	-738	963	0	1671	1402	2182	45452
64.20	619	-738	963	0	1683	1412	2197	46052
62.00	657	-783	1021	0	1694	1421	2211	46676
60.39	684	-815	1064	0	1703	1429	2224	47139
60.39	684	-815	1064	0	1719	1443	2245	48000
59.40	701	-836	1091	0	1725	1448	2252	48288
59.40	701	-836	1091	0	1735	1456	2265	48889
57.00	743	-886	1157	0	1747	1466	2281	49597
55.75	765	-912	1191	0	1754	1472	2290	49971
55.75	765	-912	1191	0	1767	1483	2307	50832
52.00	833	-992	1295	0	1785	1498	2330	51976
51.11	849	-1011	1320	0	1790	1502	2336	52253
51.11	849	-1011	1320	0	1802	1512	2353	53114
48.75	892	-1062	1387	0	1814	1522	2368	53855
48.75	892	-1062	1387	0	1812	1521	2366	53855
47.00	924	-1101	1437	0	1829	1535	2388	55027
46.46	934	-1113	1452	0	1835	1540	2395	55389
46.46	934	-1113	1452	0	1845	1548	2409	56250
41.82	1021	-1217	1588	0	1891	1587	2469	59415
41.82	1021	-1217	1588	0	1899	1593	2478	60276
39.00	1075	-1281	1672	0	1913	1605	2497	61321
39.00	1075	-1281	1672	0	1911	1604	2495	61446
37.00	1114	-1327	1732	0	1917	1608	2502	62200
32.00	1211	-1443	1883	0	1934	1622	2524	64130
27.00	1309	-1559	2036	0	1949	1635	2544	66126
22.00	1407	-1677	2189	0	1962	1647	2562	68187
17.00	1506	-1795	2344	0	1974	1657	2577	70315
12.00	1606	-1914	2499	0	1986	1666	2592	72508
7.00	1707	-2034	2655	0	1996	1675	2605	74767
2.00	1807	-2154	2812	0	2007	1684	2620	77092
0.00	1848	-2202	2875	0	2014	1690	2629	78040

Deflections for Pole

Loading Case Seismic

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)
122.00	1.6	1.4	2.1	0.1	0.15
119.00	1.6	1.3	2.0	0.1	0.15
119.00	1.6	1.3	2.0	0.1	0.15
117.00	1.5	1.3	2.0	0.1	0.15
114.64	1.5	1.2	1.9	0.0	0.15
114.64	1.5	1.2	1.9	0.0	0.15
112.00	1.4	1.2	1.8	0.0	0.15
110.07	1.4	1.1	1.8	0.0	0.15
110.07	1.4	1.1	1.8	0.0	0.15
108.00	1.3	1.1	1.7	0.0	0.15
108.00	1.3	1.1	1.7	0.0	0.15
107.00	1.3	1.1	1.7	0.0	0.15
105.50	1.2	1.0	1.6	0.0	0.15
105.50	1.2	1.0	1.6	0.0	0.15
102.60	1.2	1.0	1.5	0.0	0.14
102.60	1.2	1.0	1.5	0.0	0.14
102.00	1.2	1.0	1.5	0.0	0.14
100.93	1.1	1.0	1.5	0.0	0.14
100.93	1.1	1.0	1.5	0.0	0.14
97.80	1.1	0.9	1.4	0.0	0.14
97.80	1.1	0.9	1.4	0.0	0.14
97.00	1.1	0.9	1.4	0.0	0.14
96.36	1.0	0.9	1.4	0.0	0.14
96.36	1.0	0.9	1.4	0.0	0.14
93.00	1.0	0.8	1.3	0.0	0.13
93.00	1.0	0.8	1.3	0.0	0.13
91.79	0.9	0.8	1.2	0.0	0.13
91.79	0.9	0.8	1.2	0.0	0.13
88.00	0.9	0.7	1.1	0.0	0.13
88.00	0.9	0.7	1.1	0.0	0.13
87.00	0.8	0.7	1.1	0.0	0.12
83.40	0.8	0.6	1.0	0.0	0.12
83.40	0.8	0.6	1.0	0.0	0.12
82.00	0.7	0.6	1.0	0.0	0.12
78.60	0.7	0.6	0.9	0.0	0.11
78.60	0.7	0.6	0.9	0.0	0.11
78.00	0.7	0.6	0.9	0.0	0.11
78.00	0.7	0.6	0.9	0.0	0.11
77.00	0.7	0.5	0.9	0.0	0.11
73.80	0.6	0.5	0.8	0.0	0.11

Deflections for Pole

Loading Case Seismic

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)
73.80	0.6	0.5	0.8	0.0	0.11
72.00	0.6	0.5	0.7	0.0	0.10
69.68	0.5	0.4	0.7	0.0	0.10
69.68	0.5	0.4	0.7	0.0	0.10
69.00	0.5	0.4	0.7	0.0	0.10
69.00	0.5	0.4	0.7	0.0	0.10
67.00	0.5	0.4	0.6	0.0	0.10
65.04	0.5	0.4	0.6	0.0	0.09
65.04	0.5	0.4	0.6	0.0	0.09
64.20	0.4	0.4	0.6	0.0	0.09
64.20	0.4	0.4	0.6	0.0	0.09
62.00	0.4	0.3	0.5	0.0	0.09
60.39	0.4	0.3	0.5	0.0	0.08
60.39	0.4	0.3	0.5	0.0	0.08
59.40	0.4	0.3	0.5	0.0	0.08
59.40	0.4	0.3	0.5	0.0	0.08
57.00	0.3	0.3	0.5	0.0	0.08
55.75	0.3	0.3	0.4	0.0	0.08
55.75	0.3	0.3	0.4	0.0	0.08
52.00	0.3	0.2	0.4	0.0	0.07
51.11	0.3	0.2	0.4	0.0	0.07
51.11	0.3	0.2	0.4	0.0	0.07
48.75	0.3	0.2	0.3	0.0	0.07
48.75	0.3	0.2	0.3	0.0	0.07
47.00	0.2	0.2	0.3	0.0	0.06
46.46	0.2	0.2	0.3	0.0	0.06
46.46	0.2	0.2	0.3	0.0	0.06
41.82	0.2	0.2	0.2	0.0	0.06
41.82	0.2	0.2	0.2	0.0	0.06
39.00	0.2	0.1	0.2	0.0	0.05
39.00	0.2	0.1	0.2	0.0	0.05
37.00	0.1	0.1	0.2	0.0	0.05
32.00	0.1	0.1	0.1	0.0	0.04
27.00	0.1	0.1	0.1	0.0	0.04
22.00	0.0	0.0	0.1	0.0	0.03
17.00	0.0	0.0	0.0	0.0	0.02
12.00	0.0	0.0	0.0	0.0	0.02
7.00	0.0	0.0	0.0	0.0	0.01
2.00	0.0	0.0	0.0	0.0	0.00
0.00	0.0	0.0	0.0	0.0	0.00

Stresses for Pole

Loading Case Seismic

Distance From Base (ft)	Nominal Axial Strength (lbs)	Nominal Flexural Strength (in-kips)	Nominal Shear Strength (lbs)	Nominal Torsional Strength (in-kips)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction
122.00	1,457,437	10,267	437,231	9,841	0.00	0.00	0.00	0.00	0.01
119.00	1,524,347	11,239	457,304	10,765	0.01	0.00	0.00	0.00	0.01
117.00	1,568,953	11,910	470,686	11,405	0.01	0.00	0.00	0.00	0.01
114.64	1,621,525	12,727	486,458	12,182	0.01	0.00	0.00	0.00	0.01
112.00	1,680,470	13,675	504,141	13,083	0.01	0.00	0.00	0.00	0.01
110.07	1,723,483	14,388	517,045	13,762	0.01	0.00	0.00	0.00	0.01
108.00	1,769,683	15,174	530,905	14,510	0.01	0.01	0.00	0.00	0.02
107.00	1,791,986	15,561	537,596	14,878	0.01	0.01	0.00	0.00	0.02
105.50	1,825,441	16,151	547,632	15,438	0.01	0.01	0.00	0.00	0.02
102.60	1,890,120	17,322	567,036	16,552	0.01	0.01	0.00	0.00	0.02
102.00	1,903,502	17,570	571,051	16,787	0.01	0.01	0.00	0.00	0.02
100.93	1,927,398	18,016	578,220	17,211	0.01	0.01	0.00	0.00	0.02
97.80	1,997,176	19,351	599,153	18,480	0.01	0.01	0.00	0.00	0.03
97.00	2,015,018	19,694	604,505	18,811	0.01	0.01	0.00	0.00	0.03
96.36	2,029,356	19,941	608,807	19,080	0.01	0.01	0.00	0.00	0.03
93.00	2,104,231	21,246	631,269	20,514	0.01	0.02	0.00	0.00	0.03
93.00	3,282,960	32,501	984,888	31,209	0.01	0.01	0.00	0.00	0.02
91.79	3,326,292	33,371	997,887	32,038	0.01	0.01	0.00	0.00	0.02
88.00	3,461,386	36,158	1,038,416	34,693	0.01	0.01	0.00	0.00	0.02
87.00	3,497,071	36,913	1,049,121	35,412	0.01	0.01	0.00	0.00	0.02
83.40	3,625,537	39,695	1,087,661	38,062	0.01	0.01	0.00	0.00	0.02
82.00	3,675,497	40,804	1,102,649	39,118	0.01	0.01	0.00	0.00	0.03
78.60	3,796,826	43,562	1,139,048	41,743	0.01	0.02	0.00	0.00	0.03
78.00	3,818,237	44,058	1,145,471	42,215	0.01	0.02	0.00	0.00	0.03
77.00	3,853,923	44,891	1,156,177	43,008	0.01	0.02	0.00	0.00	0.03
73.80	3,968,115	47,608	1,190,435	45,594	0.01	0.02	0.00	0.00	0.03
72.00	4,032,349	49,172	1,209,705	47,082	0.01	0.02	0.00	0.00	0.03
69.68	4,115,189	51,226	1,234,557	49,037	0.01	0.02	0.00	0.00	0.03
69.00	4,139,404	51,834	1,241,821	49,616	0.01	0.02	0.00	0.00	0.03
67.00	4,210,775	53,648	1,263,232	51,341	0.01	0.02	0.00	0.00	0.03
65.04	4,280,870	55,460	1,284,261	53,065	0.01	0.02	0.00	0.00	0.03
64.20	4,310,693	56,240	1,293,208	53,807	0.01	0.02	0.00	0.00	0.03
62.00	4,389,201	58,320	1,316,760	55,784	0.01	0.02	0.00	0.00	0.03
60.39	4,446,552	59,863	1,333,966	57,252	0.01	0.02	0.00	0.00	0.03
59.40	4,481,982	60,826	1,344,595	58,168	0.01	0.02	0.00	0.00	0.03
57.00	4,567,626	63,186	1,370,288	60,412	0.01	0.02	0.00	0.00	0.03
55.75	4,612,233	64,433	1,383,670	61,598	0.01	0.02	0.00	0.00	0.03
52.00	4,746,052	68,247	1,423,816	65,224	0.01	0.02	0.00	0.00	0.03
51.11	4,777,914	69,172	1,433,374	66,103	0.01	0.02	0.00	0.00	0.03
48.75	4,862,029	71,642	1,458,609	68,451	0.01	0.02	0.00	0.00	0.03

Stresses for Pole

Loading Case Seismic

Distance From Base (ft)	Nominal Axial Strength (lbs)	Nominal Flexural Strength (in-kips)	Nominal Shear Strength (lbs)	Nominal Torsional Strength (in-kips)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction
48.75	5,346,485	76,884	1,603,945	73,574	0.01	0.02	0.00	0.00	0.03
47.00	5,416,740	78,930	1,625,022	75,521	0.01	0.02	0.00	0.00	0.03
46.46	5,438,247	79,561	1,631,474	76,122	0.01	0.02	0.00	0.00	0.03
41.82	5,624,638	85,142	1,687,391	81,429	0.01	0.02	0.00	0.00	0.03
39.00	5,737,907	88,625	1,721,372	84,742	0.01	0.02	0.00	0.00	0.03
37.00	5,818,199	91,137	1,745,460	87,130	0.01	0.02	0.00	0.00	0.03
32.00	6,018,928	97,570	1,805,678	93,246	0.01	0.02	0.00	0.00	0.03
27.00	6,219,657	104,222	1,865,897	99,569	0.01	0.02	0.00	0.00	0.03
22.00	6,420,386	111,094	1,926,116	106,099	0.01	0.02	0.00	0.00	0.03
17.00	6,621,115	117,727	1,986,335	112,837	0.01	0.02	0.00	0.00	0.03
12.00	6,821,845	124,040	2,046,553	119,783	0.01	0.02	0.00	0.00	0.03
7.00	7,022,574	130,455	2,106,772	126,935	0.01	0.02	0.00	0.00	0.03
2.00	7,223,303	136,966	2,166,991	134,296	0.01	0.02	0.00	0.00	0.03
0.00	7,303,595	139,597	2,191,078	137,298	0.01	0.02	0.00	0.00	0.03

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case Seismic 2

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
122.00	0	0	0	0	8	7	11	114
119.00	1	-1	1	0	22	19	29	311
119.00	1	-1	1	0	389	326	508	5616
117.00	9	-10	13	0	398	334	520	5752
114.64	18	-22	28	0	409	343	534	5918
114.64	18	-22	28	0	432	363	564	6277
112.00	30	-36	46	0	445	373	580	6469
110.07	39	-46	60	0	454	381	592	6614
110.07	39	-46	60	0	475	399	621	6973
108.00	49	-58	76	0	485	407	633	7133
108.00	49	-58	76	0	695	583	907	10667
107.00	56	-66	86	0	700	587	913	10746
105.50	66	-79	103	0	707	593	922	10865
105.50	66	-79	103	0	727	610	949	11224
102.60	88	-104	136	0	740	621	966	11462
102.60	88	-104	136	0	762	640	995	11869
102.00	92	-110	144	0	765	642	998	11920
100.93	101	-120	156	0	770	646	1005	12010
100.93	101	-120	156	0	789	662	1029	12369
97.80	126	-150	195	0	803	674	1048	12640
97.80	126	-150	195	0	1004	842	1310	16582
97.00	134	-159	208	0	1007	845	1315	16653
96.36	140	-167	218	0	1010	847	1318	16710
96.36	140	-167	218	0	1027	862	1341	17069
93.00	175	-209	273	0	1042	874	1360	17376
93.00	175	-209	273	0	1061	890	1385	17783
91.79	188	-224	293	0	1074	902	1403	18074
91.79	188	-224	293	0	1090	915	1423	18433
88.00	231	-275	359	0	1132	950	1478	19364
88.00	231	-275	359	0	1304	1094	1702	23306
87.00	244	-291	379	0	1310	1099	1710	23468
83.40	292	-348	454	0	1333	1119	1740	24034
83.40	292	-348	454	0	1349	1132	1761	24441
82.00	311	-370	483	0	1357	1138	1771	24667
78.60	358	-426	556	0	1378	1156	1799	25228
78.60	358	-426	556	0	1392	1168	1817	25635
78.00	366	-436	569	0	1396	1171	1822	25736
78.00	371	-442	577	0	1419	1190	1852	26367
77.00	385	-459	599	0	1424	1195	1859	26537
73.80	431	-514	671	0	1443	1211	1884	27090

BY VALMONT INDUSTRIES FOR: THE TOWERS, LLC 122.0' POLE, SITE: US-CT-5055 - WILTON SOUTH CT, CT DATE 05/20/2024
Design Id: 610713-P1RevANE IMPAX 27.1.30.10
Forces and Moments for Pole in the Local Element Coordinate System

Loading Case Seismic 2

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
73.80	431	-514	671	0	1456	1221	1900	27497
72.00	458	-546	712	0	1465	1229	1913	27815
69.68	492	-587	766	0	1479	1241	1930	28233
69.68	492	-587	766	0	1496	1255	1953	28817
69.00	502	-599	782	0	1500	1259	1958	28941
69.00	502	-599	782	0	1512	1268	1973	29348
67.00	533	-635	829	0	1522	1277	1986	29717
65.04	563	-671	876	0	1532	1286	2000	30086
65.04	563	-671	876	0	1548	1299	2021	30670
64.20	576	-687	897	0	1553	1303	2027	30829
64.20	576	-687	897	0	1563	1312	2041	31236
62.00	611	-728	951	0	1574	1320	2054	31659
60.39	637	-759	990	0	1582	1327	2065	31973
60.39	637	-759	990	0	1596	1339	2084	32557
59.40	653	-778	1015	0	1601	1344	2090	32753
59.40	653	-778	1015	0	1610	1351	2102	33160
57.00	692	-824	1076	0	1621	1360	2116	33640
55.75	712	-849	1108	0	1627	1365	2124	33894
55.75	712	-849	1108	0	1639	1375	2140	34478
52.00	774	-923	1205	0	1655	1389	2160	35254
51.11	789	-941	1228	0	1659	1392	2165	35442
51.11	789	-941	1228	0	1670	1401	2180	36026
48.75	829	-988	1290	0	1680	1410	2193	36529
48.75	829	-988	1290	0	1679	1409	2192	36529
47.00	859	-1023	1336	0	1694	1421	2211	37324
46.46	868	-1034	1350	0	1698	1425	2217	37570
46.46	868	-1034	1350	0	1707	1433	2229	38154
41.82	949	-1130	1476	0	1746	1465	2279	40300
41.82	949	-1130	1476	0	1753	1471	2288	40885
39.00	998	-1190	1553	0	1764	1480	2303	41593
39.00	998	-1190	1553	0	1764	1480	2302	41678
37.00	1034	-1232	1609	0	1769	1484	2309	42190
32.00	1124	-1339	1748	0	1783	1496	2328	43499
27.00	1214	-1447	1888	0	1796	1507	2345	44853
22.00	1305	-1555	2030	0	1807	1516	2359	46252
17.00	1396	-1664	2172	0	1817	1524	2372	47695
12.00	1488	-1773	2314	0	1825	1532	2383	49183
7.00	1580	-1883	2458	0	1833	1538	2393	50716
2.00	1672	-1993	2602	0	1841	1545	2403	52293
0.00	1710	-2037	2660	0	1845	1548	2409	52936

Deflections for Pole

Loading Case Seismic 2

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)
122.00	1.5	1.3	2.0	0.0	0.14
119.00	1.5	1.2	1.9	0.0	0.14
119.00	1.5	1.2	1.9	0.0	0.14
117.00	1.4	1.2	1.8	0.0	0.14
114.64	1.4	1.1	1.8	0.0	0.14
114.64	1.4	1.1	1.8	0.0	0.14
112.00	1.3	1.1	1.7	0.0	0.14
110.07	1.3	1.1	1.6	0.0	0.14
110.07	1.3	1.1	1.6	0.0	0.14
108.00	1.2	1.0	1.6	0.0	0.14
108.00	1.2	1.0	1.6	0.0	0.14
107.00	1.2	1.0	1.6	0.0	0.14
105.50	1.2	1.0	1.5	0.0	0.14
105.50	1.2	1.0	1.5	0.0	0.14
102.60	1.1	0.9	1.4	0.0	0.13
102.60	1.1	0.9	1.4	0.0	0.13
102.00	1.1	0.9	1.4	0.0	0.13
100.93	1.1	0.9	1.4	0.0	0.13
100.93	1.1	0.9	1.4	0.0	0.13
97.80	1.0	0.8	1.3	0.0	0.13
97.80	1.0	0.8	1.3	0.0	0.13
97.00	1.0	0.8	1.3	0.0	0.13
96.36	1.0	0.8	1.3	0.0	0.13
96.36	1.0	0.8	1.3	0.0	0.13
93.00	0.9	0.8	1.2	0.0	0.12
93.00	0.9	0.8	1.2	0.0	0.12
91.79	0.9	0.7	1.1	0.0	0.12
91.79	0.9	0.7	1.1	0.0	0.12
88.00	0.8	0.7	1.0	0.0	0.12
88.00	0.8	0.7	1.0	0.0	0.12
87.00	0.8	0.7	1.0	0.0	0.12
83.40	0.7	0.6	0.9	0.0	0.11
83.40	0.7	0.6	0.9	0.0	0.11
82.00	0.7	0.6	0.9	0.0	0.11
78.60	0.6	0.5	0.8	0.0	0.10
78.60	0.6	0.5	0.8	0.0	0.10
78.00	0.6	0.5	0.8	0.0	0.10
78.00	0.6	0.5	0.8	0.0	0.10
77.00	0.6	0.5	0.8	0.0	0.10
73.80	0.6	0.5	0.7	0.0	0.10

Deflections for Pole

Loading Case Seismic 2

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)
73.80	0.6	0.5	0.7	0.0	0.10
72.00	0.5	0.4	0.7	0.0	0.10
69.68	0.5	0.4	0.6	0.0	0.09
69.68	0.5	0.4	0.6	0.0	0.09
69.00	0.5	0.4	0.6	0.0	0.09
69.00	0.5	0.4	0.6	0.0	0.09
67.00	0.5	0.4	0.6	0.0	0.09
65.04	0.4	0.4	0.6	0.0	0.09
65.04	0.4	0.4	0.6	0.0	0.09
64.20	0.4	0.3	0.5	0.0	0.08
64.20	0.4	0.3	0.5	0.0	0.08
62.00	0.4	0.3	0.5	0.0	0.08
60.39	0.4	0.3	0.5	0.0	0.08
60.39	0.4	0.3	0.5	0.0	0.08
59.40	0.4	0.3	0.5	0.0	0.08
59.40	0.4	0.3	0.5	0.0	0.08
57.00	0.3	0.3	0.4	0.0	0.07
55.75	0.3	0.3	0.4	0.0	0.07
55.75	0.3	0.3	0.4	0.0	0.07
52.00	0.3	0.2	0.3	0.0	0.07
51.11	0.3	0.2	0.3	0.0	0.07
51.11	0.3	0.2	0.3	0.0	0.07
48.75	0.2	0.2	0.3	0.0	0.06
48.75	0.2	0.2	0.3	0.0	0.06
47.00	0.2	0.2	0.3	0.0	0.06
46.46	0.2	0.2	0.3	0.0	0.06
46.46	0.2	0.2	0.3	0.0	0.06
41.82	0.2	0.1	0.2	0.0	0.05
41.82	0.2	0.1	0.2	0.0	0.05
39.00	0.1	0.1	0.2	0.0	0.05
39.00	0.1	0.1	0.2	0.0	0.05
37.00	0.1	0.1	0.2	0.0	0.05
32.00	0.1	0.1	0.1	0.0	0.04
27.00	0.1	0.1	0.1	0.0	0.03
22.00	0.0	0.0	0.1	0.0	0.03
17.00	0.0	0.0	0.0	0.0	0.02
12.00	0.0	0.0	0.0	0.0	0.01
7.00	0.0	0.0	0.0	0.0	0.01
2.00	0.0	0.0	0.0	0.0	0.00
0.00	0.0	0.0	0.0	0.0	0.00

Stresses for Pole

Loading Case Seismic 2

Distance From Base (ft)	Nominal Axial Strength (lbs)	Nominal Flexural Strength (in-kips)	Nominal Shear Strength (lbs)	Nominal Torsional Strength (in-kips)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction
122.00	1,457,437	10,267	437,231	9,841	0.00	0.00	0.00	0.00	0.01
119.00	1,524,347	11,239	457,304	10,765	0.00	0.00	0.00	0.00	0.01
117.00	1,568,953	11,910	470,686	11,405	0.00	0.00	0.00	0.00	0.01
114.64	1,621,525	12,727	486,458	12,182	0.00	0.00	0.00	0.00	0.01
112.00	1,680,470	13,675	504,141	13,083	0.00	0.00	0.00	0.00	0.01
110.07	1,723,483	14,388	517,045	13,762	0.00	0.00	0.00	0.00	0.01
108.00	1,769,683	15,174	530,905	14,510	0.01	0.01	0.00	0.00	0.01
107.00	1,791,986	15,561	537,596	14,878	0.01	0.01	0.00	0.00	0.01
105.50	1,825,441	16,151	547,632	15,438	0.01	0.01	0.00	0.00	0.01
102.60	1,890,120	17,322	567,036	16,552	0.01	0.01	0.00	0.00	0.02
102.00	1,903,502	17,570	571,051	16,787	0.01	0.01	0.00	0.00	0.02
100.93	1,927,398	18,016	578,220	17,211	0.01	0.01	0.00	0.00	0.02
97.80	1,997,176	19,351	599,153	18,480	0.01	0.01	0.00	0.00	0.02
97.00	2,015,018	19,694	604,505	18,811	0.01	0.01	0.00	0.00	0.02
96.36	2,029,356	19,941	608,807	19,080	0.01	0.01	0.00	0.00	0.02
93.00	2,104,231	21,246	631,269	20,514	0.01	0.01	0.00	0.00	0.02
93.00	3,282,960	32,501	984,888	31,209	0.01	0.01	0.00	0.00	0.02
91.79	3,326,292	33,371	997,887	32,038	0.01	0.01	0.00	0.00	0.02
88.00	3,461,386	36,158	1,038,416	34,693	0.01	0.01	0.00	0.00	0.02
87.00	3,497,071	36,913	1,049,121	35,412	0.01	0.01	0.00	0.00	0.02
83.40	3,625,537	39,695	1,087,661	38,062	0.01	0.01	0.00	0.00	0.02
82.00	3,675,497	40,804	1,102,649	39,118	0.01	0.01	0.00	0.00	0.02
78.60	3,796,826	43,562	1,139,048	41,743	0.01	0.01	0.00	0.00	0.02
78.00	3,818,237	44,058	1,145,471	42,215	0.01	0.01	0.00	0.00	0.02
77.00	3,853,923	44,891	1,156,177	43,008	0.01	0.01	0.00	0.00	0.02
73.80	3,968,115	47,608	1,190,435	45,594	0.01	0.02	0.00	0.00	0.02
72.00	4,032,349	49,172	1,209,705	47,082	0.01	0.02	0.00	0.00	0.02
69.68	4,115,189	51,226	1,234,557	49,037	0.01	0.02	0.00	0.00	0.02
69.00	4,139,404	51,834	1,241,821	49,616	0.01	0.02	0.00	0.00	0.02
67.00	4,210,775	53,648	1,263,232	51,341	0.01	0.02	0.00	0.00	0.03
65.04	4,280,870	55,460	1,284,261	53,065	0.01	0.02	0.00	0.00	0.03
64.20	4,310,693	56,240	1,293,208	53,807	0.01	0.02	0.00	0.00	0.03
62.00	4,389,201	58,320	1,316,760	55,784	0.01	0.02	0.00	0.00	0.03
60.39	4,446,552	59,863	1,333,966	57,252	0.01	0.02	0.00	0.00	0.03
59.40	4,481,982	60,826	1,344,595	58,168	0.01	0.02	0.00	0.00	0.03
57.00	4,567,626	63,186	1,370,288	60,412	0.01	0.02	0.00	0.00	0.03
55.75	4,612,233	64,433	1,383,670	61,598	0.01	0.02	0.00	0.00	0.03
52.00	4,746,052	68,247	1,423,816	65,224	0.01	0.02	0.00	0.00	0.03
51.11	4,777,914	69,172	1,433,374	66,103	0.01	0.02	0.00	0.00	0.03
48.75	4,862,029	71,642	1,458,609	68,451	0.01	0.02	0.00	0.00	0.03

Stresses for Pole

Loading Case Seismic 2

Distance From Base (ft)	Nominal Axial Strength (lbs)	Nominal Flexural Strength (in-kips)	Nominal Shear Strength (lbs)	Nominal Torsional Strength (in-kips)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction
48.75	5,346,485	76,884	1,603,945	73,574	0.01	0.02	0.00	0.00	0.03
47.00	5,416,740	78,930	1,625,022	75,521	0.01	0.02	0.00	0.00	0.03
46.46	5,438,247	79,561	1,631,474	76,122	0.01	0.02	0.00	0.00	0.03
41.82	5,624,638	85,142	1,687,391	81,429	0.01	0.02	0.00	0.00	0.03
39.00	5,737,907	88,625	1,721,372	84,742	0.01	0.02	0.00	0.00	0.03
37.00	5,818,199	91,137	1,745,460	87,130	0.01	0.02	0.00	0.00	0.03
32.00	6,018,928	97,570	1,805,678	93,246	0.01	0.02	0.00	0.00	0.03
27.00	6,219,657	104,222	1,865,897	99,569	0.01	0.02	0.00	0.00	0.03
22.00	6,420,386	111,094	1,926,116	106,099	0.01	0.02	0.00	0.00	0.03
17.00	6,621,115	117,727	1,986,335	112,837	0.01	0.02	0.00	0.00	0.03
12.00	6,821,845	124,040	2,046,553	119,783	0.01	0.02	0.00	0.00	0.03
7.00	7,022,574	130,455	2,106,772	126,935	0.01	0.02	0.00	0.00	0.03
2.00	7,223,303	136,966	2,166,991	134,296	0.01	0.02	0.00	0.00	0.03
0.00	7,303,595	139,597	2,191,078	137,298	0.01	0.02	0.00	0.00	0.03

MINIMUM DEFLECTION RATIO // DEFLECTION LIMIT / DEFLECTION // IS

NUMBER OF BOLTS	DIAMETER (IN.)	LENGTH (IN.)	WEIGHT (KIPS)	SHIPPED AS	PROJECTION LENGTH (IN.)	GALVANIZED LENGTH (IN.)	THREAD SIZE
24	2.250	72.00	2.63	BOLTS, TEMPLATES	12.75	72.00	4.5-UNC-2A

STEEL SPEC. VALMONT	STEEL SPECIF.	MAXIMUM BOLT FORCE (KIPS)	MAXIMUM BOLT SHEAR FORCE (KIPS)	NOMINAL STRENGTH (KIPS)	STRESS AREA (SQ. IN.)	INTERACTION VALUE	CONFIGURATION OF BOTTOM END
S23	A615	183.55	3.86	268.65	3.25	0.68	THREADED WITH HEAVY HEX HEAD NUT

*** BOLT COORDINATES (IN.) ***

BOLT NO.	X-COORD	Y-COORD	*	BOLT NO.	X-COORD	Y-COORD
1	35.500	0.000	*	2	34.290	9.188
3	30.744	17.750	*	4	25.102	25.102
5	17.750	30.744	*	6	9.188	34.290
7	0.000	35.500	*			

MAX. BOLT CIRCLE = 71.00 IN. TEMPLATE DIAMETER = 74.50 IN.

*** BASE PLATE CHARACTERISTICS GOVERNED BY LOADING CASE WIND ***

BASE PLATE DIAMETER (IN.)	BASE PLATE THICKNESS (IN.)	ACTUAL WEIGHT (KIPS)	RAW MATERIAL WEIGHT (KIPS)	POLE DIAM. (MAJOR DIAM.) (IN.)
77.00	3.50	2.76	5.98	63.50

EFFECTIVE PLATE WIDTH (IN.)	PLASTIC SECTION MOD. (CU. IN.)	MOMENT IN BASE PLATE (IN. -K)	PLASTIC MOMENT (IN. -K)	FACTORED RESISTING MOM. (IN. -K)
8.31	25.46	688.30	1272.80	1145.52

STEEL SPECIF. VALMONT	STEEL SPECIF. OTHER	EFFECTIVE YIELD STRESS (KSI)	STRESS RATIO
S56	A572	50	0.60

** LOADS AT POLE BASE IN THE GLOBAL COORDINATE SYSTEM ********** LOADING CASES **********

LOADING CASE IDENTIFICATION	WIND	ICE + WIND	T+S	Seismic	Seismic 2	]MAX CRITERION-	LOAD CASE
MOMENT ABT. X-AXIS (IN-KIP)	62857	22395	14250	1847	1709	]MOMENT ABT. X	WIND
MOMENT ABT. Y-AXIS (IN-KIP)	-74910	-26690	-16982	-2202	-2037	]MOMENT ABT. Y	WIND
SHEAR FORCE (LB.)	92732	31402	20750	1945	1945	]RES. MOMENT	WIND
VERTICAL FORCE (LB.)	75446	120150	62434	78059	52954	]SHEAR FORCE	WIND
						]BOLT FORCE	WIND
						]BOLT TENSION	WIND

F L A N G E A N A L Y S I S

FLANGE FOR THE C - D JOINT : SIZED FOR SHAFT MOMENT CAPACITY

Input Data

Applied Reactions			
Resultant Moment	=	5,417	in-kips
Torsion	=	0	in-kips
Resultant Shear	=	0	lbs
Axial	=	0	lbs
Bolts			
Number of Bolts	=	12	
Bolt Diameter	=	1.00	in
Bolt Material	=	F3125 Gr. A325	
Bolt Circle	=	26.77	in
Flange			
Outside Diameter	=	29.27	in
Thickness	=	1.500	in
Yield Strength	=	50	ksi
Tensile Strength	=	65	ksi
Valmont Material Spec.	=	S-56	
Tube			
No. of sides	=	18	
Design Diameter	=	22.919	in
Detailed "C" Sect. Dia	=	22.969	in
Detailed "D" Sect. Dia	=	22.869	in
Thickness	=	0.3125	in
Thickness for M. Cap.	=	0.1875	in
Yield	=	65	ksi

Results

Bolts			
Maximum Bolt Axial Force	=	54,028	lbs
Maximum Bolt Shear	=	1,365	lbs
Tensile Strength	=	120	ksi
Axial Capacity	=	54,540	lbs
Axial Stress	=	89	ksi
Shear Capacity	=	26,507	lbs
Shear Stress	=	0	psi
Combined Stress Ratio	=	0.98	
Flange			
Weight	=	187	lbs
Controlling Stress	=	Bending	
Maximum Stress Ratio	=	0.46	
Bending Stress Ratio	=	0.46	
Shear Stress Ratio	=	0.41	
Bearing Stress Ratio	=	0.46	

*** BOLT COORDINATES ***

BOLT NO.	X-COORD	Y-COORD		BOLT NO.	X-COORD	Y-COORD
1	13.39	0.00	*	2	11.59	6.69
3	6.69	11.59	*	4	0.00	13.39

Valmont Structures
28800 Ida Street
Valley, NE 68064
(402) 359-2201
Engineer: CR
Reviewed by: CR

Drilled Pier Foundation Design Calculations

Valmont Order Number: 610713
Customer: The Towers
Site: US-CT-5055 - Wilton South CT, CT
Pole Height: 122 ft (123 ft agl)

valmont STRUCTURES

Monopole Pier Design

Customer: The Towers
Site: US-CT-5055 - Wilton South CT
State: CT
Project #: 610713
Drawing No.: CT610713PP
Geotechnical Report: Delta Oaks Group Project GEO24-20828-08 dated February 26, 2024
Geotechnical Report Water Depth: 4 ft
Run Date: 05-20-24
Version: 3.11
Engineer: CR Checker: CR
Address: Valley
TIA Revision: H Seismic Design Category: B

Pole Geometry

Pole Height =	122	ft
Bolt Circle =	71.00	in
Number of Bolts =	24	
Bolt Diameter =	2.25	in
Bolt Projection =	12.75	in
Bolt Length =	72.0	in
Bottom Template Diameter =	74.5	in

Shrinkage/Temperature Requirement Per TIA Rev H Section 5.6
AP Clearance = 12.5 in
Check: OK

Pole Loads

Foundation Maximum Stress =	100	%
Factored Moment =	8149.0	ft-kips
Factored Shear =	92.73	kips
Factored Weight =	78.21	kips
Shear Height =	87.9	ft
e (eol offset) =	1259.4	in

Moment and Shear increased by maximum stress value.

Anchor Bolt Load

Factored Moment =	97788	in-kips
Factored Shear =	92.73	kips
Factored Weight =	78.21	kips

Plastic — Anchor Bolt Force Calculation Method

Anchor Bolt Info

Grade:	A615 Gr75	
F_u =	100.0	ksi
F_y =	75.0	ksi
Area tensile =	3.25	in²

☐ TIA-G Presumptive Soil Clay ☐ TIA-H Presumptive Soil Clay
☐ TIA-G Presumptive Soil Sand ☐ TIA-H Presumptive Soil Sand

Passive Pressure Calculations

Φ Factor = 0.75 B = INPUT

Layer	Depth Start (ft)	Depth End (ft)	c (psf)	ϕ (degrees)	γ (pcf)	Lateral pressure start (psf)	Lateral pressure end (psf)	Den x Depth (psf)	Kp	Allowable Overburden	Slope (psf/ft)
1	0	2	0	28	90	0	334	180	2.88	919	
2	2	4	0	29	100	369	821	380	3.12	1187	
3	4	6	0	31	53	895	1229	286	3.25	1552	
4	6	8	0	32	53	1184	1649	286	3.45	2293	
5	8	10	0	35	58	1630	2459	116	3.11	2322	
6	10	13	0	31	53	1950	2828	159	2.56	2907	
7	13	19	0	34	58	2350	3223	348	3.00	4255	
8	19	29	6000	0	150	9911	11036	1500	1.00	2715	
9	29	41	6000	0	150	11036	12386	1800	1.00	4515	
10	0	0				0	0	0	1.00	4515	

Soil Summary

ZERO = GROUND LINE

Level #	Φ Ultimate Pas Pressure psf Start	Φ Ultimate Pas Press Slope psf/ft	Depth Start (ft)	Depth End (ft)	End Pres
1	0	166.96	0	2	334
2	369	226.25	2	4	821
3	895	324.38	4	6	1359
4	1186	429.27	6	8	1885
5	1630	565.92	8	10	2599
6	1959	824.18	10	13	3037
7	2350	952.87	13	19	3223
8	9911	812.50	29	29	11636
9	11036	812.50	29	41	12236
10	0	0.00	0	0	0

Max Moment Depth (ft): 11.30

Max Pier Moment

(in-kips)	(ft-kips)
110608	9217

$\int_{Ground\ Line}^{Depth_{max}} \frac{Passive\ Pressure}{ft} \, dft = Applied\ Shear$

Footing Concrete Geometry

Cap Height (Above Ground Line) =	0.5	ft	
Diameter Pier =	8	ft	Spacing: OK — 18.63 in — Anchor Bolt Radius (to outer face)
Length (below ground) =	39.5	ft	27.25 in — Template Radius
Concrete Volume =	746.5	yd³	L/D Ratio = 4.9 — OK — 41.97 in — Inner Edge of Bowl/Riser

Summation of shear and passive pressure forces to find LID: $\Sigma F_x = 0$

Load Inflection-Point Depth (LID) = 28.87 ft

Summation of moments about LID: $\Sigma M_{LID} = RM_{LID} - OTM \geq 0$

OTM =	10872.6 ft-kips	RM_{total} =	13548	Soil FS above Allowable: 1.25 = RM_{total}/OTM
$Shear_{applied}$ =	92.7 kips	$Shear_{resistive}$ =	93.92	1.01 = resisting V/applied V
Weight =	78.2 kips			

Foundation Load Properties

Zero = Ground Line

Level #	Passive Pressure psf Start	Pas Press Slope psf/ft	Depth Start (ft)	Depth End (ft)	About Load Inflection Point: Forces Constant kips	Forces Slope kips	Moments Constant ft-kips	Moments Slope ft-kips	V_{max} kips
1	0	167	0.0	2.0	0.0	2.0	0	82	969.33
2	369	226	2.0	4.0	6.1	7.5	181	88	
3	896	324	4.0	6.0	14.2	2.9	390	47	
4	1188	429	6.0	8.0	19.0	3.1	435	45	
5	1630	566	8.0	10.0	26.1	3.4	521	50	
6	1959	824	10.0	13.0	33.8	4.5	636	75	
7	2350	953	13.0	19.0	106.4	22.3	1401	262	
8	9911	813	29.0	29.0	76.4	42.6	3062	434	
9	11036	813	29.0	41.0	-11.4	6.9	1	9	
10	11036	813	29.0	41.0	-929.6	-49.6	6987	934	

Footing Reinforcement Requirements

Tie Bar #	5	Ties OK
Tie Vertical Spacing	1.00	ft
Number of Ties	42	-
Area_Ties	0.60	in²
MP_Tc	4	in
MP_Rin	42.7	in
MP_Asteel	65.6	in²
MP_Esteel	29000	Ksi
MP_Isteel	59720	in⁴
EI	1731877330	in²*lbf
S	1400	in³
M_y	110608	in-kips
ΦM_n	141610	in-kip
Bars Per Bundle	1	
Vertical Bar #	11	
Bar Count	42	
Φ_{shear}	0.85	
$\Phi_{flexure}$	0.9	
MP_Fty_T&V	60	ksi
MP_Fty_T&V_ALL	54	ksi
Shaft Bending CSR	0.78	
ΦV_s	293.1	kips
	8.97	in
	7.33	ft
	89.375	in
	1.41	in

Seismic Ties? No

Area of Tie Cut by Vertical Section (2*Area of the tie)
Thickness of Concrete Cover
Radius of Vertical Rebar
Total Area of Vertical Bars
Young's Modulus
Rebar Moment of Inertia
E*I
Rebar Section Modulus
Applied Maximum Moment at Depth of Zero Shear on Pier
Factored Moment Strength of Pier

OK — Bar Quantity Area Check

24 = Min # based on area (0.90%)

Strength Reduction Factor for Capacity Of Steel Shear
Strength Reduction Factor for Capacity Of Steel Flexure
Rebar Fty Grade 60
Rebar Fty Allowable Pier Design Includes PHI_Steel
Applied Maximum Moment / Factored Moment Strength
Factored Steel Shear Strength
Vertical Rebar Horiz Spacing
Diameter of hoops
Diameter of vertical rebar circle
Diameter of Vertical Rebar

Pier Shear Check

f'_c	4500 psi	Concrete compression properties	
d	6.31 ft	Distance from extreme com fiber to cent of tension reaction group	

Calculate the Concrete Shear Strength

$V_c = 2*(fc')^{0.5}*bw*d$

$= 975$ kips — 22.5.5.1

Given:

bw	=	96 in	diameter
d	=	75.7 in	
Φ_c	=	0.85	
$\Phi_c V_c$	=	829 Kips	

Cross-Sectional Dimension Check

$\Phi * (V_c + 8 * \sqrt{(f'c)} * bw * d) \geq V_u$

3317 kips $\geq$ 988.1 kips — 22.5.1.2

Calculate the Reinforcment Shear Strength

#5 horizontal ties at 12" spacing

$V_s = \frac{A_v * f_y * d}{s}$ — 22.5.10.5.3

Given:

A_v	=	0.6 in^2	
f_y	=	60 ksi	
d	=	6.31 Ft	
s	=	1 Ft	
Φ_s		0.85	
$\Phi_s V_s$	=	193.1 Kips	

The Maximum Shear in the Pier occurs at Reaction Inflection Point 28.9'

$\Phi * (V_s + V_c) \geq V_u$ — 22.5.10.1

ΦV_c	+	ΦV_s	>	V_u
829.1 Kips	+	193.1 Kips	>	988.1 kips
		1022.3 Kips	>	988.1 kips

$\Longrightarrow$ OK

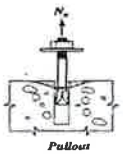
Anchor Bolt Embedment Check

Development Length Demand	Ld_min =	12 in		25.4.2.1
Casting Location Factor	ψ_t =	1		25.4.2.4
Coating Factor	ψ_e =	1		25.4.2.4
	Epoxy	N		
	$\psi_t\psi_e$ =	1		25.4.2.4
Size Factor	ψ_s =	1		25.4.2.4
Concrete Weight Factor	λ =	1		25.4.2.4
	c_b =	4.71		25.4.2.4
Transverse Reinforcement Index	k_{tr} =	0		25.4.2.3
Confinement Term	c' =	2.5000		25.4.2.3
Rebar Development Length in Tension	L_d =	37.8 in		25.4.2.2
		2 in		
Pullout Angle		35 deg		17.4
Anchor Bolt Embedment in Concrete	Ab_o =	59.25 in		
Available Development Length	L_{da} =	50.2 in		
Required Development Length	L_{drqd} =	20.87 in		
Check Anchor Engagement		OK		
Excess Reinforcement Ratio		0.552		25.4.10.1
Minimum Rebar Ratio		0.005		16.3.4
Minimum Anchor Bolt Embedment		14.3 in		TIA Rev H 9.6
Check Anchor Bolt Length		OK		
Embedment Length		59.25 in		
25 Times Diameter		56.25 in		
Concrete Pryout Check Required		No		TIA Rev H 9.6

Pullout Strength of Anchor in Tension

17.4.3

$N_{pn} = \Psi_{c,P} N_p$



Net earing area of the headed stud(s) or anchor bolt(s)	A_{brg} =	6.69	in^2
Pullout strength in tension of a single headed stud or bolt	N_p =	$A_{brg} 8 f'_c$	
Assumes the anchor is located in a region of concrete member where analysis indicates no cracking at service load levels.	$\Psi_{c,P}$ =	1.4	
	N_p =	240.8	kips
	ϕ =	0.75	
	N_{pn} =	337.2	kips
	ϕN_p =	252.9	kips
Maximum bolt force from pole analysis	N_u =	183.55	kips

$\phi N_p > N_u$ Check **OK**

Concrete Side-Face Blowout Strength of Headed Anchor in Tension

17.4.4

Single Anchor:

$N_{sb} = 160 c A_{brg}^{1/2} f'^{1/2}_c$

Distance from center of anchor shaft to edge of concrete	$C = C_{a1}$ =	12.5	in
Distance from center of anchor shaft to edge of concrete in direction orthogonal to $C = C_{a1}$.	C_{a2} =	47.4	in
	C_{a2}/C_{a1} =	3.79	
	Use	3.00	
	Seismic Factor	1.00	
	ϕ =	0.75	
	Factor =	1.00	
	N_{sb} =	347.0	kips
	ϕN_{sb} =	260.3	kips

$\phi N_{sb} > N_u$ Check **OK**

Multiple Anchors:

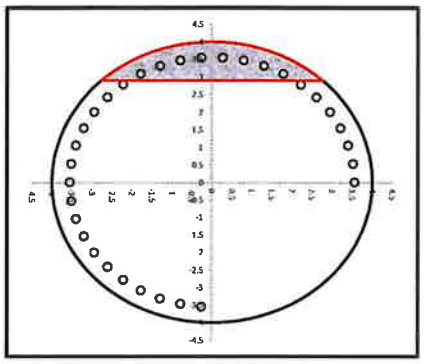
$N_{sbg} = (1 + S/6c_{a1}) N_{sb}$

Spacing of the outer anchors along the edge of the group.	S_o =	9.29	in
Effective anchor embedment depth	h_{ef} =	59.25	in
The largest edge distance	$C_{a,max}$ =	47.4	in
Number of edges surrounding anchor or group of anchors	edges	2	
Controlling length	L_{ef} =	59.25	in
	N_{sbg} =	390.0	kips
	ϕN_{sbg} =	292.5	kips

$\phi N_{sbg} > N_u$ Check **OK**

MAXIMUM FACTORED MOMENT OF A CIRCULAR SECTION

Reinforcement Yield Strength	60	ksi
Reinforcement Modulus of Elasticity	29000	ksi
Axial Load (Negative for Compression)	-78.20569	kips
Limiting Compressive Strain	0.003	in/in
Reinforcement Yield Strain	0.00207	in/in
Pier Diameter	8.00	ft
Vertical Rebar Diameter	1.410	in
Vertical Rebar Quantity	42	
Vertical Rebar Area	1.5615	in^2
Tie Rebar Diameter	0.625	in
Concrete Clear Cover	4.0	in
Rebar Cage Diameter (to Center of Vertical Bars)	85.340	in
Concrete Compressive Strength	4500	psi
Distance From Exreme Edge to Neutral Axis	16.20	in
ACI Factor per Table 22.2.2.4.3(β_1)	0.8250	
Depth of Equivalent Stress Block	13.4	in
Distrance from Centroid to Neutral Axis	31.8	in
Angle from Centroid to Compression Zone	43.8	deg
Area of Concrete in Compression	610.8	in^2
Distance from Centroid of Concrete in Compression to Centroid of Pier	40.1	in
Concrete Compression Force	2288	kips
Total Reinforcement Forces	-2210	kips
Axial Load	-78.20569	kips
Sum of Axial Forces	-2288	kips
Sum of Forces in Concrete	0.000	kips
Moment of Concrete in Compression	7638	ft-kips
Total Reinforcement Moment	5474	ft-kips
Nominal Strength of Column	13112	ft-kips
Tensile Strain in Extreme Layer of Reinforcement	-0.0138	in/in
ACI Strength Reduction Factor	0.900	
Factored Moment Strength of Column	141610	in-kips



OK

ACI 318-14 21.2.2

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	Site: US-CT-5055 - Wilton South CT	Check:	CR	Pole Structure
	Dwg: CT610713FP	Date:	20-05-2024	Customer: The Towers

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Valmont Structures
28800 Ida Street
Vally, NE 68064
(402) 359-2201
Engineer:CR
Reviewed by:CR

Slab Foundation
Design Calculations

Valmont Order Number: 610713
Customer: The Towers
Site: US-CT-5055 - Wilton South CT, CT
Pole Height: 122 ft (123 ft agl)

Inputs

Site Information

Customer:	The Towers	
Site:	US-CT-5055 - Wilton South CT	
Project Number:	610713	
State Abbreviation:	CT	
Soil Parameters Based On:	Geotechnical Report	
Select Soil Type:		
Soil Report Name & Project Number:	Delta Oaks Group Project GEO24-20828-08 dated February 26, 2024	
Design Date:	5-20-2024	
Engineer:	CR	
Reviewed By:	CR	
Select Design Code:	TIA-222-H	

Design Requirements

Seismic Design Category:	B	
Ground Water Depth:	4	ft
Frost Depth:	3.33	ft
Clear Cover (Pad)	3	in
Clear Cover (Pedestal):	4	in

Structure Properties

Type:	Pole	
Height:	122	ft
Bolt Circle:	71	in
Number of Bolts:	24	
Bolt Diameter:	2.25	in
Bolt Projection:	12.75	in
Bolt Length:	72	in
Embedment Plate Diameter:	74.5	in

Reactions

Foundation Maximum Stress:	100.00%	
Moment:	97788.479	in*kips
Global Shear:	92.733	kips
Axial:	78.206	kips
Torsion:	0.000	ft*kips

Material Properties

Anchor Bolt Grade:	A615 Gr75	
Anchor Bolt Allowable Rupture:	100	ksi
Anchor Bolt Allowable Yield:	75	ksi
Concrete Type:	Normal	
Unit Weight of Concrete:	150	pcf
Concrete Compressive Strength:	4500	psi
Reinforcement Yield Strength:	60	ksi
Reinforcement Modulus of Elasticity:	29000	ksi

Bearing Capacity (ksf)	Allowable or Ult?	Safety Factor if Allowable	Backfill Weight (pcf)	Cohesion (ksf)	Internal Friction Angle (deg)	Sliding Friction	Passive Pressure (ksf)	Allowable or Ult?	Safety Factor if Allowable
30.00	Ultimate	1.00	110.00	0.00	0.00	0.45	0.00	Ultimate	1.00
Net									

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Pad and Pier Data Entry & Calculations

Soil Information

Soil Parameters Based On: **Geotechnical Report**

Geotechnical Report Information: **Delta Oaks Group Project GEO24-20828-08 dated February 26, 2024**

Reactions

Structure Type	**Pole**	
Axial:	**78.206**	kips
Global Shear	**92.733**	kips
Moment	**8149.040**	ft-kips
Torsion	**0.000**	ft-kips
Bolt Circle	**71**	in
Bolt Length	**72**	in
Bolt Projection	**12.75**	in

Enter Foundation Size

Concrete Slab Only?	N	(Enter "Y" if there is no pier)
Pedestal Diameter	**8.00**	ft
Pedestal Shape	**CIRCULAR**	
Pedestal Extension Above Grade	**0.50**	ft
Depth to Bottom of Slab	**6.00**	ft
Height of Pedestal	**3.50**	ft
Slab Width	**32.50**	ft
Slab Thickness	**3.00**	ft

Enter Rebar Size & Quantity

Pad Rebar Size (Top)	8
Pad Rebar Quantity (Top)	**41**
Pad Rebar Size (Bottom)	10
Pad Rebar Quantity (Bottom)	**41**
Pedestal Vertical Rebar Size	11
Pedestal Vertical Rebar Quantity	**38**
Pedestal Tie Rebar Size	4
Pedestal Tie Rebar Quantity	**6**

Rebar Spacing		Min. Rebar
Top	3 ≤ 8.6 ≤ 17	17
	✓	✓
Bottom	3 ≤ 8.3 ≤ 16.7	10
	✓	✓
Vertical	3 ≤ 5.7 ≤ 16.6	24
	✓	✓
Ties	3 ≤ 10.5 ≤ 22.56	4
	✓	✓

Select Design Options

Excess Reinforcement Reduction (ACI 318-14 25.4.10)	☑	(Not permitted for Seismic Design Category D, E, or F, 25.4.10.2(e))
Eccentricity Using Working Loads?	☑	(For REV G or REV H Only)
Working Load Conversion Factor	**1.35**	
Top and Bottom Rebar Same?	☐	
Check if Eccentricity is Within Kern?	☐	
Check Diagonal Bearing Pressure?	☑	(Required for TIA-H. Optional for Other Codes)

Site Information

Customer:	**The Towers**	Site:	**US-CT-5055 - Wilton South CT, CT**
Project Number:	**610713**		

Soil & Concrete Properties

Ultimate Net Soil Bearing Capacity	**30.00**	ksf
Water Depth	**4.00**	ft
Depth of Fill	**3.00**	ft
Backfill Weight Above Water, γ	**110.00**	pcf
Backfill Weight Below Water	**47.60**	pcf
Concrete Weight Above Water	**150.00**	pcf
Concrete Weight Below Water	**87.60**	pcf
Cohesion	**0.00**	ksf
Internal Friction Angle	**0.00**	deg

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Passive Pressure	0.00	ksf
Sliding Friction	0.45	
Frost Depth	3.33	ft
Concrete Design Strength	4500.00	psi

Foundation Calculations			
Structural Code:	**TIA-222-H**	**Concrete Code:**	**ACI 318-14**

Concrete & Soil Weight		
Pedestal Volume	175.929	ft^3
Pedestal Weight (total weight above & below water)	26.389	kips
Slab Volume	3168.750	ft^3
Slab Weight	343.493	kips
Total Concrete Weight	369.882	kips
Soil Weight Above Footing	331.975	kips
Total Concrete Volume	123.88	cubic yards

Sliding Resistance		
Passive Pressre Coefficient, Kp	1.00	
Passive Pressure Top	0.37	ksf
Passive Pressure Bottom	0.29	ksf
Average Passive Pressure	0.33	ksf
Shear Depth	2.67	ft2
Shear Area	86.78	ft^2
Resisting Weight (Factored)	690.33	kips
Ultimate Shear Resistance	338.93	kips
Nominal Shear Resistance	254.20	kips
Shear Demand	92.73	kips
Check for Sliding	✓	
Stress Ratio	36.48%	

Overturning Resistance		
From Weight	11217.79	ft-kips
From Passive Pressure	25.17	ft-kips
From Soil Wedge	0.00	ft-kips
Total Resisting Moment (Factored)	11236.67	ft-kips
Moment Resistance Demand	8751.80201	ft-kips
Check for Overturning Resistance	✓	
Stress Ratio	77.89%	

Bearing Resistance (Parallel Direction)		
Slab Area	1056.2500	ft^2
Section Modulus of Slab	5721.3542	ft^3
Kern Limit	5.4167	ft
Total Weight (LC 0.9D)	690.3254	kips
Eccentricity (LC 0.9D)	9.3910	ft
Maximum Toe Pressure (LC 0.9D)	2.4120	ksf
Minimum Toe Pressure (LC 0.9D)	-0.6474	ksf
Adjusted Toe Pressure (if E > Kern) (LC 0.9D)	2.7871	ksf
Total Weight (LC 1.2D)	920.4338	kips
Eccentricity (LC 1.2D)	7.0432	ft
Maximum Toe Pressure (LC 1.2D)	2.7061	ksf
Minimum Toe Pressure (LC 1.2D)	-0.3533	ksf
Adjusted Toe Pressure (if E > Kern) (LC 1.2D)	2.7685	ksf

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Bearing Resistance (Diagonal Direction)			
Kern Limit	**5.4167**	ft	
Moment of Inertia of Mat	**92972.0052**	ft^4	
Total Weight (LC 0.9D)	**690.3254**	kips	
Eccentricity (LC 0.9D)	**9.3910**	ft	
Bearing at A	**2.2560**	ksf	
Bearing at B	**0.6536**	ksf	
Bearing at C	**-0.9489**	ksf	
Bearing at D	**0.6536**	ksf	
Initial Location of NA from C	**13.6080**	ft	
Calculated Location of NA from C	**18.5928**	ft	
Length of Line GH	**37.1857**	ft	
Length of EG & HJ	**8.7763**	ft	
Length of BG & HD	**6.2058**	ft	
Length of EJ	**54.7382**	ft	
Height for EAJ	**27.3691**	ft	
Height for EBG & HDJ	**4.3881**	ft	
MOI for EAJ	**93517.1481**	ft^4	
MOI for EBG & HDJ	**61.7973**	ft^4	
MOI for ABGHDA	**93393.5536**	ft^4	
Distance to Point Load from EJ	**13.7791**	ft	
Effective Length in Bearing Along AB & AD	**32.5000**	ft	
Volume of Pressure Envelope for ABD	**648.0759**	kips	
Volume of Pressure Envelope for GIKH	**36.4639**	kips	
Volume of Pressure Envelope for BIG & DKH	**2.86864456**	kips	
Total Volume of Pressure Envelope	**690.2771**	kips	
Difference in Weight	**0.0000**	kips	OK
Adjusted Bearing at A	**2.7875**	ksf	
Adjusted Bearing at B &D	**0.4469**	ksf	
Maximum Diagonal Bearing Pressure (LC 0.9D)	**3.7632**	ksf	
Total Weight (LC 1.2D)	**920.4338**	kips	
Eccentricity (LC 1.2D)	**7.0432**	ft	
Bearing at A	**2.4738**	ksf	
Bearing at B	**0.8714**	ksf	
Bearing at C	**-0.7310**	ksf	
Bearing at D	**0.8714**	ksf	
Initial Location of NA from C	**10.4837**	ft	
Calculated Location of NA from C	**12.6202**	ft	
Length of Line GH	**25.2404**	ft	
Length of EG & HJ	**20.7216**	ft	
Length of BG & HD	**14.6524**	ft	
Length of EJ	**66.6835**	ft	
Height for EAJ	**33.3417**	ft	
Height for EBG & HDJ	**10.3608**	ft	
MOI for EAJ	**205969.2049**	ft^4	
MOI for EBG & HDJ	**1920.5182**	ft^4	
MOI for ABGHDA	**202128.1685**	ft^4	
Distance to Point Load from EJ	**17.4040**	ft	
Effective Length in Bearing Along AB & AD	**32.5000**	ft	
Volume of Pressure Envelope for ABD	**754.2804**	kips	
Volume of Pressure Envelope for GIKH	**107.3657**	kips	
Volume of Pressure Envelope for BIG & DKH	**29.3813**	kips	
Total Volume of Pressure Envelope	**920.4087**	kips	
Difference in Weight	**0.0000**	kips	OK
Adjusted Bearing at A	**2.6424**	ksf	

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Adjusted Bearing at B &D	0.8211	ksf
Maximum Diagonal Bearing Pressure (LC 1.2D)	3.5673	ksf
IS ECCENTRICITY WITHIN 45% OF FOUNDATION WIDTH	YES	
Maximum Bearing Pressure	3.7632	
Ultimate Gross Bearing Pressure	30.5352	ksf
Factored Bearing Pressure	22.9014	ksf
Check Bearing Capacity	✓	
Stress Ratio	16.43%	

Concrete One Way Shear Strength		
Pad Rebar Size (Top)	8	
Pad Rebar Diameter (Top)	1.000	in
Pad Single Rebar Area (Top)	0.785	in^2
Pad Rebar Size (Bottom)	10	
Pad Rebar Diameter (Bottom)	1.270	in
Pad Single Rebar Area (Bottom)	1.267	in^2
Effective Depth (dc)	32.3650	in
Distance from Edge of Pad to Column Face	147.0000	in
Distance from Edge of Pad to DC	114.6350	in
Bearing Slope (LC 0.9D)	0.1354	kcf
Shear Demand (LC 0.9D)	664.4458	kips
Bearing Slope (LC 1.2D)	0.1002	kcf
Shear Demand (LC 1.2D)	710.8928	kips
Shear Resistance (per ACI 318-14 22.5.5.1)	1270.0995	kips
Check One Way Shear	✓	
Stress Ratio	55.97%	

Concrete Two Way Shear Strength		
Equivalent Column Width (PER ACI 318-14 8.10.1.3 & 22.6.4.1.2)	85.0778	in
Mat Effective Width in Bearing (LC 0.9D)	20.5771	ft
Mat Effective Width in Bearing (LC 1.2D)	27.6203	ft
Critical Section Properties		
Critical Section Length (b1)	117.4428	in
Critical Section Length (b2)	117.4428	in
Critical Section Perimeter (b0)	469.7711	in
Centroid of Critical Section (c)	58.7214	in
Slab Moment (Msc)	8473.6041	ft-kips
Polar MOI of Critical Section (Jc)	35614896.4959	in^4
Fraction of Moment Transferred by Flexure	0.6000	
Fraction of Moment Transferred by Eccentricy of Shear	0.4000	
Bearing Slope (LC 0.9D)	0.1354	kcf
Average Bearing Pressure at Centroid (LC 0.9D)	0.5861	ksf
Bearing Slope (LC 1.2D)	0.1002	kcf
Average Bearing Pressure at Centroid (LC 1.2D)	1.1397	ksf
Shear Force at Centroid	53.7353	kips
Shear Stress at Centroid	70.5959	psi
Available Shear (PER ACI 318-14 22.6.5.2)	201.2461	psi
Check Two Way Shear for Interior Column	✓	

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Stress Ratio	**35.08%**	
Critical Section Reinforcement Design		
Effective Beam Width for Resisting Flexure	**17.0000**	ft
Moment Transferred by Flexure	**5084.1625**	ft-kips
ACI Factor per Table 22.2.2.4.3 ($ß_1$)	**0.8250**	
Area of Steel Required	**34.9085**	in^2
Depth of Stress Block	**2.6842**	in
Area of Steel Required in Effective Width	**32.7769**	in^2
Area of Steel Required in Entire Mat (One Way)	**62.6616**	in^2
Area of Steel Provided in Bottom	**84.1388**	in^2
Check Two Way Shear Reinforcement	✓	
Stress Ratio	**74.47%**	

Pad Flexure / Reinforcement Design		
Bottom Rebar		
Bearing Pressure at Critical Section (LC 0.9D)	**1.1279**	ksf
Factored Bearing Moment (LC 0.9D)	**5447.6709**	ft-kips
Bearing Pressure at Critical Section (LC 1.2D)	**1.5406**	ksf
Factored Bearing Moment (LC 1.2D)	**5752.9637**	ft-kips
Area of Rebar Steel Provided in Bottom	**51.9375**	in^2
Depth of Stress Block	**2.0890**	in^2
Nominal Flexural Strength	**8133.5462**	ft-kips
Depth to Neutral Axis	**2.5321**	in
Steel Strain	**0.0353**	in/in
Strength Reduction Factor per ACI 21.2.2	**0.90**	
Factored Flexural Strength	**7320.1916**	ft-kips
Check Bottom Rebar Flexural Strength	✓	
Stress Ratio	**78.59%**	
Top Rebar		
Factored Moment from Dead Weight (LC 0.9D)	**1711.8380**	ft-kips
Factored Moment from Dead Weight (LC 1.2D)	**2282.4506**	ft-kips
Area of Rebar Steel Provided in Top	**32.2013**	in^2
Depth of Stress Block	**1.2952**	in^2
Nominal Flexural Strength	**5106.7134**	ft-kips
Depth to Neutral Axis	**1.5699**	in
Steel Strain	**0.0588**	in/in
Strength Reduction Factor per ACI 21.2.2	**0.90**	
Factored Flexural Strength	**4596.0420**	ft-kips
Check Top Rebar Flexural Strength	✓	
Stress Ratio	**49.66%**	

Pad Min. Rebar & Spacing Requirements			
Minimum Reinforcement Ratio for Slabs	**0.0018**		PER ACI 318-14 (7.6.1.1, 24.4.3.2)
Minimum Reinforcement Ratio for Beams	**0.0034**		PER ACI 318-14 (9.6.1.2)
Minimum Reinforcement Area Required	**12.6360**	in^2	
Area of Rebar Steel Provided in Top	**32.2013**	in^2	
Check Minimum Rebar Area in Top	✓		

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Stress Ratio	39.24%		
Area of Rebar Steel Provided in Bottom	51.9375	in^2	
Check Minimum Rebar Area in Bottom	✓		
Stress Ratio	24.33%		
Minimum Rebar Clear Spacing	3.0000	in	Minimum clear spacing per ACI 318-14 (25.2.1) is smaller of 1 in, 1 rebar diameter, or 4/3 * maximum coarse aggregate diameter using 3 in here as minimum.
Maximum Rebar Center to Center Spacing	18.0000	in	PER ACI 318-14 (8.7.2)
Rebar Clear Spacing in Top	8.5750	in	
Check Rebar Clear Spacing in Top	✓		
Rebar Clear Spacing in Bottom	8.2983	in	
Check Rebar Clear Spacing in Bottom	✓		

Pad Rebar Development Length Requirements per ACI 318-14 25.4.2			
Modification Factors per ACI 318-14 Table 25.4.2.4			
Normal vs. Light Weight	1		
Epoxy Coating	1.0		Adjust per ACI for epoxy coated rebar if used.
Size (Top)	1.0		
Size (Bottom)	1.0		
Casting Position (Top)	1.3		
Casting Position (Bottom)	1.0		
Spacing / Cover (Top)	2.5		
Spacing / Cover (Bottom)	2.5		
Excess Reinforcement Ratio (Top)	0.392		PER ACI 318-14 25.4.10.1
Excess Reinforcement Ratio (Bottom)	0.243		
Development Length Demand (Top)	13.6882	in	
Development Length Demand (Bottom)	12.0000	in	
Length Available (Top & Bottom)	144.0000		
Check Length (Top)	✓		
Check Length (Bottom)	✓		

Pedestal Design			
Pedestal Min. Rebar & Spacing Requirements			
Pedestal Vertical Rebar Size	11		
Pedestal Vertical Rebar Diameter	1.410	in	
Pedestal Vertical Single Rebar Area	1.561	in^2	
Pedestal Vertical Total Rebar Area Provided	59.335	in^2	
Minimum Rebar Ratio for Pedestals	0.005		PER ACI 318-14 16.3.4
Pedestal Vertical Total Rebar Area Required	36.191	in^2	
Check Pier Vertical Rebar Area	✓		
Rebar Cage Diameter (to Center of Vertical Bars)	85.590	in	
Pedestal Vertical Rebar Clear Spacing	5.666	in	
Check Pier Vertical Rebar Spacing	✓		
Pedestal Tie Rebar Size	4	in	
Pedestal Tie Rebar Diameter	0.500	in	
Pedestal Tie Rebar Area	0.196	in^2	
Pedestal Tie Quantity Provided	6		
Maximum Tie Spacing	22.560		PER ACI 318-14 25.7.2
Minimum Tie Quantity Required	4.000		Includes 1 additional at the top below the first tie

Check Tie Spacing & Quantity	✓		

Pedestal Compression Capacity			
Maximum Axial Compressive Strength	**19145.642**	kips	PER ACI 318-14 Table 21.2.1 & 22.4.2.2
Check Pedestal Compression Capacity	✓		
Stress Ratio	**0.41%**		

Pedestal Shear Capacity			
Cross Section Diameter, Bw	**96.000**	in	
Distance from Extreme Compression Fiber to Centroid of Longitudinal Reinforcement	**76.800**	in	PER ACI 318-14 22.5.2.2
Factored Concrete Shear Capacity, Vc	**745.214**	kips	PER ACI 318-14 22.5.6.1 - PHI = 0,75
Check Cross Section Dimensions	**OK**		PER ACI 318-14 22.5.1.2
Shear Reinforcement Required	**0.000**	kips	PER ACI 318-14 22.5.10.1
Spacing of Shear Reinforcement Required	**NA**	in	PER ACI 318-14 22.5.10.5.3
Check Pedestal Shear Capacity	✓		
Stress Ratio	**12.44%**		

Pedestal Moment Capacity		
Pedestal Applied Moment	**8473.604**	ft-kips
Pedestal Factored Moment Capacity	**10809.770**	ft-kips
Check Pedestal Capacity	✓	
Stress Ratio	**78.39%**	

Pedestal Vertical Rebar Development Length Requirements			
Normal vs. Light Weight	**1**		
Epoxy Coating	**1.0**		
Casting Position	**1.0**		
Size	**1.0**		
Spacing Cover	**2.5**		
Confining Reinforcement (Compression)	**1.0**		PER ACI 318-14 TABLE 25.4.9.3
Confining Reinforcement (Hooks)	**1.0**		PER ACI 318-14 TABLE 25.4.3.2
Bar Size & Clear Cover	**0.7**		PER ACI 318-14 TABLE 25.4.3.2
Excess Reinforcement Ratio	**0.6099**		PER ACI 318-14 25.4.10.1
Development Length Demand (Tension)	**23.08**	in	PER ACI 318-14 25.4.2
Development Length Demand (Compression)	**15.48**	in	PER ACI 318-14 25.4.9.2
Development Length Demand (Hook)	**11.28**	in	
Length Available in Pedestal	**39.00**	in	
Check Vertical Bar in Pedestal (Tension)	✓		
Check Vertical Bar in Pedestal (Compression)	✓		
Length Available in Pad	**33.00**	in	
Check Vertical Bar in Pad (Tension)	✓		
Check Vertical bar in Pad (Compression)	✓		
Check Hook	✓		

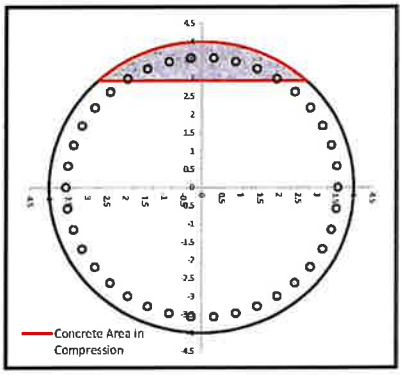
valmont STRUCTURES

Pedestal Torsional Capacity			
Pier Cross Section Area, Acp	7238.229	in^2	
Pier Perimeter	301.593	in	
Threshold Torsion	740.452	ft-kips	PER ACI 318-14 22.7.4
Consider Torsion Effects?	N		
Web Width Bw	96.000	in	
Distance from Extreme Compression Fiber to Centroid of Longitudinal Reinforcement Diameter	76.800	in	
Perimeter Along Center of Transverse Rebar, ph	274.889	in	
Area Enclosed by Transverse Rebar, Aoh	6013.205	in^2	
Ao	5111.224	in^2	
Tie Spacing as Provided, s	10.500	in	
Nominal Torsional Strength	955.797	ft-kips	
Factored Torsional Strength	716.847	ft-kips	
Cross Section Limits for Solid Sections	OK		PER ACI 318-14 22.7.7.1
Check Torsional Strength	✓		PER ACI 318-14 22.7.6
Stress Ratio	0.00%		
Anchor Steel Length Check			
Anchor Bolt Embedment in Concrete	59.250	in	
Available Development Length	50.642	in	Note: assumes embedment plate is 2 in above bottom of anchor bolt.
Required Development Length (Tension)	23.077	in	
Check Anchor Bolt Engagement	✓		
Minimum Anchor Bolt Embedment per TIA-222-H 9.6	14.590	in	
Check Anchor Bolt Length	✓		

valmont STRUCTURES

MAXIMUM FACTORED MOMENT OF A CIRCULAR SECTION

Axial Load (Negative for Compression)	-78.206	kips
Limiting Compressive Strain	0.003	in/in
Reinforcement Yield Strain	0.00207	in/in
Pier Diameter	8.00	ft
Vertical Rebar Diameter	1.410	in
Vertical Rebar Quantity	38	
Vertical Rebar Area	1.5615	in^2
Tie Rebar Diameter	0.500	in
Concrete Clear Cover	4.0	in
Rebar Cage Diameter (to Center of Vertical Bars)	85.6	in
Concrete Compressive Strength	4500	psi
Distance from Extreme Edge to Neutral Axis	15.5	in
ACI Factor per Table 22.2.2.4.3 ($ß_1$)	0.825	
Depth of Equivalent Stress Block	12.7	in
Distrance from Centroid to Neutral Axis	32.5	in
Angle from Centroid to Compression Zone	42.7	deg
Area of Concrete in Compression	570.3	in^2
Distance from Centroid of Concrete in Compression to Centroid of Pier	40.4	in
Concrete Compression Force	2133.7	kips
Total Reinforcement Forces	-2055.5	kips
Axial Load	-78.2	kips
Sum of Axial Forces	-2133.7	kips
Sum of Forces in Concrete	-0.001	kips
Moment of Concrete in Compression	7186.0	ft-kips
Total Reinforcement Moment	4824.9	ft-kips
Nominal Strength of Column	12010.9	ft-kips
Tensile Strain in Extreme Layer of Reinforcement	-0.0146	in/in
ACI Strength Reduction Factor	0.90	
Factored Moment Strength of Column	10809.8	ft-kips



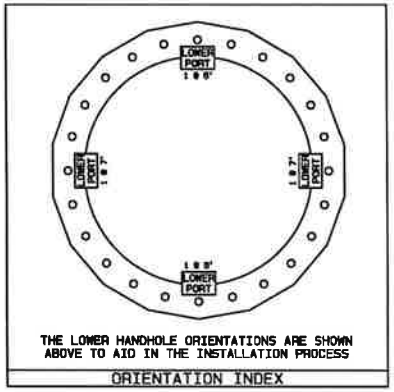
OK

valmont

STRUCTURES

Intermediate Designer: JORGE ORTIZ

COMMUNICATION POLE RECORD DRAWINGS



ORIENTATION INDEX

INDEX OF DRAWINGS

DESCRIPTION	DRAWING #	DESCRIPTION	DRAWING #
POLE ASSEMBLY	DD8529Z	ANCHOR BOLT CAGE ASSEMBLY	CC17798
SECTION ASSEMBLY	DD8529A	CAGE PLATE	BD44819
SECTION ASSEMBLY	DD8529B		
SECTION ASSEMBLY	DD8529C		

Valmont Industries, Inc.
7002 North 288th Street
P.O. Box 358
Valley, NE 68064-0358 USA
Ph: 402-359-2201
Fax: 402-359-4025

Nathan A Ross
Date: 2024.07.10 20:40:27 -07'00'

STATE OF CONNECTICUT · NATHAN A. ROSS · 34713 · LICENSED PROFESSIONAL ENGINEER

THE TOWERS, LLC
VALMONT ORDER# 610713-P1
SITE: US-CT-5055 - WILTON SOUTH CT, CT
POLE HEIGHT: 122'-0"

valmont

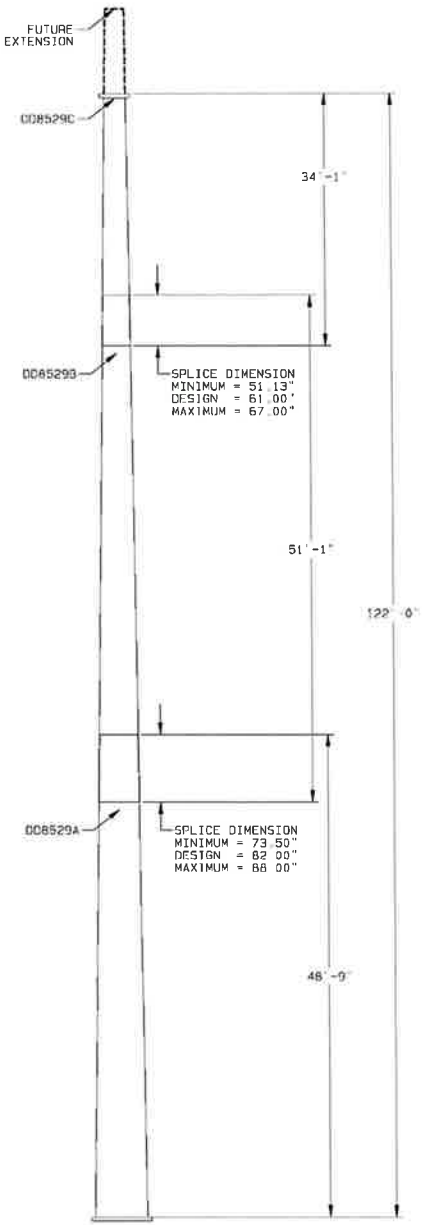
PROD DESCRIPTION	PART NO.
KIT DD8529Z	DD8529K

WEIGHT	DRAWN BY	DATE
243#	KRC	05/23/24

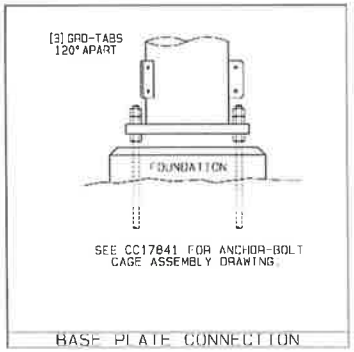
REV	DATE	REV. BY	REVISION DESCRIPTION
-			

BILL OF MATERIAL

VALMONT PART NUMBER	DESCRIPTION							QTY PER STR
	HARDWARE SIZE (IN)				GENERAL	FINISH	ASTM SPEC	
	BOLT		NUT	WSHR				
	DIA	LONG						
161647	0.38	1.00			SCREW	PL		18
164035	0.25	1.50			SCREW	SS	A410	35
1004345	1.00	4.00				HDGV	A307	6
131188			1.00		DH,LOCK	HDGV	A563	6
141183				1.00	CS,FLAT	HDGV	F436	6
2136A					STEP KIT	HDGV	-	164

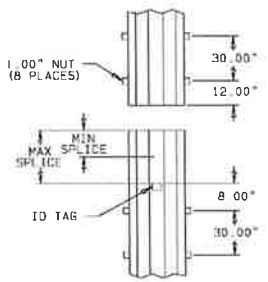


ELEVATION VIEW
SEE FABRICATION DRAWINGS FOR ADDITIONAL DETAILS



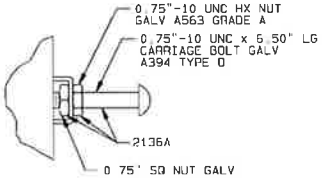
SEE CC17841 FOR ANCHOR-BOLT CAGE ASSEMBLY DRAWING.

BASE PLATE CONNECTION



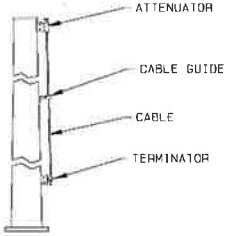
REFER TO ELEVATION VIEW FOR MINIMUM AND MAXIMUM SPLICE VALUES.

SPLICE CONNECTION



TURN STEP BOLTS UNTIL FRONT EDGE TOUCHES POLE SHAFT

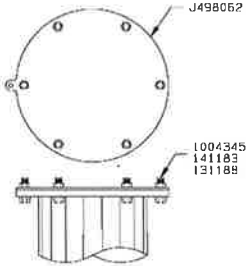
POLE STEP KIT



SAFETY CLIMB ASSEMBLY

9 X 24 HEAVY COVERS

HANDHOLE COVERS



FLANGE CAP CONNECTION

NOTES:

1. COMPONENT IDENTIFICATION: TAG LOCATIONS ARE INDICATED BY CALLOUTS ON DRAWING. SUBSEQUENT DIGITS WILL INDICATE SEQUENCE MANUFACTURED
2. ASSEMBLY AND ERECTION GUIDELINES: SEE VALMONT COMMUNICATION POLE INSTALLATION GUIDELINE I012.
3. SLIP JOINT JACKING FORCE: MINIMUM = 81,101# MAXIMUM = 90,000#
4. FINISH: GALVANIZED PER ASTM A-123 PAINTED PER VALMONT SPEC F-688A

STATE OF CONNECTICUT
NATHAN A. ROSS
34713
LICENSED
PROFESSIONAL ENGINEER

BILL OF MATERIAL
(SHIPPING SEQ. -1 FOR ALL)

VALMONT PART NUMBER	DESCRIPTION	UNIT WEIGHT (LBS)	QTY PER STR
DD8529A	PAINTED SECTION ASSEMBLY	19103	1
DD8529B	PAINTED SECTION ASSEMBLY	11662	1
DD8529C	PAINTED SECTION ASSEMBLY	3527	1
AC16941	HANDHOLE COVER (9 X 24 HV)	9	4
AC14220	HANDHOLE COVER (6 X 12 HV)	3	6
AC16940	HANDHOLE COVER (6 X 16)	6	9
J498062	FLANGE CAP	36	1

DUPLICATE DRAWING DISTRIBUTION

PED610713 US-CT-5055 - WILTON SOUTH CT

DWG SIZE D CLASS CODE (1) 1 CLASS NO. (3) 450

DRAWN	ENGR	DATE	SCALE
JO2	CR71	05/22/24	NONE

Q.A. CHK | SHOP CHK

OTHER SPECIFICATIONS

MATERIAL	THICKNESS	WEIGHT
		34,611#

REV TO	DATE	REV BY	CHK BY	REVISION DESCRIPTION

ORDER NO. 610713 | CUSTOMER THE TOWERS, LLC | DESCRIPTION 142.0' POLE | DWG NO. DD8529Z

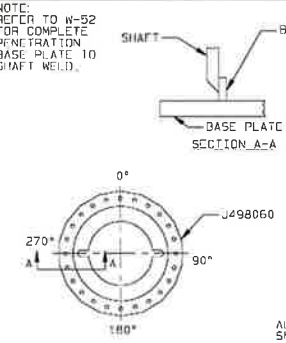
valmont

LOCATION DIMENSION		
FROM LARGE END	FROM SMALL END	DETAIL
	0' - 6.00"	11
	7' - 4.00"	10
	7' - 7.00"	9
	8' - 0.00"	8
2' - 6.00"		
		8
	12' - 6.00"	7
	13' - 6.00"	6
12' - 0.00"		5
7' - 0.00"		4-B
5' - 0.00"		4-A
5' - 0.00"		3
1' - 2.00"		2
0' - 0.00"		1

NOTES:

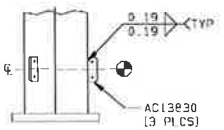
1. LOCATE SEAM WELD AT 40° ALL MEASUREMENTS ARE CLOCKWISE WHEN VIEWED FROM THE SMALL END.
2. ALL CROSS SECTION VIEWS AND ORIENTATION REFERENCES ARE FROM SMALL END OF THE TUBE.
3. ALIGN WITH FLATS AT SMALL END UNLESS OTHERWISE NOTED.
4. REFER TO BRANCH MOUNT LAYOUT SHEET FOR ADDITIONAL ELEVATIONS AND ORIENTATIONS
5. NO BRANCH RECEIVERS SHALL BE OMITTED FROM THE DESIGN DURING THE MANUFACTURING PROCESS.

NOTE:
REFER TO W-52 FOR COMPLETE PENETRATION BASE PLATE TO SHAFT WELD.



1 BASE PLATE

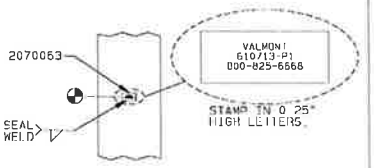
ORIENTATION
30°, 150°, 270°



IF MULTI-SIDED SHAFT CENTER PLATES ON FLATS.

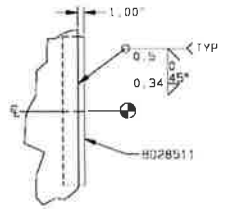
2 GROUNDING PLATES

ORIENTATION
310°



3 ID PLATE

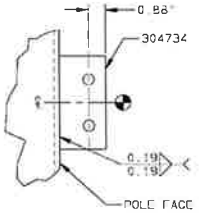
ORIENTATION
A 0°, 180° B 90°, 270°



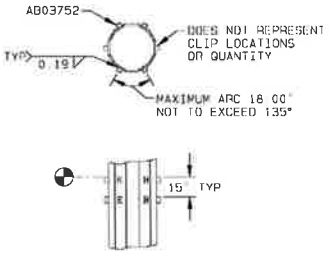
NOTE: LOCATE COVER MOUNT CLIPS OUTSIDE OF SHAFT.

4 HANDHOLE RIM 9X24

ORIENTATION
310°



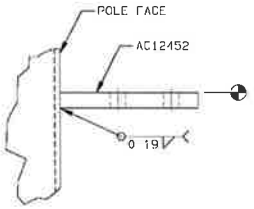
5 CABLE STOP



NOTE: REFER TO M-5 AND M-67.

6 WORKING BAND

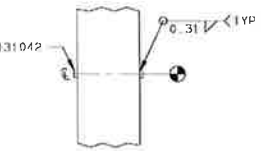
ORIENTATION
310°



LOCATION 12" VERTICALLY TO AVOID INTERFERENCE

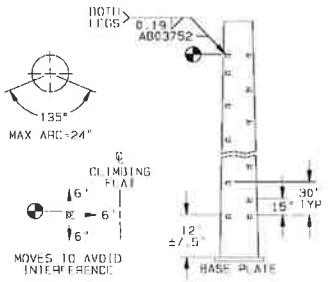
7 CABLE GUIDE

ORIENTATION
90°, 270°



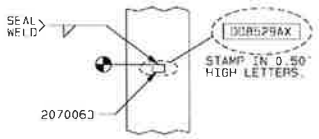
8 JACKING NUT

ORIENTATION
310°



9 STEP LUG

ORIENTATION
310°



THE LAST CHARACTER, 'X', IS A SEQUENTIAL NUMERAL ASSIGNED BY MANUFACTURING

10 IDENT TAG

LOCATION SYMBOL KEY	SHAFT INFO (MEASURED ACROSS FLATS)						
LOCATION REFERENCE	SHAPE	LENGTH	BASE OD	TOP OD	TAPER	THK	ASTM
	18-SIDED	48'-9.00"	63.50"	46.64"	0.346	0.563"	A572

STATE OF CONNECTICUT
NATHAN A ROSS
34713
LICENSED
PROFESSIONAL ENGINEER

BILL OF MATERIAL
(SHIP SEG=01)

VALMONT PART NO	DESCRIPTION	QTY PER ASSY
GV8529A	SECTION ASSEMBLY	1

DUPLICATE DRAWING DISTRIBUTION

TMF SEC ASSY 64"BD 47"TD 48'-9"LG

DWG SIZE D CLASS CODE (1) 1 CLASS NO (3) 400

REV ID	DATE	REV BY	CHK BY	REVISION DESCRIPTION

DRAWN	FROM	DATE	SEQ #
J02	CR71	05/22/24	NONE
P.A. CHK		ENGR CHK	

OTHER SPECIFICATIONS
F-688A

MATERIAL	THICKNESS	WEIGHT
S-22		19,103#

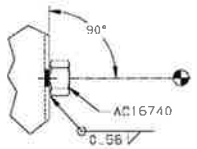
ORDER NO	CUSTOMER	DESCRIPTION	DWG NO
610713	THE TOWERS, LLC	PAINTED SECTION ASSEMBLY	DD8529A

valmont

2.63" DIA HOLE BURNED AT (DEG) 70, 110, 250

0.06" X 45° CHAMFER ON BOTH SIDES OF UPPER HALF OF HOLES AND TOP OF FLATS AT (DEG) 70, 90, 110, 250

11 HANGING HOLES



1-1/4" BRANCH MOUNT HEX-NUT

BEFORE WELDING THIS PART TO THE POLE, CUT A 2.0" VENT HOLE IN SHAFT WALL AND CENTER OVER HOLE. PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6° HORIZONTALLY AND 3° VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT. DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

12 HEX-NUT WELD DETAIL

STATE OF CONNECTICUT
NATHAN A. ROSS
34713
LICENSED
PROFESSIONAL ENGINEER

valmont

ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
610713	THE TOWERS, LLC	PAINTED SECTION ASSEMBLY	008529A

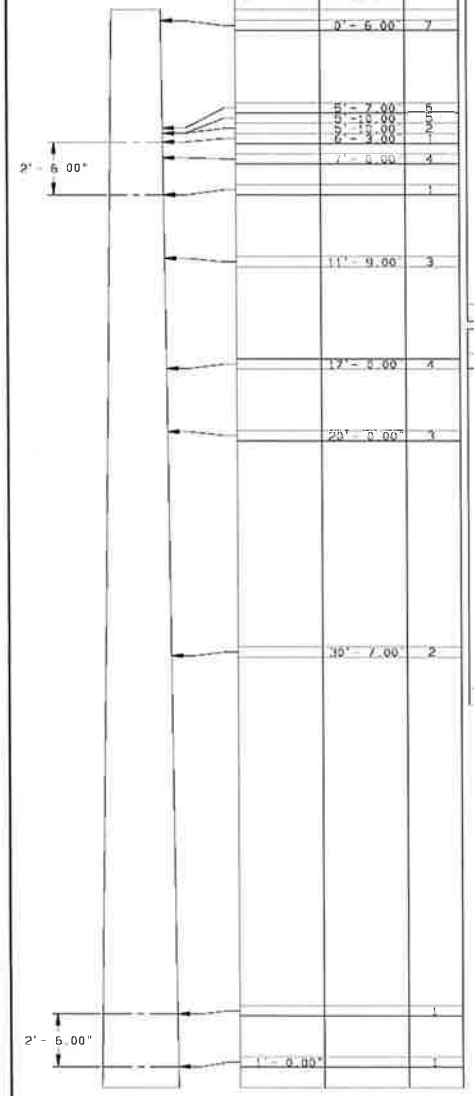
BRANCH MOUNT LAYOUT

FROM SMALL END	ORIENTATIONS																		MOUNT
	10°	30°	50°	70°	90°	110°	130°	150°	170°	190°	210°	230°	250°	270°	290°	310°	330°	350°	
7'-3"															AC16740				90
7'-9"		AC16740						AC16740											90
8'-3"											AC16740								90
8'-9"				AC16740													AC16740		90
9'-3"							AC16740												90
9'-9"	AC16740												AC16740						90

STATE OF CONNECTICUT
NATHAN A ROSS
34713
LICENSED
PROFESSIONAL ENGINEER

valmont

ORDER NO.	CUSTOMER	DESCRIPTION	DRG NO.
610713	THE TOWERS LLC	PAINTED SECTION ASSEMBLY	0085294



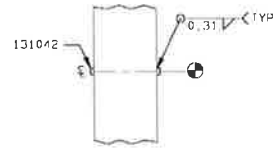
LOCATION DIMENSION		
FROM LARGE END	FROM SMALL END	DETAIL
	0' - 6.00"	7
	7' - 9.00"	4
	11' - 9.00"	3
	17' - 6.00"	4
	20' - 0.00"	3
	35' - 7.00"	2
	49' - 6.00"	1
1' - 0.00"		1

NOTES:

1. LOCATE SEAM WELD AT 40°. ALL MEASUREMENTS ARE CLOCKWISE WHEN VIEWED FROM THE SMALL END.
2. ALL CROSS SECTION VIEWS AND ORIENTATION REFERENCES ARE FROM SMALL END OF THE TUBE.
3. ALIGN WITH FLATS AT SMALL END UNLESS OTHERWISE NOTED.
4. REFER TO BRANCH MOUNT LAYOUT SHEET FOR ADDITIONAL ELEVATIONS AND ORIENTATIONS
5. NO BRANCH RECEIVERS SHALL BE OMITTED FROM THE DESIGN DURING THE MANUFACTURING PROCESS.

ORIENTATION

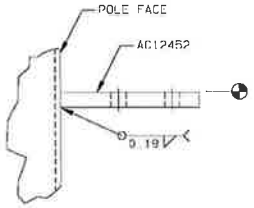
90°, 270°



1 JACKING NUT

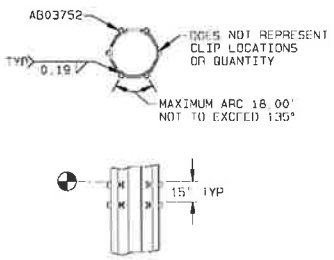
ORIENTATION

310°



LOCATION ±2" VERTICALLY TO AVOID INTERFERENCE

2 CABLE GUIDE

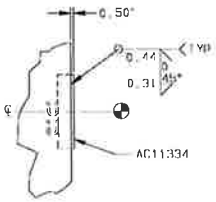


NOTE: REFER TO M-5 AND M-67.

3 WORKING BAND

ORIENTATION

0°, 120°, 240°

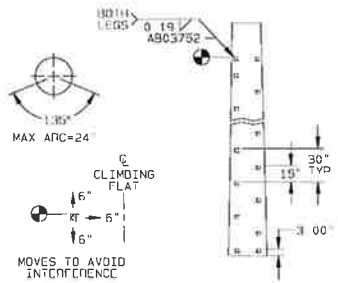


NOTE: LOCATE HOOKS TOWARD LARGE END

4 HANDHOLE RIM 6X12

ORIENTATION

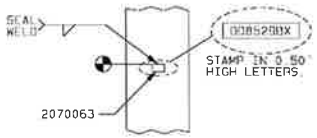
310°



5 STEP LUG

ORIENTATION

310°



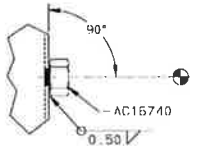
THE LAST CHARACTER, 'X', IS A SEQUENTIAL NUMERAL ASSIGNED BY MANUFACTURING.

6 IDENT TAG

2.63" DIA HOLE BURNED AT (DEG): 70, 110, 250

0.06" X 45° CHAMFER ON BOTH SIDES OF UPPER HALF OF HOLES AND TOP OF FLATS AT (DEG): 70, 90, 110, 250

7 HANGING HOLES



1-1/4" BRANCH MOUNT HEX-NUT

BEFORE WELDING THIS PART TO THE POLE, CUT A 2.0" VENT HOLE IN SHAFT WALL AND CENTER OVER HOLE. PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6" HORIZONTALLY AND 3" VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT. DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

8 HEX-NUT WELD DETAIL

BILL OF MATERIAL (SHIP SEG=01)

VALMONT PART NO	DESCRIPTION	QTY PER ASSY
GV85290	SECTION ASSEMBLY	1

LOCATION SYMBOL KEY	SHAFT INFO (MEASURED ACROSS FLATS)						
LOCATION REFERENCE	SHAPE	LENGTH	BASE OD	TOP OD	TAPER	THK	ASTM
	18-SIDED	51'-1.00"	50.00"	32.33"	0.346	0.500"	A572

DUPLICATE DRAWING DISTRIBUTION

TMF_SEC_ASSY_50"BD_32"TD_51'-1"LG_____

DWG SIZE D CLASS CODE (1) 1 CLASS NO (3) 400

REV ID	DATE	REV BY	CHK BY	REVISION DESCRIPTION

DRAWN	FACTY	DATE	SCALE
J02	CR71	05/22/24	NONE
C.A. CM		ENG SDN	

OTHER SPECIFICATIONS: F-568A

MATERIAL: S-22 THICKNESS WEIGHT: 11,602#

ORDER NO: 610713 CUSTOMER: THE TOWERS, LLC

DESCRIPTION: PAINTED SECTION ASSEMBLY DWG NO: DD85298

valmont

BRANCH MOUNT LAYOUT

FROM SMALL END	ORIENTATIONS																		MOUNT
	10°	30°	50°	70°	90°	110°	130°	150°	170°	190°	210°	230°	250°	270°	290°	310°	330°	350°	
5'-6"	AC16740						AC16740												90
6'-0"									AC16740										90
6'-6"					AC16740														90
7'-0"											AC16740								90
7'-6"			AC16740																90
8'-0"														AC16740					90
8'-6"										AC16740									90
9'-0"						AC16740												AC16740	90
9'-6"															AC16740				90
10'-0"		AC16740						AC16740											90
10'-6"												AC16740							90
11'-0"				AC16740													AC16740		90
11'-6"							AC16740												90
12'-0"	AC16740												AC16740						90
12'-6"									AC16740										90
13'-0"						AC16740													90
13'-6"												AC16740							90
14'-0"			AC16740					AC16740						AC16740					90
14'-6"										AC16740									90
15'-0"					AC16740													AC16740	90
15'-6"		AC16740																	90
16'-0"															AC16740				90
16'-6"											AC16740								90
17'-0"				AC16740															90
17'-6"																	AC16740		90
18'-0"	AC16740						AC16740						AC16740						90
18'-6"									AC16740						AC16740				90
19'-0"						AC16740													90
19'-6"												AC16740							90
20'-0"			AC16740											AC16740					90
20'-6"										AC16740									90
21'-0"	AC16740				AC16740								AC16740						90
21'-6"					AC16740													AC16740	90
22'-0"															AC16740				90
22'-6"		AC16740						AC16740											90
23'-0"											AC16740								90
23'-6"				AC16740													AC16740		90
24'-0"							AC16740												90
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26'-6"										AC16740									90
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27'-6"															AC16740				90
28'-0"		AC16740						AC16740											90
28'-6"											AC16740								90
29'-0"				AC16740													AC16740		90
29'-6"							AC16740												90
30'-0"	AC16740												AC16740						90
30'-6"									AC16740										90
31'-0"						AC16740													90
31'-6"												AC16740							90
32'-0"			AC16740											AC16740					90
32'-6"										AC16740									90
33'-0"					AC16740													AC16740	90
33'-6"	AC16740												AC16740						90
34'-0"															AC16740				90
34'-6"		AC16740						AC16740											90
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35'-6"				AC16740													AC16740		90
36'-0"							AC16740												90
36'-6"									AC16740										90
37'-0"						AC16740													90
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38'-0"			AC16740											AC16740					90
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39'-0"					AC16740													AC16740	90
39'-6"															AC16740				90
40'-0"		AC16740						AC16740											90
40'-6"											AC16740								90
41'-0"				AC16740													AC16740		90
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42'-0"	AC16740												AC16740						90
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43'-0"						AC16740													90
43'-6"												AC16740							90
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45'-6"															AC16740				90
46'-0"		AC16740						AC16740											90
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47'-0"				AC16740													AC16740		90
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48'-0"	AC16740												AC16740						90
48'-6"									AC16740										90
49'-0"						AC16740													90
49'-6"												AC16740							90
50'-0"			AC16740											AC16740					90
50'-6"										AC16740									90
51'-0"					AC16740													AC16740	90

valmont

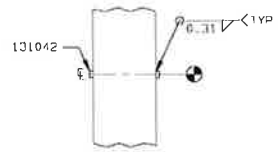
ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
610713	THE TOWERS LLC	PAINTED SECTION ASSEMBLY	D385298

LOCATION DIMENSION		
FROM LARGE END	FROM SMALL END	DETAIL
	0'- 0.00"	8
	0'- 6.00"	7
	0'- 8.00"	6
	0'-10.00"	5
	5'- 0.00"	4
	8'- 0.00"	2
	16'- 0.00"	4
	19'- 0.00"	2
	26'- 0.00"	4
	28'- 3.00"	3
	29'- 0.00"	2
		1
	1'- 0.00"	1

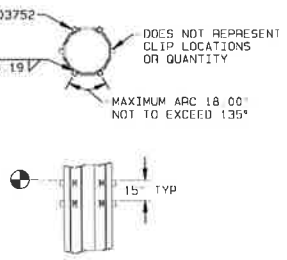
2'- 6.00"

1 JACKING NUT

ORIENTATION: 90°, 270°



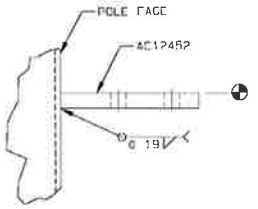
2 WORKING BAND



NOTE: REFER TO M-5 AND M-67.

3 CABLE GUIDE

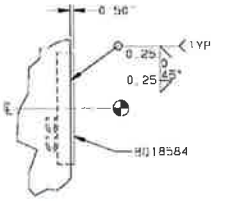
ORIENTATION: 310°



LOCATION 12" VERTICALLY TO AVOID INTERFERENCE

4 HANDHOLE RIM 6X18

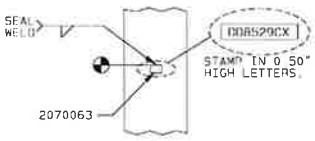
ORIENTATION: 0°, 120°, 240°



NOTE: LOCATE HOOKS TOWARD LARGE END

5 IDENT TAG

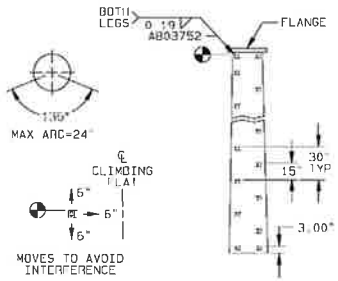
ORIENTATION: 310°



THE LAST CHARACTER, "X", IS A SEQUENTIAL NUMERAL ASSIGNED BY MANUFACTURING

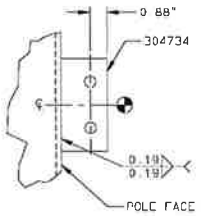
6 STEP LUG

ORIENTATION: 310°



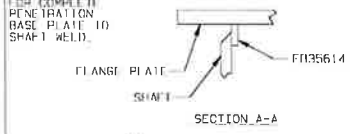
7 CABLE STOP

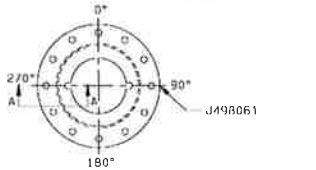
ORIENTATION: 310°



8 FLANGE PLATE

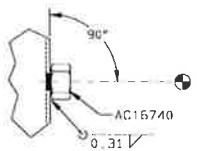
NOTE: REFER TO M-52 FOR COMPLETE PENETRATION BASE PLATE TO SHAFT WELD.





NOTE: ALIGN WITH FLATS AT LARGE END.

9 HEX-NUT WELD DETAIL

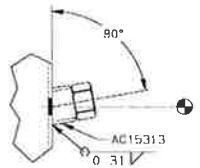


1-1/4" BRANCH MOUNT HEX-NUT

BEFORE WELDING THIS PART TO THE POLE, CUT A 2.0" VENT HOLE IN SHAFT WALL AND CENTER OVER HOLE. PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6° HORIZONTALLY AND 3° VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT. DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

10 80° BRANCH MOUNT

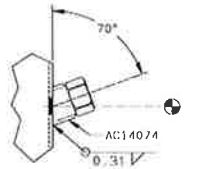


80° BRANCH MOUNT

BEFORE WELDING THIS PART TO THE POLE, CUT A 2.0" VENT HOLE IN SHAFT WALL AND CENTER OVER HOLE. PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6° HORIZONTALLY AND 3° VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT. DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

11 70° BRANCH MOUNT



70° BRANCH MOUNT

BEFORE WELDING THIS PART TO THE POLE, CUT A 2.0" VENT HOLE IN SHAFT WALL AND CENTER OVER HOLE. PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6° HORIZONTALLY AND 3° VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT. DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

NOTES:

1. LOCATE SEAM WELD AT 40°. ALL MEASUREMENTS ARE CLOCKWISE WHEN VIEWED FROM THE SMALL END.
2. ALL CROSS SECTION VIEWS AND ORIENTATION REFERENCES ARE FROM SMALL END OF THE TUBE.
3. ALIGN WITH FLATS AT LARGE END UNLESS OTHERWISE NOTED.
4. REFER TO BRANCH MOUNT LAYOUT SHEET FOR ADDITIONAL ELEVATIONS AND ORIENTATIONS
5. NO BRANCH RECEIVERS SHALL BE OMITTED FROM THE DESIGN DURING THE MANUFACTURING PROCESS.

LOCATION SYMBOL KEY	SHAFT INFO (MEASURED ACROSS FLATS)						
LOCATION REFERENCE	SHAPE	LENGTH	BASE OD	TOP OD	TAPER	THK	ASTM
	18-SIDED	33'-11.25"	34.71"	22.97"	0.346	0.313"	A572

BILL OF MATERIAL (SHIP SEG=0)

VALMONT PART NO	DESCRIPTION	QTY PER ASSY
GV8529C	SECTION ASSEMBLY	1

DUPLICATE DRAWING DISTRIBUTION

TMF SEC ASSY 35"BD 23"TD 34'-1"LG

DWG SIZE D | CLASS CODE (1) 1 | CLASS NO (3) 400

DRAWN	ENGR	DATE	SCALE
JO2	CR71	05/22/24	NONE
P.A. CHK		SHOP CHK	

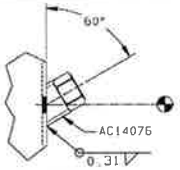
OTHER SPECIFICATIONS: F-688A

REV NO	DATE	REV BY	CHK BY	REVISION DESCRIPTION

MATERIAL: S-22 | THICKNESS | WEIGHT: 3,527#

ORDER NO: 610713 | CUSTOMER: THE TOWERS, LLC | DESCRIPTION: PAINTED SECTION ASSEMBLY | DWG NO: DD8529C

valmont

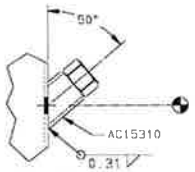


60° BRANCH MOUNT

BEFORE WELDING THIS PART TO THE POLE, CUT A 2.0" VENT HOLE IN SHAFT WALL AND CENTER OVER HOLE. PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6° HORIZONTALLY AND 3° VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT. DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

12 60° BRANCH MOUNT



50° BRANCH MOUNT

BEFORE WELDING THIS PART TO THE POLE, CUT A 2.0" VENT HOLE IN SHAFT WALL AND CENTER OVER HOLE. PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6° HORIZONTALLY AND 3° VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT. DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

13 50° BRANCH MOUNT

valmont

ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
610713	THE TOWERS, LLC	PAINTED SECTION ASSEMBLY	008529C

BRANCH MOUNT LAYOUT

FROM SMALL END	ORIENTATIONS																		MOUNT
	10°	30°	50°	70°	90°	110°	130°	150°	170°	190°	210°	230°	250°	270°	290°	310°	330°	350°	
0'-6"			AC15310									AC15310							50
1'-0"								AC15311						AC15311					60
1'-6"					AC15311					AC15311								AC15311	60
2'-0"		AC15312																	70
2'-6"							AC15312						AC15312		AC15312				70
4'-0"				AC15313													AC15313		80
4'-6"											AC15313								80
5'-0"			AC16740												AC16740				90
5'-6"									AC16740										90
6'-0"						AC16740													90
6'-6"												AC16740							90
7'-0"	AC16740													AC16740					90
7'-6"										AC16740									90
8'-0"					AC16740														90
8'-6"																		AC16740	90
9'-0"		AC16740						AC16740						AC16740					90
9'-6"				AC16740							AC16740								90
10'-0"							AC16740										AC16740		90
11'-0"	AC16740												AC16740						90
11'-6"									AC16740										90
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12'-6"												AC16740							90
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14'-0"					AC16740													AC16740	90
14'-6"		AC16740																	90
15'-0"									AC16740						AC16740				90
15'-6"											AC16740								90
16'-0"				AC16740															90
16'-6"																	AC16740		90
17'-0"	AC16740						AC16740						AC16740						90
17'-6"			AC16740						AC16740										90
18'-0"						AC16740													90
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19'-0"			AC16740											AC16740					90
19'-6"										AC16740									90
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20'-6"															AC16740				90
21'-0"		AC16740						AC16740											90
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22'-0"														AC16740			AC16740		90
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27'-0"		AC16740						AC16740					AC16740						90
27'-6"						AC16740					AC16740								90
28'-0"				AC16740													AC16740		90
28'-6"							AC16740												90
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29'-6"									AC16740										90
30'-0"						AC16740													90
30'-6"												AC16740							90
31'-0"			AC16740											AC16740					90
31'-6"										AC16740									90
32'-0"					AC16740													AC16740	90
32'-6"															AC16740				90
33'-0"		AC16740						AC16740			AC16740								90
33'-6"																	AC16740		90
34'-0"				AC16740									AC16740						90

STATE OF CONNECTICUT
NATHAN A ROSS
34713
LICENSED
PROFESSIONAL ENGINEER

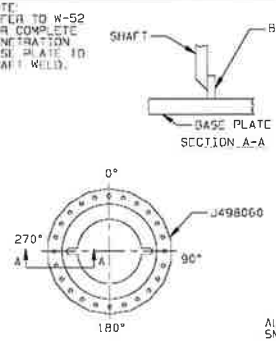
valmont

ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
610713	THE TOWERS LLC	PAINTED SECTION ASSEMBLY	0086290

LOCATION DIMENSION		
FROM LARGE END	FROM SMALL END	DETAIL
	0' - 6.00"	11
	7' - 4.00"	10
	7' - 7.00"	9
	8' - 0.00"	8
		8
	12' - 6.00"	7
	13' - 6.00"	6
12' - 0.00"		5
7' - 0.00"		4-B
5' - 0.00"		4-A
5' - 0.00"		3
1' - 2.00"		2
0' - 0.00"		1

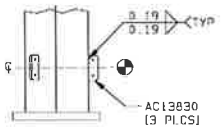
2' - 6.00"

NOTE:
REFER TO W-52 FOR COMPLETE PENETRATION BASE PLATE TO SHAFT WELD.



1 BASE PLATE

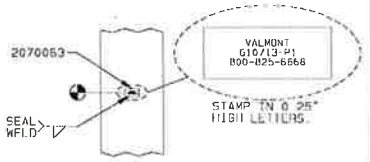
ORIENTATION
30°, 150°, 270°



IF MULTI-SIDED SHAFT CENTER PLATES ON FLATS.

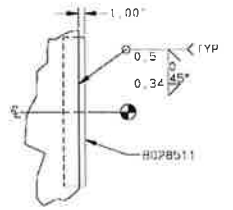
2 GROUNDING PLATES

ORIENTATION
310°



3 ID PLATE

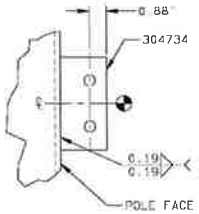
ORIENTATION
A 0°, 180° B 90°, 270°



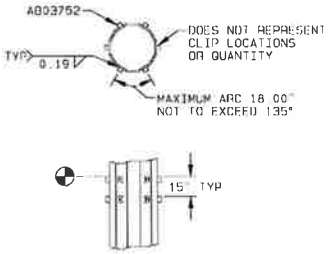
NOTE: LOCATE COVER MOUNT CLIPS OUTSIDE OF SHAFT.

4 HANDHOLE RIM 9X24

ORIENTATION
310°



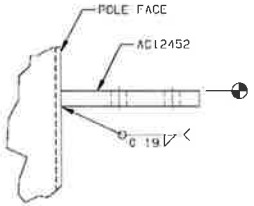
5 CABLE STOP



NOTE: REFER TO M-5 AND M-67.

6 WORKING BAND

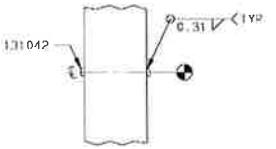
ORIENTATION
310°



LOCATION 12" VERTICALLY TO AVOID INTERFERENCE

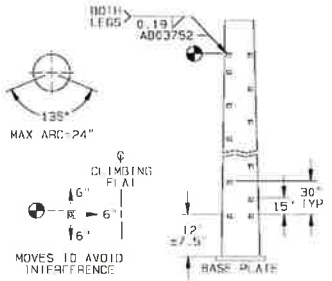
7 CABLE GUIDE

ORIENTATION
90°, 270°



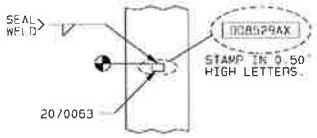
8 JACKING NUT

ORIENTATION
310°



9 STEP LUG

ORIENTATION
310°



THE LAST CHARACTER, "X", IS A SEQUENTIAL NUMERAL ASSIGNED BY MANUFACTURING.

10 IDENT TAG

BILL OF MATERIAL (SHIP SEG-0)		
VALMONT PART NO	DESCRIPTION	QTY PER ASSY
BD45131	SHAFT	1
J498060	BASE PLATE	1
BD45132	BACK-UP RING	2
AC13830	GROUND PLATE	3
BD28511	HANDHOLE RIM	4
304734	CABLE STOP	1
A003752	STEP LUG	44
AC12452	CABLE GUIDE	1
131042	1.00" NUT	4
AC16740	90° BRANCH HEXNUT	9
2070063	IDENT TAG	2

STATE OF CONNECTICUT
NATHAN A. ROSS
34713
LICENSED PROFESSIONAL ENGINEER

NOTES:

1. LOCATE SEAM WELD AT 40°. ALL MEASUREMENTS ARE CLOCKWISE WHEN VIEWED FROM THE SMALL END.
2. ALL CROSS SECTION VIEWS AND ORIENTATION REFERENCES ARE FROM SMALL END OF THE TUBE.
3. ALIGN WITH FLATS AT SMALL END UNLESS OTHERWISE NOTED.
4. REFER TO BRANCH MOUNT LAYOUT SHEET FOR ADDITIONAL ELEVATIONS AND ORIENTATIONS
5. NO BRANCH RECEIVERS SHALL BE OMITTED FROM THE DESIGN DURING THE MANUFACTURING PROCESS.

LOCATION SYMBOL KEY	SHAFT INFO (MEASURED ACROSS FLATS)						
LOCATION REFERENCE	SHAPE	LENGTH	BASE OD	TOP OD	TAPER	THK	ASTM
	18-SIDED	48'-9.00"	63.50"	46.64"	0.346	0.563"	A572

DUPLICATE DRAWING DISTRIBUTION

TMF_SEC_ASSY_64"BD_47"TD_48'-9"LG_

DWG SIZE D CLASS CODE (1) 1 CLASS NO (3) 400

REV ID	DATE	REV CHK BY	REVISION DESCRIPTION

DRAWN	EACH	DATE	SCALE
J02	CR71	05/22/24	NONE
P.A. DIR		SHOP DWG	

OTHER SPECIFICATIONS
F-1,M-1,W-24

MATERIAL	THICKNESS	WEIGHT
S-22		19,103#

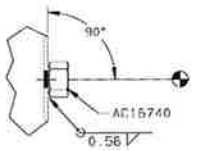
CUSTOMER P.O.	CUSTOMER	DESCRIPTION	DWG NO.
610713	THE TOWERS, LLC	SECTION ASSEMBLY	GV6529A

valmont

2 63" DIA HOLE BURNED AT (DEG) 70, 110, 250

0 06" X 45° CHAMFER ON BOTH SIDES OF UPPER HALF OF HOLES AND TOP OF FLATS AT (DEG) 70, 90, 110, 250

11 HANGING HOLES



1-1/4" BRANCH MOUNT HEX-NUT

BEFORE WELDING THIS PART TO THE POLE, CUT A 2 0" VENT HOLE IN SHAFT WALL AND CENTER OVER HOLE. PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6" HORIZONTALLY AND 3" VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT. DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

12 HEX-NUT WELD DETAIL

valmont

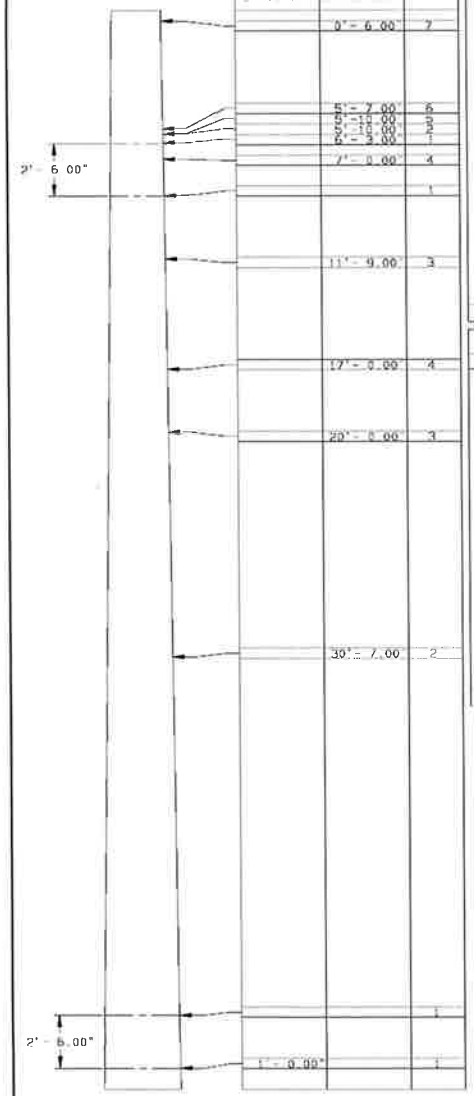
ORDER NO	CUSTOMER	DESCRIPTION	DWG NO
610713	THE TOWERS, LLC	SECTION ASSEMBLY	GV8529A

BRANCH MOUNT LAYOUT

FROM SMALL END	ORIENTATIONS																	MOUNT
	10°	30°	50°	70°	90°	110°	130°	150°	170°	190°	210°	230°	250°	270°	290°	310°	330°	350°	
7'-3"															AC16740				90
7'-9"		AC16740						AC16740											90
8'-3"											AC16740								90
8'-9"				AC16740													AC16740		90
9'-3"							AC16740												90
9'-9"	AC16740												AC16740						90

valmont

ORDER NO.	CUSTOMER	DESCRIPTION	DRG NO.
6:07:13	THE TOWERS LLC	SECTION ASSEMBLY	GV8529A

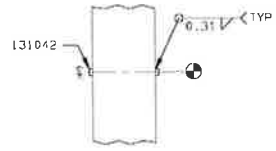


NOTES:

1. LOCATE SEAM WELD AT 40°. ALL MEASUREMENTS ARE CLOCKWISE WHEN VIEWED FROM THE SMALL END.
2. ALL CROSS SECTION VIEWS AND ORIENTATION REFERENCES ARE FROM SMALL END OF TIE TUBE.
3. ALIGN WITH FLATS AT SMALL END UNLESS OTHERWISE NOTED.
4. REFER TO BRANCH MOUNT LAYOUT SHEET FOR ADDITIONAL ELEVATIONS AND ORIENTATIONS
5. NO BRANCH RECEIVERS SHALL BE OMITTED FROM THE DESIGN DURING THE MANUFACTURING PROCESS.

ORIENTATION

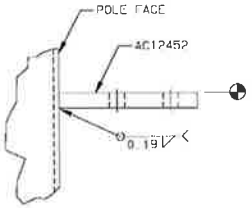
90°, 270°



1 | JACKING NUT

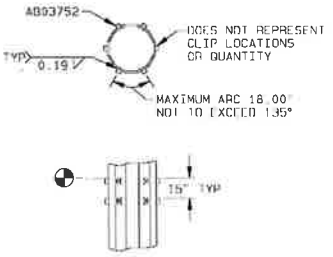
ORIENTATION

310°



LOCATION ±2" VERTICALLY TO AVOID INTERFERENCE

2 | CABLE GUIDE

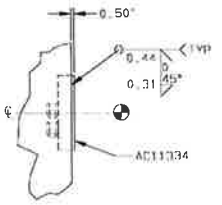


NOTE: REFER TO M-5 AND M-67.

3 | WORKING BAND

ORIENTATION

0°, 120°, 240°

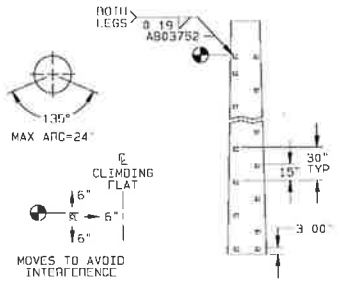


NOTE: LOCATE HOOKS TOWARD LARGE END

4 | HANDHOLE RIM 6X12

ORIENTATION

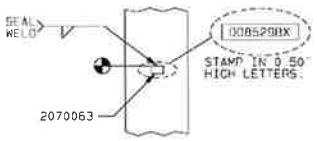
310°



5 | STEP LUG

ORIENTATION

310°



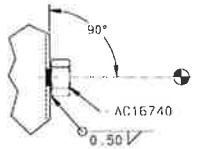
THE LAST CHARACTER, "X", IS A SEQUENTIAL NUMERAL ASSIGNED BY MANUFACTURING.

6 | IDENT TAG

2.63" DIA HOLE BURNED AT (DEG): 70, 110, 250

0.06" X 45° CHAMFER ON BOTH SIDES OF UPPER HALF OF HOLES AND TOP OF FLATS AT (DEG): 70, 90, 110, 250

7 | HANGING HOLES



1 1/4" BRANCH MOUNT HEX-NUT

BEFORE WELDING THIS PART TO THE POLE, CUT A 2.0" VENT HOLE IN SHAFT WALL AND CENTER OVER HOLE. PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6" HORIZONTALLY AND 3" VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT. DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

8 | HEX-NUT WELD DETAIL

LOCATION SYMBOL KEY	SHAFT INFO (MEASURED ACROSS FLATS)						
LOCATION REFERENCE	SHAPE	LENGTH	BASE OD	TOP OD	TAPER	THK	ASTM
	18-SIDED	51'-1.00"	50.00"	32.33"	0.346	0.500"	A572

STATE OF CONNECTICUT
NATHAN A ROSS
34713
LICENSED PROFESSIONAL ENGINEER

BILL OF MATERIAL
(SHIP SEG-01)

VALMONT PART NO	DESCRIPTION	QTY PER ASSY
BD45133	SHAFT	1
AC16740	90° BRANCH HEXNUT	132
131042	1.00" NUT	8
AC12452	CABLE GUIDE	2
AB03752	STEP LUG	60
AC11334	HANDHOLE RIM	6
2070063	IDENT TAG	1

DUPLICATE DRAWING DISTRIBUTION

TMF SEC ASSY 50"BD 32"TD 51'-1"LG

DWG SIZE D | CLASS CODE (1) 1 | CLASS NO (3) 400

REV ID	DATE	REV CHK BY	REVISION DESCRIPTION

DRAWN BY: JO2 | ENGR: CR71 | DATE: 05/22/24 | SCALE: NONE
P.A. DW | SHOP DW
OTHER SPECIFICATIONS: F-1,M-1,W-24
MATERIAL: S-22 | THICKNESS | WEIGHT: 11,602#

valmont

ORDER NO. 610713 | CUSTOMER: THE TOWERS, LLC | DESCRIPTION: SECTION ASSEMBLY | DWG NO. GV85298

BRANCH MOUNT LAYOUT

FROM SMALL END	ORIENTATIONS																		MOUNT
	10°	30°	50°	70°	90°	110°	130°	150°	170°	190°	210°	230°	250°	270°	290°	310°	330°	350°	
5'-6"	AC16740						AC16740												90
6'-0"									AC16740										90
6'-6"					AC16740														90
7'-0"											AC16740								90
7'-6"			AC16740																90
8'-0"														AC16740					90
8'-6"										AC16740									90
9'-0"						AC16740												AC16740	90
9'-6"															AC16740				90
10'-0"		AC16740						AC16740											90
10'-6"												AC16740							90
11'-0"				AC16740													AC16740		90
11'-6"							AC16740												90
12'-0"	AC16740												AC16740						90
12'-6"									AC16740										90
13'-0"						AC16740													90
13'-6"												AC16740							90
14'-0"			AC16740					AC16740						AC16740					90
14'-6"										AC16740									90
15'-0"					AC16740													AC16740	90
15'-6"		AC16740																	90
16'-0"															AC16740				90
16'-6"											AC16740								90
17'-0"				AC16740															90
17'-6"																	AC16740		90
18'-0"	AC16740						AC16740						AC16740						90
18'-6"									AC16740						AC16740				90
19'-0"						AC16740													90
19'-6"												AC16740							90
20'-0"			AC16740											AC16740					90
20'-6"										AC16740									90
21'-0"	AC16740				AC16740								AC16740						90
21'-6"					AC16740													AC16740	90
22'-0"															AC16740				90
22'-6"		AC16740						AC16740											90
23'-0"											AC16740								90
23'-6"				AC16740													AC16740		90
24'-6"							AC16740												90
25'-0"									AC16740										90
25'-6"						AC16740													90
26'-0"												AC16740							90
26'-6"			AC16740											AC16740					90
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27'-6"					AC16740								AC16740					AC16740	90
28'-0"															AC16740				90
28'-6"		AC16740						AC16740											90
29'-0"											AC16740								90
29'-6"				AC16740													AC16740		90
30'-0"							AC16740												90
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31'-0"									AC16740										90
31'-6"						AC16740													90
32'-0"												AC16740							90
32'-6"			AC16740											AC16740					90
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33'-6"					AC16740								AC16740					AC16740	90
34'-0"	AC16740														AC16740				90
34'-6"																			90
35'-0"		AC16740						AC16740											90
35'-6"											AC16740								90
36'-0"				AC16740													AC16740		90
36'-6"							AC16740												90
37'-0"									AC16740										90
37'-6"						AC16740													90
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38'-6"			AC16740											AC16740					90
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39'-6"					AC16740								AC16740					AC16740	90
40'-0"															AC16740				90
40'-6"		AC16740						AC16740											90
41'-0"											AC16740								90
41'-6"				AC16740													AC16740		90
42'-0"							AC16740												90
42'-6"	AC16740												AC16740						90
43'-0"									AC16740										90
43'-6"						AC16740													90
44'-0"												AC16740							90
44'-6"			AC16740											AC16740					90
45'-0"										AC16740									90
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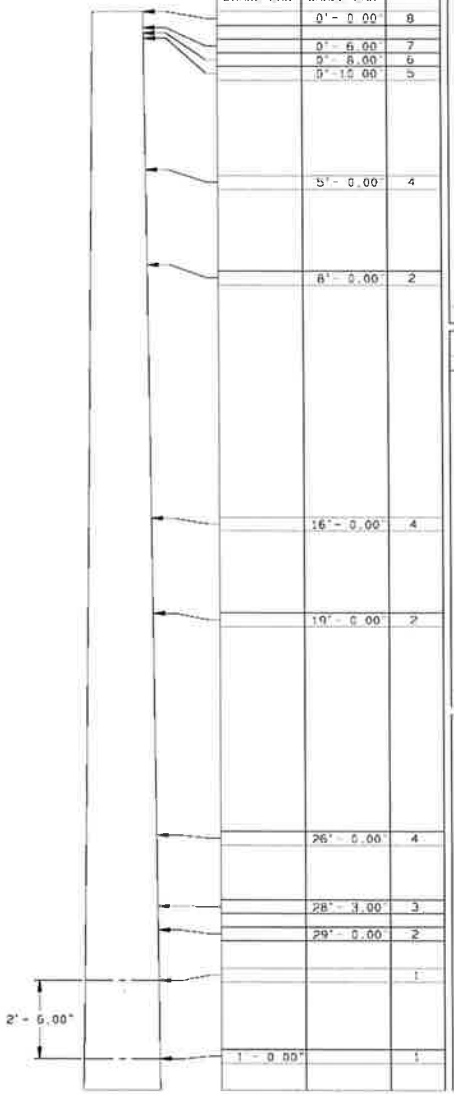
46'-0"															AC16740				90
46'-6"		AC16740						AC16740											90
47'-0"											AC16740								90
47'-6"				AC16740													AC16740		90
48'-0"							AC16740												90
48'-6"	AC16740												AC16740						90
49'-0"									AC16740										90
49'-6"						AC16740													90
50'-0"												AC16740							90
50'-6"			AC16740											AC16740					90
51'-0"										AC16740									90
51'-6"					AC16740													AC16740	90

valmont

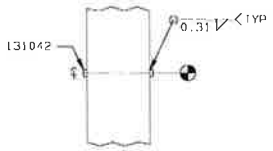
ORDER NO.	DESIGNED	DESCRIPTION	DWG NO.
616713	THE DREAM, LLC	SECTION ASSEMBLY	GV852P3



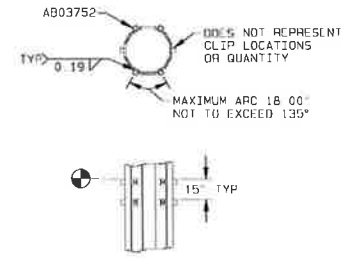
LOCATION DIMENSION		
FROM LARGE END	FROM SMALL END	DETAIL
	0'-0.00"	8
	0'-6.00"	7
	0'-8.00"	6
	0'-10.00"	5
	5'-0.00"	4
	8'-0.00"	2
	16'-0.00"	4
	19'-0.00"	2
	26'-0.00"	4
	28'-3.00"	3
	29'-0.00"	2
		1
1'-0.00"		1

ORIENTATION

90°, 270°



1 JACKING NUT

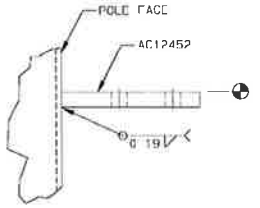


NOTE: REFER TO M-5 AND M-67.

2 WORKING BAND

ORIENTATION

310°

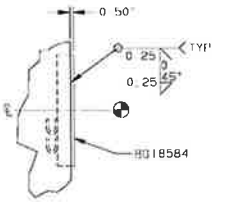


LOCATION 12' VERTICALLY TO AVOID INTERFERENCE

3 CABLE GUIDE

ORIENTATION

0°, 120°, 240°

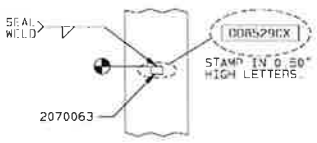


NOTE: LOCATE HOOKS TOWARD LARGE END

4 HANDHOLE RIM 6X18

ORIENTATION

310°

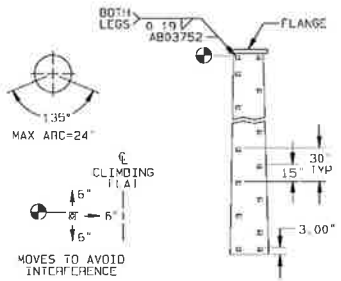


THE LAST CHARACTER, "X", IS A SEQUENTIAL NUMERAL ASSIGNED BY MANUFACTURING

5 IDENT TAG

ORIENTATION

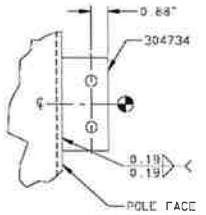
310°



6 STEP LUG

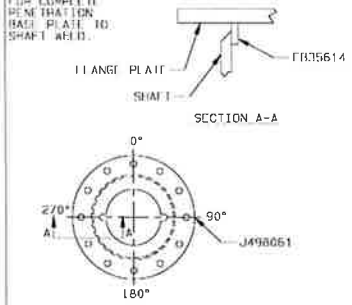
ORIENTATION

310°



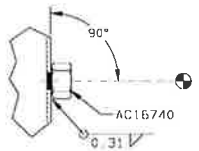
7 CABLE STOP

NOTE:
REFER TO W-52 FOR COMPLETE PENETRATION BACK PLATE TO SHAFT WELD.



NOTE: ALIGN WITH FLATS AT LARGE END.

8 FLANGE PLATE

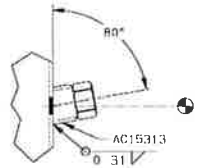


1-1/4" BRANCH MOUNT HEX-NUT

BEFORE WELDING THIS PART TO THE POLE, CUT A 2.0" VENT HOLE IN SHAFT WALL AND CENTER OVER HOLE. PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6° HORIZONTALLY AND 3° VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT. DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

9 HEX-NUT WELD DETAIL

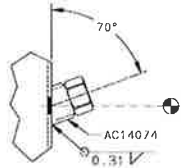


80° BRANCH MOUNT

BEFORE WELDING THIS PART TO THE POLE, CUT A 2.0" VENT HOLE IN SHAFT WALL AND CENTER OVER HOLE. PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6° HORIZONTALLY AND 3° VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT. DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

10 80° BRANCH MOUNT



70° BRANCH MOUNT

BEFORE WELDING THIS PART TO THE POLE, CUT A 2.0" VENT HOLE IN SHAFT WALL AND CENTER OVER HOLE. PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6° HORIZONTALLY AND 3° VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT. DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

11 70° BRANCH MOUNT

BILL OF MATERIAL
(SHIP SCD=0)

VALMONT PART NO	DESCRIPTION	QTY PER ASSY
BD45134	SHAFT	1
AC16740	90° BRANCH HEXNUT	90
131042	1.00" NUT	4
AB03752	STEP LUG	57
AC12452	CABLE GUIDE	1
RD18584	HANDHOLE RIM	9
AC15313	80° BRANCH MOUNT	3
AC15312	70° BRANCH MOUNT	4
AC15311	60° BRANCH MOUNT	5
2070063	IDENT TAG	1
304734	CABLE STOP	1
AC15310	50° BRANCH MOUNT	2
J498061	FLANGE PLATE	1
FB35614	BACK-UP RING	2

NOTES:

1. LOCATE SEAM WELD AT 40°. ALL MEASUREMENTS ARE CLOCKWISE WHEN VIEWED FROM THE SMALL END.
2. ALL CROSS SECTION VIEWS AND ORIENTATION REFERENCES ARE FROM SMALL END OF THE TUBE.
3. ALIGN WITH FLATS AT LARGE END UNLESS OTHERWISE NOTED.
4. REFER TO BRANCH MOUNT LAYOUT SHEET FOR ADDITIONAL ELEVATIONS AND ORIENTATIONS
5. NO BRANCH RECEIVERS SHALL BE OMITTED FROM THE DESIGN DURING THE MANUFACTURING PROCESS.

LOCATION SYMBOL KEY	SHAFT INFO (MEASURED ACROSS FLATS)						
LOCATION REFERENCE	SHAPE	LENGTH	BASE OD	TOP OD	TAPER	THK	ASTM
	18-SIDED	33'-11.25"	34.71"	22.97"	0.346	0.313"	A572

DUPLICATE DRAWING DISTRIBUTION

TMF SEC ASSY 35"BD 23"TD 34'-1"LG

DWG SIZE D CLASS CODE (1) 1 CLASS NO (3) 400

DRAWN	FACP	DATE	SCALE
J02	CR71	05/22/24	NONE
P.A. DR		CHK DR	

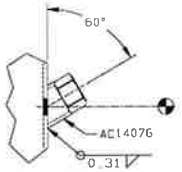
OTHER SPECIFICATIONS
F-1,M-1,M-24

MATERIAL	WELDING	WEIGHT
S-22		3,527#

REV ID	DATE	REV BY	CHK BY	REVISION DESCRIPTION

ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
610713	THE TOWERS, LLC	SECTION ASSEMBLY	BV8529C

valmont

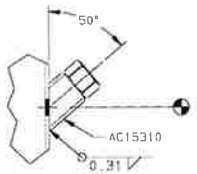


60° BRANCH MOUNT

BEFORE WELDING THIS PART TO THE POLE,
CUT A 2.0" VENT HOLE IN SHAFT WALL
AND CENTER OVER HOLE.
PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6° HORIZONTALLY AND 3° VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT.
DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

12 60° BRANCH MOUNT



50° BRANCH MOUNT

BEFORE WELDING THIS PART TO THE POLE,
CUT A 2.0' VENT HOLE IN SHAFT WALL
AND CENTER OVER HOLE.
PROTECT ALL THREADS FROM GALVANIZING

BRANCH MOUNTS MAY BE REORIENTED UP TO 6° HORIZONTALLY AND 3° VERTICALLY TO AVOID INTERFERENCE OR SPLICE CLEARANCE. BRANCHES DO NOT NEED TO BE CENTERED ON A FLAT.
DO NOT INSTALL BRANCH MOUNTS ON THE CLIMBING FACE.

13 50° BRANCH MOUNT

valmont

DRWG NO.	CUSTOMER	DESCRIPTION	DWG NO.
610713	THE TOWERS, LLC	SECTION ASSEMBLY	GV85290

BRANCH MOUNT LAYOUT

FROM SMALL END	ORIENTATIONS																		MOUNT
	10°	30°	50°	70°	90°	110°	130°	150°	170°	190°	210°	230°	250°	270°	290°	310°	330°	350°	
0'-6"			AC15312									AC15313							50
1'-0"								AC15311						AC15311					60
1'-6"					AC15311					AC15311								AC15311	60
2'-0"		AC15312																	70
2'-6"							AC15312						AC15312		AC15312				70
3'-0"				AC15313													AC15313		80
4'-0"											AC15313								80
5'-0"			AC16740												AC16740				90
5'-6"									AC16740										90
6'-0"						AC16740													90
6'-6"												AC16740							90
7'-0"	AC16740													AC16740					90
7'-6"										AC16740									90
8'-0"					AC16740														90
8'-6"																		AC16740	90
9'-0"		AC16740						AC16740						AC16740					90
9'-6"				AC16740							AC16740								90
10'-0"							AC16740										AC16740		90
11'-0"	AC16740												AC16740						90
11'-6"									AC16740										90
12'-0"						AC16740											AC16740		90
12'-6"												AC16740							90
13'-0"			AC16740							AC16740									90
13'-6"								AC16740						AC16740					90
14'-0"					AC16740													AC16740	90
14'-6"		AC16740																	90
15'-0"									AC16740						AC16740				90
15'-6"											AC16740								90
16'-0"				AC16740															90
16'-6"																	AC16740		90
17'-0"	AC16740						AC16740						AC16740						90
17'-6"			AC16740						AC16740										90
18'-0"						AC16740													90
18'-6"												AC16740							90
19'-0"			AC16740											AC16740					90
19'-6"										AC16740									90
20'-0"					AC16740													AC16740	90
20'-6"															AC16740				90
21'-0"		AC16740						AC16740											90
21'-6"											AC16740								90
22'-0"														AC16740			AC16740		90
22'-0"				AC16740															90
22'-6"							AC16740												90
23'-0"	AC16740												AC16740						90
23'-6"									AC16740										90
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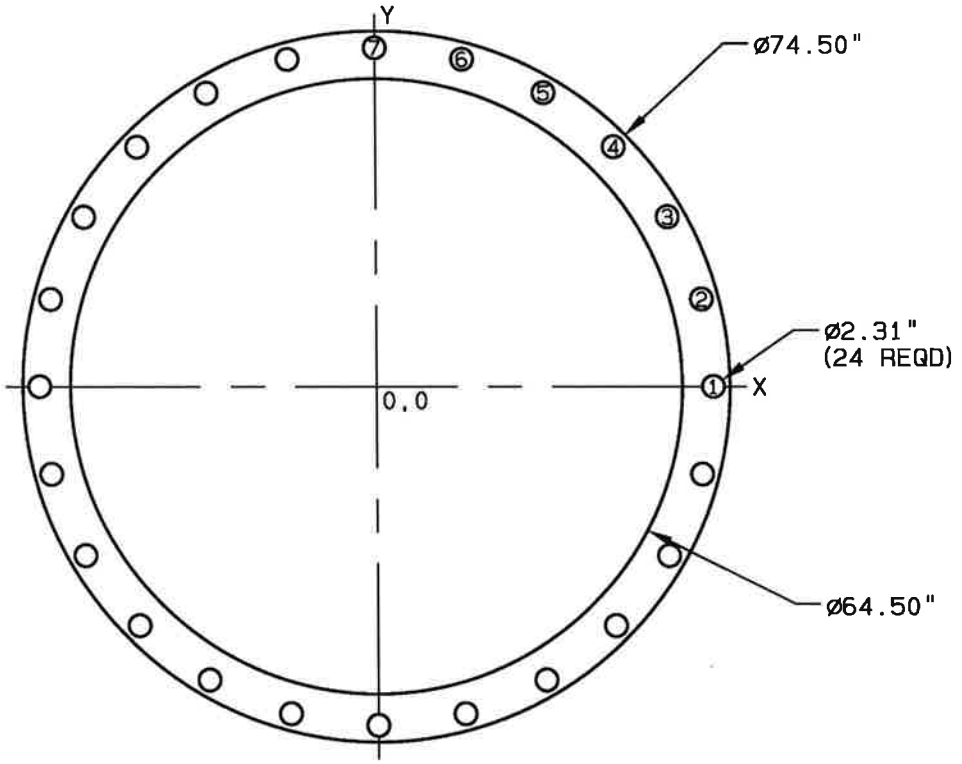
24'-6"						AC16740												AC16740	90
25'-0"			AC16740																90
25'-6"										AC16740									90
26'-0"					AC16740														90
26'-6"															AC16740				90
27'-0"		AC16740						AC16740					AC16740						90
27'-6"						AC16740					AC16740								90
28'-0"				AC16740													AC16740		90
28'-6"							AC16740												90
29'-0"	AC16740												AC16740						90
29'-6"									AC16740										90
30'-0"						AC16740													90
30'-6"												AC16740							90
31'-0"			AC16740											AC16740					90
31'-6"										AC16740									90
32'-0"					AC16740													AC16740	90
32'-6"															AC16740				90
33'-0"		AC16740						AC16740			AC16740								90
33'-6"																	AC16740		90
34'-0"				AC16740									AC16740						90

valmont

ORDER NO.	CUSTOMER	DESCRIPTION	DWG. NO.
610713	THE TOWERS, LLC	SECTION ASSEMBLY	GVB529C

HOLE COORDINATES (INCHES)		
HOLE NO	X-COORD	Y-COORD
1	35.50	0.00
2	34.29	9.19
3	30.74	17.75
4	25.10	25.10
5	17.75	30.74
6	9.19	34.29
7	0.00	35.50



NOTES:
1. BOLT CIRCLE DIAMETER = 71.00" (EQUALLY SPACED).

DUPLICATE DRAWING DISTRIBUTION

BCP9963503550

DWG SIZE B CLASS CODE (1) 4 CLASS NO. (3) 900

DRAWN	ENGR	DATE	SCALE
J02	CR71	05/22/24	CNC

P.A. CHK | SHOP CHK

OTHER SPECIFICATIONS
M-1

MATERIAL	THICKNESS	WEIGHT
S-70	0.500"	139#

valmont

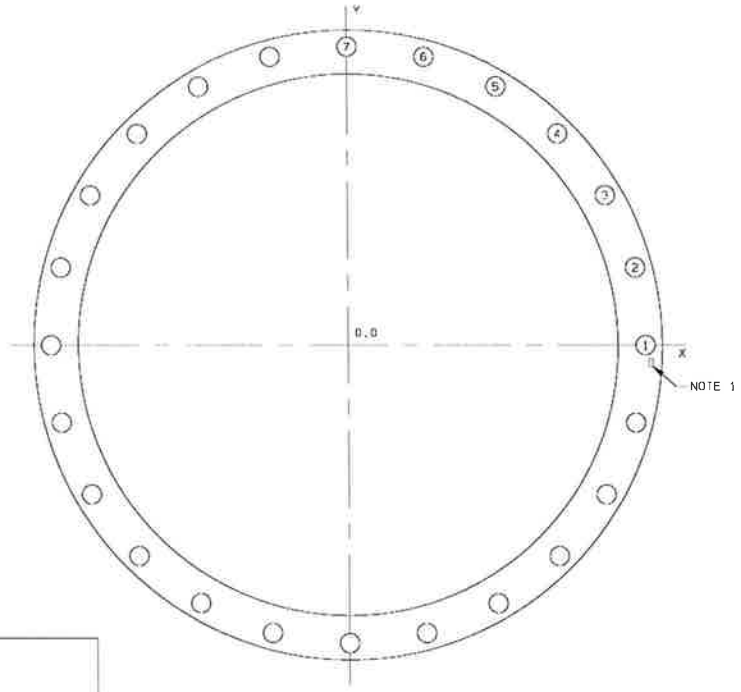
REV ID	DATE	REV BY	CHK BY	REVISION DESCRIPTION

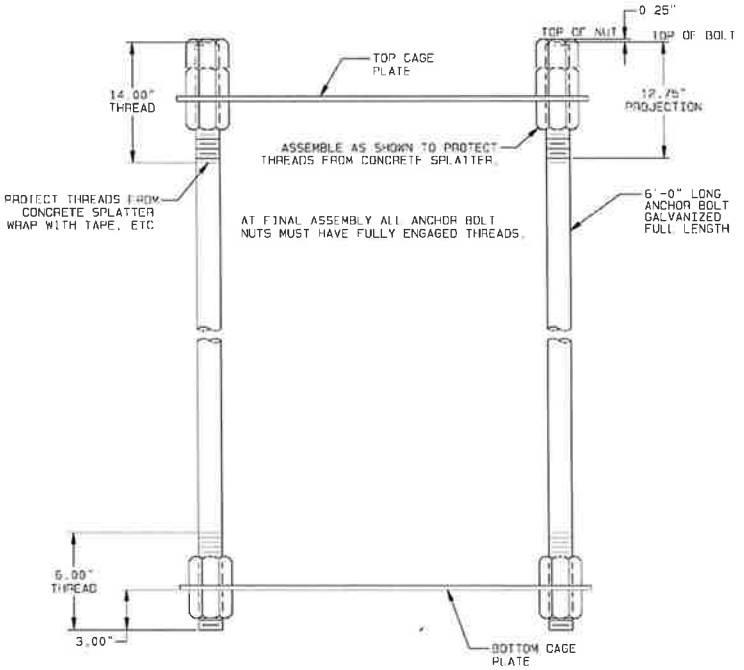
ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
610713	THE TOWERS, LLC	CAGE PLATE	BD45141

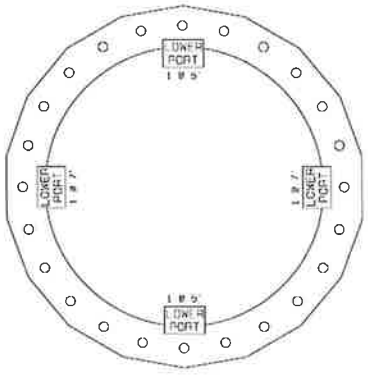
HOLE COORDINATES (INCHES)		
HOLE NUMBER	X-COORD	Y-COORD
1	35.50	0.00
2	34.29	9.19
3	30.74	17.75
4	25.10	25.10
5	17.75	30.74
6	9.19	34.29
7	0.00	35.50

HOLE & SLOT SIZES (INCHES)
TEMPLATE = Ø2.31

BOLT CIRCLE (INCHES)
71.00







THE LOWER HANDHOLE ORIENTATIONS ARE SHOWN ABOVE TO AID IN THE INSTALLATION PROCESS

ORIENTATION INDEX

NOTES

1. STAMP OR ENGRAVE THE DRAWING NUMBER ON 1620194 IN 0.50" CHARACTERS. SEAL WELD.
2. OUTSIDE DIAMETER OF ALL CAGE PLATES = 74.50".
3. INSIDE DIAMETER OF ALL CAGE PLATES = 64.50"
4. CAGE PLATES - 0.500" THK; A36 MATERIAL.
5. ANCHOR BOLTS - 18J BAR; A615, GRADE 75 MATERIAL
6. SHIPPED LOOSE, ASSEMBLE IN THE FIELD

INSTALLATION GUIDELINES

1. UPON ARRIVAL AT THE JOB SITE, THE TEMPLATES AND ANCHOR BOLTS SHOULD BE CHECKED FOR BENDING AND ANY DAMAGE THAT MIGHT DISTURB THE BOLT PATTERN. THE ANCHOR BOLT THREADS SHOULD BE CHECKED FOR DAMAGE AND WITH A NUT TO ENSURE THAT THEY CAN BE TURNED UP AND DOWN THE FULL LENGTH OF THE ANCHOR BOLT THREADS.
2. THE BOLT CIRCLE AND ANCHOR BOLT DIMENSIONS MUST BE CHECKED TO VERIFY THEY MATCH THE FOUNDATION DESIGN AND THE ANCHOR BOLT CAGE ASSEMBLY DRAWING PRIOR TO INSTALLATION.
3. THE ORIENTATION OF THE ANCHOR BOLTS, IN RELATION TO THE DESIRED ANTENNA AND BASE PORT AZIMUTHS, MUST BE CHECKED CAREFULLY USING DATA FROM THE VALMONT DRAWINGS AND THE OWNER'S PLANS.
4. CARE MUST BE TAKEN TO PLACE THE ANCHOR BOLTS VERTICALLY AND TO NOT DISTURB THEIR POSITION WHILE POURING CONCRETE.
5. IF WASHERS ARE INCLUDED IN THE BILL OF MATERIAL, USE ONE ABOVE AND ONE BELOW THE BASE PLATE ON EACH ANCHOR BOLT.

142.0' POLE, SITE: US-CT-5055 - WILTON SOUTH CT, CT

BILL OF MATERIAL (SHIP SEQ#1)

VALMONT PART NO	DESCRIPTION	QTY PER ASSY
3045141	CAGE PLATE	2
AC12372	2.25" BOLT	24
343036	2.25" NUT A563	120
141238	2.25" WASHER F436	48
1620194	IDENT TAG	1

DUPLICATE DRAWING DISTRIBUTION

TCACCAOYONAC12372E

DWG SIZE D CLASS CODE (1) 4 CLASS NO. (3) 800

DRAWN	ENGR	DATE	SCALE
JO2	CR71	05/22/24	NONE

P.A. CHK | SHOP CHK

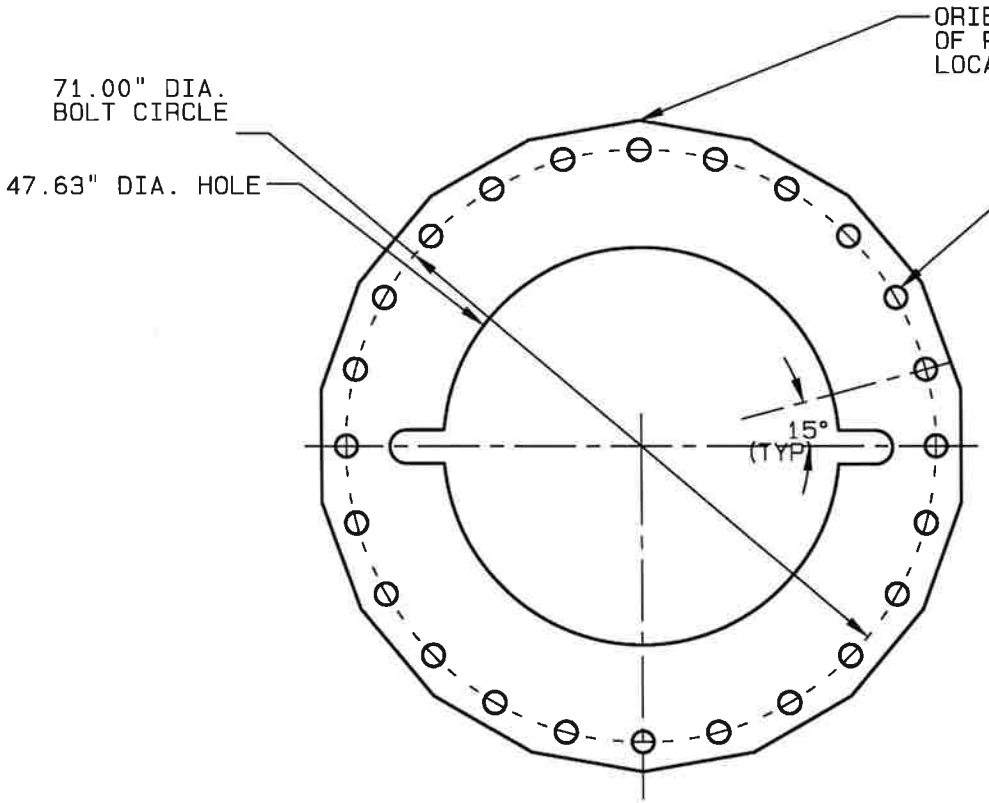
OTHER SPECIFICATIONS: H-1

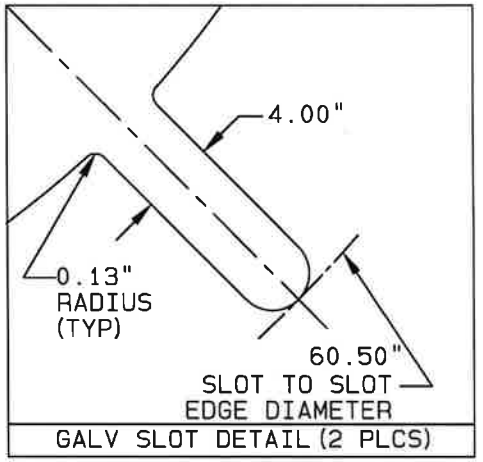
MATERIAL	THICKNESS	WEIGHT
		2,988#

REV NO	DATE	REV BY	CHK BY	REVISION DESCRIPTION

valmont

ORDER NO. 610713 | CUSTOMER THE TOWERS, LLC | DESCRIPTION ANCHOR BOLT CAGE ASSEMBLY | DWG NO. CC17841





GALV SLOT DETAIL (2 PLCS)

PERIMETER DIMENSIONS:

DIST. ACROSS FLATS	=	77.00"
CORNER RADIUS	=	0.00"
NUMBER OF SIDES	=	18
FLAT LENGTH	=	13.58"

REV.	DATE	REVISION DESCRIPTION

MATERIAL THICKNESS: 3.500"

SPECIFICATIONS

MATERIAL S56
FINISH N/A
WELD N/A
TOLERANCE M30

DUPLICATE DRAWING DISTRIBUTION
☐ 04 ☐ 37 ☐ 38 ☐ 40

DATE 05/22/24 | DRAWN J02 | CHECKED | SCALE CNC

PROD.CODE (2) 04 (28) | S.CODE (1) (27) | ELS (7) (02) | STD.IND. (1) (15) | UOM (2) PC (16) | SHIP FLAG (1) (29) | CLASS CODE (1) (35) | CLASS NO (3) (36)

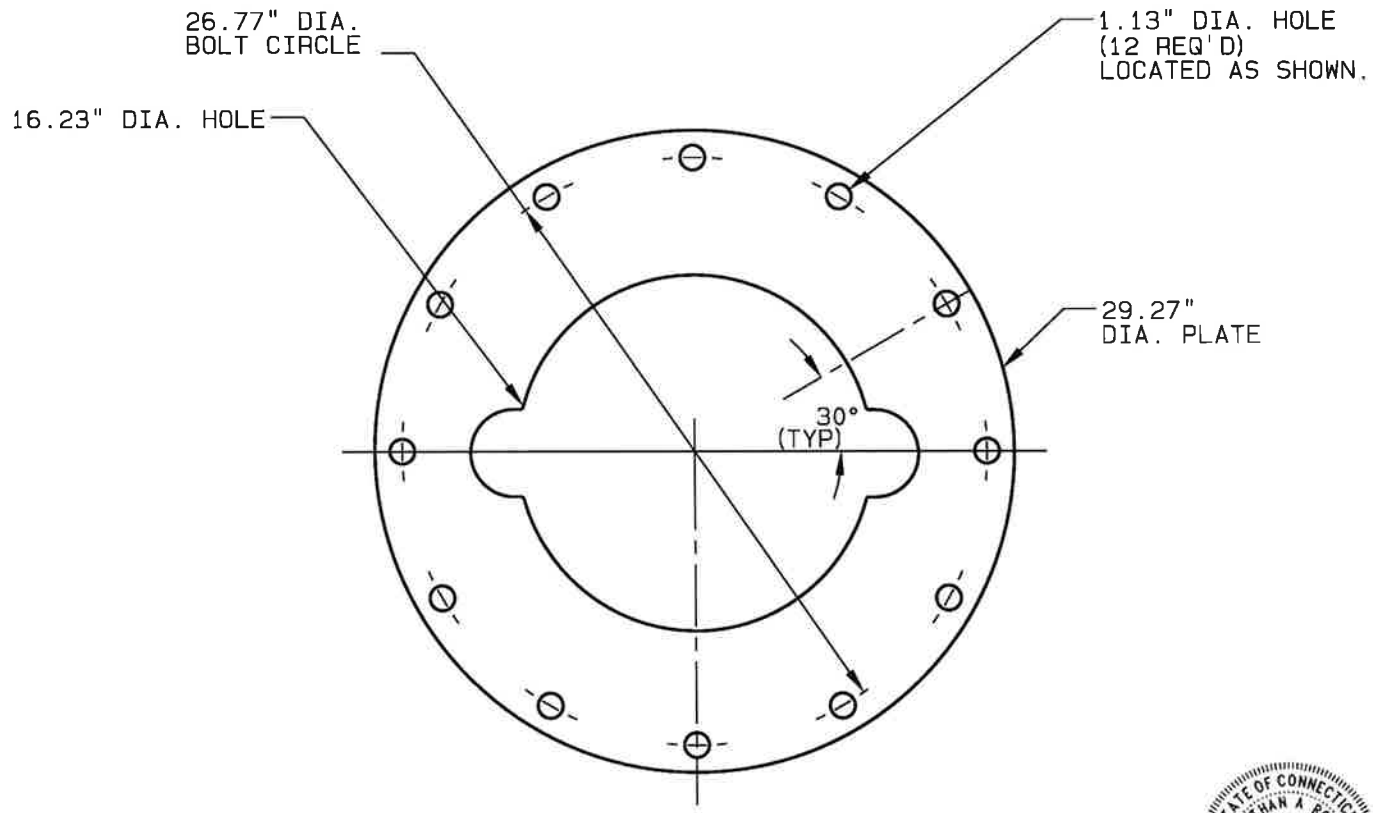
BPLR4763C00071024H26335005 6M18077 0D

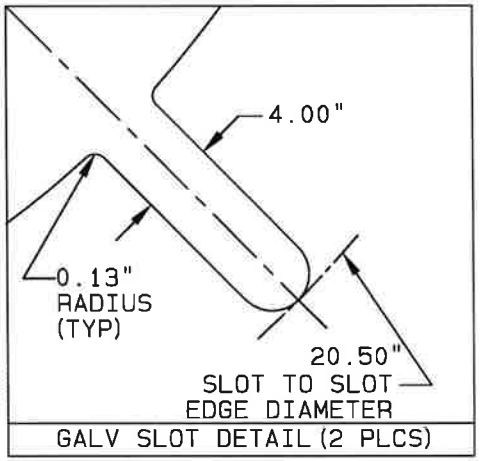
DESCRIPTION (40) FIELD 37

DWG.SIZE (1) B (66) | PURC.L.T. (5) (87) | CONTROL (1) (102) | MATL.COST (5.4) (07) | PL.CODE (1) (41) | WEIGHT (7) 2766 (104)

valmont

PART NO. J498060





GALV SLOT DETAIL (2 PLCS)

STATE OF CONNECTICUT NATHAN A ROSS 34713 LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION DESCRIPTION

MATERIAL THICKNESS: 1.500"

SPECIFICATIONS
MATERIAL S56
FINISH F0
WELD N/A
TOLERANCE M30,M23

DUPLICATE DRAWING DISTRIBUTION
☐ 04 ☐ 37 ☐ 38 ☐ 40

DATE	DRAWN	CHECKED	SCALE
05/22/24	J02		CNC

PROD.CODE (2) 04 (28) S.CODE (1) (27) ELS (7) (02) STD.IND. (1) (15) UOM (2) PC (16) SHIP FLAG (1) (29) CLASS CODE (1) (35) CLASS NO (3) (36)

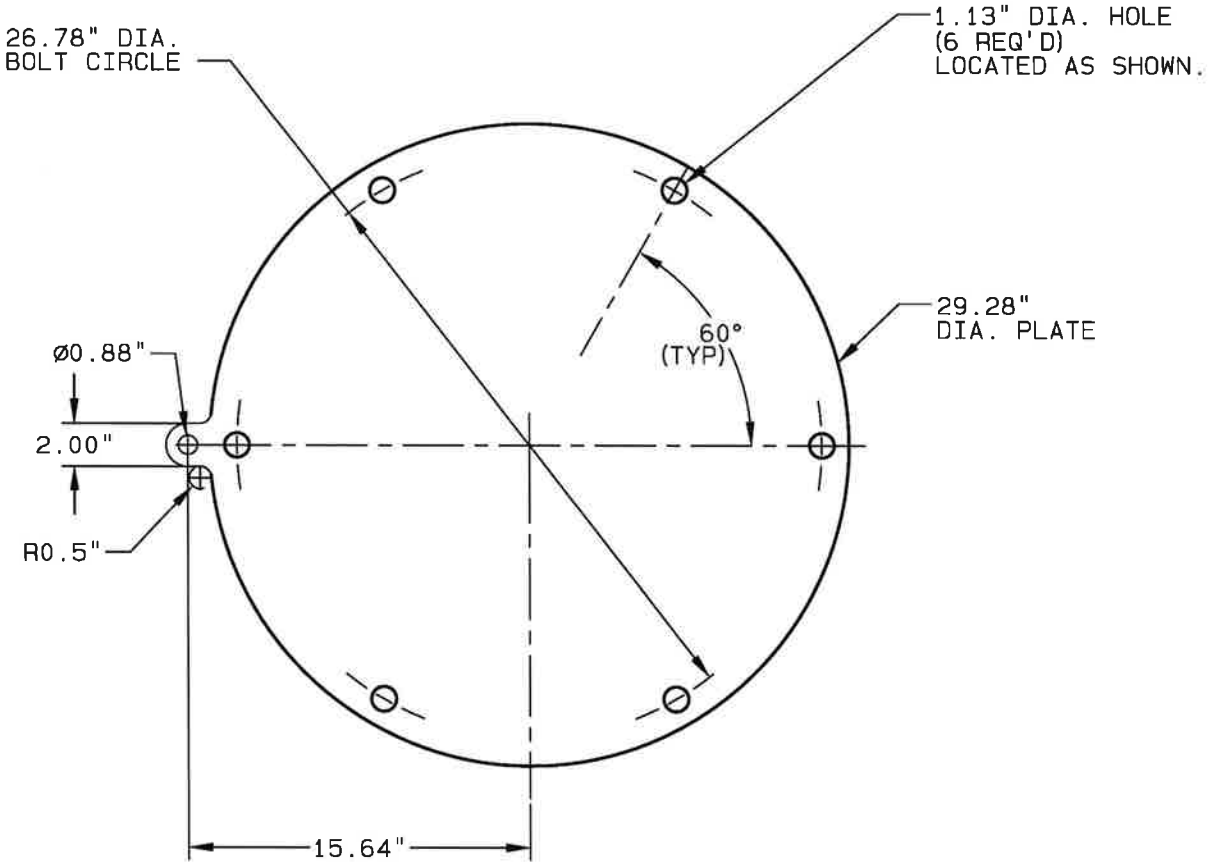
FPL162326771113WR292715050S056

DESCRIPTION (40) FIELD 37

DWG.SIZE (1) B (66) PURC.L.T. (5) (87) CONTROL (1) (102) MATL.COST (5.4) (07) PL.CODE (1) (41) WEIGHT (7) 195 (104)

valmont

PART NO. J498061



STATE OF CONNECTICUT
NATHAN A. ROSS
34713
LICENSED
PROFESSIONAL ENGINEER

REV.	DATE	REVISION DESCRIPTION

MATERIAL THICKNESS: 0.375"

SPECIFICATIONS
MATERIAL S115
FINISH F1
WELD N/A
TOLERANCE M30,M23

DUPLICATE DRAWING DISTRIBUTION
☐ 04 ☐ 37 ☐ 38 ☐ 40

DATE	DRAWN	CHECKED	SCALE
05/22/24	J0715372		CNC

PROD.CODE (2) 04 (28) S.CODE (1) (27) ELS (7) (02) STD.IND. (1) (15) UOM (2) PC (16) SHIP FLAG (1) (29) CLASS CODE (1) (35) CLASS NO (3) (36)

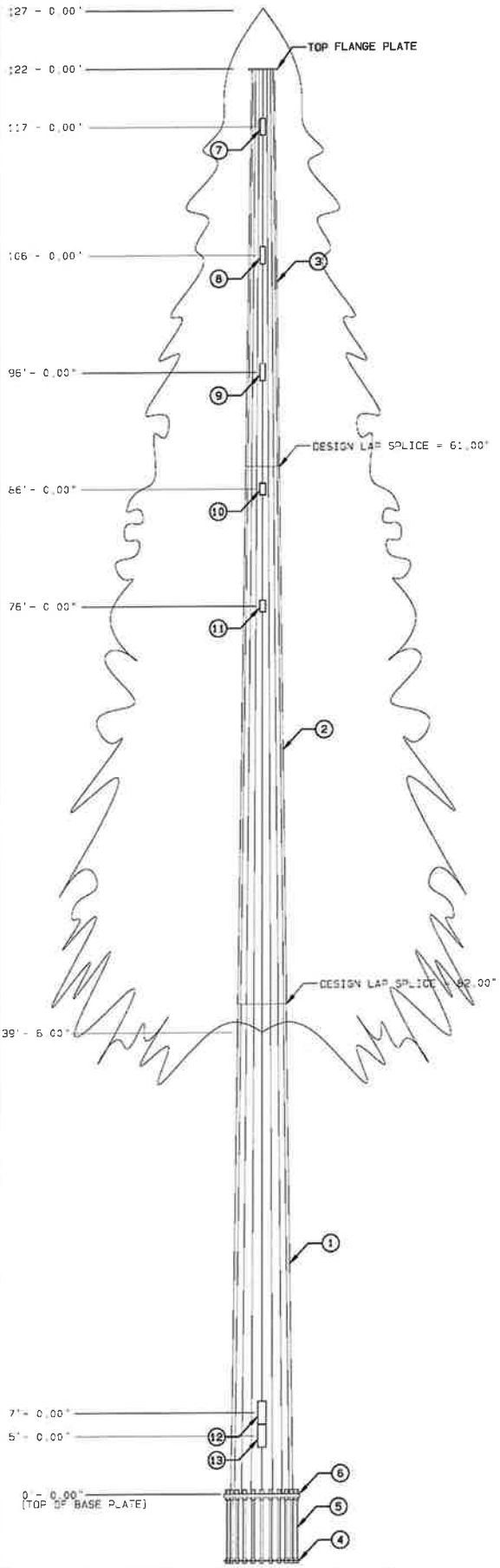
FPL0000267811 36R292803 8S115

DESCRIPTION (40) FIELD 37

DWG.SIZE (1) B (66) PURC.L.T. (5) (87) CONTROL (1) (102) MATL.COST (5.4) (07) PL.CODE (1) (41) WEIGHT (7) 73 (104)

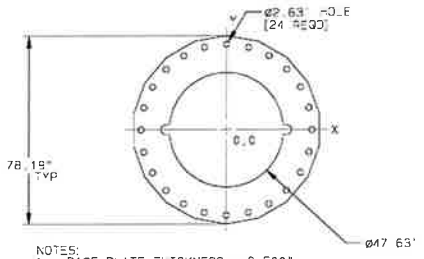
valmont

PART NO. J498062



ITEM ID	NO REQD	FEATURES	UNIT WEIGHT (LBS)	WEIGHT (LBS)
1	1	SECTION A VALMONT S-22 0.563" THK (A572 GR65)	16,078	16,078
2	1	SECTION B VALMONT S-22 0.500" THK (A572 GR65)	11,161	11,161
3	1	SECTION C VALMONT S-22 0.313" THK (A572 GR65)	3,261	3,261
4	1	BOTTOM CASE PLATE	136	136
5	24	2.25" ANCHOR BOLT, LENGTH=6.00" A615 GR75	110	2,630
6	1	BASE PLATE VALMONT S-56 3.500" THK (A572 GR50)	2,786	2,786
	1	TOP CASE PLATE (REMOVE BEFORE SETTING POLE)	183	183
	3	GROUNDING LUG	2	6
	1	TOP FLANGE PLATE	187	187
		GALVANIZING	438	438
	88	STEP CLIP (VALMONT STANDARD)	1	22
7	3	HAND HOLE STD (5" x 18") @ 0°, 120°, 240°	18	54
8	3	HAND HOLE STD (5" x 18") @ 0°, 120°, 240°	18	54
9	3	HAND HOLE STD (5" x 18") @ 0°, 120°, 240°	18	54
10	3	HAND HOLE HVY (5" x 12") @ 0°, 120°, 240°	26	78
11	3	HAND HOLE HVY (5" x 12") @ 0°, 120°, 240°	26	76
12	2	HAND HOLE HVY (9" x 24") @ 90°, 270°	52	104
13	2	HAND HOLE HVY (9" x 24") @ 0°, 180°	52	104
	1	POLE CAP	27	27

HOLE COORDS (INCHES)	
X-COORD	Y-COORD
35.50	0.00
34.29	9.19
30.74	17.75
25.10	25.10
17.75	30.74
9.19	34.29
0.00	35.50



NOTES:
1. BASE PLATE THICKNESS = 3.500"
2. BASE PLATE ALLOWABLE STRESS (KSI) = 50
3. ANGLES ARE MEASURED CLOCKWISE FROM 0 DEGREES
4. BOLT CIRCLE DIAMETER = 71.00"
5. CAGE TEMPLATE DIAMETER = 72.50"

BASE PLATE / ANCHORAGE CHARACTERISTICS

NOTES:

1. FACTORED BASE REACTIONS
   MOMENT = 97,766 IN-KIPS
   SHEAR = 92,733 #
   VERTICAL = 78,206 #
2. GALVANIZED PER ASTM A-123.
3. DESIGN CRITERIA TIA-222-H
4. THIS STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING LOADING
   EXPOSURE CATEGORY = C
   TOPOGRAPHY CATEGORY = 1
   RISK CATEGORY = II
   SITE ELEVATION = 372 FT
   EARTHQUAKE SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS SS = 0.24
   EARTHQUAKE SPECTRAL RESPONSE ACCELERATION AT ONE SECOND S1 = 0.06
   EARTHQUAKE SITE CLASS = D
   WIND LOAD CASES ARE BASED ON 3 SECOND GUST AND 700 YEAR MRI
   A. CASE 1: WIND = 120 MPH WIND SPEED
   B. CASE 2: WIND = 50 MPH ICE AND WIND SPEED
      DESIGN ICE THICKNESS = 1.00 IN
   C. CASE 3: WIND = 60 MPH WIND SPEED
   D. CASE 4: SEISMIC
   E. CASE 5: SEISMIC
   F. EQUIPMENT:

DESCRIPTION	ABP MTG HT (FT)	ABP CENTROID HT (FT)	WITHOUT ICE EPA (FT**2)	WT (LBS)	WITH ICE EPA (FT**2)	WT (LBS)
1-42.000 SQ IN EPA	119.00	119.00	239.17	5833	475.33	11667
1-30.000 SQ IN EPA	108.00	108.00	170.83	4167	341.67	8333
1-30.000 SQ IN EPA	98.00	98.00	170.83	4167	341.67	8333
1-30.000 SQ IN EPA	88.00	88.00	170.83	4167	341.67	8333
1-5FT TOP BRANCH	122.00	124.50	2.25	33	4.50	66
3-4FT TOP BRANCH	122.00	124.00	5.40	78	10.80	156
2-8FT BRANCHES	98.00	99.00	7.20	100	14.40	200
1-5/8" X 10' LIGHTNING RODS	122.00	125.00	0.63	23	2.91	49
2-6' H.P MICROWAVE DISH (W/PM)	76.00	78.00	76.54	744	82.50	1419

LINEAR DISTRIBUTED LOADS DESCRIPTION	ABP BOT OF HT (FT)	ABP TOP OF HT (FT)	PER UNIT LEN WITHOUT ICE EPA (FT**2)	WT (LB)	PER UNIT LEN WITH ICE EPA (FT**2)	WT (LB)
74-6FT BRANCH	69.50	121.50	5.78	28.1	11.56	56.3
95-8FT BRANCH	57.00	105.00	7.20	30.4	14.40	60.8
73-10FT BRANCH	39.50	72.00	11.46	45.1	22.91	90.2

5. FEEDLINES ARE PLACED INTERIOR TO THE POLE SHAFT (UNLESS NOTED OTHERWISE)
6. TOTAL POLE HEIGHT IS 123 FT AGL
7. ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE (APPROX. 1 FT AGL)
8. 18 SIDED SHAFT
9. JURISDICTION SPECIFIED WIND SPEED USED
10. DESIGNED TO EXTEND FROM 123'AGL TO 143'AGL
11. VALMONT STANDARD HANDHOLES USED
12. SHIELDING FACTOR OF 0.82 IS USED
13. BRANCHES ARE NOT TO SCALE AND ARE FOR ILLUSTRATION PURPOSES ONLY
14. ALTHOUGH RARE, VIBRATIONS SEVERE ENOUGH TO CAUSE DAMAGE CAN OCCASIONALLY OCCUR IN STRUCTURES OF ALL TYPES. BECAUSE THEY ARE INFLUENCED BY MANY INTERACTING VARIABLES, VIBRATIONS ARE GENERALLY UNPREDICTABLE. THE USER'S MAINTENANCE PROGRAM SHOULD INCLUDE OBSERVATION FOR EXCESSIVE VIBRATION AND EXAMINATION FOR ANY STRUCTURAL DAMAGE OR BOLT LOOSENING. THE VALMONT WARRANTY SPECIFICALLY EXCLUDES FATIGUE FAILURE OR SIMILAR PHENOMENA RESULTING FROM INDUCED VIBRATION, HARMONIC OSCILLATION OR RESONANCE ASSOCIATED WITH MOVEMENT OF AIR CURRENTS AROUND THE PRODUCT.

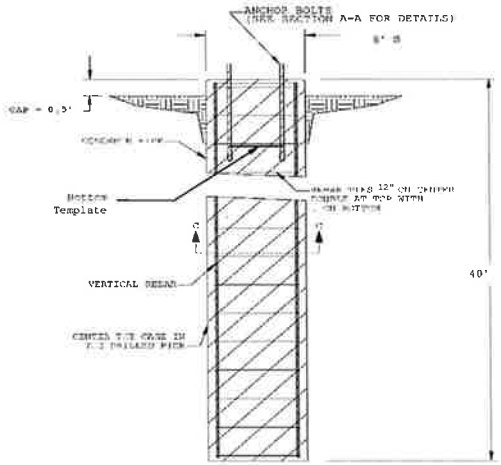
SECTION INFORMATION					
ITEM ID	LENGTH	BASE OD	TOP OD	THK	MATL
1	48' - 9.00"	63.50"	45.63"	0.563"	A572 65 KSI
2	51' - 1.00"	50.00"	32.33"	0.500"	A572 65 KSI
3	34' - 1.00"	34.71"	22.92"	0.313"	A572 65 KSI

REV ID	DATE	REV BY	DESCRIPTION
A	5-20-2024	CR	BRANCH DISTRIBUTION UPDATED

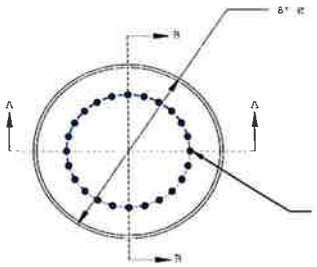
ORDER: 610713 | PROJECT: 610713 | FILE ID: 610713-P1RevANE | SCALE: NONE | DATE: 05/20/24 | ENGR: CR71

DESCRIPTION: THE TOWERS, LLC 122.0' POLE, SITE: US-CT-5055 - WILTON SOUTH CT, CT

valmont



Section B-B
Pier Elevation
(No Scale)



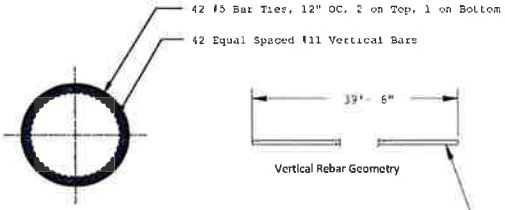
Foundation & Anchor Bolt Layout Plan
(No Scale)

General Notes: Drilled Pier

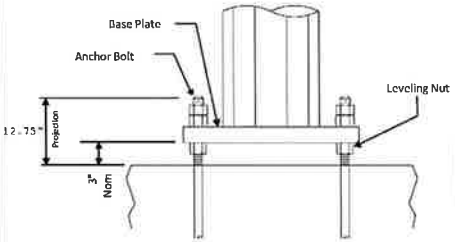
1. Prior to excavation, check the area for underground facilities.
2. All reinforcing shall be deformed bars conforming to ASTM A615 Grade 60 (60,000 psi min. yield) and shall be provided by the foundation contractor.
3. All concrete shall have a minimum compressive strength of 4500 psi @ 28 days. The requirement for the concrete shall be as given in the ACI "Building Code Requirements for Reinforced Concrete", ACI 318, the latest edition.
4. Trowel top of pedestal smooth with slight crown for proper drainage.
5. Steel reinforcement and concrete should be placed immediately upon completion of the pier excavations. Contractor shall not allow a cold joint to form in the pier. Portion above grade should be formed. Temporary casing may be required to prevent caving prior to concrete placement.
6. The ground water was encountered at 4' below grade during boring.
7. Concrete is assumed to weigh 150 pcf.
8. Estimated concrete volume = 74.5 cubic yards nonal.
9. Design Based on the following loads from installation drawing for order No: 610713.

Factored Moment =	**97708 in-kips**
Factored Shear =	**92.73 kips**
Factored Download =	**78.21 kips**

10. Reference: Delta Oaks Group Project GEO24-20828-08 dated February 26, 2024
11. Concrete shall be placed using a tremie to the depth indicated on the foundation drawing.
12. Anchor bolts to be ASTM A615, Gr. 75 ksi.
13. Ref Soils Report for installation recommendations.
14. Foundation designed to not exceed 100% of monopole's capacity.
15. Difficulty in drilling is anticipated due to refusal at 19'
16. Refusal encountered at 19' is assumed to extend till 40' depth and shall be reported to Valmont if it is otherwise.



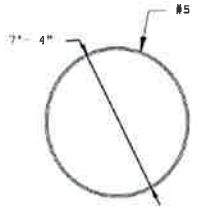
Section C-C
Pier Rebar Layout
(No Scale)



Section A-A Typ
Anchor Bolt Elevation
(No Scale)

Note:
Extreme care should be taken to ensure that all leveling nuts are level with respect to each other prior to erection of the structure. Anchor bolts shall extend through the top nut completely, fully engaging all nut threads. Distance from top of concrete to bottom of leveling nut shall not exceed the diameter of the anchor bolt.

Special Inspection
1. Inspection of reinforcing steel and placement (periodic).
2. Inspection of anchor bolts cast in concrete (periodic).
3. Verifying use of required mix design (periodic).
4. At the time fresh concrete is sampled to fabricate specimens for strength tests; perform slump and air content tests and determine temperature of concrete (continuous).
5. Inspection of concrete placement for proper application techniques (continuous).
6. Verify excavations are extended to proper depth and have reached proper material (periodic).
7. Observe drilling operations and maintain complete and accurate records for each element (continuous).
8. Verify placement locations and pluminess, confirm element diameters, lengths, and adequate end-bearing strata capacity; record concrete volume (continuous).
9. Inspect formwork for shape, location, and dimensions of the concrete member being formed (periodic).



Rebar Tie Geometry

Reinforcement Steel Schedule

-	Type	Rebar size	Rebar Spacing	Bar Weight lb/ft	Weight (lbs)	Bar Qty
1	Vertical	#11	Equal	5.31	9804	42
2	Ties	#5	12"	1.04	1092	42
Total Steel Weight for Foundation Installation =					9801	

Rebar Lap Splice Table

Rebar Size	Rebar Grade	Concrete Strength PSI	Rebar Overlap Inches
#11	60	4500	55
#5	60	4500	18

Rebar Ties - Hook Geometry

Rebar Size	6db* ** Min Length	4db* Nominal Diameter
	N/A	N/A

* db = Bar Diameter
** Refers to ACT 135 degree hook detail

Notes:
Lap splice may be used when seismic hooks are not required
Overlaps and hooks at ends of adjacent circular ties shall be staggered around the perimeter enclosing the vertical bars.
Adjacent hooks shall not engage the same vertical bar.
Where vertical bars are to be spliced, splices shall be staggered.

Seal Box

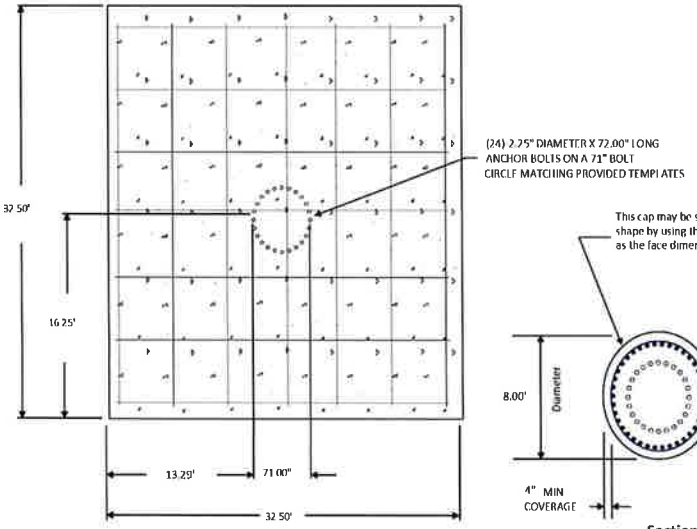
STATE OF CONNECTICUT
NATHAN A. ROSS
34713
LICENSED
PROFESSIONAL ENGINEER

Rev	Description	Date	By/Ck
A	BRANCH DISTRIBUTION UPDATED	5-20-2024	CR/CR

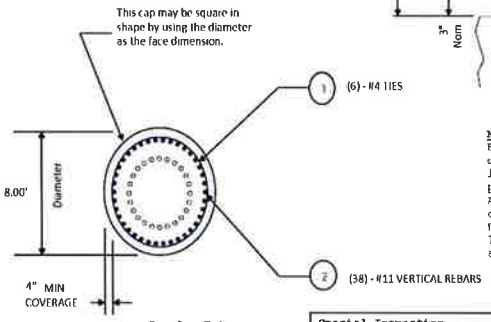
valmont STRUCTURES
28800 Ida Street
Valley, NE 68064
(402) 359-2201

By:	CR	**Drilled Pier Foundation Layout**	
Check:	CR	Customer: The Towers	
Date:	05-20-24	Site: US-CT-5055 - Wilton South CT, CT	

ANALYSIS Version: 3.11 | Project #610713 | Size = B | **Drawing No.CT610713FP** | Sheet 1 of 1



Section A-A
No Scale



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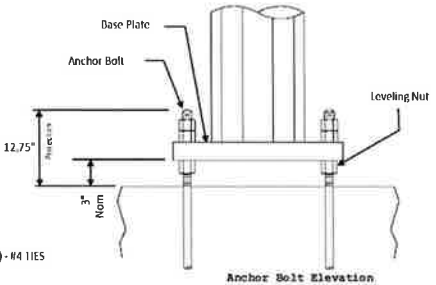


Anchor Bolt Elevation
(No Scale)

Note:
Extreme care should be taken to ensure that all leveling nuts are level with respect to each other prior to erection of the structure. Anchor bolts shall extend through the top nut completely, fully engaging all nut threads. Distance from top of concrete and bottom of leveling nut shall not exceed the diameter of the anchor bolt.

General Notes: Slab Foundation

1. Prior to excavation, check the area for underground facilities.
2. All reinforcing shall be deformed bars conforming to ASTM A615 Grade 60 (60,000 psi min. yield) and shall be provided by the foundation contractor.
3. All concrete shall have a minimum compressive strength of 4500 psi @ 28 days. The requirement for the concrete shall be as given in the ACI "Building Code Requirements for Reinforced Concrete", ACI 318, the latest edition.
4. Trowel top of foundation smooth with slight crown for proper drainage.
5. Concrete shall be placed against undisturbed soil to the depth indicated on the foundation drawing. The portion above grade shall be formed. If an area is excavated beyond the limits shown, this volume shall be filled with concrete or formed. After the forms are removed, the excess excavation shall be replaced and compacted.
6. The ground water was encountered at 4' below grade during boring.
7. Foundation design based on Ultimate vert. bearing pressure of 30000 psf.
8. Concrete is assumed to weigh 150 pcf.
9. Estimated concrete volume = **123.88 cubic yards total.**
10. Design Based on the following loads from installation drawing for order No: 610713.

Factored Moment = 8149 FT-KIPS **Overturning Safety Factor = 1.28**
Factored Download = 78.2 KIPS **Max. Toe Bearing Pressure = 3.76 ksf**
Factored Shear = 92.7 KIPS

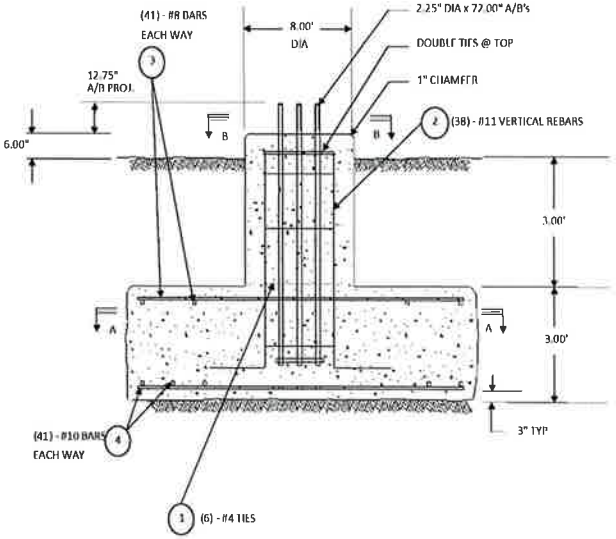
11. Backfill should be compacted to a density of 110 pcf.
12. Anchor bolts to be ASTN A615 Gr75.
13. Reference: geotechnical report Delta Oaks Group Project GE024-20828-08 dated February 26, 2024
14. Foundation designed to not exceed 100% of monopole's capacity.

Special Inspection
1. Inspection of reinforcing steel and placement (periodic).
2. Inspection of anchor bolts cast in concrete (periodic).
3. Verifying use of required mix design (periodic).
4. At the time fresh concrete is sampled to fabricate specimens for strength tests; perform slump and air content tests and determine temperature of concrete (continuous).
5. Inspection of concrete placement for proper application techniques (continuous).
6. Inspect formwork for shape, location, and dimensions of the concrete member being formed (periodic).
7. Verify materials below shallow foundation are adequate to achieve the design bearing capacity (periodic).
8. Verify excavations are extended to proper depth and have reached proper material (periodic).
9. Perform classification and testing of compacted fill materials (periodic).
10. Verify use of proper materials, densities, and lift thicknesses during placement and compaction of compacted fill (continuous).

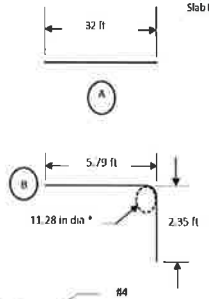
Seal Box

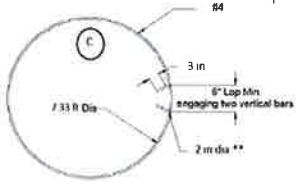
Reinforcement Steel Schedule

	Type	Rebar Size	Rebar Spacing	Weight (lbs)	Qty
Cap Ties 1	C	#4	Equal	98	6
Cap Vertical Rebar 2	B	#11	----	1572	38
Slab Top Steel 3	A	#8	9.58 in	7006	82
Slab Bottom Steel 4	A	#10	9.57 in	11291	82
Total Steel Weight for Complete Foundation Installation =				19967	



ELEVATION
No Scale





Note: adjacent circular ties shall not engage the same longitudinal bar with end hook anchorages (stagger hook location).

Grade 60 Rebar

Size	Wt/ft	6db (in)	d* (in)	d** (in)
#3	0.38	2.25	2.25	1.50
#4	0.67	3.00	3.00	2.00
#5	1.04	3.75	3.75	2.50
#6	1.50	4.50	4.50	4.50
#7	2.04	5.25	5.25	4.25
#8	2.67	6.00	6.00	6.00
#9	3.40	6.77	9.50	-
#10	4.30	7.62	10.75	-
#11	5.31	8.46	12.00	-

* Refers to ACI standard hook detail chart
** Refers to ACI stirrup hook detail chart

Rebar Lap Splice

Rebar Size	Rebar Grade	Specified Concrete Strength	Overlap (inches) Vert & Ties	Bottom Horiz	Top Horiz
#3	60	4500 psi	13	15	21
#4	60	4500 psi	18	20	29
#5	60	4500 psi	22	26	36
#6	60	4500 psi	26	33	46
#7	60	4500 psi	38	45	62
#8	60	4500 psi	43	59	82
#9	60	4500 psi	49	74	104
#10	60	4500 psi	58	95	132
#11	60	4500 psi	73	116	163

Splicing is an alternative to specified material listed in rebar schedule
Lap Splice may be used on ties when Seismic Hook not required

Rev	Description	Date	By/Ck
A	BRANCH DISTRIBUTION UPGRADE	5-20-2024	CR/TP

valmont STRUCTURES
28800 Ida Street
Valley, NE 68064
(402) 359 2201

By	CR	Slab Foundation Layout
Check	CR	Customer The Towers
Date	05 20 24	Site US CT 5055 Wilton South CT, CT
Project #610713	SIZE B	Drawing No. CT610713FS Sheet 1 of 1

Branch Distribution - REV1

Top Plate: three 4' branches and one 5' top branch

14	14	15	14	15	14	14	15	14	14	14	14	15	15	15		15	14	245	
0/1	20/2	40/3	60/4	80/5	100/6	120/7	140/8	160/9	180/10	200/11	220/12	240/13	260/14	280/15	300/16	320/17	340/18	Dist. From Top	MOUNT
		6									6							6"	50
							6						6					1'	60
				6					6								6	1'-6"	60
	6					6						6		6				2'	70
																		2'-6"	MOUNT
																		3'	MOUNT
																		3'-6"	MOUNT
			6													6		4'	80
										6								4'-6"	80
		6												6				5'	90
								6										5'-6"	90
					6													6'	90
											6							6'-6"	90
6													6					7'	90
									6									7'-6"	90
				6														8'	90
																	6	8'-6"	90
	6						6						6					9'	90
			6							6								9'-6"	90
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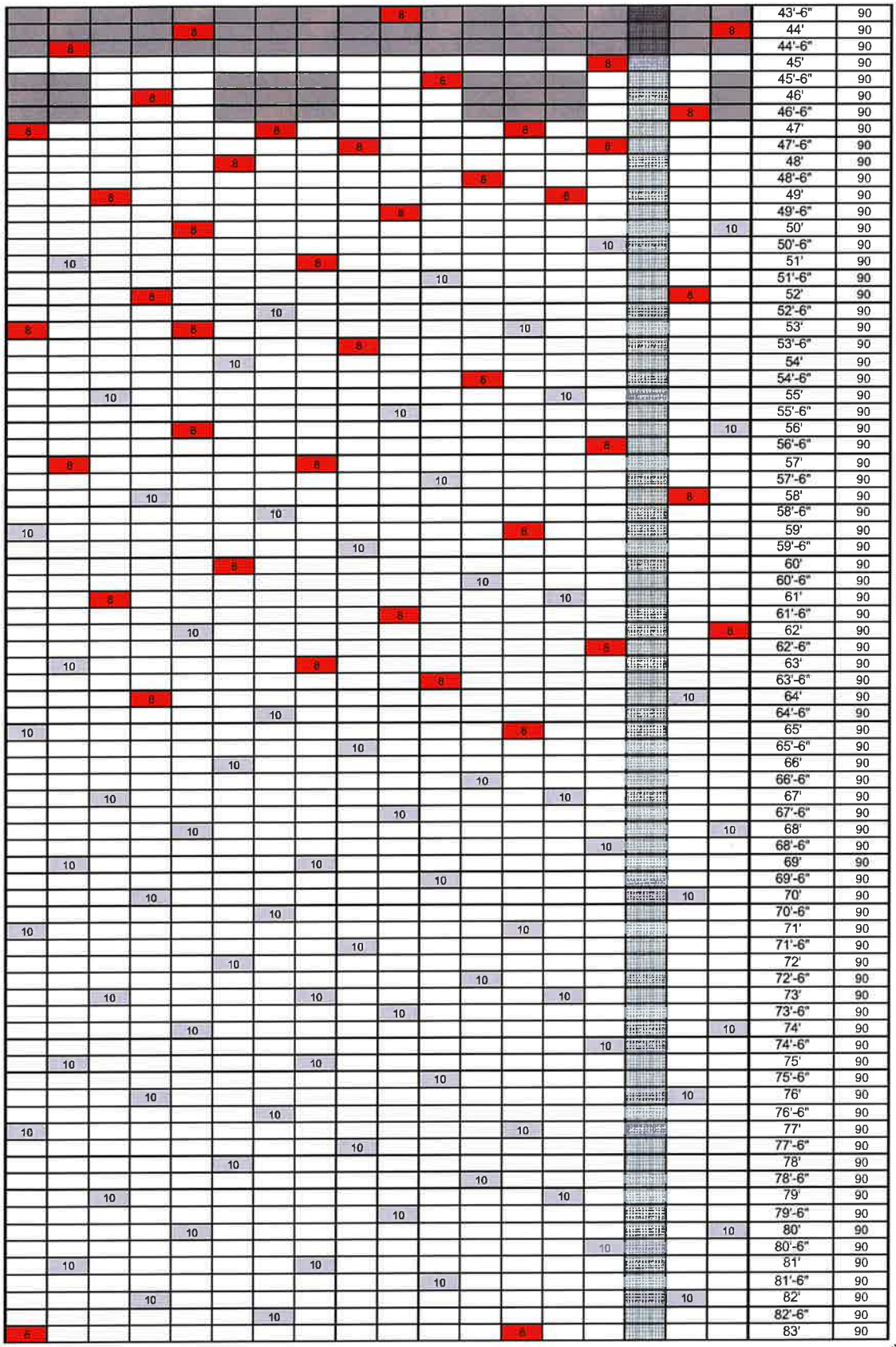
								6										41'-6"	90
					6													42'	90
											6							42'-6"	90
		6					6						6					43'	90



43'-6"	90
44'	90
44'-6"	90
45'	90
45'-6"	90
46'	90
46'-6"	90
47'	90
47'-6"	90
48'	90
48'-6"	90
49'	90
49'-6"	90
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75'	90
75'-6"	90
76'	90
76'-6"	90
77'	90
77'-6"	90
78'	90
78'-6"	90
79'	90
79'-6"	90
80'	90
80'-6"	90
81'	90
81'-6"	90
82'	90
82'-6"	90
83'	90

ATTACHMENT 3

GEOTECHNICAL INVESTIGATION REPORT

February 26, 2024

Prepared For:

Vertical Bridge

Wilton South CT
US-CT-5055
Proposed 123-Foot Monopole Tower
180 School Road, Wilton (Fairfield County), Connecticut 06897
Latitude N 41° 12' 15.28" Longitude W 73° 26' 14.65"

Delta Oaks Group Project GEO24-20828-08
Revision 0
geotech@deltaoaksgroup.com

Performed By:

Sarah C. Russek, P.E.

Reviewed By:

Joseph V. Borrelli, Jr., P.E.

INTRODUCTION

This geotechnical investigation report has been completed for the proposed 123-foot monopole tower located at 180 School Road in Wilton (Fairfield County), Connecticut. The purpose of this investigation was to provide engineering recommendations and subsurface condition data at the proposed tower location. A geotechnical engineering interpretation of the collected information was completed and utilized to suggest design parameters regarding the adequacy of the structure's proposed foundation capacity under various loading conditions. This report provides the scope of the geotechnical investigation; geologic material identification; results of the geotechnical laboratory testing; and design parameter recommendations for use in the design of the telecommunication facility's foundation and site development.

SITE CONDITION SUMMARY

The proposed tower and compound are located on school property in a wooded area adjacent to a paved parking lot exhibiting a generally flat topography across the tower compound and subject property.

REFERENCES

- Civil Drawings, prepared by On Air Engineering, dated March 7, 2023
- FAA-1A Survey Certification, prepared by Close, Jenson and Miller, dated March 7, 2023
- TIA Standard (TIA-222-G), dated August 2005

SUBSURFACE FIELD INVESTIGATION SUMMARY

The subsurface field investigation was conducted through the advancement of three mechanical soil test borings to the auger refusal depths of 19.0, 20.0, and 14.0 feet bgs at borings B-1, B-2, and B-3 respectively. Samples were obtained at selected intervals in accordance with ASTM D 1586. B-1 sampling was conducted approximately 21 feet southwest of the staked centerline of the proposed tower. B-1 was offset from the proposed tower center due to the presence of boulders and overhead tree branches. Borings B-2 and B-3 were conducted near two of the corners of the proposed compound. Upon encountering auger refusal, 10.0 and 8.0 feet of rock coring was conducted in accordance with ASTM D 2113 at borings B-1 and B-2, respectively. Soil and rock samples were transported to our laboratory and classified by a geotechnical engineer in accordance with ASTM D 2487. A detailed breakdown of the material encountered in our subsurface field investigation can be found in the boring logs presented in the Appendix of this report.

Additional testing was performed on selected samples in accordance with ASTM D 7012 (Unconfined Compressive Strength – Rock). Laboratory data can be found in the Appendix of this report.

A boring plan portraying the approximate spatial location of the borings in relation to the proposed tower, tower compound and immediate surrounding area can be found in the Appendix.

SUBSURFACE CONDITION SUMMARY

The following provides a general overview of the site's subsurface conditions based on the data obtained during our field investigation.

FILL

Fill material was not encountered during the subsurface field investigation.

SOIL

The residual soil encountered in the subsurface field investigation began at the existing ground surface in the boring and consisted of silty sand, silty clayey sand, and poorly graded sand. The materials ranged from a very loose to very dense relative density.

Auger advancement refusal was encountered during the subsurface field investigation at depths of 19.0, 20.0, and 14.0 feet bgs at borings B-1, B-2, and B-3 respectively.

ROCK

Rock was encountered during the subsurface investigation at depths of 19.0, 20.0, and 14.0 feet bgs at borings B-1, B-2, and B-3 respectively. The rock can be described as highly fractured, moderately weathered, hard gneiss.

SUBSURFACE WATER

At the time of drilling, subsurface water was encountered during the subsurface investigation at depths of 4.0, 6.0, and 6.0 feet bgs at borings B-1, B-2, and B-3 respectively. However, subsurface water elevations can fluctuate throughout the year due to variations in climate, hydraulic parameters, nearby construction activity and other factors.

FROST PENETRATION

The frost penetration depth for Fairfield County, Connecticut is 40 inches (3.3 feet).

CORROSIVITY

Soil resistivity was performed in accordance with ASTM G187 with a test result of 8,400 ohms-cm.

FOUNDATION DESIGN SUMMARY

In consideration of the provided tower parameters and the determined soil characteristics, Delta Oaks Group recommends utilizing a shallow foundation or drilled shaft foundation for the proposed structure. The strength parameters presented in the following sections can be utilized for design of the foundation.

GENERAL SUBSURFACE STRENGTH PARAMETERS

Boring	Depth (bgs)	USCS	Moist/Buoyant Unit Weight (pcf)	Phi Angle (degrees)	Cohesion (psf)
B-1	0.0 - 2.0	SM	90	28	0
	2.0 - 4.0	SC-SM	100	29	0
	4.0 - 6.0	SM	115 / 53	31	0
	6.0 - 8.0	SM	115 / 53	32	0
	8.0 - 10.0	SM	120 / 58	35	0
	10.0 - 13.0	SM	115 / 53	31	0
	13.0 - 19.0	SM	120 / 58	34	0
	19.0 - 29.0	Gneiss	150	0	6,000

Boring	Depth (bgs)	USCS	Moist/Buoyant Unit Weight (pcf)	Phi Angle (degrees)	Cohesion (psf)
B-2	0.0 - 2.0	SM	115	32	0
	2.0 - 4.0	SC-SM	100	29	0
	4.0 - 6.0	SM	115 / 53	31	0
	6.0 - 10.0	SM	115 / 53	32	0
	10.0 - 13.0	SM	125 / 63	39	0
	13.0 - 20.0	SM	120 / 58	36	0
	20.0 - 28.0	Gneiss	150	0	6,000

Boring	Depth (bgs)	USCS	Moist/Buoyant Unit Weight (pcf)	Phi Angle (degrees)	Cohesion (psf)
B-3	0.0 - 2.0	SM	105	29	0
	2.0 - 4.0	SC-SM	100	29	0
	4.0 - 6.0	SM	115 / 53	32	0
	6.0 - 8.0	SM	115 / 53	31	0
	8.0 - 10.0	SM	115 / 53	32	0
	10.0 - 14.0	SP	130 / 68	45	0

- The buoyant unit weight of soil should be utilized below a depth of 4.0 feet bgs.
- The unit weight provided assumes overburden soil was compacted to a minimum of 95% of the maximum dry density as obtained by the standard Proctor method (ASTM D 698) and maintained a moisture content within 3 percent of optimum.
- The values provided for phi angle and cohesion should be considered ultimate.

SUBSURFACE STRENGTH PARAMETERS – SHALLOW FOUNDATION

Boring	Dimensions (feet)	Depth (feet bgs)	Net Ultimate Bearing Capacity (psf)
B-1	5.0 x 5.0	4.0	11,770
		5.0	21,360
		6.0	24,240
		7.0	30,000
	10.0 x 10.0	4.0	13,440
		5.0	24,350
		6.0	26,770
		7.0	30,000
	15.0 x 15.0	4.0	15,490
		5.0	28,180
		Greater than 6.0	30,000
	20.0 x 20.0	4.0	17,630
		Greater than 5.0	30,000
	25.0 x 25.0	4.0	19,820
		Greater than 5.0	30,000

- Delta Oaks Group recommends the foundation bear a minimum of 4.0 feet bgs.
- A sliding friction factor of 0.45 can be utilized along the base of the proposed foundation.
- An Ultimate Passive Pressure Table with a reduction due to frost penetration to a depth of 3.3 feet bgs is presented on the following page.
- Delta Oaks Group recommends an appropriate factor of safety be utilized for the design of the foundation.

ULTIMATE PASSIVE PRESSURE VS. DEPTH - TOWER FOUNDATION

Soil Layers (feet)		Moist Unit Weight	Phi Angle	Cohesion	PV	KP	Ph
Top	0.0	90	28	0	0.00	2.77	0.00
Bottom	2.0	90	28	0	180.00	2.77	249.28
Top	2.0	100	29	0	180.00	2.88	259.39
Bottom	3.3	100	29	0	310.00	2.88	446.72
Top	3.3	100	29	0	310.00	2.88	893.44
Bottom	4.0	100	29	0	380.00	2.88	1095.18
Top	4.0	115	31	0	380.00	3.12	1187.13
Bottom	6.0	115	31	0	485.20	3.12	1515.78
Top	6.0	115	32	0	485.20	3.25	1579.13
Bottom	8.0	115	32	0	590.40	3.25	1921.51
Top	8.0	120	35	0	590.40	3.69	2178.68
Bottom	10.0	120	35	0	705.60	3.69	2603.79

SUBSURFACE STRENGTH PARAMETERS - DRILLED SHAFT FOUNDATION

Boring	Depth (bgs)	Net Ultimate Bearing Capacity (psf)	Ultimate Skin Friction - Compression (psf)	Ultimate Skin Friction - Uplift (psf)
B-1	0.0 - 4.0	--	--	--
	4.0 - 6.0	2,850	600	450
	6.0 - 8.0	3,590	690	520
	8.0 - 10.0	5,360	780	580
	10.0 - 13.0	7,460	890	660
	13.0 - 16.0	30,460	1,000	750
	16.0 - 19.0	50,190	1,100	830
	19.0 - 29.0	52,200	2,400	2,400

- The top 4.0 feet of soil should be ignored due to the frost penetration and the potential soil disturbance during construction.
- The values presented assume the concrete is cast-in-place against earth walls and any casing utilized during construction of the foundation was removed.
- Delta Oaks Group recommends an appropriate factor of safety be utilized for the design of the foundation.

CONSTRUCTION

SITE DEVELOPMENT

The proposed access road and tower compound should be evaluated by a Geotechnical Engineer, or their representative, after the removal or "cutting" of the areas to design elevation but prior to the placement of any structural fill material to verify the presence of unsuitable or weak material. Unsuitable or weak materials should be undercut to a suitable base material as determined by a Geotechnical Engineer, or their representative. Backfill of any undercut area(s) should be conducted in accordance with the recommendations provided in the *STRUCTURAL FILL PLACEMENT* section of this report.

Excavations should be sloped or shored in accordance and compliance with OSHA 29 CFR Part 1926, Excavation Trench Safety Standards as well as any additional local, state and federal regulations.

STRUCTURAL FILL PLACEMENT

Structural fill materials should be verified, prior to utilization, to have a minimum unit weight of 110 pcf (pounds per cubic foot) when compacted to a minimum of 95% of its maximum dry density and within plus or minus 3 percentage points of optimum moisture. Materials utilized should not contain more than 5 percent by weight of organic matter, waste, debris or any otherwise deleterious materials. The Liquid Limit should be no greater than 40 with a Plasticity Index no greater than 20. Structural fill material should contain a maximum particle size of 4 inches with 20 percent or less of the material having a particle size between 2 and 4 inches. Backfill should be placed in thin horizontal lifts not to exceed 8 inches (loose) in large grading areas and 4 inches (loose) where small handheld or walk-behind compaction equipment will be utilized. The potential suitability of on-site materials to be utilized as fill should be evaluated by a Geotechnical Engineer, or their representative just prior to construction.

During construction structural fill placement should be monitored and tested. This should include at minimum, visual observation as well as a sufficient amount of in-place field density tests by a Geotechnical Engineer, or their representative. Materials should be compacted to a minimum of 95% of the maximum dry density as determined by ASTM D 698 (standard Proctor method). Moisture contents should be maintained to within plus or minus 3 percentage points of the optimum moisture content.

SHALLOW FOUNDATIONS

Foundation excavation(s) should be evaluated by a Geotechnical Engineer, or their representative, prior to reinforcing steel and concrete placement. This evaluation should include visual observation to verify a level bearing surface; vertical side-walls with no protrusions, sloughing or caving; and the exposed bearing surface is free of deleterious material, loose soil and standing water. Excavation dimensions should be verified and testing performed on the exposed bearing surface to verify compliance with design recommendations. Bearing testing should be conducted in accordance with ASTM STP399 (Dynamic Cone Penetrometer). A 6-inch layer of compacted crushed stone should be installed prior to reinforcing steel and concrete placement. If subsurface water is encountered during excavation dewatering methods such as sump pumps or well points may be required.

DRILLED SHAFT FOUNDATIONS

Drilled shaft foundations (caissons) are typically installed utilizing an earth auger to reach the design depth of the foundation. Specialized roller bits or core bits can be utilized to penetrate boulders or rock. The equipment utilized should have cutting teeth to result in an excavation with little or no soil smeared or caked on the excavation sides with spiral-like corrugated walls. The drilled shaft design diameter should be maintained throughout the excavation with a plumbness tolerance of 2 percent of the length and an eccentricity tolerance of 3 inches from plan location. A removable steel casing can be installed in the shaft to prevent caving of the excavation sides due to soil relaxation. Upon completion of the drilling and casing placement, loose soils and subsurface water greater than 3-inches in depth should be removed from the bottom of the excavation for the "dry" installation method. The drilled shaft installation should be evaluated by a Geotechnical Engineer, or their representative, to verify suitable end bearing conditions, design diameter and bottom cleanliness. The evaluation should be conducted immediately prior to as well as during concrete placement operations.

The drilled shaft should be concreted as soon as reasonably practical after excavation to reduce the deterioration of the supporting soils to prevent potential caving and water intrusion. A concrete mix design with a slump of 6 to 8 inches employed in conjunction with the design concrete compressive strength should be utilized for placement. Super plasticizer may be required to obtain the recommended slump range. During placement, the concrete may fall freely through the open area in the reinforcing steel cage provided it does not strike the reinforcing steel and/or the casing prior to reaching the bottom of the excavation. The removable steel casing should be extracted as concrete is placed. During steel casing removal a head of concrete should be maintained above the bottom of the casing to prevent soil and water intrusion into the concrete below the bottom of the casing.

If subsurface water is anticipated and/or weak soil layers are encountered drilled shafts are typically installed utilizing the "wet" method by excavating beneath a drilling mud slurry. The drilling mud slurry is added to the drilled shaft excavation after groundwater has been encountered and/or the sides of the excavation are observed to be caving or sloughing. Additional inspection by a Geotechnical Engineer, or their representative, during the "wet" method should consist of verifying maintenance of sufficient slurry head, monitoring the specific gravity, pH and sand content of the drilling slurry, and monitoring any changes in the depth of the excavation between initial approval and just prior to concreting.

Concrete placement utilizing the "wet" method is conducted through a tremie pipe at the bottom of the excavation with the drilling mud slurry level maintained at a minimum of 5 feet or one shaft diameter, whichever is greater, above the ground water elevation. The bottom of the tremie should be set one tremie pipe diameter above the excavation. A closure flap at the bottom of the tremie or a sliding plug introduced into the tremie before the concrete is recommended to reduce the potential contamination of the concrete by the drilling mud slurry. The bottom of the tremie must be maintained in the concrete during placement. Additional concrete should be placed through the tremie causing the slurry to overflow from the excavation in order to reduce the potential for the development of "slurry pockets" remaining in the drilled shaft.

QUALIFICATIONS

The design parameters and conclusions provided in this report have been determined in accordance with generally accepted geotechnical engineering practices and are considered applicable to a rational degree of engineering certainty based on the data available at the time of report preparation and our practice in this geographic region. All recommendations and supporting calculations were prepared based on the data available at the time of report preparation and knowledge of typical geotechnical parameters in the applicable geographic region.

The subsurface conditions used in the determination of the design recommendations contained in this report are based on interpretation of subsurface data obtained at specific boring locations. Irrespective of the thoroughness of the subsurface investigation, the potential exists that conditions between borings will differ from those at the specific boring locations, that conditions are not as anticipated during the original analysis, or that the construction process has altered the soil conditions. That potential is significantly increased in locations where existing fill materials are encountered. Additionally, the nature and extent of these variations may not be evident until the commencement of construction. Therefore, a geotechnical engineer, or their representative, should observe construction practices to confirm that the site conditions do not differ from those conditions anticipated in design. If such variations are encountered, Delta Oaks Group should be contacted immediately in order to provide revisions and/or additional site exploration, as necessary.

Samples obtained during our subsurface field investigation will be retained by Delta Oaks Group for a period of 30 days unless otherwise instructed by Vertical Bridge. No warranty, expressed or implied, is presented.

Delta Oaks Group appreciates the opportunity to be of service for this Geotechnical Investigation Report. Please do not hesitate to contact Delta Oaks Group with any questions or should you require additional service on this project.

APPENDIX

BORING PLAN

PHOTO - BORING B-1 OFFSET

PROJECT NAME Wilton South CT (US-CT-5055)

CLIENT Vertical Bridge

PROJECT NUMBER GEO24-20828-08

Boring No.: B-1 PAGE 1 OF 1

PROJECT LOCATION Wilton, Connecticut

DATE DRILLED : 2/12/2024

DRILLING METHOD : Mud Rotary & Coring

GROUND ELEVATION :

BORING DEPTH (ft) : 29

GROUND WATER LEVELS:

AT TIME OF DRILLING : 4.00 ft

AT END OF DRILLING : --- N/A

AFTER DRILLING : --- Not measured

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE	MATERIAL CLASSIFICATION	Pocket Penetrometer (tsf)	BLOWS 1st	BLOWS 2nd	BLOWS 3rd	N VALUE
0	Dark brown, very loose, fine to medium grained, SILTY SAND (SM), with organics, trace gravel, micaceous, moist		SM		1	1	1	2
	Brown, loose, fine to medium grained, SILTY CLAYEY SAND (SC-SM), trace gravel, trace mica, moist		SC-SM		2	2	2	4
5	Brown, medium dense, fine to medium grained, SILTY SAND (SM), trace gravel, trace mica, moist		SM		6	6	7	13
	-- with gravel, micaceous				10	11	8	19
	-- trace organics				10	15	14	29
10					6	6	7	13
15					11	15	12	27
20	Grey, highly fractured, moderately weathered, hard, GNEISS							
	Unconfined compressive strength = 3,622 psi				REC = 93.3 %	RQD = 24.2 %		
25	Unconfined compressive strength = 3,689 psi							
30	Refusal at 19.0 feet. Bottom of borehole at 29.0 feet.							

▲ SPT N VALUE ▲

10 20 30 40 50 60 70 80 90

PROJECT NAME Wilton South CT (US-CT-5055)

CLIENT Vertical Bridge

PROJECT NUMBER GEO24-20828-08

Boring No.: B-2

PROJECT LOCATION Wilton, Connecticut

DATE DRILLED : 2/14/2024

DRILLING METHOD : Mud Rotary & Coring

GROUND ELEVATION :

BORING DEPTH (ft) : 28

GROUND WATER LEVELS:

AT TIME OF DRILLING : 6.00 ft

AT END OF DRILLING : --- N/A

AFTER DRILLING : --- Not measured

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE	MATERIAL CLASSIFICATION	Pocket Penetrometer (tsf)	BLOWS 1st	BLOWS 2nd	BLOWS 3rd	N VALUE
0	Dark brown, medium dense, fine to medium grained, SILTY SAND (SM), with gravel, trace organics, trace mica, moist		SM		5	7	10	17
	Brown, loose, fine to medium grained, SILTY CLAYEY SAND (SC-SM), trace organics, trace gravel, trace mica, wet		SC-SM		4	3	2	5
5	Brown, medium dense, fine to medium grained, SILTY SAND (SM), with gravel, trace organics, micaceous, moist		SM		6	7	7	14
					7	9	10	19
	-- grey				25	11	8	19
10	-- brown, dense, with gravel				13	28	16	44
15	-- trace orange				12	20	12	32
20	Grey, highly fractured, moderately weathered, hard, GNEISS				REC = 82.8 %	RQD = 19.8 %		
25	Unconfined compressive strength = 3,922 psi							
	Refusal at 20.0 feet. Bottom of borehole at 28.0 feet.							
30								

▲ SPT N VALUE ▲

10 20 30 40 50 60 70 80 90

PROJECT NAME Wilton South CT (US-CT-5055)

CLIENT Vertical Bridge

PROJECT NUMBER GEO24-20828-08

Boring No.: B-3 PAGE 1 OF 1

PROJECT LOCATION Wilton, Connecticut

DATE DRILLED : 2/14/2024

DRILLING METHOD : Hollow Stem Auger

GROUND ELEVATION :

BORING DEPTH (ft) : 14

GROUND WATER LEVELS:

AT TIME OF DRILLING : 6.00 ft

AT END OF DRILLING : --

AFTER DRILLING : -- Not measured

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE	MATERIAL CLASSIFICATION	Pocket Penetrometer (tsf)	BLOWS 1st	BLOWS 2nd	BLOWS 3rd	N VALUE
0	Dark brown, loose, fine to medium grained, SILTY SAND (SM), trace organics, trace gravel, trace mica, moist		SM		4	4	3	7
	Light brown, loose, fine to medium grained, SILTY CLAYEY SAND (SC-SM), trace organics, trace gravel, micaceous, moist		SC-SM		1	2	3	5
5	Brown, grey, medium dense, fine to coarse grained, SILTY SAND (SM), trace organics, trace gravel, micaceous, moist		SM		7	9	9	18
	-- wet				5	6	7	13
	-- with gravel				8	9	9	18
10	Brown, very dense, fine to coarse grained, POORLY GRADED SAND (SP), with silt, with gravel, micaceous, wet		SP		17	50/3"		100
15	Refusal at 14.0 feet. Bottom of borehole at 14.0 feet.							
20								
25								
30								

▲ SPT N VALUE ▲

10 20 30 40 50 60 70 80 90