STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:

APPLICATION OF HOMELAND TOWERS, LLC AND NEW CINGULAR WIRELESS PCS, LLC d/b/a AT&T FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF A TELECOMMUNICATIONS FACILITY AT 183 SOUNDVIEW LANE, TOWN OF NEW CANAAN, CONNECTICUT	DOCKET NO. 487 December 18, 2020

HOMELAND TOWERS, LLC AND NEW CINGULAR WIRELESS PCS, LLC d/b/a AT&T
DEVELOPMENT & MANAGEMENT PLAN

Homeland Towers, LLC, the Certificate Holder in the above-referenced Docket, respectfully submits the following Development & Management Plan ("D&M Plan") documents and materials:

Homeland Towers, LLC cover letter dated December 9, 2020;

Geotechnical Investigation Report by Delta Oaks Group dated October 16, 2020;

Structural Calculations by Valmont Structures dated November 9, 2020;

Structural Drawings by Valmont Structures;

Polar Power, Inc Emergency Generator Specifications;

CCI Antenna Specifications; and

D&M Plan Drawings prepared by All-Points Technology Corporation dated December 15, 2020 and signed and sealed by Robert Charles Burns, CT P.E. license no. 20071.

CERTIFICATE OF SERVICE

I hereby certify that on this day the foregoing was sent electronically to the Connecticut Siting Council and the service list below with one hard copy sent to the Connecticut Siting Council, in accordance with Connecticut Siting Council directives.

December 18, 2020

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cc: Raymond Vergati; Manuel Vicente; Harry Carey; Brian Leyden

HOMELAND TOWERS

December 9, 2020

Via Federal Express
Honorable Robert Silvestri, Presiding Officer
And Members of the Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Docket No. 487 – Homeland Towers LLC (HT) and New Cingular Wireless PCS, LLC d/b/a AT&T Development & Management Plan- Tower Facility at 183 Sound View Lane, New Canaan, CT (CT027).

Dear Presiding Officer Silvestri and Members of the Siting Council,

Homeland Towers ("HT"), the Certificate holder in Docket No. 487, respectfully requests that you please accept for review and Council approval this Development & Management Plan ("D&M Plan") filing for the Facility as approved in Docket No. 487.

Tower, Compound & Other Equipment

Enclosed are fifteen (15) sets of 11"x17" Development & Management Plans ("D&M Plans") dated 12/15/2020 prepared by All Points Technology Corporation. These plans are being filed in accordance with the Council's Decision & Order dated September 24, 2020 ("Decision & Order"). Two full-sized sets of the D &M Plans are also enclosed. The D&M Plan incorporates an 85' stealth "tree" monopole with a 5' faux branch top for an overall height of 90' as provided for in the Siting Council's Decision & Order in this Docket. AT&T will mount six (6) panel antennas and (9) RRU's at a centerline of 81'. Per (2b) of the Council's Decision & Order, Homeland has increased the landscape planting heights from 8' to 12' and is also proposing an additional twelve (12) lower growth plantings in front of the taller plantings. All plantings will be warranted for three years. As shown in Sheet A-1 of the enclosed D&M Plans, the monopole is designed with a yield point at 52' AGL to ensure that the monopole setback radius remains with the property boundaries in accordance with condition 2(c) of the Decision & Order.

Attached please also find a geotechnical study dated October 16, 2020 prepared by Delta Oaks Group as well as a structural design report for the tower and foundation dated November 9, 2020 prepared by Valmont Structures. Specifications for AT&T's antennas and generator are also provided.

The proposed D&M Plan also includes construction plans for the site clearing, drainage, and erosion and sedimentation control measures consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control as amended.

Per 2(a) of the Decision and Order, attached is a letter dated November 13, 2020 from AT&T stating their firm commitment to install their associated wireless equipment at the facility upon completion of construction.

Required Notifications

In accordance with the provisions of RCSA Section 16-50j-77, Homeland Towers hereby notifies the Council of its intention to begin site work immediately after Council approval of the D&M Plan. Construction of the tower and other site improvements will commence upon issuance of a local building permit. The supervisor for all construction related matters on this project is Christian Carmody, located at InSite Towers, 1199 North Fairfax Street, Suite 700, Alexandria,

HOMELAND TOWERS

VA 22314 who can be reached by telephone at 617-595-7254. The anticipated hours and days of the week for construction activities is Monday through Friday, 8:00am to 5:00pm.

We respectfully request that this matter be included on the Council's next available agenda for review and approval. Thank you for your consideration of the enclosed.

Sincerely,

Ray Vergati

Raymond Vergati RA
rv@homelandtowers.us

Enclosures

cc: Honorable Kevin Moynihan, First Selectman, Town of New Canaan
Keith S. and Marina O. Richey
Manny Vicente, Homeland Towers LLC
Brian Leyden, AT&T
Scott Chasse, P.E., APT
John W. Cannavino, Esq., Cummings & Lockwood LLC
Christopher Rosow, St. Luke's School
Julia Gabriele, St. Luke's School Lucia Chiocchio, Esq., Cuddy & Feder LLP

GEOTECHNICAL INVESTIGATION REPORT

October 16, 2020

Prepared For:

InSite Wireless Group, LLC

New Canaan
CT027
Proposed 85-Foot Monopole Tower
183 Soundview Lane, New Canaan (Fairfield County), Connecticut 06840
Latitude N 41° 11' 26.4" Longitude W 73°29'42.2"

Delta Oaks Group Project GEO20-07085-08
Revision 0
geotech@deltaoaksgroup.com

Performed By:

Justin Brosseau, E.I.

Reviewed By:

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

INTRODUCTION

This geotechnical investigation report has been completed for the proposed 85-foot monopole tower located at 183 Soundview Lane in New Canaan (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 a wooded hill exhibiting a generally flat topography across the tower compound and subject property.

REFERENCES

- Survey Drawings, prepared by All-Points Technology Corporation, dated May 26, 2020
- 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 depth of 43.0 feet bgs in boring B-1 and to the termination depth of 11.5 feet bgs in borings B-2 and B-3. Samples were obtained at selected intervals in accordance with ASTM D 1586. The sampling was conducted at the centerline of the proposed tower. Upon encountering auger refusal 5.0 feet of rock coring was conducted in accordance with ASTM D 2113. 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.

A boring plan portraying the spatial location of the boring 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

Topsoil was encountered during the subsurface field investigation from the existing ground surface to a depth of 0.5 feet bgs in boring B-1 and 0.7 feet bgs in borings B-2 and B-3.

SOIL

The residual soil encountered in the subsurface field investigation began at a depth of 0.5 feet bgs in boring B-1 and 0.7 feet bgs in borings B-2 and B-3 in the boring and consisted of sandy silt and silty sand. The materials ranged from a very loose to very dense relative density.

Auger advancement refusal was encountered during the subsurface field investigation at a depth of 38.0 feet bgs in boring B-1. Auger advancement refusal was not encountered during the subsurface field investigation in borings B-2 or B-3.

ROCK

Rock was encountered during the subsurface investigation at a depth of 38.0 feet bgs in boring B-1. The rock can be described as intensely fractured, highly weathered, soft micaceous schist.

SUBSURFACE WATER

At the time of drilling, subsurface water was not encountered during the subsurface investigation. 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 (3.4 feet).

CORROSIVITY

Soil resistivity was performed in accordance with ASTM G187 with a test result of 432,500 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 and/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 – 0.5	TOPSOIL	105	0	0
	0.5 – 2.0	ML	105	29	0
	2.0 – 4.0	ML	130	39	0
	4.0 – 10.0	ML	130	40	0
	10.0 – 15.0	SM	125	37	0
	15.0 – 38.0	SM	130	40	0
	38.0 – 43.0	SCHIST	135	42	0

Boring	Depth (bgs)	USCS	Moist/Buoyant Unit Weight (pcf)	Phi Angle (degrees)	Cohesion (psf)
B-2	0.0 – 0.7	TOPSOIL	105	0	0
	0.7 – 2.0	SM	105	29	0
	2.0 – 4.0	ML	120	34	0
	4.0 – 10.0	ML	130	40	0
	10.0 – 11.5	SM	130	40	0

Boring	Depth (bgs)	USCS	Moist/Buoyant Unit Weight (pcf)	Phi Angle (degrees)	Cohesion (psf)
B-3	0.0 – 0.7	TOPSOIL	105	0	0
	0.7 – 2.0	SM	105	29	0
	2.0 – 4.0	ML	130	34	0
	4.0 – 10.0	ML	130	40	0
	10.0 – 11.5	SM	130	40	0

- 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	Greater than 5.0 x 5.0	Greater than 3.4	30,000

- Delta Oaks Group recommends the foundation bear a minimum of 3.0 feet bgs.
- A sliding friction factor of 0.35 can be utilized along the base of the proposed foundation.
- The bearing capacity can be increased by 1/3 for transient loading.
- An Ultimate Passive Pressure Table with a reduction due to frost penetration to a depth of 3.4 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	105	0	0	0.00	1.00	0.00
Bottom	0.5	105	0	0	52.50	1.00	26.25
Top	0.5	105	29	0	52.50	2.88	75.65
Bottom	2.0	105	29	0	210.00	2.88	302.62
Top	2.0	130	39	0	210.00	4.40	461.53
Bottom	3.4	130	39	0	392.00	4.40	861.52
Top	3.4	130	39	0	392.00	4.40	1723.03
Bottom	4.0	130	39	0	470.00	4.40	2065.88
Top	4.0	130	40	0	470.00	4.60	2161.49
Bottom	10.0	130	40	0	1250.00	4.60	5748.64

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 – 3.4	–	–	–
	3.4 – 4.0	14,970	180	130
	4.0 – 6.0	15,460	260	200
	6.0 – 8.0	15,500	370	280
	8.0 – 10.0	16,490	480	360
	10.0 – 15.0	23,140	600	450
	15.0 – 20.0	36,470	940	700
	20.0 – 25.0	45,440	1,210	900
	25.0 – 30.0	53,200	1,480	1,110
	30.0 – 35.0	53,740	1,750	1,310
	35.0 – 38.0	58,750	1,970	1,480
	38.0 – 43.0	59,140	2,350	1,760

- The top 3.4 feet of soil should be ignored due to the frost penetration and the potential soil disturbance during construction.
- The bearing capacity can be increased by 1/3 for transient loading.
- 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.

SUBSURFACE STRENGTH PARAMETERS – SUPPORT STRUCTURE FOUNDATION

Boring	Depth (bgs)	Net Ultimate Bearing Capacity (psf)	Minimum Design Footing Width (ft)	Modulus of Subgrade Reaction (pci)
B-2	3.5	15,000	2.0	90

- Delta Oaks Group recommends utilizing a slab on grade in conjunction with continuous perimeter footings that bear on residual soil or properly compacted structural fill placed in accordance with the recommendations provided in the *CONSTRUCTION* section of this report.
- The slab on grade should be properly reinforced to prevent concrete cracking and shrinkage.
- The foundation should bear a minimum of 3.5 feet bgs.
- A sliding friction factor of 0.35 can be utilized along the base of the proposed foundation.
- An Ultimate Passive Pressure Table is presented on the following page. An appropriate reduction should be considered in accordance with local building code frost penetration depth.
- Delta Oaks Group recommends an appropriate factor of safety be utilized for the design of the foundation.

ULTIMATE PASSIVE PRESSURE VS. DEPTH – SUPPORT STRUCTURE FOUNDATION

Soil Layers (feet)		Moist Unit Weight	Phi Angle	Cohesion	PV	KP	Ph
Top	0.0	105	0	0	0.00	1.00	0.00
Bottom	0.7	105	0	0	73.50	1.00	36.75
Top	0.7	105	29	0	73.50	2.88	105.92
Bottom	2.0	105	29	0	210.00	2.88	302.62
Top	2.0	120	34	0	210.00	3.54	371.40
Bottom	3.4	120	34	0	378.00	3.54	668.52
Top	3.4	120	34	0	378.00	3.54	1337.04
Bottom	4.0	120	34	0	450.00	3.54	1591.71
Top	4.0	130	40	0	450.00	4.60	2069.51
Bottom	10.0	130	40	0	1230.00	4.60	5656.66

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 InSite Wireless Group, LLC. 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


B-3
B-1
B-2
305± FRO
347± FROM TOW
318± FROM TOWER
165± TO EXIST. RESIDENCE
318± FROM COMPOUND
E/T
E/T
E/T

PROJECT NAME New Canaan (GEO20-07085-08)

CLIENT Insite Wireless

PROJECT NUMBER CT027

Boring No.: B-1

PROJECT LOCATION 183 Soundview Lane, New Canaan, CT 06840

DATE DRILLED : 10/12/2020

DRILLING METHOD : Hollow Stem Auger

GROUND ELEVATION : 507

BORING DEPTH (ft) : 48

GROUND WATER LEVELS:

AT TIME OF DRILLING : --- Not Encountered

AT END OF DRILLING : --- Not Encountered

AFTER DRILLING : --- Not Encountered

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE	MATERIAL CLASSIFICATION	Pocket Penetrometer (tsf)	BLOWS 1st	BLOWS 2nd	BLOWS 3rd	N VALUE
0	TOPSOIL				2	3	4	7
	SANDY SILT (ML), loose, brown, trace gravel, moist		ML					
	-- Dense				12	14	31	45
5	-- Very dense				28	41	48	89
					53	54	52	100
10	SILTY SAND (ML), dense, gray and brown, trace gravel, moist		SM		17	20	19	39
15	-- Very dense, gray				43	59	78	100
20					43	100/3"		100
25	-- Trace clay and gravel				58	94	100/4"	100
30					100/5"			100
35	-- Brown and gray, micaceous				39	100/4"		100
40	MICACEOUS SCHIST, soft, intenssely fractured, highly weathered, with hard feldspar and quartz inclusions				REC	RQD		
45								
50	Refusal at 43.0 feet. Bottom of borehole at 48.0 feet.							

▲ SPT N VALUE ▲

10 20 30 40 50 60 70 80 90

PROJECT NAME New Canaan (GEO20-07085-08)

CLIENT Insite Wireless

PROJECT NUMBER CT027

Boring No.: B-2

PROJECT LOCATION 183 Soundview Lane, New Canaan, CT 06840

DATE DRILLED : 10/12/2020

DRILLING METHOD : Hollow Stem Auger

GROUND ELEVATION : 507

BORING DEPTH (ft) : 11.5

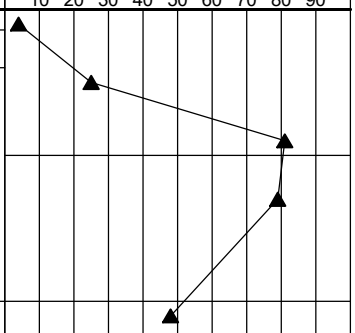
GROUND WATER LEVELS:

AT TIME OF DRILLING : --- Not Encountered

AT END OF DRILLING : --- Not Encountered

AFTER DRILLING : --- Not Encountered

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE	MATERIAL CLASSIFICATION	Pocket Penetrometer (tsf)	BLOWS 1st	BLOWS 2nd	BLOWS 3rd	N VALUE
0	TOPSOIL				2	2	2	4
	SILTY SAND (SM), very loose, dark brown, trace gravel and organics, moist		SM					
	SANDY SILT (ML), medium dense, brown, trace gravel, moist		ML		5	11	14	25
5	-- Very dense				27	38	43	81
					43	39	40	79
10	SILTY SAND (SM), dense, brown, trace gravel, moist		SM		55	51	47	48
	Bottom of borehole at 11.5 feet.							
15								
20								
25								
30								
35								
40								
45								
50								



PROJECT NAME New Canaan (GEO20-07085-08)

CLIENT Insite Wireless

PROJECT NUMBER CT027

Boring No.: B-3

PROJECT LOCATION 183 Soundview Lane, New Canaan, CT 06840

DATE DRILLED : 10/12/2020

DRILLING METHOD : Hollow Stem Auger

GROUND ELEVATION : 507

BORING DEPTH (ft) : 11.5

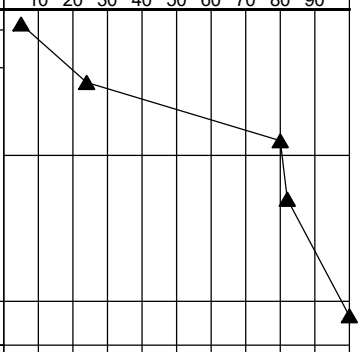
GROUND WATER LEVELS:

AT TIME OF DRILLING : --- Not Encountered

AT END OF DRILLING : --- Not Encountered

AFTER DRILLING : --- Not Encountered

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE	MATERIAL CLASSIFICATION	Pocket Penetrometer (tsf)	BLOWS 1st	BLOWS 2nd	BLOWS 3rd	N VALUE
0	TOPSOIL				1	2	3	5
	SILTY SAND (SM), loose, dark brown, trace gravel and organics, moist		SM					
	SANDY SILT (ML), medium dense, brown, trace gravel, moist		ML		6	11	13	24
5	-- Very dense				34	41	39	80
					44	42	40	82
10	SILTY SAND (SM), very dense, brown, trace gravel, moist		SM		61	54	48	100
	Bottom of borehole at 11.5 feet.							
15								
20								
25								
30								
35								
40								
45								
50								



Valmont Microflect
3575 25th St. SE
Salem, Oregon 97302 USA
1-800-547-2151

Communication Structure Calculations
for
Insite Wireless Group
CT027, New Canaan Northeast, CT

498211-P1

Monday, 09 November 2020

Prepared By:
Aishwarya Mahapatra

Reviewed By:
James Ahlgren

Valmont Microflect
3575 25th St. SE
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Valmont Industries, Inc.
Project Summary
Insite Wireless Group
498211

			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)
498211-P1RevH	84.00	----	54.50	66	28	48.00	48.00	19.00	10559	2580	----	----	----	----	1556	0	WIND	60542	90.2	52.3	50
498211-P1RevG	84.00	----	54.50	66	28	48.00	48.00	19.00	10559	2580	----	----	----	----	1556	0	WIND	59658	88.9	52.3	49

Valmont Industries, Inc.
Project Summary
Insite Wireless Group
498211

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
498211-P1RevH	65	0.351	18	1.75	59.78	2.75	0.0	51.00	37.83	----	----	----	----	0.500	0.250	----	----	----	----
498211-P1RevG	65	0.351	18	1.75	59.78	2.75	0.0	51.00	37.83	----	----	----	----	0.500	0.250	----	----	----	----

Valmont Industries, Inc.
Project Summary
Insite Wireless Group
498211

	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
498211-P1RevH	48.00	30.09	32.29	19.00	----	----	----	----	----	----	----	----	Slip Joint		----	----	----
498211-P1RevG	48.00	30.09	32.29	19.00	----	----	----	----	----	----	----	----	Slip Joint		----	----	----

Valmont Industries, Inc.
Engineering Data

*** OVERVIEW ***

1. Structure design conforms to TIA-222-H including:
   125 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 = 502 ft above mean sea level
   Spectral response acceleration at short periods and 1 sec.: Ss = 0.25 & S1 = 0.06
   Site class = D
2. Feedlines are assumed to be placed interior to the pole
3. All microwave assumed to be 2 GHz unless otherwise noted
4. Total pole height is 85.0 ft agl
5. Elevations are measured from top of base plate (approximately 1.0 ft agl)
6. Pole needs to be painted with "Thunder Gray" (Sherwin Williams SW7645)
7. Pole is designed to a therotical breakpoint at 52 ft AGL
8. Pole Design complies to TIA/EIA-222-G and TIA/EIA-222-H
9. An ultimate wind speed of 125mph used as per County Requirement.
10. Pole design limited to 98.9% capacity.

*** Structure Anchorage Information ***

Pole Height (ft):	84.0	Number of Anchor Bolts:	28
Bolt Circle (in):	54.50	Diameter of Anchor Bolts (in):	1.75
Base Shear (lbs):	90156	Length of Anchor Bolts (in):	66.00
Base Vertical (lbs):	53814	Projection Length (in):	9.75
Base Moment (in-kips):	60542	Template OD (in):	58.00

*** Loading Data***

			Without Ice		With Ice	
Qty	Description	ABP Height (ft)	EPA (ft^2)	Weight (lbs)	EPA (ft^2)	Weight (lbs)
1	CARRIER 1 - 200 SQ.FT	80.00	200.00	4000	400.00	8000
1	CARRIER 2 - 200 SQ.FT	70.00	200.00	4000	400.00	8000
1	CARRIER 3 - 150 SQ.FT	60.00	150.00	3000	300.00	6000
1	CARRIER 4 - 150 SQ.FT	50.00	150.00	3000	300.00	6000
18	BRACH TIPS	80.00	4.50	90	9.00	180
18	BRACH TIPS	70.00	4.50	90	9.00	180
18	BRACH TIPS	60.00	4.50	90	9.00	180
18	BRACH TIPS	50.00	4.50	90	9.00	180
1	5' TOP BRANCHES	84.00	2.25	33	4.50	65
3	6' TOP BRANCHES	84.00	7.50	120	15.00	240

*** Linearly Distributed Loading Data ***

		ABP Bottom Height (ft)	ABP Top Height (ft)	Without Ice EPA (ft^2)	Without Ice Weight (lb)	With Ice EPA (ft^2)	With Ice Weight (lb)
61	8 FT BRANCHES.....	71.50	83.50	219.60	3050	439.20	6100
70	10 FT BRANCHES.....	41.00	68.00	357.00	4620	714.00	9240
41	12 FT BRANCHES.....	19.00	45.50	266.50	3690	533.00	7380
36	14 FT BRANCHES.....	19.50	36.00	288.00	4320	576.00	8640

*** SUMMARY ***

Design Code: TIA-222-H

---------- DESIGN SUMMARY ----------

Height Above Base Plate	84'- 0.00"	Dia. at Top of Baseplate (in)	48.000	Pole Shaft Weight (lbs)	13139
		Top Diameter (in)	19.000		
		Pole Taper (in/ft)	0.35119	Shape:	18 Sides

Connections Between Sections	/First/
Height Above Ground	51'- 0.00"
Type	Slip Joint
Overlap Length (in)	58
Maximum Axial Force (lbs)	45480

Section Characteristics	/First/	/Second/
Base Diameter (in)	48.000	32.287
Top Diameter (in)	30.089	19.000
Thickness (in)	0.50000	0.25000
Length	51'- 0.00"	37'-10.00"
Weight (lbs)	10559	2580
Yield Strength (ksi)	65.00	65.00
Section Shape	18 Sides	18 Sides

---------- ANALYSIS SUMMARY ----------

	Pt. of Fixity	Governing Level Sec.1	Governing Level Sec.2	Pole Top
Governing Load Case	WIND	WIND	WIND	WIND
Height (ft)	0.00	0.00	51.00	84.00
Resultant Moment (in-kips)	60542	60542	12003	13
Shear Force (lbs)	90279	90279	52876	506
Axial Force (lbs)	52046	52046	20674	139
Effective Yield Strength (ksi)	82.55	82.55	78.10	82.55
Combined Interaction Value	0.94	0.94	0.98	0.00
Total Deflection (in)	0.00	0.00	18.56	49.98

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 ***

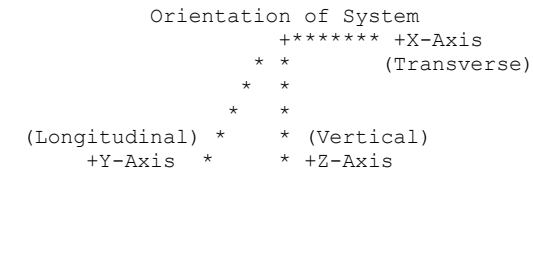
Loading Case Identifier	Moments About X-Axis (in-kips)	Moments About Y-Axis (in-kips)	Moments Resultant (X & Y) (in-kips)	Moments Torsional (in-kips)	Vertical Force (lbs)	Shear In X-Direction (lbs)	Shear In Y-Direction (lbs)	Shear Resultant (X & Y) (lbs)	Notes
WIND	46378	-38915	60542	0	52258	57951	69063	90156	
ICE + WIND	15112	-12681	19728	0	91689	18514	22064	28802	
T+S	10664	-8948	13921	0	43346	13354	15915	20775	
Seismic	1032	-866	1348	0	54309	1126	1342	1752	
Seismic 2	1025	-860	1339	0	36688	1126	1342	1752	

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 125.00 mph Ice Thickness 0.00
Wind Orientation is 50.0 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 0.00 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	80.00	80.00	0.00	50.00	6389	7614	4800	200.00	1-Carrier 1 -
2	70.00	70.00	0.00	50.00	6214	7406	4800	200.00	1-Carrier 2 -
3	60.00	60.00	0.00	50.00	4514	5379	3600	150.00	1-Carrier 3 -
4	50.00	50.00	0.00	50.00	4347	5180	3600	150.00	1-Carrier 4 -
5	80.00	80.00	0.00	50.00	144	171	108	4.50	18-Brach Tips
6	70.00	70.00	0.00	50.00	140	167	108	4.50	18-Brach Tips
7	60.00	60.00	0.00	50.00	135	161	108	4.50	18-Brach Tips
8	50.00	50.00	0.00	50.00	130	155	108	4.50	18-Brach Tips
9	84.00	86.50	0.00	50.00	73	87	40	2.25	1-5' Top Bran
10	84.00	86.00	0.00	50.00	243	290	144	7.50	3-6' Top Bran
11	81.50	81.50	0.00	90.00	2347	2797	1220	73.20	8 ft branch
12	77.50	77.50	0.00	90.00	2323	2768	1220	73.20	8 ft branch
13	73.50	73.50	0.00	90.00	2297	2738	1220	73.20	8 ft branch
14	65.75	65.75	0.00	90.00	1825	2175	924	59.50	10 ft branc
15	61.25	61.25	0.00	90.00	1798	2143	924	59.50	10 ft branc
16	56.75	56.75	0.00	90.00	1770	2109	924	59.50	10 ft branc
17	52.25	52.25	0.00	90.00	1740	2074	924	59.50	10 ft branc

*** INPUT LOADS ***

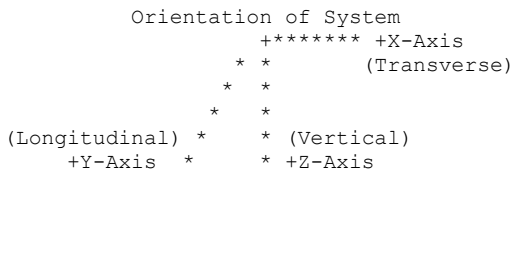
Loading Case WIND - Continued

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Orientation of System Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
18	47.75	47.75	0.00	90.00	1708	2035	924	59.50	10 ft branc
19	43.25	43.25	0.00	90.00	1674	1994	924	59.50	10 ft branc
20	43.29	43.29	0.00	90.00	1249	1489	738	44.42	12 ft branc
21	38.88	38.88	0.00	90.00	1222	1457	738	44.42	12 ft branc
22	34.46	34.46	0.00	90.00	1192	1421	738	44.42	12 ft branc
23	30.04	30.04	0.00	90.00	1158	1380	738	44.42	12 ft branc
24	25.63	25.63	0.00	90.00	1123	1338	738	44.42	12 ft branc
25	21.21	21.21	0.00	90.00	1081	1288	738	44.42	12 ft branc
26	33.94	33.94	0.00	90.00	1927	2296	1296	72.00	14 ft branc
27	29.81	29.81	0.00	90.00	1877	2236	1296	72.00	14 ft branc
28	25.69	25.69	0.00	90.00	1820	2169	1296	72.00	14 ft branc
29	21.56	21.56	0.00	90.00	1757	2094	1296	72.00	14 ft branc

*** 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 50.0 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 0.00 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	80.00	80.00	0.00	50.00	2044	2436	9600	400.00	1-Carrier 1 -
2	70.00	70.00	0.00	50.00	1988	2370	9600	400.00	1-Carrier 2 -
3	60.00	60.00	0.00	50.00	1444	1721	7200	300.00	1-Carrier 3 -
4	50.00	50.00	0.00	50.00	1391	1658	7200	300.00	1-Carrier 4 -
5	80.00	80.00	0.00	50.00	46	55	216	9.00	18-Brach Tips
6	70.00	70.00	0.00	50.00	45	53	216	9.00	18-Brach Tips
7	60.00	60.00	0.00	50.00	43	52	216	9.00	18-Brach Tips
8	50.00	50.00	0.00	50.00	42	50	216	9.00	18-Brach Tips
9	84.00	86.50	0.00	50.00	23	28	78	4.50	1-5' Top Bran
10	84.00	86.00	0.00	50.00	78	93	288	15.00	3-6' Top Bran
11	81.50	81.50	0.00	90.00	751	895	2440	146.40	8 ft branch
12	77.50	77.50	0.00	90.00	743	886	2440	146.40	8 ft branch
13	73.50	73.50	0.00	90.00	735	876	2440	146.40	8 ft branch
14	65.75	65.75	0.00	90.00	584	696	1848	119.00	10 ft branc
15	61.25	61.25	0.00	90.00	575	686	1848	119.00	10 ft branc
16	56.75	56.75	0.00	90.00	566	675	1848	119.00	10 ft branc
17	52.25	52.25	0.00	90.00	557	664	1848	119.00	10 ft branc

*** INPUT LOADS ***

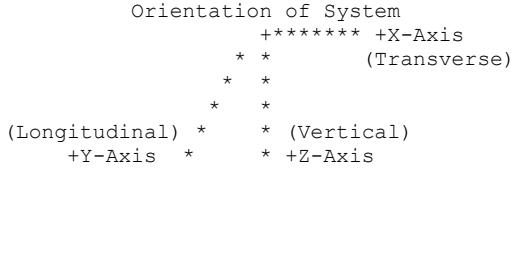
Loading Case ICE + WIND - Continued

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Orientation of System Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
18	47.75	47.75	0.00	90.00	547	651	1848	119.00	10 ft branc
19	43.25	43.25	0.00	90.00	536	638	1848	119.00	10 ft branc
20	43.29	43.29	0.00	90.00	400	476	1476	88.83	12 ft branc
21	38.88	38.88	0.00	90.00	391	466	1476	88.83	12 ft branc
22	34.46	34.46	0.00	90.00	382	455	1476	88.83	12 ft branc
23	30.04	30.04	0.00	90.00	370	441	1476	88.83	12 ft branc
24	25.63	25.63	0.00	90.00	359	428	1476	88.83	12 ft branc
25	21.21	21.21	0.00	90.00	346	412	1476	88.83	12 ft branc
26	33.94	33.94	0.00	90.00	617	735	2592	144.00	14 ft branc
27	29.81	29.81	0.00	90.00	600	716	2592	144.00	14 ft branc
28	25.69	25.69	0.00	90.00	582	694	2592	144.00	14 ft branc
29	21.56	21.56	0.00	90.00	562	670	2592	144.00	14 ft branc

*** 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 50.0 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 0.00 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	80.00	80.00	0.00	50.00	1472	1754	4000	200.00	1-Carrier 1 -
2	70.00	70.00	0.00	50.00	1432	1706	4000	200.00	1-Carrier 2 -
3	60.00	60.00	0.00	50.00	1040	1239	3000	150.00	1-Carrier 3 -
4	50.00	50.00	0.00	50.00	1002	1194	3000	150.00	1-Carrier 4 -
5	80.00	80.00	0.00	50.00	33	39	90	4.50	18-Brach Tips
6	70.00	70.00	0.00	50.00	32	38	90	4.50	18-Brach Tips
7	60.00	60.00	0.00	50.00	31	37	90	4.50	18-Brach Tips
8	50.00	50.00	0.00	50.00	30	36	90	4.50	18-Brach Tips
9	84.00	86.50	0.00	50.00	17	20	33	2.25	1-5' Top Bran
10	84.00	86.00	0.00	50.00	56	67	120	7.50	3-6' Top Bran
11	81.50	81.50	0.00	90.00	541	645	1017	73.20	8 ft branch
12	77.50	77.50	0.00	90.00	535	638	1017	73.20	8 ft branch
13	73.50	73.50	0.00	90.00	529	631	1017	73.20	8 ft branch
14	65.75	65.75	0.00	90.00	420	501	770	59.50	10 ft branc
15	61.25	61.25	0.00	90.00	414	494	770	59.50	10 ft branc
16	56.75	56.75	0.00	90.00	408	486	770	59.50	10 ft branc
17	52.25	52.25	0.00	90.00	401	478	770	59.50	10 ft branc

*** INPUT LOADS ***

Loading Case T+S - Continued

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Orientation of System Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
18	47.75	47.75	0.00	90.00	394	469	770	59.50	10 ft branc
19	43.25	43.25	0.00	90.00	386	460	770	59.50	10 ft branc
20	43.29	43.29	0.00	90.00	288	343	615	44.42	12 ft branc
21	38.88	38.88	0.00	90.00	282	336	615	44.42	12 ft branc
22	34.46	34.46	0.00	90.00	275	327	615	44.42	12 ft branc
23	30.04	30.04	0.00	90.00	267	318	615	44.42	12 ft branc
24	25.63	25.63	0.00	90.00	259	308	615	44.42	12 ft branc
25	21.21	21.21	0.00	90.00	249	297	615	44.42	12 ft branc
26	33.94	33.94	0.00	90.00	444	529	1080	72.00	14 ft branc
27	29.81	29.81	0.00	90.00	432	515	1080	72.00	14 ft branc
28	25.69	25.69	0.00	90.00	419	500	1080	72.00	14 ft branc
29	21.56	21.56	0.00	90.00	405	483	1080	72.00	14 ft branc

*** 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: 0.25
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	80.00	80.00	0.00	50.00	0	0	4800	200.00	1-Carrier 1 -
2	70.00	70.00	0.00	50.00	0	0	4800	200.00	1-Carrier 2 -
3	60.00	60.00	0.00	50.00	0	0	3600	150.00	1-Carrier 3 -
4	50.00	50.00	0.00	50.00	0	0	3600	150.00	1-Carrier 4 -
5	80.00	80.00	0.00	50.00	0	0	108	4.50	18-Brach Tips
6	70.00	70.00	0.00	50.00	0	0	108	4.50	18-Brach Tips
7	60.00	60.00	0.00	50.00	0	0	108	4.50	18-Brach Tips
8	50.00	50.00	0.00	50.00	0	0	108	4.50	18-Brach Tips
9	84.00	86.50	0.00	50.00	0	0	40	2.25	1-5' Top Bran
10	84.00	86.00	0.00	50.00	0	0	144	7.50	3-6' Top Bran
11	81.50	81.50	0.00	90.00	0	0	1220	73.20	8 ft branch
12	77.50	77.50	0.00	90.00	0	0	1220	73.20	8 ft branch
13	73.50	73.50	0.00	90.00	0	0	1220	73.20	8 ft branch
14	65.75	65.75	0.00	90.00	0	0	924	59.50	10 ft branc
15	61.25	61.25	0.00	90.00	0	0	924	59.50	10 ft branc
16	56.75	56.75	0.00	90.00	0	0	924	59.50	10 ft branc
17	52.25	52.25	0.00	90.00	0	0	924	59.50	10 ft branc
18	47.75	47.75	0.00	90.00	0	0	924	59.50	10 ft branc

*** 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)	EPA (ft^2)	Orientation of System
19	43.25	43.25	0.00	90.00	0	0	924	59.50	10 ft branc
20	43.29	43.29	0.00	90.00	0	0	738	44.42	12 ft branc
21	38.88	38.88	0.00	90.00	0	0	738	44.42	12 ft branc
22	34.46	34.46	0.00	90.00	0	0	738	44.42	12 ft branc
23	30.04	30.04	0.00	90.00	0	0	738	44.42	12 ft branc
24	25.63	25.63	0.00	90.00	0	0	738	44.42	12 ft branc
25	21.21	21.21	0.00	90.00	0	0	738	44.42	12 ft branc
26	33.94	33.94	0.00	90.00	0	0	1296	72.00	14 ft branc
27	29.81	29.81	0.00	90.00	0	0	1296	72.00	14 ft branc
28	25.69	25.69	0.00	90.00	0	0	1296	72.00	14 ft branc
29	21.56	21.56	0.00	90.00	0	0	1296	72.00	14 ft branc

*** 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: 0.25
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	80.00	80.00	0.00	50.00	0	0	3600	200.00	1-Carrier 1 -
2	70.00	70.00	0.00	50.00	0	0	3600	200.00	1-Carrier 2 -
3	60.00	60.00	0.00	50.00	0	0	2700	150.00	1-Carrier 3 -
4	50.00	50.00	0.00	50.00	0	0	2700	150.00	1-Carrier 4 -
5	80.00	80.00	0.00	50.00	0	0	81	4.50	18-Brach Tips
6	70.00	70.00	0.00	50.00	0	0	81	4.50	18-Brach Tips
7	60.00	60.00	0.00	50.00	0	0	81	4.50	18-Brach Tips
8	50.00	50.00	0.00	50.00	0	0	81	4.50	18-Brach Tips
9	84.00	86.50	0.00	50.00	0	0	30	2.25	1-5' Top Bran
10	84.00	86.00	0.00	50.00	0	0	108	7.50	3-6' Top Bran
11	81.50	81.50	0.00	90.00	0	0	915	73.20	8 ft branch
12	77.50	77.50	0.00	90.00	0	0	915	73.20	8 ft branch
13	73.50	73.50	0.00	90.00	0	0	915	73.20	8 ft branch
14	65.75	65.75	0.00	90.00	0	0	693	59.50	10 ft branc
15	61.25	61.25	0.00	90.00	0	0	693	59.50	10 ft branc
16	56.75	56.75	0.00	90.00	0	0	693	59.50	10 ft branc
17	52.25	52.25	0.00	90.00	0	0	693	59.50	10 ft branc
18	47.75	47.75	0.00	90.00	0	0	693	59.50	10 ft branc

*** INPUT LOADS ***

Loading Case Seismic 2 - Continued

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Orientation of System Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
19	43.25	43.25	0.00	90.00	0	0	693	59.50	10 ft branc
20	43.29	43.29	0.00	90.00	0	0	554	44.42	12 ft branc
21	38.88	38.88	0.00	90.00	0	0	554	44.42	12 ft branc
22	34.46	34.46	0.00	90.00	0	0	554	44.42	12 ft branc
23	30.04	30.04	0.00	90.00	0	0	554	44.42	12 ft branc
24	25.63	25.63	0.00	90.00	0	0	554	44.42	12 ft branc
25	21.21	21.21	0.00	90.00	0	0	554	44.42	12 ft branc
26	33.94	33.94	0.00	90.00	0	0	972	72.00	14 ft branc
27	29.81	29.81	0.00	90.00	0	0	972	72.00	14 ft branc
28	25.69	25.69	0.00	90.00	0	0	972	72.00	14 ft branc
29	21.56	21.56	0.00	90.00	0	0	972	72.00	14 ft branc

Equivalent Lateral Force Values for Pole

W = 43,332 lbs
Cs = 0.04
Vs = 1,752 lbs
Sds = 0.27
Ev = 2,311 lbs
Fa = 1.60
Fv = 2.40
k = 1.54
f1 = 0.63 Hz

Distance From Fixity H (ft)	Weight Wx (lbs)	H^k	H^k * Wx	Load Distribution Factor	Lateral Seismic Force Fx (lbs)
84.00	153	925.46	141,595	0.0075	13
82.75	129	904.31	116,278	0.0062	11
81.50	1,017	883.34	898,063	0.0475	83
80.75	80	870.84	69,662	0.0037	6
80.00	4,090	858.40	3,510,872	0.1857	325
79.50	55	850.15	46,345	0.0025	4
78.25	84	829.63	69,315	0.0037	6
77.50	1,017	817.40	831,027	0.0440	77
75.75	203	789.13	160,386	0.0085	15
73.75	30	757.24	22,704	0.0012	2
73.50	1,017	753.28	765,839	0.0405	71
71.75	217	725.82	157,154	0.0083	15
70.00	4,090	698.71	2,857,709	0.1512	265
69.50	64	691.03	44,223	0.0023	4
67.38	215	658.73	141,322	0.0075	13
65.75	770	634.40	488,486	0.0258	45
64.88	120	621.43	74,366	0.0039	7
62.63	194	588.52	114,124	0.0060	11
61.25	770	568.72	437,914	0.0232	41
60.63	91	559.80	50,670	0.0027	5
60.00	3,090	550.93	1,702,362	0.0901	158
59.50	73	543.86	39,962	0.0021	4
57.88	169	521.14	87,965	0.0047	8
56.75	770	505.60	389,315	0.0206	36
55.38	213	486.84	103,612	0.0055	10
53.13	139	456.69	63,556	0.0034	6
52.25	770	445.14	342,761	0.0181	32
51.63	101	436.96	44,213	0.0023	4
50.50	242	422.37	102,065	0.0054	9
50.00	3,090	415.94	1,285,259	0.0680	119
49.50	244	409.55	100,131	0.0053	9
48.38	310	395.29	122,387	0.0065	11
47.75	770	387.44	298,330	0.0158	28

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)
46.96	399	377.58	150,490	0.0080	14
45.08	368	354.60	130,538	0.0069	12
43.63	130	337.07	43,652	0.0023	4
43.25	1,385	332.61	460,670	0.0244	43
41.06	777	307.04	238,478	0.0126	22
38.88	615	282.19	173,547	0.0092	16
36.67	821	257.86	211,685	0.0112	20
34.46	615	234.32	144,105	0.0076	13
34.20	99	231.59	22,984	0.0012	2
33.94	1,080	228.88	247,189	0.0131	23
31.88	804	207.79	167,106	0.0088	15
29.81	1,695	187.43	317,699	0.0168	29
29.41	162	183.51	29,766	0.0016	3
27.31	687	163.76	112,533	0.0060	10
25.63	1,695	148.43	251,584	0.0133	23
24.81	339	141.23	47,818	0.0025	4
22.78	517	123.81	64,041	0.0034	6
21.56	1,080	113.75	122,850	0.0065	11
21.39	76	112.31	8,546	0.0005	1
21.21	615	110.88	68,193	0.0036	6
20.10	480	102.11	48,995	0.0026	5
16.50	1,121	75.30	84,380	0.0045	8
11.50	1,168	43.16	50,413	0.0027	5
6.50	1,215	17.91	21,770	0.0012	2
2.00	1,006	2.91	2,930	0.0002	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 2	84.00	19.000	0.2500	76.00	11.64	661	14.88
	81.50	19.878	0.2500	79.51	12.26	758	15.57
	80.00	20.405	0.2500	81.62	12.63	820	15.99
	79.00	20.756	0.2500	83.02	12.88	864	16.27
	77.50	21.283	0.2500	85.13	13.25	932	16.69
	74.00	22.512	0.2500	90.05	14.11	1106	17.66
	73.50	22.688	0.2500	90.75	14.24	1132	17.80
	70.00	23.917	0.2500	95.67	15.11	1328	18.78
	69.00	24.268	0.2500	97.07	15.35	1388	19.06
	65.75	25.409	0.2500	101.64	16.16	1596	19.96
	64.00	26.024	0.2500	104.10	16.59	1716	20.45
	61.25	26.990	0.2500	107.96	17.27	1916	21.22
	60.00	27.429	0.2500	109.71	17.58	2012	21.57
	59.00	27.780	0.2500	111.12	17.83	2091	21.84
	56.75	28.570	0.2500	114.28	18.39	2276	22.47
	54.00	29.536	0.2500	118.14	19.07	2517	23.24
	52.25	30.150	0.2500	120.60	19.50	2679	23.73
	51.00	30.589	0.2500	122.36	19.81	2799	24.07
Top of Sect 1	51.00	30.089	0.5000	60.18	8.85	5193	46.96
	50.00	30.440	0.5000	60.88	8.97	5380	47.51
	49.00	30.792	0.5000	61.58	9.10	5571	48.07
	47.75	31.231	0.5000	62.46	9.25	5817	48.77
Base of Sect 2	46.17	31.787	0.5000	63.57	9.45	6139	49.65
	44.00	32.548	0.5000	65.10	9.71	6597	50.86
	43.25	32.811	0.5000	65.62	9.81	6761	51.28
	38.88	34.347	0.5000	68.69	10.35	7772	53.71
	34.46	35.899	0.5000	71.80	10.90	8891	56.18
	33.94	36.081	0.5000	72.16	10.96	9029	56.47
	29.81	37.530	0.5000	75.06	11.47	10177	58.76
	29.00	37.815	0.5000	75.63	11.57	10415	59.22
	25.63	39.001	0.5000	78.00	11.99	11439	61.10
	24.00	39.571	0.5000	79.14	12.19	11955	62.00
	21.56	40.427	0.5000	80.85	12.49	12758	63.36
	21.21	40.552	0.5000	81.10	12.54	12878	63.56
	19.00	41.327	0.5000	82.65	12.81	13640	64.79
	14.00	43.083	0.5000	86.17	13.43	15477	67.58
	9.00	44.839	0.5000	89.68	14.05	17472	70.36
	4.00	46.595	0.5000	93.19	14.67	19631	73.15
Pt of Fixity	0.00	48.000	0.5000	96.00	15.16	21481	75.38

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)
84.00	10	-8	13	0	325	388	506	139
81.50	23	-19	30	0	401	478	625	293
81.50	23	-19	30	0	2809	3348	4370	1184
80.00	84	-70	109	0	2857	3405	4444	1280
80.00	84	-70	109	0	9643	11492	15002	5268
79.00	222	-186	289	0	9675	11530	15052	5337
77.50	430	-361	561	0	9725	11590	15130	5436
77.50	430	-361	561	0	12105	14426	18832	6348
74.00	1039	-872	1356	0	12224	14568	19018	6606
73.50	1126	-945	1470	0	12243	14590	19046	6642
73.50	1126	-945	1470	0	14593	17391	22703	7576
70.00	1860	-1561	2428	0	14725	17548	22908	7835
70.00	1860	-1561	2428	0	21313	25400	33158	11931
69.00	2165	-1817	2826	0	21337	25428	33194	12073
65.75	3160	-2651	4125	0	21468	25584	33398	12330
65.75	3160	-2651	4125	0	23313	27784	36269	13110
64.00	3744	-3142	4888	0	23363	27843	36347	13352
61.25	4665	-3915	6090	0	23481	27983	36530	13584
61.25	4665	-3915	6090	0	25296	30146	39353	14391
60.00	5118	-4295	6681	0	25350	30211	39438	14499
60.00	5118	-4295	6681	0	30146	35927	46899	17733
59.00	5549	-4657	7244	0	30163	35947	46926	17933
56.75	6522	-5472	8513	0	30265	36068	47083	18135
56.75	6522	-5472	8513	0	32025	38165	49821	19057
54.00	7784	-6531	10161	0	32106	38262	49947	19497
52.25	8588	-7206	11211	0	32188	38360	50076	19664
52.25	8588	-7206	11211	0	33928	40434	52783	20553
51.00	9195	-7716	12003	0	33988	40505	52876	20674
51.00	9195	-7716	12003	0	33967	40480	52843	20757
50.00	9681	-8124	12638	0	34022	40545	52928	21047
50.00	9681	-8124	12638	0	38616	46020	60075	24399
49.00	10234	-8587	13360	0	38653	46065	60134	24759
47.75	10926	-9168	14262	0	38723	46148	60242	25130
47.75	10926	-9168	14262	0	40437	48191	62909	25993
46.17	11842	-9937	15459	0	40493	48258	62996	26595
44.00	13099	-10991	17099	0	40579	48361	63130	27134
43.25	13534	-11357	17668	0	40619	48408	63192	27289
43.25	13534	-11357	17668	0	43541	51890	67737	28906
38.88	16266	-13649	21233	0	43775	52170	68103	29837
38.88	16266	-13649	21233	0	44922	53536	69886	30828

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)
34.46	19111	-16036	24947	0	45164	53824	70262	31812
34.46	19111	-16036	24947	0	46316	55198	72056	32673
33.94	19456	-16325	25398	0	46345	55232	72100	32792
33.94	19456	-16325	25398	0	48245	57496	75056	34169
29.81	22309	-18719	29122	0	48474	57769	75413	35133
29.81	22309	-18719	29122	0	51487	61360	80099	37218
29.00	22907	-19221	29903	0	51472	61342	80076	37612
25.63	25396	-21310	33152	0	51661	61567	80371	38437
25.63	25396	-21310	33152	0	54567	65031	84891	40574
24.00	26665	-22375	34809	0	54594	65062	84932	41188
21.56	28571	-23974	37296	0	54730	65225	85145	41808
21.56	28571	-23974	37296	0	56463	67290	87840	43177
21.21	28857	-24214	37670	0	56482	67313	87871	43268
21.21	28857	-24214	37670	0	57531	68563	89502	44102
19.00	30676	-25740	40044	0	57528	68559	89497	45070
14.00	34799	-29200	45427	0	57619	68668	89639	46958
9.00	38929	-32665	50818	0	57702	68767	89769	48899
4.00	43065	-36135	56217	0	57805	68890	89929	50838
0.00	46378	-38915	60542	0	58030	69157	90279	52046

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.)
84.00	32.1	38.3	50.0	1.7	5.09
81.50	30.4	36.2	47.3	1.5	5.09
81.50	30.4	36.2	47.3	1.5	5.09
80.00	29.4	35.0	45.7	1.5	5.09
80.00	29.4	35.0	45.7	1.5	5.09
79.00	28.7	34.2	44.7	1.4	5.08
77.50	27.7	33.0	43.1	1.4	5.06
77.50	27.7	33.0	43.1	1.4	5.06
74.00	25.3	30.2	39.4	1.2	4.99
73.50	25.0	29.8	38.9	1.2	4.97
73.50	25.0	29.8	38.9	1.2	4.97
70.00	22.7	27.0	35.3	1.0	4.84
70.00	22.7	27.0	35.3	1.0	4.84
69.00	22.0	26.2	34.3	1.0	4.79
65.75	20.0	23.8	31.1	0.8	4.61
65.75	20.0	23.8	31.1	0.8	4.61
64.00	18.9	22.5	29.4	0.8	4.50
61.25	17.3	20.6	26.9	0.7	4.30
61.25	17.3	20.6	26.9	0.7	4.30
60.00	16.5	19.7	25.7	0.6	4.21
60.00	16.5	19.7	25.7	0.6	4.21
59.00	16.0	19.1	24.9	0.6	4.13
56.75	14.8	17.6	23.0	0.5	3.93
56.75	14.8	17.6	23.0	0.5	3.93
54.00	13.4	15.9	20.8	0.5	3.68
52.25	12.5	14.9	19.5	0.4	3.51
52.25	12.5	14.9	19.5	0.4	3.51
51.00	11.9	14.2	18.6	0.4	3.38
51.00	11.9	14.2	18.6	0.4	3.38
50.00	11.5	13.7	17.9	0.4	3.33
50.00	11.5	13.7	17.9	0.4	3.33
49.00	11.0	13.1	17.2	0.3	3.27
47.75	10.5	12.5	16.3	0.3	3.20
47.75	10.5	12.5	16.3	0.3	3.20
46.17	9.8	11.7	15.3	0.3	3.11
44.00	8.9	10.6	13.9	0.3	2.98
43.25	8.6	10.3	13.4	0.2	2.93
43.25	8.6	10.3	13.4	0.2	2.93
38.88	7.0	8.3	10.9	0.2	2.65
38.88	7.0	8.3	10.9	0.2	2.65
34.46	5.5	6.5	8.5	0.1	2.36

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.)
34.46	5.5	6.5	8.5	0.1	2.36
33.94	5.3	6.4	8.3	0.1	2.33
33.94	5.3	6.4	8.3	0.1	2.33
29.81	4.1	4.9	6.4	0.1	2.05
29.81	4.1	4.9	6.4	0.1	2.05
29.00	3.9	4.6	6.1	0.1	1.99
25.63	3.0	3.6	4.7	0.1	1.76
25.63	3.0	3.6	4.7	0.1	1.76
24.00	2.7	3.2	4.1	0.0	1.65
21.56	2.1	2.6	3.3	0.0	1.48
21.56	2.1	2.6	3.3	0.0	1.48
21.21	2.1	2.5	3.2	0.0	1.46
21.21	2.1	2.5	3.2	0.0	1.46
19.00	1.7	2.0	2.6	0.0	1.31
14.00	0.9	1.1	1.4	0.0	0.96
9.00	0.4	0.4	0.6	0.0	0.61
4.00	0.1	0.1	0.1	0.0	0.27
0.00	0.0	0.0	0.0	0.0	0.00

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
84.00	967,043	5,653	290,113	5,416	0.00	0.00	0.00	0.00	0.01
81.50	1,012,326	6,199	303,698	5,935	0.00	0.01	0.02	0.00	0.01
80.00	1,039,495	6,538	311,848	6,258	0.01	0.02	0.05	0.00	0.03
79.00	1,057,608	6,769	317,282	6,478	0.01	0.05	0.05	0.00	0.06
77.50	1,084,777	7,124	325,433	6,815	0.01	0.09	0.06	0.00	0.10
74.00	1,148,172	7,986	344,452	7,635	0.01	0.19	0.06	0.00	0.20
73.50	1,157,229	8,113	347,169	7,756	0.01	0.20	0.07	0.00	0.21
70.00	1,220,624	9,031	366,187	8,629	0.01	0.30	0.10	0.00	0.32
69.00	1,238,736	9,303	371,621	8,886	0.01	0.34	0.10	0.00	0.36
65.75	1,297,603	10,193	389,281	9,751	0.01	0.45	0.10	0.00	0.47
64.00	1,329,301	10,634	398,790	10,233	0.01	0.51	0.10	0.00	0.53
61.25	1,379,111	11,338	413,733	11,015	0.01	0.60	0.11	0.00	0.62
60.00	1,401,752	11,662	420,526	11,379	0.01	0.64	0.12	0.00	0.67
59.00	1,419,865	11,924	425,960	11,675	0.01	0.68	0.12	0.00	0.70
56.75	1,460,619	12,518	438,186	12,355	0.01	0.76	0.13	0.00	0.79
54.00	1,510,430	13,256	453,129	13,212	0.01	0.85	0.12	0.00	0.88
52.25	1,542,127	13,731	462,638	13,772	0.01	0.91	0.13	0.00	0.94
51.00	1,564,768	14,073	469,430	14,180	0.01	0.95	0.13	0.00	0.98
51.00	3,052,173	28,060	915,652	26,975	0.01	0.48	0.06	0.00	0.49
50.00	3,088,399	28,735	926,520	27,619	0.01	0.49	0.07	0.00	0.50
49.00	3,124,624	29,419	937,387	28,271	0.01	0.50	0.07	0.00	0.52
47.75	3,169,906	30,284	950,972	29,096	0.01	0.52	0.07	0.00	0.54
46.17	3,227,264	31,399	968,179	30,159	0.01	0.55	0.07	0.00	0.56
44.00	3,305,753	32,957	991,726	31,643	0.01	0.58	0.07	0.00	0.59
43.25	3,332,922	33,505	999,877	32,166	0.01	0.59	0.08	0.00	0.60
38.88	3,491,410	36,793	1,047,423	35,298	0.01	0.64	0.07	0.00	0.66
34.46	3,651,407	40,268	1,095,422	38,607	0.01	0.69	0.07	0.00	0.70
33.94	3,670,275	40,688	1,101,082	39,007	0.01	0.69	0.08	0.00	0.71
29.81	3,819,706	44,092	1,145,912	42,248	0.01	0.73	0.08	0.00	0.75
29.00	3,849,139	44,779	1,154,742	42,901	0.01	0.74	0.08	0.00	0.76
25.63	3,971,401	47,688	1,191,420	45,670	0.01	0.77	0.08	0.00	0.79
24.00	4,030,268	49,121	1,209,080	47,034	0.01	0.79	0.08	0.00	0.80
21.56	4,118,568	51,311	1,235,570	49,117	0.01	0.81	0.08	0.00	0.83
21.21	4,131,398	51,633	1,239,419	49,424	0.01	0.81	0.08	0.00	0.83
19.00	4,211,397	53,664	1,263,419	51,356	0.01	0.83	0.08	0.00	0.85
14.00	4,392,525	58,409	1,317,758	55,869	0.01	0.86	0.08	0.00	0.88
9.00	4,573,654	63,354	1,372,096	60,572	0.01	0.89	0.07	0.00	0.91
4.00	4,754,783	68,500	1,426,435	65,464	0.01	0.91	0.07	0.00	0.93
0.00	4,899,686	72,762	1,469,906	69,515	0.01	0.92	0.07	0.00	0.94

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)
84.00	3	-3	4	0	108	129	168	361
81.50	8	-6	10	0	138	164	214	580
81.50	8	-6	10	0	935	1114	1454	2985
80.00	28	-23	36	0	953	1136	1482	3120
80.00	28	-23	36	0	3227	3846	5021	12837
79.00	74	-62	97	0	3239	3860	5039	12930
77.50	144	-121	188	0	3258	3883	5068	13072
77.50	144	-121	188	0	4044	4820	6291	15479
74.00	347	-291	453	0	4087	4870	6358	15825
73.50	377	-316	492	0	4093	4878	6368	15876
73.50	377	-316	492	0	4868	5802	7574	18285
70.00	622	-522	811	0	4916	5858	7648	18652
70.00	622	-522	811	0	7117	8482	11072	28380
69.00	723	-607	944	0	7119	8484	11075	28496
65.75	1055	-886	1378	0	7165	8539	11147	28858
65.75	1055	-886	1378	0	7764	9253	12079	30692
64.00	1250	-1049	1632	0	7771	9262	12090	30905
61.25	1556	-1306	2032	0	7812	9310	12153	31232
61.25	1556	-1306	2032	0	8399	10009	13066	33068
60.00	1707	-1432	2228	0	8418	10032	13095	33220
60.00	1707	-1432	2228	0	10008	11927	15570	40585
59.00	1850	-1552	2415	0	10002	11920	15561	40721
56.75	2172	-1823	2836	0	10037	11961	15614	41005
56.75	2172	-1823	2836	0	10595	12626	16482	42854
54.00	2590	-2173	3381	0	10603	12636	16495	43232
52.25	2855	-2396	3728	0	10630	12668	16537	43466
52.25	2855	-2396	3728	0	11186	13331	17402	45310
51.00	3056	-2564	3989	0	11205	13354	17433	45480
51.00	3056	-2564	3989	0	11190	13336	17409	45489
50.00	3216	-2698	4198	0	11208	13358	17437	45837
50.00	3216	-2698	4198	0	12722	15161	19791	53215
49.00	3398	-2851	4436	0	12727	15168	19800	53574
47.75	3626	-3042	4733	0	12750	15195	19836	54019
47.75	3626	-3042	4733	0	13302	15852	20694	55861
46.17	3927	-3295	5126	0	13307	15859	20702	56447
44.00	4340	-3642	5665	0	13325	15880	20731	56986
43.25	4483	-3762	5852	0	13338	15896	20750	57172
43.25	4483	-3762	5852	0	14273	17010	22205	60491
38.88	5378	-4513	7021	0	14348	17099	22322	61605
38.88	5378	-4513	7021	0	14688	17504	22850	63108

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)
34.46	6308	-5293	8235	0	14764	17595	22969	64283
34.46	6308	-5293	8235	0	15120	18019	23522	65772
33.94	6421	-5388	8382	0	15129	18030	23536	65914
33.94	6421	-5388	8382	0	15728	18744	24468	68515
29.81	7351	-6168	9596	0	15799	18829	24579	69663
29.81	7351	-6168	9596	0	16757	19971	26070	73737
29.00	7546	-6332	9850	0	16732	19941	26031	73990
25.63	8355	-7011	10906	0	16790	20010	26121	74968
25.63	8355	-7011	10906	0	17710	21106	27551	79047
24.00	8767	-7356	11444	0	17696	21090	27531	79551
21.56	9384	-7874	12250	0	17737	21139	27595	80286
21.56	9384	-7874	12250	0	18285	21792	28447	82886
21.21	9477	-7952	12371	0	18291	21799	28456	82994
21.21	9477	-7952	12371	0	18617	22187	28963	84480
19.00	10066	-8446	13140	0	18575	22137	28898	85201
14.00	11397	-9563	14877	0	18546	22102	28853	86842
9.00	12726	-10678	16612	0	18514	22065	28803	88541
4.00	14052	-11791	18344	0	18494	22040	28772	90286
0.00	15112	-12681	19728	0	18559	22118	28873	91667

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.)
84.00	10.6	12.6	16.5	0.2	1.68
81.50	10.0	11.9	15.6	0.2	1.68
81.50	10.0	11.9	15.6	0.2	1.68
80.00	9.7	11.5	15.1	0.2	1.68
80.00	9.7	11.5	15.1	0.2	1.68
79.00	9.5	11.3	14.7	0.2	1.68
77.50	9.1	10.9	14.2	0.2	1.67
77.50	9.1	10.9	14.2	0.2	1.67
74.00	8.3	9.9	13.0	0.2	1.65
73.50	8.2	9.8	12.8	0.2	1.64
73.50	8.2	9.8	12.8	0.2	1.64
70.00	7.5	8.9	11.6	0.1	1.60
70.00	7.5	8.9	11.6	0.1	1.60
69.00	7.2	8.6	11.3	0.1	1.58
65.75	6.6	7.8	10.2	0.1	1.52
65.75	6.6	7.8	10.2	0.1	1.52
64.00	6.2	7.4	9.7	0.1	1.49
61.25	5.7	6.8	8.8	0.1	1.42
61.25	5.7	6.8	8.8	0.1	1.42
60.00	5.4	6.5	8.5	0.1	1.39
60.00	5.4	6.5	8.5	0.1	1.39
59.00	5.2	6.3	8.2	0.1	1.36
56.75	4.8	5.8	7.5	0.1	1.30
56.75	4.8	5.8	7.5	0.1	1.30
54.00	4.4	5.2	6.8	0.1	1.21
52.25	4.1	4.9	6.4	0.1	1.15
52.25	4.1	4.9	6.4	0.1	1.15
51.00	3.9	4.7	6.1	0.1	1.11
51.00	3.9	4.7	6.1	0.1	1.11
50.00	3.8	4.5	5.9	0.1	1.09
50.00	3.8	4.5	5.9	0.1	1.09
49.00	3.6	4.3	5.6	0.1	1.08
47.75	3.4	4.1	5.3	0.1	1.05
47.75	3.4	4.1	5.3	0.1	1.05
46.17	3.2	3.8	5.0	0.1	1.02
44.00	2.9	3.5	4.6	0.0	0.98
43.25	2.8	3.4	4.4	0.0	0.96
43.25	2.8	3.4	4.4	0.0	0.96
38.88	2.3	2.7	3.6	0.0	0.87
38.88	2.3	2.7	3.6	0.0	0.87
34.46	1.8	2.1	2.8	0.0	0.77

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.)
34.46	1.8	2.1	2.8	0.0	0.77
33.94	1.7	2.1	2.7	0.0	0.76
33.94	1.7	2.1	2.7	0.0	0.76
29.81	1.3	1.6	2.1	0.0	0.67
29.81	1.3	1.6	2.1	0.0	0.67
29.00	1.3	1.5	2.0	0.0	0.65
25.63	1.0	1.2	1.5	0.0	0.58
25.63	1.0	1.2	1.5	0.0	0.58
24.00	0.9	1.0	1.4	0.0	0.54
21.56	0.7	0.8	1.1	0.0	0.49
21.56	0.7	0.8	1.1	0.0	0.49
21.21	0.7	0.8	1.1	0.0	0.48
21.21	0.7	0.8	1.1	0.0	0.48
19.00	0.5	0.6	0.8	0.0	0.43
14.00	0.3	0.4	0.5	0.0	0.31
9.00	0.1	0.1	0.2	0.0	0.20
4.00	0.0	0.0	0.0	0.0	0.09
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
84.00	967,043	5,653	290,113	5,416	0.00	0.00	0.00	0.00	0.01
81.50	1,012,326	6,199	303,698	5,935	0.00	0.00	0.01	0.00	0.01
80.00	1,039,495	6,538	311,848	6,258	0.01	0.01	0.02	0.00	0.02
79.00	1,057,608	6,769	317,282	6,478	0.01	0.02	0.02	0.00	0.03
77.50	1,084,777	7,124	325,433	6,815	0.02	0.03	0.02	0.00	0.05
74.00	1,148,172	7,986	344,452	7,635	0.02	0.06	0.02	0.00	0.08
73.50	1,157,229	8,113	347,169	7,756	0.02	0.07	0.02	0.00	0.09
70.00	1,220,624	9,031	366,187	8,629	0.03	0.10	0.03	0.00	0.13
69.00	1,238,736	9,303	371,621	8,886	0.03	0.11	0.03	0.00	0.14
65.75	1,297,603	10,193	389,281	9,751	0.03	0.15	0.03	0.00	0.18
64.00	1,329,301	10,634	398,790	10,233	0.03	0.17	0.03	0.00	0.20
61.25	1,379,111	11,338	413,733	11,015	0.03	0.20	0.04	0.00	0.23
60.00	1,401,752	11,662	420,526	11,379	0.03	0.21	0.04	0.00	0.25
59.00	1,419,865	11,924	425,960	11,675	0.03	0.23	0.04	0.00	0.26
56.75	1,460,619	12,518	438,186	12,355	0.03	0.25	0.04	0.00	0.29
54.00	1,510,430	13,256	453,129	13,212	0.03	0.28	0.04	0.00	0.32
52.25	1,542,127	13,731	462,638	13,772	0.03	0.30	0.04	0.00	0.34
51.00	1,564,768	14,073	469,430	14,180	0.03	0.31	0.04	0.00	0.35
51.00	3,052,173	28,060	915,652	26,975	0.02	0.16	0.02	0.00	0.17
50.00	3,088,399	28,735	926,520	27,619	0.02	0.16	0.02	0.00	0.18
49.00	3,124,624	29,419	937,387	28,271	0.02	0.17	0.02	0.00	0.19
47.75	3,169,906	30,284	950,972	29,096	0.02	0.17	0.02	0.00	0.19
46.17	3,227,264	31,399	968,179	30,159	0.02	0.18	0.02	0.00	0.20
44.00	3,305,753	32,957	991,726	31,643	0.02	0.19	0.02	0.00	0.21
43.25	3,332,922	33,505	999,877	32,166	0.02	0.19	0.02	0.00	0.21
38.88	3,491,410	36,793	1,047,423	35,298	0.02	0.21	0.02	0.00	0.23
34.46	3,651,407	40,268	1,095,422	38,607	0.02	0.23	0.02	0.00	0.25
33.94	3,670,275	40,688	1,101,082	39,007	0.02	0.23	0.02	0.00	0.25
29.81	3,819,706	44,092	1,145,912	42,248	0.02	0.24	0.03	0.00	0.26
29.00	3,849,139	44,779	1,154,742	42,901	0.02	0.24	0.03	0.00	0.27
25.63	3,971,401	47,688	1,191,420	45,670	0.02	0.25	0.03	0.00	0.28
24.00	4,030,268	49,121	1,209,080	47,034	0.02	0.26	0.03	0.00	0.28
21.56	4,118,568	51,311	1,235,570	49,117	0.02	0.27	0.03	0.00	0.29
21.21	4,131,398	51,633	1,239,419	49,424	0.02	0.27	0.03	0.00	0.29
19.00	4,211,397	53,664	1,263,419	51,356	0.02	0.27	0.03	0.00	0.30
14.00	4,392,525	58,409	1,317,758	55,869	0.02	0.28	0.02	0.00	0.31
9.00	4,573,654	63,354	1,372,096	60,572	0.02	0.29	0.02	0.00	0.31
4.00	4,754,783	68,500	1,426,435	65,464	0.02	0.30	0.02	0.00	0.32
0.00	4,899,686	72,762	1,469,906	69,515	0.02	0.30	0.02	0.00	0.32

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)
84.00	2	-2	3	0	75	89	116	151
81.50	5	-4	7	0	92	110	143	279
81.50	5	-4	7	0	646	770	1005	1278
80.00	19	-16	25	0	657	783	1022	1358
80.00	19	-16	25	0	2215	2640	3446	5400
79.00	51	-43	67	0	2223	2649	3458	5455
77.50	99	-83	129	0	2234	2662	3475	5538
77.50	99	-83	129	0	2782	3315	4327	6538
74.00	239	-200	312	0	2809	3347	4369	6742
73.50	259	-217	338	0	2813	3352	4376	6772
73.50	259	-217	338	0	3353	3997	5217	7774
70.00	427	-359	558	0	3383	4032	5264	7990
70.00	427	-359	558	0	4896	5835	7617	12038
69.00	497	-417	649	0	4901	5841	7625	12105
65.75	726	-609	948	0	4931	5876	7671	12320
65.75	726	-609	948	0	5356	6383	8332	13082
64.00	860	-722	1123	0	5367	6396	8349	13207
61.25	1072	-899	1399	0	5394	6428	8391	13401
61.25	1072	-899	1399	0	5811	6926	9041	14164
60.00	1176	-987	1535	0	5824	6940	9060	14255
60.00	1176	-987	1535	0	6925	8253	10773	17320
59.00	1275	-1070	1664	0	6929	8257	10779	17399
56.75	1498	-1257	1956	0	6952	8285	10815	17568
56.75	1498	-1257	1956	0	7357	8768	11445	18338
54.00	1788	-1500	2334	0	7376	8790	11475	18561
52.25	1973	-1655	2575	0	7395	8813	11504	18700
52.25	1973	-1655	2575	0	7795	9290	12127	19468
51.00	2112	-1773	2758	0	7809	9306	12148	19569
51.00	2112	-1773	2758	0	7804	9301	12141	19573
50.00	2224	-1866	2903	0	7816	9315	12160	19815
50.00	2224	-1866	2903	0	8871	10572	13801	22886
49.00	2351	-1973	3069	0	8880	10583	13815	23134
47.75	2510	-2106	3276	0	8895	10601	13839	23444
47.75	2510	-2106	3276	0	9290	11072	14453	24211
46.17	2721	-2283	3551	0	9303	11087	14473	24616
44.00	3009	-2525	3928	0	9323	11110	14504	24989
43.25	3109	-2609	4059	0	9332	11121	14518	25118
43.25	3109	-2609	4059	0	10005	11923	15564	26501
38.88	3737	-3136	4878	0	10058	11986	15647	27278
38.88	3737	-3136	4878	0	10323	12303	16060	27906

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)
34.46	4391	-3684	5732	0	10378	12368	16145	28727
34.46	4391	-3684	5732	0	10644	12685	16560	29348
33.94	4470	-3751	5835	0	10651	12693	16570	29448
33.94	4470	-3751	5835	0	11089	13215	17251	30532
29.81	5126	-4301	6691	0	11141	13277	17332	31336
29.81	5126	-4301	6691	0	11835	14105	18413	33034
29.00	5263	-4416	6871	0	11833	14103	18410	33206
25.63	5835	-4896	7618	0	11876	14154	18476	33894
25.63	5835	-4896	7618	0	12547	14953	19519	35594
24.00	6127	-5141	7998	0	12554	14962	19531	35944
21.56	6565	-5509	8570	0	12585	14999	19580	36461
21.56	6565	-5509	8570	0	12985	15475	20202	37545
21.21	6631	-5564	8656	0	12990	15481	20209	37621
21.21	6631	-5564	8656	0	13232	15770	20586	38241
19.00	7049	-5915	9202	0	13235	15773	20591	38741
14.00	7998	-6711	10441	0	13262	15805	20632	39891
9.00	8949	-7509	11682	0	13288	15835	20672	41087
4.00	9901	-8308	12925	0	13318	15871	20718	42328
0.00	10664	-8948	13921	0	13369	15933	20799	43335

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.)
84.00	7.4	8.8	11.5	0.1	1.17
81.50	7.0	8.3	10.9	0.1	1.17
81.50	7.0	8.3	10.9	0.1	1.17
80.00	6.8	8.1	10.5	0.1	1.17
80.00	6.8	8.1	10.5	0.1	1.17
79.00	6.6	7.9	10.3	0.1	1.17
77.50	6.4	7.6	9.9	0.1	1.16
77.50	6.4	7.6	9.9	0.1	1.16
74.00	5.8	6.9	9.1	0.1	1.15
73.50	5.7	6.8	8.9	0.1	1.14
73.50	5.7	6.8	8.9	0.1	1.14
70.00	5.2	6.2	8.1	0.1	1.11
70.00	5.2	6.2	8.1	0.1	1.11
69.00	5.1	6.0	7.9	0.1	1.10
65.75	4.6	5.5	7.1	0.1	1.06
65.75	4.6	5.5	7.1	0.1	1.06
64.00	4.3	5.2	6.8	0.1	1.03
61.25	4.0	4.7	6.2	0.0	0.99
61.25	4.0	4.7	6.2	0.0	0.99
60.00	3.8	4.5	5.9	0.0	0.97
60.00	3.8	4.5	5.9	0.0	0.97
59.00	3.7	4.4	5.7	0.0	0.95
56.75	3.4	4.0	5.3	0.0	0.90
56.75	3.4	4.0	5.3	0.0	0.90
54.00	3.1	3.7	4.8	0.0	0.85
52.25	2.9	3.4	4.5	0.0	0.81
52.25	2.9	3.4	4.5	0.0	0.81
51.00	2.7	3.3	4.3	0.0	0.78
51.00	2.7	3.3	4.3	0.0	0.78
50.00	2.6	3.1	4.1	0.0	0.77
50.00	2.6	3.1	4.1	0.0	0.77
49.00	2.5	3.0	3.9	0.0	0.75
47.75	2.4	2.9	3.8	0.0	0.74
47.75	2.4	2.9	3.8	0.0	0.74
46.17	2.3	2.7	3.5	0.0	0.71
44.00	2.1	2.4	3.2	0.0	0.68
43.25	2.0	2.4	3.1	0.0	0.67
43.25	2.0	2.4	3.1	0.0	0.67
38.88	1.6	1.9	2.5	0.0	0.61
38.88	1.6	1.9	2.5	0.0	0.61
34.46	1.3	1.5	2.0	0.0	0.54

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.)
34.46	1.3	1.5	2.0	0.0	0.54
33.94	1.2	1.5	1.9	0.0	0.53
33.94	1.2	1.5	1.9	0.0	0.53
29.81	0.9	1.1	1.5	0.0	0.47
29.81	0.9	1.1	1.5	0.0	0.47
29.00	0.9	1.1	1.4	0.0	0.46
25.63	0.7	0.8	1.1	0.0	0.41
25.63	0.7	0.8	1.1	0.0	0.41
24.00	0.6	0.7	1.0	0.0	0.38
21.56	0.5	0.6	0.8	0.0	0.34
21.56	0.5	0.6	0.8	0.0	0.34
21.21	0.5	0.6	0.7	0.0	0.34
21.21	0.5	0.6	0.7	0.0	0.34
19.00	0.4	0.5	0.6	0.0	0.30
14.00	0.2	0.2	0.3	0.0	0.22
9.00	0.1	0.1	0.1	0.0	0.14
4.00	0.0	0.0	0.0	0.0	0.06
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
84.00	967,043	5,653	290,113	5,416	0.00	0.00	0.00	0.00	0.01
81.50	1,012,326	6,199	303,698	5,935	0.00	0.00	0.00	0.00	0.01
80.00	1,039,495	6,538	311,848	6,258	0.01	0.00	0.01	0.00	0.01
79.00	1,057,608	6,769	317,282	6,478	0.01	0.01	0.01	0.00	0.02
77.50	1,084,777	7,124	325,433	6,815	0.01	0.02	0.01	0.00	0.03
74.00	1,148,172	7,986	344,452	7,635	0.01	0.04	0.01	0.00	0.05
73.50	1,157,229	8,113	347,169	7,756	0.01	0.05	0.02	0.00	0.05
70.00	1,220,624	9,031	366,187	8,629	0.01	0.07	0.02	0.00	0.08
69.00	1,238,736	9,303	371,621	8,886	0.01	0.08	0.02	0.00	0.09
65.75	1,297,603	10,193	389,281	9,751	0.01	0.10	0.02	0.00	0.12
64.00	1,329,301	10,634	398,790	10,233	0.01	0.12	0.02	0.00	0.13
61.25	1,379,111	11,338	413,733	11,015	0.01	0.14	0.02	0.00	0.15
60.00	1,401,752	11,662	420,526	11,379	0.01	0.15	0.03	0.00	0.16
59.00	1,419,865	11,924	425,960	11,675	0.01	0.16	0.03	0.00	0.17
56.75	1,460,619	12,518	438,186	12,355	0.01	0.17	0.03	0.00	0.19
54.00	1,510,430	13,256	453,129	13,212	0.01	0.20	0.03	0.00	0.21
52.25	1,542,127	13,731	462,638	13,772	0.01	0.21	0.03	0.00	0.22
51.00	1,564,768	14,073	469,430	14,180	0.01	0.22	0.03	0.00	0.23
51.00	3,052,173	28,060	915,652	26,975	0.01	0.11	0.01	0.00	0.12
50.00	3,088,399	28,735	926,520	27,619	0.01	0.11	0.02	0.00	0.12
49.00	3,124,624	29,419	937,387	28,271	0.01	0.12	0.02	0.00	0.12
47.75	3,169,906	30,284	950,972	29,096	0.01	0.12	0.02	0.00	0.13
46.17	3,227,264	31,399	968,179	30,159	0.01	0.13	0.02	0.00	0.13
44.00	3,305,753	32,957	991,726	31,643	0.01	0.13	0.02	0.00	0.14
43.25	3,332,922	33,505	999,877	32,166	0.01	0.13	0.02	0.00	0.14
38.88	3,491,410	36,793	1,047,423	35,298	0.01	0.15	0.02	0.00	0.16
34.46	3,651,407	40,268	1,095,422	38,607	0.01	0.16	0.02	0.00	0.17
33.94	3,670,275	40,688	1,101,082	39,007	0.01	0.16	0.02	0.00	0.17
29.81	3,819,706	44,092	1,145,912	42,248	0.01	0.17	0.02	0.00	0.18
29.00	3,849,139	44,779	1,154,742	42,901	0.01	0.17	0.02	0.00	0.18
25.63	3,971,401	47,688	1,191,420	45,670	0.01	0.18	0.02	0.00	0.19
24.00	4,030,268	49,121	1,209,080	47,034	0.01	0.18	0.02	0.00	0.19
21.56	4,118,568	51,311	1,235,570	49,117	0.01	0.19	0.02	0.00	0.20
21.21	4,131,398	51,633	1,239,419	49,424	0.01	0.19	0.02	0.00	0.20
19.00	4,211,397	53,664	1,263,419	51,356	0.01	0.19	0.02	0.00	0.20
14.00	4,392,525	58,409	1,317,758	55,869	0.01	0.20	0.02	0.00	0.21
9.00	4,573,654	63,354	1,372,096	60,572	0.01	0.20	0.02	0.00	0.22
4.00	4,754,783	68,500	1,426,435	65,464	0.01	0.21	0.02	0.00	0.22
0.00	4,899,686	72,762	1,469,906	69,515	0.01	0.21	0.02	0.00	0.22

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)
84.00	0	0	0	0	9	11	14	192
81.50	1	-1	1	0	16	19	25	353
81.50	1	-1	1	0	72	85	111	1627
80.00	2	-2	3	0	76	90	118	1727
80.00	2	-2	3	0	292	349	455	6853
79.00	7	-5	8	0	295	352	459	6921
77.50	13	-11	17	0	300	357	466	7026
77.50	13	-11	17	0	351	418	546	8300
74.00	31	-26	40	0	361	430	561	8554
73.50	33	-28	43	0	362	431	563	8592
73.50	33	-28	43	0	409	488	637	9866
70.00	54	-45	71	0	419	499	652	10137
70.00	54	-45	71	0	596	710	927	15263
69.00	63	-52	82	0	598	713	931	15343
65.75	91	-76	118	0	607	723	944	15612
65.75	91	-76	118	0	637	759	990	16577
64.00	107	-89	139	0	640	763	996	16727
61.25	132	-111	172	0	647	772	1007	16970
61.25	132	-111	172	0	674	803	1048	17935
60.00	144	-121	188	0	677	807	1053	18049
60.00	144	-121	188	0	782	932	1217	21921
59.00	155	-130	203	0	784	934	1220	22013
56.75	180	-151	236	0	789	941	1228	22225
56.75	180	-151	236	0	812	968	1263	23190
54.00	213	-178	277	0	817	974	1271	23457
52.25	233	-196	304	0	821	978	1277	23631
52.25	233	-196	304	0	841	1003	1309	24596
51.00	248	-208	324	0	844	1006	1313	24723
51.00	248	-208	324	0	843	1005	1312	24723
50.00	260	-218	340	0	850	1013	1322	25026
50.00	260	-218	340	0	929	1108	1446	28899
49.00	274	-230	357	0	935	1114	1455	29205
47.75	290	-244	379	0	943	1123	1466	29593
47.75	290	-244	379	0	961	1145	1494	30558
46.17	312	-262	408	0	969	1155	1507	31058
44.00	342	-287	447	0	976	1163	1519	31519
43.25	353	-296	461	0	979	1167	1523	31682
43.25	353	-296	461	0	1006	1199	1565	33418
38.88	416	-349	543	0	1021	1217	1589	34391
38.88	416	-349	543	0	1029	1227	1601	35162

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)
34.46	482	-404	629	0	1042	1242	1622	36191
34.46	482	-404	629	0	1050	1251	1633	36962
33.94	489	-411	639	0	1051	1253	1636	37086
33.94	489	-411	639	0	1065	1269	1657	38440
29.81	553	-464	721	0	1076	1282	1674	39448
29.81	553	-464	721	0	1094	1304	1702	41572
29.00	565	-474	738	0	1094	1304	1702	41776
25.63	618	-519	807	0	1101	1312	1713	42637
25.63	618	-519	807	0	1115	1329	1735	44761
24.00	644	-541	841	0	1117	1331	1737	45186
21.56	683	-573	892	0	1121	1335	1743	45834
21.56	683	-573	892	0	1127	1343	1754	47188
21.21	689	-578	899	0	1128	1344	1755	47283
21.21	689	-578	899	0	1131	1348	1760	48054
19.00	725	-608	946	0	1131	1348	1759	48656
14.00	806	-676	1052	0	1132	1349	1761	50060
9.00	887	-744	1158	0	1131	1347	1759	51524
4.00	968	-812	1263	0	1128	1344	1755	53048
0.00	1032	-866	1348	0	1128	1345	1755	54309

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.)
84.00	0.8	0.9	1.2	0.0	0.13
81.50	0.7	0.9	1.2	0.0	0.13
81.50	0.7	0.9	1.2	0.0	0.13
80.00	0.7	0.9	1.1	0.0	0.13
80.00	0.7	0.9	1.1	0.0	0.13
79.00	0.7	0.8	1.1	0.0	0.13
77.50	0.7	0.8	1.1	0.0	0.13
77.50	0.7	0.8	1.1	0.0	0.13
74.00	0.6	0.7	1.0	0.0	0.13
73.50	0.6	0.7	0.9	0.0	0.13
73.50	0.6	0.7	0.9	0.0	0.13
70.00	0.5	0.7	0.9	0.0	0.12
70.00	0.5	0.7	0.9	0.0	0.12
69.00	0.5	0.6	0.8	0.0	0.12
65.75	0.5	0.6	0.7	0.0	0.12
65.75	0.5	0.6	0.7	0.0	0.12
64.00	0.5	0.5	0.7	0.0	0.11
61.25	0.4	0.5	0.6	0.0	0.11
61.25	0.4	0.5	0.6	0.0	0.11
60.00	0.4	0.5	0.6	0.0	0.10
60.00	0.4	0.5	0.6	0.0	0.10
59.00	0.4	0.5	0.6	0.0	0.10
56.75	0.4	0.4	0.5	0.0	0.10
56.75	0.4	0.4	0.5	0.0	0.10
54.00	0.3	0.4	0.5	0.0	0.09
52.25	0.3	0.4	0.5	0.0	0.09
52.25	0.3	0.4	0.5	0.0	0.09
51.00	0.3	0.3	0.4	0.0	0.08
51.00	0.3	0.3	0.4	0.0	0.08
50.00	0.3	0.3	0.4	0.0	0.08
50.00	0.3	0.3	0.4	0.0	0.08
49.00	0.3	0.3	0.4	0.0	0.08
47.75	0.2	0.3	0.4	0.0	0.08
47.75	0.2	0.3	0.4	0.0	0.08
46.17	0.2	0.3	0.4	0.0	0.07
44.00	0.2	0.2	0.3	0.0	0.07
43.25	0.2	0.2	0.3	0.0	0.07
43.25	0.2	0.2	0.3	0.0	0.07
38.88	0.2	0.2	0.3	0.0	0.06
38.88	0.2	0.2	0.3	0.0	0.06
34.46	0.1	0.2	0.2	0.0	0.06

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.)
34.46	0.1	0.2	0.2	0.0	0.06
33.94	0.1	0.1	0.2	0.0	0.05
33.94	0.1	0.1	0.2	0.0	0.05
29.81	0.1	0.1	0.1	0.0	0.05
29.81	0.1	0.1	0.1	0.0	0.05
29.00	0.1	0.1	0.1	0.0	0.05
25.63	0.1	0.1	0.1	0.0	0.04
25.63	0.1	0.1	0.1	0.0	0.04
24.00	0.1	0.1	0.1	0.0	0.04
21.56	0.0	0.1	0.1	0.0	0.03
21.56	0.0	0.1	0.1	0.0	0.03
21.21	0.0	0.1	0.1	0.0	0.03
21.21	0.0	0.1	0.1	0.0	0.03
19.00	0.0	0.0	0.1	0.0	0.03
14.00	0.0	0.0	0.0	0.0	0.02
9.00	0.0	0.0	0.0	0.0	0.01
4.00	0.0	0.0	0.0	0.0	0.01
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
84.00	967,043	5,653	290,113	5,416	0.00	0.00	0.00	0.00	0.01
81.50	1,012,326	6,199	303,698	5,935	0.00	0.00	0.00	0.00	0.01
80.00	1,039,495	6,538	311,848	6,258	0.01	0.00	0.00	0.00	0.01
79.00	1,057,608	6,769	317,282	6,478	0.01	0.00	0.00	0.00	0.01
77.50	1,084,777	7,124	325,433	6,815	0.01	0.00	0.00	0.00	0.01
74.00	1,148,172	7,986	344,452	7,635	0.01	0.01	0.00	0.00	0.01
73.50	1,157,229	8,113	347,169	7,756	0.01	0.01	0.00	0.00	0.02
70.00	1,220,624	9,031	366,187	8,629	0.01	0.01	0.00	0.00	0.02
69.00	1,238,736	9,303	371,621	8,886	0.01	0.01	0.00	0.00	0.02
65.75	1,297,603	10,193	389,281	9,751	0.01	0.01	0.00	0.00	0.03
64.00	1,329,301	10,634	398,790	10,233	0.01	0.01	0.00	0.00	0.03
61.25	1,379,111	11,338	413,733	11,015	0.01	0.02	0.00	0.00	0.03
60.00	1,401,752	11,662	420,526	11,379	0.02	0.02	0.00	0.00	0.04
59.00	1,419,865	11,924	425,960	11,675	0.02	0.02	0.00	0.00	0.04
56.75	1,460,619	12,518	438,186	12,355	0.02	0.02	0.00	0.00	0.04
54.00	1,510,430	13,256	453,129	13,212	0.02	0.02	0.00	0.00	0.04
52.25	1,542,127	13,731	462,638	13,772	0.02	0.02	0.00	0.00	0.04
51.00	1,564,768	14,073	469,430	14,180	0.02	0.03	0.00	0.00	0.04
51.00	3,052,173	28,060	915,652	26,975	0.01	0.01	0.00	0.00	0.02
50.00	3,088,399	28,735	926,520	27,619	0.01	0.01	0.00	0.00	0.02
49.00	3,124,624	29,419	937,387	28,271	0.01	0.01	0.00	0.00	0.02
47.75	3,169,906	30,284	950,972	29,096	0.01	0.01	0.00	0.00	0.02
46.17	3,227,264	31,399	968,179	30,159	0.01	0.01	0.00	0.00	0.03
44.00	3,305,753	32,957	991,726	31,643	0.01	0.02	0.00	0.00	0.03
43.25	3,332,922	33,505	999,877	32,166	0.01	0.02	0.00	0.00	0.03
38.88	3,491,410	36,793	1,047,423	35,298	0.01	0.02	0.00	0.00	0.03
34.46	3,651,407	40,268	1,095,422	38,607	0.01	0.02	0.00	0.00	0.03
33.94	3,670,275	40,688	1,101,082	39,007	0.01	0.02	0.00	0.00	0.03
29.81	3,819,706	44,092	1,145,912	42,248	0.01	0.02	0.00	0.00	0.03
29.00	3,849,139	44,779	1,154,742	42,901	0.01	0.02	0.00	0.00	0.03
25.63	3,971,401	47,688	1,191,420	45,670	0.01	0.02	0.00	0.00	0.03
24.00	4,030,268	49,121	1,209,080	47,034	0.01	0.02	0.00	0.00	0.03
21.56	4,118,568	51,311	1,235,570	49,117	0.01	0.02	0.00	0.00	0.03
21.21	4,131,398	51,633	1,239,419	49,424	0.01	0.02	0.00	0.00	0.03
19.00	4,211,397	53,664	1,263,419	51,356	0.01	0.02	0.00	0.00	0.03
14.00	4,392,525	58,409	1,317,758	55,869	0.01	0.02	0.00	0.00	0.03
9.00	4,573,654	63,354	1,372,096	60,572	0.01	0.02	0.00	0.00	0.03
4.00	4,754,783	68,500	1,426,435	65,464	0.01	0.02	0.00	0.00	0.03
0.00	4,899,686	72,762	1,469,906	69,515	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)
84.00	0	0	0	0	9	11	14	130
81.50	1	-1	1	0	16	19	25	238
81.50	1	-1	1	0	71	84	110	1099
80.00	2	-2	3	0	75	89	117	1167
80.00	2	-2	3	0	289	345	450	4629
79.00	6	-5	8	0	292	348	454	4675
77.50	13	-11	17	0	296	353	461	4746
77.50	13	-11	17	0	347	413	540	5606
74.00	30	-25	40	0	357	425	555	5778
73.50	33	-28	43	0	358	427	557	5804
73.50	33	-28	43	0	405	482	630	6664
70.00	53	-45	70	0	414	494	645	6848
70.00	53	-45	70	0	589	702	916	10310
69.00	62	-52	81	0	591	705	920	10364
65.75	90	-75	117	0	600	715	933	10546
65.75	90	-75	117	0	629	750	979	11198
64.00	105	-88	138	0	633	755	985	11299
61.25	130	-109	170	0	640	763	996	11463
61.25	130	-109	170	0	667	795	1037	12115
60.00	142	-119	186	0	670	798	1042	12192
60.00	142	-119	186	0	774	922	1204	14808
59.00	153	-129	200	0	776	925	1207	14870
56.75	178	-150	233	0	781	931	1215	15013
56.75	178	-150	233	0	804	958	1251	15665
54.00	210	-176	274	0	809	965	1259	15845
52.25	231	-193	301	0	813	969	1265	15963
52.25	231	-193	301	0	834	993	1297	16615
51.00	245	-206	320	0	836	997	1301	16701
51.00	245	-206	320	0	836	996	1300	16701
50.00	257	-216	336	0	842	1004	1310	16905
50.00	257	-216	336	0	921	1097	1432	19521
49.00	271	-227	353	0	927	1104	1441	19728
47.75	287	-241	375	0	934	1113	1453	19991
47.75	287	-241	375	0	952	1134	1481	20643
46.17	309	-259	403	0	960	1145	1494	20980
44.00	339	-284	442	0	968	1154	1506	21292
43.25	349	-293	456	0	971	1157	1510	21401
43.25	349	-293	456	0	998	1189	1553	22574
38.88	412	-346	538	0	1013	1207	1575	23232
38.88	412	-346	538	0	1021	1217	1589	23753

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)
34.46	477	-400	623	0	1035	1233	1609	24448
34.46	477	-400	623	0	1042	1242	1622	24968
33.94	485	-407	633	0	1044	1244	1624	25052
33.94	485	-407	633	0	1058	1261	1646	25967
29.81	548	-459	715	0	1068	1273	1662	26648
29.81	548	-459	715	0	1087	1295	1691	28083
29.00	560	-470	731	0	1087	1296	1692	28220
25.63	613	-514	800	0	1094	1304	1703	28802
25.63	613	-514	800	0	1109	1321	1725	30237
24.00	639	-536	834	0	1111	1323	1728	30524
21.56	677	-568	884	0	1114	1328	1734	30962
21.56	677	-568	884	0	1121	1336	1745	31877
21.21	683	-573	892	0	1122	1337	1745	31941
21.21	683	-573	892	0	1125	1341	1751	32462
19.00	719	-603	938	0	1126	1342	1752	32868
14.00	799	-671	1044	0	1129	1345	1756	33817
9.00	880	-739	1149	0	1129	1345	1756	34806
4.00	961	-806	1254	0	1127	1344	1754	35836
0.00	1025	-860	1339	0	1128	1344	1754	36688

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.)
84.00	0.8	0.9	1.2	0.0	0.13
81.50	0.7	0.9	1.2	0.0	0.13
81.50	0.7	0.9	1.2	0.0	0.13
80.00	0.7	0.9	1.1	0.0	0.13
80.00	0.7	0.9	1.1	0.0	0.13
79.00	0.7	0.8	1.1	0.0	0.13
77.50	0.7	0.8	1.0	0.0	0.13
77.50	0.7	0.8	1.0	0.0	0.13
74.00	0.6	0.7	1.0	0.0	0.13
73.50	0.6	0.7	0.9	0.0	0.13
73.50	0.6	0.7	0.9	0.0	0.13
70.00	0.5	0.6	0.8	0.0	0.12
70.00	0.5	0.6	0.8	0.0	0.12
69.00	0.5	0.6	0.8	0.0	0.12
65.75	0.5	0.6	0.7	0.0	0.12
65.75	0.5	0.6	0.7	0.0	0.12
64.00	0.4	0.5	0.7	0.0	0.11
61.25	0.4	0.5	0.6	0.0	0.11
61.25	0.4	0.5	0.6	0.0	0.11
60.00	0.4	0.5	0.6	0.0	0.10
60.00	0.4	0.5	0.6	0.0	0.10
59.00	0.4	0.5	0.6	0.0	0.10
56.75	0.3	0.4	0.5	0.0	0.10
56.75	0.3	0.4	0.5	0.0	0.10
54.00	0.3	0.4	0.5	0.0	0.09
52.25	0.3	0.3	0.5	0.0	0.08
52.25	0.3	0.3	0.5	0.0	0.08
51.00	0.3	0.3	0.4	0.0	0.08
51.00	0.3	0.3	0.4	0.0	0.08
50.00	0.3	0.3	0.4	0.0	0.08
50.00	0.3	0.3	0.4	0.0	0.08
49.00	0.3	0.3	0.4	0.0	0.08
47.75	0.2	0.3	0.4	0.0	0.08
47.75	0.2	0.3	0.4	0.0	0.08
46.17	0.2	0.3	0.4	0.0	0.07
44.00	0.2	0.2	0.3	0.0	0.07
43.25	0.2	0.2	0.3	0.0	0.07
43.25	0.2	0.2	0.3	0.0	0.07
38.88	0.2	0.2	0.3	0.0	0.06
38.88	0.2	0.2	0.3	0.0	0.06
34.46	0.1	0.1	0.2	0.0	0.06

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.)
34.46	0.1	0.1	0.2	0.0	0.06
33.94	0.1	0.1	0.2	0.0	0.05
33.94	0.1	0.1	0.2	0.0	0.05
29.81	0.1	0.1	0.1	0.0	0.05
29.81	0.1	0.1	0.1	0.0	0.05
29.00	0.1	0.1	0.1	0.0	0.05
25.63	0.1	0.1	0.1	0.0	0.04
25.63	0.1	0.1	0.1	0.0	0.04
24.00	0.1	0.1	0.1	0.0	0.04
21.56	0.0	0.1	0.1	0.0	0.03
21.56	0.0	0.1	0.1	0.0	0.03
21.21	0.0	0.1	0.1	0.0	0.03
21.21	0.0	0.1	0.1	0.0	0.03
19.00	0.0	0.0	0.1	0.0	0.03
14.00	0.0	0.0	0.0	0.0	0.02
9.00	0.0	0.0	0.0	0.0	0.01
4.00	0.0	0.0	0.0	0.0	0.01
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
84.00	967,043	5,653	290,113	5,416	0.00	0.00	0.00	0.00	0.01
81.50	1,012,326	6,199	303,698	5,935	0.00	0.00	0.00	0.00	0.01
80.00	1,039,495	6,538	311,848	6,258	0.00	0.00	0.00	0.00	0.01
79.00	1,057,608	6,769	317,282	6,478	0.00	0.00	0.00	0.00	0.01
77.50	1,084,777	7,124	325,433	6,815	0.01	0.00	0.00	0.00	0.01
74.00	1,148,172	7,986	344,452	7,635	0.01	0.01	0.00	0.00	0.01
73.50	1,157,229	8,113	347,169	7,756	0.01	0.01	0.00	0.00	0.01
70.00	1,220,624	9,031	366,187	8,629	0.01	0.01	0.00	0.00	0.02
69.00	1,238,736	9,303	371,621	8,886	0.01	0.01	0.00	0.00	0.02
65.75	1,297,603	10,193	389,281	9,751	0.01	0.01	0.00	0.00	0.02
64.00	1,329,301	10,634	398,790	10,233	0.01	0.01	0.00	0.00	0.02
61.25	1,379,111	11,338	413,733	11,015	0.01	0.02	0.00	0.00	0.03
60.00	1,401,752	11,662	420,526	11,379	0.01	0.02	0.00	0.00	0.03
59.00	1,419,865	11,924	425,960	11,675	0.01	0.02	0.00	0.00	0.03
56.75	1,460,619	12,518	438,186	12,355	0.01	0.02	0.00	0.00	0.03
54.00	1,510,430	13,256	453,129	13,212	0.01	0.02	0.00	0.00	0.03
52.25	1,542,127	13,731	462,638	13,772	0.01	0.02	0.00	0.00	0.04
51.00	1,564,768	14,073	469,430	14,180	0.01	0.03	0.00	0.00	0.04
51.00	3,052,173	28,060	915,652	26,975	0.01	0.01	0.00	0.00	0.02
50.00	3,088,399	28,735	926,520	27,619	0.01	0.01	0.00	0.00	0.02
49.00	3,124,624	29,419	937,387	28,271	0.01	0.01	0.00	0.00	0.02
47.75	3,169,906	30,284	950,972	29,096	0.01	0.01	0.00	0.00	0.02
46.17	3,227,264	31,399	968,179	30,159	0.01	0.01	0.00	0.00	0.02
44.00	3,305,753	32,957	991,726	31,643	0.01	0.01	0.00	0.00	0.02
43.25	3,332,922	33,505	999,877	32,166	0.01	0.02	0.00	0.00	0.02
38.88	3,491,410	36,793	1,047,423	35,298	0.01	0.02	0.00	0.00	0.02
34.46	3,651,407	40,268	1,095,422	38,607	0.01	0.02	0.00	0.00	0.02
33.94	3,670,275	40,688	1,101,082	39,007	0.01	0.02	0.00	0.00	0.03
29.81	3,819,706	44,092	1,145,912	42,248	0.01	0.02	0.00	0.00	0.03
29.00	3,849,139	44,779	1,154,742	42,901	0.01	0.02	0.00	0.00	0.03
25.63	3,971,401	47,688	1,191,420	45,670	0.01	0.02	0.00	0.00	0.03
24.00	4,030,268	49,121	1,209,080	47,034	0.01	0.02	0.00	0.00	0.03
21.56	4,118,568	51,311	1,235,570	49,117	0.01	0.02	0.00	0.00	0.03
21.21	4,131,398	51,633	1,239,419	49,424	0.01	0.02	0.00	0.00	0.03
19.00	4,211,397	53,664	1,263,419	51,356	0.01	0.02	0.00	0.00	0.03
14.00	4,392,525	58,409	1,317,758	55,869	0.01	0.02	0.00	0.00	0.03
9.00	4,573,654	63,354	1,372,096	60,572	0.01	0.02	0.00	0.00	0.03
4.00	4,754,783	68,500	1,426,435	65,464	0.01	0.02	0.00	0.00	0.03
0.00	4,899,686	72,762	1,469,906	69,515	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
28	1.750	66.00	1.72	BOLTS, TEMPLATES	9.75	66.00	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	126.55	3.22	142.50	1.90	0.89	THREADED WITH HEAVY HEX HEAD NUT

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

BOLT NO.	X-COORD	Y-COORD	*	BOLT NO.	X-COORD	Y-COORD
1	27.250	0.000	*	2	26.567	6.064
3	24.551	11.823	*	4	21.305	16.990
5	16.990	21.305	*	6	11.823	24.551
7	6.064	26.567	*	8	0.000	27.250

MAX. BOLT CIRCLE = 54.50 IN. TEMPLATE DIAMETER = 58.00 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.)
59.78	2.75	1.56	2.75	48.00

EFFECTIVE PLATE WIDTH (IN.)	PLASTIC SECTION MOD. (CU. IN.)	MOMENT IN BASE PLATE (IN. -K)	PLASTIC MOMENT (IN. -K)	FACTORED RESISTING MOM. (IN. -K)
5.39	10.18	411.29	509.11	458.20

STEEL SPECIF. VALMONT	STEEL SPECIF. OTHER	EFFECTIVE YIELD STRESS (KSI)	STRESS RATIO
S56	A572	50	0.90

** 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)	46377	15112	10664	1032	1025	]MOMENT ABT. X	WIND
MOMENT ABT. Y-AXIS (IN-KIP)	-38915	-12680	-8948	-866	-860	]MOMENT ABT. Y	WIND
SHEAR FORCE (LB.)	90155	28802	20775	1752	1752	]RES. MOMENT	WIND
VERTICAL FORCE (LB.)	52257	91689	43345	54309	36687	]SHEAR FORCE	WIND
						]BOLT FORCE	WIND
						]BOLT TENSION	WIND

*** OVERVIEW ***

1. Structure design conforms to TIA-222-G Addendum 2 including:
   97 mph Wind Speed (3 second gust, 50 year return period)
   50 mph Ice Wind (50 year return period)
   0.75 in ice thickness
   60.0 mph Basic Wind Speed with no ice for twist and sway
   Exposure Category C
   Structure Classification II
   Topographic Category 1
   Spectral response acceleration at short periods and 1 sec.: Ss = 0.24 & S1 = 0.07
   Site class = D
2. Feedlines are assumed to be placed interior to the pole
3. All microwave assumed to be 2 GHz unless otherwise noted
4. Total pole height is 85.0 ft agl
5. Elevations are measured from top of base plate (approximately 1.0 ft agl)
6. Pole needs to be painted with "Thunder Gray" (Sherwin Williams SW7645)
7. Pole is designed to a therotical breakpoint at 52 ft AGL
8. Pole Design complies to TIA/EIA-222-G and TIA/EIA-222-H
9. An ultimate wind speed of 125mph used as per County Requirement.
10. Pole design limited to 98.9% capacity.

*** Structure Anchorage Information ***

Pole Height (ft):	84.0	Number of Anchor Bolts:	28
Bolt Circle (in):	54.50	Diameter of Anchor Bolts (in):	1.75
Base Shear (lbs):	88867	Length of Anchor Bolts (in):	66.00
Base Vertical (lbs):	53829	Projection Length (in):	9.75
Base Moment (in-kips):	59658	Template OD (in):	58.00

*** Loading Data***

			Without Ice		With Ice	
Qty	Description	ABP Height (ft)	EPA (ft^2)	Weight (lbs)	EPA (ft^2)	Weight (lbs)
1	CARRIER 1 - 200 SQ.FT	80.00	200.00	4000	400.00	8000
1	CARRIER 2 - 200 SQ.FT	70.00	200.00	4000	400.00	8000
1	CARRIER 3 - 150 SQ.FT	60.00	150.00	3000	300.00	6000
1	CARRIER 4 - 150 SQ.FT	50.00	150.00	3000	300.00	6000
18	BRACH TIPS	80.00	4.50	90	9.00	180
18	BRACH TIPS	70.00	4.50	90	9.00	180
18	BRACH TIPS	60.00	4.50	90	9.00	180
18	BRACH TIPS	50.00	4.50	90	9.00	180
1	5' TOP BRANCHES	84.00	2.25	33	4.50	65
3	6' TOP BRANCHES	84.00	7.50	120	15.00	240

*** 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)
61	8 FT BRANCHES.....	71.50	83.50	219.60	3050	439.20	6100
70	10 FT BRANCHES.....	41.00	68.00	357.00	4620	714.00	9240
41	12 FT BRANCHES.....	19.00	45.50	266.50	3690	533.00	7380
36	14 FT BRANCHES.....	19.50	36.00	288.00	4320	576.00	8640

*** SUMMARY ***

Design Code: TIA-222-G Addendum 2

---------- DESIGN SUMMARY ----------

Height Above Base Plate	84'- 0.00"	Dia. at Top of Baseplate (in)	48.000	Pole Shaft Weight (lbs)	13139
		Top Diameter (in)	19.000		
		Pole Taper (in/ft)	0.35119	Shape:	18 Sides

Connections Between Sections	/First/
Height Above Ground	51'- 0.00"
Type	Slip Joint
Overlap Length (in)	58
Maximum Axial Force (lbs)	45999

Section Characteristics	/First/	/Second/
Base Diameter (in)	48.000	32.287
Top Diameter (in)	30.089	19.000
Thickness (in)	0.50000	0.25000
Length	51'- 0.00"	37'-10.00"
Weight (lbs)	10559	2580
Yield Strength (ksi)	65.00	65.00
Section Shape	18 Sides	18 Sides

---------- ANALYSIS SUMMARY ----------

	Pt. of Fixity	Governing Level Sec.1	Governing Level Sec.2	Pole Top
Governing Load Case	WIND	WIND	WIND	WIND
Height (ft)	0.00	0.00	51.00	84.00
Resultant Moment (in-kips)	59658	59658	11828	13
Shear Force (lbs)	88987	88987	52111	497
Axial Force (lbs)	52068	52068	20778	141
Effective Yield Strength (ksi)	82.55	82.55	78.10	82.55
Combined Interaction Value	0.93	0.93	0.97	0.00
Total Deflection (in)	0.00	0.00	18.29	49.25

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 ***

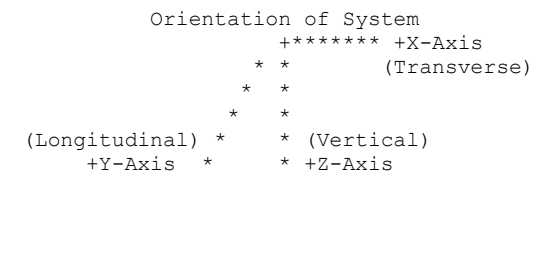
Loading Case Identifier	Moments About X-Axis (in-kips)	Moments About Y-Axis (in-kips)	Moments Resultant (X & Y) (in-kips)	Moments Torsional (in-kips)	Vertical Force (lbs)	Shear In X-Direction (lbs)	Shear In Y-Direction (lbs)	Shear Resultant (X & Y) (lbs)	Notes
WIND	45701	-38347	59658	0	52274	57122	68076	88867	
ICE + WIND	15484	-12993	20213	0	93411	18999	22642	29557	
T+S	9759	-8189	12739	0	43345	12224	14568	19017	
Seismic	1507	-1264	1967	0	51998	1553	1851	2417	

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

*** INPUT LOADS ***

Design Code TIA-222-G Addendum 2
Loading Case WIND

Basic Wind Velocity is 97.00 mph Ice Thickness 0.00
Wind Orientation is 50.0 Degrees Clockwise From +X Axis
Structure Weight Overload Factor is 1.200
Exposure C, Gust Factor 1.10
Structure Category 2, 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 0.00 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	80.00	80.00	0.00	50.00	6268	7470	4800	200.00	1-Carrier 1 -
2	70.00	70.00	0.00	50.00	6097	7266	4800	200.00	1-Carrier 2 -
3	60.00	60.00	0.00	50.00	4429	5278	3600	150.00	1-Carrier 3 -
4	50.00	50.00	0.00	50.00	4265	5083	3600	150.00	1-Carrier 4 -
5	80.00	80.00	0.00	50.00	141	168	108	4.50	18-Brach Tips
6	70.00	70.00	0.00	50.00	137	163	108	4.50	18-Brach Tips
7	60.00	60.00	0.00	50.00	133	158	108	4.50	18-Brach Tips
8	50.00	50.00	0.00	50.00	128	152	108	4.50	18-Brach Tips
9	84.00	86.50	0.00	50.00	72	85	40	2.25	1-5' Top Bran
10	84.00	86.00	0.00	50.00	239	284	144	7.50	3-6' Top Bran
11	81.50	81.50	0.00	90.00	2303	2745	1220	73.20	8 ft branch
12	77.50	77.50	0.00	90.00	2279	2716	1220	73.20	8 ft branch
13	73.50	73.50	0.00	90.00	2254	2686	1220	73.20	8 ft branch
14	65.75	65.75	0.00	90.00	1790	2134	924	59.50	10 ft branc
15	61.25	61.25	0.00	90.00	1764	2103	924	59.50	10 ft branc
16	56.75	56.75	0.00	90.00	1737	2070	924	59.50	10 ft branc
17	52.25	52.25	0.00	90.00	1707	2035	924	59.50	10 ft branc

*** INPUT LOADS ***

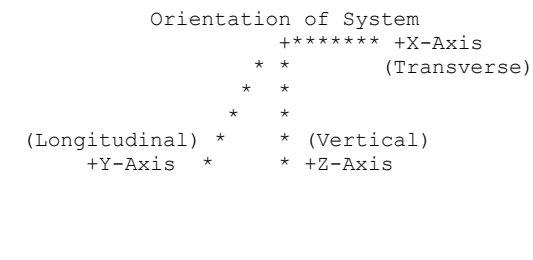
Loading Case WIND - Continued

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Orientation of System Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
18	47.75	47.75	0.00	90.00	1676	1997	924	59.50	10 ft branc
19	43.25	43.25	0.00	90.00	1642	1957	924	59.50	10 ft branc
20	43.29	43.29	0.00	90.00	1226	1461	738	44.42	12 ft branc
21	38.88	38.88	0.00	90.00	1199	1429	738	44.42	12 ft branc
22	34.46	34.46	0.00	90.00	1170	1394	738	44.42	12 ft branc
23	30.04	30.04	0.00	90.00	1136	1354	738	44.42	12 ft branc
24	25.63	25.63	0.00	90.00	1101	1313	738	44.42	12 ft branc
25	21.21	21.21	0.00	90.00	1060	1264	738	44.42	12 ft branc
26	33.94	33.94	0.00	90.00	1890	2253	1296	72.00	14 ft branc
27	29.81	29.81	0.00	90.00	1841	2194	1296	72.00	14 ft branc
28	25.69	25.69	0.00	90.00	1785	2128	1296	72.00	14 ft branc
29	21.56	21.56	0.00	90.00	1724	2055	1296	72.00	14 ft branc

*** INPUT LOADS ***

Design Code TIA-222-G Addendum 2
Loading Case ICE + WIND

Basic Wind Velocity is 50.00 mph Ice Thickness 0.75
Wind Orientation is 50.0 Degrees Clockwise From +X Axis
Structure Weight Overload Factor is 1.200
Exposure C, Gust Factor 1.10
Structure Category 2, 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 0.00 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	80.00	80.00	0.00	50.00	2082	2481	9600	400.00	1-Carrier 1 -
2	70.00	70.00	0.00	50.00	2025	2413	9600	400.00	1-Carrier 2 -
3	60.00	60.00	0.00	50.00	1471	1753	7200	300.00	1-Carrier 3 -
4	50.00	50.00	0.00	50.00	1417	1688	7200	300.00	1-Carrier 4 -
5	80.00	80.00	0.00	50.00	47	56	216	9.00	18-Brach Tips
6	70.00	70.00	0.00	50.00	46	54	216	9.00	18-Brach Tips
7	60.00	60.00	0.00	50.00	44	53	216	9.00	18-Brach Tips
8	50.00	50.00	0.00	50.00	42	51	216	9.00	18-Brach Tips
9	84.00	86.50	0.00	50.00	24	28	78	4.50	1-5' Top Bran
10	84.00	86.00	0.00	50.00	79	94	288	15.00	3-6' Top Bran
11	81.50	81.50	0.00	90.00	765	912	2440	146.40	8 ft branch
12	77.50	77.50	0.00	90.00	757	902	2440	146.40	8 ft branch
13	73.50	73.50	0.00	90.00	749	892	2440	146.40	8 ft branch
14	65.75	65.75	0.00	90.00	595	709	1848	119.00	10 ft branc
15	61.25	61.25	0.00	90.00	586	698	1848	119.00	10 ft branc
16	56.75	56.75	0.00	90.00	577	687	1848	119.00	10 ft branc
17	52.25	52.25	0.00	90.00	567	676	1848	119.00	10 ft branc

*** INPUT LOADS ***

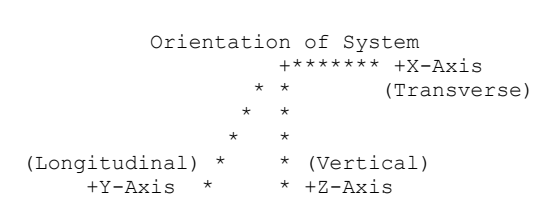
Loading Case ICE + WIND - Continued

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Orientation of System Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
18	47.75	47.75	0.00	90.00	557	663	1848	119.00	10 ft branc
19	43.25	43.25	0.00	90.00	545	650	1848	119.00	10 ft branc
20	43.29	43.29	0.00	90.00	407	485	1476	88.83	12 ft branc
21	38.88	38.88	0.00	90.00	398	475	1476	88.83	12 ft branc
22	34.46	34.46	0.00	90.00	389	463	1476	88.83	12 ft branc
23	30.04	30.04	0.00	90.00	377	450	1476	88.83	12 ft branc
24	25.63	25.63	0.00	90.00	366	436	1476	88.83	12 ft branc
25	21.21	21.21	0.00	90.00	352	420	1476	88.83	12 ft branc
26	33.94	33.94	0.00	90.00	628	748	2592	144.00	14 ft branc
27	29.81	29.81	0.00	90.00	611	729	2592	144.00	14 ft branc
28	25.69	25.69	0.00	90.00	593	707	2592	144.00	14 ft branc
29	21.56	21.56	0.00	90.00	573	682	2592	144.00	14 ft branc

*** INPUT LOADS ***

Design Code TIA-222-G Addendum 2
Loading Case T+S

Basic Wind Velocity is 60.00 mph Ice Thickness 0.00
Wind Orientation is 50.0 Degrees Clockwise From +X Axis
Structure Weight Overload Factor is 1.000
Exposure C, Gust Factor 1.10
Structure Category 2, 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 0.00 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	80.00	80.00	0.00	50.00	1341	1598	4000	200.00	1-Carrier 1 -
2	70.00	70.00	0.00	50.00	1304	1555	4000	200.00	1-Carrier 2 -
3	60.00	60.00	0.00	50.00	948	1129	3000	150.00	1-Carrier 3 -
4	50.00	50.00	0.00	50.00	913	1088	3000	150.00	1-Carrier 4 -
5	80.00	80.00	0.00	50.00	30	36	90	4.50	18-Brach Tips
6	70.00	70.00	0.00	50.00	29	35	90	4.50	18-Brach Tips
7	60.00	60.00	0.00	50.00	28	34	90	4.50	18-Brach Tips
8	50.00	50.00	0.00	50.00	27	33	90	4.50	18-Brach Tips
9	84.00	86.50	0.00	50.00	15	18	33	2.25	1-5' Top Bran
10	84.00	86.00	0.00	50.00	51	61	120	7.50	3-6' Top Bran
11	81.50	81.50	0.00	90.00	493	587	1017	73.20	8 ft branch
12	77.50	77.50	0.00	90.00	488	581	1017	73.20	8 ft branch
13	73.50	73.50	0.00	90.00	482	575	1017	73.20	8 ft branch
14	65.75	65.75	0.00	90.00	383	457	770	59.50	10 ft branc
15	61.25	61.25	0.00	90.00	377	450	770	59.50	10 ft branc
16	56.75	56.75	0.00	90.00	372	443	770	59.50	10 ft branc
17	52.25	52.25	0.00	90.00	365	435	770	59.50	10 ft branc

*** INPUT LOADS ***

Loading Case T+S - Continued

Load Number	Mounting Height	Load Height	Load Eccentricity	Orientation in XY Plane (Degrees)	Orientation of System Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
18	47.75	47.75	0.00	90.00	359	427	770	59.50	10 ft branc
19	43.25	43.25	0.00	90.00	351	419	770	59.50	10 ft branc
20	43.29	43.29	0.00	90.00	262	313	615	44.42	12 ft branc
21	38.88	38.88	0.00	90.00	257	306	615	44.42	12 ft branc
22	34.46	34.46	0.00	90.00	250	298	615	44.42	12 ft branc
23	30.04	30.04	0.00	90.00	243	290	615	44.42	12 ft branc
24	25.63	25.63	0.00	90.00	236	281	615	44.42	12 ft branc
25	21.21	21.21	0.00	90.00	227	270	615	44.42	12 ft branc
26	33.94	33.94	0.00	90.00	404	482	1080	72.00	14 ft branc
27	29.81	29.81	0.00	90.00	394	469	1080	72.00	14 ft branc
28	25.69	25.69	0.00	90.00	382	455	1080	72.00	14 ft branc
29	21.56	21.56	0.00	90.00	369	440	1080	72.00	14 ft branc

*** INPUT LOADS ***

Design Code TIA-222-G Addendum 2
Loading Case Seismic
Seismic analysis following the Equivalent Modal Analysis Procedure
Structure Category: 2
Site Class: D
Response Acceleration at short periods: 0.24
Response Acceleration at one second: 0.07
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	80.00	80.00	0.00	50.00	0	0	4800	200.00	1-Carrier 1 -
2	70.00	70.00	0.00	50.00	0	0	4800	200.00	1-Carrier 2 -
3	60.00	60.00	0.00	50.00	0	0	3600	150.00	1-Carrier 3 -
4	50.00	50.00	0.00	50.00	0	0	3600	150.00	1-Carrier 4 -
5	80.00	80.00	0.00	50.00	0	0	108	4.50	18-Brach Tips
6	70.00	70.00	0.00	50.00	0	0	108	4.50	18-Brach Tips
7	60.00	60.00	0.00	50.00	0	0	108	4.50	18-Brach Tips
8	50.00	50.00	0.00	50.00	0	0	108	4.50	18-Brach Tips
9	84.00	86.50	0.00	50.00	0	0	40	2.25	1-5' Top Bran
10	84.00	86.00	0.00	50.00	0	0	144	7.50	3-6' Top Bran
11	81.50	81.50	0.00	90.00	0	0	1220	73.20	8 ft branch
12	77.50	77.50	0.00	90.00	0	0	1220	73.20	8 ft branch
13	73.50	73.50	0.00	90.00	0	0	1220	73.20	8 ft branch
14	65.75	65.75	0.00	90.00	0	0	924	59.50	10 ft branc
15	61.25	61.25	0.00	90.00	0	0	924	59.50	10 ft branc
16	56.75	56.75	0.00	90.00	0	0	924	59.50	10 ft branc
17	52.25	52.25	0.00	90.00	0	0	924	59.50	10 ft branc
18	47.75	47.75	0.00	90.00	0	0	924	59.50	10 ft branc

*** 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)	EPA (ft^2)	Orientation of System
19	43.25	43.25	0.00	90.00	0	0	924	59.50	10 ft branc
20	43.29	43.29	0.00	90.00	0	0	738	44.42	12 ft branc
21	38.88	38.88	0.00	90.00	0	0	738	44.42	12 ft branc
22	34.46	34.46	0.00	90.00	0	0	738	44.42	12 ft branc
23	30.04	30.04	0.00	90.00	0	0	738	44.42	12 ft branc
24	25.63	25.63	0.00	90.00	0	0	738	44.42	12 ft branc
25	21.21	21.21	0.00	90.00	0	0	738	44.42	12 ft branc
26	33.94	33.94	0.00	90.00	0	0	1296	72.00	14 ft branc
27	29.81	29.81	0.00	90.00	0	0	1296	72.00	14 ft branc
28	25.69	25.69	0.00	90.00	0	0	1296	72.00	14 ft branc
29	21.56	21.56	0.00	90.00	0	0	1296	72.00	14 ft branc

*** 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 2	84.00	19.000	0.2500	76.00	11.64	661	14.88
	81.50	19.878	0.2500	79.51	12.26	758	15.57
	80.00	20.405	0.2500	81.62	12.63	820	15.99
	79.00	20.756	0.2500	83.02	12.88	864	16.27
	77.50	21.283	0.2500	85.13	13.25	932	16.69
	74.00	22.512	0.2500	90.05	14.11	1106	17.66
	73.50	22.688	0.2500	90.75	14.24	1132	17.80
	70.00	23.917	0.2500	95.67	15.11	1328	18.78
	69.00	24.268	0.2500	97.07	15.35	1388	19.06
	65.75	25.409	0.2500	101.64	16.16	1596	19.96
	64.00	26.024	0.2500	104.10	16.59	1716	20.45
	61.25	26.990	0.2500	107.96	17.27	1916	21.22
	60.00	27.429	0.2500	109.71	17.58	2012	21.57
	59.00	27.780	0.2500	111.12	17.83	2091	21.84
	56.75	28.570	0.2500	114.28	18.39	2276	22.47
	54.00	29.536	0.2500	118.14	19.07	2517	23.24
	52.25	30.150	0.2500	120.60	19.50	2679	23.73
	51.00	30.589	0.2500	122.36	19.81	2799	24.07
Top of Sect 1	51.00	30.089	0.5000	60.18	8.85	5193	46.96
	50.00	30.440	0.5000	60.88	8.97	5380	47.51
	49.00	30.792	0.5000	61.58	9.10	5571	48.07
	47.75	31.231	0.5000	62.46	9.25	5817	48.77
Base of Sect 2	46.17	31.787	0.5000	63.57	9.45	6139	49.65
	44.00	32.548	0.5000	65.10	9.71	6597	50.86
	43.25	32.811	0.5000	65.62	9.81	6761	51.28
	38.88	34.347	0.5000	68.69	10.35	7772	53.71
	34.46	35.899	0.5000	71.80	10.90	8891	56.18
	33.94	36.081	0.5000	72.16	10.96	9029	56.47
	29.81	37.530	0.5000	75.06	11.47	10177	58.76
	29.00	37.815	0.5000	75.63	11.57	10415	59.22
	25.63	39.001	0.5000	78.00	11.99	11439	61.10
	24.00	39.571	0.5000	79.14	12.19	11955	62.00
	21.56	40.427	0.5000	80.85	12.49	12758	63.36
	21.21	40.552	0.5000	81.10	12.54	12878	63.56
	19.00	41.327	0.5000	82.65	12.81	13640	64.79
	14.00	43.083	0.5000	86.17	13.43	15477	67.58
	9.00	44.839	0.5000	89.68	14.05	17472	70.36
	4.00	46.595	0.5000	93.19	14.67	19631	73.15
Pt of Fixity	0.00	48.000	0.5000	96.00	15.16	21481	75.38

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)
84.00	10	-8	13	0	319	381	497	141
81.50	23	-19	30	0	407	485	634	294
81.50	23	-19	30	0	2770	3301	4310	1197
80.00	83	-69	108	0	2825	3366	4394	1292
80.00	83	-69	108	0	9485	11304	14756	5311
79.00	219	-183	285	0	9521	11347	14813	5379
77.50	423	-355	553	0	9578	11415	14901	5479
77.50	423	-355	553	0	11914	14198	18534	6401
74.00	1023	-859	1336	0	12048	14358	18743	6659
73.50	1109	-931	1448	0	12068	14382	18775	6695
73.50	1109	-931	1448	0	14375	17131	22363	7638
70.00	1833	-1538	2392	0	14520	17305	22589	7897
70.00	1833	-1538	2392	0	20986	25010	32649	12021
69.00	2133	-1790	2784	0	21014	25043	32692	12160
65.75	3113	-2612	4064	0	21156	25213	32913	12417
65.75	3113	-2612	4064	0	22967	27371	35731	13203
64.00	3689	-3095	4815	0	23023	27438	35818	13441
61.25	4597	-3857	6001	0	23150	27589	36014	13673
61.25	4597	-3857	6001	0	24930	29711	38785	14485
60.00	5043	-4231	6583	0	24989	29781	38876	14593
60.00	5043	-4231	6583	0	29695	35389	46198	17843
59.00	5468	-4588	7138	0	29716	35414	46229	18039
56.75	6426	-5392	8388	0	29824	35542	46397	18241
56.75	6426	-5392	8388	0	31550	37600	49083	19165
54.00	7669	-6435	10012	0	31639	37706	49222	19599
52.25	8462	-7101	11047	0	31726	37810	49357	19766
52.25	8462	-7101	11047	0	33433	39844	52013	20657
51.00	9060	-7603	11828	0	33496	39919	52111	20778
51.00	9060	-7603	11828	0	33475	39894	52078	20859
50.00	9540	-8005	12453	0	33533	39963	52168	21148
50.00	9540	-8005	12453	0	38041	45335	59181	24513
49.00	10084	-8461	13164	0	38081	45383	59244	24871
47.75	10765	-9033	14053	0	38154	45470	59357	25242
47.75	10765	-9033	14053	0	39836	47475	61975	26107
46.17	11668	-9791	15232	0	39896	47547	62068	26705
44.00	12907	-10830	16848	0	39988	47656	62211	27241
43.25	13336	-11190	17408	0	40030	47706	62275	27396
43.25	13336	-11190	17408	0	42896	51122	66735	29016
38.88	16027	-13448	20922	0	43141	51413	67115	29947
38.88	16027	-13448	20922	0	44265	52753	68864	30931

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)
34.46	18831	-15801	24582	0	44515	53051	69254	31915
34.46	18831	-15801	24582	0	45646	54399	71013	32772
33.94	19171	-16086	25026	0	45676	54434	71059	32891
33.94	19171	-16086	25026	0	47539	56655	73958	34266
29.81	21983	-18446	28696	0	47775	56937	74325	35231
29.81	21983	-18446	28696	0	50731	60459	78924	37315
29.00	22572	-18940	29466	0	50718	60444	78904	37704
25.63	25025	-20998	32668	0	50912	60674	79204	38528
25.63	25025	-20998	32668	0	53762	64072	83640	40662
24.00	26275	-22048	34300	0	53791	64106	83685	41271
21.56	28153	-23623	36751	0	53930	64271	83900	41891
21.56	28153	-23623	36751	0	55630	66297	86545	43258
21.21	28435	-23860	37119	0	55650	66321	86576	43349
21.21	28435	-23860	37119	0	56679	67547	88176	44180
19.00	30227	-25363	39458	0	56678	67547	88176	45137
14.00	34289	-28772	44762	0	56775	67662	88327	47009
9.00	38359	-32187	50074	0	56864	67768	88465	48935
4.00	42435	-35607	55395	0	56973	67897	88634	50860
0.00	45701	-38347	59658	0	57200	68168	88987	52068

Deflections and Stresses for Pole

Loading Case WIND *** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction	Effective Yield Strength (ksi)
84.00	31.7	37.7	49.3	1.6	5.02	0.00	0.00	0.00	0.00	0.01	82.55
81.50	30.0	35.7	46.6	1.5	5.01	0.00	0.01	0.00	0.00	0.01	82.55
81.50	30.0	35.7	46.6	1.5	5.01	0.00	0.01	0.02	0.00	0.01	82.55
80.00	29.0	34.5	45.1	1.4	5.01	0.00	0.02	0.02	0.00	0.02	82.55
80.00	29.0	34.5	45.1	1.4	5.01	0.00	0.02	0.06	0.00	0.03	82.55
79.00	28.3	33.7	44.0	1.4	5.01	0.00	0.05	0.06	0.00	0.06	82.55
77.50	27.3	32.5	42.4	1.3	4.99	0.00	0.09	0.06	0.00	0.09	82.55
77.50	27.3	32.5	42.4	1.3	4.99	0.01	0.09	0.08	0.00	0.10	82.55
74.00	24.9	29.7	38.8	1.2	4.91	0.01	0.19	0.07	0.00	0.20	82.55
73.50	24.6	29.3	38.3	1.1	4.90	0.01	0.20	0.07	0.00	0.21	82.55
73.50	24.6	29.3	38.3	1.1	4.90	0.01	0.20	0.09	0.00	0.21	82.55
70.00	22.3	26.6	34.8	1.0	4.77	0.01	0.29	0.08	0.00	0.31	82.55
70.00	22.3	26.6	34.8	1.0	4.77	0.01	0.29	0.12	0.00	0.32	82.55
69.00	21.7	25.9	33.8	0.9	4.72	0.01	0.33	0.12	0.00	0.36	82.55
65.75	19.7	23.4	30.6	0.8	4.55	0.01	0.44	0.11	0.00	0.46	82.40
65.75	19.7	23.4	30.6	0.8	4.55	0.01	0.44	0.12	0.00	0.47	82.40
64.00	18.6	22.2	29.0	0.7	4.44	0.01	0.50	0.12	0.00	0.53	81.89
61.25	17.0	20.3	26.5	0.7	4.24	0.01	0.59	0.12	0.00	0.61	81.08
61.25	17.0	20.3	26.5	0.7	4.24	0.01	0.59	0.13	0.00	0.61	81.08
60.00	16.3	19.4	25.4	0.6	4.15	0.01	0.63	0.12	0.00	0.65	80.72
60.00	16.3	19.4	25.4	0.6	4.15	0.01	0.63	0.15	0.00	0.66	80.72
59.00	15.8	18.8	24.5	0.6	4.07	0.01	0.67	0.15	0.00	0.70	80.43
56.75	14.6	17.3	22.6	0.5	3.88	0.01	0.74	0.14	0.00	0.78	79.77
56.75	14.6	17.3	22.6	0.5	3.88	0.01	0.74	0.15	0.00	0.78	79.77
54.00	13.2	15.7	20.5	0.4	3.63	0.01	0.84	0.15	0.00	0.87	78.97
52.25	12.3	14.7	19.2	0.4	3.46	0.01	0.89	0.14	0.00	0.93	78.46
52.25	12.3	14.7	19.2	0.4	3.46	0.01	0.89	0.15	0.00	0.93	78.46
51.00	11.8	14.0	18.3	0.4	3.33	0.01	0.93	0.15	0.00	0.97	78.10
51.00	11.8	14.0	18.3	0.4	3.33	0.01	0.47	0.08	0.00	0.48	82.55
50.00	11.3	13.5	17.6	0.4	3.28	0.01	0.48	0.08	0.00	0.49	82.55
50.00	11.3	13.5	17.6	0.4	3.28	0.01	0.48	0.09	0.00	0.50	82.55
49.00	10.9	13.0	16.9	0.3	3.23	0.01	0.50	0.08	0.00	0.51	82.55
47.75	10.3	12.3	16.1	0.3	3.15	0.01	0.52	0.08	0.00	0.53	82.55
47.75	10.3	12.3	16.1	0.3	3.15	0.01	0.52	0.09	0.00	0.53	82.55
46.17	9.7	11.5	15.0	0.3	3.06	0.01	0.54	0.09	0.00	0.55	82.55
44.00	8.8	10.5	13.7	0.2	2.93	0.01	0.57	0.08	0.00	0.58	82.55
43.25	8.5	10.1	13.2	0.2	2.89	0.01	0.58	0.08	0.00	0.59	82.55
43.25	8.5	10.1	13.2	0.2	2.89	0.01	0.58	0.09	0.00	0.59	82.55
38.88	6.9	8.2	10.7	0.2	2.61	0.01	0.63	0.09	0.00	0.65	82.55

Deflections and Stresses for Pole

Loading Case WIND *** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction	Effective Yield Strength (ksi)
34.46	5.4	6.5	8.4	0.1	2.33	0.01	0.68	0.08	0.00	0.69	82.55
34.46	5.4	6.5	8.4	0.1	2.33	0.01	0.68	0.09	0.00	0.69	82.55
33.94	5.3	6.3	8.2	0.1	2.29	0.01	0.68	0.09	0.00	0.70	82.55
29.81	4.1	4.8	6.3	0.1	2.02	0.01	0.72	0.09	0.00	0.74	82.55
29.00	3.8	4.6	6.0	0.1	1.97	0.01	0.73	0.09	0.00	0.75	82.55
25.63	3.0	3.6	4.7	0.1	1.74	0.01	0.76	0.09	0.00	0.78	82.55
24.00	2.6	3.1	4.1	0.0	1.63	0.01	0.78	0.09	0.00	0.79	82.55
21.56	2.1	2.5	3.3	0.0	1.46	0.01	0.80	0.09	0.00	0.81	82.55
21.21	2.0	2.4	3.2	0.0	1.44	0.01	0.80	0.09	0.00	0.82	82.55
21.21	2.0	2.4	3.2	0.0	1.44	0.01	0.80	0.10	0.00	0.82	82.55
19.00	1.6	2.0	2.6	0.0	1.29	0.01	0.82	0.09	0.00	0.84	82.55
14.00	0.9	1.1	1.4	0.0	0.94	0.01	0.85	0.09	0.00	0.87	82.55
9.00	0.4	0.4	0.6	0.0	0.60	0.01	0.88	0.09	0.00	0.90	82.55
4.00	0.1	0.1	0.1	0.0	0.27	0.01	0.90	0.08	0.00	0.92	82.55
0.00	0.0	0.0	0.0	0.0	0.00	0.01	0.91	0.08	0.00	0.93	82.55

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)
84.00	3	-3	4	0	110	131	171	361
81.50	8	-7	10	0	145	172	225	612
81.50	8	-7	10	0	956	1140	1488	3015
80.00	29	-24	37	0	978	1165	1521	3171
80.00	29	-24	37	0	3295	3927	5126	12883
79.00	76	-64	99	0	3309	3943	5147	12990
77.50	147	-123	192	0	3331	3969	5182	13152
77.50	147	-123	192	0	4131	4924	6427	15558
74.00	355	-298	464	0	4181	4983	6505	15955
73.50	385	-323	503	0	4189	4992	6517	16013
73.50	385	-323	503	0	4978	5933	7745	18421
70.00	636	-533	830	0	5033	5999	7831	18841
70.00	636	-533	830	0	7276	8671	11319	28566
69.00	740	-621	966	0	7292	8690	11344	28690
65.75	1079	-906	1409	0	7333	8739	11408	29113
65.75	1079	-906	1409	0	7943	9466	12357	30945
64.00	1279	-1073	1669	0	7972	9501	12402	31177
61.25	1592	-1336	2079	0	8000	9534	12446	31562
61.25	1592	-1336	2079	0	8598	10247	13376	33398
60.00	1746	-1465	2279	0	8620	10272	13410	33572
60.00	1746	-1465	2279	0	10240	12203	15930	40935
59.00	1893	-1588	2471	0	10257	12224	15957	41077
56.75	2223	-1865	2902	0	10275	12245	15985	41415
56.75	2223	-1865	2902	0	10843	12922	16868	43263
54.00	2650	-2224	3459	0	10891	12980	16944	43672
52.25	2922	-2452	3815	0	10887	12975	16937	43961
52.25	2922	-2452	3815	0	11453	13650	17818	45805
51.00	3127	-2624	4082	0	11476	13676	17853	45999
51.00	3127	-2624	4082	0	11460	13657	17828	46009
50.00	3291	-2762	4296	0	11481	13682	17861	46385
50.00	3291	-2762	4296	0	13022	15519	20259	53762
49.00	3478	-2918	4540	0	13030	15528	20271	54150
47.75	3711	-3114	4844	0	13056	15559	20311	54632
47.75	3711	-3114	4844	0	13617	16228	21185	56473
46.17	4019	-3373	5247	0	13626	16239	21198	57107
44.00	4442	-3728	5799	0	13648	16266	21233	57690
43.25	4589	-3850	5990	0	13663	16283	21256	57891
43.25	4589	-3850	5990	0	14615	17417	22736	61211
38.88	5506	-4620	7187	0	14700	17519	22869	62415
38.88	5506	-4620	7187	0	15045	17930	23406	63920

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)
34.46	6459	-5420	8431	0	15131	18033	23540	65189
34.46	6459	-5420	8431	0	15493	18464	24103	66679
33.94	6574	-5516	8582	0	15503	18476	24119	66833
33.94	6574	-5516	8582	0	16113	19202	25067	69434
29.81	7527	-6316	9826	0	16194	19299	25193	70674
29.81	7527	-6316	9826	0	17169	20461	26710	74748
29.00	7727	-6483	10087	0	17144	20431	26671	75020
25.63	8556	-7179	11169	0	17210	20510	26773	76076
25.63	8556	-7179	11169	0	18145	21625	28229	80156
24.00	8978	-7533	11720	0	18134	21611	28211	80698
21.56	9611	-8064	12546	0	18181	21667	28284	81490
21.56	9611	-8064	12546	0	18738	22331	29151	84090
21.21	9706	-8144	12670	0	18745	22339	29162	84206
21.21	9706	-8144	12670	0	19076	22734	29677	85693
19.00	10309	-8650	13457	0	19036	22686	29615	86469
14.00	11673	-9795	15238	0	19013	22659	29579	88232
9.00	13036	-10939	17017	0	18987	22628	29539	90054
4.00	14397	-12080	18794	0	18973	22611	29516	91919
0.00	15484	-12993	20213	0	19046	22698	29630	93388

Deflections and Stresses for Pole

Loading Case ICE + WIND *** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction	Effective Yield Strength (ksi)
84.00	10.8	12.9	16.9	0.2	1.72	0.00	0.00	0.00	0.00	0.01	82.55
81.50	10.3	12.2	16.0	0.2	1.72	0.00	0.00	0.00	0.00	0.01	82.55
81.50	10.3	12.2	16.0	0.2	1.72	0.00	0.00	0.01	0.00	0.01	82.55
80.00	9.9	11.8	15.4	0.2	1.72	0.00	0.01	0.01	0.00	0.01	82.55
80.00	9.9	11.8	15.4	0.2	1.72	0.01	0.01	0.02	0.00	0.02	82.55
79.00	9.7	11.5	15.1	0.2	1.72	0.01	0.02	0.02	0.00	0.03	82.55
77.50	9.3	11.1	14.5	0.2	1.71	0.01	0.03	0.02	0.00	0.04	82.55
77.50	9.3	11.1	14.5	0.2	1.71	0.01	0.03	0.03	0.00	0.04	82.55
74.00	8.5	10.2	13.3	0.2	1.69	0.01	0.06	0.03	0.00	0.08	82.55
73.50	8.4	10.0	13.1	0.2	1.68	0.01	0.07	0.03	0.00	0.08	82.55
70.00	7.6	9.1	11.9	0.2	1.64	0.01	0.10	0.03	0.00	0.12	82.55
70.00	7.6	9.1	11.9	0.2	1.64	0.02	0.10	0.04	0.00	0.13	82.55
69.00	7.4	8.8	11.5	0.1	1.62	0.02	0.12	0.04	0.00	0.14	82.55
65.75	6.7	8.0	10.5	0.1	1.56	0.02	0.15	0.04	0.00	0.18	82.40
64.00	6.4	7.6	9.9	0.1	1.52	0.02	0.17	0.04	0.00	0.20	81.89
61.25	5.8	6.9	9.0	0.1	1.45	0.02	0.20	0.04	0.00	0.23	81.08
60.00	5.6	6.6	8.7	0.1	1.42	0.02	0.22	0.04	0.00	0.24	80.72
60.00	5.6	6.6	8.7	0.1	1.42	0.03	0.22	0.05	0.00	0.25	80.72
59.00	5.4	6.4	8.4	0.1	1.39	0.03	0.23	0.05	0.00	0.26	80.43
56.75	5.0	5.9	7.7	0.1	1.33	0.03	0.26	0.05	0.00	0.29	79.77
54.00	4.5	5.3	7.0	0.1	1.24	0.03	0.29	0.05	0.00	0.32	78.97
52.25	4.2	5.0	6.5	0.1	1.18	0.03	0.31	0.05	0.00	0.34	78.46
51.00	4.0	4.8	6.2	0.1	1.14	0.03	0.32	0.05	0.00	0.35	78.10
51.00	4.0	4.8	6.2	0.1	1.14	0.01	0.16	0.03	0.00	0.18	82.55
50.00	3.9	4.6	6.0	0.1	1.12	0.01	0.17	0.03	0.00	0.18	82.55
50.00	3.9	4.6	6.0	0.1	1.12	0.02	0.17	0.03	0.00	0.18	82.55
49.00	3.7	4.4	5.8	0.1	1.10	0.02	0.17	0.03	0.00	0.19	82.55
47.75	3.5	4.2	5.5	0.1	1.08	0.02	0.18	0.03	0.00	0.19	82.55
47.75	3.5	4.2	5.5	0.1	1.08	0.02	0.18	0.03	0.00	0.20	82.55
46.17	3.3	3.9	5.1	0.1	1.05	0.02	0.19	0.03	0.00	0.20	82.55
44.00	3.0	3.6	4.7	0.1	1.00	0.02	0.20	0.03	0.00	0.21	82.55
43.25	2.9	3.5	4.5	0.0	0.99	0.02	0.20	0.03	0.00	0.22	82.55
38.88	2.3	2.8	3.6	0.0	0.89	0.02	0.22	0.03	0.00	0.23	82.55
34.46	1.8	2.2	2.9	0.0	0.79	0.02	0.23	0.03	0.00	0.25	82.55
33.94	1.8	2.1	2.8	0.0	0.78	0.02	0.23	0.03	0.00	0.25	82.55
29.81	1.4	1.6	2.1	0.0	0.69	0.02	0.25	0.03	0.00	0.27	82.55
29.00	1.3	1.6	2.0	0.0	0.67	0.02	0.25	0.03	0.00	0.27	82.55
25.63	1.0	1.2	1.6	0.0	0.59	0.02	0.26	0.03	0.00	0.28	82.55
24.00	0.9	1.1	1.4	0.0	0.55	0.02	0.27	0.03	0.00	0.28	82.55

Deflections and Stresses for Pole

Loading Case ICE + WIND *** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction	Effective Yield Strength (ksi)
21.56	0.7	0.9	1.1	0.0	0.50	0.02	0.27	0.03	0.00	0.29	82.55
21.21	0.7	0.8	1.1	0.0	0.49	0.02	0.27	0.03	0.00	0.29	82.55
19.00	0.6	0.7	0.9	0.0	0.44	0.02	0.28	0.03	0.00	0.30	82.55
14.00	0.3	0.4	0.5	0.0	0.32	0.02	0.29	0.03	0.00	0.31	82.55
9.00	0.1	0.1	0.2	0.0	0.20	0.02	0.30	0.03	0.00	0.32	82.55
4.00	0.0	0.0	0.0	0.0	0.09	0.02	0.30	0.03	0.00	0.32	82.55
0.00	0.0	0.0	0.0	0.0	0.00	0.02	0.31	0.03	0.00	0.33	82.55

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)
84.00	2	-2	3	0	68	81	106	151
81.50	5	-4	6	0	87	103	135	280
81.50	5	-4	6	0	592	705	920	1282
80.00	18	-15	23	0	603	719	938	1362
80.00	18	-15	23	0	2023	2411	3148	5411
79.00	47	-39	61	0	2031	2420	3160	5466
77.50	90	-76	118	0	2043	2435	3178	5549
77.50	90	-76	118	0	2542	3029	3955	6553
74.00	218	-183	285	0	2570	3063	3999	6756
73.50	237	-199	309	0	2575	3068	4005	6786
73.50	237	-199	309	0	3067	3656	4772	7790
70.00	391	-328	510	0	3098	3692	4820	8007
70.00	391	-328	510	0	4477	5335	6964	12061
69.00	455	-382	594	0	4482	5342	6973	12128
65.75	664	-557	867	0	4512	5378	7020	12343
65.75	664	-557	867	0	4899	5839	7622	13106
64.00	787	-660	1027	0	4911	5853	7640	13230
61.25	981	-823	1280	0	4938	5885	7682	13424
61.25	981	-823	1280	0	5318	6338	8274	14189
60.00	1076	-903	1404	0	5331	6353	8293	14280
60.00	1076	-903	1404	0	6334	7549	9854	17349
59.00	1166	-979	1523	0	6339	7554	9861	17427
56.75	1371	-1150	1789	0	6361	7581	9897	17596
56.75	1371	-1150	1789	0	6731	8021	10471	18366
54.00	1636	-1373	2136	0	6750	8044	10501	18587
52.25	1805	-1515	2357	0	6768	8066	10529	18726
52.25	1805	-1515	2357	0	7133	8501	11097	19494
51.00	1933	-1622	2523	0	7146	8517	11118	19596
51.00	1933	-1622	2523	0	7142	8512	11111	19599
50.00	2035	-1708	2657	0	7154	8526	11130	19841
50.00	2035	-1708	2657	0	8116	9672	12626	22915
49.00	2151	-1805	2808	0	8124	9682	12639	23163
47.75	2297	-1927	2998	0	8139	9700	12662	23472
47.75	2297	-1927	2998	0	8499	10129	13222	24240
46.17	2489	-2089	3249	0	8512	10144	13242	24644
44.00	2753	-2310	3594	0	8531	10167	13272	25016
43.25	2845	-2387	3714	0	8540	10178	13286	25145
43.25	2845	-2387	3714	0	9153	10908	14240	26529
38.88	3419	-2869	4463	0	9204	10969	14320	27305
38.88	3419	-2869	4463	0	9446	11258	14696	27931

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)
34.46	4018	-3371	5244	0	9499	11320	14778	28752
34.46	4018	-3371	5244	0	9742	11610	15155	29373
33.94	4090	-3432	5339	0	9748	11617	15165	29472
33.94	4090	-3432	5339	0	10147	12093	15786	30556
29.81	4690	-3936	6123	0	10197	12152	15863	31360
29.81	4690	-3936	6123	0	10830	12906	16848	33057
29.00	4816	-4041	6287	0	10828	12905	16846	33228
25.63	5340	-4481	6970	0	10869	12953	16909	33915
25.63	5340	-4481	6970	0	11480	13681	17859	35615
24.00	5607	-4705	7319	0	11487	13690	17871	35963
21.56	6008	-5041	7842	0	11517	13725	17917	36480
21.56	6008	-5041	7842	0	11881	14159	18484	37563
21.21	6068	-5091	7921	0	11885	14165	18490	37639
21.21	6068	-5091	7921	0	12106	14428	18834	38258
19.00	6451	-5413	8421	0	12110	14432	18839	38755
14.00	7319	-6141	9554	0	12135	14462	18879	39900
9.00	8188	-6871	10689	0	12160	14492	18918	41092
4.00	9060	-7602	11827	0	12189	14527	18963	42329
0.00	9759	-8189	12739	0	12238	14585	19039	43335

Deflections and Stresses for Pole

Loading Case T+S *** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction	Effective Yield Strength (ksi)
84.00	6.8	8.1	10.5	0.1	1.07	0.00	0.00	0.00	0.00	0.01	82.55
81.50	6.4	7.6	10.0	0.1	1.07	0.00	0.00	0.00	0.00	0.01	82.55
80.00	6.2	7.4	9.6	0.1	1.07	0.00	0.00	0.00	0.00	0.01	82.55
80.00	6.2	7.4	9.6	0.1	1.07	0.00	0.00	0.01	0.00	0.01	82.55
79.00	6.0	7.2	9.4	0.1	1.07	0.00	0.01	0.01	0.00	0.01	82.55
77.50	5.8	6.9	9.1	0.1	1.06	0.00	0.02	0.01	0.00	0.02	82.55
77.50	5.8	6.9	9.1	0.1	1.06	0.01	0.02	0.02	0.00	0.02	82.55
74.00	5.3	6.3	8.3	0.1	1.05	0.01	0.04	0.02	0.00	0.05	82.55
73.50	5.3	6.3	8.2	0.1	1.05	0.01	0.04	0.02	0.00	0.05	82.55
70.00	4.8	5.7	7.4	0.1	1.02	0.01	0.06	0.02	0.00	0.07	82.55
70.00	4.8	5.7	7.4	0.1	1.02	0.01	0.06	0.03	0.00	0.07	82.55
69.00	4.6	5.5	7.2	0.1	1.01	0.01	0.07	0.03	0.00	0.08	82.55
65.75	4.2	5.0	6.5	0.1	0.97	0.01	0.09	0.02	0.00	0.10	82.40
65.75	4.2	5.0	6.5	0.1	0.97	0.01	0.09	0.03	0.00	0.10	82.40
64.00	4.0	4.7	6.2	0.0	0.95	0.01	0.11	0.03	0.00	0.12	81.89
61.25	3.6	4.3	5.7	0.0	0.90	0.01	0.13	0.02	0.00	0.14	81.08
61.25	3.6	4.3	5.7	0.0	0.90	0.01	0.13	0.03	0.00	0.14	81.08
60.00	3.5	4.1	5.4	0.0	0.88	0.01	0.13	0.03	0.00	0.14	80.72
60.00	3.5	4.1	5.4	0.0	0.88	0.01	0.13	0.03	0.00	0.15	80.72
59.00	3.4	4.0	5.2	0.0	0.87	0.01	0.14	0.03	0.00	0.15	80.43
56.75	3.1	3.7	4.8	0.0	0.83	0.01	0.16	0.03	0.00	0.17	79.77
54.00	2.8	3.3	4.4	0.0	0.77	0.01	0.18	0.03	0.00	0.19	78.97
52.25	2.6	3.1	4.1	0.0	0.74	0.01	0.19	0.03	0.00	0.20	78.46
51.00	2.5	3.0	3.9	0.0	0.71	0.01	0.20	0.03	0.00	0.21	78.10
51.00	2.5	3.0	3.9	0.0	0.71	0.01	0.10	0.02	0.00	0.11	82.55
50.00	2.4	2.9	3.8	0.0	0.70	0.01	0.10	0.02	0.00	0.11	82.55
49.00	2.3	2.8	3.6	0.0	0.69	0.01	0.11	0.02	0.00	0.11	82.55
47.75	2.2	2.6	3.4	0.0	0.67	0.01	0.11	0.02	0.00	0.12	82.55
46.17	2.1	2.5	3.2	0.0	0.65	0.01	0.11	0.02	0.00	0.12	82.55
44.00	1.9	2.2	2.9	0.0	0.63	0.01	0.12	0.02	0.00	0.13	82.55
43.25	1.8	2.2	2.8	0.0	0.62	0.01	0.12	0.02	0.00	0.13	82.55
38.88	1.5	1.8	2.3	0.0	0.56	0.01	0.13	0.02	0.00	0.14	82.55
34.46	1.2	1.4	1.8	0.0	0.50	0.01	0.14	0.02	0.00	0.15	82.55
33.94	1.1	1.3	1.7	0.0	0.49	0.01	0.15	0.02	0.00	0.15	82.55
29.81	0.9	1.0	1.3	0.0	0.43	0.01	0.15	0.02	0.00	0.16	82.55
29.00	0.8	1.0	1.3	0.0	0.42	0.01	0.16	0.02	0.00	0.16	82.55
25.63	0.6	0.8	1.0	0.0	0.37	0.01	0.16	0.02	0.00	0.17	82.55
24.00	0.6	0.7	0.9	0.0	0.35	0.01	0.17	0.02	0.00	0.17	82.55
21.56	0.5	0.5	0.7	0.0	0.31	0.01	0.17	0.02	0.00	0.18	82.55

Deflections and Stresses for Pole

Loading Case T+S *** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction	Effective Yield Strength (ksi)
21.21	0.4	0.5	0.7	0.0	0.31	0.01	0.17	0.02	0.00	0.18	82.55
19.00	0.4	0.4	0.5	0.0	0.27	0.01	0.17	0.02	0.00	0.18	82.55
14.00	0.2	0.2	0.3	0.0	0.20	0.01	0.18	0.02	0.00	0.19	82.55
9.00	0.1	0.1	0.1	0.0	0.13	0.01	0.19	0.02	0.00	0.20	82.55
4.00	0.0	0.0	0.0	0.0	0.06	0.01	0.19	0.02	0.00	0.20	82.55
0.00	0.0	0.0	0.0	0.0	0.00	0.01	0.19	0.02	0.00	0.20	82.55

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)
84.00	1	-1	1	0	38	45	59	183
81.50	3	-2	4	0	63	75	98	337
81.50	3	-2	4	0	239	285	372	1556
80.00	8	-7	11	0	252	301	392	1652
80.00	8	-7	11	0	873	1041	1359	6556
79.00	21	-17	27	0	881	1050	1371	6621
77.50	40	-33	52	0	892	1063	1388	6722
77.50	40	-33	52	0	1013	1207	1575	7941
74.00	91	-76	119	0	1032	1230	1606	8185
73.50	98	-83	128	0	1034	1233	1609	8221
73.50	98	-83	128	0	1109	1322	1725	9441
70.00	154	-129	201	0	1121	1337	1745	9700
70.00	154	-129	201	0	1294	1542	2013	14607
69.00	173	-145	225	0	1295	1543	2015	14685
65.75	233	-196	304	0	1300	1549	2022	14942
65.75	233	-196	304	0	1308	1559	2036	15866
64.00	266	-223	347	0	1308	1558	2034	16010
61.25	317	-266	414	0	1307	1558	2034	16243
61.25	317	-266	414	0	1301	1550	2024	17167
60.00	340	-286	444	0	1300	1550	2023	17276
60.00	340	-286	444	0	1271	1514	1977	20984
59.00	359	-301	468	0	1268	1511	1972	21073
56.75	399	-335	521	0	1266	1508	1969	21275
56.75	399	-335	521	0	1251	1491	1947	22200
54.00	449	-376	585	0	1245	1484	1937	22456
52.25	480	-402	626	0	1243	1482	1935	22623
52.25	480	-402	626	0	1232	1468	1917	23547
51.00	502	-421	655	0	1231	1467	1915	23668
51.00	502	-421	655	0	1230	1465	1913	23669
50.00	519	-436	678	0	1227	1463	1910	23959
50.00	519	-436	678	0	1202	1432	1869	27667
49.00	536	-450	700	0	1199	1429	1865	27960
47.75	558	-468	728	0	1198	1427	1863	28332
47.75	558	-468	728	0	1194	1423	1858	29256
46.17	585	-491	763	0	1192	1421	1854	29734
44.00	622	-522	812	0	1192	1421	1855	30176
43.25	635	-533	828	0	1193	1422	1856	30332
43.25	635	-533	828	0	1203	1434	1872	31994
38.88	710	-596	927	0	1215	1448	1890	32926
38.88	710	-596	927	0	1222	1456	1901	33664

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)
34.46	788	-661	1029	0	1240	1478	1930	34649
34.46	788	-661	1029	0	1253	1494	1950	35388
33.94	797	-669	1041	0	1256	1497	1954	35507
33.94	797	-669	1041	0	1281	1527	1993	36803
29.81	874	-733	1140	0	1303	1553	2027	37768
29.81	874	-733	1140	0	1347	1606	2096	39802
29.00	889	-746	1161	0	1349	1608	2099	39997
25.63	955	-801	1246	0	1368	1631	2129	40821
25.63	955	-801	1246	0	1413	1684	2198	42856
24.00	988	-829	1289	0	1419	1692	2208	43262
21.56	1038	-871	1354	0	1434	1708	2230	43883
21.56	1038	-871	1354	0	1461	1741	2273	45179
21.21	1045	-877	1364	0	1463	1743	2276	45270
21.21	1045	-877	1364	0	1478	1761	2299	46008
19.00	1092	-916	1425	0	1486	1771	2312	46584
14.00	1199	-1006	1565	0	1508	1797	2346	47930
9.00	1308	-1097	1707	0	1529	1822	2378	49332
4.00	1418	-1190	1851	0	1547	1843	2406	50790
0.00	1507	-1264	1967	0	1556	1854	2421	51998

Deflections and Stresses for Pole

Loading Case Seismic *** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction	Effective Yield Strength (ksi)
84.00	1.4	1.6	2.1	0.0	0.25	0.00	0.00	0.00	0.00	0.01	82.55
81.50	1.3	1.5	2.0	0.0	0.25	0.00	0.00	0.00	0.00	0.01	82.55
80.00	1.2	1.5	1.9	0.0	0.25	0.00	0.00	0.00	0.00	0.01	82.55
80.00	1.2	1.5	1.9	0.0	0.25	0.01	0.00	0.01	0.00	0.01	82.55
79.00	1.2	1.4	1.8	0.0	0.25	0.01	0.00	0.01	0.00	0.01	82.55
77.50	1.1	1.4	1.8	0.0	0.25	0.01	0.01	0.01	0.00	0.01	82.55
74.00	1.0	1.2	1.6	0.0	0.24	0.01	0.02	0.01	0.00	0.02	82.55
73.50	1.0	1.2	1.6	0.0	0.24	0.01	0.02	0.01	0.00	0.02	82.55
73.50	1.0	1.2	1.6	0.0	0.24	0.01	0.02	0.01	0.00	0.03	82.55
70.00	0.9	1.1	1.4	0.0	0.23	0.01	0.02	0.01	0.00	0.03	82.55
70.00	0.9	1.1	1.4	0.0	0.23	0.01	0.02	0.01	0.00	0.04	82.55
69.00	0.9	1.0	1.3	0.0	0.22	0.01	0.03	0.01	0.00	0.04	82.55
65.75	0.8	0.9	1.2	0.0	0.21	0.01	0.03	0.01	0.00	0.04	82.40
64.00	0.7	0.9	1.1	0.0	0.20	0.01	0.04	0.01	0.00	0.05	81.89
61.25	0.7	0.8	1.0	0.0	0.19	0.01	0.04	0.01	0.00	0.05	81.08
60.00	0.6	0.7	1.0	0.0	0.18	0.01	0.04	0.01	0.00	0.05	80.72
60.00	0.6	0.7	1.0	0.0	0.18	0.01	0.04	0.01	0.00	0.06	80.72
59.00	0.6	0.7	0.9	0.0	0.18	0.01	0.04	0.01	0.00	0.06	80.43
56.75	0.5	0.6	0.8	0.0	0.16	0.01	0.05	0.01	0.00	0.06	79.77
54.00	0.5	0.6	0.8	0.0	0.15	0.01	0.05	0.01	0.00	0.06	78.97
52.25	0.5	0.5	0.7	0.0	0.14	0.01	0.05	0.01	0.00	0.06	78.46
52.25	0.5	0.5	0.7	0.0	0.14	0.01	0.05	0.01	0.00	0.07	78.46
51.00	0.4	0.5	0.7	0.0	0.13	0.01	0.05	0.01	0.00	0.07	78.10
51.00	0.4	0.5	0.7	0.0	0.13	0.01	0.03	0.00	0.00	0.03	82.55
50.00	0.4	0.5	0.6	0.0	0.13	0.01	0.03	0.00	0.00	0.03	82.55
49.00	0.4	0.5	0.6	0.0	0.13	0.01	0.03	0.00	0.00	0.03	82.55
47.75	0.4	0.4	0.6	0.0	0.12	0.01	0.03	0.00	0.00	0.04	82.55
46.17	0.3	0.4	0.5	0.0	0.12	0.01	0.03	0.00	0.00	0.04	82.55
44.00	0.3	0.4	0.5	0.0	0.11	0.01	0.03	0.00	0.00	0.04	82.55
43.25	0.3	0.4	0.5	0.0	0.11	0.01	0.03	0.00	0.00	0.04	82.55
38.88	0.2	0.3	0.4	0.0	0.10	0.01	0.03	0.00	0.00	0.04	82.55
34.46	0.2	0.2	0.3	0.0	0.08	0.01	0.03	0.00	0.00	0.04	82.55
33.94	0.2	0.2	0.3	0.0	0.08	0.01	0.03	0.00	0.00	0.04	82.55
29.81	0.1	0.2	0.2	0.0	0.07	0.01	0.03	0.00	0.00	0.04	82.55
29.00	0.1	0.2	0.2	0.0	0.07	0.01	0.03	0.00	0.00	0.04	82.55
25.63	0.1	0.1	0.2	0.0	0.06	0.01	0.03	0.00	0.00	0.04	82.55
24.00	0.1	0.1	0.1	0.0	0.06	0.01	0.03	0.00	0.00	0.04	82.55
21.56	0.1	0.1	0.1	0.0	0.05	0.01	0.03	0.00	0.00	0.04	82.55
21.21	0.1	0.1	0.1	0.0	0.05	0.01	0.03	0.00	0.00	0.04	82.55

Deflections and Stresses for Pole

Loading Case Seismic *** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Axial Interaction Term	Flexural Interaction Term	Shear Interaction Term	Torsion Interaction Term	Combined Stress Interaction	Effective Yield Strength (ksi)
19.00	0.1	0.1	0.1	0.0	0.04	0.01	0.03	0.00	0.00	0.04	82.55
14.00	0.0	0.0	0.0	0.0	0.03	0.01	0.03	0.00	0.00	0.04	82.55
9.00	0.0	0.0	0.0	0.0	0.02	0.01	0.03	0.00	0.00	0.04	82.55
4.00	0.0	0.0	0.0	0.0	0.01	0.01	0.03	0.00	0.00	0.04	82.55
0.00	0.0	0.0	0.0	0.0	0.00	0.01	0.03	0.00	0.00	0.04	82.55

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
28	1.750	66.00	1.72	BOLTS, TEMPLATES	9.75	66.00	5-UNC-2A

STEEL SPEC. VALMONT	STEEL SPECIF.	MAXIMUM BOLT FORCE (KIPS)	MAXIMUM BOLT SHEAR FORCE (KIPS)	FACTORED NOMINAL TENS. STRENGTH (KIPS)	STRESS AREA (SQ. IN.)	INTERACTION VALUE	CONFIGURATION OF BOTTOM END
S23	A615	124.73	3.18	152.00	1.90	0.86	THREADED WITH HEAVY HEX HEAD NUT

NOTE: BOLT INTERACTION VALUE WAS CALCULATED BY DIVIDING SHEAR FORCE BY FACTOR RELATED TO DETAIL TYPE d) IN EIA-G SPECS.

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

BOLT NO.	X-COORD	Y-COORD	*	BOLT NO.	X-COORD	Y-COORD
1	27.250	0.000	*	2	26.567	6.064
3	24.551	11.823	*	4	21.305	16.990
5	16.990	21.305	*	6	11.823	24.551
7	6.064	26.567	*	8	0.000	27.250

MAX. BOLT CIRCLE = 54.50 IN. TEMPLATE DIAMETER = 58.00 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.)
59.78	2.75	1.56	2.75	48.00

EFFECTIVE PLATE WIDTH (IN.)	PLASTIC SECTION MOD. (CU. IN.)	MOMENT IN BASE PLATE (IN. -K)	PLASTIC MOMENT (IN. -K)	FACTORED RESISTING MOM. (IN. -K)
5.39	10.18	405.38	509.11	458.20

STEEL SPECIF. VALMONT	STEEL SPECIF. OTHER	EFFECTIVE YIELD STRESS (KSI)	STRESS RATIO
S56	A572	50	0.88

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

LOADING CASE IDENTIFICATION	WIND	ICE + WIND	T+S	Seismic	]MAX CRITERION	LOAD CASE
MOMENT ABT. X-AXIS (IN-KIP)	45700	15484	9758	1506	]MOMENT ABT. X	WIND
MOMENT ABT. Y-AXIS (IN-KIP)	-38347	-12992	-8188	-1264	]MOMENT ABT. Y	WIND
SHEAR FORCE (LB.)	88866	29557	19017	2416	]RES. MOMENT	WIND
VERTICAL FORCE (LB.)	52273	93410	43344	51998	]SHEAR FORCE	WIND
					]BOLT FORCE	WIND
					]BOLT TENSION	WIND

External Flange Design (Sized for Shaft Moment Capacity):

Customer:	**INSITE WIRELESS GROUP**	
Site:	**CT027, NEW CANAAN NORTHEAST, CT**	
Valmont Order Number:	**498211-P1**	
Engineered by:	**AM**	
Flange Height:	**84' ABP**	
Design Code:	**EIA-G**	

Reactions at Flange Location:

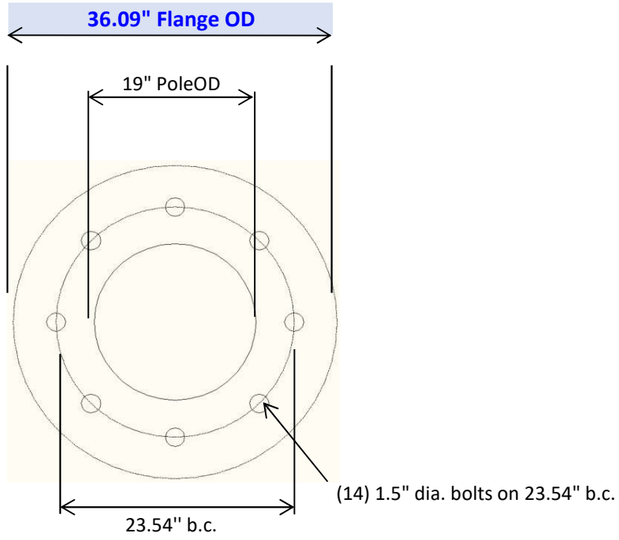
moment = M =	**5741**	in-k
shear = V =	**0**	k
pole diameter = d_{pole} =	**19**	in

Flange Bolts:

number of flange bolts = n_{bolts} =	**14**	
flange bolt diameter = d_{bolt} =	**1.50**	in
flange bolt circle diameter = d_{bc} =	**23.54**	in
$f_{y\text{-}bolt}$ =	92	ksi
$f_{u\text{-}bolt}$ =	120	ksi
net area of bolt = Abolt =	1.410	in^2
max bolt force = $(4*M)/(n_{bolts}*d_{bc}) = T_{bolt}$ =	69.7	k
max bolt stress = T_{bolt}/A_{bolt} =	49.4	ksi<=0.75*Fu, OK
CSR =	**0.55**	OK

Flange Plate:

flange plate thickness = t_{plate} =	**2.00**	in
flange plate ultimate stress = $F_{u\text{-}plate}$ =	65	ksi
flange plate yield stress = $F_{y\text{-}plate}$ =	**50**	ksi
moment arm between bolts & pipe = $M_{arm} = 1/2*(d_{bc}-d_{pole})$ =	2.27	in
moment in flange = $M_{flange} = T_{bolt}*M_{arm}$ =	158.2	in-k
effective plate width = $b_{eff} = p*d_{pole}/n_{bolts}$ =	4.26	in
$S_{flange} = b_{eff}*t_{plate}^2/6$ =	2.842	in^3
$Z_{flange} = b_{eff}*t_{plate}^2/4$ =	4.264	in^3
EIA-G flange plate stress = fplate = Mflange/Zflange =	37.1	ksi<= 0.9*50ksi, OK
CSR =	**0.82**	OK



Valmont/Microflect
3575 25th Street SE – P.O. Box 12985
Salem, OR 97302-1190
Phone: 1-800-547-2151
Engineer: AM
Reviewed by: JVA

Drilled Pier Foundation Design Calculations

Valmont Order Number: 498211-P1
Customer: Insite Wireless Group
Site: CT027, New Canaan Northeast, CT
Pole Height: 84 ft (85 ft agl)

valmont STRUCTURES

Monopole Pier Design Lateral Pressure

CUSTOMER:	**Insite Wireless Group**	
SITE:	**CT027, New Canaan Northeast, CT**	
S.O.#	**498211-P1**	
DWG NO.	**CT498211FP**	
FS	1.0	EIA-F = 2 (Default), TIA-H = 1
Ø FACTOR	0.75	EIA-F = 1, TIA-H = 0.75
GW DEPTH (FT)		BGS

ultimate lateral pressure = $\gamma z \tan^2(45+(\phi/2))+2c\tan(45+(\phi/2))$ ***(ref. Bowles, eq. 2-41)***

allow. Lat. Pressure = (ult. Lat. Pressure)/FS

Group	Soil Type	Depth start (ft)	Depth end (ft)	c (psf)	ϕ (degrees)	γ (pcf)	lateral pressure start (psf)	lateral pressure end (psf)	slope (psf/ft)
		0.5	2.0	0.0	29.0	105.0	0.00	340.44	226.96
		2.0	4.0	0.0	39.0	130.0	519.22	1376.34	428.56
		4.0	10.0	0.0	40.0	130.0	1440.03	4130.40	448.39
		10.0	15.0	0.0	37.0	125.0	3612.97	5498.65	377.14
		15.0	38.0	0.0	40.0	130.0	6286.14	16599.19	448.39
		38.0	43.0	0.0	42.0	135.0	18208.15	20762.02	510.77

valmont STRUCTURES

Monopole Pier Design

Customer: Insite Wireless Group
Site: CT027, New Canaan Northeast, CT
S.O.# 498211-P1
Drawing No. CT498211FP
Geotechnical Report Delta Oaks Group, Project GEO20-07085-08, 10/16/2020
Geotechnical Report Water Depth ft
Original Run Date: 11-09-2020
Version: 2.10
Engineer: AM **Checker:** JVA

Pole Geometry

Pole Height =	84	ft
Bolt Circle =	54.50	in
Number of Bolts =	28	
Bolt Diameter =	1.75	in
Bolt Projection =	9.75	in
Bolt Length =	66.0	in
Bottom Template Diameter =	58.0	in

Pole Loads

Factored Moment =	5367.2	ft-kips
Factored Shear =	95.91	kips
Factored Weight =	57.24	kips
Shear Height =	56.0	ft
e (col offset) =	1125.1	in

Anchor Bolt Load

Factored Moment =	64406.10	in-kips	Anchor bolt load divided by 0.94 to match tower rating of 94% leaving the fall zone controlling CSR
Factored Shear =	95.91	kips	Moment: 60541.73/0.94 = 64406.10 in-kips
Factored Weight =	57.24	kips	Shear: 90.16/0.94 = 95.91 Kips
			Weight: 53.81/0.94 = 57.24 Kips

Anchor Bolt Allowable

F_u =	100.0	ksi
F_y =	75.0	ksi
Area tensile =	1.90	in^2

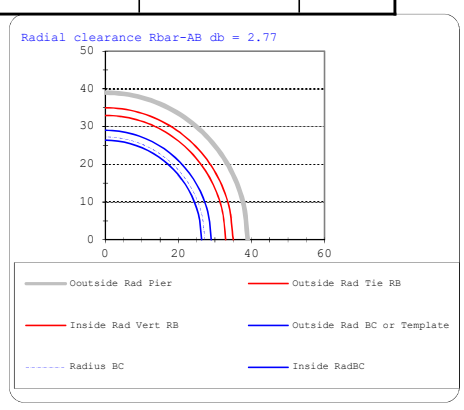
Soil Properties

ZERO = GROUND LINE

Level #	ϕ Ultimate Pas Pressure psf Start	ϕ Ultimate Pas Press Slope psf/ft	Depth Start (ft)	Depth End (ft)	End Prss	Max Moment Depth (ft)
1	0	226.96	0.5	2	340	8.95
2	519	428.56	2	4	1376	
3	1440	448.39	4	10	4130	
4	3613	377.14	10	15	5499	
5	6286	448.39	15	38	16599	
6	18208	510.77	38	43	20762	
7						
8						
9						
10						

Max Pier Moment (in-kips)	(ft-kips)
75282	6274

$$\int_{Ground\_Line}^{(Depth\_Mmax)} \frac{Passive\ Pressure}{ft}\,dft = Applied\ Shear$$



Footing Concrete Geometry

Cap Height (Above Ground Line) =	0.5	ft
Diameter Pier =	6.5	ft
Length (below ground) =	31.5	ft
Concrete Volume =	39.3	yd^3

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

Load Inflection-Point Depth (LID)= 23.44 ft

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

		Resisting	Soil FS above allowable	
OTM =	7663.3 ft-kips	RM_{total} =	7996	1.04 = RM_{total}/OTM
$Shear_{applied}$ =	95.9 kips	$Shear_{resisting}$ =	97.09	1.01 = resisting V/applied V
Weight =	57.2 kips			

Foundation Load Properties

About Load Inflection Point

Level #	Passive Pressure psf Start	Pas Press Slope psf/ft	Zero = Ground Line Depth Start (ft)	Depth End (ft)	Forces Constant kips	Forces Slope kips	Moments Constant ft-kips	Moments Slope ft-kips
1	0	227	0.5	2.0	0.0	1.7	0	36
2	519	429	2.0	4.0	6.7	5.6	138	112
3	1440	448	4.0	10.0	56.2	52.5	923	810
4	3613	377	10.0	15.0	117.4	30.6	1285	310
5	6286	448	15.0	23.4	344.9	103.8	1455	292
6	10071	448	23.4	38.0	-527.6	-94.7	2126	509
7	18208	511	38.0	43.0	0.0	0.0	0	0

V_{max} kips
622.25

Footing Reinforcement Requirements

Tie Bar #	5	Ties OK	Seismic Ties?	No
Tie Vertical Spacing	1 ft	=	12"	
Number of Ties	34 -			
Area_Ties	0.6 in^2			AREA OF TIE CUT BY VERTICAL SECTION (2*Area of the tie)
MP_Tc	4 in			THICKNESS OF CONCRETE COVER
MP_Rin	33.7 in			RADIUS OF VERT. REBAR
MP_Asteel	84.3 in^2			TOTAL AREA OF VERT. BARS
MP_Esteel	29000 ksi			YOUNG'S MODULUS
MP_Isteel	47784 in^4			REBAR MOMENT OF INERTIA
EI	1385740180 in^2*lbf			E*I
S	1419.2 in^3			REBAR SECTION MODULUS
M	75282 in-kips			APPLIED MAXIMUM MOMENT @ AT DEPTH ZERO SHEAR ON PIER
Bars Per Bundle	2			
Vertical Bar #	11		12	= Min # based on 200*bw*d/fy per ACI 318
Bar Count	54	>=	16	= Min # based on area
ϕ_{shear}	0.85			Strength Reduction Factor for Capacity Of Steel Shear
$\phi_{flexure}$	0.9			Strength Reduction Factor for Capacity Of Steel Flexure
MP_Fty_T&V	60 ksi			Rebar Fty Grade 60
MP_Fty_T&V_ALL	54 ksi			Rebar Fty Allowable Pier Design includes PHI_Steel
FTYDESIGN	53.7 ksi			calculated
ϕVs	207.0 kips			Rebar Shear Allowable Pier Design ACI 318
	5.02 in			Vertical Rebar Horiz Spacing
	5.83 ft			Diameter of hoops
	67.375 in			Diameter of vertical rebar circle
Footing Concrete Requirements				
f_c'	4500 psi			Concrete compression properties
$\phi_{concrete}$	0.85			Strength Reduction Factor for Capacity Of Concrete
ϕV_c	542 kips			Shear Capacity of Concrete ACI 318
d	5.07 ft			Distance from extreme com fiber to cent of tension reaction group

Pole Geometry

Bolt Circle =	**54.50**	Inches
Number of Bolts =	**28**	
Bolt Diameter =	**1.75**	Inches
Bolt Projection =	**9.8**	Inches
Bolt Length =	**66.0**	Inches
Bottom Template Diameter =	**58.00**	Inches

Pole Loads

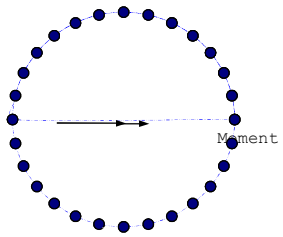
Factored Moment =	**5367.2**	ft-kips
Factored Shear =	**95.9**	kips
Factored Weight =	**57.2**	kips
Shear Height =	**56.0**	ft

Anchor Bolt Allowables

Fu =	**100.0**	Ksi
Fy =	**75.0**	Ksi
At =	**1.90**	in^2

Anchor Bolt Loads

Moment =	**64406**	in-Kips
Shear =	**95.91**	Kips
Weight =	**57.24**	Kips



Calculate the Anchor Bolt Development Length

ACI 318

$$l_d = db*Fy*\alpha\beta\gamma\lambda* \frac{3}{(40*(fc')^{.5}) * ((c+Ktr)/db))}$$

Given all minimums are met for the Bar Installation Per ACI

Bf	=	1	Bundle factor per ACI 318-11 12.4.1
α	=	1	
β	=	1	
λ	=	1	
$((c+Ktr)/db)_{anchor\ bolts}$	=	1.5	

$$ld = 1.75*75000*1* \frac{3}{(40*(4500)^{.5})*1.5} = \mathbf{98\ in}$$

Calculate the Ultimate Bond Stress

Fy*Ag/(π*db*ld)	=	Bond_Allowable	Ksi
	=	0.265	Ksi

Calculate the Allowable Bond Stress

.6*Bond_Allow*1.33	=	0.211	Ksi

Calculate the Required Bolt Length

$$Lreq = \frac{\text{Bolt Applied Force}}{3.14*db*0.211} + \text{Bolt Projection} = \mathbf{131.5\ in}$$

>66 in provided, bottom template needs to be double nutted

Check AB pullout via Rebar Development length with bottom template double nutted:

((c+Ktr)/db)rebar= 2.5

Ldb = (3*db*fy/(40*f'c^0.5*((c+Ktr)/db)))*(As_req/As_prov'd) = **36.7 in**

L_reqd = Ldb + abproj + 6.4375" + 3" = **55.9 in**

Bolt Length > Bolt Required Length

66 in > 55.9 in ====> OK

Delta Oaks Group, Project GEO20-07085-08, 10/16/2020

Ref: ACI 318 BUILDING CODE REQUIREMENTS

valmont STRUCTURES		By:	AM	DRILLED PIER ANALYSIS
	Site: CT027, New Canaan Northeast, CT	Check:	**JVA**	POLE STRUCTURE
	Dwg: CT498211FP	Date:	11-09-2020	Customer: Insite Wireless Group

Calculate the Concrete Shear Strength

ACI 318

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

Given:

bw	=	78 in
d	=	60.9 in
f_c'	=	4500 in
ϕ_c	=	0.85
$\phi_c V_c$	=	**542** Kips

Calculate the Reinforcment Shear Strength

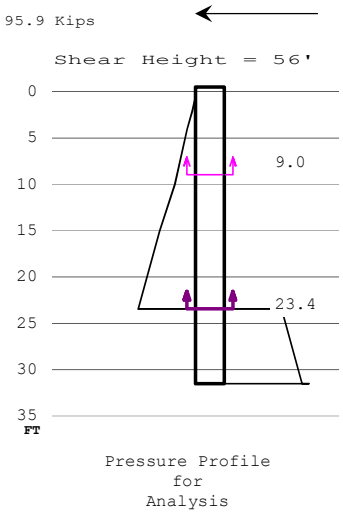
ACI 318

#5 horizontal ties at 12" spacing.

$$V_s = \frac{(4/3)*A_v*f_y*d}{s}$$

Given:

A_v	=	0.6 in^2
f_y	=	60 ksi
d	=	5.074 Ft
s	=	1 Ft
ϕ_s	=	0.85
$\phi_s V_s$	=	**207** Kips



Pressure Profile for Analysis

SECTION AT 9 FT THE MAX MOMENT IN THE PIER MAX PRESSURE 10071 PSF

SECTION AT 23.4 FT THE MAX SHEAR IN THE PIER MAX NEGATIVE PRESSURE 0 PSF

The Maximum Shear in the Pier occurs at Reaction Inflection Point 23.4'

Load Factors for the design

ACI 318

U_{ACI}	=	1.0
U_{EIA}	=	1.0
U_{TOTAL}	=	$U_{EIA}*U_{ACI}$
U_{TOTAL}	=	1.0
$V_{design}=U_{TOTAL}*V_{max}$	=	**622.3 Kips**

ϕV_c	+	ϕV_s		> Vdesign	
541.6 Kips	**+**	**207 Kips**	**= 748.6 Kips**	**> 622.3 Kips**	**====> OK**

The maximum bending stress in the pier occurs at 9' below the ground level. Where the (passive pressure reaction) = (the applied shear)

M_{MAX} = 75282.5 At The Location

$$\int_{Ground\_Line}^{(Depth\_Mmax)} \frac{\text{Passive Pressure}}{\text{ft}}\,\text{dft} = \text{Applied Shear}$$

Use only the steel to carry the bending loads - Calculate the Reinforcment Bending Strength

Use (54) #11 vertical rebar.

Vertical Rebar Section Properties

$$I = \frac{A_{STEEL}*R_{VBAR}^2}{2} \text{ in}^4$$

A_{rebar}	=	84.3 in2
R_{VBAR}	=	33.7 in
I	=	47784.1 in4
S	=	1419.2 in3

Base the bending strength on factored Vertical bar Fy per TIA-222-H of 54 Ksi

F_{TY}	=	60 KSI
ϕ	=	0.9
$F_{TYALLOWABLE}$	=	$F_{TY}*\phi$
$F_{TYALLOWABLE}$	=	54 KSI

Max Design Moment

M_{MAX}	=	75282 in-kips
M_{DESIGN}	=	$M_{MAX}*U_{TOTAL}$
M_{DESIGN}	=	75282 in-kips

$$F_{TYDESIGN} = \frac{M_{DESIGN}}{S} + \frac{\text{Weight}}{A_{rebar}}$$

$F_{TYDESIGN}$ = 53.7 KSI

$F_{TYALLOWABLE}$	>	$F_{TYDESIGN}$	
54 KSI	**>**	**53.7 KSI**	**====> OK**

Delta Oaks Group, Project GEO20-07085-08, 10/16/2020

Ref: ACI 318 BUILDING CODE REQUIREMENTS

Valmont Structures
28800 Ida Street
Valley, NE 68084
Phone: 1-402-359-2201
Engineer:Nathan Ross
Reviewed by:NAR

Slab Foundation
Design Calculations

Valmont Order Number: 498211-P1
Customer: InSite Wireless Group
Site: CT027 New Canaan Northeast, CT
Pole Height: 84 ft (85 ft agl)

valmont STRUCTURES

PAD AND PIER DATA ENTRY & CALCULATIONS

SOIL INFORMATION	
SOIL PARAMETERS BASED ON:	Geotechnical Report
GEOTECHINCAL REPORT INFORMATION:	Delta Oaks Group Project No. GEO20-07085-08 Rev O, dated 10/16/2020

REACTIONS		
STRUCTURE TYPE	Pole	
AXIAL:	53.814	KIPS
GLOBAL SHEAR	91.159	KIPS
MOMENT	5101.281	FT*KIPS
TORSION	0.000	FT*KIPS
BOLT CIRCLE	54.5	IN
BOLT LENGTH	66	IN
BOLT PROJECTION	9.75	IN

ENTER FOUNDATION SIZE		
CONCRETE SLAB ONLY?	N	(Enter "Y" if there is no pier)
PEDESTAL DIAMETER	6.00	FT
PEDESTAL SHAPE	CIRCULAR	
PEDESTAL EXT. ABOVE GRADE	0.50	FT
DEPTH TO BOTTOM OF SLAB	8.00	FT
HEIGHT OF PEDESTAL	5.50	FT
SLAB WIDTH	28.50	FT
SLAB THICKNESS	3.00	FT

ENTER REBAR SIZE & QUANTITY	
PAD REBAR SIZE (TOP)	7
PAD REBAR QUANTITY (TOP)	25
PAD REBAR SIZE (BOTTOM)	8
PAD REBAR QUANTITY (BOTTOM)	38
PEDESTAL VERT. REBAR SIZE	11
PEDESTAL VERT. REBAR QUANTITY	27
PEDESTAL TIE REBAR SIZE	4
PEDESTAL TIE QUANTITY	10

REBAR SPACING		MIN. REBAR
TOP	3 ≤ 13.1 ≤ 17.1	19
	✓	✓
BOTTOM	3 ≤ 8.1 ≤ 17	15
	✓	✓
VERTICAL	3 ≤ 6 ≤ 16.6	14
	✓	✓
TIES	3 ≤ 8.3 ≤ 22.56	5
	✓	✓

SELECT DESIGN OPTIONS		
EXCESS REINF. REDUCTION PER ACI-318 25.4.10	☑	
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:	InSite Wireless Group	SITE:	CT027 New Canaan Northeast, CT
PROJECT NUMBER:	498211-P1		

SOIL & CONCRETE PROPERTIES		
ULTIMATE NET SOIL BEARING CAPACITY	30.00	KSF
WATER DEPTH	0.00	FT
DEPTH OF FILL	5.00	FT
BACKFILL WT. ABOVE WATER	110.00	PCF
BACKFILL WT. BELOW WATER	47.60	PCF
CONCRETE WT. ABOVE WATER	150.00	PCF
CONCRETE WT. BELOW WATER	87.60	PCF
COHESION	0.00	KSF
INTERNAL FRICTION ANGLE	0.00	DEG
PASSIVE PRESSURE	0.00	KSF

valmont STRUCTURES

SLIDING FRICTION	**0.35**	
FROST DEPTH	**3.40**	FT
CONCRETE DESIGN STRENGTH	**4500.00**	PSI

FOUNDATION CALCULATIONS

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

Concrete & Soil Weight		
PEDESTAL VOLUME	**155.509**	FT^3
PEDESTAL WEIGHT	**14.505**	KIPS
SLAB VOLUME	**2436.750**	FT^3
SLAB WEIGHT	**213.459**	KIPS
TOTAL CONCRETE WEIGHT	**227.964**	KIPS
SOIL WEIGHT ABOVE FOOTING	**186.586**	KIPS
TOTAL CONCRETE VOLUME	**96.01**	CU.YDS

Sliding Resistance		
PASSIVE PRESSURE COEFF	**1.00**	
PASSIVE PRESSURE TOP	**0.24**	KSF
PASSIVE PRESSURE BOTTOM	**0.38**	KSF
AVERAGE PASSIVE PRESSURE	**0.31**	KSF
SHEAR DEPTH	**5.00**	FT
SHEAR AREA	**142.50**	FT^2
RESISTING WEIGHT (FACTORED)	**413.46**	KIPS
ULT. SHEAR RESISTANCE	**188.80**	KIPS
NOMINAL SHEAR RESISTANCE	**141.60**	KIPS
SHEAR DEMAND	**91.16**	KIPS
CHECK FOR SLIDING	✓	
STRESS RATIO	**64.38%**	

valmont STRUCTURES

Overturning Resistance		
FROM WEIGHT	5891.74	FT*KIPS
FROM PASSIVE PRESSURE	73.48	FT*KIPS
FROM SOIL WEDGE	0.00	FT*KIPS
TOTAL RESISTING MOMENT (FACTORED)	5946.86	FT*KIPS
MOMENT RESISTANCE DEMAND	5876.13010	FT*KIPS
CHECK FOR OVERTURNING RESISTANCE	✓	
STRESS RATIO	98.81%	

Bearing Resistance (Parallel Direction)		
SLAB AREA	812.2500	FT^2
SECTION MODULUS OF SLAB	3858.1875	FT^3
KERN LIMIT	4.7500	FT
TOTAL WEIGHT (LC 0.9D)	413.4557	KIPS
ECCENTRICITY (LC 0.9D)	10.5276	FT
MAX. TOE PRESSURE (LC 0.9D)	2.2102	KSF
MIN. TOE PRESSURE (LC 0.9D)	-0.8358	KSF
ADJUSTED TOE PRESSURE (IF E > KERN) (LC 0.9D)	3.5075	KSF
TOTAL WEIGHT (LC 1.2D)	551.2743	KIPS
ECCENTRICITY (LC 1.2D)	7.8957	FT
MAX. TOE PRESSURE (LC 1.2D)	2.4393	KSF
MIN. TOE PRESSURE (LC 1.2D)	-0.6068	KSF
ADJUSTED TOE PRESSURE (IF E > KERN) (LC 1.2D)	2.7397	KSF

valmont STRUCTURES

Bearing Resistance (Diagonal Direction)			
KERN LIMIT	**4.7500**	FT	
MOMENT OF INERTIA OF MAT	**54979.1719**	FT^4	
TOTAL WEIGHT (LC 0.9D)	**413.4557**	KIPS	
ECCENTRICITY (LC 0.9D)	**10.5276**	FT	
BEARING AT A	**2.1045**	KSF	
BEARING AT B	**0.5090**	KSF	
BEARING AT C	**-1.0864**	KSF	
BEARING AT D	**0.5090**	KSF	
INITIAL LOCATION OF NA FROM C	**13.7230**	FT	
CALCULATED LOCATION OF NA FROM C	**21.0551**	FT	
LENGTH OF LINE GH	**38.4999**	FT	
LENGTH OF EG & HJ	**0.0000**	FT	
LENGTH OF BG & HD	**0.0000**	FT	
LENGTH OF EJ	**38.4999**	FT	
HEIGHT FOR EAJ	**19.2499**	FT	
HEIGHT FOR EBG & HDJ	**0.0000**	FT	
MOI FOR EAJ	**22885.8361**	FT^4	
MOI FOR EBG & HDJ	**0.0000**	FT^4	
MOI FOR ABGHDA	**22885.8361**	FT^4	
DISTANCE TO POINT LOAD FROM EJ	**9.6250**	FT	
EFFECTIVE LENGTH IN BEARING ALONG AB & AD	**27.2235**	FT	
VOLUME OF PRESSURE ENV FOR ABD	**413.4562**	KIPS	
VOLUME OF PRESSURE ENV. FOR GIKH	**0.0000**	KIPS	
VOLUME OF PRESSURE ENV. FOR BIG & DKH	**0.00000000**	KIPS	
TOTAL VOL. OF PRESSURE ENVELOPE	**413.4562**	KIPS	
DIFFERENCE IN WEIGHT	**0.0000**	KIPS	OK
ADJUSTED BEARING AT A	**3.3473**	KSF	
ADJUSTED BEARING AT B & D	**0.0000**	KSF	
MAX. DIAGONAL BEARING PRESSURE (LC 0.9D)	**4.5188**	KSF	
TOTAL WEIGHT (LC 1.2D)	**551.2743**	KIPS	
ECCENTRICITY (LC 1.2D)	**7.8957**	FT	
BEARING AT A	**2.2742**	KSF	
BEARING AT B	**0.6787**	KSF	
BEARING AT C	**-0.9168**	KSF	
BEARING AT D	**0.6787**	KSF	
INITIAL LOCATION OF NA FROM C	**11.5798**	FT	
CALCULATED LOCATION OF NA FROM C	**15.5257**	FT	
LENGTH OF LINE GH	**31.0515**	FT	
LENGTH OF EG & HJ	**9.2536**	FT	
LENGTH OF BG & HD	**6.5433**	FT	
LENGTH OF EJ	**49.5587**	FT	
HEIGHT FOR EAJ	**24.7793**	FT	
HEIGHT FOR EBG & HDJ	**4.6268**	FT	
MOI FOR EAJ	**62835.9318**	FT^4	
MOI FOR EBG & HDJ	**76.3787**	FT^4	
MOI FOR ABGHDA	**62683.1743**	FT^4	
DISTANCE TO POINT LOAD FROM EJ	**12.5225**	FT	
EFFECTIVE LENGTH IN BEARING ALONG AB & AD	**28.5000**	FT	
VOLUME OF PRESSURE ENV FOR ABD	**507.3942**	KIPS	
VOLUME OF PRESSURE ENV. FOR GIKH	**36.6034**	KIPS	
VOLUME OF PRESSURE ENV. FOR BIG & DKH	**3.6360**	KIPS	
TOTAL VOL. OF PRESSURE ENVELOPE	**551.2696**	KIPS	
DIFFERENCE IN WEIGHT	**0.0000**	KIPS	OK
ADJUSTED BEARING AT A	**2.7290**	KSF	
ADJUSTED BEARING AT B & D	**0.5096**	KSF	
MAX. DIAGONAL BEARING PRESSURE (LC 1.2D)	**3.6841**	KSF	

valmont STRUCTURES

IS ECCENTRICITY WITHIN 45% OF FOUNDATION WIDTH	YES	
MAXIMUM BEARING PRESSURE	4.5188	
ULTIMATE GROSS BEARING PRESSURE	30.3808	KSF
FACTORED BEARING PRESSURE	22.7856	KSF
CHECK BEARING CAPACITY	✓	
STRESS RATIO	19.83%	
Concrete One Way Shear Strength		
PAD REBAR SIZE (TOP)	7	
PAD REBAR DIAMETER (TOP)	0.875	IN
PAD SINGLE REBAR AREA (TOP)	0.601	IN^2
PAD REBAR SIZE (BOTTOM)	8	
PAD REBAR DIAMETER (BOTTOM)	1.000	IN
PAD SINGLE REBAR AREA (BOTTOM)	0.785	IN^2
EFFECTIVE DEPTH (dc)	32.5000	IN
DISTANCE FROM EDGE OF PAD TO COLUMN FACE	135.0000	IN
DISTANCE FROM EDGE OF PAD TO DC	102.5000	IN
BEARING SLOPE (LC 0.9D)	0.3141	KCF
SHEAR DEMAND (LC 0.9D)	527.3104	KIPS
BEARING SLOPE (LC 1.2D)	0.1437	KCF
SHEAR DEMAND (LC 1.2D)	517.5167	KIPS
SHEAR RESISTANCE (PER ACI 318-14 22.5.5.1)	1118.4253	KIPS
CHECK ONE WAY SHEAR	✓	
STRESS RATIO	47.15%	

valmont STRUCTURES

Concrete Two Way Shear Strength			
ENT COLUMN WIDTH (PER ACI 318-14 8.10.1.3 & 22.6.4.1.2)	**63.8083**	IN	
MAT EFFECTIVE WIDTH IN BEARING (LC 0.9D)	**11.1673**	FT	
MAT EFFECTIVE WIDTH IN BEARING (LC 1.2D)	**19.0629**	FT	
Critical Section Properties			
CRITICAL SECTION LENGTH (b1)	**96.3083**	IN	
CRITICAL SECTION LENGTH (b2)	**96.3083**	IN	
CRITICAL SECTION PERIMETER (b0)	**385.2334**	IN	
CENTROID OF CRITICAL SECTION (c)	**48.1542**	IN	
SLAB MOMENT (Msc)	**5602.6539**	FT*KIPS	
POLAR MOI OF CRITICAL SECTION (Jc)	**19905595.1779**	IN^4	
FRACTION OF MOMENT TRANSFERRED BY FLEXURE	**0.6000**		
FRACTION OF MOMENT TRANSFERRED BY ECC. OF SHEAR	**0.4000**		
BEARING SLOPE (LC 0.9D)	**0.3141**	KCF	
AVG. BEARING PRESSURE AT CENTROID (LC 0.9D)	**0.0000**	KSF	
BEARING SLOPE (LC 1.2D)	**0.1437**	KCF	
AVG. BEARING PRESSURE AT CENTROID (LC 1.2D)	**0.6917**	KSF	
SHEAR FORCE AT CENTROID	**71.2197**	KIPS	
SHEAR STRESS AT CENTROID	**70.7454**	PSI	
AVAILABLE SHEAR (PER ACI 318-14 22.6.5.2)	**201.2461**	PSI	
CHECK TWO WAY SHEAR FOR INTERIOR COLUMN	✓		
STRESS RATIO	**35.15%**		
Critical Section Reinforcement Design			
EFFECTIVE BEAM WIDTH FOR RESISTING FLEXURE	**15.0000**	FT	
MOMENT TRANSFERRED BY FLEXURE	**3361.5923**	FT*KIPS	
ACI FACTOR PER TABLE 22.2.2.4.3 ($ß_1$)	**0.8250**		ß
AREA OF STEEL REQUIRED	**22.9852**	IN^2	
DEPTH OF STRESS BLOCK	**2.0031**	IN	
AREA OF STEEL REQUIRED IN EFFECTIVE WIDTH	**21.3445**	IN^2	
AREA OF STEEL REQUIRED IN ENTIRE MAT (ONE WAY)	**40.5545**	IN^2	
AREA OF REBAR STEEL PROVIDED IN BOTTOM	**44.8781**	IN^2	
CHECK TWO WAY SHEAR REINFORCEMENT	✓		
STRESS RATIO	**90.37%**		

valmont STRUCTURES

Pad Flexure / Reinforcement Design		
Bottom Rebar		
BEARING PRESSURE AT CRIT. SECTION (LC 0.9D)	0.0000	KSF
FACTORED BEARING MOMENT (LC 0.9D)	4201.6344	FT*KIPS
BEARING PRESSURE AT CRIT. SECTION (LC 1.2D)	1.1228	KSF
FACTORED BEARING MOMENT (LC 1.2D)	3969.0390	FT*KIPS
AREA OF REBAR STEEL PROVIDED IN BOTTOM	29.8451	IN^2
DEPTH OF STRESS BLOCK	1.3689	IN^2
NOMINAL FLEXURAL STENGTH	4747.6972	FT*KIPS
DEPTH TO NEUTRAL AXIS	1.6593	IN
STEEL STRAIN	0.0558	IN/IN
STRENGTH REDUCTION FACTOR PER ACI 21.2.2	0.90	
FACTORED FLEXURAL STRENGTH	4272.9275	FT*KIPS
CHECK BOTTOM REBAR FLEXURAL STRENGTH	✓	
STRESS RATIO	98.33%	
Top Rebar		
FACTORED MOMENT FROM DEAD WT (LC 0.9D)	1623.1641	FT*KIPS
FACTORED MOMENT FROM DEAD WT (LC 1.2D)	2164.2188	FT*KIPS
AREA OF REBAR STEEL PROVIDED IN TOP	15.0330	IN^2
DEPTH OF STRESS BLOCK	0.6895	IN^2
NOMINAL FLEXURAL STENGTH	2416.9509	FT*KIPS
DEPTH TO NEUTRAL AXIS	0.8358	IN
STEEL STRAIN	0.1137	IN/IN
STRENGTH REDUCTION FACTOR PER ACI 21.2.2	0.90	
FACTORED FLEXURAL STRENGTH	2175.2558	FT*KIPS
CHECK TOP REBAR FLEXURAL STRENGTH	✓	
STRESS RATIO	99.49%	

valmont STRUCTURES

Pad Min. Rebar & Spacing Requirements			
MIN. REINFORCEMENT RATIO FOR SLABS	0.0018		PER ACI 318-14 (7.6.1.1, 24.4.3.2)
MIN. REINFORCEMENT RATIO FOR BEAMS	0.0034		PER ACI 318-14 (9.6.1.2)
MIN. REINFORCEMENT AREA REQUIRED	11.0808	IN^2	
AREA OF REBAR STEEL PROVIDED IN TOP	15.0330	IN^2	
CHECK MIN REBAR ARE IN TOP	✓		
STRESS RATIO	73.71%		
AREA OF REBAR STEEL PROVIDED IN BOTTOM	29.8451	IN^2	
CHECK MIN REBAR ARE IN BOTTOM	✓		
STRESS RATIO	37.13%		
MIN. REBAR CLEAR SPACING	3.0000	IN	MIN. CLEAR SPACING PER ACI 318-14 (25.2.1) IS SMALLER OF 1 IN, 1 REBAR DIA. OR 4/3 * MAX. COARSE AGG. DIA. USING 3IN HERE AS MIN.
MAX. REBAR CENTER TO CENTER SPACING	18.0000	IN	PER ACI 318-14 (8.7.2)
REBAR CLEAR SPACING IN TOP	13.0885	IN	
CHECK REBAR CLEAR SPACING IN TOP	✓		
REBAR CLEAR SPACING IN BOTTOM	8.0541	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)	0.8		
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)	0.737		PER ACI 318-14 25.4.10.1
EXCESS REINFORCEMENT RATIO (BOTTOM)	0.371		
DEVELOPMENT LENGTH DEMAND (TOP)	17.9984	IN	
DEVELOPMENT LENGTH DEMAND (BOTTOM)	12.0000	IN	
LENGTH AVAILABLE (TOP & BOTTOM)	132.0000		
CHECK LENGTH (TOP)	✓		
CHECK LENGTH (BOTTOM)	✓		

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Pedestal Design			
Pedestal Min. Rebar & Spacing Requirements			
PEDESTAL VERT. REBAR SIZE	11		
PEDESTAL VERT. REBAR DIAMETER	1.410	IN	
PEDESTAL VERT. SINGLE REBAR AREA	1.561	IN^2	
PEDESTAL VERT. TOTAL REBAR AREA PROVIDED	42.159	IN^2	
MIN. REBAR RATIO FOR PEDESTALS	0.005		PER ACI 318-14 16.3.4
PEDESTAL VERT. TOTAL REBAR AREA REQUIRED	20.358	IN^2	
CHECK PIER VERT. REBAR AREA	✓		
REBAR CAGE DIAMETER (TO CENTER OF VERT. BARS)	63.590	IN	
PEDESTAL VERT. REBAR CLEAR SPACING	5.989	IN	
CHECK PIER VERT. 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	10		
MAX. TIE SPACING	22.560		PER ACI 318-14 25.7.2
MIN. TIE QUANTITY REQUIRED	5.000		INCLUDES 1 ADDITION AT THE TOP BELOW THE FIRST TIE
CHECK TIE SPACING & QUANTITY	✓		
Pedestal Compression Capacity			
MAX. AXIAL COMPRESSIVE STRENGTH	11144.508	KIPS	PER ACI 318-14 Table 21.2.1 & 22.4.2.2
CHECK PEDESTAL COMPRESSION CAPACITY	✓		
STRESS RATIO	0.48%		
Pedestal Shear Capacity			
CROSS SECTION DIA. Bw	72.000	IN	
I EXTREME COMP. FIBER TO CENTROID OF LONG. REINF.	57.600	IN	PER ACI 318-14 22.5.2.2
FACTOREDCONCRETE SHEAR CAPACITY Vc	419.602	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	21.73%		

valmont STRUCTURES

Pedestal Moment Capacity			
PEDESTAL APPLIED MOMENT	5602.654	FT*KIPS	
PEDESTAL FACTORED MOMENT CAPACITY	5605.626	FT*KIPS	
CHECK PEDESTAL CAPACITY	✓		
STRESS RATIO	99.95%		

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	0.4829		PER ACI 318-14 25.4.10.1
DEVELOPMENT LENGTH DEMAND (TENSION)	18.27	IN	PER ACI 318-14 25.4.2
DEVELOPMENT LENGTH DEMAND (COMPRESSION)	12.26	IN	PER ACI 318-14 25.4.9.2
DEVELOPMENT LENGTH DEMAND (HOOK)	11.28	IN	
LENGTH AVAILABLE IN PEDESTAL	63.00	IN	
CHECK VERT BAR IN PEDESTAL (TENSION)	✓		
CHECK VERT BAR IN PEDESTAL (COMPRESSION)	✓		
LENGTH AVAILABLE IN PAD	33.00	IN	
CHECK VERT BAR IN PAD (TENSION)	✓		
CHECK VERT BAR IN PAD (COMPRESSION)	✓		
CHECK HOOK	✓		

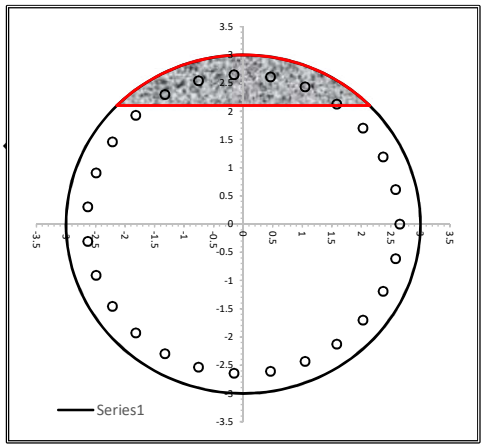
valmont STRUCTURES

Pedestal Torsional Capacity			
PIER CROSS SECTION AREA	4071.504	IN^2	Acp
PIER PERIMETER	226.195	IN	
THRESHOLD TORSION	313.508	FT*KIPS	PER ACI 318-14 22.7.4
CONSIDER TORSION EFFECTS?	N		
WEB WIDTH Bw	72.000	IN	
EXTREME COMP. FIBER TO CENTROID OF LONG. REINF. D	57.600	IN	
PERIMETER ALONG CENTER OF TRANSVERSE REBAR, ph	205.774	IN	
AREA ENCLOSED BY TRANSVERSE REBAR, Aoh	3369.554	IN^2	
Ao	2864.121	IN^2	
TIE SPACING AS PROVIDED, s	8.250	IN	
NOMINAL TORSIONAL STRENGTH	681.659	FT*KIPS	
FACTORED TORSIONAL STRENGTH	511.244	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	56.250	IN	
AVAILABLE DEVELOPMENT LENGTH	49.568	IN	NOTE: ASSUMES EMBEDMENT PLATE IS 2IN ABOVE BOTTOM OF AB.
REQUIRED DEVELOPMENT LENGTH (TENSION)	18.269	IN	
CHECK ANCHOR BOLT ENGAGEMENT	✓		
MIN. ANCHOR BOLT EMBEDMENT PER TIA-222-H 9.6	9.090	IN	
CHECK ANCHOR BOLT LENGTH	✓		

valmont STRUCTURES

MAXIMUM FACTORED MOMENT OF A CIRCULAR SECTION

AXIAL LOAD (NEGATIVE FOR COMPRESSION)	-53.814	KIPS
LIMITING COMPRESSIVE STRAIN	0.003	IN/IN
REINFORCEMENT YIELD STRAIN	0.00207	IN/IN
PIER DIAMETER	6.00	FT
VERTICAL REBAR DIAMETER	1.410	IN
VERTICAL REBAR QUANTITY	27	
VERTICAL REBAR AREA	1.5615	IN^2
TIE REBAR DIAMETER	0.500	IN
CONCRETE CLEAR COVER	3.000	IN
REBAR CAGE DIAMETER (TO CENTER OF VERT. BARS)	63.590	IN
CONCRETE COMPRESSIVE STRENGTH	4500	PSI
DISTANCE FROM EXTREME EDGE TO NA	13.0491	IN
ACI FACTOR PER TABLE 22.2.2.4.3 ($ß_1$)	0.8250	
DEPTH OF EQUIVALENT STRESS BLOCK	10.7655	IN
DISTANCE FROM CENTROID TO NA	22.9509	IN
ANGLE FROM CENTROID TO COMPRESSION ZONE	45.4960	DEG
AREA OF CONCRETE IN COMPRESSION	381.1935	IN^2
DISTANCE FROM CENTROID OF CONCRETE IN COMP TO CENTROID OF PIER	29.6012	IN
CONCRETE COMPRESSION FORCE	1422.2298	KIPS
TOTAL REINFORCEMENT FORCES	-1368.416	KIPS
AXIAL LOAD	-53.814	KIPS
SUM OF AXIAL FORCES	-1422.230	KIPS
SUM OF FORCES IN CONCRETE	0.000	KIPS
MOMENT OF CONCRETE IN COMPRESSION	3508.303	FT*KIPS
TOTAL REINFORCEMENT MOMENT	2720.171	FT*KIPS
NOMINAL STRENGTH OF COLUMN	6228.474	FT*KIPS
TENSILE STRAIN IN EXTREME LAYER OF REINFORCEMENT	-0.0126	IN/IN
ACI STRENGTH REDUCTION FACTOR PER ACI 318-14 21.2.2.	0.900	
FACTORED MOMENT STRENGTH OF COLUMN	5605.626	FT*KIPS



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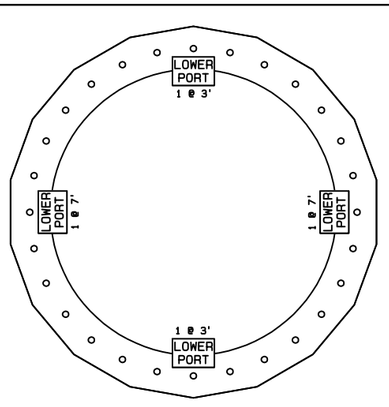
STRUCTURES

ASSOCIATE DRAFTER: VINOD KUMAR

COMMUNICATION POLE RECORD DRAWINGS



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

ORIENTATION INDEX

INDEX OF DRAWINGS

DESCRIPTION	DRAWING #	DESCRIPTION	DRAWING #
POLE ASSEMBLY	DD7501Z	ANCHOR BOLT CAGE ASSEMBLY	CC16924
SECTION ASSEMBLY	DD7501A	CAGE PLATE	BD38523
SECTION ASSEMBLY	DD7501B	SAFETY CLIMB ASSEMBLY	ABLD080

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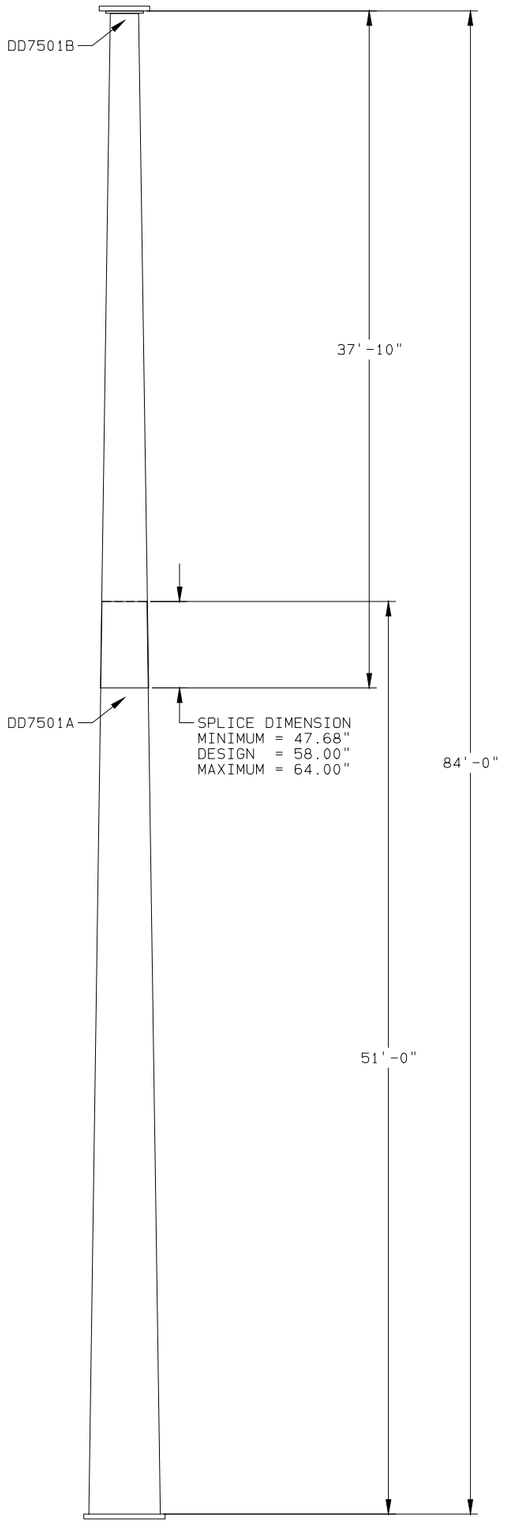
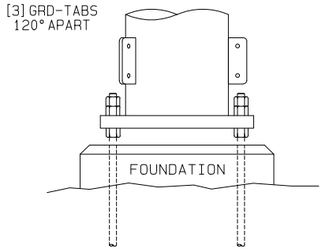
INSITE WIRELESS GROUP
VALMONT ORDER# 498211-P1
SITE: CT027, NEW CANAAN NORTHEAST, CT
POLE HEIGHT: 84'-0"

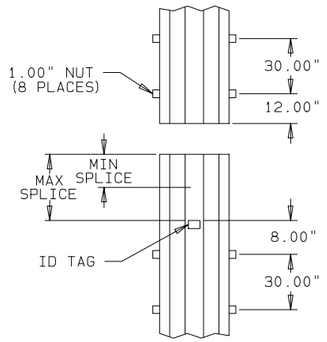


ELEVATION VIEW
SEE FABRICATION DRAWINGS
FOR ADDITIONAL DETAILS



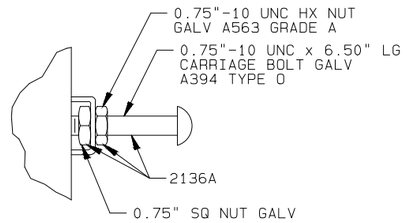
SEE CC16924 FOR ANCHOR-BOLT CAGE ASSEMBLY DRAWING.

BASE PLATE CONNECTION



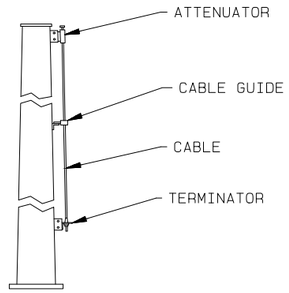
REFER TO ELEVATION VIEW FOR MINIMUM AND MAXIMUM SPLICE VALUES.

SPLICE CONNECTION

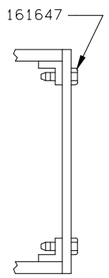


TURN STEP BOLTS UNTIL FRONT EDGE TOUCHES POLE SHAFT

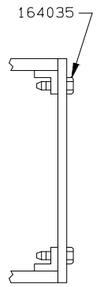
POLE STEP KIT



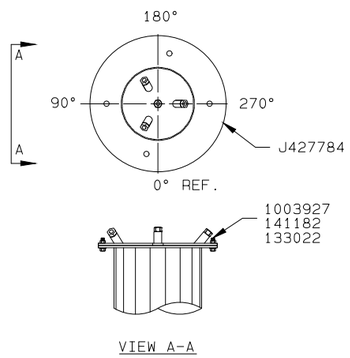
SAFETY CLIMB ASSEMBLY



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 INDCATE SEQUENCE MANUFACTURED
2. ASSEMBLY AND ERECTION GUIDELINES: SEE VALMONT COMMUNICATION POLE INSTALLATION GUIDELINE I012.
3. SLIP JOINT JACKING FORCE:
   MINIMUM = 52,322#
   MAXIMUM = 90,000#
4. FINISH: GALVANIZED PER ASTM A-123

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

VALMONT PART NUMBER	DESCRIPTION	UNIT WEIGHT (LBS)	QTY PER STR
DD7501A	SECTION ASSEMBLY	12231	1
DD7501B	SECTION ASSEMBLY	2868	1
AC14222	HANDHOLE COVER (9 X 24 HV)	9	4
AC14198	HANDHOLE COVER (6 X 18)	6	12
J427784	POLE CAP	110	1

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	28
1003927	1.50	5.00				HDGV	A307	4
133022			1.50		DH,LOCK	HDGV	A563	4
141182				1.50	CS,FLAT	HDGV	F436	4
2136A					STEP KIT	HDGV	-	61

* PER ASTM A325-91C, EXCLUDE SECTIONS 6.3 & 9.2

DUPLICATE DRAWING DISTRIBUTION

PED498211_CT027, NEW CANAAN NORTHEAST, C

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

DRAWN	ENGR	DATE	SCALE
VK7	JA70	11/18/20	NONE

P.A. CHK | SHOP CHK

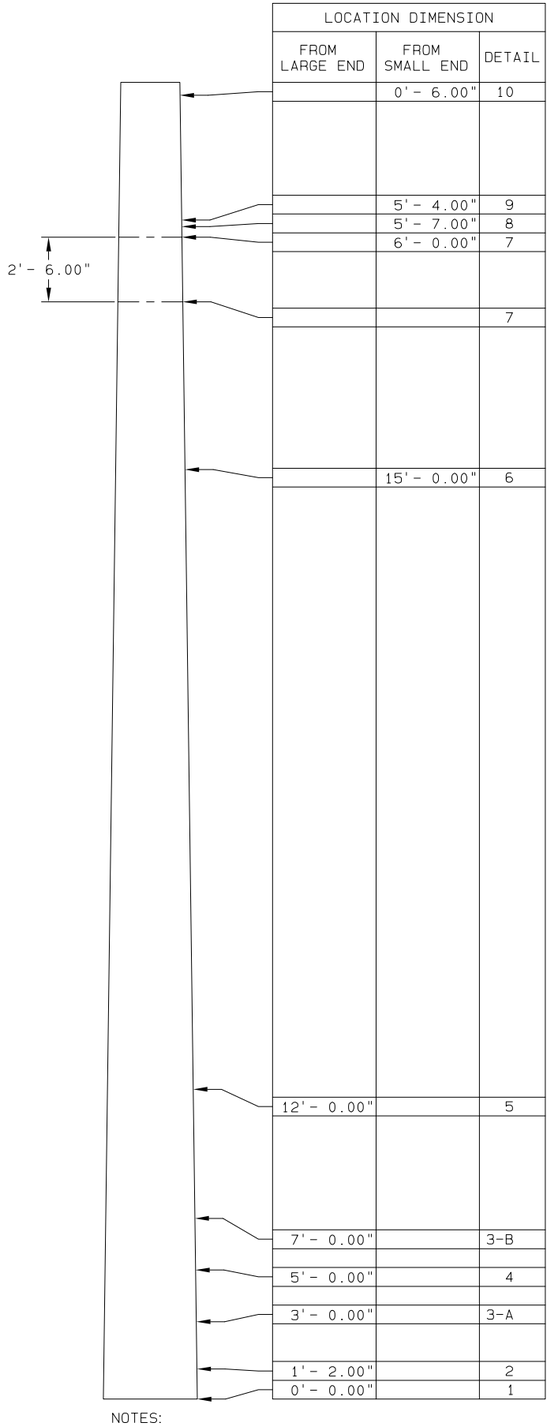
OTHER SPECIFICATIONS

MATERIAL	THICKNESS	WEIGHT
		15,393#

REV ID	DATE	REV BY	CHK BY	REVISION DESCRIPTION

ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
498211	INSITE WIRELESS GROUP	84.0' POLE	DD7501Z

valmont

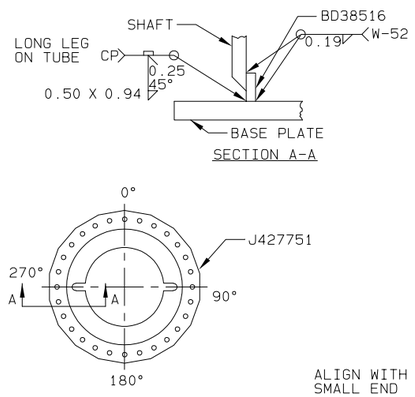


LOCATION DIMENSION		
FROM LARGE END	FROM SMALL END	DETAIL
	0'- 6.00"	10
	5'- 4.00"	9
	5'- 7.00"	8
	6'- 0.00"	7
		7
	15'- 0.00"	6
12'- 0.00"		5
7'- 0.00"		3-B
5'- 0.00"		4
3'- 0.00"		3-A
1'- 2.00"		2
0'- 0.00"		1

NOTES:

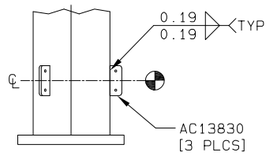
1. LOCATE SEAM WELD AT 40°. ALL MEASUREMENTS ARE CLOCKWISE WHEN VIEWED FROM THE SMALL END.
2. ALL CROSS SECTION VIEWS AND ORIENTATION REFERENCES ARE FROM SMALL END OF THE TUBE.
3. ALIGN WITH FLATS AT SMALL END UNLESS OTHERWISE NOTED.
4. REFER TO BRANCH MOUNT LAYOUT SHEET FOR ADDITIONAL ELEVATIONS AND ORIENTATIONS

1 BASE PLATE



2 GROUNDING PLATES

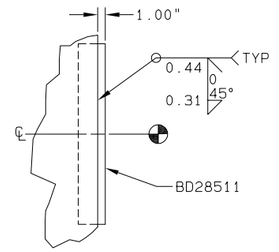
ORIENTATION: 30°, 150°, 270°



IF MULTI-SIDED SHAFT CENTER PLATES ON FLATS.

3 HANDHOLE RIM 9X24

ORIENTATION: A 0°, 180° | B 90°, 270°

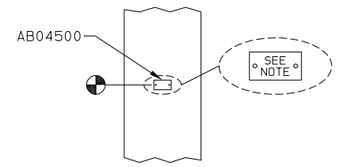


NOTE: LOCATE COVER MOUNT CLIPS OUTSIDE OF SHAFT.

4 ID PLATE

ORIENTATION: 50°

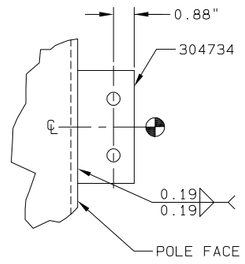
ID TAG TEMPLATE: AB01274



STAMPED PER "IDENTIFICATION PLATE ASSIGNMENT SHEET" (REF. M-34). ATTACHED PER M-44 AFTER FINISHING.

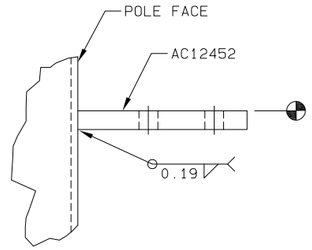
5 CABLE STOP

ORIENTATION: 50°



6 CABLE GUIDE

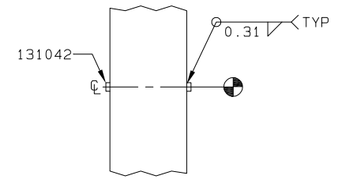
ORIENTATION: 50°



LOCATION ±2' VERTICALLY TO AVOID INTERFERENCE

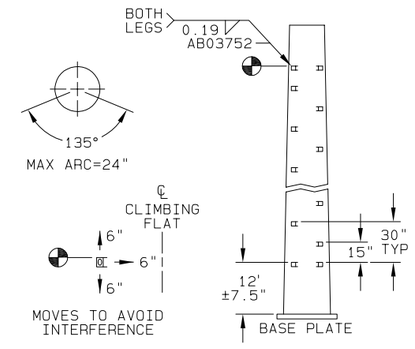
7 JACKING NUT

ORIENTATION: 90°, 270°



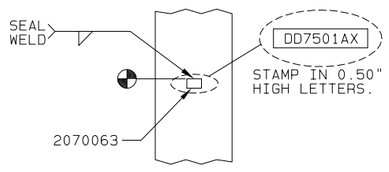
8 STEP LUG

ORIENTATION: 50°



9 IDENT TAG

ORIENTATION: 50°



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

10 HANGING HOLES

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

BILL OF MATERIAL (SHIP SEQ=0)

VALMONT PART NO	DESCRIPTION	QTY PER ASSY
BD38515	SHAFT	1
J427751	BASE PLATE	1
BD38516	BACK-UP RING	2
AC13830	GROUND PLATE	3
BD28511	HANDHOLE RIM	4
AB01274	ID TAG TEMPLATE	0
304734	CABLE STOP	1
AC15304	90° BRANCH HEXNUT	86
AC12452	CABLE GUIDE	1
131042	1.00" NUT	4
AB03752	STEP LUG	29
2070063	IDENT TAG	1
POST-FINISHING ATTACHMENTS (SHIP SEQ=2)		
AB04500	ID PLATE	1

LOCATION SYMBOL KEY	SHAFT INFO (MEASURED ACROSS FLATS)						
LOCATION REFERENCE	SHAPE	LENGTH	BASE OD	TOP OD	TAPER	THK	ASTM
	18-SIDED	51'-0.00"	48.00"	30.09"	0.351	0.500"	A572

DUPLICATE DRAWING DISTRIBUTION

IMF_SEC_ASSY_48"BD_30"TD__51'-0"LG_____

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

REV ID	DATE	REV BY	CHK BY	REVISION DESCRIPTION

DRAWN	ENGR	DATE	SCALE
VK7	JA70	11/17/20	NONE

P.A. CHK | SHOP CHK

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

MATERIAL	THICKNESS	WEIGHT
S-22		12,231#

valmont

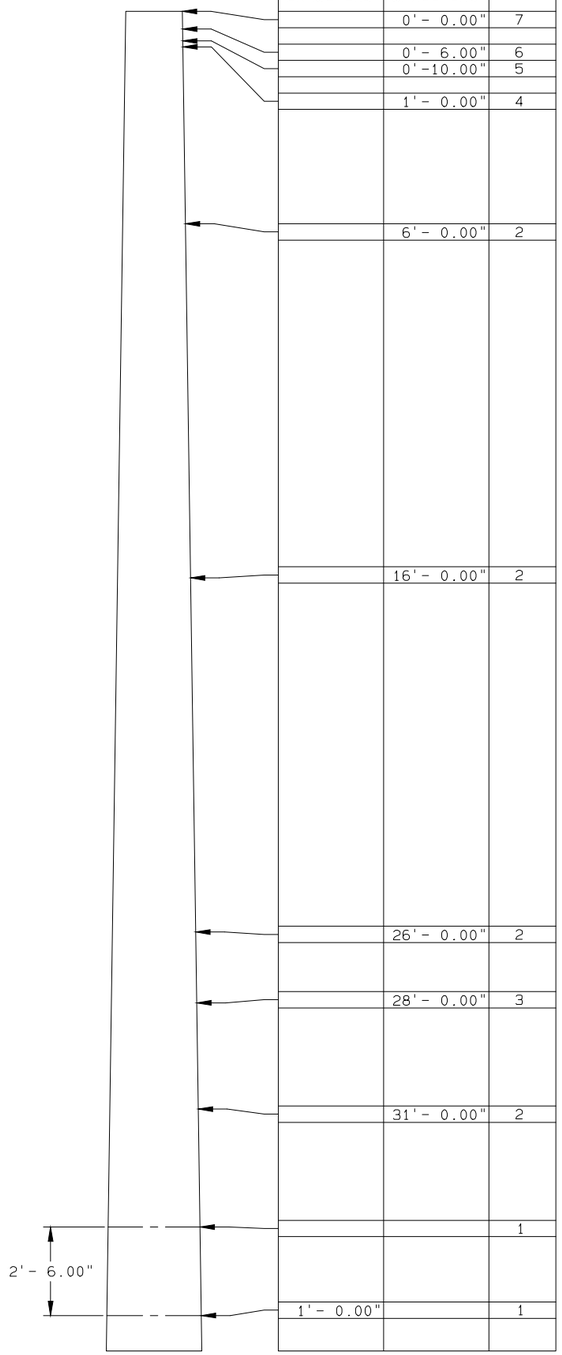
ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
498211	INSITE WIRELESS GROUP	SECTION ASSEMBLY	DD7501A

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'-0"																AC15304			90
5'-6"									AC15304										90
6'-0"			AC15304			AC15304													90
6'-6"														AC15304					90
7'-0"										AC15304								AC15304	90
7'-6"					AC15304										AC15304				90
8'-0"								AC15304											90
8'-6"		AC15304									AC15304								90
9'-0"				AC15304															90
9'-6"							AC15304										AC15304		90
10'-0"	AC15304												AC15304						90
10'-6"																AC15304			90
11'-0"			AC15304						AC15304										90
11'-6"						AC15304													90
12'-0"														AC15304					90
12'-6"										AC15304								AC15304	90
13'-0"					AC15304										AC15304				90
13'-6"								AC15304											90
14'-0"		AC15304									AC15304								90
14'-6"				AC15304															90
15'-0"							AC15304										AC15304		90
15'-6"	AC15304												AC15304						90
16'-0"																AC15304			90
16'-6"			AC15304						AC15304										90
17'-0"						AC15304													90
17'-6"														AC15304					90
18'-0"										AC15304								AC15304	90
18'-6"					AC15304										AC15304				90
19'-0"								AC15304											90
19'-6"		AC15304									AC15304								90
20'-0"				AC15304															90
20'-6"							AC15304										AC15304		90
21'-0"	AC15304												AC15304						90
21'-6"																AC15304			90
22'-0"			AC15304						AC15304										90
22'-6"						AC15304													90
23'-0"														AC15304					90
23'-6"										AC15304								AC15304	90
24'-0"					AC15304										AC15304				90
24'-6"								AC15304											90
25'-0"		AC15304									AC15304								90
25'-6"				AC15304															90
26'-0"							AC15304										AC15304		90
26'-6"	AC15304												AC15304						90
27'-0"																AC15304			90
27'-6"			AC15304						AC15304										90
28'-0"						AC15304													90
28'-6"														AC15304					90
29'-0"										AC15304								AC15304	90
29'-6"					AC15304										AC15304				90
30'-0"								AC15304											90
30'-6"		AC15304									AC15304								90
31'-6"				AC15304					AC15304								AC15304		90
32'-0"	AC15304						AC15304						AC15304						90

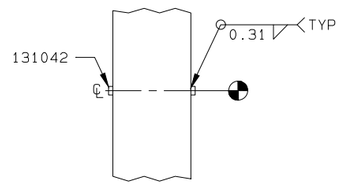
valmont

ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
498211	INSITE WIRELESS GROUP	SECTION ASSEMBLY	DD7501A



ORIENTATION

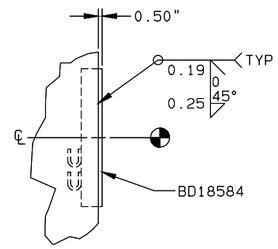
90°, 270°



1 JACKING NUT

ORIENTATION

40°, 160°, 280°

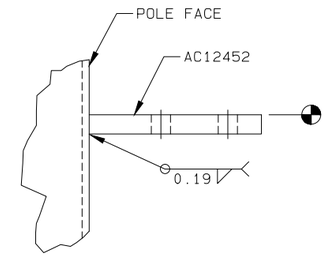


NOTE: LOCATE HOOKS TOWARD LARGE END.

2 HANDHOLE RIM 6X18

ORIENTATION

50°

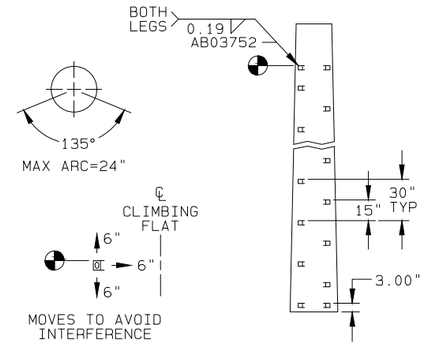


LOCATION ±2' VERTICALLY TO AVOID INTERFERENCE

3 CABLE GUIDE

ORIENTATION

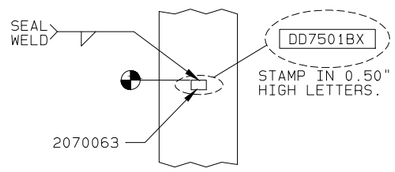
50°



4 STEP LUG

ORIENTATION

50°

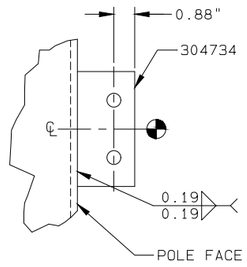


THE LAST CHARACTER, "X", IS A SEQUENTIAL NUMERAL ASSIGNED BY MANUFACTURING.

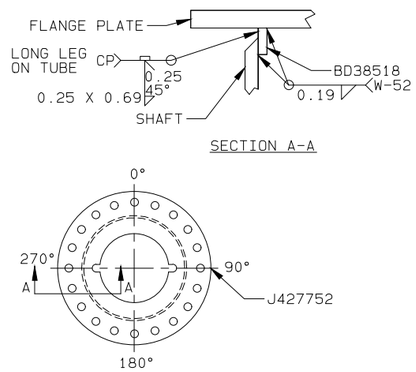
5 IDENT TAG

ORIENTATION

50°

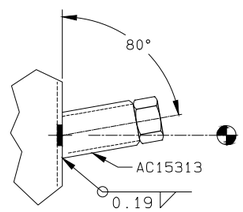


6 CABLE STOP



NOTE: ALIGN WITH FLATS AT LARGE END.

7 FLANGE PLATE

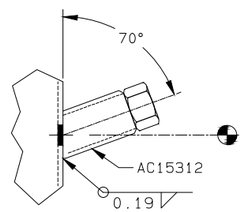


80° BRANCH MOUNT

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

9 80° BRANCH MOUNT

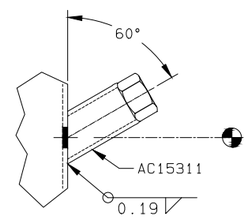


70° BRANCH MOUNT

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

10 70° BRANCH MOUNT



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

11 60° BRANCH MOUNT

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

BILL OF MATERIAL
(SHIP SEQ=0)

VALMONT PART NO	DESCRIPTION	QTY PER ASSY
BD38517	SHAFT	1
AC15304	90° BRANCH HEXNUT	108
131042	1.00" NUT	4
BD18584	HANDHOLE RIM	12
AC12452	CABLE GUIDE	1
AC15313	80° BRANCH MOUNT	4
AC15312	70° BRANCH MOUNT	4
AB03752	STEP LUG	32
AC15311	60° BRANCH MOUNT	6
2070063	IDENT TAG	1
304734	CABLE STOP	1
J427752	FLANGE PLATE	1
BD38518	BACK-UP RING	2

LOCATION SYMBOL KEY	SHAFT INFO (MEASURED ACROSS FLATS)						
LOCATION REFERENCE	SHAPE	LENGTH	BASE OD	TOP OD	TAPER	THK	ASTM
	18-SIDED	37'-8.25"	32.29"	19.05"	0.351	0.250"	A572

DUPLICATE DRAWING DISTRIBUTION

TMF_SEC_ASSY_32"BD_19"ID__37'-10"LG_____

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

DRAWN	ENGR	DATE	SCALE
VK7	JA70	11/18/20	NONE

P.A. CHK | SHOP CHK

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

MATERIAL	THICKNESS	WEIGHT
S-22		2,865#

REV ID	DATE	REV BY	CHK BY	REVISION DESCRIPTION

ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
498211	INSITE WIRELESS GROUP	SECTION ASSEMBLY	DD7501B

valmont

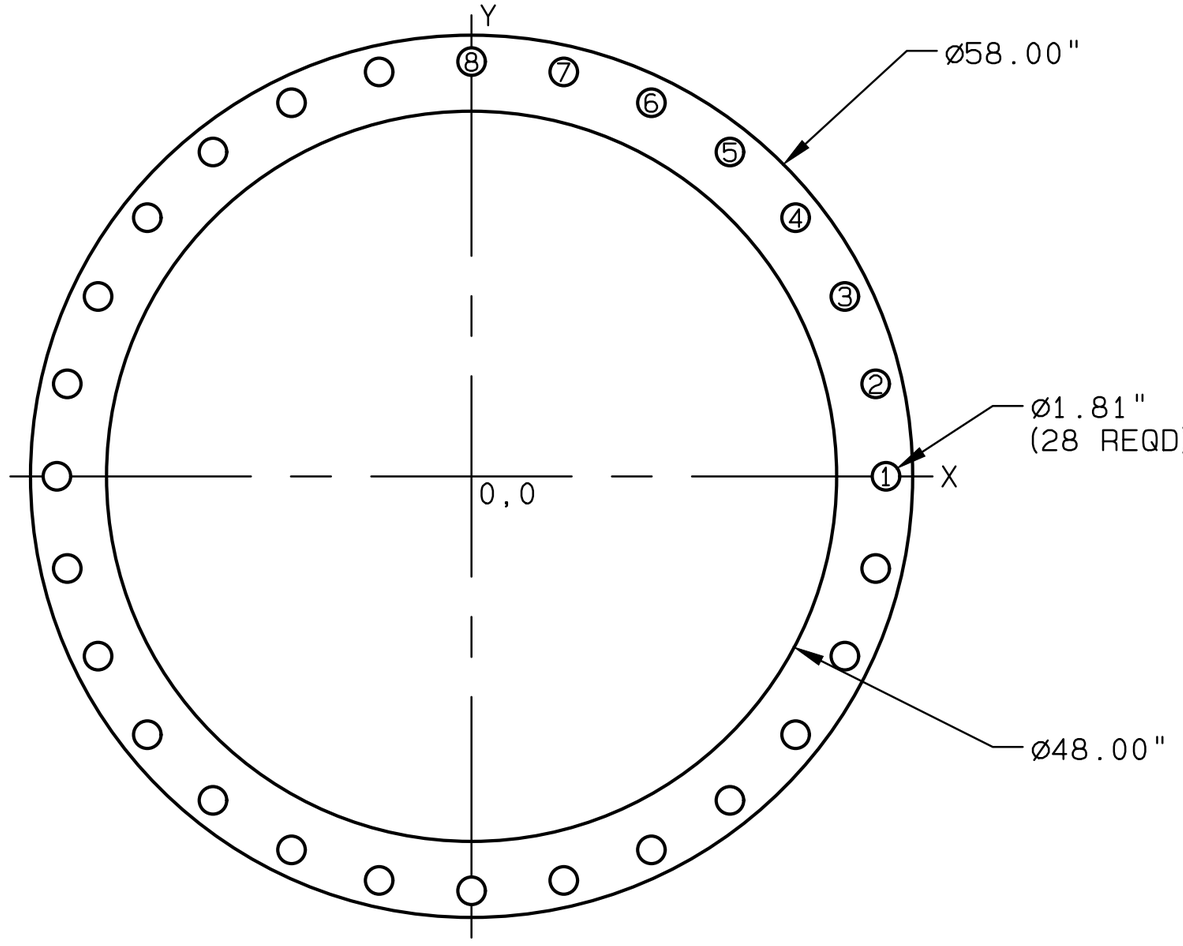
BRANCH MOUNT LAYOUT

FROM SMALL END	ORIENTATIONS																		MOUNT
	10°	30°	50°	70°	90°	110°	130°	150°	170°	190°	210°	230°	250°	270°	290°	310°	330°	350°	
0'-6"				AC15311						AC15311						AC15311			60
1'-0"						AC15311								AC15311				AC15311	60
1'-6"		AC15312							AC15312										70
2'-0"					AC15312										AC15312				70
2'-6"								AC15313											80
3'-0"			AC15313								AC15313						AC15313		80
5'-0"	AC15304							AC15304								AC15304			90
5'-6"				AC15304															90
6'-0"						AC15304													90
6'-6"														AC15304					90
7'-0"			AC15304							AC15304								AC15304	90
7'-6"					AC15304										AC15304				90
8'-0"								AC15304					AC15304						90
8'-6"		AC15304									AC15304								90
9'-0"				AC15304															90
9'-6"							AC15304							AC15304			AC15304		90
10'-0"	AC15304																		90
10'-6"									AC15304										90
11'-0"			AC15304													AC15304			90
11'-6"						AC15304													90
12'-6"					AC15304					AC15304			AC15304					AC15304	90
13'-0"							AC15304								AC15304				90
13'-6"		AC15304																	90
14'-0"								AC15304											90
14'-6"														AC15304					90
15'-0"																	AC15304		90
15'-6"				AC15304							AC15304								90
16'-0"						AC15304										AC15304			90
16'-6"	AC15304																		90
17'-0"			AC15304				AC15304												90
17'-6"														AC15304					90
18'-0"										AC15304									90
18'-6"					AC15304								AC15304		AC15304			AC15304	90
19'-0"								AC15304											90
19'-6"		AC15304									AC15304								90
20'-0"				AC15304															90
20'-6"							AC15304										AC15304		90
21'-0"	AC15304												AC15304						90
21'-6"																AC15304			90
22'-0"			AC15304						AC15304										90
22'-6"						AC15304													90
23'-0"														AC15304				AC15304	90
23'-6"					AC15304														90
24'-0"																AC15304			90
24'-6"										AC15304									90
25'-0"		AC15304						AC15304											90
25'-6"				AC15304							AC15304								90
26'-0"																	AC15304		90
26'-6"					AC15304														90
27'-0"	AC15304						AC15304						AC15304		AC15304				90
27'-6"			AC15304						AC15304										90
28'-0"						AC15304										AC15304			90
28'-6"														AC15304					90
29'-0"										AC15304								AC15304	90
29'-6"					AC15304										AC15304				90
30'-0"								AC15304											90
30'-6"		AC15304									AC15304								90
31'-0"				AC15304															90
31'-6"							AC15304										AC15304		90
32'-0"	AC15304												AC15304						90
32'-6"																AC15304			90
33'-0"			AC15304			AC15304			AC15304										90
33'-6"											AC15304								90
34'-0"																		AC15304	90
34'-6"					AC15304														90
35'-0"										AC15304									90
35'-6"								AC15304											90
36'-0"		AC15304															AC15304		90
36'-6"				AC15304							AC15304								90
37'-0"							AC15304								AC15304				90
37'-6"	AC15304												AC15304						90

valmont

ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
498211	INSITE WIRELESS GROUP	SECTION ASSEMBLY	DD7501B

HOLE COORDINATES (INCHES)		
HOLE NO	X-COORD	Y-COORD
1	27.25	0.00
2	26.57	6.06
3	24.55	11.82
4	21.31	16.99
5	16.99	21.31
6	11.82	24.55
7	6.06	26.57
8	0.00	27.25



NOTES:
1. BOLT CIRCLE DIAMETER = 54.50"
(EQUALLY SPACED).

DUPLICATE DRAWING DISTRIBUTION

BCP9948002725

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

REV ID	DATE	REV BY	CHK BY	REVISION DESCRIPTION

DRAWN	ENGR	DATE	SCALE
VK7	JA70	11/17/20	CNC

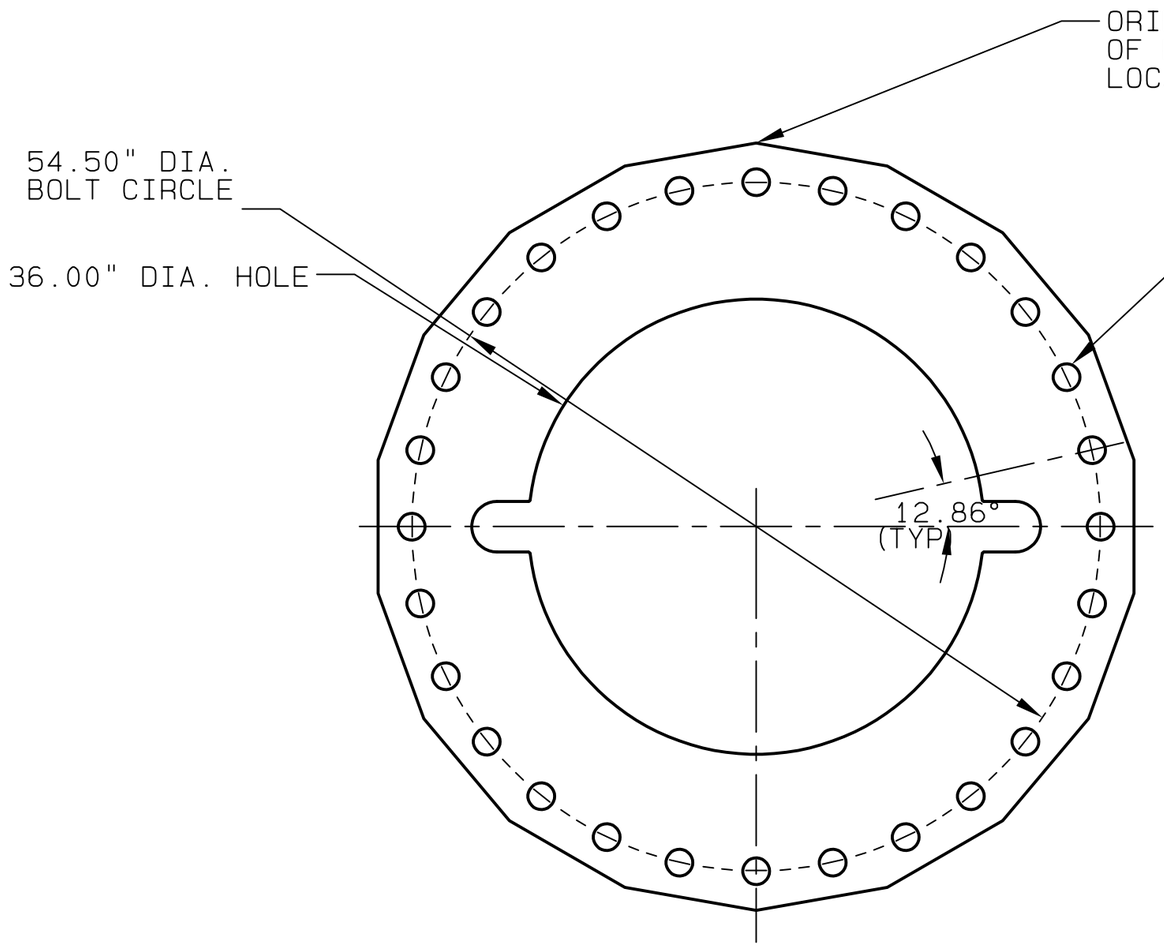
P.A. CHK	SHOP CHK

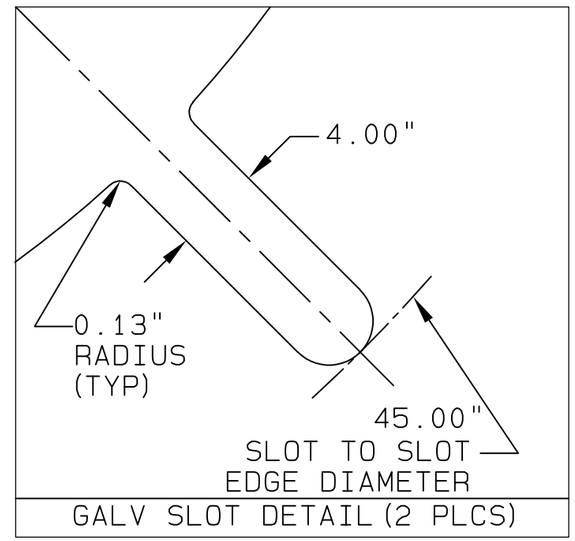
OTHER SPECIFICATIONS
M-1

MATERIAL	THICKNESS	WEIGHT
S-70	0.500"	106#

valmont

ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
498211	INSITE WIRELESS GROUP	CAGE PLATE	BD38523





GALV SLOT DETAIL (2 PLCS)

PERIMETER DIMENSIONS:

DIST. ACROSS FLATS = 59.78"
CORNER RADIUS = 0.00"
NUMBER OF SIDES = 18
FLAT LENGTH = 10.54"

REV.	DATE	REVISION DESCRIPTION

MATERIAL THICKNESS: 2.750"

SPECIFICATIONS

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

DUPLICATE DRAWING DISTRIBUTION
☐ 04 ☐ 37 ☐ 38 ☐ 40

DATE	DRAWN	CHECKED	SCALE
11/17/20	VK7		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)

BPLR3600C000545528H213275056M180598D

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) 1337 (104)

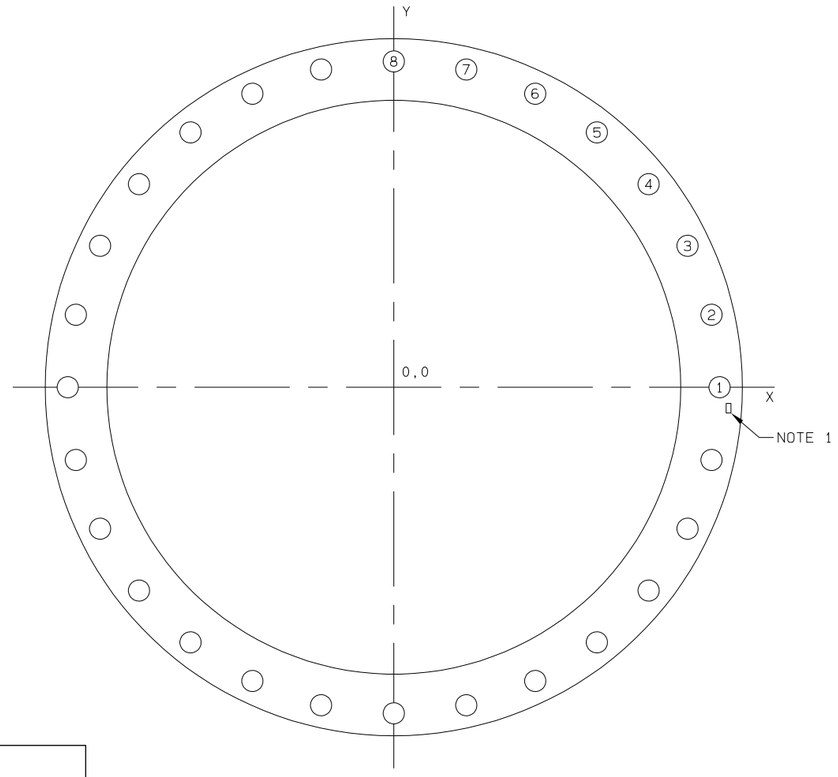
valmont

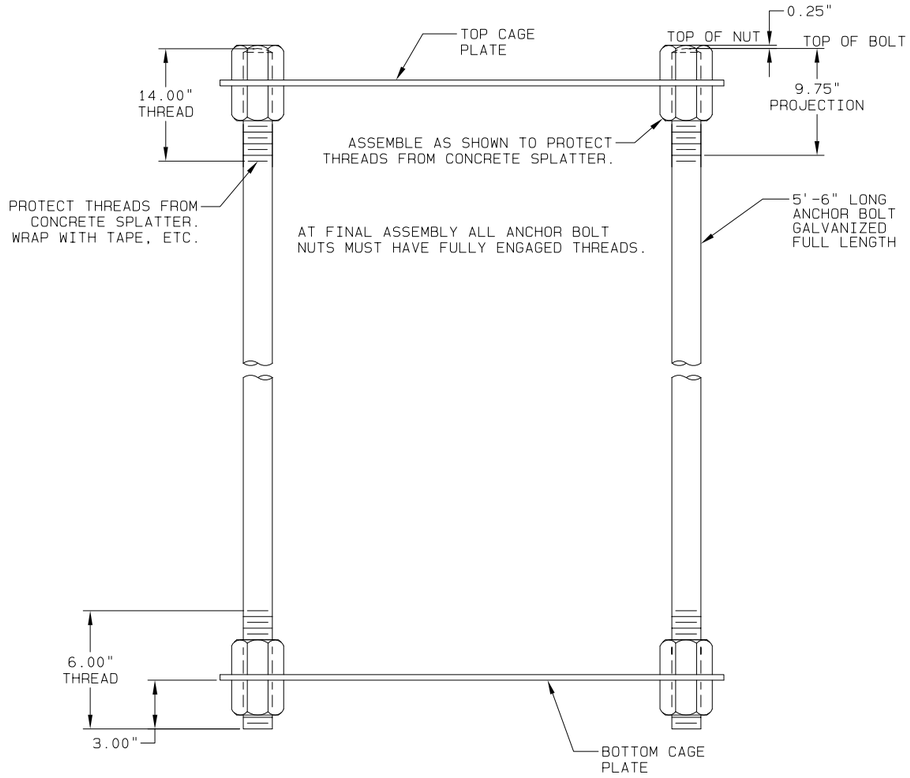
PART NO. J427751

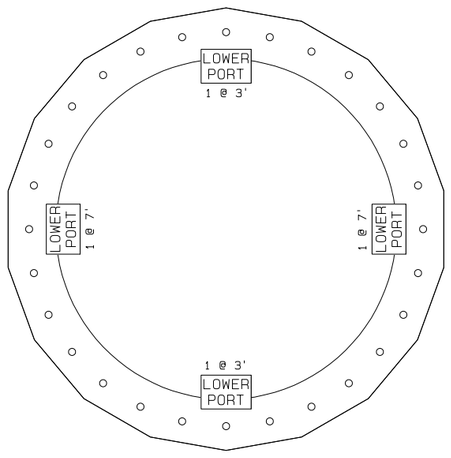
HOLE COORDINATES (INCHES)		
HOLE NUMBER	X-COORD	Y-COORD
1	27.25	0.00
2	26.57	6.06
3	24.55	11.82
4	21.31	16.99
5	16.99	21.31
6	11.82	24.55
7	6.06	26.57
8	0.00	27.25

HOLE & SLOT SIZES (INCHES)
TEMPLATE = Ø1.81

BOLT CIRCLE (INCHES)
54.50







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

ORIENTATION INDEX

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.

NOTES

1. STAMP OR ENGRAVE THE DRAWING NUMBER ON 1620194 IN 0.50" CHARACTERS. SEAL WELD.
2. OUTSIDE DIAMETER OF ALL CAGE PLATES = 58.00".
3. INSIDE DIAMETER OF ALL CAGE PLATES = 48.00".
4. CAGE PLATES - 0.500" THK; A36 MATERIAL.
5. ANCHOR BOLTS - 14J BAR; A615, GRADE 75 MATERIAL.
6. SHIPPED LOOSE, ASSEMBLE IN THE FIELD.

BILL OF MATERIAL (SHIP SEQ=1)

VALMONT PART NO	DESCRIPTION	QTY PER ASSY
BD38523	CAGE PLATE	2
AC14395	1.75" BOLT	28
131735	1.75" NUT A563	112
141330	1.75" WASHER F436	56
1620194	IDENT TAG	1

84.0' POLE, SITE: CT027, NEW CANAAN NORTHEAST, CT

DUPLICATE DRAWING DISTRIBUTION

TCACAAOYONAC14395F

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

REV ID	DATE	REV BY	CHK BY	REVISION DESCRIPTION

DRAWN	ENGR	DATE	SCALE
VK7	JA70	11/17/20	NONE

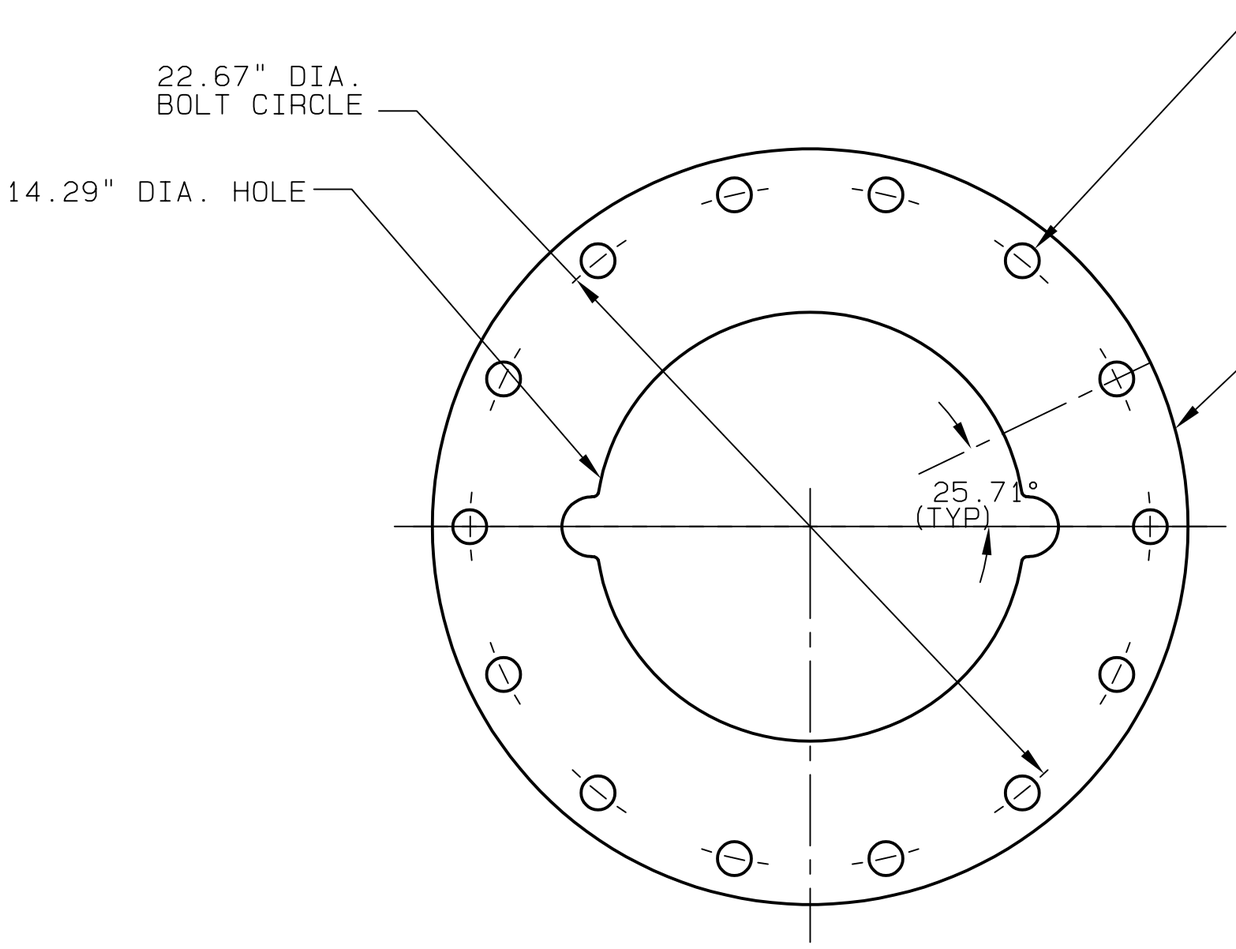
P.A. CHK | SHOP CHK

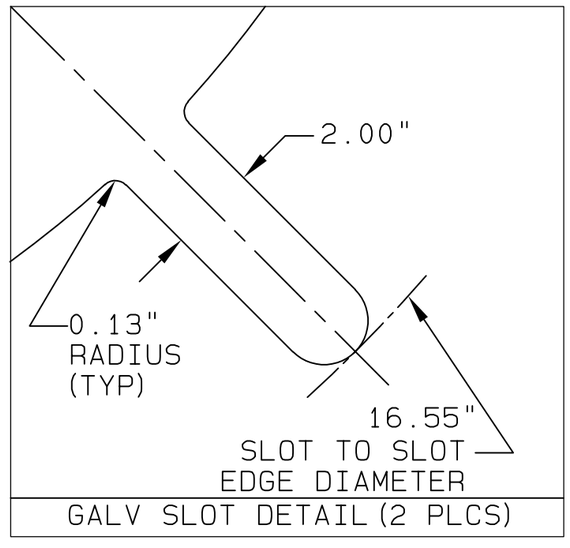
OTHER SPECIFICATIONS: M-1

MATERIAL	THICKNESS	WEIGHT
		2,024#

valmont

ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
498211	INSITE WIRELESS GROUP	ANCHOR BOLT CAGE ASSEMBLY	CC16924





GALV SLOT DETAIL (2 PLCS)

REV.	DATE	REVISION DESCRIPTION

MATERIAL THICKNESS: 1.500"

SPECIFICATIONS

MATERIAL S56

FINISH N/A

WELD N/A

TOLERANCE M30, M23

DUPLICATE DRAWING DISTRIBUTION

☐ 04 ☐ 37 ☐ 38 ☐ 40

DATE	DRAWN	CHECKED	SCALE
11/17/20	VK7		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)

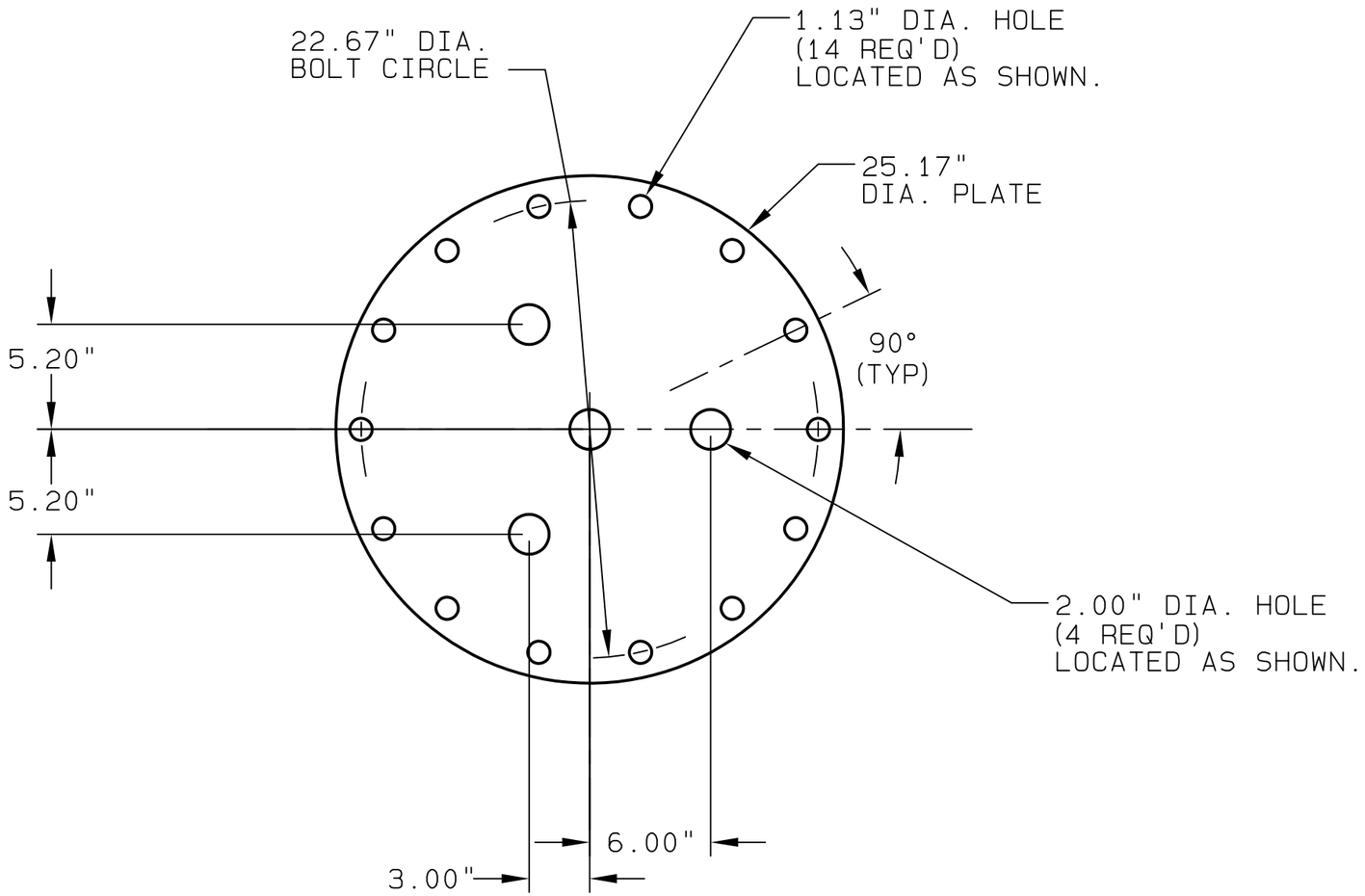
FPL142922671131RR25171150S056

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) 138 (104)

valmont

PART NO. J427752



REV.	DATE	REVISION DESCRIPTION

MATERIAL THICKNESS: 0.375"

SPECIFICATIONS

MATERIAL S115

FINISH N/A

WELD N/A

TOLERANCE M30,M23

DUPLICATE DRAWING DISTRIBUTION

☐ 04 ☐ 37 ☐ 38 ☐ 40

DATE	DRAWN	CHECKED	SCALE
11/18/20	VK7		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)

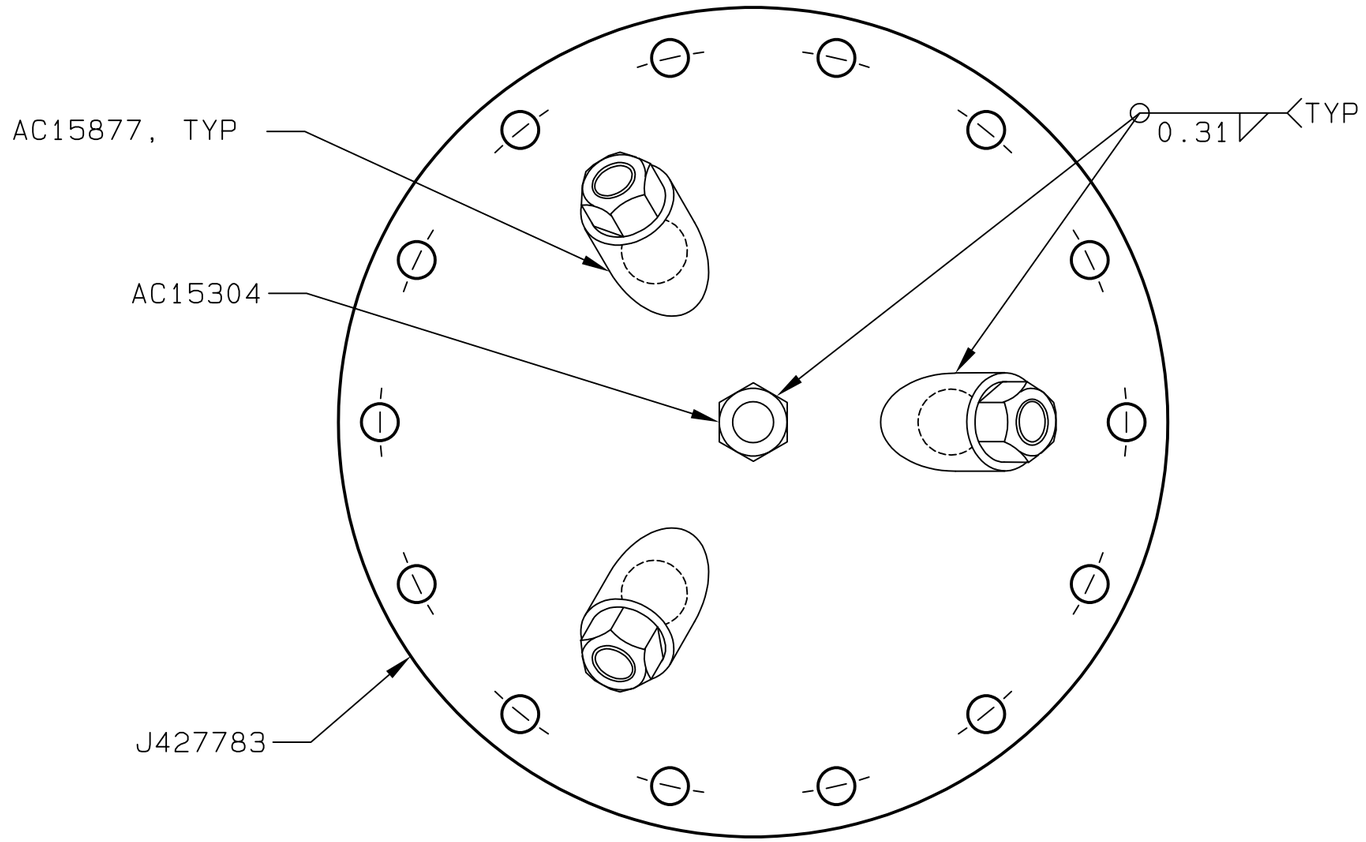
FPL0000235416341R3609038S115

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) 108 (104)

valmont

PART NO. J427783



BILL OF MATERIAL
(SHIP SEQ=0)

VALMONT PART NO	DESCRIPTION	QTY PER ASSY
J427783	POLE CAP	1
AC15877	45° BRANCH MOUNT	3
AC15304	1.25" NUT (BLACK)	1

DUPLICATE DRAWING DISTRIBUTION

TECP_BOLTED_BRANCH_CAP_36.09"_OD_PLATE__

DWG SIZE B CLASS CODE (1) 999 CLASS NO. (3) 4__

REV ID	DATE	REV BY	CHK BY	REVISION DESCRIPTION

DRAWN	ENGR	DATE	SCALE
VK7		07/14/20	NONE

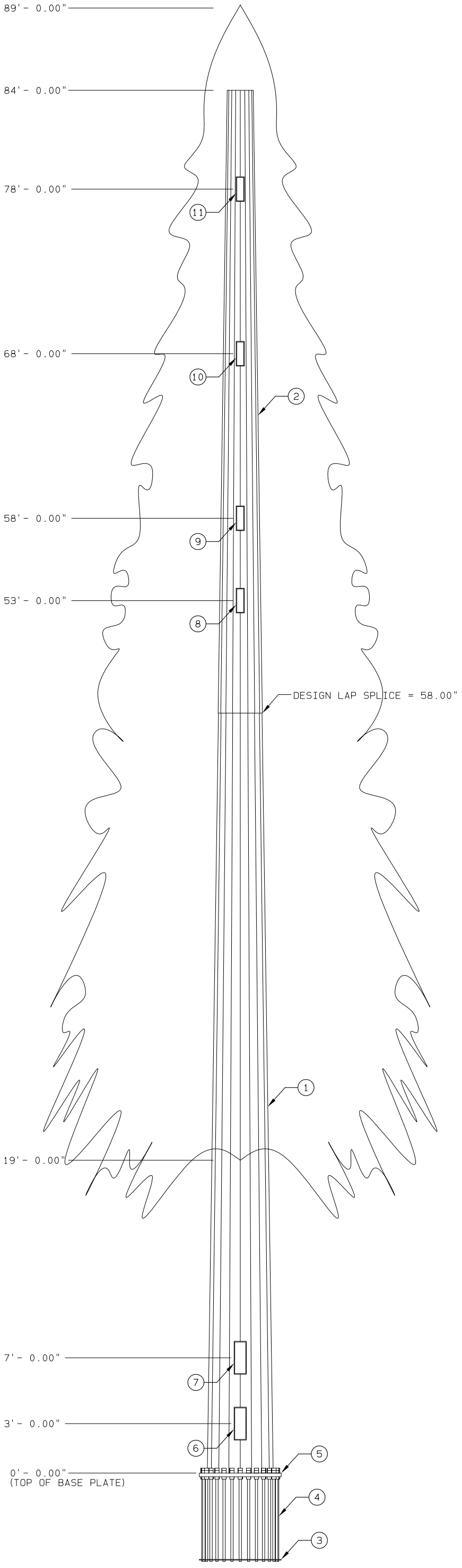
P.A. CHK	SHOP CHK

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

MATERIAL	THICKNESS	WEIGHT
S-115	0.375"	110#

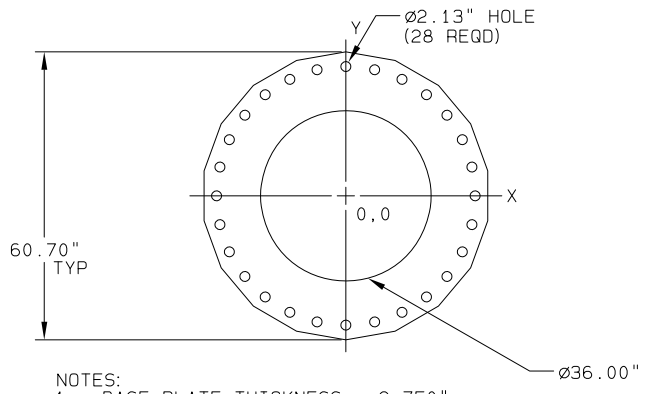
valmont

ORDER NO.	CUSTOMER	DESCRIPTION	DWG NO.
STANDARD	STANDARD	BOLTED BRANCH POLE CAP 36.09"	J427784



ITEM ID	NO. REQD	FEATURES	UNIT WEIGHT (LBS)	WEIGHT (LBS)
1	1	SECTION A VALMONT S-22 0.500" THK (A572 GR65)	10,559	10,559
2	1	SECTION B VALMONT S-22 0.250" THK (A572 GR65)	2,580	2,580
3	1	BOTTOM CAGE PLATE	106	106
4	28	1.75" ANCHOR BOLT, LENGTH=5.50' A615 GR75		
5	1	BASE PLATE VALMONT S-56 2.750" THK (A572 GR50)	1,556	1,556
	1	TOP CAGE PLATE (REMOVE BEFORE SETTING POLE)	141	141
	1	SAFETY CLIMBING CABLE (LENGTH = 74.00')	74	74
	3	GROUNDING LUG	2	6
		GALVANIZING	226	226
6	2	HAND HOLE HVY (9" x 24") @ 0°, 180°	66	132
7	2	HAND HOLE HVY (9" x 24") @ 0°, 180°	66	132
8	3	HAND HOLE STD (6" x 18") @ 40°, 160°, 280°	18	54
9	3	HAND HOLE STD (6" x 18") @ 40°, 160°, 280°	18	54
10	3	HAND HOLE STD (6" x 18") @ 40°, 160°, 280°	18	54
11	3	HAND HOLE STD (6" x 18") @ 40°, 160°, 280°	18	54
	1	POLE CAP	20	20

HOLE COORDS (INCHES)	
X-COORD	Y-COORD
27.25	0.00
26.57	6.06
24.55	11.82
21.30	16.99
16.99	21.30
11.82	24.55
6.06	26.57
0.00	27.25



NOTES:
1. BASE PLATE THICKNESS = 2.750"
2. BASE PLATE ALLOWABLE STRESS (KSI) = 50
3. ANGLES ARE MEASURED CLOCKWISE FROM 0 DEGREES
4. BOLT CIRCLE DIAMETER = 54.50"
5. CAGE TEMPLATE DIAMETER = 58.00"

BASE PLATE / ANCHORAGE CHARACTERISTICS

NOTES:

1. FACTORED BASE REACTIONS.
   MOMENT = 60,542 IN-KIPS
   SHEAR = 90,156 #
   VERTICAL = 53,814 #
2. GALVANIZED PER ASTM A-123.
3. DESIGN CRITERIA: ANSI/TIA 222-H
4. THIS STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING LOADING:
   EXPOSURE CATEGORY = C
   TOPOGRAPHY CATEGORY = 1
   RISK CATEGORY = 2
   SITE ELEVATION = 502 FT
   EARTHQUAKE SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS Ss = 0.25
   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 = 125 MPH WIND SPEED
   B. CASE 2: WIND = 50 MPH ICE AND WIND SPEED
      DESIGN ICE THICKNESS = 1.00 INCH
   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)	WITHOUT ICE WT (LBS)	WITH ICE EPA (FT**2)	WITH ICE WT (LBS)
1-CARRIER 1 - 200 SQ.FT	80.00	80.00	200.00	4000	400.00	8000
1-CARRIER 2 - 200 SQ.FT	70.00	70.00	200.00	4000	400.00	8000
1-CARRIER 3 - 150 SQ.FT	60.00	60.00	150.00	3000	300.00	6000
1-CARRIER 4 - 150 SQ.FT	50.00	50.00	150.00	3000	300.00	6000
18-BRACH TIPS	80.00	80.00	4.50	90	9.00	180
18-BRACH TIPS	70.00	70.00	4.50	90	9.00	180
18-BRACH TIPS	60.00	60.00	4.50	90	9.00	180
18-BRACH TIPS	50.00	50.00	4.50	90	9.00	180
1-5' TOP BRANCHES	84.00	86.50	2.25	33	4.50	65
3-6' TOP BRANCHES	84.00	86.00	7.50	120	15.00	240

DESCRIPTION	ABP BOT OF HT. (FT)	ABP TOP OF HT. (FT)	PER UNIT LEN. WITHOUT ICE EPA (FT**2)	PER UNIT LEN. WITHOUT ICE WT (LB)	PER UNIT LEN. WITH ICE EPA (FT**2)	PER UNIT LEN. WITH ICE WT (LB)
61-8 FT BRANCHES.....	71.50	83.50	18.30	77.30	36.60	154.6
70-10 FT BRANCHES.....	41.00	68.00	13.22	52.04	26.44	104.0
41-12 FT BRANCHES.....	19.00	45.50	10.06	42.35	20.11	84.70
36-14 FT BRANCHES.....	19.50	36.00	17.45	79.63	34.91	159.2

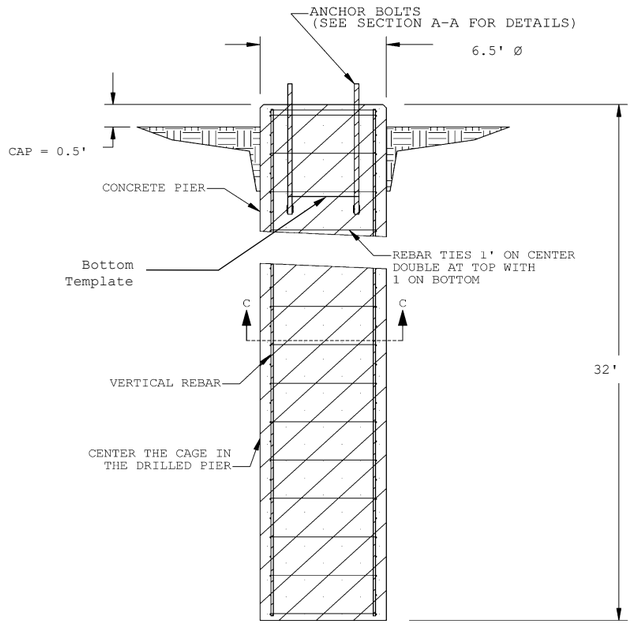
5. FEEDLINES ARE PLACED INTERIOR TO POLE SHAFT (UNLESS NOTED OTHERWISE).
6. TOTAL POLE HEIGHT IS 85 FT AGL.
7. ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE (APPROX. 1 FT AGL).
8. 18 SIDED SHAFT
9. POLE NEEDS TO BE PAINTED WITH "THUNDER GRAY" (SHERWIN WILLIAMS SW7645)
10. POLE IS DESIGNED TO A THEROTICAL BREAKPOINT AT 52 FT AGL
11. POLE DESIGN COMPLIES TO TIA/EIA-222-G AND TIA/EIA-222-H
12. AN ULTIMATE WIND SPEED OF 125MPH USED AS PER COUNTY REQUIREMENT.
13. POLE DESIGN LIMITED TO 98.9% CAPACITY.

SECTION INFORMATION					
ITEM ID	LENGTH	BASE OD	TOP OD	THK	MATL
1	51'- 0.00"	48.00"	30.09"	0.500"	A572 65 KSI
2	37'-10.00"	32.29"	19.00"	0.250"	A572 65 KSI

ORDER	PROJECT	FILE ID	SCALE	DATE	ENGR
498211		498211-P1RevH	NONE	12/14/20	JA70

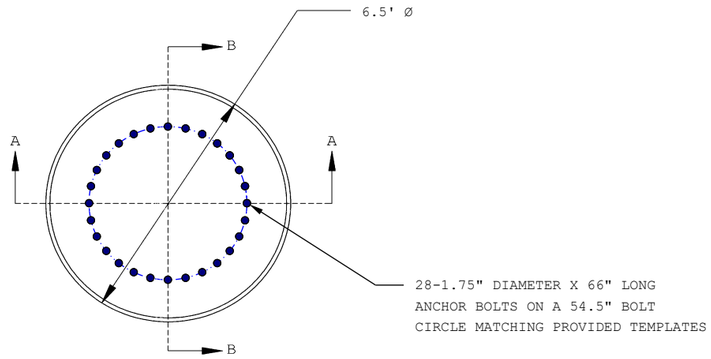
DESCRIPTION
INSITE WIRELESS GROUP 84.0' POLE, SITE: CT027, NEW CANAAN NORTHEAST, CT

valmont

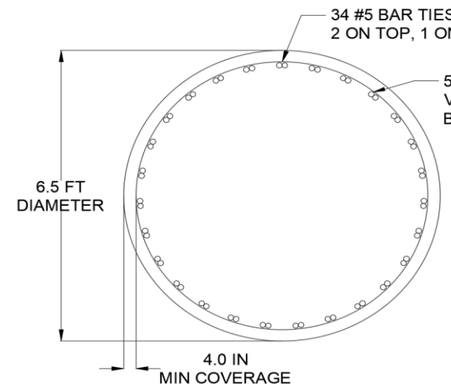


SECTION B-B

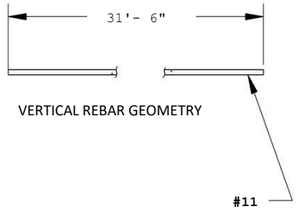
PIER ELEVATION
(NO SCALE)



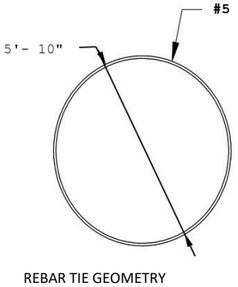
FOUNDATION & ANCHOR BOLT LAYOUT PLAN
(NO SCALE)



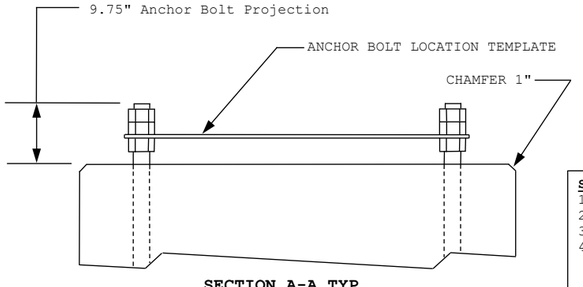
SECTION C-C
PIER REBAR LAYOUT
(NO SCALE)



VERTICAL REBAR GEOMETRY



REBAR TIE GEOMETRY



SECTION A-A TYP
ANCHOR BOLT ELEVATION
(NO SCALE)

Note: EXTREME CARE SHOULD BE TAKEN TO ENSURE THAT ALL BOLTS ARE LEVEL WITH RESPECT TO EACH OTHER TO ENSURE ADEQUATE NUT ENGAGEMENT

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 plumbness, 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).

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.
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.Ground water was not encountered below grade during boring.
7.Concrete is assumed to weigh 150 pcf.
8.Estimated concrete volume = **39.4 cubic yards total.**
9.Design Based on the following loads from installation drawing for order No: 498211-P1.

Factored Moment =	**60542 in-kips**
Factored Shear =	**90.16 kips**
Factored Download =	**53.81 kips**

10. Reference: Delta Oaks Group, Project GEO20-07085-08, 10/16/2020

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 is designed to account the fall zone radius.

Reinforcement Steel Schedule					Total	Total
-	Type	Rebar size	Rebar Spacing	Bar Weight lb/ft	Weight (lb)	BAR Qty
1	Vertical	**#11**	EQUAL	5.31	9032	54
2	Ties	**#5**	12"	1.04	701	34

TOTAL STEEL WEIGHT FOR COMPLETE FOUNDATION INSTALLATION = **9733#**

REBAR LAP SPLICE TABLE			Ref. ACI 318
Rebar Size	Rebar Grade	CONCRETE STRENGTH PSI	REBAR OVERLAP INCHES
#11	60	4500	54
#5	60	4500	18

NOTES: Where vertical bars are to be spliced, splices should be staggered.

GRADE 60 REBAR TIES		HOOK GEOMETRY***	
Rebar Size	ASK #	6db* **	4db*
		Min Length	Nominal Diameter
	Seismic Hook Not Reqd	N/A	N/A

* db = Bar Diameter
** Refers to ACI Stirrup hook detail 6db 3in min.

Rev	Description	Date	By/Ck

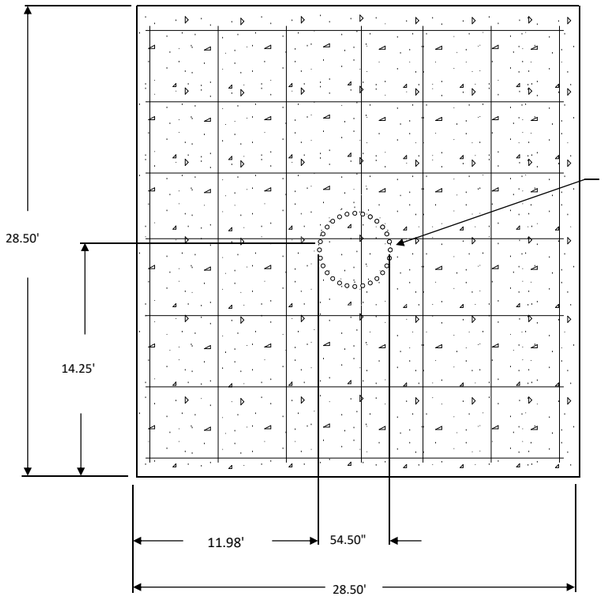
UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
X'- X X/X" - ± 1/8"
X X/X" - ± 1/16"
X' - ± 1/8"
X" - ± 1/16"

valmont STRUCTURES
3575 25TH STREET SE
SALEM, OR 97302
MAIN (503) 363-9267
(800) 547-2151

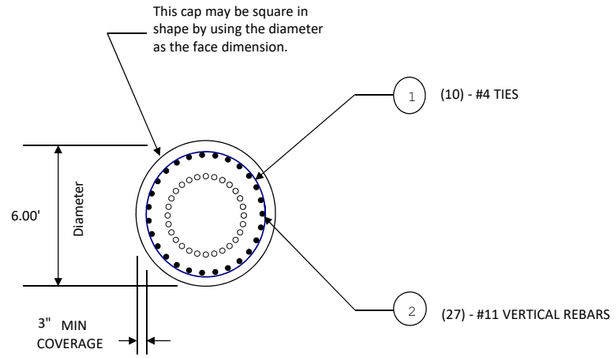
By:	AM
Check:	JVA
Date:	09/11/20

DRILLED PIER FOUNDATION LAYOUT
Customer: Insite Wireless Group
Site: CT027, New Canaan Northeast, CT

ANALYSIS Version: 2.1 | S.O.#498211-P1 | SIZE - B | **Drawing No.CT498211FP** | Sheet 1 of 1



Section A-A
No Scale



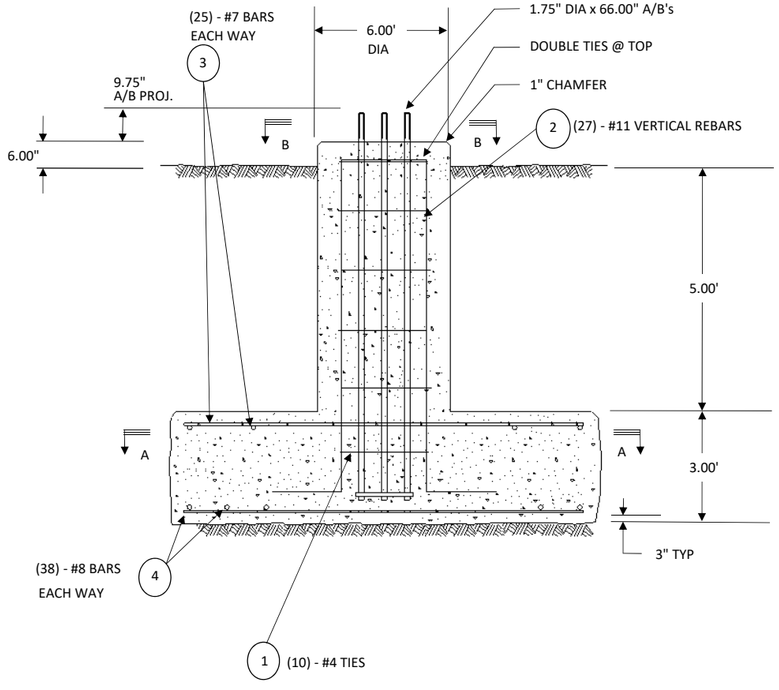
Section B-B
No Scale

General Notes: Slab Foundation

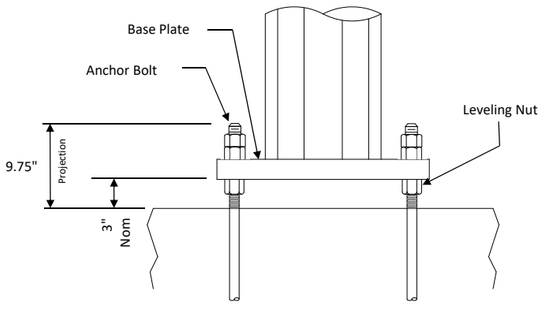
1.Prior to excavation, check the area for underground facilities.
2.All reinforcing shall be deformed bars conforming to ASTM A615 Grade 60 (60,000 psi min. yield) and shall be provided by the foundation contractor.
3.All concrete shall have a minimum compressive strength of 4500 psi @ 28 days. The requirement 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.
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.Ground water was not considered in design.
7.Foundation design based on Ultimate vert. bearing pressure of 30000 psf.
8.Concrete is assumed to weigh 150 pcf.
9.Estimated concrete volume = **96.01 cubic yards total.**
10.Design Based on the following loads from installation drawing for order No: 498211-P1.

Factored Moment = 5101 FT-KIPS **Overturning Safety Factor = 1.01**
Factored Download = 53.8 KIPS **Max. Toe Bearing Pressure = 4.52 ksf**
Factored Shear = 91.2 KIPS

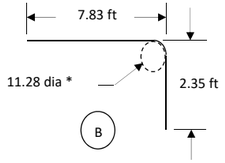
11. Backfill should be compacted to a density of 110 pcf.
12. Anchor bolts to be ASTM A615 Gr75
13. Reference: geotechnical report Delta Oaks Group Project No. GEO20-07085-08 Rev O, dated 10/16/2020

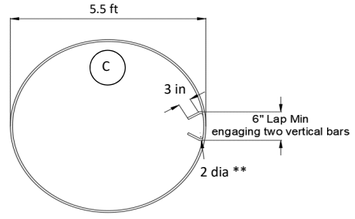


ELEVATION
No Scale



Anchor Bolt Installation
N.T.S.
Extreme care should be taken to assure that all leveling nuts are level with respect to each other prior to erection of the structure.
All nuts shall have fully engaged threads.





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

Reinforcement Steel Schedule						
Sym	Type	Rebar Size	Rebar Spacing	Weight (lbs)	Qty	
Cap Ties	**1**	**C**	**#4**	**Equal**	**124**	**10**
Cap Vertical Rebar	**2**	**B**	**#11**	**-----**	**1410**	**27**
Slab Top Steel	**3**	**A**	**#7**	**13.96 in**	**2862**	**50**
Slab Bottom Steel	**4**	**A**	**#8**	**9.05 in**	**5682**	**76**
Total Steel Weight for Complete Foundation Installation =					**10078**	

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	71	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

valmont STRUCTURES
28800 Ida Street
Vally, NE 68064
1-402-359-2201

By:	Nathan Ross	Slab Foundation Layout
Check:	NAR	Customer: InSite Wireless Group
Date:	11/24/20	Site: CT027 New Canaan Northeast, CT
	S.O. 498211-P1	SIZE - B **Dwg No. CT498211FS** Sheet 1 of 1

Branch Distribution

Insite Wireless New Canaan
P 498211

Top Plate: three 6' branches and one 5' top branch

12	12	12	13	13	12	12	13	11	12	13		12	12	12	13	12	12	208	
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
			8						8						8			6"	60
					8								8				8	1'	60
	8							8										1'-6"	70
				8										8				2'	70
							8											2'-6"	80
		8								8						8		3'	80
																		3'-6"	MOUNT
																		4'	MOUNT
																		4'-6"	MOUNT
8							8								8			5'	90
			8															5'-6"	90
					8													6'	90
													8					6'-6"	90
		8							8								8	7'	90
				8										8				7'-6"	90
							8					8						8'	90
	8									8								8'-6"	90
			8															9'	90
						8							8			8		9'-6"	90
8																		10'	90
								8										10'-6"	90
		8													8			11'	90
					8													11'-6"	90
																		12'	90
				8					8			8					8	12'-6"	90
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		10						10										27'-6"	90
					10										10			28'	90
													10					28'-6"	90

Branch Distribution

Insite Wireless New Canaan
P 498211

									10								10	29'	90
				10										10				29'-6"	90
							10											30'	90
	10									10								30'-6"	90
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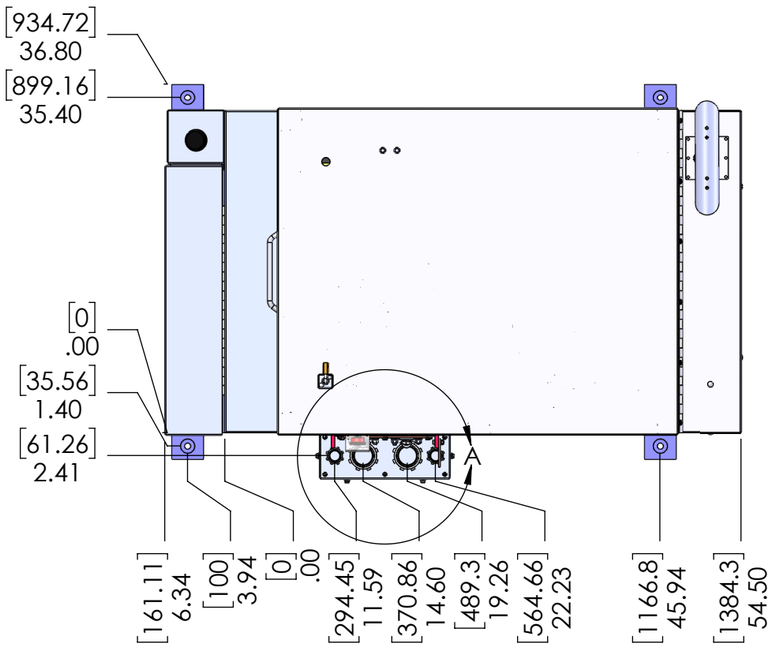
							14											57'-6"	90
	14									14								58'	90
			14															58'-6"	90

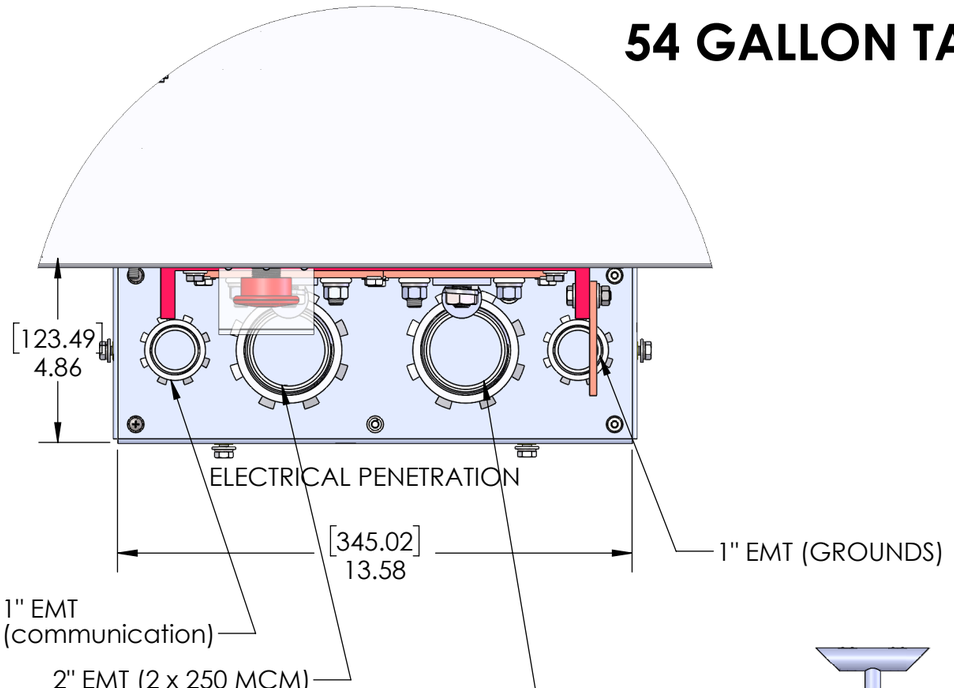
Branch Distribution

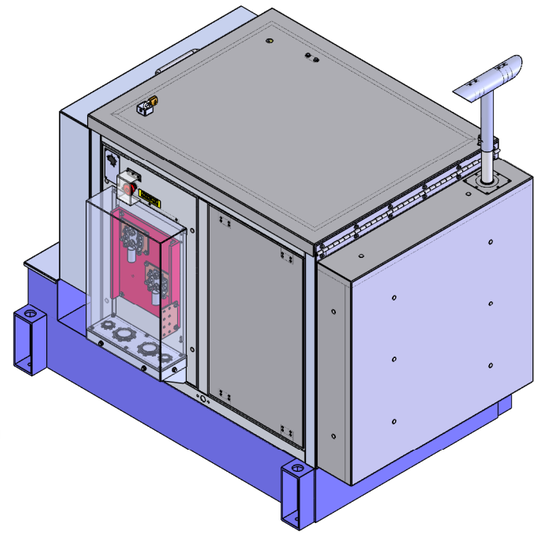
Insite Wireless New Canaan
P 498211

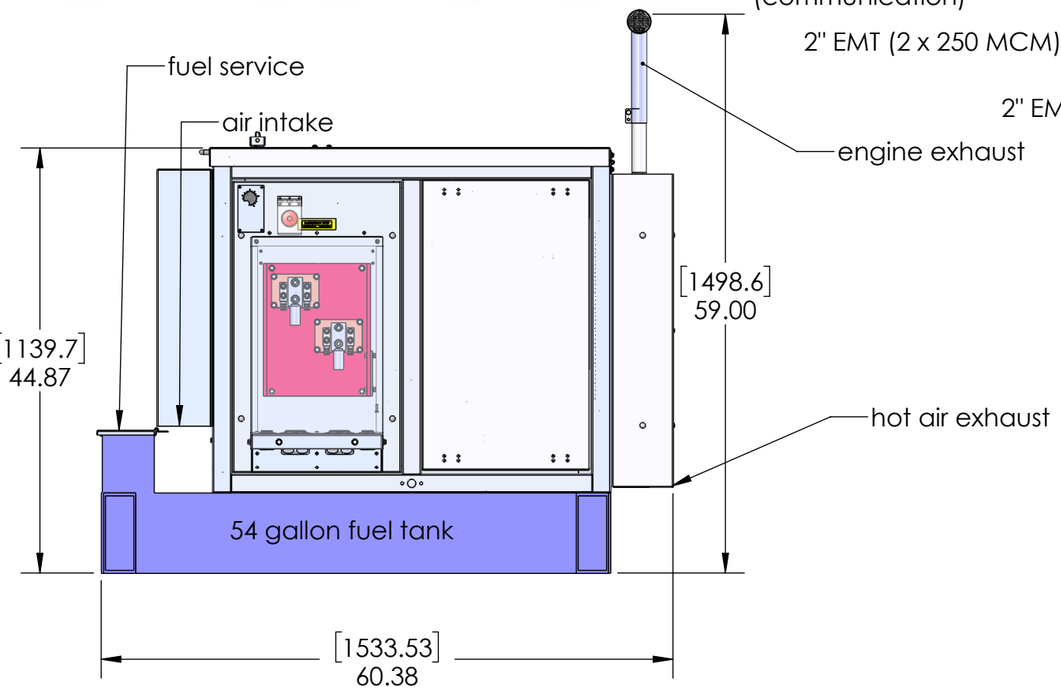
						14										14		59'	90
14												14						59'-6"	90
															14			60'	90
		14						14										60'-6"	90
					14													61'	90
													14					61'-6"	90
									14								14	62'	90
				14										14				62'-6"	90
							14											63'	90
	14									14								63'-6"	90
																		64'	90
			14					14								14		64'-6"	90
12						12						12						65'	90

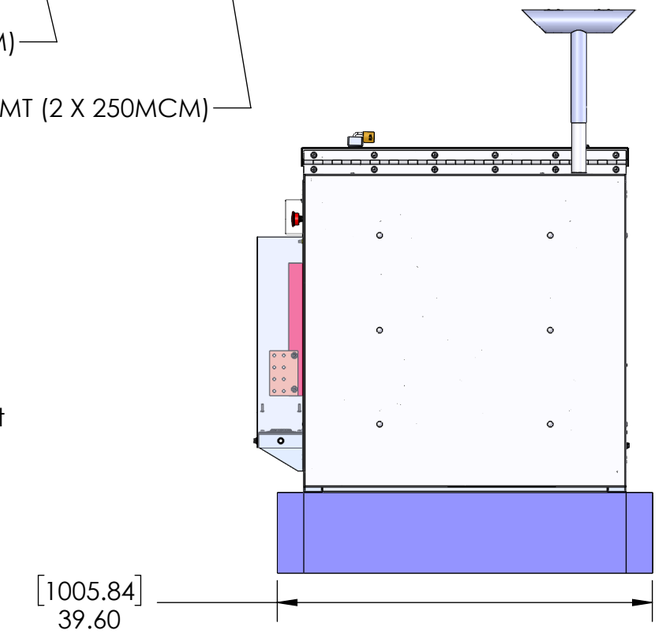
54 GALLON TANK CONFIGURATION











REV	DESCRIPTION	ECO#	BY	DATE
	INITIAL RELEASE	--		

COMMENTS:

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MATERIAL --

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MFG APPR.	
Q.A.	

POLAR POWER INC.
249 E GARDENA BLVD, GARDENA, CA 90248

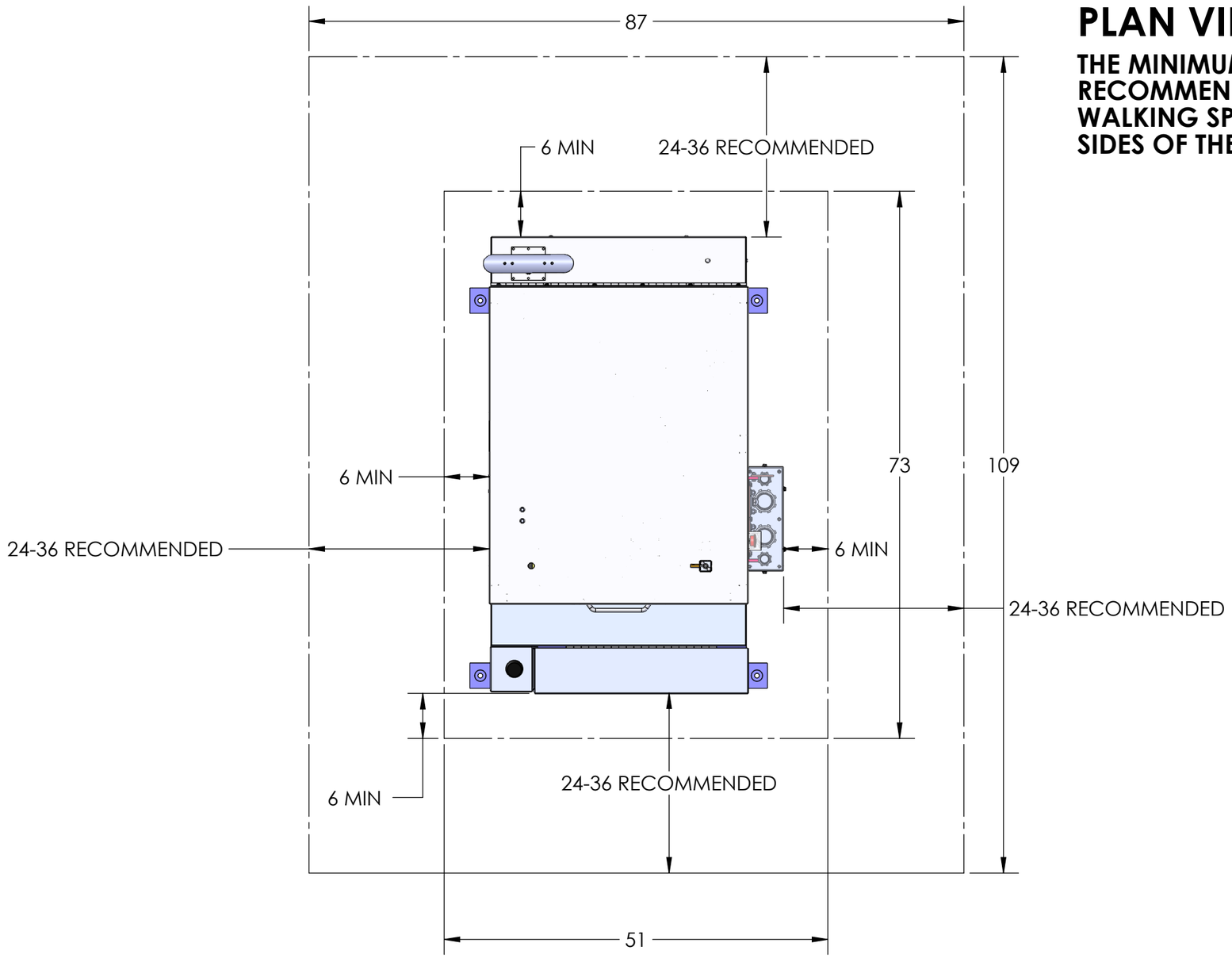
TITLE: GENERATOR ENCLOSURE, BASE ASSY, TALLER

SIZE	DWG. NO.	REV
B	88-25-0100-1	A-6

SCALE: 1:16 | WEIGHT: -- | SHEET 1 OF 4

PLAN VIEW SPACE REQUIREMENTS

THE MINIMUM REQUIREMENTS ARE NOT RECOMMENDED FOR SERVICE CONVIENENCE. WALKING SPACE IS RECOMMENDED IN ALL SIDES OF THE GENERATOR.



REV	DESCRIPTION	ECO#	BY	DATE
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UNLESS OTHERWISE SPECIFIED:
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MATERIAL --

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MFG APPR.	
Q.A.	

POLAR POWER INC.
249 E GARDENA BLVD, GARDENA, CA 90248

TITLE: GENERATOR ENCLOSURE, BASE ASSY, TALLER

SIZE	DWG. NO.	REV
B	88-25-0100-1	A-6

SCALE: 1:16 | WEIGHT: -- | SHEET 4 OF 4

Antennas

MultiPort Series

DATA SHEET

Multi-Band Twelve-Port Antenna

TPA65R-BU8D

- Eight foot (2.4 m) multiband, twelve port antenna with a 65° azimuth beamwidth covering 698-896 MHz and 1695-2400 MHz frequencies
- Eight high band ports covering 1695-2400 MHz and four low band ports covering 698-896 MHz in a single antenna enclosure
- Innovative Low and High Band Array configuration allows for 4T4R (4x4 MIMO) on Low Band and Dual 4T4R (4x4 MIMO) High Band Arrays, using full length arrays (non stacked), all in a 21.0" (534mm) width enclosure, an Industry First
- Full Spectrum Compliance for WCS and AWS-3 frequencies and Band 14 Operations
- Array configuration allows for 4T4R (4X4 MIMO) on Low Band, essential for Band 14 Operations
- LTE Optimized FBR and SPR performance, providing for an efficient use of valuable radio capacity
- LTE Optimized Boresight and Sector XPD and USL performance, essential for LTE Performance
- Exceeds minimum PIM performance requirements
- Equipped with new 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector
- Equipped with 3 field replaceable, integrated AISG 2.0 compliant Remote Electrical Tilt (RET) Controllers (Type 1 External)
- Ordering options for External RET Controllers (Type 1) or Internally Integraged RET Controllers (Type 17)

Overview

The CCI 12-Port multiband array is a twelve port antenna, with eight wide band ports covering 1695-2400 MHz and four low band ports covering 698-896 MHz. The antenna provides the capability to deploy Dual 4x4 Multiple-input Multiple-output (MIMO) in the high band and 4X4 Multiple-input Multiple-output (MIMO) across low band ports. The CCI 12-Port allows independent tilt control between the low band ports and high band ports and independent tilt control between left and right antenna arrays.

In this three RET configuration, the 1st RET is dedicated for the four Low Band ports. The 2nd RET is dedicated for the four Left High Band ports and the 3th RET is dedicated for the four Right High Band ports. This RET arrangement allows for complete flexibility in coverage control between left and right antenna arrays.

CCI antennas are designed and produced to ISO 9001:2008 certification standards for reliability and quality in our state-of-the-art manufacturing facilities.

Applications

- Dual 4x4 MIMO for the High Band and 4X4 MIMO Low Band ports
- Ready for Network Standardization on 4.3-10 DIN connectors
- With CCI's multiband antennas, wireless providers can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation costs

SPECIFICATIONS

Multi-Band Twelve-Port Antenna

TPA65R-BU8D

Electrical

Ports	4 x Low Band Ports for 698-896 MHz	
Frequency Range	698-806 MHz	824-896 MHz
Gain[1]	15.6 dBi	16.4 dBi
Gain (Average)[2]	14.6 dBi	15.5 dBi
Azimuth Beamwidth (-3dB)	73°	64°
Elevation Beamwidth (-3dB)	9.5°	7.9°
Electrical Downtilt	2° to 12°	2° to 12°
Elevation Sidelobes (1st Upper)	<-18 dB	<-17 dB
Front-to-Back Ratio @180°	> 35 dB	> 35 dB
Front-to-Back Ratio ±20°	> 32 dB	> 32 dB
Cross-Polar Discrimination at Peak	> 25 dB	> 25 dB
Cross-Polar Discrimination at Sector[2]	13.2 dB	9.7 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB
Voltage Standing Wave Ratio (VSWR)	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	500 watts	500 watts
Polarization	Dual Linear 45°	Dual Linear 45°
Input Impedance	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground

[1]Peak gain across sub-bands.
[2]Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V9.6.

Ports	8 x High Band Ports for 1695-2400 MHz			
Frequency Range	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2400 MHz
Gain[1]	18.0 dBi	18.1 dBi	18.3 dBi	18.2 dBi
Gain (Average)[2]	16.7 dBi	17.1 dBi	17.4 dBi	16.8 dBi
Azimuth Beamwidth (-3dB)	70°	66°	66°	60°
Elevation Beamwidth (-3dB)	5.7°	5.1°	4.8°	4.1°
Electrical Downtilt	0° to 8°	0° to 8°	0° to 8°	0° to 8°
Elevation Sidelobes (1st Upper)	<-17 dB	<-17 dB	<-17 dB	<-16 dB
Front-to-Back Ratio @180°	> 35 dB	> 35 dB	> 35 dB	> 35 dB
Front-to-Back Ratio ±20°	> 32 dB	> 32 dB	> 32 dB	> 32 dB
Cross-Polar Discrimination at Peak	> 19 dB	> 18 dB	> 19 dB	> 20 dB
Cross-Polar Discrimination at Sector[2]	11.6 dB	9.8 dB	10.5 dB	8.6 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Voltage Standing Wave Ratio (VSWR)	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc	≤ -153 dBc
Input Power Continuous Wave (CW)	300 watts	300 watts	300 watts	300 watts
Polarization	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°	Dual Linear 45°
Input Impedance	50 ohms	50 ohms	50 ohms	50 ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground

[1]Peak gain across sub-bands.
[2]Electrical specifications follow document "Recommendation on Base Station Antenna Standards" (BASTA) V9.6.

SPECIFICATIONS

Multi-Band Twelve-Port Antenna

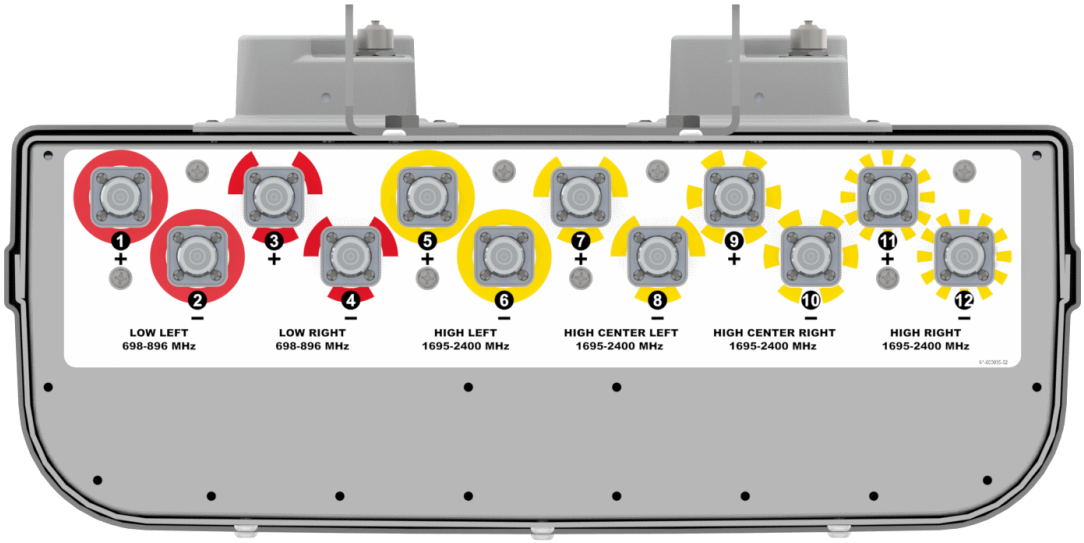
TPA65R-BU8D

Mechanical

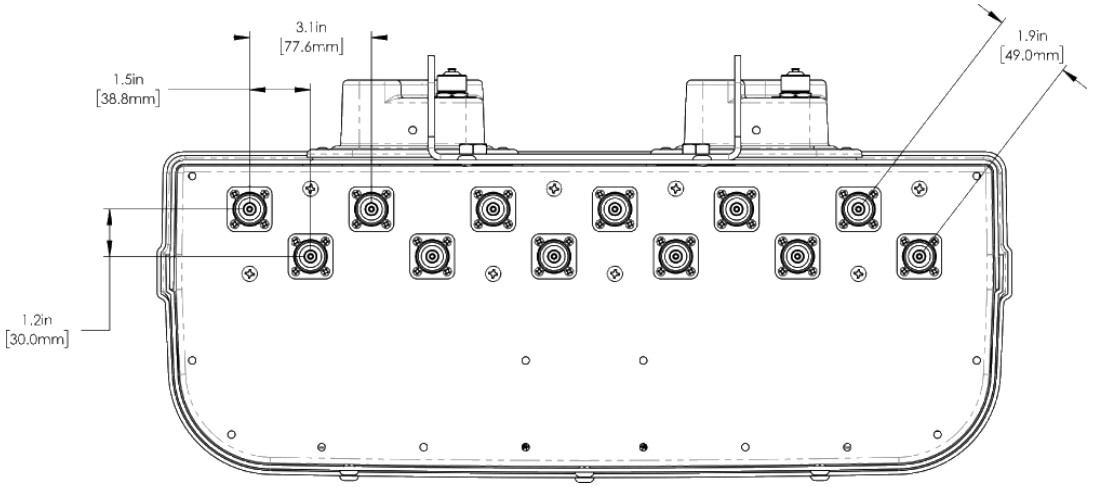
Dimensions (LxWxD)	96.0x21.0x7.8 in (2438x534x198 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	463 lbs (2061 N) @ 100 mph (161 kph)
Side Wind Load	210 lbs (933 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	18.1 ft^2 (1.7 m^2)
Weight *	87.5 lbs (39.7 kg)
Connector	12 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

** Weight excludes mounting and RET*

Bottom View



Connector Spacing

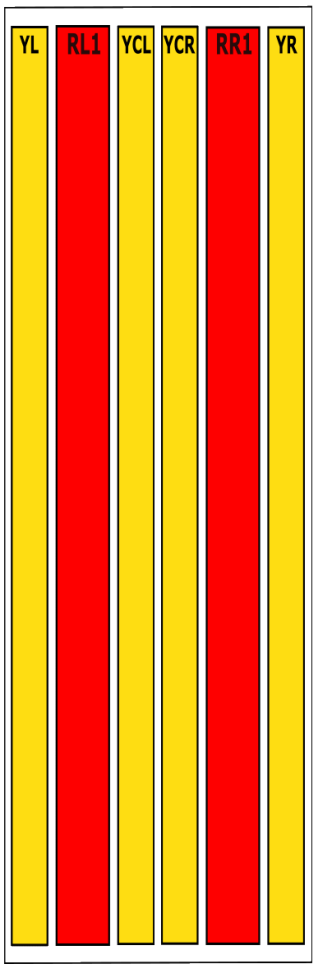


Mechanical

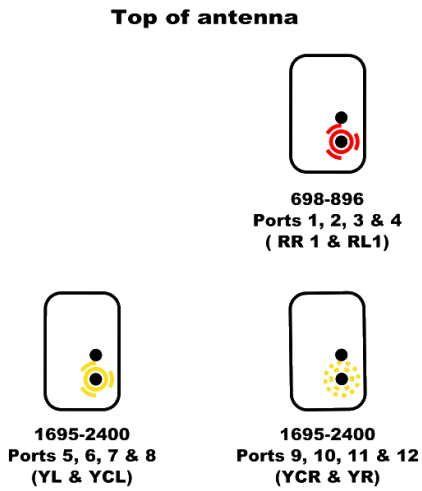
RET to Element Configuration

TPA65R-BU8DA Element and RET configuration (Type 1 External RET)

Top of antenna
Viewed from rear



RET placement as viewed from rear of antenna

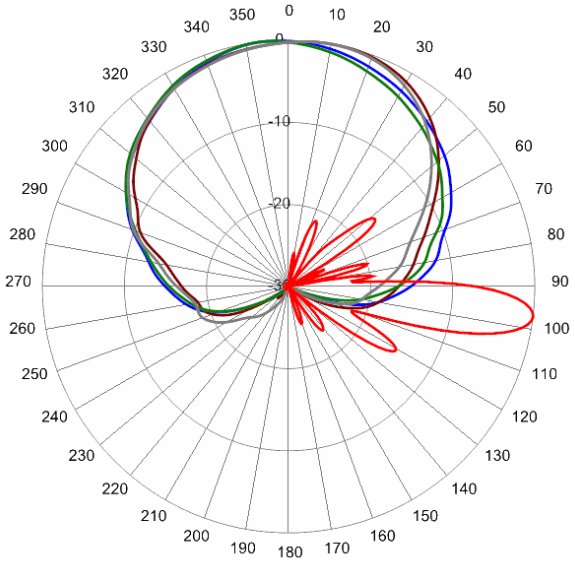


Array	Ports	Freq (MHz)	Ports controlled by common RET
RL1	1, 2	698-896	1, 2, 3, 4
RR1	3, 4	698-896	
YL	5, 6	1695-2400	5, 6, 7, 8
YCL	7, 8	1695-2400	
YCR	9,10	1695-2400	9, 10, 11, 12
YR	11,12	1695-2400	

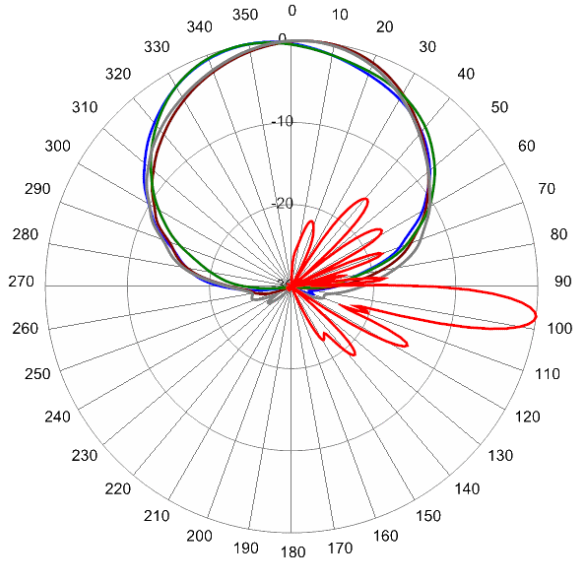
Mechanical

Typical Antenna Patterns

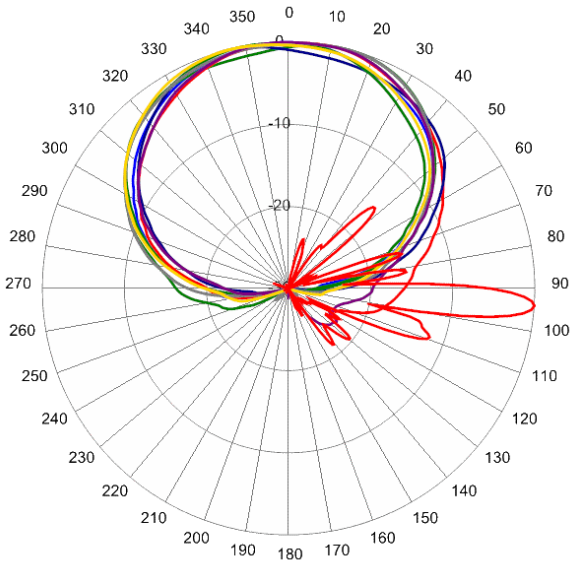
For detailed information on additional antenna patterns, contact customer support at support@cciproducts.com



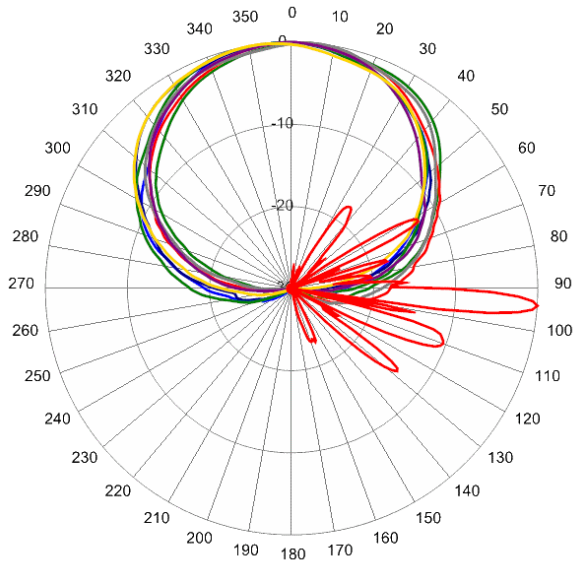
734 MHz Azimuth with Elevation 7°



880 MHz Azimuth with Elevation 7°



1720 MHz Azimuth with Elevation 4°



2155 MHz Azimuth with Elevation 4°

ORDERING

Multi-Band Twelve-Port Antenna

Parts & Accessories

TPA65R-BU8DA-K	Eight foot (2.4 m) antenna with 65° azimuth beamwidth, 4.3-10 female connectors, 3 factory installed BSA-RET200 RET actuators (Type 1 external)and MBK-01 mounting bracket
TPA65R-BU8DB-K	Eight foot (2.4 m) antenna with 65° azimuth beamwidth, 4.3-10 female connectors, 3 factory installed BSA-RET400 RET actuators (Type 17 internal) and MBK-01 mounting bracket
MBK-01	Mounting bracket kit (top and bottom) with 0° to 10° mechanical tilt adjustment
BSA-RET200	Type 1 Remote electrical tilt actuator
BSA-RET400	Type 17 Remote electrical tilt actuator
DPA-CBK-AG-RRU	Antenna with 3 RET to RRU AISG cable kit
DPA-CBK-RA-AG-RRU	Antenna with 3 RET to RRU AISG right angle cable kit

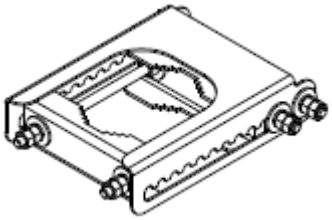
MultiPort Series

Mounting Bracket Kit

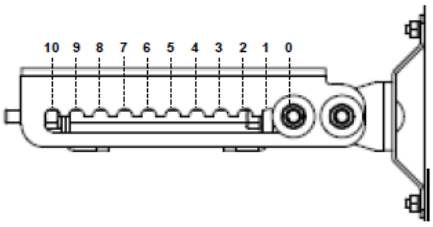
MBK-01

Mechanical

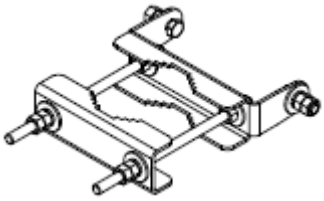
Weight	12.6 lbs (5.7 kg)
Hinge Pitch	47.25 in (1200 mm)
Mounting Pole Dimension	2 to 5 in (5 to 12 cm)
Fastener Size	M12
Installation Torque	40 ft·lb (54 Nm)
Mechanical Tilt Adjustment	0° - 10°



MBK-01 Top Adjustable Bracket



MBK-01 Top Adjustable Bracket Side View



MBK-01 Bottom Fixed Bracket

Remote Electrical Tilt Actuator (RET)

General Specifications

Part Number	BSA-RET200
Protocols	AISG 2.0
RET Type	Type 1
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40° C to 70° C

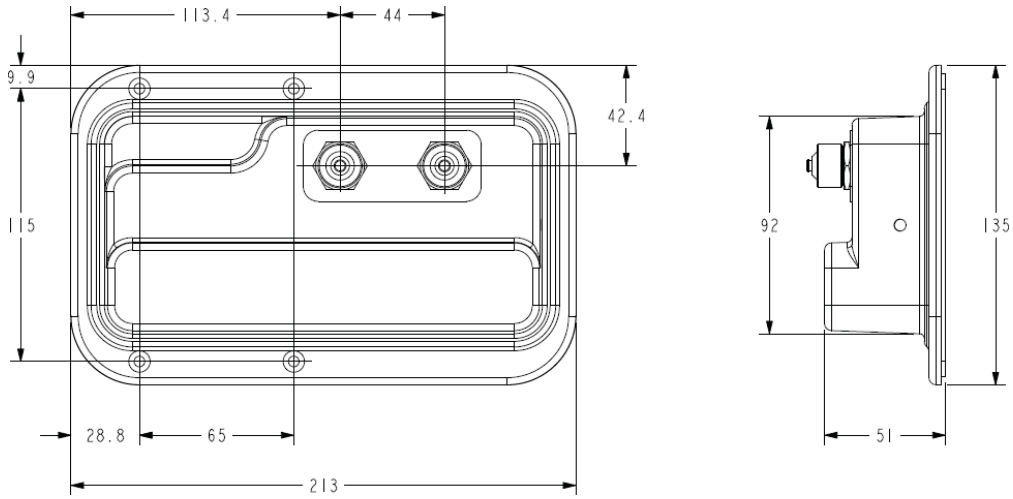
Electrical

Data Interface Signal	DC
Input Voltage	10-30 Vdc
Current Consumption Tilt	120 mA at V_{in}=24
Current Consumption Idle	55 mA at V_{in}=24
Hardware Interface	AISG-RS 485 A/B
Input Connector	Male 1 x 8 pin Daisy Chain
Output Connector	Female 1 x 8 pin Daisy Chain

Mechanical

Dimensions (LxWxD)	8.0x5.0x2.0 in. (213x135x51 mm)
Housing	ASA/ABS/Aluminum
Weight	1.7 lbs (0.75 kg)

ASA= Acrylic Styrene Acrylonitrile
ABS=Acrylanitrile Butadiene Styrene



MultiPort Series

Internal Remote Electrical Tilt (iRET)

BSA-RET400

General Specifications

Part Number	BSA-RET400
Protocols	AISG 2.0
RET Type	Type 17
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40° C to 70° C

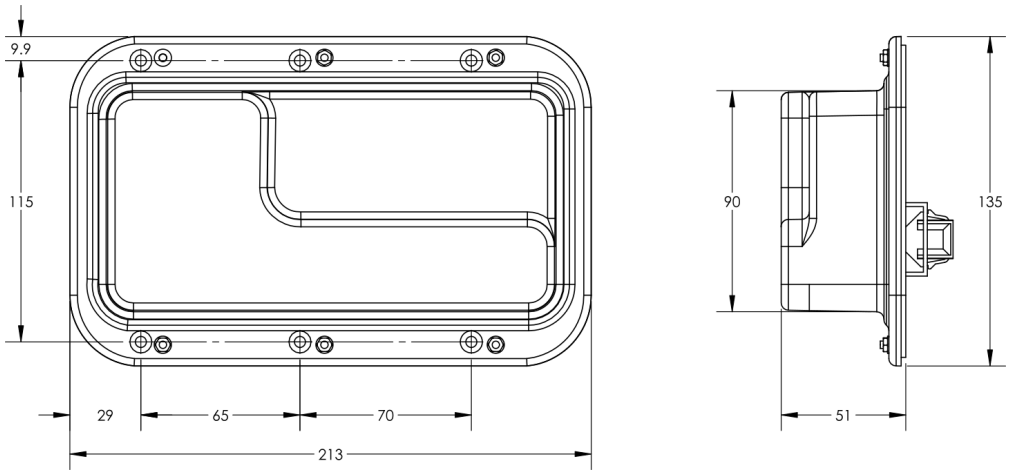
Electrical

Data Interface Signal	DC
Input Voltage	10-30 Vdc
Current Consumption Tilt	100 mA at V_{in}=24
Current Consumption Idle	10 mA at V_{in}=24

Mechanical

Dimensions (LxWxD)	8.0x5.0x2.0 in. (213x135x51 mm)
Housing	ASA/ABS/Aluminum
Weight	1.4 lbs (0.64 kg)

ASA= Acrylic Styrene Acrylonitrile
ABS=Acrylanitrile Butadiene Styrene



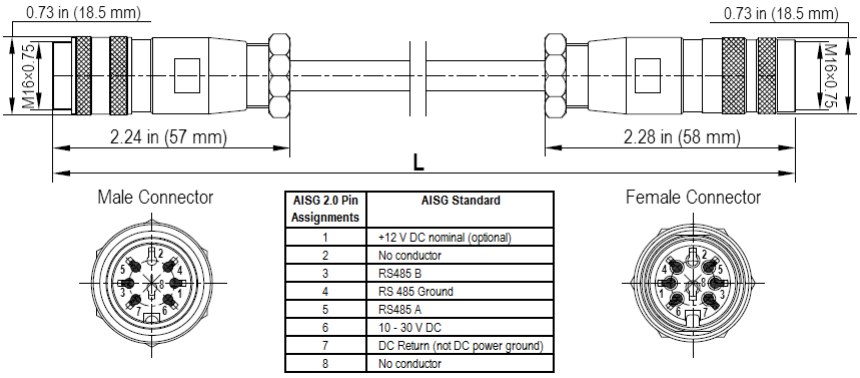
AISG Cable Kit

DPA-CBK-AG-RRU

Electrical/Mechanical/Environmental Specifications

	RET to RET Cables	RRU to Antenna Cables
Individual Cable Part Number	AISGC-M-F-27	AISGC-M-F-10FT
Cable style	UL2464	
Protocol	AISG 1.1 and AISG 2.0	
Maximum voltage	300 V	
Rated current	5 A at 104° F (40° C)	
Temperature Range	-40° to 80° C	
Flammability	UL 1581 VW-1	
Ingress Protection	IEC 60529:2001, IP67	
Tightening torque	Hand tighten only ≈ 1.84 ft-lbs (2.5 Nm)	
Construction	Shielded (Tinned Copper Braid)	
Braid coverage	85%	
Jacket Material	Matte Polyurethane (Black)	
Conductors	1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464	
Cable Diameter	0.307 in (7.8 mm)	
Minimum bend radius	3.9 in (100 mm)	
Connectors	2 x 8 pin IEC 60130-9 Straight male/straight female	
Length	27 in (686 mm)	120 in (3048 mm)
Weight	0.33 lbs (0.15 kg)	0.69 lbs (0.31 kg)
Cables per kit	2	2

Mechanical Specifications



AISG 2.0 Pin Assignments	AISG Standard
1	+12 V DC nominal (optional)
2	No conductor
3	RS485 B
4	RS 485 Ground
5	RS485 A
6	10 - 30 V DC
7	DC Return (not DC power ground)
8	No conductor

AISG-Male to AISG-Female Jumper Cable

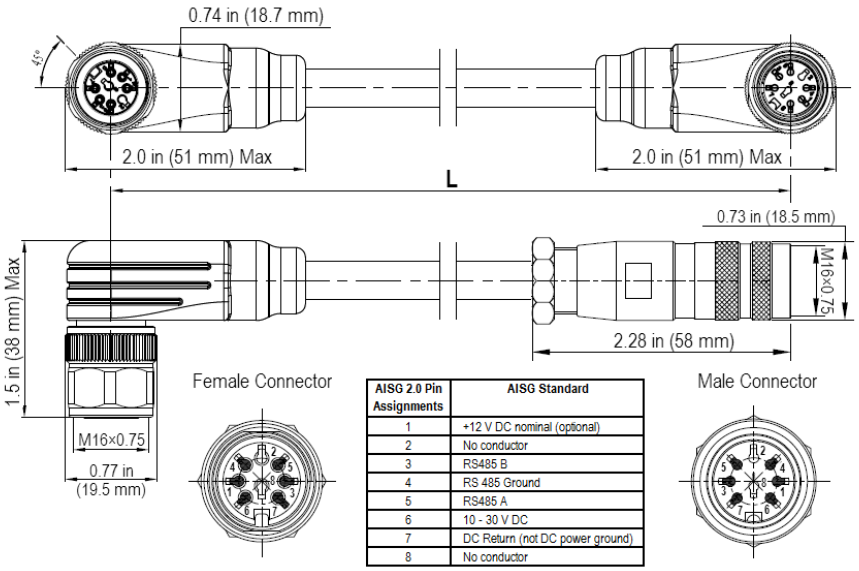
AISG Cable Kit

DPA-CBK-RA-AG-RRU

Electrical/Mechanical/Environmental Specifications

	RET to RET Cables	RRU to Antenna Cables
Individual Cable Part Number	AISGC-MRA-FRA-36	AISGC-M-FRA-10FT
Cable style	UL2464	
Protocol	AISG 1.1 and AISG 2.0	
Maximum voltage	300 V	
Rated current	5 A at 104° F (40° C)	
Temperature Range	-40° to 80° C	
Flammability	UL 1581 VW-1	
Ingress Protection	IEC 60529:2001, IP67	
Tightening torque	Hand tighten only ≈ 1.84 ft-lbs (2.5& Nm)	
Construction	Shielded (Tinned Copper Braid)	
Braid coverage	85%	
Jacket Material	Matte Polyurethane (Black)	
Conductors	1 twisted pair - 24 AWG 3 conductors - 19 AWG AWM style 2464	
Cable Diameter	0.307 in (7.8 mm)	
Minimum bend radius	3.9 in (100 mm)	
Connectors	2 x 8 pin IEC 60130-9 Right angle male/right angle female	2 x 8 pin IEC 60130-9 Straight male/right angle female
Length	36 in (914 mm)	120 in (3048 mm)
Weight	0.23 lbs (0.10 kg)	0.77 lbs (0.35 kg)
Cables per kit	2	2

Mechanical Specifications



AISG 2.0 Pin Assignments	AISG Standard
1	+12 V DC nominal (optional)
2	No conductor
3	RS485 B
4	RS 485 Ground
5	RS485 A
6	10 - 30 V DC
7	DC Return (not DC power ground)
8	No conductor

Right Angle to Right Angle and Right Angle to Straight Jumper Cable

Standards & Compliance

Safety	EN 60950-1, UL 60950-1
Emission	EN 55022
Immunity	EN 55024
Environmental	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-5, IEC 60068-2-6, IEC-60068-2-11, IEC 60068-2-14, IEC 60068-2-18, IEC 60068-2-27, IEC 60068-2-29, IEC 60068-02-30, IEC 60068-2-52, IEC 60068-2-64, GR-63-CORE 4.3.1, EN 60529, IP 24

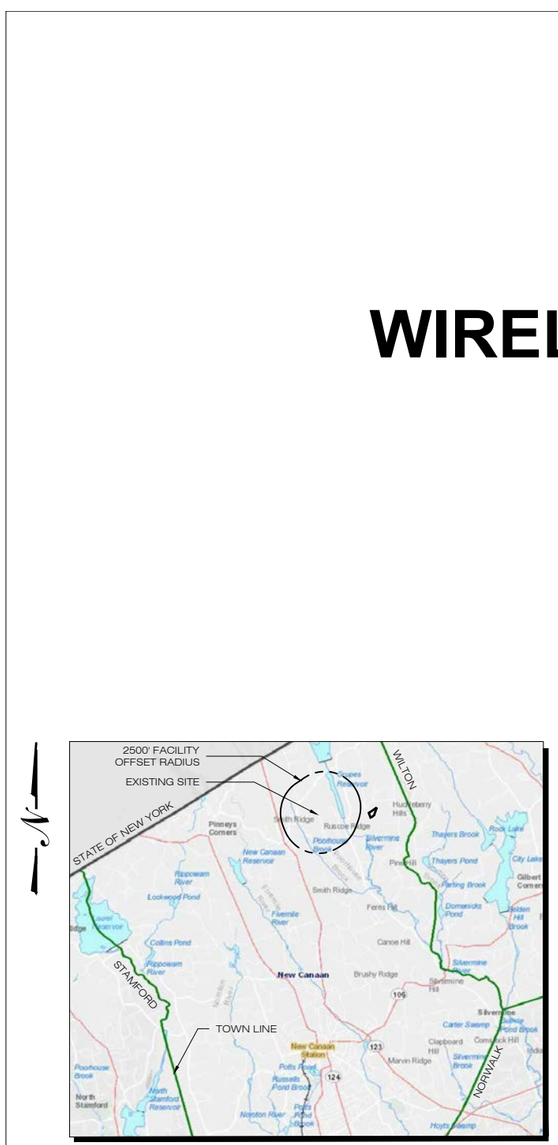
Certifications

Antenna Interface Standards Group (AISG), Federal Communication Commission (FCC) Part 15 Class B, CE, CSA US, ISO 9001:2008

HOMELAND TOWERS, LLC

WIRELESS TELECOMMUNICATIONS FACILITY

NEW CANAAN NORTHEAST
183 SOUNDVIEW LANE
NEW CANAAN, CT 06840



MUNICIPAL NOTIFICATION LIMIT MAP
SCALE : 1" = 1 Mile

VICINITY MAP
SCALE: 1" = 500'

DRAWING INDEX

SITE INFORMATION

SITE NAME: NEW CANAAN NORTHEAST

PROJECT LOCATION: 183 SOUNDVIEW LANE
NEW CANAAN, CT 06840

ZONING JURISDICTION: CONNECTICUT SITING COUNCIL

COUNTY: FAIRFIELD

PROJECT DESCRIPTION: RAWLAND SITE W/ GROUND EQUIPMENT WITHIN 2,310 SF TELECOMMUNICATIONS LEASE AREA W/ NEW 90'± AGL MONOPINE.

PROPERTY DEVELOPER: HOMELAND TOWERS, LLC
9 HARMONY STREET
2ND FLOOR
DANBURY, CT 06810

DEVELOPER CONTACT: RAY VERGATI
(203) 297-6345

ENGINEER CONTACT: ROBERT C. BURNS, P.E.
(860) 663-1697 x206

LATITUDE: 41° 11' 26.43"N
LONGITUDE: 73° 29' 42.16"W
ELEVATION: 502.3'± AMSL

MAP: 40
BLOCK: 105
LOT: 74
ZONE: 4 ACRE RESIDENCE ZONE

OWNER:
KEITH S. & MARINA O. RICHEY
183 SOUNDVIEW LANE
NEW CANAAN, CT 06840

APPLICANTS:
HOMELAND TOWERS, LLC
9 HARMONY STREET
2ND FLOOR
DANBURY, CT 06810
RAY VERGATI
(203) 297-6345

AT&T
340 MOUNT KEMBLE AVE.
MORRISTOWN, NJ 07960

HOMELAND PROJECT ATTORNEY:
CUDDY & FEDER, LLP
445 HAMILTON AVENUE
14TH FLOOR
WHITE PLAINS, NY 10601
(914) 761-1300

POWER PROVIDER:
EVERSOURCE: (800) 286-2000

TELCO PROVIDER:
FRONTIER (800) 921-8102

CALL BEFORE YOU DIG:
(800) 922-4455

GOVERNING CODES:
CONNECTICUT STATE BUILDING CODE, LATEST EDITION
NATIONAL ELECTRIC CODE
TIA-222-H

HOMELAND TOWERS, LLC
9 HARMONY STREET
2nd FLOOR
DANBURY, CT 06810
(203) 297-6345

at&t
340 MOUNT KEMBLE AVENUE
MORRISTOWN, NEW JERSEY 07960

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PH: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

D&M DOCUMENTS

NO	DATE	REVISION
0	12/09/20	FOR REVIEW: RCB
1	12/15/20	FINAL: RCB
2		
3		
4		
5		
6		
7		
8		

DESIGN PROFESSIONALS OF RECORD

PROF: ROBERT C. BURNS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

DEVELOPER: HOMELAND TOWERS, LLC
ADDRESS: 9 HARMONY STREET 2ND FLOOR DANBURY, CT 06810

HOMELAND TOWERS
NEW CANAAN NORTHEAST

SITE ADDRESS: 183 SOUNDVIEW LANE, NEW CANAAN, CT 06840

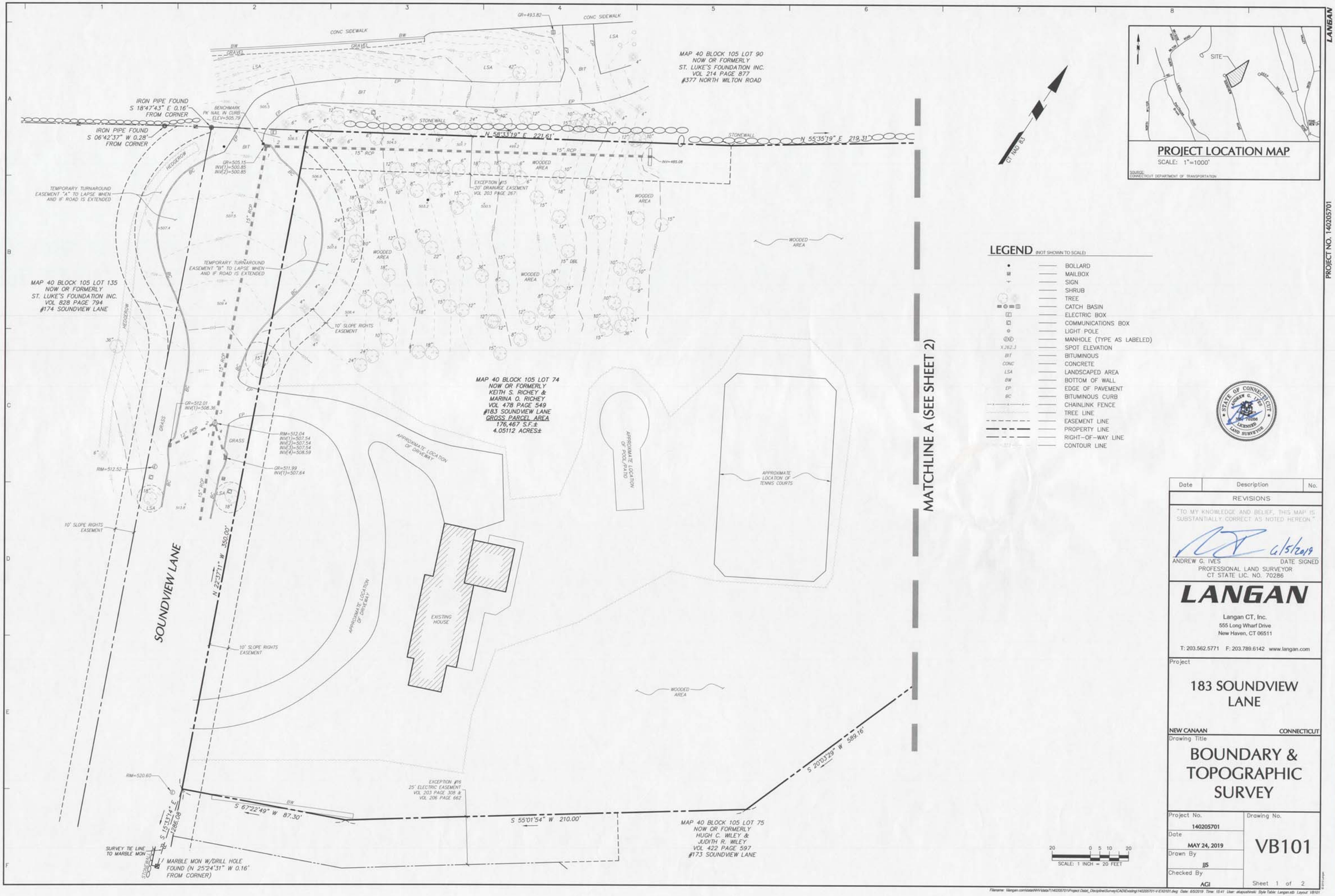
APT FILING NUMBER: CT283450

DATE: 12/09/20 | DRAWN BY: CSH

CHECKED BY: RCB

SHEET TITLE:
TITLE SHEET & INDEX

SHEET NUMBER:
T-1



LEGEND (NOT SHOWN TO SCALE)

- BOLLARD
- MAILBOX
- SIGN
- SHRUB
- TREE
- CATCH BASIN
- ELECTRIC BOX
- COMMUNICATIONS BOX
- LIGHT POLE
- MANHOLE (TYPE AS LABELED)
- SPOT ELEVATION (X 262.3)
- BITUMINOUS
- CONCRETE
- LANDSCAPED AREA
- BOTTOM OF WALL
- EDGE OF PAVEMENT
- BITUMINOUS CURB
- CHAINLINK FENCE
- TREE LINE
- EASEMENT LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- CONTOUR LINE

STATE OF CONNECTICUT
ANDREW G. IVES
No. 70286
LICENSED
LAND SURVEYOR

Date	Description	No.
REVISIONS		

"TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON."

6/5/2019

ANDREW G. IVES — DATE SIGNED
PROFESSIONAL LAND SURVEYOR
CT STATE LIC. NO. 70286

LANGAN

Langan CT, Inc.
555 Long Wharf Drive
New Haven, CT 06511

T: 203.562.5771 F: 203.789.6142 www.langan.com

Project
183 SOUNDVIEW LANE
NEW CANAAN CONNECTICUT

Drawing Title
BOUNDARY & TOPOGRAPHIC SURVEY

Project No.	Drawing No.
140205701	VB101
Date: MAY 24, 2019	
Drawn By: JJS	
Checked By: AGI	Sheet 1 of 2

PROJECT NO. 140205701

LANGAN

Filename: \\langan.com\data\WH\data\140205701\Project Data_Discipline\Survey\CAD\Existing\140205701-V-EX0101.dwg Date: 6/5/2019 Time: 15:41 User: akapolinski Style Table: Langan.stb Layout: VB101

NOTES

1. THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.
   a. THIS SURVEY IS A PROPERTY SURVEY CONFORMING TO A HORIZONTAL ACCURACY OF A-2 AND A TOPOGRAPHIC SURVEY CONFORMING TO A T-2 ACCURACY. THE BOUNDARY DETERMINATION IS A RESURVEY. THE PURPOSE OF THIS SURVEY IS TO PROVIDE A BOUNDARY OPINION AND DEPICT SITE FEATURES FOR FUTURE SITE DEVELOPMENT.

2. THIS SURVEY IS BASED UPON EXISTING PHYSICAL CONDITIONS FOUND AT THE SUBJECT SITE, DEED INFORMATION AND THE FOLLOWING REFERENCES:

   A. COMMITMENT FOR TITLE INSURANCE ISSUED BY SOUND TITLE, LLC. FILE NUMBER: ST250031, EFFECTIVE: DATE JULY 24, 2017, EXCEPT AS HEREINAFTER SET FORTH:

      1. NOT SURVEY RELATED.

      2. SURVEY PROVIDED.

      3-5. NOT SURVEY RELATED.

      6. RIGHTS MAY EXIST.

      7-8. NOT SURVEY RELATED.

      9. SURVEY PROVIDED.

      10-14. NOT SURVEY RELATED.

      15. DRAINAGE EASEMENT AS DEFINED IN VOL 203 PAGE 267. DEPICTED ON SURVEY.

      16. ELECTRIC EASEMENT AS DEFINED IN VOL 203 PAGE 308 AND VOL 206 PAGE 662. DEPICTED ON SURVEY.

      17. MAP REFERENCED IN NOTE 2B OF SURVEY.

   B. MAP TITLED "RE-SUBDIVISION MAP #5336 PREPARED FOR JOHN P. CRETELLA NEW CANAAN, CONNECTICUT FOUR ACRE RESIDENCE ZONE TOTAL AREA (NEW LOTS ONLY) = 47.361 ACRES (EXCLUDING ROADWAY)", SCALE: 1"=100', DATED: JUNE 27, 1969

   C. MAP TITLED "MAP #6815 SHOWING EXCHANGE OF PROPERTY BETWEEN KENNETH G. TROPIN & KATHLEEN O. TROPIN AND JOHN E. COX & NANCY E. COX NEW CANAAN, CONNECTICUT", SCALE: 1"=100', DATED: JULY 13, 1993, BY: MOODY & O'BRIEN, SURVEYORS

   D. MAP TITLED "COMPILATION PLAN DEPICTING CONSOLIDATION OF PROPERTY AT ST. LUKE'S SCHOOL IN NEW CANAAN, CONNECTICUT PREPARED FOR ST. LUKE'S FOUNDATION INC.", SCALE: 1"=100', DATED: DECEMBER 14, 2010, BY: ROCCO V. D'ANDREA, INC., MAP #7522

   E. MAP TITLED "ZONING LOCATION SURVEY DEPICTING ST. LUKE'S SCHOOL LOCATED AT 377 NORTH WILTON ROAD IN NEW CANAAN, CONNECTICUT PREPARED FOR ST. LUKE'S FOUNDATION, INC." SCALE: 1"=100', DATED: JULY 1, 2010, LAST REVISED: AUGUST 9, 2017, BY: ROCCO V. D'ANDREA, INC., MAP #7726

3. THE MERIDIAN OF THIS SURVEY IS REFERENCED TO CONNECTICUT STATE PLANE COORDINATE SYSTEM NAD 83 AS ESTABLISHED THROUGH GPS METHODS.

4. ELEVATIONS SHOWN ARE REFERENCED TO NAVD 88 ESTABLISHED THROUGH GPS METHODS.

5. PLANIMETRIC AND TOPOGRAPHIC INFORMATION SHOWN HEREON HAS BEEN OBTAINED FROM GROUND SURVEYS BY LANGAN CT, INC. FIELD WORK COMPLETED DURING THE MONTH OF MAY 2019.

6. AS PER THE NATIONAL FLOOD INSURANCE PROGRAM FIRM MAP ENTITLED "FAIRFIELD COUNTY, CONNECTICUT, PANEL 378 OF 626, MAP NUMBER: 09001C0378F, EFFECTIVE DATE: JUNE 18, 2010" THE PROJECT AREA IS IN ZONE X (UNSHADED).

7. UNLESS SPECIFICALLY NOTED HEREON, STORM AND SANITARY SEWER INFORMATION (INCLUDING PIPE INVERT, PIPE MATERIAL, AND PIPE SIZE) WAS OBSERVED AND MEASURED AT FIELD LOCATED STRUCTURES (MANHOLES/CATCH BASINS, ETC). CONDITIONS CAN VARY FROM THOSE ENCOUNTERED AT THE TIMES WHEN AND LOCATIONS WHERE DATA IS OBTAINED. DESPITE MEETING THE REQUIRED STANDARD OF CARE, THE SURVEYOR CANNOT, AND DOES NOT WARRANT THAT PIPE MATERIAL AND/OR PIPE SIZE THROUGHOUT THE PIPE RUN ARE THE SAME AS THOSE OBSERVED AT EACH STRUCTURE, OR THAT THE PIPE RUN IS STRAIGHT BETWEEN THE LOCATED STRUCTURES.

8. ADDITIONAL UTILITY (WATER, GAS, ELECTRIC ETC.) DATA MAY BE SHOWN FROM FIELD LOCATED SURFACE MARKINGS (BY OTHERS), EXISTING STRUCTURES, AND/OR FROM EXISTING DRAWINGS.

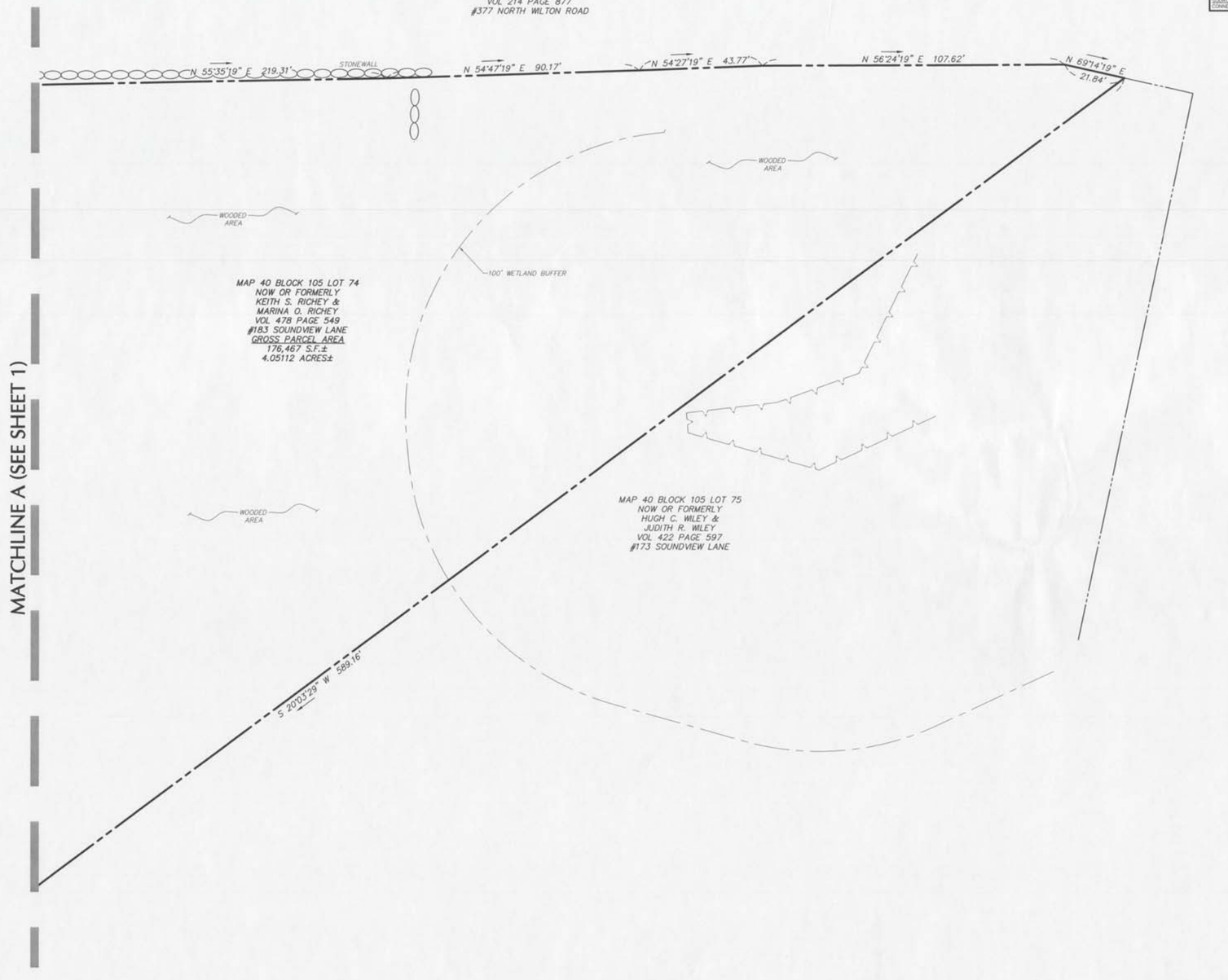
9. UNLESS SPECIFICALLY NOTED HEREON, THE SURVEYOR HAS NOT EXCAVATED TO PHYSICALLY LOCATE THE UNDERGROUND UTILITIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE SHOWN UNDERGROUND UTILITIES ARE EITHER IN SERVICE, ABANDONED OR SUITABLE FOR USE, NOR ARE IN THE EXACT LOCATION OR CONFIGURATION INDICATED HEREON.

10. ALL BUILDINGS AND STRUCTURES WERE LOCATED AND MEASURED AT GROUND LEVEL. THE SURVEYOR MAKES NO DETERMINATIONS OR GUARANTEES AS TO THE ABSENCE, EXISTENCE OR LOCATION OF UNDERGROUND STRUCTURES, FOUNDATIONS, FOOTINGS, PROJECTIONS, WALLS, TANKS, SEPTIC SYSTEMS, ETC. NO TEST PITS, EXCAVATIONS OR GROUND PENETRATING RADAR WERE PERFORMED AS PART OF THIS SURVEY.

11. WETLANDS WERE DELINEATED IN JUNE 2019 BY ALL-POINTS TECHNOLOGY CORP., P.C.

12. PRIOR TO ANY DESIGN OR CONSTRUCTION, THE PROPER UTILITY AGENCIES MUST BE CONTACTED FOR VERIFICATION OF UTILITY TYPE AND FOR FIELD LOCATIONS.

13. THIS SURVEY IS NOT VALID WITHOUT THE EMBOSSED OR INKED SEAL OF THE PROFESSIONAL.



LANGAN

PROJECT NO. 140205701

STATE OF CONNECTICUT
ANDREW G. IVES
NO. 70286
LICENSED LAND SURVEYOR

Date	Description	No.
06/05/19	ADD WETLANDS INFORMATION	1

REVISIONS

"TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON."

6/5/2019

ANDREW G. IVES — DATE SIGNED
PROFESSIONAL LAND SURVEYOR
CT STATE LIC. NO. 70286

LANGAN

Langan CT, Inc.
555 Long Wharf Drive
New Haven, CT 06511

T: 203.562.5771 F: 203.789.6142 www.langan.com

Project

183 SOUNDVIEW LANE

NEW CANAAN — CONNECTICUT

Drawing Title

BOUNDARY & TOPOGRAPHIC SURVEY

Project No. 140205701	Drawing No. VB102
Date MAY 24, 2019	
Drawn By JJS	
Checked By AGI	Sheet 2 of 2

SITE AREAS & VOLUMES OF EARTHWORK

SITEWORK ENTAILS APPROXIMATELY NET 130 CUBIC YARDS OF FILL. THE COMPOUND AND ROADWAY WILL IMPORT APPROXIMATELY 60 CUBIC YARDS OF CLEAN BROKEN STONE. THE UTILITY TRENCH FROM THE DEMARC TO THE COMPOUND WILL EXCAVATE APPROXIMATELY 60 CUBIC YARDS OF MATERIAL THAT WILL BE USED TO BACKFILL THE TRENCH.

COMPOUND AREA SLOPES:
EXISTING - 10%
PROPOSED - 4.5%

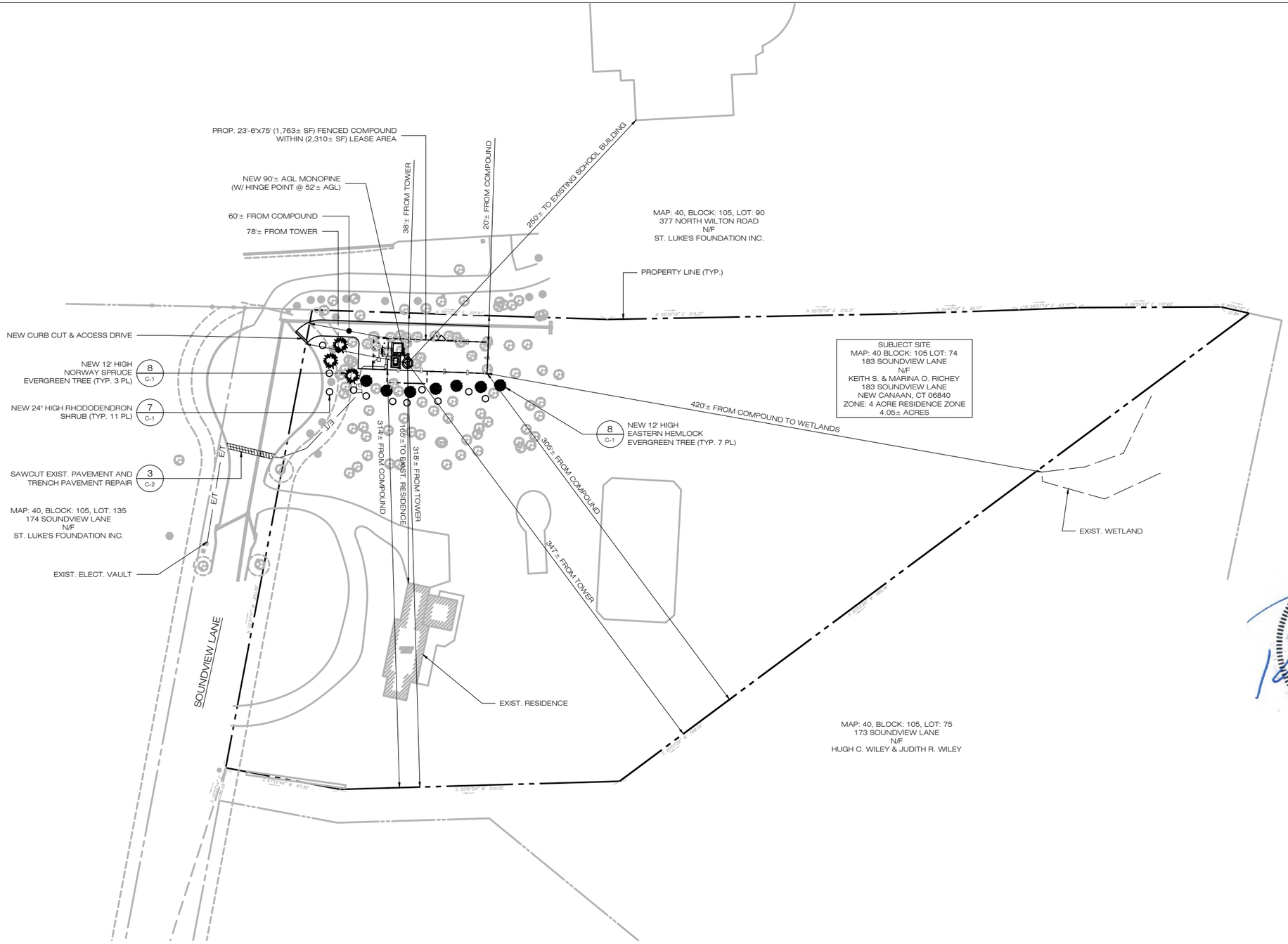
TOTAL AREA OF DISTURBANCE = 8,700± SF

STORMWATER VELOCITY:
PRIOR TO GROUND COVER < 3.0 FT/SEC
FOLLOWING GROUND COVER < 3.0 FT/SEC

STORMWATER VOLUME:
PROPOSED IMPERVIOUS AREA = 4,067 SF
WATER QUALITY STD VOLUME (1') = 339 CF
STORAGE VOLUME (6" DEPTH, 40% VOIDS) = 353 CF

GROUND COVER TO BE ESTABLISHED AS FOLLOWS (U.O.N):
- WHITE CLOVER @ 0.20#/- SF
- TALL FESCUE @ 0.45#/- SF
- RYEGRASS @ 0.10#/- SF

NOTE:
21 TREES WILL NEED TO BE REMOVED IN CONSTRUCTION OF THE FACILITY. (SEE 1/GR-1)



LEGEND

- PROPERTY LINE
- PROPERTY LINE (ABUTTERS)
- E/T — PROP. UNDERGROUND ELECTRICAL/TELCO.

MAP REFERENCES:
1. "VB-101 & 102, BOUNDARY & TOPOGRAPHIC SURVEY"; 183 SOUNDVIEW LANE, NEW CANAAN, CT; PREPARED BY LANGAN CT, INC. 555 LONG WHARF DRIVE, NEW HAVEN, CT 06511; DATED MAY, 24, 2019

1 SP-1 **SITE PLAN**
SCALE : 1" = 40'-0"

40 0 20 40 80
(IN FEET) 1 inch = 40 ft.

ENGINEERING ANALYSIS AND CERTIFICATION

IN ACCORDANCE WITH THE 2018 CONNECTICUT STATE BUILDING CODE AND THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION STANDARD TIA-222-H "STRUCTURAL STANDARD FOR ANTENNA SUPPORT STRUCTURES AND ANTENNAS" FOR FAIRFIELD COUNTY, THE TOWER WOULD BE DESIGNED TO WITHSTAND PRESSURES EQUIVALENT TO A MAXIMUM 125 MPH ULTIMATE BASIC WIND SPEED EQUIVALENT TO 97 MPH NOMINAL BASIC WIND SPEED PER REPORT PREPARED BY VALMONT DATED NOVEMBER 9, 2020. THE FOUNDATION DESIGN WOULD BE BASED ON SOIL CONDITIONS AT THE SITE.

HOMELAND TOWERS, LLC
9 HARMONY STREET
2nd FLOOR
DANBURY, CT 06810
(203) 297-6345

at&t

340 MOUNT KEMBLE AVENUE
MORRISTOWN, NEW JERSEY 07960

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PH: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

D&M DOCUMENTS

NO	DATE	REVISION
0	12/09/20	FOR REVIEW: RCB
1	12/15/20	FINAL: RCB
2		
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8		

DESIGN PROFESSIONALS OF RECORD

PROF: ROBERT C. BURNS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

DEVELOPER: HOMELAND TOWERS, LLC
ADDRESS: 9 HARMONY STREET 2ND FLOOR DANBURY, CT 06810

STATE OF CONNECTICUT · ROBERT CHARLES BURNS · No. 20071 · LICENSED PROFESSIONAL ENGINEER

HOMELAND TOWERS
NEW CANAAN NORTHEAST

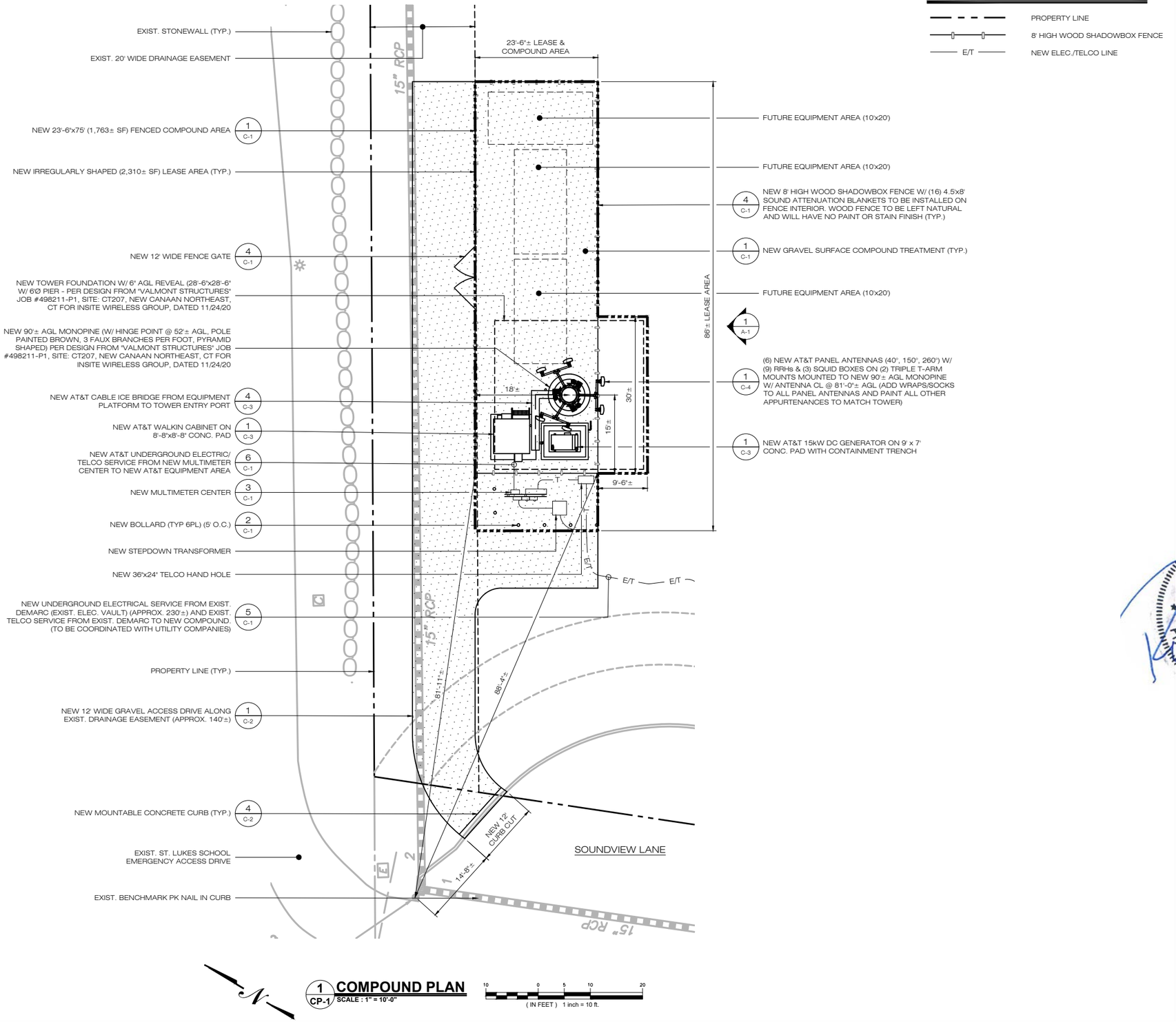
SITE ADDRESS: 183 SOUNDVIEW LANE, NEW CANAAN, CT 06840

APT FILING NUMBER: CT283450

DATE: 12/09/20 | DRAWN BY: CSH | CHECKED BY: RCB

SHEET TITLE:
SITE PLAN & ABUTTERS MAP

SHEET NUMBER:
SP-1



LEGEND

PROPERTY LINE

8' HIGH WOOD SHADOWBOX FENCE

E/T — NEW ELEC./TELCO LINE

1 CP-1 **COMPOUND PLAN**
SCALE : 1" = 10'-0"

10 0 5 10 20
(IN FEET) 1 inch = 10 ft.

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HOMELAND TOWERS
NEW CANAAN NORTHEAST

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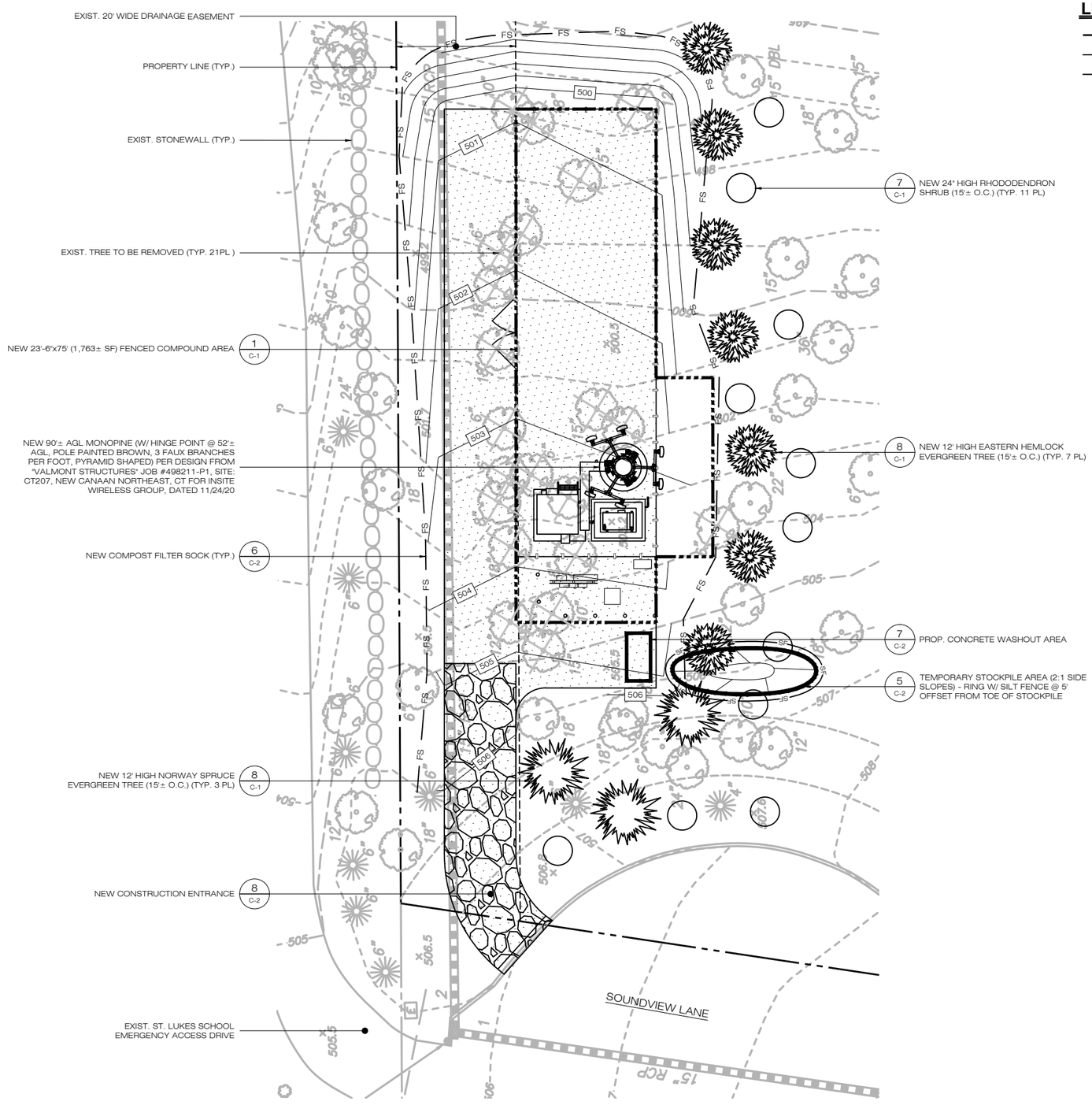
NEW CANAAN, CT 06840

APT FILING NUMBER: CT283450

DATE: 12/09/20 | DRAWN BY: CSH
CHECKED BY: RCB

SHEET TITLE:
COMPOUND PLAN

SHEET NUMBER:
CP-1



1 GR-1 **GRADING & LANDSCAPING PLAN**
SCALE : 1" = 10'-0"

10 0 5 10 20
(IN FEET) 1 inch = 10 ft.

LEGEND

- PROPERTY LINE
- 8' HIGH WOOD SHADOWBOX FENCE
- FS — FILTER SOCK
- EXIST. TREE TO REMAIN
- EXIST. TREE TO BE REMOVED
- NEW 12' HIGH EASTERN HEMLOCK
- NEW 12' HIGH NORWAY SPRUCE
- NEW 24" HIGH RHODODENDRON

LANDSCAPE NOTE:
ALL NEW LANDSCAPING WILL BE FULLY WARRANTED FOR 3 YEARS

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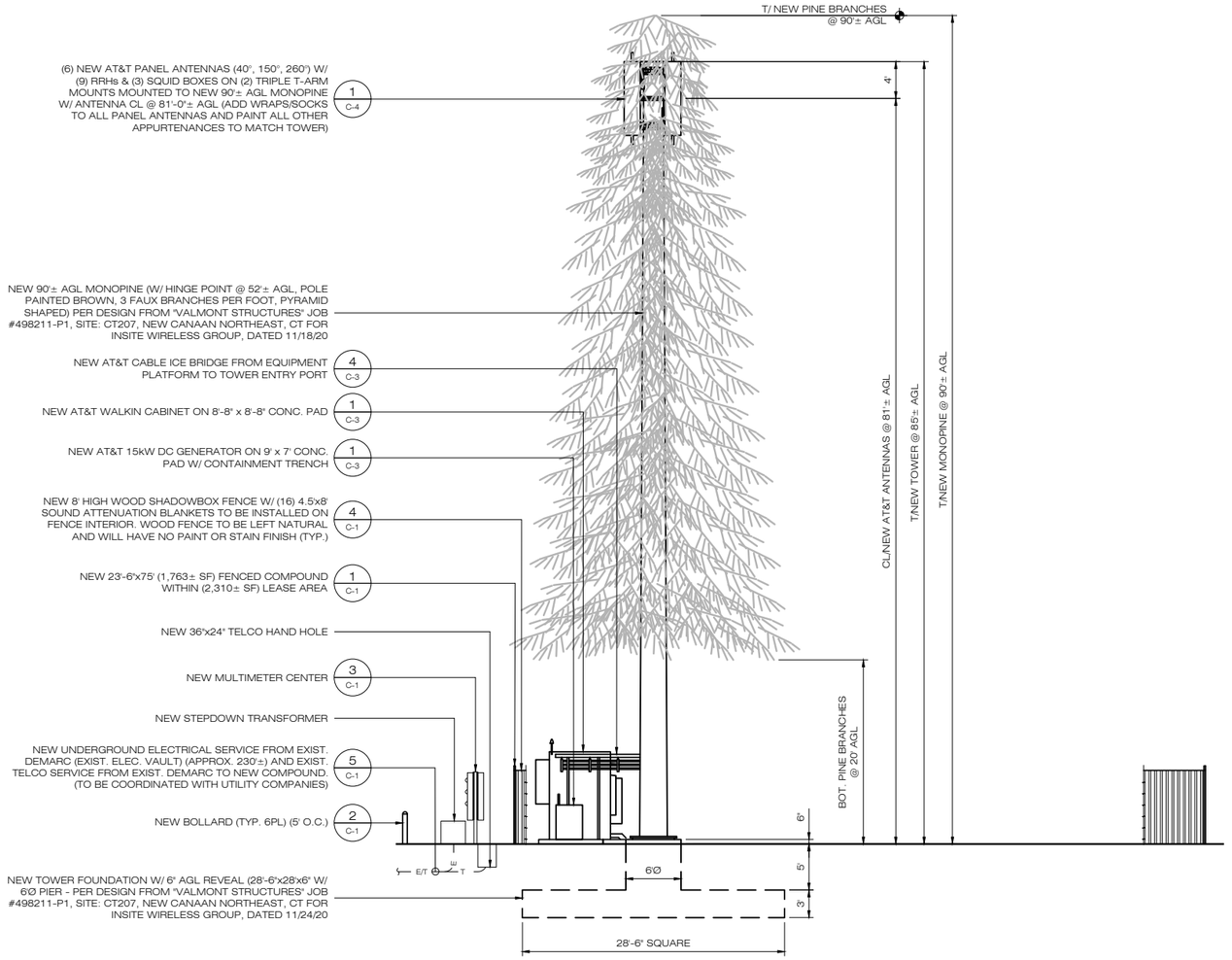
DATE: 12/09/20 DRAWN BY: CSH
CHECKED BY: RCB

SHEET TITLE:
GRADING & LANDSCAPING PLAN

SHEET NUMBER:
GR-1



1 A-1 SOUTHEASTERN ELEVATION

SCALE : ⅛" = 1'-0"

8' 0 4' 8' 16'

⅛" SCALE: 1 INCH= 8'-0"

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NEW CANAAN NORTHEAST

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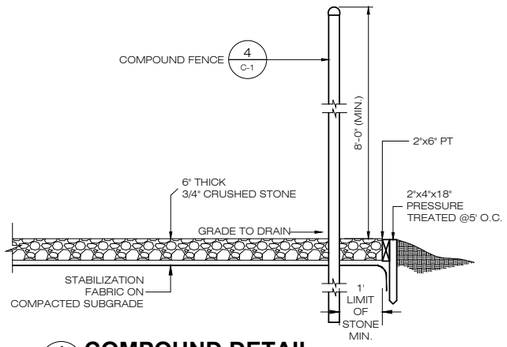
SHEET TITLE:

TOWER ELEVATION

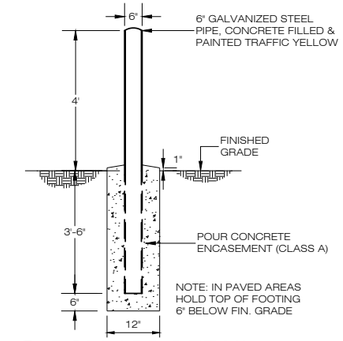
SHEET NUMBER:

A-1



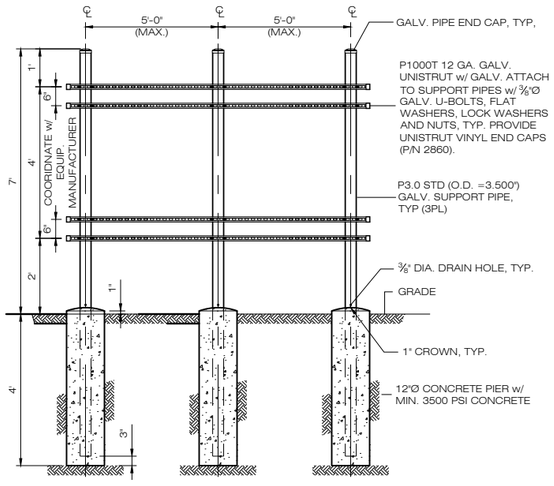
1 C-1 COMPOUND DETAIL

SCALE : N.T.S.



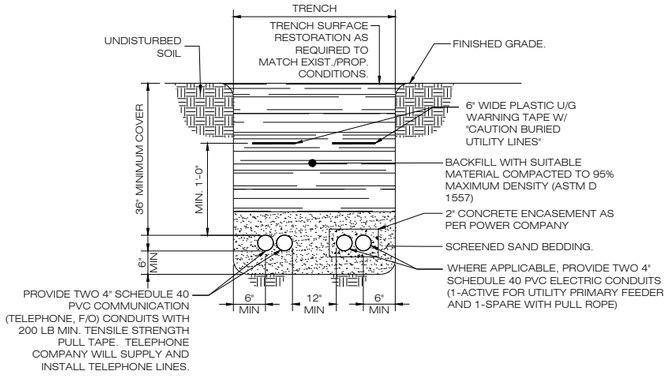
2 C-1 BOLLARD DETAIL

SCALE : N.T.S.



3 C-1 UTILITY BACKBOARD FRAME DETAIL

SCALE : N.T.S.

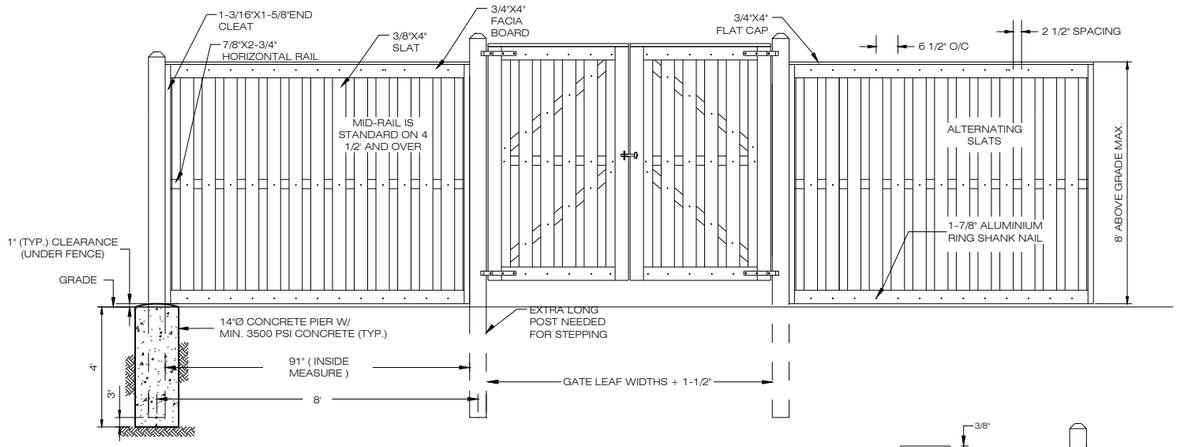


NOTES:

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 DERBIES OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED.
2. CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.
3. EXISTING PAVEMENT SHALL BE SAW-CUT PRIOR TO TRENCH EXCAVATION

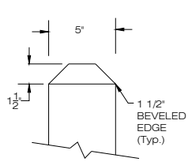
5 C-1 PRIMARY UTILITY TRENCH

SCALE : N.T.S.



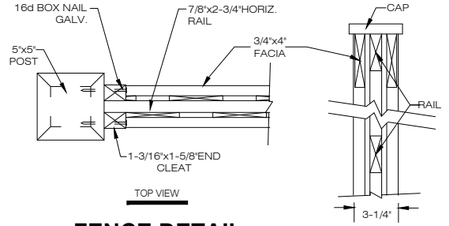
SECTION-FRAME SIDE

DOUBLE GATE FRAME SIDE



POST

(ROUGH SAWN)



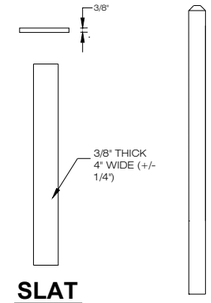
FENCE DETAIL

FENCE NOTE:
WOOD FENCE TO BE LEFT NATURAL AND WILL HAVE NO PAINT OR STAIN FINISH.

4 C-1 SHADOWBOX FENCE

Typ. 8' Section Length - Northern White Cedar

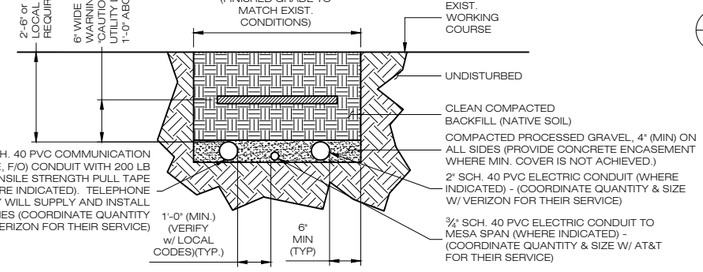
SCALE : N.T.S.



SLAT

FENCE POST

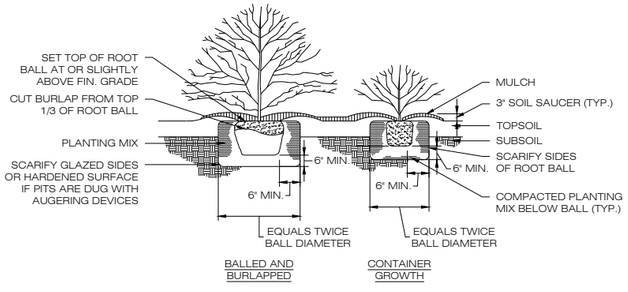
(ROUGH SAWN)



6 C-1 SECONDARY TRENCH DETAIL

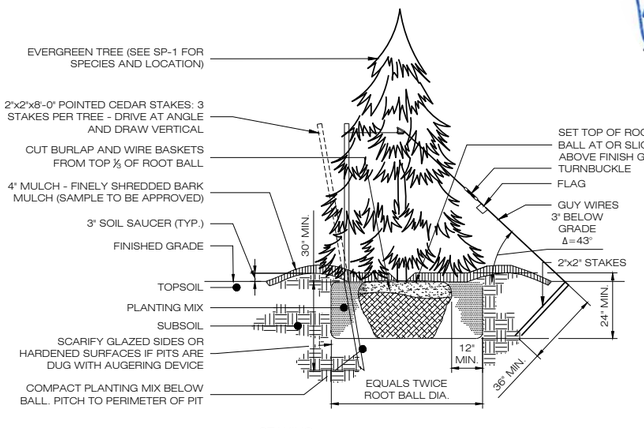
SCALE : N.T.S.

LANDSCAPE NOTE:
ALL NEW LANDSCAPING WILL BE FULLY WARRANTED FOR 3 YEARS



7 C-1 RHODODENDRON PLANTING DETAIL

SCALE : N.T.S.



STAKING
STAKING FOR EVERGREEN TREES OVER 6' HIGH

8 C-1 EVERGREEN TREE PLANTING

SCALE : N.T.S.

HOMELAND TOWERS, LLC
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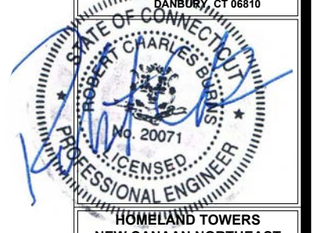


HOMELAND TOWERS
NEW CANAAN NORTHEAST

SITE ADDRESS: 183 SOUNDVIEW LANE, NEW CANAAN, CT 06840

APT FILING NUMBER: CT283450

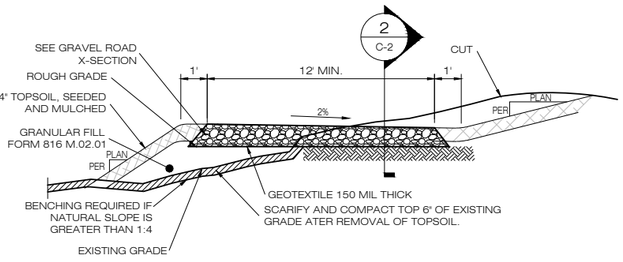
DATE: 12/09/20 | DRAWN BY: CSH | CHECKED BY: RCB

SHEET TITLE:

SITE DETAILS

SHEET NUMBER:

C-1

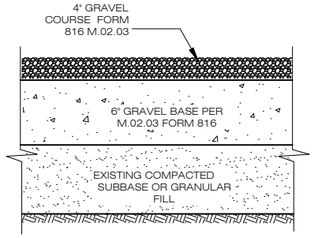


* CROSS SLOPE GRADE SHALL BE 1-2% AS SHOWN ON PROPOSED GRADING

* WHERE CUT OR FILL EMBANKMENTS ARE STEEPER THAN 3:1 USE A STAPLED IN PLACE, BIODEGRADABLE EROSION CONTROL BLANKET OR A BONDED FIBER MATRIX HYDROSEED APPLICATION.

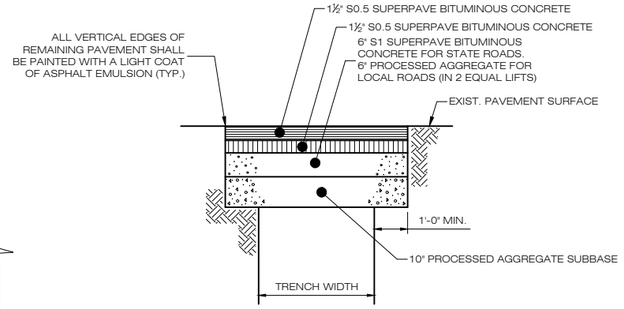
1 C-2 TYPICAL ROAD CROSS SECTION

SCALE : N.T.S.



2 C-2 GRAVEL ROAD SECTION

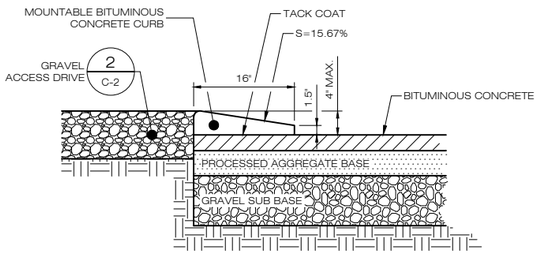
SCALE : N.T.S.



NOTE:
REFER TO SECTION M.04 OF CTDOT FORM 817 FOR BITUMINOUS CONCRETE MATERIALS.

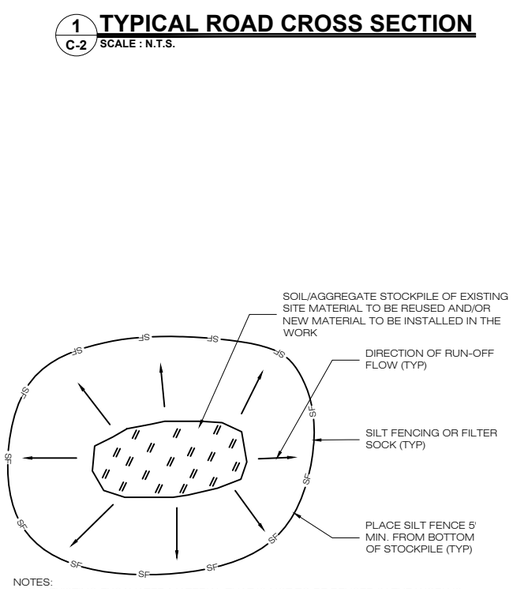
3 C-2 PAVEMENT REPAIR OVER TRENCH

SCALE : N.T.S.



4 C-2 MOUNTABLE BITUMINOUS CURB DETAIL

SCALE : N.T.S.



NOTES:
1. ALL EXISTING EXCAVATED MATERIAL THAT IS NOT TO BE REUSED IN THE WORK IS TO BE IMMEDIATELY REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.

2. SOIL/AGGREGATE STOCKPILE SITES TO BE WHERE SHOWN ON THE DRAWINGS.

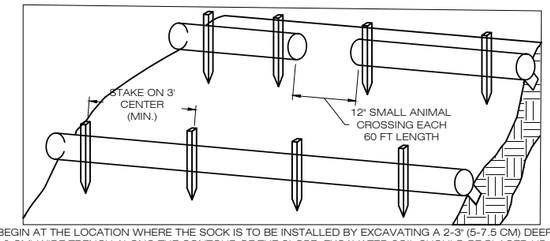
3. RESTORE STOCKPILE SITES TO PRE-EXISTING PROJECT CONDITION AND RESEED AS REQUIRED.

4. STOCKPILE HEIGHTS MUST NOT EXCEED 35'. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

5. ANY SOIL IN STOCKPILES IN EXCESS OF SEVEN (7) DAYS SHALL BE SEEDED AND MULCHED OR COVERED.

5 C-2 TEMPORARY STOCKPILE DETAIL

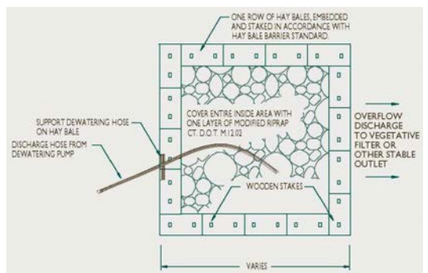
SCALE : N.T.S.



1. BEGIN AT THE LOCATION WHERE THE SOCK IS TO BE INSTALLED BY EXCAVATING A 2-3" (5-7.5 CM) DEEP X 9" (22.9 CM) WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UP SLOPE FROM THE ANCHOR TRENCH.
2. PLACE THE SOCK IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE SOCK ON THE UPHILL SIDE. SOCKS SHALL BE INSTALLED IN 60 FT CONTINUOUS LENGTHS WITH ADJACENT SOCKS TIGHTLY ABUT. EVERY 60 FT THE SOCK ROW SHALL BE SPACED 12 INCHES CLEAR, END TO END, FOR AMPHIBIAN AND REPTILE TRAVEL. THE OPEN SPACES SHALL BE STAGGERED MID LENGTH OF THE NEXT DOWN GRADIENT SOCK.
3. SECURE THE SOCK WITH 18-24" (45.7-61 CM) STAKES EVERY 3-4' (0.9 -1.2 M) AND WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE SOCK LEAVING AT LEAST 2-3" (5-7.5 CM) OF STAKE EXTENDING ABOVE THE SOCK. STAKES SHOULD BE DRIVEN PERPENDICULAR TO THE SLOPE FACE.

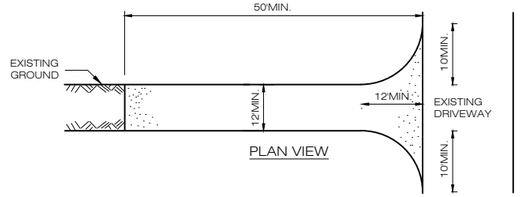
6 C-2 COMPOST FILTER SOCK SEDIMENTATION CONTROL BARRIER

SCALE : N.T.S.



7 C-2 DEWATERING STRAW BALE BASIN

SCALE : N.T.S.



CONSTRUCTION SPECIFICATIONS:

1. STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

8 C-2 CONSTRUCTION ENTRANCE DETAIL

SCALE : N.T.S.

HOMELAND TOWERS, LLC
9 HARMONY STREET
2nd FLOOR
DANBURY, CT 06810
(203) 297-6345

at&t
340 MOUNT KEMBLE AVENUE
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ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PH: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

D&M DOCUMENTS

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DESIGN PROFESSIONALS OF RECORD

PROF: ROBERT C. BURNS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

DEVELOPER: HOMELAND TOWERS, LLC
ADDRESS: 9 HARMONY STREET 2ND FLOOR DANBURY, CT 06810

STATE OF CONNECTICUT · ROBERT CHARLES BURNS · No. 20071 · LICENSED PROFESSIONAL ENGINEER

HOMELAND TOWERS
NEW CANAAN NORTHEAST

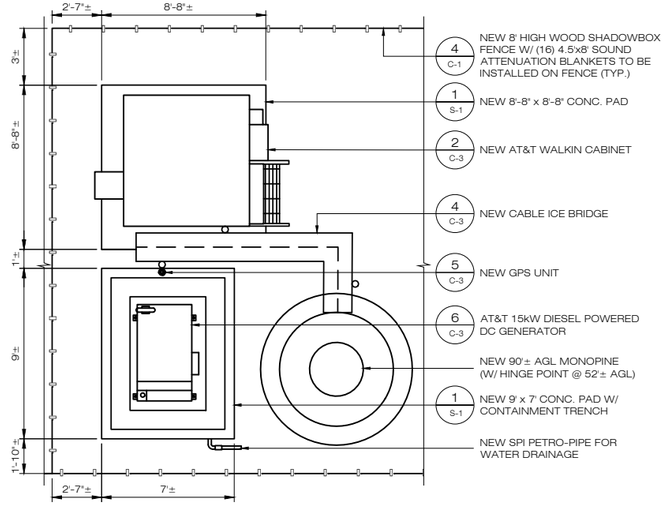
SITE ADDRESS: 183 SOUNDVIEW LANE NEW CANAAN, CT 06840

APT FILING NUMBER: CT283450

DATE: 12/09/20 | DRAWN BY: CSH | CHECKED BY: RCB

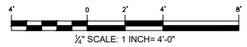
SHEET TITLE:
SITE DETAILS

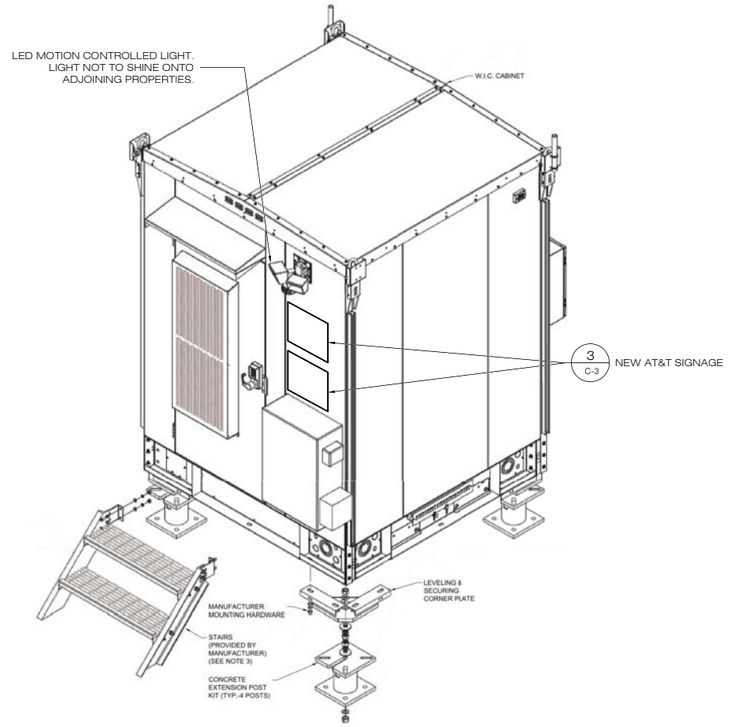
SHEET NUMBER:
C-2



1 C-3 AT&T EQUIPMENT AREA

SCALE : ¼" = 1'-0"



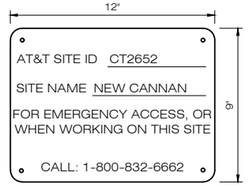


2 C-3 AT&T SMARTMOD WALKIN CABINET

SCALE : N.T.S.

(WHITE METAL SIGN W/ BLACK LETTERING)

RF NOTICE SIGN

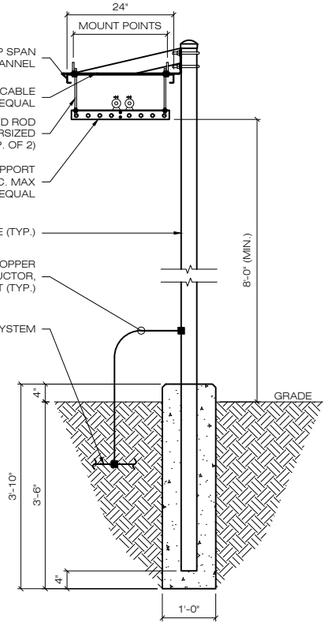


(WHITE METAL SIGN W/ BLUE LETTERING)

EMERGENCY SIGN

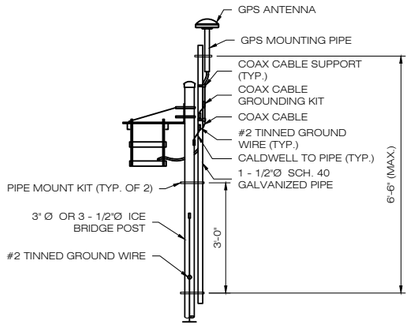
3 C-3 TYPICAL SIGNAGE

SCALE : N.T.S.



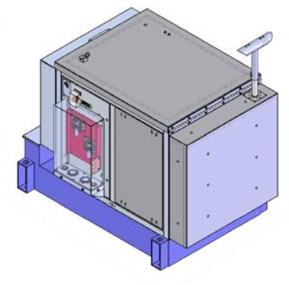
4 C-3 CABLE BRIDGE DETAIL

SCALE : N.T.S.



5 C-3 GPS MOUNT

SCALE : N.T.S.



POLAR POWER, INC.,
15KW 48VDC DIESEL POWERED GENERATOR
HORIZONTAL ALUMINUM ENCLOSURE

6 C-3 GENERATOR

SCALE : N.T.S.

HOMELAND TOWERS, LLC
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2nd FLOOR
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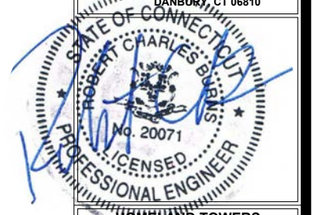
ADDRESS: 9 HARMONY STREET 2ND FLOOR DANBURY, CT 06810



HOMELAND TOWERS
NEW CANAAN NORTHEAST

SITE 183 SOUNDVIEW LANE
ADDRESS: NEW CANAAN, CT 06840

APT FILING NUMBER: CT283450

DATE: 12/09/20 | DRAWN BY: CSH
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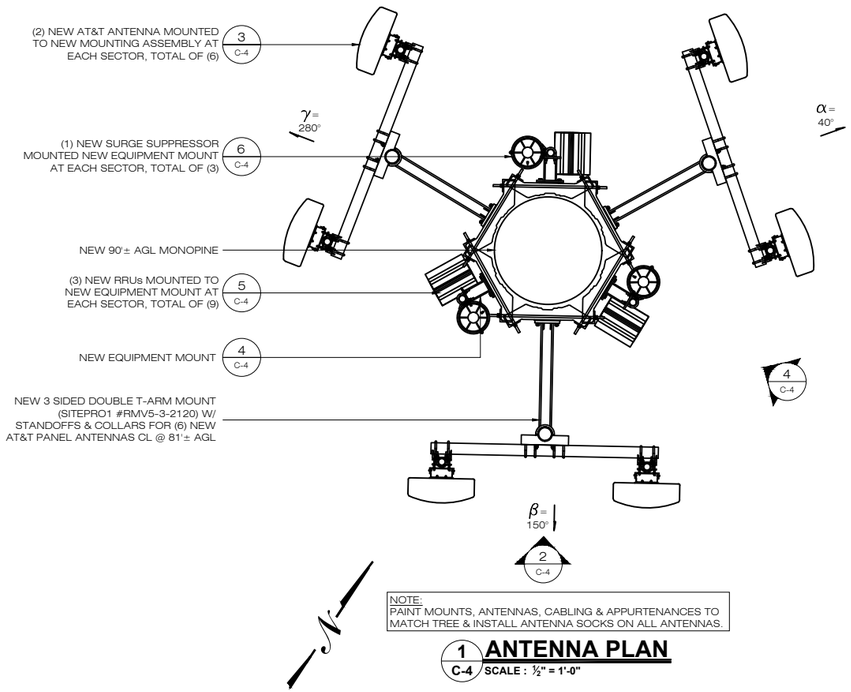
AT&T EQUIPMENT PLAN & DETAILS

SHEET NUMBER:

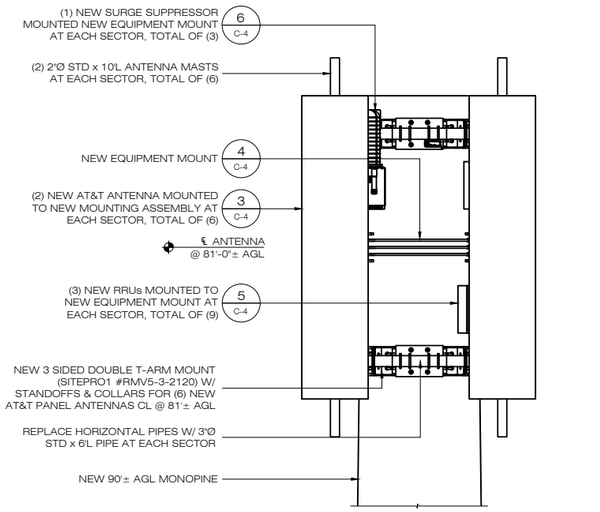
C-3



NOTE:
PAINT MOUNTS, ANTENNAS, CABLING & APPURTENANCES TO MATCH TREE & INSTALL ANTENNA SOCKS ON ALL ANTENNAS.

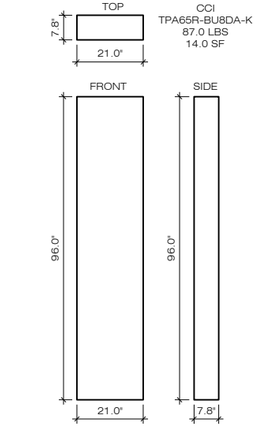
1 C-4 ANTENNA PLAN
SCALE : ½" = 1'-0"

NOTE:
CONTRACTOR TO VERIFY DIAMETER OF MONOPINE PRIOR TO ORDERING T-ARM MOUNT & RING MOUNT



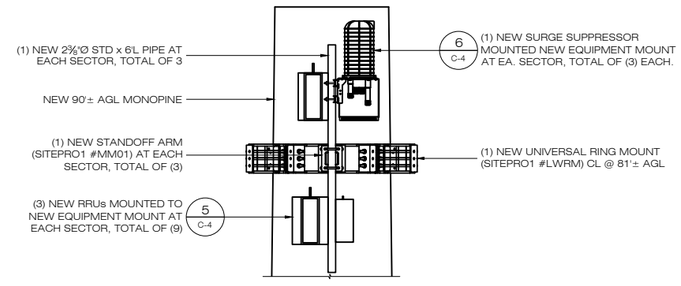
NOTE:
PAINT MOUNTS, ANTENNAS, CABLING & APPURTENANCES TO MATCH TREE & INSTALL ANTENNA SOCKS ON ALL ANTENNAS.

2 C-4 ANTENNA MOUNTING DETAIL
SCALE : ½" = 1'-0"

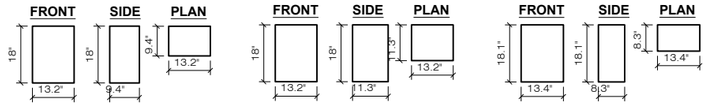


PANEL ANTENNAS

3 C-4 ANTENNA DETAIL
SCALE : ½" = 1'-0"



4 C-4 EQUIPMENT MOUNT
SCALE : ½" = 1'-0"



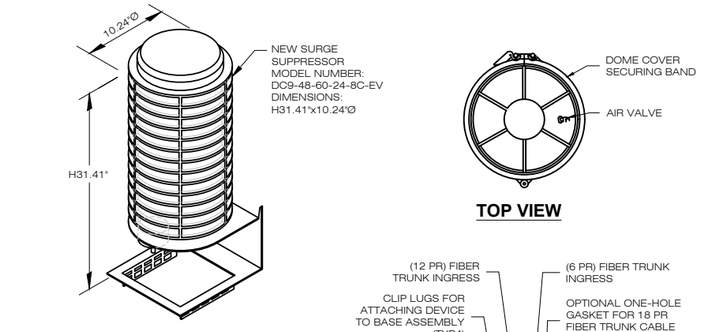
ERICSSON B5/B12 4449 (OR EQUAL)
REMOTE RADIO UNIT (RRU)
WxDxH=13.2"x9.4"x18.0" (75.0Lbs)

ERICSSON B2/B66A 8843 (OR EQUAL)
REMOTE RADIO UNIT (RRU)
WxDxH=13.2"x11.3"x18.0" (70.0Lbs)

ERICSSON B14 4478 (OR EQUAL)
REMOTE RADIO UNIT (RRU)
WxDxH=13.4"x8.3"x18.1" (59.4Lbs)

NOTES:
1. DIMENSIONS SUBJECT TO CHANGE BASED UPON AVAILABILITY AT TIME OF CONSTRUCTION.
2. MANUFACTURER'S RECOMMENDED RRH CLEARANCES: FRONT: 36"; SIDES: 12"; BOTTOM: 24"
3. SFPs ARE PROTOCOL SPECIFIC. THE CONNECTIONS BETWEEN RRHs AND BBUs ARE CPRI CONNECTIONS, AND REQUIRE CPRI SFP (ON BOTH ENDS). THE CONNECTIONS BETWEEN BBUs AND 7705 ARE ETHERNET AND REQUIRE ETHERNET SFP (ON BOTH ENDS.)

5 C-4 RRU EQUIPMENT
SCALE : ½" = 1'-0"



RAYCAP DC9-48-60-24-8C-EV (SURGE SUPPRESSOR)
HxDia. = 31.41"x10.24"Ø (26.2 Lbs)
(OR EQUAL)
COLOR: GRAY

NOTES:
1. MOUNT PER MANUFACTURER'S SPECIFICATIONS.
2. REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC TO 1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP

6 C-4 TYPICAL SURGE SUPPRESSOR
SCALE : N.T.S.

HOMELAND TOWERS, LLC
9 HARMONY STREET
2nd FLOOR
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STATE OF CONNECTICUT · ROBERT CHARLES BURNS · 20071 · LICENSED PROFESSIONAL ENGINEER

HOMELAND TOWERS
NEW CANAAN NORTHEAST

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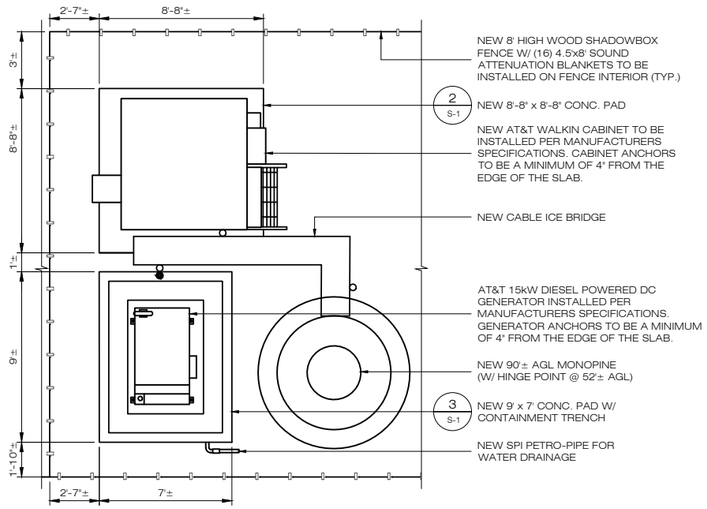
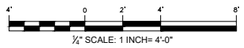
SHEET TITLE:
AT&T ANTENNA PLAN & DETAILS

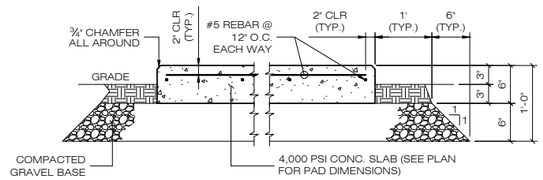
SHEET NUMBER:
C-4



1 S-1 EQUIPMENT AREA PLAN

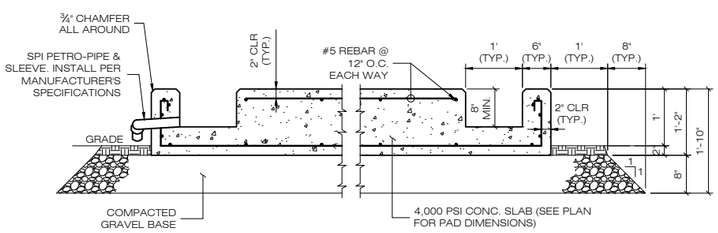
SCALE : ¼" = 1'-0"





2 S-1 W.I.C. CONCRETE PAD

SCALE : N.T.S.



3 S-1 GENERATOR PAD

SCALE : N.T.S.

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9 HARMONY STREET
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DANBURY, CT 06810
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340 MOUNT KEMBLE AVENUE
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DEVELOPER: HOMELAND TOWERS, LLC
ADDRESS: 9 HARMONY STREET 2ND FLOOR DANBURY, CT 06810

HOMELAND TOWERS
NEW CANAAN NORTHEAST

SITE ADDRESS: 183 SOUNDVIEW LANE NEW CANAAN, CT 06840

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STRUCTURAL LAYOUT & DETAILS

SHEET NUMBER:

S-1

EROSION CONTROL NOTES

EROSION AND SEDIMENT CONTROL PLAN NOTES

1. THE CONTRACTOR SHALL CONSTRUCT ALL SEDIMENT AND EROSION CONTROLS IN ACCORDANCE WITH THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND AS DIRECTED BY THE TOWN OF WATERTOWN, PERMITTEE, AND/OR SWPCP MONITOR. ALL PERIMETER SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF CLEARING AND GRUBBING AND DEMOLITION OPERATIONS.

2. THESE DRAWINGS ARE ONLY INTENDED TO DESCRIBE THE SEDIMENT AND EROSION CONTROL MEASURES FOR THIS SITE. SEE CONSTRUCTION SEQUENCE FOR ADDITIONAL INFORMATION. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN ARE SHOWN AS REQUIRED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL EROSION CONTROL MEASURES ARE CONFIGURED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION OF SOILS AND PREVENT THE TRANSPORT OF SEDIMENTS AND OTHER POLLUTANTS TO STORM DRAINAGE SYSTEMS AND/OR WATERCOURSES. ACTUAL SITE CONDITIONS OR SEASONAL AND CLIMATIC CONDITIONS MAY WARRANT ADDITIONAL CONTROLS OR CONFIGURATIONS, AS REQUIRED, AND AS DIRECTED BY THE PERMITTEE AND/OR SWPCP MONITOR. REFER TO SITE PLAN FOR GENERAL INFORMATION AND OTHER CONTRACT PLANS FOR APPROPRIATE INFORMATION.

3. A BOND OR LETTER OF CREDIT MAY BE REQUIRED TO BE POSTED WITH THE GOVERNING AUTHORITY FOR THE EROSION CONTROL INSTALLATION AND MAINTENANCE.

4. THE CONTRACTOR SHALL APPLY THE MINIMUM EROSION & SEDIMENT CONTROL MEASURES SHOWN ON THE PLAN IN CONJUNCTION WITH CONSTRUCTION SEQUENCING, SUCH THAT ALL ACTIVE WORK ZONES ARE PROTECTED. ADDITIONAL AND/OR ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES MAY BE INSTALLED DURING THE CONSTRUCTION PERIOD IF FOUND NECESSARY BY THE CONTRACTOR, OWNER, SITE ENGINEER, MUNICIPAL OFFICIALS, OR ANY GOVERNING AGENCY. THE CONTRACTOR SHALL CONTACT THE OWNER AND APPROPRIATE GOVERNING AGENCIES FOR APPROVAL IF ALTERNATIVE CONTROLS OTHER THAN THOSE SHOWN ON THE PLANS ARE PROPOSED BY THE CONTRACTOR.

5. THE CONTRACTOR SHALL TAKE EXTREME CARE DURING CONSTRUCTION SO AS NOT TO DISTURB UNPROTECTED WETLAND AREAS OR INSTALLED SEDIMENTATION AND EROSION CONTROL MEASURES. THE CONTRACTOR SHALL INSPECT ALL SEDIMENT AND EROSION CONTROLS WEEKLY AND WITHIN 24 HOURS OF A STORM WITH A RAINFALL AMOUNT OF 0.25 INCHES OR GREATER TO VERIFY THAT THE CONTROLS ARE OPERATING PROPERLY AND MAKE REPAIRS AS NECESSARY IN A TIMELY MANOR.

6. THE CONTRACTOR SHALL KEEP A SUPPLY OF EROSION CONTROL MATERIAL (SILT FENCE, COMPOST FILTER SOCK, EROSION CONTROL BLANKET, ETC.) ON-SITE FOR PERIODIC MAINTENANCE AND EMERGENCY REPAIRS.

7. ALL FILL MATERIAL PLACED ADJACENT TO ANY WETLAND AREA SHALL BE GOOD QUALITY, WITH LESS THAN 5% FINES PASSING THROUGH A #200 SIEVE (BANK RUN), SHALL BE PLACED IN MAXIMUM ONE FOOT LIFTS, AND SHALL BE COMPACTED TO 95% MAX. DRY DENSITY MODIFIED PROCTOR OR AS SPECIFIED IN THE CONTRACT SPECIFICATIONS.

8. PROTECT EXISTING TREES THAT ARE TO BE SAVED BY FENCING, ORANGE SAFETY FENCE, CONSTRUCTION TAPE, OR EQUIVALENT FENCING/TAPE. ANY LIMB TRIMMING SHOULD BE DONE AFTER CONSULTATION WITH AN ARBORIST AND BEFORE CONSTRUCTION BEGINS IN THAT AREA; FENCING SHALL BE MAINTAINED AND REPAIRED DURING CONSTRUCTION.

9. CONSTRUCTION ENTRANCES (ANTI-TRACKING PADS) SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR CONSTRUCTION ACTIVITY AND SHALL BE MAINTAINED THROUGHOUT THE DURATION OF ALL CONSTRUCTION IF REQUIRED. THE LOCATION OF THE TRACKING PADS MAY CHANGE AS VARIOUS PHASES OF CONSTRUCTION ARE COMPLETED. CONTRACTOR SHALL ENSURE THAT ALL VEHICLES EXITING THE SITE ARE PASSING OVER THE ANTI-TRACKING PADS PRIOR TO EXISTING.

10. ALL CONSTRUCTION SHALL BE CONTAINED WITHIN THE LIMIT OF DISTURBANCE, WHICH SHALL BE MARKED WITH SILT FENCE, SAFETY FENCE, HAY BALES, RIBBONS, OR OTHER MEANS PRIOR TO CLEARING. CONSTRUCTION ACTIVITY SHALL REMAIN ON THE UPHILL SIDE OF THE SEDIMENT BARRIER UNLESS WORK IS SPECIFICALLY CALLED FOR ON THE DOWNHILL SIDE OF THE BARRIER.

11. NO CUT OR FILL SLOPES SHALL EXCEED 2:1 EXCEPT WHERE STABILIZED BY ROCK FACED EMBANKMENTS OR EROSION CONTROL BLANKETS. ALL SLOPES SHALL BE SEEDED AND BANKS WILL BE STABILIZED IMMEDIATELY UPON COMPLETION OF FINAL GRADING UNTIL TURF IS ESTABLISHED.

12. DIRECT ALL DEWATERING PUMP DISCHARGE TO A SEDIMENT CONTROL DEVICE CONFORMING TO THE GUIDELINES WITHIN THE APPROVED LIMIT OF DISTURBANCE IF REQUIRED. DISCHARGE TO STORM DRAINS OR SURFACE WATERS FROM SEDIMENT CONTROLS SHALL BE CLEAR AND APPROVED BY THE PERMITTEE OR MUNICIPALITY.

13. THE CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION SITE AND SHALL NOT ALLOW THE ACCUMULATION OF RUBBISH OR CONSTRUCTION DEBRIS ON THE SITE. PROPER SANITARY DEVICES SHALL BE MAINTAINED ON-SITE AT ALL TIMES AND SECURED APPROPRIATELY. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID THE SPILLAGE OF FUEL OR OTHER POLLUTANTS ON THE CONSTRUCTION SITE AND SHALL ADHERE TO ALL APPLICABLE POLICIES AND REGULATIONS RELATED TO SPILL PREVENTION AND RESPONSE/CONTAINMENT.

14. MINIMIZE LAND DISTURBANCES. SEED AND MULCH DISTURBED AREAS WITH TEMPORARY MIX AS SOON AS PRACTICABLE (2 WEEK MAXIMUM UNSTABILIZED PERIOD) USING PERENNIAL RYEGRASS AT 40 LBS PER ACRE. MULCH ALL CUT AND FILL SLOPES AND SWALES WITH LOOSE HAY AT A RATE OF 2 TONS PER ACRE. IF NECESSARY, REPLACE LOOSE HAY ON SLOPES WITH EROSION CONTROL BLANKETS OR JUTE CLOTH. MODERATELY GRADED AREAS, ISLANDS, AND TEMPORARY CONSTRUCTION STAGING AREAS MAY BE HYDROSEEDED WITH TACKIFIER.

15. SWEEP AFFECTED PORTIONS OF OFF SITE ROADS ONE OR MORE TIMES A DAY (OR LESS FREQUENTLY IF TRACKING IS NOT A PROBLEM) DURING CONSTRUCTION. FOR DUST CONTROL, PERIODICALLY MOISTEN EXPOSED SOIL SURFACES WITH WATER ON UNPAVED TRAVELWAYS TO KEEP THE TRAVELWAYS DAMP. CALCIUM CHLORIDE MAY ALSO BE APPLIED TO ACCESS ROADS. DUMP TRUCK LOADS EXITING THE SITE SHALL BE COVERED.

16. VEGETATIVE ESTABLISHMENT SHALL OCCUR ON ALL DISTURBED SOIL, UNLESS THE AREA IS UNDER ACTIVE CONSTRUCTION, IT IS COVERED IN STONE OR SCHEDULED FOR PAVING WITHIN 30 DAYS. TEMPORARY SEEDING OR NON-LIVING SOIL PROTECTION OF ALL EXPOSED SOILS AND SLOPES SHALL BE INITIATED WITHIN THE FIRST 7 DAYS OF SUSPENDING WORK IN AREAS TO BE LEFT LONGER THAN 30 DAYS.

17. MAINTAIN ALL PERMANENT AND TEMPORARY SEDIMENT CONTROL DEVICES IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF WORK SWEEP CONCRETE PADS, CLEAN THE STORMWATER MANAGEMENT SYSTEMS AND REMOVE ALL TEMPORARY SEDIMENT CONTROLS ONCE THE SITE IS FULLY STABILIZED AND APPROVAL HAS BEEN RECEIVED FROM PERMITTEE OR THE MUNICIPALITY.

18. SEEDING MIXTURES SHALL BE NEW ENGLAND SEMI-SHADE GRASS AND FORBS MIX (SEE SITE DETIALS SHEET DN-1), OR APPROVED EQUAL BY OWNER.

SEDIMENT & EROSION CONTROL NARRATIVE

1. THE PROJECT INCLUDES THE INSTALLATION OF A 90'± AGL MONOPINE WITH ASSOCIATED GROUND MOUNTED EQUIPMENT. ALL DISTURBED AREAS ARE TO BE SEEDED AND STABILIZED PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT.

   THE PROPOSED PROJECT INVOLVES THE FOLLOWING CONSTRUCTION:
   A. CONSTRUCTION OF 90'± AGL MONOPINE.
   C. CONSTRUCTION OF 23'-6x75' (1,763± SF) FENCED EQUIPMENT COMPOUND W/ GRAVEL SURFACE TREATMENT AND ASSOCIATED UTILITIES.
   D. CONSTRUCTION OF 140'± 12' WIDE GRAVEL ACCESS DRIVE.
   E. CONSTRUCTION OF 8'-8"x8'-8" (75± SF) CONCRETE EQUIPMENT PAD & 7'x9' (63± SF) CONCRETE PAD WITH A DIESEL GENERATOR.
   F. THE STABILIZATION OF PERVIOUS DISTURBED AREAS WITH PERMANENT GRASS TREATMENTS.

2. FOR THIS PROJECT, THERE ARE APPROXIMATELY 8,700± SF OF THE SITE BEING DISTURBED.

3. A GEOTECHNICAL ENGINEERING REPORT HAS BEEN COMPLETED FOR THIS PROJECT AND WILL BE AVAILABLE UNDER SEPARATE COVER.

4. IT IS ANTICIPATED THAT CONSTRUCTION WILL BE COMPLETED IN APPROXIMATELY 12 WEEKS.

5. REFER TO THE CONSTRUCTION SEQUENCING AND EROSION AND SEDIMENTATION NOTES FOR INFORMATION REGARDING SEQUENCING OF MAJOR OPERATIONS IN THE ON-SITE CONSTRUCTION PHASES.

6. EROSION AND SEDIMENTATION MEASURES ARE BASED UPON ENGINEERING PRACTICE, JUDGEMENT AND THE APPLICABLE SECTIONS OF THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL.

7. DETAILS FOR THE TYPICAL EROSION AND SEDIMENTATION MEASURES ARE SHOWN ON PLAN SHEET C-2 OR PROVIDED AS SEPARATE SUPPORT DOCUMENTATION FOR REVIEW IN THIS PLAN.

8. CONSERVATION PRACTICES TO BE USED DURING CONSTRUCTION AREA:
   A. STAGED CONSTRUCTION;
   B. MINIMIZE THE DISTURBED AREAS DURING CONSTRUCTION;
   C. STABILIZE DISTURBED AREAS AS SOON AS POSSIBLE WITH TEMPORARY OR PERMANENT MEASURES;
   D. MINIMIZE IMPERVIOUS AREAS;
   E. UTILIZE APPROPRIATE CONSTRUCTION EROSION AND SEDIMENTATION MEASURES.

SUGGESTED CONSTRUCTION SEQUENCE

THE FOLLOWING SUGGESTED SEQUENCE OF CONSTRUCTION ACTIVITIES IS PROJECTED BASED UPON ENGINEERING JUDGEMENT AND BEST MANAGEMENT PRACTICES. THE CONTRACTOR MAY ELECT TO ALTER THE SEQUENCING TO BEST MEET THE CONSTRUCTION SCHEDULE, THE EXISTING SITE ACTIVITIES AND WEATHER CONDITIONS. CONTRACTOR TO HIRE SURVEYOR FOR PROJECT STAKEOUT AS NEEDED THROUGHOUT CONSTRUCTION ACTIVITIES.

1. CONTACT THE OWNER TO SCHEDULE A PRE-CONSTRUCTION MEETING. PHYSICALLY FLAG THE TREES TO BE REMOVED IN THE FIELD AS NECESSARY TO FACILITATE THE PRE-CONSTRUCTION MEETING.

2. CONDUCT A PRE-CONSTRUCTION MEETING TO DISCUSS THE PROPOSED WORK, LIMITS OF DISTURBANCE AND EROSION AND SEDIMENTATION CONTROL MEASURES. THE MEETING SHOULD BE ATTENDED BY THE OWNER, THE OWNER REPRESENTATIVE(S), THE GENERAL CONTRACTOR, DESIGNATED SUB-CONTRACTORS AND THE PERSON, OR PERSONS, RESPONSIBLE FOR THE IMPLEMENTATION, OPERATION, MONITORING AND MAINTENANCE OF THE EROSION AND SEDIMENTATION MEASURES. THE CONSTRUCTION PROCEDURES FOR THE ENTIRE PROJECT SHALL BE REVIEWED AT THIS MEETING.

3. NOTIFY THE OWNER AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF ANY DEMOLITION, CONSTRUCTION OR REGULATED ACTIVITY ON THIS PROJECT. NOTIFY CALL BEFORE YOU DIG CONNECTICUT AT (800) 922-4455.

4. CLEAR AND GRUB AS REQUIRED, TO INSTALL THE PERIMETER EROSION AND SEDIMENTATION CONTROL MEASURES AND, IF APPLICABLE, TREE PROTECTION.

5. INSTALL CONSTRUCTION ENTRANCE.

6. PERFORM THE REMAINING CLEARING AND GRUBBING AS NECESSARY. REMOVE CUT WOOD AND STUMPS. CHIP BRUSH AND STOCKPILE FOR FUTURE USE OR REMOVE OFF-SITE. REMOVE AND DISPOSE OF DEMOLITION DEBRIS OFF-SITE.

7. TEMPORARILY SEED DISTURBED AREAS NOT UNDER CONSTRUCTION FOR THIRTY (30) DAYS OR MORE.

8. EXCAVATE AND GRADE NEW ACCESS DRIVE.

9. EXCAVATE AND ROUGH GRADE EQUIPMENT COMPOUND.

10. EXCAVATE FOR TOWER FOUNDATION & EQUIPMENT PADS.

11. FINALIZE ACCESS ROAD GRADES.

12. PREPARE SUBGRADE AND INSTALL FORMS, STEEL REINFORCING, & CONCRETE FOR TOWER FOUNDATION & EQUIPMENT PADS.

13. INSTALL BURIED GROUND RINGS, GROUND RODS, GROUND LEADS, UTILITY CONDUITS & UTILITY EQUIPMENT.

14. BACKFILL TOWER FOUNDATION.

15. ERECT MONOPINE.

16. INSTALL TELECOMMUNICATIONS EQUIPMENT ON TOWER & IN COMPOUND.

17. INSTALL COMPOUND GRAVEL SURFACES.

18. FINALIZE GRADES. INSTALL GRAVEL SURFACES.

19. INSTALL FENCING.

20. CONNECT GROUNDING LEADS & LIGHTNING PROTECTION

21. FINAL GRADE AROUND COMPOUND.

22. LOAM & SEED DISTURBED AREAS OUTSIDE COMPOUND, AS REQUIRED & INSTALL LANDSCAPING.

23. TEST ALL NEW EQUIPMENT.

24. AFTER THE SITE IS STABILIZED AND WITH THE APPROVAL OF THE OWNER, REMOVE PERIMETER EROSION AND SEDIMENTATION CONTROLS.

25. PERFORM FINAL PROJECT CLEANUP.

THE ESTIMATED TIME FOR THE COMPLETION OF THE WORK IS APPROXIMATELY TWELVE (12) WEEKS. THE EXACT PROCESS MAY VARY DEPENDING ON THE CONTRACTOR'S & SUBCONTRACTOR'S AVAILABILITY TO COMPLETE WORK & WEATHER DELAYS.

CONSTRUCTION OPERATION AND MAINTENANCE PLAN - BY CONTRACTOR

E&S MEASURE	INSPECTION SCHEDULE	MAINTENANCE REQUIRED
CONSTRUCTION ENTRANCE	DAILY	PLACE ADDITIONAL STONE, EXTEND THE LENGTH OR REMOVE AND REPLACE THE STONE. CLEAN PAVED SURFACES OF TRACKED SEDIMENT.
HAY BALES	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.2"	REPAIR/REPLACE WHEN FAILURE, OR OBSERVED DETERIORATION, IS OBSERVED. REMOVE SILT WHEN IT REACHES 1/2 THE HEIGHT OF THE BALE.
SILT FENCE	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.2"	REPAIR/REPLACE WHEN FAILURE, OR OBSERVED DETERIORATION, IS OBSERVED. REMOVE SILT WHEN IT REACHES 1/2 THE HEIGHT OF THE FENCE.
SILT SACKS	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.2"	REPAIR/REPLACE WHEN FAILURE, OR OBSERVED DETERIORATION, IS OBSERVED. REMOVE SILT WHEN IT REACHES 1/2 THE HEIGHT OF THE SACK.
TOPSOIL/BORROW STOCKPILES	DAILY	REPAIR/REPLACE SEDIMENT BARRIERS AS NECESSARY.
WATER BARS	DAILY	REPAIR/RESHAPE AS NECESSARY. REMOVE SILT WHEN IT REACTES 1/2 THE HEIGHT OF THE WATER BAR.
TEMPORARY DIVERSION DITCHES	DAILY & WITHIN 24 HOURS OF RAINFALL > 0.2"	REPAIR/RESHAPE AS NECESSARY. REVIEW CONDITIONS IF REPETITIVE FAILURES OCCUR.
TEMPORARY SEDIMENT TRAPS/BASINS	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.2"	REMOVE SEDIMENT WHEN IT REACHES 1/2 OF THE MINIMUM REQUIRED WET STORAGE VOLUME.
TEMPORARY SOIL PROTECTION	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.2"	REPAIR ERODED OR BARE AREAS IMMEDIATELY. RESEED AND MULCH.

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D&M DOCUMENTS

NO	DATE	REVISION
0	12/09/20	FOR REVIEW: RCB
1	12/15/20	FINAL: RCB
2		
3		
4		
5		
6		
7		
8		

DESIGN PROFESSIONALS OF RECORD

PROF: ROBERT C. BURNS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
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STATE OF CONNECTICUT · ROBERT CHARLES BURNS · No. 20071 · LICENSED PROFESSIONAL ENGINEER

HOMELAND TOWERS
NEW CANAAN NORTHEAST

SITE ADDRESS: 183 SOUNDVIEW LANE NEW CANAAN, CT 06840

APT FILING NUMBER: CT283450

DATE: 12/09/20 | DRAWN BY: CSH | CHECKED BY: RCB

SHEET TITLE:
EROSION CONTROL NOTES

SHEET NUMBER:
EC-1

DESIGN BASIS:

GOVERNING CODES/DESIGN STANDARDS:

- CONNECTICUT STATE BUILDING CODE, LATEST EDITION
- NATIONAL ELECTRIC CODE
- TIA-222-H

DESIGN CRITERIA:

RISK CATEGORY/ : STRUCT. OCCUPANCY	II	(2015 IBC TABLE 1604.5)

SNOW LOAD:

GROUND, P_g:	30 PSF	(2018 CSBC APPENDIX N)
MINIMUM FLAT ROOF, P_{fmin} :	30 PSF	(2018 CSBC SECT. 1608.1.1)

WIND LOADS:

ULTIMATE BASIC WIND SPEED, V_{ULT}: (3-SECOND GUST)	125 MPH	(2018 CSBC APPENDIX N)
NOMINAL BASIC WIND SPEED, V_{ASD}: (3-SECOND GUST)	97 MPH	(2018 CSBC APPENDIX N)
EXPOSURE CATEGORY	C	(2015 IBC SECT. 1609.4)
WIND IMPORTANCE FACTOR, I_W:	1.0	(TIA-222G, TABLE 2-3)

ICE LOADS:

ICE THICKNESS, t_i:	0.75	(TIA-222G, ANNEX B)
ICE THICKNESS IMPORTANCE FACTOR, I_i:	1.0	(TIA-222G, TABLE 2-3)
NOMINAL BASIC WIND SPEED W/ ICE, Vi (3-SECOND GUST)	50 MPH	(TIA-222G, ANNEX B)

SEISMIC LOAD:

REFER TO SECTION 1613 OF THE 2015 IBC/2018 CONNECTICUT STATE BUILDING CODE FOR SEISMIC CLASSIFICATION AND LOADING DETERMINATION.

01 GENERAL:

ABBREVIATIONS USED IN THESE SPECIFICATIONS INCLUDE THE FOLLOWING:

ACI	AMERICAN CONCRETE INSTITUTE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AWS	AMERICAN WELDING SOCIETY
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN STANDARDS AND TESTING METHODS
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
ICC-ES	INTERNATIONAL CODE COUNCIL EVALUATION SERVICE
TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
UL	UNDERWIRTERS LABORATORIES
NEC	NATIONAL ELECTRICAL CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

EVERY INDIVIDUAL TRADE, DISCIPLINE, AND CONTRACTOR SHALL INCLUDE THESE GENERAL SPECIFICATIONS.

THE ENGINEER IS NOT RESPONSIBLE FOR NOR A GUARANTOR OF THE INSTALLING CONTRACTORS WORK, ADEQUACY OF ANY SITE COMPONENT, SUPERVISION OF ANY WORK, AND SAFETY IN, ON, OR ABOUT THE WORK SITE.

ANY REFERENCE HEREIN TO AN OR EQUAL ITEM, THAT EQUAL ITEM SHALL BE PRE-APPROVED BY THE CONSTRUCTION MANAGER BEFORE INSTALLATION

ALL TRADES SHALL COORDINATE THEIR WORK WITH ALL OTHER TRADES AND OTHER WORK AND CONDITIONS AS APPROPRIATE OR REQUIRED TO AVOID CONFLICTS. RESOLVE AND COORDINATE ALL CONFLICTS WITH ALL AFFECTED WORK AND SITE OPERATIONS. COORDINATION WITH THE SITE SHALL BE WITH THE OWNER, OR OWNER'S SPECIFIED REPRESENTATIVE, FOR EVERYTHING RELATED TO THE INSTALLATION OF THIS PROJECT.

ALL WORK SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE EDITIONS OF ALL APPLICABLE CODES AND SHALL BE ACCEPTABLE TO ALL AUTHORITIES HAVING JURISDICTION (AHJ). WHERE A CONFLICT EXISTS BETWEEN CODES, PLANS, SPECIFICATIONS, AND/OR AHJ, THE MORE STRINGENT AUTHORITY SHALL APPLY. WHERE CONFLICT EXISTS BETWEEN PLANS AND SPECIFICATIONS, PLAN SHALL APPLY. WHERE CONFLICT EXISTS BETWEEN PLAN SHEETS, CONSTRUCTION MANAGER SHALL BE CONSULTED PRIOR TO COMMENCING ANY WORK.

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE AND USABLE SYSTEM THROUGHOUT AND AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN AND/OR OTHERWISE REQUIRED.

CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, INSTALLATIONS, AND EQUIPMENT IN THE FIELD PRIOR TO BID, FABRICATION, AND INSTALLATION OF ANY WORK.

CONTRACTORS SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. THE ENGINEER SHALL BE NOTIFIED FOR INSPECTIONS PRIOR TO CLOSING PENETRATIONS AND OF ANY CONDITIONS WHICH PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR SHALL VISIT THE SITE TO MANAGE AND GAIN APPROVAL FOR ALL TENANT DISRUPTIONS, POWER OUTAGES, WORK SCHEDULES, DEFINITION OF WORK AREA AND WORK STORAGE, PROPER BUILDING/SITE ACCESS, NOISE AND CLEANLINESS REQUIREMENTS WITH THE BUILDING/SITE MANAGEMENT PRIOR TO ALL WORK. ANY DISRUPTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE IMPLEMENTED ONLY UPON WRITTEN APPROVAL OF THE OWNER.

THE CONTRACTOR SHALL SAFEGUARD AGAINST CREATING ANY HAZARD AFFECTING TENANT EGRESS OR COMPROMISING SITE SECURITY MEASURES.

PRIOR TO ALL BELOW-GRADE WORK AND ANY SURFACE WORK IN A NEW AREA FOR STRUCTURES OR VEHICLES, CONTRACTOR SHALL ENGAGE A MARKOUT SERVICE TO IDENTIFY ANY UNDERGROUND STRUCTURES, CONDUITS, AND PIPELINES IN THE AREA. ALL EXISTING SEWER, WATER, GAS, ELECTRIC, FIBER OPTIC, AND OTHER UNDERGROUND UTILITIES IDENTIFIED OR ENCOUNTERED, SHALL BE PROTECTED AT ALL TIMES. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN DIGGING OR EXCAVATING IN ANY MANNER AROUND OR NEAR SUCH UTILITIES. CONTRACTOR IS RESPONSIBLE FOR REPAIRS, REPLACEMENT, AND ALL DAMAGES DUE TO DAMAGE OF UTILITIES BY HIS OPERATIONS.

ALL EXISTING AND NEW EQUIPMENT AND MATERIAL LOCATIONS, ROUTING, ORIENTATION, MOUNTING, SPECIFICATIONS AND GENERAL INSTALLED CHARACTERISTICS SHALL BE CONSIDERED DIAGRAMMATIC ON THE PLANS. EXACT CONDITIONS SHALL BE DETERMINED IN THE FIELD PRIOR TO ANY INSTALLATION. ANY DIFFERENCES THAT MAY CAUSE SCHEDULE, COST, OR QUALITY SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER OR ENGINEER PRIOR TO ANY WORK.

ALL REFERENCES HEREIN TO VERIFICATION OF ANY CONDITION OF SITE, FIELD, PLANS, OR SPECIFICATIONS PRIOR TO ANY WORK SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR. ANY AND ALL ADDITIONS, MODIFICATIONS, CHANGES, REPAIR, OR DEMOLITION AS A RESULT OF FAILURE TO BRING ANY EXISTING CONDITION PROPERLY TO THE ATTENTION OF THE OWNER OR ENGINEER SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR WITHOUT DELAY, COST, OR CHANGES IN QUALITY.

ALL NOTES THIS SHEET SHALL APPLY UNLESS SPECIFICALLY NOTED OTHERWISE ON THE INCLUDED DRAWINGS OR IN SEPARATE PROJECT SPECIFICATIONS AS APPLICABLE. ALL SPECIFICATIONS SHALL BE CONSIDERED REQUIRED UNLESS APPROVED EQUAL BY THE OWNER, CONSTRUCTION MANAGER, OR ENGINEER AS APPLICABLE.

THE WORDS "PROVIDE" OR "INSTALL" SHALL MEAN FURNISH AND INSTALL.

CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING AS REQUIRED FOR THE INSTALLATION OF HIS WORK. ANY PATCHING SHALL MATCH EXISTING SURROUNDING AREA IN ALL RESPECTS. ALL REMOVED MATERIAL SHALL BE REMOVED FROM THE PREMISES DAILY IN AN APPROVED SAFE MANNER.

ALL SURPLUS MATERIAL SHALL BE REMOVED FROM THE SITE PROMPTLY WHEN DEEMED TO BE SURPLUS.

EVERY CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF HIS WORK AND NEWLY INSTALLED OR EXISTING WORK, INCLUDING PROTECTION OF THE SITE, ALL STRUCTURES, AND ALL OCCUPANTS. FURNISH, INSTALL, MAINTAIN, AND REMOVE AS APPROPRIATE, ALL APPROPRIATE BARRIERS, SAFETY GUARDS, SIGNAGE, AND SECURITY AS REQUIRED.

EVERY CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR RESPECTIVE FEES, PERMITS, INSPECTIONS, TESTING, CERTIFICATES, AND ALL MANAGEMENT OF SAME REQUIRED FOR COMPLETION OF AND LEGAL OCCUPANCY OF THE FINISHED PROJECT.

ALL CONTRACTORS SHALL PROVIDE ALL NECESSARY TOOLS, FIXTURES, SERVICES, MATERIALS, JOB AIDS, AND PERSONNEL REQUIRED FOR THE EXECUTION OF THEIR WORK.

EACH CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP BY THEM TO BE FREE OF DEFECTS AND MAINTAINED FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE INSTALLATION BY THE OWNER AND ENGINEER.

ALL WORK SHALL BE PERFORMED BY LICENSED CONTRACTORS IN THE TRADE HAVING JURISDICTION.

ANY DEVIATION, MODIFICATION, ADDITION, OR CHANGE IN DESIGN SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF THE OWNER OR ENGINEER.

ALL CONTRACTORS SHALL SUBMIT SHOP DRAWINGS OF ALL EQUIPMENT AND MATERIALS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION, AND SHALL NOT PROCEED UNTIL ENGINEER APPROVAL IN WRITING IS RETURNED. EACH CONTRACTOR SHALL MAINTAIN ON JOB SITE A COMPLETE SET OF SHOP DRAWINGS WITH ANY DEVIATIONS FROM THE ORIGINAL DESIGN SHALL BE NOTED.

ALL MATERIALS AND EQUIPMENT SHALL BE NEW, WITHOUT BLEMISH OR DEFECT, AND SUITABLE AND LISTED FOR THE INSTALLATION AND SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS OR SPECIFICATIONS. ALL ITEMS OF EQUIPMENT OR MATERIAL THAT ARE OF ONE GENERIC TYPE SHALL BE ONE MANUFACTURER THROUGHOUT.

ALL MATERIALS, EQUIPMENT, TOOLS, AND ITEMS UNDER THE CONTRACTOR'S RESPONSIBILITY ON THE JOBSITE SHALL BE ADEQUATELY SECURED, MAINTAINED, AND PROTECTED, SO AS NOT TO BECOME DAMAGED OR CREATE ANY HAZARD TO PERSONNEL OR PROPERTY.

THE CONTRACTORS HOURS OF WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND ORDINANCES AND BE APPROVED BY THE OWNER.

CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR ALL OF HIS CREW AND INSURE THAT EVERY CREW MEMBER FOLLOWS SAVE WORK PRACTICES. SAFETY TRAINING SHALL INCLUDE, BUT NOT BE LIMITED TO, FALL PROTECTION, CONFINED SPACE ENTRY, ELECTRICAL SAFETY, AND TRENCHING/EXCAVATION SAFETY WHERE SUCH WORK IS EXECUTED OR ENCOUNTERED.

ALL TEMPORARY WORK REQUIRED OR SPECIFIED AS A PART OF THIS WORK, SHALL MEET ALL OF THE SAME REQUIREMENTS AS PERMANENT INSTALLATIONS, SHALL MEET ALL APPLICABLE CODE REQUIREMENTS, AND SHALL BE COMPLETELY REMOVED AFTER ITS PURPOSES HAVE BEEN SERVED.

ANY EXISTING UTILITY, SERVICE, STRUCTURE, EQUIPMENT, OR FIXTURE OBSTRUCTING THE WORK SHALL BE REMOVED AND/OR RELOCATED AS DIRECTED BY THE CONSTRUCTION MANAGER.

IF ASBESTOS IS ENCOUNTERED DURING WORK EXECUTION, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER AND CEASE ALL ACTIVITIES IN AFFECTED AREAS UNTIL NOTIFIED BY THE CONSTRUCTION TO RESUME OPERATIONS.

EXIST. ELECTRICAL AND MECHANICAL FIXTURES, PIPING, WIRING AND EQUIPMENT OBSTRUCTING THE WORK SHALL BE REMOVED AND/OR RELOCATED AS DIRECTED BY THE CONSTRUCTION MANAGER. TEMPORARY SERVICE INTERRUPTIONS MUST BE COORDINATED WITH OWNER.

04 CONCRETE:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

ALL CONCRETE CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE (ACI) CODES 301 & 318, LATEST REVISION.

ALL CONCRETE USED SHALL BE 4000 PSI (28 DAY COMP STRENGTH). THE CONCRETE MIX SHALL BE BASED ON USING THE FOLLOWING MATERIALS AND PARAMETERS:

PORTLAND CEMENT:	ASTM C150, T1
AGGREGATE:	ASTM C33, 1 INCH MAX
WATER:	POTABLE
ADMIXTURE:	NON-CHLORIDE
AIR:	6%*
SLUMP:	4 INCH

*ALL CONCRETE EXPOSED TO FREEZING WEATHER SHALL CONTAIN ENTRAINED AIR PER ACI 211 TABLE 4.2.1 OF ACI 318-05.

ALL REINFORCING STEEL SHALL BE ASTM A615, GR 60 (DEFORMED). WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC. SPLICES SHALL BE CLASS 'B' AND ALL HOOKS SHALL BE ACI STANDARD UNO. REINFORCING BARS SHALL BE COLD BENT WHERE REQUIRED AND TIED (NOT WELDED).

THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL:

- CONCRETE CAST AGAINST EARTH = 3 IN.
- CONCRETE EXPOSED TO EARTH OR WEATHER:
  - #6 AND LARGER = 2 IN.
  - #5 AND SMALLER = 1 1/2 IN.
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
  - SLAB AND WALL = 3/4 IN.
  - BEAMS AND COLUMNS = 1 1/2 IN.

A 3/4 IN. CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

CONCRETE SHALL BE PLACED IN A UNIFORM MANNER AND CONSOLIDATED IN PLACE.

CONCRETE FOOTINGS SHALL BE CAST AGAINST LEVEL, COMPACTED, NON-FROZEN BASE SOIL FREE OF STANDING WATER.

05 ANCHORS:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

EXPANSION ANCHORS SHALL BE USED WHERE ATTACHING TO CONCRETE. MASONRY MOUNTS SHALL HAVE INJECTION ADHESIVE ANCHORING.

EXPANSION BOLTS SHALL BE HILTI KWIK BOLT 3 OR EQUAL. MINIMUM EMBEDMENT 4 INCHES.

INJECTION ADHESIVE ANCHORING IN MASONRY WITH VOIDS SHALL BE HILTI HIT HY-70 OR EQUAL WITH THREADED ROD AND SCREEN TUBES. ANCHORING IN BRICKS WITH HOLES SHALL HAVE ANCHORS SPACED 2 COMPLETE BRICKS APART MINIMUM, SHALL MAINTAIN 2 COMPLETE BRICKS OR 16 INCHES FROM FREE EDGES (WHICHEVER IS LESS), AND SHALL BE EMBEDDED 3-1/2 INCHES MINIMUM. ANCHORING IN HOLLOW CONCRETE BLOCK SHALL USE 50% MORE ANCHORS THAN SHOWN IN DETAIL, SHALL LIMIT ONE ANCHOR MAXIMUM PER BLOCK CELL, SHALL MAINTAIN 12" SPACING FROM FREE EDGES, AND SHALL BE EMBEDDED THROUGH FACE.

INJECTION ADHESIVE ANCHORING IN SOLID MASONRY AND GROUT FILLED BLOCK SHALL BE HILTI HIT HY-200 OR EQUAL WITH THREADED ROD. MAINTAIN 12 INCHES BETWEEN ANCHORS AND ALL FREE EDGES. MINIMUM SPACING BETWEEN ANCHORS IS 8 INCHES.

ANCHORS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND SHALL NOT BE INSTALLED IN MORTAR JOINTS. GRATING SHALL BE ATTACHED USING FOUR GRATING CLAMPS OR 1/4 FILLET WELDS PER SECTION.

05 POST-INSTALLED ANCHORS:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

EXCEPT WHERE INDICATED ON THE DRAWINGS, POST-INSTALLED ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHOR TYPES AND INSTALLED IN ACCORDANCE WITH THEIR RESPECTIVE ICC-ES REPORT AND MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS:

APPLICATION	ANCHORING SYSTEM
CONCRETE	HILTI HY 200 ADHESIVE WITH SAFE SET (HDB) SYSTEM
REBAR DOWELING	HILTI RE 500v3 ADHESIVE WITH SAFE SET (HDB) SYSTEM
SOLID GROUTED	HILTI HY 70
MASONRY	ADHESIVE WITH SCREEN TUBE
HOLLOW /	HILTI HY 70 ADHESIVE WITH
MULTI-WIDTH	HILTI HY 70 ADHESIVE WITH
MASONRY	SCREEN TUBE

ANCHOR CAPACITY USED IN DESIGN SHALL BE BASED ON THE TECHNICAL DATA PUBLISHED BY HILTI OR SUCH OTHER METHOD AS APPROVED BY THE STRUCTURAL ENGINEER OF RECORD. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT INCLUDING AN ICC-ES REPORT SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE, SEISMIC USE, LOAD RESISTANCE, INSTALLATION CATEGORY, IN-SERVICE TEMPERATURE, INSTALLATION TEMPERATURE, ETC.

ADHESIVE ANCHORS INSTALLED IN A HORIZONTALLY OR UPWARDLY INCLINED ORIENTATION INTO CONCRETE AND SUPPORTING A SUSTAINED TENSION LOAD SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER, PER SECTION 9.2.2 OF ACI-318-14. INSTALLER SHALL BE CERTIFIED THROUGH THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM.

ANCHORS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND SHALL NOT TO BE INSTALLED IN MORTAR JOINTS.

AS PER OSHA 29 CFR 1926.1153 SILICA DUST CONTROL REGULATIONS, DRILLED HOLES FOR POST INSTALLED ANCHORS IN CONCRETE AND MASONRY SHALL BE INSTALLED USING HILTI SAFE SET INSTALLATION SYSTEM WHICH COMPRISES OF A CODE APPROVED HILTI HOLLOW DRILL BIT AND VACUUM. ALTERNATE INSTALLATION METHODS ARE ALSO ALLOWED WITH AN APPROVED DUSTLESS SYSTEM THAT MAINTAINS SILICA DUST EMISSION BELOW THE PERMISSIBLE LEVELS.

CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ON-SITE ANCHOR INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED. CONTRACTOR SHALL SUBMIT DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL INSTALLING ANCHORS HAVE RECEIVED THE REQUIRED TRAINING PRIOR TO THE COMMENCEMENT OF WORK.

CONTINUOUS OR PERIODIC SPECIAL INSPECTION FOR POST INSTALLED ANCHORS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 4.3/4.4 OF THE ICC-ES REPORT FOR THE INDIVIDUAL ANCHOR. SPECIAL INSPECTOR SHALL BE NOTIFIED PRIOR TO COMMENCEMENT OF WORK TO COORDINATE INSPECTION EFFORTS.

05 STEEL:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

MATERIALS:

WIDE FLANGE	ASTM A992, GR 50
TUBING	ASTM A500, GR B
PIPE	ASTM A53, GR B
BOLTS	ASTM A325
GRATING	TYPE GW-2 (1-1/4"x3/16" BARS)
EXISTING METALS	ASTM A36

PROVIDE CERTIFICATION THAT WELDERS TO BE USED IN WORK ARE LICENSED AND HAVE SATISFACTORILY PASSED AWS QUALIFICATION TEST UNDER THE PROVISIONS OF APPENDIX D, PARTS II AND III OF THE AWS CODE FOR WELDING IN BUILDING CONSTRUCTION.

ALL BUILDING CONNECTION POINTS TO BE CENTERED ON EXISTING STRUCTURAL BEARING POINTS AND THE LOCATIONS ARE TO BE VERIFIED IN FIELD PRIOR TO THE FABRICATION OF STEEL.

DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF AISC SPECIFICATION FOR *"THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS"*.

NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIAMETER GALVANIZED ASTM A 307 BOLTS UNLESS OTHERWISE NOTED.

ALL STEEL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIPPED GALVANIZED) COATINGS" ON IRON AND STEEL PRODUCTS WITH A COATING WEIGHT OF 2 OZ/SF.

ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE EXPOSED TO WEATHER SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE."

DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY TOUCHING UP ALL DAMAGED GALVANIZED STEEL WITH COLD ZINC, "GALVANOX", "DRY GALV", OR "ZINC IT", IN ACCORDANCE WITH MANUFACTURERS GUIDELINES. TOUCH UP DAMAGED NON-GALVANIZED STEEL WITH SAME PAINT APPLIED IN SHOP OR FIELD.

THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW. FIELD CUTTING OF STRUCTURAL STEEL IS NOT PERMITTED EXCEPT WITH THE PRIOR APPROVAL OF THE ENGINEER.

CONTRACTOR TO REMOVE AND RE-INSTALL ALL FIRE PROOFING AS REQUIRED DURING CONSTRUCTION.

THE STEEL STRUCTURE SHALL BE DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER COMPLETION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION.

ALL STEEL ELEMENTS SHALL BE INSTALLED PLUMB AND LEVEL.

TOWER MANUFACTURER'S DESIGNS SHALL PREVAIL FOR TOWER.

CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC *"MANUAL OF STEEL CONSTRUCTION"*. CONNECTIONS SHALL BE PROVIDED TO CONFORM TO THE REQUIREMENTS OF TYPE 2 CONSTRUCTION.

STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE MINIMUM 3/4" DIAMETER AND EACH CONNECTION SHALL HAVE MINIMUM TWO BOLTS. LOCK WASHERS ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES. IF TENSION CONTROL BOLTS ARE USED, CONNECTIONS SHALL BE DESIGNED FOR SLIP CRITICAL BOLT ALLOWABLE LOAD VALUES.

DESIGN CONNECTIONS AT BEAM ENDS FOR 10 KIPS (MIN).

ALL U-BOLTED CONNECTIONS SHALL BE COMPLETED WITH DOUBLE NUTS OR A LOCK WASHER.

CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS *"STANDARD QUALIFICATION PROCEDURES"*. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND SHALL CONFORM TO AISC AND D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE LARGER OF 1/4" FILLET OR MINIMUM SIZE PER TABLE J2.4 IN THE AISC *"MANUAL OF STEEL CONSTRUCTION"*. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED. SEE NOTE REGARDING DAMAGED GALVANIZED SURFACES.

ALL ARC AND GAS WELDING SHALL BE DONE BY A LICENSED AND CERTIFIED WELDER IN ACCORDANCE WITH AWS.

SEAL ALL PENETRATIONS AND SEAMS BETWEEN MASONRY AND STEEL WITH DOW CORNING 790 SILICONE BUILDING SEALANT OR EQUAL.

07 THERMAL & MOISTURE PROTECTION:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

FIRE-STOP ALL PENETRATIONS THROUGH BUILDING WALLS, FLOORS, AND CEILINGS, WITH LISTED AND ACCEPTED MATERIALS TO MAINTAIN THE FIRE RATING OF THE EXISTING ASSEMBLY. ALL FILL MATERIAL SHALL BE SHAPED, FITTED, AND PERMANENTLY SECURED IN PLACE. FIRESTOPPING SHALL BE INSTALLED IN ACCORD WITH ASTM E814.

HILTI CP620 FIRE FOAM OR 3M FIRE BARRIER PRODUCTS, OR EQUAL, SHALL BE USED TO FILL ALL VOIDS AND CAVITIES AND SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND ASSOCIATED UL SYSTEM NUMBER.

FIRESTOPPING SHALL BE APPLIED AS SOON AS PRACTICABLE AFTER PENETRATIONS ARE MADE AND EQUIPMENT INSTALLED.

FIRESTOPPED PENETRATIONS SHALL BE LEFT EXPOSED AND MADE AVAILABLE FOR INSPECTION BEFORE APPLYING FINISHES THAT MAY CONCEAL SUCH PENETRATION. FIRESTOPPING MATERIAL CERTIFICATES SHALL BE MADE AVAILABLE AT THE TIME OF INSPECTION.

ANY BUILDING ROOF PENETRATION OR RESTORATION SHALL BE PERFORMED SO THAT ROOF WARRANTY IN PLACE IS NOT COMPROMISED. CONTRACTOR SHALL ARRANGE FOR OWNER'S ROOFING CONTRACTOR TO PERFORM ANY AND ALL ROOFING WORK IF SO REQUIRED BY EXISTING ROOF WARRANTY. OTHERWISE, ROOF SHALL BE MADE WATERTIGHT WITH LIKE CONSTRUCTION AS SOON AS PRACTICABLE AND AT COMPLETION OF CONSTRUCTION.

ALL PENETRATIONS INTO OR THROUGH BUILDING, SHELTER, EQUIPMENT, CABINET, AND SIMILAR ENCLOSURE EXTERIOR WALLS, SHALL BE SEALED WITH SILICONE SEALER.

26 ELECTRICAL:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

ALL ELECTRICAL CONDUCTORS:

- INSULATION SHALL BE MINIMUM 600V TYPE THHN, THWN-2, OR XHHW.
- BRANCH CIRCUIT CONDUCTORS SHALL BE SOFT DRAWN 98% MINIMUM CONDUCTIVITY PROPERLY REFINED COPPER.
- FEEDER CIRCUIT CONDUCTORS SHALL BE EITHER COPPER OR ALUMINUM OF THE APPROPRIATE SIZE FOR THE APPLICATION, OR AS SPECIFICALLY NOTED.
- PERMANENTLY LABEL OR TAG ALL CONDUCTORS WITH THEIR CIRCUIT DESIGNATION AT ALL TERMINATION ENDS, SPLICES, AND VISIBLE AS PASS-THROUGH IN ALL ENCLOSURES.

ALL CONDUIT, RACEWAY, WIREWAYS, DUCTS, ETC. SHALL BE LISTED AND SUITABLE FOR THE APPLICATION. ONLY THE FOLLOWING CONDUITS AS APPROVED AND LISTED FOR THE APPLICATION SHALL BE ACCEPTABLE:

- ELECTRICAL METALLIC TUBING (EMT).
- COMPRESSION COUPLINGS AND CONNECTORS ONLY MADE UP WRENCH TIGHT.
- FLEXIBLE METAL CONDUIT (FMC) AND LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC).
- FINAL CONNECTIONS TO VIBRATING OR ADJUSTABLE EQUIPMENT INCLUDING, BUT NOT LIMITED TO, LIGHT FIXTURES, HVAC UNITS, TRANSFORMERS, MOTORS, ETC. OR WHERE EQUIPMENT IS PLACED UPON SLAB ON-GRADE.
- RIGID GALVANIZED STEEL (RGS).
- ALL FITTINGS, CONNECTORS, AND COUPLINGS SHALL BE THREADED MADE UP WRENCH TIGHT.
- RIGID POLYVINYL CHLORIDE (PVC) SCHEDULE 40 OR SCHEDULE 80.
- MAY BE USED FOR SERVICES, EXTERIOR, BELOW GRADE, AND WET LOCATIONS.
- SHALL NOT BE USED IN CONCRETE SLABS NOR EXPOSED WITHIN A BUILDING OR STRUCTURE.
- METAL-CLAD CABLE (MC)
- CONCEALED INSTALLATIONS ONLY.
- WITHIN A DUCT WITH SMOOTH OR CORRUGATED METAL JACKET AND NO OUTER COVERING OVER THE METAL JACKET.

IN FINISHED SPACES, ALL CONDUITS SHALL BE CONCEALED EXCEPT TO MAKE A FINAL CONNECTION TO EQUIPMENT NOT MOUNTED IN OR AGAINST FINISH MATERIAL.

ALL FEEDER AND BRANCH CIRCUITS SHALL HAVE A SEPARATE PROPERLY SIZED AND MARKED GROUNDING CONDUCTOR, PER APPLICABLE CODES, THAT BONDS ALL ENCLOSURES, BOXES, ETC. CONDUIT SHALL NOT BE USED AS A GROUNDING OR BONDING CONDUCTOR.

IF EXISTING ELECTRIC SERVICE IS TO REMAIN, CONTRACTOR SHALL BE VERIFY THAT IT MEETS PROJECT REQUIREMENTS WITHOUT MODIFICATION. IF IT IS TO BE ADDED OR REPLACED AS A PART OF THIS WORK, CONTRACTOR SHALL ORDER FROM, COORDINATE WITH, AND GAIN APPROVAL FROM THE ELECTRICAL UTILITY. ALL ELECTRICAL EQUIPMENT SHALL BE AS SPECIFIED AND AS APPROVED BY THE LOCAL UTILITY WHERE APPLICABLE.

ALL EQUIPMENT, ENCLOSURES, ETC. SHALL BE SUITABLE FOR THE INSTALLED ENVIRONMENT, MINIMUM NEMA 3R FOR ALL EXTERIOR INSTALLATIONS.

WIRING DEVICES SHALL BE SPECIFICATION GRADE AND WIRING DEVICE COVER PLATES SHALL BE PLASTIC WITH ENGRAVING AS SPECIFIED. COLOR SHALL BE IVORY. ALL DEVICES AND COVER PLATES SHALL BE OF THE SAME MANUFACTURER.

ALL FIRE-RATED PENETRATIONS SHALL BE SEALED USING A SUITABLE AND LISTED FIRE SEALING DEVICE OR GROUT THAT WILL MAINTAIN THE FIRE RATING OF THE STRUCTURE PENETRATED.

PROVIDE PERMANENTLY AFFIXED ENGRAVED NAMEPLATES FOR ALL CODE REQUIRED LABELING AND ON ALL PANELS, METERING, DISCONNECTS, AND ELECTRICAL EQUIPMENT THAT IDENTIFIES EQUIPMENT SERVED, ELECTRICAL SOURCE WITH CIRCUIT IDENTIFICATION, AND VOLTAGES WITHIN.

ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL FINAL TERMINATIONS TO ALL EQUIPMENT.

ALL ELECTRICAL APPURTENANCES THAT ARE DISCONNECTED SHALL BE COMPLETELY REMOVED WITH EXISTING STRUCTURES TO REMAIN, REPAIRED, FINISHED, FILLED, PAINTED, ETC. ALL PANEL SCHEDULES, EQUIPMENT LABELING, AND CODE-REQUIRED LABELING, SHALL BE VERIFIED AND PROPERLY COMPLETED TO MATCH THE INSTALLATION.

26 GROUNDING:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

GROUND ALL SYSTEMS AND EQUIPMENT IN ACCORDANCE WITH BEST INDUSTRY PRACTICE, THE REQUIREMENTS OF THE NFPA 70 NATIONAL ELECTRICAL CODE (NEC), AND ALL OTHER APPLICABLE CODES AND REGULATIONS.

ALL GROUNDING ELECTRODES PRESENT AT EACH SERVICE LOCATION SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM.

ALL EQUIPMENT ENCLOSURES, DEVICES, AND CONDUITS SHALL BE GROUNDED BY THE INSTALLATION OF A SEPARATE GROUNDING CONDUCTOR FOR ALL FEEDER AND BRANCH CIRCUITS THAT IS SIZED PER CODE OR IS OF THE SIZE INDICATED ON THE DRAWINGS, SHALL BE CONTINUOUS IN LENGTH, AND SHALL BE BONDED TO EACH ENCLOSURE PASSED THROUGH. CONDUIT SHALL NOT BE USED AS A GROUNDING OR BONDING WIRE OR CIRCUIT.

BOND ALL METALLIC CONDUITS TOGETHER THAT ARE CONNECTED TO NON-METALLIC ENCLOSURES, IN-GROUND BOXES, AND TO AN ENCLOSURE WHERE A GROUND BUS IS SPECIFIED OR SUPPLIED. ACCOMPLISH THIS BOND WITH GROUNDING CONDUCTORS MINIMUM SIZED TO THE LARGEST GROUNDING CONDUCTOR PRESENT IN THE ENCLOSURE CONNECTED TO A GROUNDING TYPE BUSHING EQUALLY SIZED OR MAXIMUM GROUND WIRE ACCOMMODATION AVAILABLE IN STANDARD MANUFACTURE FOR THE CONDUIT SIZE, WHICHEVER IS LESS.

EQUIPMENT GROUNDING AND LOAD SIDE BONDING CONDUCTORS SHALL BE SIZED PER THE CIRCUIT'S OVER-CURRENT PROTECTIVE DEVICE (OCPD) SIZE. WHERE THE UNGROUNDED CONDUCTORS ARE INCREASED IN SIZE ABOVE THE STANDARD FOR THE CIRCUIT'S OCPD, INCREASE THE GROUNDING CONDUCTOR PROPORTIONATELY TO THE CROSS-SECTIONAL AREA OF THE UNGROUNDED CONDUCTORS.

SERVICE MAIN BONDING JUMPERS AND GROUNDING ELECTRODE CONDUCTORS SHALL BE SIZED AND INSTALLED PER THE MINIMUM OF ALL APPLICABLE CODES AND REGULATIONS.

26 LIGHTNING PROTECTION:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS AND THE GROUNDING SPECIFICATIONS HEREIN.

THE LIGHTNING PROTECTION GROUNDING SYSTEM (LPGS) SHALL CONSIST OF BONDING ALL EQUIPMENT AND CONDUCTIVE STRUCTURES TO LOCALIZED SINGLE-POINT GROUNDING CONNECTIONS (TYPICALLY GROUND BARS) WHICH ARE BONDED TOGETHER AND TO AN IN-GROUND SYSTEM. IF THE LPGS IS ON A BUILDING, IT SHALL BE EFFECTIVELY BONDED TO THE ELECTRICAL SERVICE MAIN BONDING JUMPER AND TO ADDITIONAL IN-GROUND ELECTRODES AS MAY BE REQUIRED OR INDICATED. IF THE LPGS IS ON A DEDICATED COMMUNICATION SITE, ALL EQUIPMENT AREAS AND TOWERS SHALL EACH HAVE THEIR OWN IN-GROUND RING WITH EVERY RING BONDED TOGETHER, AND ALL CONDUCTIVE STRUCTURES IN CLOSE PROXIMITY (FENCES, ICE BRIDGES, ISOLATED EQUIPMENT, ETC.) ALSO BONDED TO PROVIDE A COMMON ELECTRICAL EQUIPOTENTIAL SYSTEM FOR ALL CONDUCTIVE ELEMENTS AND STRUCTURES.

CONDUCTORS:

- MIN #2 AWG SOLID BARE TINNED COPPER (SBTC) FOR ALL IN-GROUND CONDUCTORS.
- MIN #2 AWG COPPER GREEN STRANDED FOR BONDING STRUCTURES, AND FOR INTER-SYSTEM BONDING OF INDIVIDUAL ELEMENTS SUCH AS GROUND BAR TO GROUND BAR.
- MIN #6 AWG COPPER GREEN STRANDED OR ALL EQUIPMENT BONDING.
- INSTALL ALL IN-GROUND CONDUCTORS IN THE SAME HORIZONTAL PLANE OR IN A DOWNWARD DIRECTION AWAY FROM THE TOWER AND EQUIPMENT AREAS.
- AVOID LONG RUNS. MAKE DIRECT RUNS AS MUCH AS POSSIBLE.
- PLACE THROUGH NON-METALLIC SLEEVES WHEN PASSING THROUGH FLOORS, WALLS, CEILINGS, AND SIMILAR STRUCTURES.
- MAKE ALL CONNECTIONS IN CONTACT WITH EARTH WITH EXOTHERMIC WELDING. MAKE ALL OTHER CONNECTIONS WITH EXOTHERMIC WELDING, IRREVERSIBLE COMPRESSION CONNECTORS, OR LISTED COMPRESSION TWO-HOLE LUGS.
- INSTALL ALL CONDUCTORS WITH A MINIMUM 18 INCH BEND RADIUS AND NO BEND LONGER THAN A 90 DEGREE ARC. ALL BENDS SHALL BE HORIZONTAL, OR DOWNWARD TOWARDS EARTH.
- ALL CONDUCTORS PASSING FROM ABOVE-GROUND TO IN-GROUND CONNECTIONS, WHERE EXPOSED, SHALL BE COVERED AND PROTECTED WITH A NON-METALLIC CONDUIT SEALED AT BOTH ENDS.
- IF 2 OR MORE IN-GROUND CONDUCTOS ARE IN THE SAME PATH (2 RINGS OVERLAPPING, BONDING FOLLOWING ANOTHER RING OR RADIAL, OR SIMILAR), COMBINE WITH A SHARED SINGLE CONDUCTOR.

EQUIPMENT AND TOWER GROUND RINGS SHALL BE:

- BONDED TO ANY CONDUCTIVE OBJECT OR STRUCTURE WITHIN 5 FEET OF EQUIPMENT GROUND RINGS AND WITHIN 20 FEET OF TOWER GROUND RINGS.
- INSTALLED MINIMUM 18 INCHES FROM FOUNDATIONS, FOOTINGS, AND SIMILAR.

INSTALL ALL IN-GROUND RINGS, RADIALS, BONDS CONNECTING THEM, AND ALL SIMILAR GROUNDING:

- MIN 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE, WHICHEVER IS GREATER DEPTH.
- MIN 2 FEET FROM FOUNDATIONS, FOOTINGS, OTHER GROUNDING SYSTEMS, AND SIMILAR STRUCTURES, EXCEPT WHEN MAKING A BOND TO ANY OF THESE STRUCTURES. DO NOT BOND TO FOUNDATION INTERNAL REINFORCEMENT.

ALL EQUIPMENT GROUPED IN A COMMON AREA, COMPOUND, STRUCTURE, OR SIMILAR SHALL BE BONDED TO A SINGLE-POINT GROUND, PREFERABLY AN ISOLATED GROUND BAR. BOND THE GROUND BAR TO THE SYSTEM WITH MINIMUM SINGLE BONDING CONDUCTOR. IF BONDING TO AN IN-GROUND RING, INSTALL 2 BONDING CONDUCTORS MINIMUM WITH EACH CONDUCTOR INSTALLED DIRECTIONALLY AWAY FROM EACH OTHER AND PARALLEL TO THE IN-GROUND CONDUCTOR, WITH NO TEE CONNECTIONS.

TOWER GROUNDING:

- EACH TOWER LEG SHALL BE BONDED TO ITS RING. SINGLE-LEGGED TOWERS, OR MONOPOLES, SHALL HAVE 2 BONDS ON OPPOSITE SIDES.
- BOND TO TOWER BASE, NOT TO VERTICAL TOWER STRUCTURE, AWAY FROM TOWER MOUNTING HARDWARE.
- EACH BOND SHALL HAVE A CORRESPONDING GROUND ROD ON THE RING.
- EACH BOND SHALL CONSIST OF 2 CONDUCTORS FROM THE TOWER TO ITS RING WITH EACH CONDUCTOR DIRECTED IN OPPOSITE DIRECTIONS WITH A PARALLEL CONNECTION ON THE RING ON OPPOSITE SIDES OF THE GROUND ROD.

EQUIPMENT AREA GROUNDING:

- COMMUNICATION AREAS ON EARTH SHALL HAVE A GROUND RING.
- BOND ALL EQUIPMENT TO A SINGLE-POINT GROUND (GROUND BAR).
- BOND THE EQIPMENT SINGLE-POINT GROUND TO THE EQUIPMENT GROUND RING WITH MINIMUM 2 CONDUCTORS DIRECTED IN OPPOSITE DIRECTIONS WITH PARALLEL CONNECTIONS ON THE RING.
- IF EQUIPMENT IS ENCLOSED IN A SHELTER:
- IF THE SHELTER IS CONSIDERED TO BE EXPOSED TO A DIRECT LIGHTNING STRIKE, INSTALL A BUILDING LIGHTNING PROTECTION SYSTEM PER APPLICABLE VERSION OF NFPA 780.
- BOND ALL FIXED CONDUCTIVE BUILDING COMPONENTS TOGETHER AND TO THE BUILDING RING GROUND AT THE CORNERS. THIS IS TYPICALLY CALLED THE HALO GROUND. DO NOT BOND EQUIPMENT TO THE HALO GROUND.
- BOND ALL EQUIPMENT TOGETHER TO A SINGLE-POINT OR INTERIOR EQUIPMENT RING GROUND (IEGR). BOND THE SINGLE-POINT OR IEGR TO THE EXTERNAL EQUIPMENT RING GROUND.
- PLACE GROUND RODS AT THE EQUIPMENT GROUND RING CORNERS.

GROUND RODS:

- SEPARATION SPACE BETWEEN ANY 2 GROUND RODS SHALL BE NO CLOSER THAN THEIR DEPTH. THIS APPLIES TO ALL RODS IN THE COMPLETE SYSTEM.
- DRIVE VERTICALLY IN UNDISTURBED SOIL WITH THE TOP AT SAME DEPTH AS THE IN-GROUND CONDUCTOR. IF NOT POSSIBLE TO INSTALL VERTICALLY, PLACE AS CLOSE TO VERTICAL AS POSSIBLE AND IN A DIRECTION AWAY FROM THE NEAREST ABOVE-GROUND CONDUCTIVE ELEMENT (TOWER, EQUIPMENT, ETC.).

RADIALS (TYP. NEW DEDICATED COMMUNICATION SITES):

- WHERE FEASIBLE WITH ENOUGH SPACE AVAILABLE, INSTALL A MINIMUM OF 4, MAXIMUM 10 RING RADIALS.
- EACH RADIAL'S LENGTH SHALL BE MIN 20 FT, MAX 80 FT.
- EXTEND RADIALS PERPENDICULAR FROM RINGS IN AS STRAIGHT LINE AS POSSIBLE, AWAY FROM OTHER RING GROUNDS, RADIALS, BONDS, AND SIMILAR.
- A COMMON PRACTICE IS TO PLACE 4 RADIALS FROM THE TOWER RING TO THE 4 CORNERS OF THE AVAILABLE AREA.

AT A MINIMUM, BOND ALL COMPOUND CONDUCTIVE FENCE CORNER POSTS AND GATE POSTS TO THE LPGS. PREFERABLY, INSTALL A GROUND RING THAT FOLLOWS THE FENCE LINE, BONDING ALL POSTS TO THE RING.

27 ANTENNAS & CABLES:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TRANSMISSION CABLES, JUMPERS, CONNECTORS, GROUNDING STRAPS, ANTENNAS, MOUNT AND HARDWARE. ALL MATERIALS SHALL BE INSPECTED BY THE CONTRACTOR FOR DAMAGE UPON DELIVERY. JUMPERS SHALL BE SUPPLIED AT ANTENNAS AND EQUIPMENT INSIDE SHELTER. COORDINATE LENGTH OF JUMPER CABLES WITH OWNER. COORDINATE AND VERIFY ALL OF THE MATERIALS TO BE PROVIDED WITH OWNER PRIOR TO SUBMITTING BID AND ORDERING MATERIALS.

AFTER INSTALLATION, THE TRANSMISSION LINE SYSTEM SHALL BE PIM / SWEEP TESTED FOR PROPER INSTALLATION AND DAMAGE WITH ANTENNAS CONNECTED. CONTRACTOR SHALL OBTAIN AND USE LATEST TESTING PROCEDURES FROM OWNER OR MANUFACTURER PRIOR TO BIDDING.

ANTENNA CABLES SHALL BE UNIQUELY COLOR-CODED AT THE ANTENNAS, BOTH SIDES OF EQUIPMENT SHELTER WALL, AND JUMPER CABLES AT THE EQUIPMENT.

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONNECTORS, ASSOCIATED CABLE MOUNTING AND GROUNDING HARDWARE, WALL MOUNTS, STANDOFFS, AND ALL ASSOCIATED HARDWARE TO INSTALL ALL CABLES AND ANTENNAS TO THE MANUFACTURER'S AND OWNER'S SPECIFICATIONS.

ANTENNA CABLES SHALL BE FOAM DIELECTRIC COAXIAL CABLES AS FOLLOWS:

- BASE STATION ANTENNAS:
  - 7/8" DIAMETER FOR CABLE LENGTHS UP TO 100 FT.
  - 1-5/8" DIAMETER FOR CABLE LENGTHS GREATER THAN 100 FT.
  - GPS ANTENNAS:
  - 7/8" DIAMETER FOR CABLE LENGTHS UP TO 200 FT.
  - 1-5/8" DIAMETER FOR CABLE LENGTHS GREATER THAN 200 FT.

MINIMUM BENDING RADIUS FOR COAXIAL CABLES SHALL BE:

- 15 FT FOR 7/8" COAXIAL CABLES.
- 25 FT FOR 1-5/8" COAXIAL CABLES.

CABLE SHALL BE INSTALLED WITH A MINIMUM NUMBER OF BENDS WHERE POSSIBLE. CABLE SHALL NOT BE LEFT UNTERMINATED AND SHALL BE SEALED IMMEDIATELY AFTER BEING INSTALLED.

ALL EXTERIOR CABLE CONNECTIONS SHALL BE COVERED WITH A WATERPROOF SPLICING KIT.

CONTRACTOR SHALL VERIFY EXACT LENGTH AND DIRECTION OF TRAVEL IN FIELD PRIOR TO CONSTRUCTION.

CABLE SHALL BE FURNISHED AND INSTALLED WITHOUT SPLICES AND WITH CONNECTORS AT EACH END.

27 CABLE TRAY:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

CABLE TRAY SHALL BE MADE OF EITHER CORROSION RESISTANT METAL OR WITH A CORROSION RESISTANT FINISH.

CABLE TRAY SHALL BE OF LADDER TRAY TYPE WITH FLAT COVER CLAMPED TO SIDE RAILS.

CABLE LADDER SHALL BE SIZED TO FIT ALL CABLES IN ACCORDANCE WITH NEC AND NEMA 11-15-84.

CABLE LADDER TRAYS SHALL BE NEMA CLASS 12A BY PW INDUSTRIES, INC. OR EQUAL.

CABLE LADDER TRAY SHALL BE SUPPORTED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

ALL WORKMANSHIP SHALL CONFORM TO THESE REQUIREMENTS AND ALL LOCAL CODES AND STANDARDS TO ENSURE SAFE AND ADEQUATE GROUNDING SYSTEM.

31 EXCAVATION & FILL:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

CONTRACTOR SHALL GRADE ONLY AREAS SHOWN TO BE MODIFIED AS A PART OF THIS WORK AND ONLY TO THE EXTENT REQUIRED TO SHED OVERLAND WATER FLOW AWAY FROM SITE. ALL MADE SLOPES SHALL NOT BE STEEPER THAN 3:1 (HORIZONTAL:VERTICAL). SEDIMENTATION AND EROSION CONTROLS SHOWN AND SPECIFIED SHALL BE ESTABLISHED BEFORE STRIPPING EXISTING VEGETATION.

ORGANIC MATERIAL AND DEBRIS SHALL BE STRIPPED AND STOCKPILED BEFORE ADDING FILL MATERIAL.

NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

ALL FILL SHALL BE PLACED IN ONE FOOT LIFTS AND COMPACTED IN PLACE. STRUCTURAL FILL SHALL BE COMPACTED TO 95% OF ITS MAXIMUM DRY UNIT WEIGHT TESTED IN ACCORDANCE WITH ASTM D1557.

EXCAVATIONS FOR FOOTINGS SHALL BE CUT LEVEL TO THE REQUIRED DEPTH AND TO UNDISTURBED SOIL. REPORT UNSUITABLE SOIL CONDITIONS TO THE CONSTRUCTION MANAGER.

TRENCH EXCAVATIONS SHALL BE BACKFILLED AT THE END OF EACH DAY.

TOWER FOUNDATION EXCAVATION, BACKFILL AND COMPACTION SHALL BE IN ACCORDANCE WITH TOWER MANUFACTURER'S DESIGNS AND SPECIFICATIONS.

NATIVE GRAVEL MATERIAL MAY BE USED FOR TRENCH BACKFILL WHERE SELECT MATERIAL IS NOT SPECIFIED. GRAVEL MATERIAL FOR CONDUIT TRENCH BACKFILL SHALL NOT CONTAIN ROCK GREATER THAN 2 INCHES IN DIAMETER.

BANK OR CRUSHED GRAVEL SHALL CONSIST OF TOUGH, DURABLE PARTICLES OF CRUSHED OR UNCRUSHED GRAVEL FREE OF SOFT, THIN, ELONGATED OR LAMINATED PIECES AND MEET THE SPECIFIED GRADATION.

PROCESSED AGGREGATE BASE SHALL CONSIST OF COURSE AND FINE AGGREGATES COMBINED AND MIXED SO THAT THE RESULTING MATERIAL CONFORMS TO THE GRADATION. COURSE AGGREGATE SHALL BE EITHER GRAVEL OR BROKEN STONE AND FINE AGGREGATE SHALL CONSIST OF SAND.

BANK GRAVEL FILL SHALL PASS WITH THE FOLLOWING SIZE SQUARE MESH SIEVES:

25-60% WITH PASS 1/4"
15-45% WITH PASS #10
2-25% WITH PASS #40
0-10% WITH PASS #100
0-5% WITH PASS #200

BANK GRAVEL BASE SHALL PASS WITH THE FOLLOWING SIZE SQUARE MESH SIEVES:

100%	WITH PASS 5"
100%	WITH PASS 3-1/2"
100%	WITH PASS 2-1/4"
95-100%	WITH PASS 2"
55-100%	WITH PASS 1-1/2"
25-60%	WITH PASS 1/4"
15-45%	WITH PASS #10
5-25%	WITH PASS #40
0-10%	WITH PASS #100
0-5%	WITH PASS #200

PROCESSED AGG BASE SHALL PASS WITH THE FOLLOWING SIZE SQUARE MESH SIEVES:

90-100%	WITH PASS 3-1/2"
55-95%	WITH PASS 1-1/2"
50-75%	WITH PASS 3/4"
25-45%	WITH PASS 1/4"
5-20%	WITH PASS #40
2-12%	WITH PASS #100

FILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, ICE, TRASH AND DEBRIS. REFER TO GEOTECHNICAL ENGINEERING AS APPLICABLE FOR ALL FILL MATERIAL REQUIREMENTS.

31 SEDIMENTATION & EROSION CONTROL:

THE CONTRACTOR SHALL CONSTRUCT ALL SEDIMENT AND EROSION CONTROLS IN ACCORDANCE WITH THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND AS DIRECTED BY THE TOWN OF PERMITTEE AND/OR SWPCP MONITOR. DIRECT ALL DEWATERING PUMP DISCHARGE TO A SEDIMENT CONTROL DEVICE SUCH AS TEMPORARY SEDIMENT TRAPS OR GRASS FILTERS WITHIN THE APPROVED LIMIT OF DISTURBANCE. DISCHARGE TO STORM DRAINS OR SURFACE WATERS FROM SEDIMENT CONTROLS SHALL BE CLEAR AND APPROVED BY THE ENGINEER.

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXIST. SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENTATION CONTROL.

LIMITS OF CLEARING AND GRUBBING SHALL BE CLEARLY MARKED BEFORE COMMENCING WITH SUCH WORK.

SEDIMENTATION AND EROSION CONTROL (SEC) MEASURES SHOWN SHALL BE INSTALLED PRIOR TO LAND CLEARING, EXCAVATION OR GRADING OPERATIONS. REQUIREMENTS OF LOCAL WETLAND AGENCY SHALL BE MET PRIOR TO EARTHWORK OPERATIONS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN SEC MEASURES THROUGHOUT DURATION OF PROJECT UNTIL DISTURBED LAND IS THOROUGHLY VEGETATED.

FAILURE OF THE SEC SYSTEMS SHALL BE CORRECTED IMMEDIATELY AND SUPPLEMENTED WITH ADDITIONAL MEASURES AS NEEDED.

TOPSOIL SHALL BE SPREAD TO FINISH GRADES AND SEEDED AS SOON AS FINISHED GRADES ARE ESTABLISHED. STRAW MULCH, JUTE NETTING OR MATS SHALL BE USED WHERE THE NEW SEED IS PLACED.

VEGETATIVE SEEDING:

- AREA TO BE SEEDED SHALL BE LOOSE AND FRIABLE TO A DEPTH OF 3". TOPSOIL SHALL BE LOOSENED BY RAKING OR DISKING BEFORE SEEDING. APPLY 50 Lbs. OF DOLOMITIC LIMESTONE AND 25 Lbs. OF 10-10-10 FERTILIZER PER 1000 SF. HARROW LIME AND FERTILIZER INTO LOOSE SOIL.
- APPLY COMMON BERMUDA AND RYE GRASS AT 50 LBS PER ACRE. USE CYCLONE SEED DRILL CULTIPACKER SEEDER OR HYDROSEEDER (SEED & FERTILIZER SLURRY) FOR STEEP SLOPES. IRRIGATE UNTIL VEGETATION IS COMPLETELY ESTABLISHED.

HOMELAND TOWERS, LLC
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DANBURY, CT 06810
(203) 297-6345

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D&M DOCUMENTS

NO	DATE	REVISION
0	12/09/20	FOR REVIEW: RCB
1	12/15/20	FINAL: RCB
2		
3		
4		
5		
6		
7		
8		

DESIGN PROFESSIONALS OF RECORD

PROF: ROBERT C. BURNS P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

DEVELOPER: HOMELAND TOWERS, LLC
ADDRESS: 9 HARMONY STREET 2ND FLOOR DANBURY, CT 06810

STATE OF CONNECTICUT · ROBERT CHARLES BURNS · No. 20071 · LICENSED · PROFESSIONAL ENGINEER

HOMELAND TOWERS
NEW CANAAN NORTHEAST

SITE ADDRESS: 183 SOUNDVIEW LANE NEW CANAAN, CT 06840

APT FILING NUMBER: CT283450

DATE: 12/09/20 | DRAWN BY: CSH
CHECKED BY: RCB

SHEET TITLE:

NOTES & SPECIFICATIONS

SHEET NUMBER:

N-1