brownrudnick

THOMAS J. REGAN

October 12, 2021

VIA E-MAIL (SITING.COUNCIL@CT.GOV) & (MELANIE.BACHMAN@CT.GOV)
& OVERNIGHT MAIL

Connecticut Siting Council
Attn: Melanie A. Bachman, Esq., Executive Director
Ten Franklin Square
New Britain, CT 06051

RE: Sub-Petition for Declaratory Ruling – Prospect, CT

Dear Executive Director Bachman:

Please find enclosed for filing an original and 15 copies of New Cingular Wireless PCS LLC d/b/a AT&T's ("AT&T") sub-petition for a declaratory ruling for the approval of an eligible facilities request for collocation and modification of an existing wireless telecommunications facility without substantial physical change to the existing tower at 15 Kluge Road, Prospect, Connecticut.

Sincerely,

BROWN RUDNICK LLP

Thomas Regan

THOMAS J. REGAN

cc: Mayor Robert J. Chatfield
Town Hall
36 Center Street
Prospect, CT 06712

M. Carrie Anderson, Town Clerk
Town Hall
36 Center Street
Prospect, CT 06712

Mary Barton, Land Use Inspector
Town Hall
36 Center Street
Prospect, CT 06712

Gil Graveline, Chairman
Planning & Zoning Commission
Town Hall
36 Center Street
Prospect, CT 06712

Marie J. Kluge &
Erica Peryga (f/k/a Erica Kluge)
15 Kluge Road
Prospect, CT 06712

64176657

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

NEW CINGULAR WIRELESS PCS, LLC ("AT&T"))	**SUB-PETITION NO. _____**
SUB-PETITION FOR A DECLARATORY RULING)	
FOR COLLOCATION AND MODIFICATION)	**OCTOBER 12, 2021**
TO THE EXISTING WIRELESS)	
TELECOMMUNICATIONS FACILITY ON)	
PROPERTY LOCATED AT 15 KLUGE ROAD,)	
PROSPECT, CONNECTICUT)	

SUB-PETITION FOR A DECLARATORY RULING FOR APPROVAL OF AN ELIGIBLE FACILITIES REQUEST FOR COLLOCATION AND MODIFICATION OF AN EXISTING WIRELESS TELECOMMUNICATIONS FACILITY WITHOUT SUBSTANTIAL PHYSICAL CHANGE TO THE EXISTING TOWER LOCATED AT 15 KLUGE ROAD, PROSPECT, CONNECTICUT

I. INTRODUCTION

On behalf of New Cingular Wireless PCS LLC d/b/a AT&T ("AT&T"), we respectfully submit this sub-petition (the "Sub-Petition") to the Connecticut Siting Council (the "Council") for an administrative approval of a modification to an existing wireless telecommunications facility qualifying as an eligible facility request pursuant to Section 6409(a) of the Federal Middle Class Tax Relief and Job Creation Act of 2012 (the "Spectrum Act", codified at 47 U.S.C. §1455) and the Council's ruling in Petition 1133 (the "Ruling") to collocate a wireless telecommunications facility consisting of nine (9) panel antennas at 159' above ground level ("AGL") antenna centerline height on the existing 190' AGL monopole (the "Monopole"), located on property with an address of 15 Kluge Road, Prospect, Connecticut (the "Site"). **Attachment 1** contains Crown Castle's authorization permitting AT&T to file this Sub-Petition. The modification and collocation will allow AT&T to provide its enhanced, state-of-the-art services, including 5G services, to its customers.

II. HISTORY OF EXISTING TELECOMMUNICATIONS FACILITY

The 190' Monopole is owned by Crown Castle and was approved by the Town of Prospect Planning and Zoning Commission on June 16, 1999; **Attachment 2** contains the Notice of Approval from the Town of Prospect.

III. PROPOSED MODIFICATION

AT&T proposes to modify the eligible structure by collocating nine (9) panel antennas at the 159' AGL antenna centerline height on the Monopole, together with related amplifiers, cables, fiber and other associated antenna equipment, including, without limitation, remote radio heads, surge arrestors, and global positioning system antenna with associated electronic equipment in a walk-in-cabinet, an emergency diesel-fueled backup power generator, and other appurtenances on a proposed equipment pad all located within an existing compound enclosed by the existing chain link fence (the "Facility"). The Site is located within the RA-1 (Residential 1 acre) zoning district. The surrounding area contains a mix of residential and commercial uses.

Attachment 3 contains a copy of the structural report evidencing that the proposed modification can be supported in accordance with applicable codes. Notice to the FAA is not required for the proposed modification.

AT&T proposes to install a diesel-fueled backup power generator to provide power to the Facility during power outages. The backup power generator typically exercises once a week and will otherwise operate during power outages to support continuity of telecommunications services. **Attachment 4** contains the equipment specifications for the proposed generator.

Once AT&T receives all required approvals, the installation of the Facility will take approximately three (3) to four (4) weeks and will be constructed during normal business hours. Construction is scheduled to commence in 2022.

While there is a state and federal listed species area within a quarter of a mile to the southwest of the Site, given that AT&T's proposed Facility will be located on a Monopole and at a Site which has previously been disturbed, AT&T respectfully asserts that the proposed Facility will not impact any state listed species. Please refer to the DEEP Map submitted as **Attachment 5.**

IV. SECTION 6409 OF THE SPECTRUM ACT

Section 6409(a) of the Spectrum Act mandates that state and local governments "may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station."[1] An eligible facilities request is defined in the Spectrum Act as any request to modify a Tower or Base Station that involves "collocations of new Transmission Equipment," "removal," or "replacement" of Transmission Equipment.[2]

Under this eligible facilities request, AT&T is proposing to collocate nine (9) panel antennas at a 159' AGL antenna centerline height, together with related amplifiers, cables, fiber and other associated antenna equipment, including, without limitation, remote radio heads, surge arrestors, and global positioning system antennas with associated electronic equipment in a walk-in-cabinet, an emergency diesel-fueled backup power generator, and other appurtenances on a proposed equipment pad, all located within an existing compound enclosed by a chain link fence and all as depicted on the plans submitted with this application as **Attachment 6** (the "Plans"). The modification proposed by AT&T in this Sub-Petition does not substantially change the physical dimensions of the Monopole in accordance with the Spectrum Act as interpreted and implemented by regulations (the "Regulations") [3] promulgated by the Federal Communications Commission ("FCC").

The equipment to be collocated at the Site qualifies as transmission equipment pursuant to the FCC definition contained in the Regulations. The FCC has defined transmission equipment as "any equipment that facilitates transmission for any Commission-licensed or authorized wireless communication service, including, but not limited to, radio transceivers, antennas and other relevant equipment associated with and necessary to their operation, including coaxial or fiber-optic cable, and regular and back-up power supply. This definition includes equipment used in any technological configuration associated with any Commission-authorized wireless transmission, licensed or unlicensed, terrestrial or satellite, including commercial mobile, private

[1] 47 U.S.C. §1455(a)(1).
[2] 47 U.S.C. §1455(a)(2).
[3] 47 C.F.R. §1.6100(b)

mobile, broadcast and public safety services, as well as fixed wireless services such as microwave backhaul or fixed broadband." [4]

Pursuant to the Regulations, the FCC determined that any modification to an existing telecommunications tower that meets six (6) specified criteria does not substantially change the physical dimensions of the existing tower and, therefore, is an eligible facilities request, approval of which must be granted.[5] These six criteria and analysis of how this eligible facilities request satisfies each of the six (6) review criteria identified by the FCC are discussed below.

1. **For towers not in the public rights-of-way, in this case the Monopole, the modification increases the height of the Monopole by more than 10% or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet (20'), whichever is greater**;

   As depicted on the Plans, AT&T's proposed modification does not increase the height of the Monopole by more than twenty feet (20') from the nearest existing antenna. In fact, AT&T's proposed modification will not increase the height of the Monopole at all.

2. **For towers not in the public rights-of-way, in this case the Monopole, the modification involves adding an appurtenance to the body of the Monopole that would protrude from the edge of the monopole by twenty feet (20') or more than the width of the Monopole at the level of the appurtenance, whichever is greater;**

   As depicted on the Plans, AT&T's antennas and appurtenances will not protrude from the edge of the Monopole by more than twenty feet (20'). The outside face of the antenna is approximately six feet (6') from the edge of the Monopole and consistent with the existing antenna installation on the Monopole.

3. **For any eligible support structure, in this case the Monopole, the modification involves installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets;**

   AT&T proposes to install one walk-in equipment cabinet.

4. **The modification entails any excavation or deployment outside the current Site;**

   AT&T does not propose excavation or deployment outside the current Site.

5. **The modification would defeat the concealment elements of the eligible support structure; or**

   The Monopole does not currently incorporate concealment elements. The new panel antennas will be mounted in a similar fashion to the existing panel antennas installed on the Monopole.

[4] 47 C.F.R. §1.6100(b)(8)
[5] 47 C.F.R. §1.6100(b)(7)

6. **The modification does not comply with conditions associated with the siting approval of the construction or modification of the eligible support structure or base station equipment, provided however that this limitation does not apply to any modification that is non-compliant only in a manner that would not exceed the thresholds identified in § 1.40001(b)(7)(i) through (iv).**

   The modification is consistent with all applicable terms and conditions of the Planning and Zoning Commission's approval granted in 1999.

V. MAXIMUM PERMISSIBLE EXPOSURE COMPLIANCE

When added to existing levels, the power density levels for AT&T's proposed Facility will be 21.94% of the federally permitted emission standards for the public. Please refer to the Radio Frequency Emissions analysis submitted as **Attachment 7**. The total radio frequency power density will comply with the standards adopted by the Maximum Permissible Exposure limits of the FCC.

VI. NOTICE TO MUNICIPAL OFFICIALS AND ABUTTING PROPERTY OWNERS

Pursuant to the Ruling, AT&T sent notice of its filing of this Sub-Petition to the Town of Prospect, the owner of the Site and to each abutting property owner as listed in the Town of Prospect's Assessor records. The notice indicates that comments or concerns should be submitted to the Council within thirty (30) days of the date the notice was sent. A certification of such notice, a copy of the notice, the list of City officials and abutting property owners, and a map produced from the Town of Prospect's GIS mapping data are submitted herewith as **Attachment 8**.

VII. CONCLUSION

AT&T respectfully asserts that its proposed modification does not substantially change the physical dimensions of the Monopole at the Site as enumerated in the Spectrum Act and the Regulations, and therefore qualifies as an eligible facilities request. For the foregoing reasons, AT&T respectfully requests that the Council issue an order approving AT&T's proposed wireless telecommunications facility.

Respectfully submitted,

/s/ Thomas J. Regan
Thomas J. Regan, Esq.

cc: Mayor Robert J. Chatfield, Town of Prospect
M. Carrie Anderson, Town Clerk, Town of Prospect
Mary Barton, Land Use Inspector, Town of Prospect
Gil Graveline, Chairman, Planning & Zoning Commission, Town of Prospect
Marie J. Kluge L/U and Erica Peryga F/K/A Erica Kluge, Property Owners

ATTACHMENT 1

8020 Katy Fwy,
Houston, TX 77024

Phone: (713) 570-3853
www.crowncastle.com

Crown Castle Letter of Authorization

CT - CONNECTICUT SITING COUNCIL
M. Bachman

Re: Application for Zoning/Building Permit
Crown Castle telecommunications site at: 15 KLUGE ROAD, PROSPECT, CT 06712

GLOBAL SIGNAL ACQUISITIONS II LLC ("Crown Castle") hereby authorizes AT&T MOBILITY, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CT - CONNECTICUT SITING COUNCIL for the existing wireless communications site described below:

Crown Site ID/Name: 876378/N. BETHANY / DAVID KLUDGE
Customer Site ID: CT1451S/Prospect
Site Address: 15 Kluge Road, PROSPECT, CT 06712
APN: 043-32-6843

Crown Castle

By: Taylor Halliburton Date: 8/3/2021

Taylor Halliburton
Real Estate Specialist

ATTACHMENT 2

NOTICE OF APPROVAL

Property Owner: **David T. Kluge**
Property Location: **15 Kluge Road**
Date of Approval: **June 16, 1999**
Date of Notice: **June 21, 1999**

RESOLVED TO APPROVE, request for Special Permit under Section 300 for a Telecommunications Monopole and supporting equipment within a 100' x 100' parcel of land on property located at **15 Kluge Road** in a residential zone and accessed from Kluge Road. Owner: David T. Kluge. Authorized agent: Sprint Spectrum LP, Crossroads Corporate Center, One International Blvd., Suite 800, Mahwah, NJ 07495

PROVIDED THAT:

1. The height of the monopole will be approximately 190 feet above ground level. Antennae or other mounted equipment can exceed the 190-foot height, but may not exceed 200 feet above ground elevation.

2. The monopole and any attached antennae exceeding the tower's height must be located a distance from the property line at least equal to the tower's height, including attached antennae. No structure, other than those associated with this installation, may be placed within the fall radius of the monopole and monopole attachments.

3. Utility connections from the property line to the proposed installation will be below ground.

4. The monopole will meet the design standards of the National Standards Institute and meet all pertinent FCC requirements.

5. Prior to the initiation of any construction activity all erosion and sedimentation control measures shall be properly installed and fully functioning, and said measures shall be maintained in effective condition throughout the construction process.

6. An accessway at least 12 feet wide and secured by a gate and/or other means shall be maintained for passage of police, fire or other emergency equipment. Additional security fencing will be installed at the facility. Town officials must have a means to access the property in the event of an emergency.

7. On-site storage of fuel or chemicals for any reason is prohibited.

8. All future tenant occupants must apply for and receive a Zoning Permit from the Land Use Inspector prior to their installation of equipment cabinets and antennas. Installation plans must also be submitted to Prospect's Building Official for approval.

9. The above-listed agent will be responsible for, and ensure his facility and his tenants, comply with all FCC standards and guidelines for wireless facilities. Upon termination of the lease, or should the agent abandon use of the facility, Sprint Spectrum LP as agent, shall remove all apparatus and above-ground structures from the site and restore the leased space to its original condition.

Reasons: In granting the above Special Permit, the Planning & Zoning Commission of the Town of Prospect wishes to state upon its records that in the Commission's judgement, the subject project complies with Prospect's zoning regulations, provides an acceptable facility for additional wireless communications providers to co-locate onto and will not exert a detrimental effect on the development of the area nor on the value of nearby properties.

Edward Miller

Edward Miller, Chairman
Planning & Zoning Commission

ATTACHMENT 3

Date: **March 22, 2021**

MORRISON HERSHFIELD

Morrison Hershfield
1455 Lincoln Parkway, Suite 500
Atlanta, GA 30346
(770) 379 8500

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Site Number:	CT1451S
	Site Name:	Prospect
	FA Number:	15449390
Crown Castle Designation:	**BU Number:**	876378
	Site Name:	N. Bethany / David Kludge
	JDE Job Number:	644154
	Work Order Number:	1933402
	Order Number:	552246 Rev. 3
Engineering Firm Designation:	**Morrison Hershfield Project Number:** CN7-535R1 / 2101398	
Site Data:	**15 Kluge Road, Prospect, New Haven County, CT 06712**	
	Latitude *41° 28' 16.45"*, Longitude *-72° 58' 18.89"*	
	190 Foot - EEI Monopole Tower	

Morrison Hershfield is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity – 99.5%**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

G. Lance Cooke, P.E. (CT License No. PEN.0028133)
Senior Engineer

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1) INTRODUCTION

This tower is a 190 ft monopole tower designed by Engineered Endeavors, Inc. The tower has been modified per reinforcement drawings prepared by Crown Castle, in April of 2015. Reinforcement consists of installing base plate stiffeners. Per the post modification inspection completed by Engineered Tower Solutions, PLLC., in February of 2016, these modifications have been properly installed and were considered in this analysis.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
160.0	160.0	3	cci antennas	DMP65R-BU8D w/ Mount Pipe	1 1	3/8 1-1/2
		3	cci antennas	TPA65R-BU8D_CCIV2 w/ Mount Pipe		
		3	ericsson	AIR 6449 w/ Mount Pipe		
		3	ericsson	RADIO 4478 B14		
		3	ericsson	RRUS 4449 B5/B12		
		1	ericsson	RRUS 8843 B2/B66A		
		2	raycap	DC9-48-60-24-8C-EV		
		3	Sabre	12' Sector Mount [# C10857001C]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
192.0	192.0	3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe	4	1-1/4
		1	rfs celwave	APXV9ERR18-C-A20 w/ Mount Pipe		
		2	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	alcatel lucent	1900MHZ RRH (65MHZ)		
		3	alcatel lucent	800 EXTERNAL NOTCH FILTER		
		3	alcatel lucent	800MHZ RRH		
		3	alcatel lucent	TD-RRH8X20-25		
		9	rfs celwave	ACU-A20-N		
		1	-	Platform Mount [LP 602-1]		
180.0	180.0	3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe	3	1-5/8

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	rfs celwave	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO		
		3	ericsson	RADIO 4415 B66A		
		3	ericsson	RADIO 4424 B25_TMOV1		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		1	-	Handrail Kit [#HRK 12]		
		3	-	Pipe Mount [P2.0 STD, 8 ft Long]		
		1	-	Platform Mount [LP 401-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	2192530	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	2051620	CCISITES
4-TOWER MANUFACTURER DRAWINGS	2051615	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5657025	CCISITES
4-POST-MODIFICATION INSPECTION	6088222	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.7.5), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Morrison Hershfield should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	190 - 163.221	Pole	TP24.4525x19.5x0.1875	1	-6.59	862.97	49.6	Pass
L2	163.221 - 126.831	Pole	TP30.7144x23.4196x0.25	2	-13.55	1446.24	92.6	Pass
L3	126.831 - 86.3984	Pole	TP37.6019x29.4221x0.3125	3	-20.87	2214.00	99.5	Pass
L4	86.3984 - 42.9401	Pole	TP44.9268x36.0268x0.375	4	-31.79	3175.46	94.7	Pass
L5	42.9401 - 0	Pole	TP52x43.0584x0.4375	5	-48.46	4398.09	87.5	Pass
							Summary	
						Pole (L3)	99.5	Pass
						Rating =	99.5	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	87.5	Pass
1	Base Plate		72.6	Pass
1	Base Foundation	0	84.1	Pass
1	Base Foundation Soil Interaction		98.3	Pass

Structure Rating (max from all components) =	99.5%*

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) *Rating per TIA-222-H, Section 15.5.

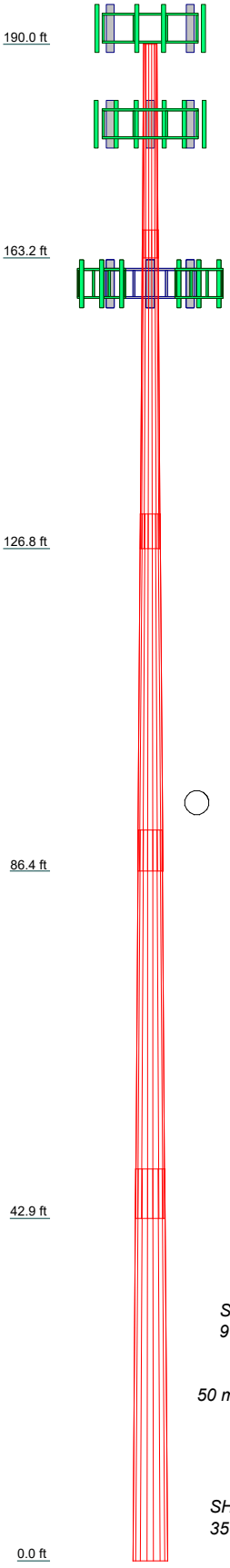
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	26.78	18	0.1875	3.56	19.5000	24.4525	A572-65	1.2
2	39.95	18	0.2500	4.34	23.4196	30.7144		2.9
3	44.77	18	0.3125	5.20	29.4221	37.6019		5.0
4	48.66	18	0.3750	6.11	36.0268	44.9268		7.9
5	49.05	18	0.4375		43.0584	52.0000		10.9
								27.9



ALL REACTIONS ARE FACTORED

AXIAL 79 K

SHEAR 9 K *MOMENT 1367 kip-ft*

TORQUE 0 kip-ft
50 mph WIND - 1.5000 in ICE

AXIAL 49 K

SHEAR 35 K *MOMENT 4815 kip-ft*

TORQUE 0 kip-ft
REACTIONS - 125 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 99.5%

Morrison Hershfield
Consulting Engineers
1455 Lincoln Parkway, Suite 500
Atlanta, GA 30346
Phone: (770) 379 8500
FAX: (770) 379 8501

Job:	***CN7-535R1 / 2101398***		
Project:	***876378 / Bethany / David Kludge***		
Client: Crown Castle USA		Drawn by: MO	App'd:
Code: TIA-222-H		Date: 03/22/21	Scale: NTS
Path:			Dwg No. E-1

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 792.00 ft.
Basic wind speed of 125 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.05.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	190.00-163.22	26.78	3.56	18	19.5000	24.4525	0.1875	0.7500	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L2	163.22-126.83	39.95	4.34	18	23.4196	30.7144	0.2500	1.0000	A572-65 (65 ksi)
L3	126.83-86.40	44.77	5.20	18	29.4221	37.6019	0.3125	1.2500	A572-65 (65 ksi)
L4	86.40-42.94	48.66	6.11	18	36.0268	44.9268	0.3750	1.5000	A572-65 (65 ksi)
L5	42.94-0.00	49.05		18	43.0584	52.0000	0.4375	1.7500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	19.7719	11.4934	541.5782	6.8559	9.9060	54.6717	1083.8689	5.7478	3.1020	16.544
	24.8008	14.4407	1074.2034	8.6141	12.4219	86.4768	2149.8203	7.2217	3.9736	21.193
L2	24.4019	18.3851	1246.9251	8.2252	11.8972	104.8086	2495.4910	9.1943	3.6819	14.727
	31.1497	24.1735	2834.4074	10.8149	15.6029	181.6588	5672.5443	12.0890	4.9657	19.863
L3	30.6327	28.8731	3091.0448	10.3339	14.9465	206.8079	6186.1569	14.4393	4.6283	14.811
	38.1338	36.9864	6497.5642	13.2377	19.1018	340.1552	13003.6781	18.4967	6.0679	19.417
L4	37.4906	42.4345	6814.2527	12.6564	18.3016	372.3312	13637.4717	21.2213	5.6807	15.149
	45.5620	53.0278	13297.5431	15.8159	22.8228	582.6426	26612.5834	26.5189	7.2471	19.326
L5	44.7869	59.1844	13582.8295	15.1304	21.8737	620.9672	27183.5316	29.5978	6.8083	15.562
	52.7347	71.6010	24050.5121	18.3047	26.4160	910.4525	48132.6704	35.8073	8.3820	19.159

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 190.00-163.22				1	1	1			
L2 163.22-126.83				1	1	1			
L3 126.83-86.40				1	1	1			
L4 86.40-42.94				1	1	1			
L5 42.94-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
******										
Safety Line 3/8"	C	No	Surface Ar (CaAa)	190.00 - 11.00	1	1	-0.100 -0.100	0.3750		0.22
Step Pegs	C	No	Surface Ar (CaAa)	190.00 - 12.00	1	1	-0.150 -0.050	0.7050		1.80
******										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
******									
HB114-1-0813U4-M5J(1-1/4)	B	No	No	Inside Pole	190.00 - 3.00	3	No Ice	0.00	1.20
							1/2" Ice	0.00	1.20
							1" Ice	0.00	1.20
							2" Ice	0.00	1.20
HB114-21U3M12-XXXF(1-1/4)	B	No	No	Inside Pole	190.00 - 3.00	1	No Ice	0.00	1.22
							1/2" Ice	0.00	1.22
							1" Ice	0.00	1.22
							2" Ice	0.00	1.22
******									
***									
HB158-21U6S24-xxM_TMO(1-5/8)	B	No	No	Inside Pole	180.00 - 10.00	3	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
							2" Ice	0.00	2.50
******									
84083575(3/8)	B	No	No	Inside Pole	160.00 - 3.00	1	No Ice	0.00	0.04
							1/2" Ice	0.00	0.04
							1" Ice	0.00	0.04
							2" Ice	0.00	0.04
6 AWG(1-1/2)	B	No	No	Inside Pole	160.00 - 3.00	1	No Ice	0.00	0.97
							1/2" Ice	0.00	0.97
							1" Ice	0.00	0.97
							2" Ice	0.00	0.97
******									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	190.00-163.22	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.25
		C	0.000	0.000	2.892	0.000	0.05
L2	163.22-126.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.48
		C	0.000	0.000	3.930	0.000	0.07
L3	126.83-86.40	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.54
		C	0.000	0.000	4.367	0.000	0.08
L4	86.40-42.94	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.58
		C	0.000	0.000	4.694	0.000	0.09
L5	42.94-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.48
		C	0.000	0.000	3.379	0.000	0.06

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	190.00-163.22	A	1.507	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.25
		C		0.000	0.000	19.039	0.000	0.26
L2	163.22-126.83	A	1.478	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.48
		C		0.000	0.000	25.873	0.000	0.35
L3	126.83-86.40	A	1.433	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	0.000	0.000	0.54
		C		0.000	0.000	28.267	0.000	0.38
L4	86.40-42.94	A	1.363	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.58
		C		0.000	0.000	29.602	0.000	0.39
L5	42.94-0.00	A	1.223	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.48
		C		0.000	0.000	20.521	0.000	0.26

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	190.00-163.22	0.1731	0.8143	0.5136	2.4165
L2	163.22-126.83	0.1748	0.8222	0.5457	2.5673
L3	126.83-86.40	0.1761	0.8284	0.5660	2.6630
L4	86.40-42.94	0.1771	0.8330	0.5755	2.7075
L5	42.94-0.00	0.1279	0.6018	0.4222	1.9865

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	2	Safety Line 3/8"	163.22 - 190.00	1.0000	1.0000
L1	3	Step Pegs	163.22 - 190.00	1.0000	1.0000
L2	2	Safety Line 3/8"	126.83 - 163.22	1.0000	1.0000
L2	3	Step Pegs	126.83 - 163.22	1.0000	1.0000
L3	2	Safety Line 3/8"	86.40 - 126.83	1.0000	1.0000
L3	3	Step Pegs	86.40 - 126.83	1.0000	1.0000
L4	2	Safety Line 3/8"	42.94 - 86.40	1.0000	1.0000
L4	3	Step Pegs	42.94 - 86.40	1.0000	1.0000
L5	2	Safety Line 3/8"	11.00 - 42.94	1.0000	1.0000
L5	3	Step Pegs	12.00 - 42.94	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
******									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXV9ERR18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
1900MHZ RRH (65MHZ)	A	From Leg	4.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
1900MHZ RRH (65MHZ)	B	From Leg	4.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
1900MHZ RRH (65MHZ)	C	From Leg	4.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
800 EXTERNAL NOTCH FILTER	A	From Leg	4.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.66 0.76 0.87 1.11	0.32 0.40 0.48 0.67	0.01 0.02 0.02 0.04
800 EXTERNAL NOTCH FILTER	B	From Leg	4.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.66 0.76 0.87 1.11	0.32 0.40 0.48 0.67	0.01 0.02 0.02 0.04
800 EXTERNAL NOTCH FILTER	C	From Leg	4.00 0.00 0.00	0.0000	192.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.66 0.76 0.87 1.11	0.32 0.40 0.48 0.67	0.01 0.02 0.02 0.04
800MHZ RRH	A	From Leg	4.00	0.0000	192.00	No Ice	2.13	1.77	0.05

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* ft ft ft	*Azimuth Adjustment* °	*Placement* ft		*C_AA_A Front* ft^2	*C_AA_A Side* ft^2	*Weight* K
			0.00			1/2"	2.32	1.95	0.07
			0.00			Ice	2.51	2.13	0.10
						1" Ice	2.92	2.51	0.16
						2" Ice			
800MHZ RRH	B	From Leg	4.00	0.0000	192.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07
			0.00			Ice	2.51	2.13	0.10
						1" Ice	2.92	2.51	0.16
						2" Ice			
800MHZ RRH	C	From Leg	4.00	0.0000	192.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07
			0.00			Ice	2.51	2.13	0.10
						1" Ice	2.92	2.51	0.16
						2" Ice			
TD-RRH8X20-25	A	From Leg	4.00	0.0000	192.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			0.00			Ice	4.56	1.90	0.13
						1" Ice	5.10	2.30	0.20
						2" Ice			
TD-RRH8X20-25	B	From Leg	4.00	0.0000	192.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			0.00			Ice	4.56	1.90	0.13
						1" Ice	5.10	2.30	0.20
						2" Ice			
TD-RRH8X20-25	C	From Leg	4.00	0.0000	192.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			0.00			Ice	4.56	1.90	0.13
						1" Ice	5.10	2.30	0.20
						2" Ice			
(3) ACU-A20-N	A	From Leg	4.00	0.0000	192.00	No Ice	0.07	0.12	0.00
			0.00			1/2"	0.10	0.16	0.00
			0.00			Ice	0.15	0.21	0.00
						1" Ice	0.26	0.34	0.01
						2" Ice			
(3) ACU-A20-N	B	From Leg	4.00	0.0000	192.00	No Ice	0.07	0.12	0.00
			0.00			1/2"	0.10	0.16	0.00
			0.00			Ice	0.15	0.21	0.00
						1" Ice	0.26	0.34	0.01
						2" Ice			
(3) ACU-A20-N	C	From Leg	4.00	0.0000	192.00	No Ice	0.07	0.12	0.00
			0.00			1/2"	0.10	0.16	0.00
			0.00			Ice	0.15	0.21	0.00
						1" Ice	0.26	0.34	0.01
						2" Ice			
(2) 6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	192.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
(2) 6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	192.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
(2) 6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	192.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
Platform Mount [LP 602-1]	A	None		0.0000	192.00	No Ice	31.07	31.07	1.34
						1/2"	34.82	34.82	1.97
						Ice	38.48	38.48	2.67
						1" Ice	45.60	45.60	4.31
						2" Ice			

******

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Platform Mount [LP 401-1]	B	None		0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	24.04 28.93 33.88 43.93	24.04 28.93 33.88 43.93	1.65 2.17 2.76 4.16
***									
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.87 6.23 6.61 7.38	3.27 3.73 4.20 5.20	0.13 0.18 0.23 0.36
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.87 6.23 6.61 7.38	3.27 3.73 4.20 5.20	0.13 0.18 0.23 0.36
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.87 6.23 6.61 7.38	3.27 3.73 4.20 5.20	0.13 0.18 0.23 0.36
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.29 6.86 7.45 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.29 6.86 7.45 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.29 6.86 7.45 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29
APXVAALL24_43-U-NA20_TMO	A	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.67 15.43 16.21 17.81	5.32 5.99 6.68 8.08	0.15 0.26 0.38 0.65
APXVAALL24_43-U-NA20_TMO	B	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.67 15.43 16.21 17.81	5.32 5.99 6.68 8.08	0.15 0.26 0.38 0.65
APXVAALL24_43-U-NA20_TMO	C	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.67 15.43 16.21 17.81	5.32 5.99 6.68 8.08	0.15 0.26 0.38 0.65
RADIO 4415 B66A	A	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.86 2.03 2.20 2.58	0.87 1.00 1.13 1.43	0.05 0.06 0.08 0.12
RADIO 4415 B66A	B	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.86 2.03 2.20 2.58	0.87 1.00 1.13 1.43	0.05 0.06 0.08 0.12
RADIO 4415 B66A	C	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice	1.86 2.03 2.20 2.58	0.87 1.00 1.13 1.43	0.05 0.06 0.08 0.12

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* ft ft ft	*Azimuth Adjustment* °	*Placement* ft		*C_AA_A Front* ft^2	*C_AA_A Side* ft^2	*Weight* K
						2" Ice			
RADIO 4424 B25_TMOV1	A	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.05 2.23 2.42 2.81	1.61 1.77 1.94 2.30	0.10 0.12 0.14 0.20
RADIO 4424 B25_TMOV1	B	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.05 2.23 2.42 2.81	1.61 1.77 1.94 2.30	0.10 0.12 0.14 0.20
RADIO 4424 B25_TMOV1	C	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.05 2.23 2.42 2.81	1.61 1.77 1.94 2.30	0.10 0.12 0.14 0.20
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	0.07 0.09 0.11 0.16
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	0.07 0.09 0.11 0.16
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	0.07 0.09 0.11 0.16
Pipe Mount [P2.0 STD, 8 ft Long]	A	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
Pipe Mount [P2.0 STD, 8 ft Long]	B	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
Pipe Mount [P2.0 STD, 8 ft Long]	C	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
Handrail Kit [#HRK 12]	B	None		0.0000	180.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.17 16.47 20.42 27.62	12.17 16.47 20.42 27.62	0.51 0.70 0.95 1.65
******									
AIR 6449 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.89 6.26 6.63 7.41	3.28 3.74 4.22 5.21	0.12 0.17 0.22 0.35
AIR 6449 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.89 6.26 6.63 7.41	3.28 3.74 4.22 5.21	0.12 0.17 0.22 0.35
AIR 6449 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	5.89 6.26 6.63	3.28 3.74 4.22	0.12 0.17 0.22

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	7.41	5.21	0.35
						2" Ice			
TPA65R-BU8D_CCIV2 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	15.89 16.81 17.76 19.70	7.89 8.74 9.60 11.37	0.12 0.23 0.36 0.66
TPA65R-BU8D_CCIV2 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	15.89 16.81 17.76 19.70	7.89 8.74 9.60 11.37	0.12 0.23 0.36 0.66
TPA65R-BU8D_CCIV2 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	15.89 16.81 17.76 19.70	7.89 8.74 9.60 11.37	0.12 0.23 0.36 0.66
DMP65R-BU8D w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	15.89 16.81 17.76 19.70	7.89 8.74 9.60 11.37	0.14 0.25 0.38 0.68
DMP65R-BU8D w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	15.89 16.81 17.76 19.70	7.89 8.74 9.60 11.37	0.14 0.25 0.38 0.68
DMP65R-BU8D w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	15.89 16.81 17.76 19.70	7.89 8.74 9.60 11.37	0.14 0.25 0.38 0.68
RADIO 4478 B14	A	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.02 2.20 2.39 2.78	1.25 1.40 1.55 1.89	0.06 0.08 0.10 0.15
RADIO 4478 B14	B	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.02 2.20 2.39 2.78	1.25 1.40 1.55 1.89	0.06 0.08 0.10 0.15
RADIO 4478 B14	C	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.02 2.20 2.39 2.78	1.25 1.40 1.55 1.89	0.06 0.08 0.10 0.15
RRUS 8843 B2/B66A	A	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	1.35 1.50 1.65 1.99	0.07 0.09 0.11 0.16
RRUS 4449 B5/B12	A	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
RRUS 4449 B5/B12	B	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
RRUS 4449 B5/B12	C	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.07 0.09 0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	2.72	2.07	0.16
						2" Ice			
DC9-48-60-24-8C-EV	B	From Leg	4.00	0.0000	160.00	No Ice	2.74	4.78	0.03
			0.00			1/2"	2.96	5.06	0.06
			0.00			Ice	3.20	5.35	0.10
						1" Ice	3.68	5.95	0.20
						2" Ice			
DC9-48-60-24-8C-EV	C	From Leg	4.00	0.0000	160.00	No Ice	2.74	4.78	0.03
			0.00			1/2"	2.96	5.06	0.06
			0.00			Ice	3.20	5.35	0.10
						1" Ice	3.68	5.95	0.20
						2" Ice			
12' Sector Mount [# C10857001C]	A	From Leg	1.00	0.0000	160.00	No Ice	15.40	11.11	0.56
			0.00			1/2"	21.17	16.35	0.76
			0.00			Ice	26.86	21.52	1.02
						1" Ice	38.12	31.65	1.73
						2" Ice			
12' Sector Mount [# C10857001C]	B	From Leg	1.00	0.0000	160.00	No Ice	15.40	11.11	0.56
			0.00			1/2"	21.17	16.35	0.76
			0.00			Ice	26.86	21.52	1.02
						1" Ice	38.12	31.65	1.73
						2" Ice			
12' Sector Mount [# C10857001C]	C	From Leg	1.00	0.0000	160.00	No Ice	15.40	11.11	0.56
			0.00			1/2"	21.17	16.35	0.76
			0.00			Ice	26.86	21.52	1.02
						1" Ice	38.12	31.65	1.73
						2" Ice			
******									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	190 - 163.221	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.63	0.00	-0.28
			Max. Mx	8	-6.59	-238.09	-0.04
			Max. My	14	-6.59	0.00	-238.15
			Max. Vy	8	13.45	-238.09	-0.04
			Max. Vx	2	-13.45	0.00	238.05
			Max. Torque	18			-0.00
L2	163.221 - 126.831	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.76	0.00	-0.90
			Max. Mx	8	-13.55	-962.21	0.06
			Max. My	2	-13.55	0.00	962.69
			Max. Vy	8	23.17	-962.21	0.06
			Max. Vx	14	23.18	0.00	-962.51
			Max. Torque	8			0.29
L3	126.831 - 86.3984	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.14	0.00	-1.51
			Max. Mx	8	-20.87	-1955.71	-0.07
			Max. My	14	-20.87	0.00	-1956.68
			Max. Vy	8	26.98	-1955.71	-0.07
			Max. Vx	14	26.99	0.00	-1956.68
			Max. Torque	8			0.29
L4	86.3984 - 42.9401	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.53	0.00	-2.19
			Max. Mx	8	-31.80	-3192.62	-0.25
			Max. My	14	-31.79	0.00	-3194.33
			Max. Vy	8	31.02	-3192.62	-0.25
			Max. Vx	14	31.03	0.00	-3194.33
			Max. Torque	8			0.28
L5	42.9401 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.03	0.00	-2.83
			Max. Mx	8	-48.46	-4812.05	-0.43
			Max. My	14	-48.46	0.00	-4814.57
			Max. Vy	8	34.65	-4812.05	-0.43
			Max. Vx	14	34.66	0.00	-4814.57
			Max. Torque	8			0.28

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	79.03	0.00	-9.07
	Max. H_x	20	48.50	34.60	0.00
	Max. H_z	2	48.50	0.00	34.61
	Max. M_x	2	4813.74	0.00	34.61
	Max. M_z	8	4812.05	-34.60	0.00
	Max. Torsion	8	0.28	-34.60	0.00
	Min. Vert	5	36.38	-17.30	29.97
	Min. H_x	8	48.50	-34.60	0.00
	Min. H_z	14	48.50	0.00	-34.61
	Min. M_x	14	-4814.57	0.00	-34.61
	Min. M_z	20	-4812.05	34.60	0.00
	Min. Torsion	20	-0.28	34.60	0.00

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	40.42	0.00	0.00	0.33	0.00	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	48.50	0.00	-34.61	-4813.74	0.00	0.00
0.9 Dead+1.0 Wind 0 deg - No Ice	36.38	0.00	-34.61	-4711.93	0.00	0.00
1.2 Dead+1.0 Wind 30 deg - No Ice	48.50	17.30	-29.97	-4168.79	-2406.03	-0.14
0.9 Dead+1.0 Wind 30 deg - No Ice	36.38	17.30	-29.97	-4080.61	-2355.08	-0.14
1.2 Dead+1.0 Wind 60 deg - No Ice	48.50	29.96	-17.30	-2406.67	-4167.38	-0.24
0.9 Dead+1.0 Wind 60 deg - No Ice	36.38	29.96	-17.30	-2355.81	-4079.13	-0.24
1.2 Dead+1.0 Wind 90 deg - No Ice	48.50	34.60	-0.00	0.43	-4812.05	-0.28
0.9 Dead+1.0 Wind 90 deg - No Ice	36.38	34.60	-0.00	0.32	-4710.18	-0.28
1.2 Dead+1.0 Wind 120 deg - No Ice	48.50	29.96	17.30	2407.52	-4167.36	-0.24
0.9 Dead+1.0 Wind 120 deg - No Ice	36.38	29.96	17.30	2356.44	-4079.12	-0.24
1.2 Dead+1.0 Wind 150 deg - No Ice	48.50	17.30	29.97	4169.62	-2406.02	-0.14
0.9 Dead+1.0 Wind 150 deg - No Ice	36.38	17.30	29.97	4081.23	-2355.07	-0.14
1.2 Dead+1.0 Wind 180 deg - No Ice	48.50	0.00	34.61	4814.57	0.00	0.00
0.9 Dead+1.0 Wind 180 deg - No Ice	36.38	0.00	34.61	4712.54	0.00	0.00
1.2 Dead+1.0 Wind 210 deg - No Ice	48.50	-17.30	29.97	4169.62	2406.02	0.14
0.9 Dead+1.0 Wind 210 deg - No Ice	36.38	-17.30	29.97	4081.23	2355.07	0.14
1.2 Dead+1.0 Wind 240 deg - No Ice	48.50	-29.96	17.30	2407.52	4167.36	0.24
0.9 Dead+1.0 Wind 240 deg - No Ice	36.38	-29.96	17.30	2356.44	4079.12	0.24
1.2 Dead+1.0 Wind 270 deg - No Ice	48.50	-34.60	-0.00	0.43	4812.05	0.28
0.9 Dead+1.0 Wind 270 deg - No Ice	36.38	-34.60	-0.00	0.32	4710.18	0.28
1.2 Dead+1.0 Wind 300 deg - No Ice	48.50	-29.96	-17.30	-2406.67	4167.38	0.24

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
0.9 Dead+1.0 Wind 300 deg - No Ice	36.38	-29.96	-17.30	-2355.81	4079.13	0.24
1.2 Dead+1.0 Wind 330 deg - No Ice	48.50	-17.30	-29.97	-4168.79	2406.03	0.14
0.9 Dead+1.0 Wind 330 deg - No Ice	36.38	-17.30	-29.97	-4080.61	2355.08	0.14
1.2 Dead+1.0 Ice+1.0 Temp	79.03	0.00	0.00	2.83	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	79.03	0.00	-9.07	-1360.89	0.00	0.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	79.03	4.53	-7.85	-1178.17	-681.81	-0.03
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	79.03	7.85	-4.53	-678.89	-1180.93	-0.05
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	79.03	9.07	0.00	3.14	-1363.58	-0.06
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	79.03	7.85	4.53	685.16	-1180.92	-0.05
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	79.03	4.53	7.85	1184.43	-681.80	-0.03
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	79.03	0.00	9.07	1367.14	0.00	0.00
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	79.03	-4.53	7.85	1184.43	681.80	0.03
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	79.03	-7.85	4.53	685.16	1180.92	0.05
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	79.03	-9.07	0.00	3.14	1363.58	0.06
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	79.03	-7.85	-4.53	-678.89	1180.93	0.05
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	79.03	-4.53	-7.85	-1178.17	681.81	0.03
Dead+Wind 0 deg - Service	40.42	0.00	-7.51	-1036.18	0.00	0.00
Dead+Wind 30 deg - Service	40.42	3.75	-6.50	-897.32	-518.03	-0.03
Dead+Wind 60 deg - Service	40.42	6.50	-3.75	-517.92	-897.26	-0.06
Dead+Wind 90 deg - Service	40.42	7.51	0.00	0.34	-1036.06	-0.06
Dead+Wind 120 deg - Service	40.42	6.50	3.75	518.61	-897.26	-0.06
Dead+Wind 150 deg - Service	40.42	3.75	6.50	898.00	-518.03	-0.03
Dead+Wind 180 deg - Service	40.42	0.00	7.51	1036.87	0.00	0.00
Dead+Wind 210 deg - Service	40.42	-3.75	6.50	898.00	518.03	0.03
Dead+Wind 240 deg - Service	40.42	-6.50	3.75	518.61	897.26	0.06
Dead+Wind 270 deg - Service	40.42	-7.51	0.00	0.34	1036.06	0.06
Dead+Wind 300 deg - Service	40.42	-6.50	-3.75	-517.92	897.26	0.06
Dead+Wind 330 deg - Service	40.42	-3.75	-6.50	-897.32	518.03	0.03

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-40.42	0.00	0.00	40.42	0.00	0.000%
2	0.00	-48.50	-34.61	0.00	48.50	34.61	0.000%
3	0.00	-36.38	-34.61	0.00	36.38	34.61	0.000%
4	17.30	-48.50	-29.97	-17.30	48.50	29.97	0.000%
5	17.30	-36.38	-29.97	-17.30	36.38	29.97	0.000%
6	29.96	-48.50	-17.30	-29.96	48.50	17.30	0.000%
7	29.96	-36.38	-17.30	-29.96	36.38	17.30	0.000%
8	34.60	-48.50	0.00	-34.60	48.50	0.00	0.000%
9	34.60	-36.38	0.00	-34.60	36.38	0.00	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
10	29.96	-48.50	17.30	-29.96	48.50	-17.30	0.000%
11	29.96	-36.38	17.30	-29.96	36.38	-17.30	0.000%
12	17.30	-48.50	29.97	-17.30	48.50	-29.97	0.000%
13	17.30	-36.38	29.97	-17.30	36.38	-29.97	0.000%
14	0.00	-48.50	34.61	0.00	48.50	-34.61	0.000%
15	0.00	-36.38	34.61	0.00	36.38	-34.61	0.000%
16	-17.30	-48.50	29.97	17.30	48.50	-29.97	0.000%
17	-17.30	-36.38	29.97	17.30	36.38	-29.97	0.000%
18	-29.96	-48.50	17.30	29.96	48.50	-17.30	0.000%
19	-29.96	-36.38	17.30	29.96	36.38	-17.30	0.000%
20	-34.60	-48.50	0.00	34.60	48.50	0.00	0.000%
21	-34.60	-36.38	0.00	34.60	36.38	0.00	0.000%
22	-29.96	-48.50	-17.30	29.96	48.50	17.30	0.000%
23	-29.96	-36.38	-17.30	29.96	36.38	17.30	0.000%
24	-17.30	-48.50	-29.97	17.30	48.50	29.97	0.000%
25	-17.30	-36.38	-29.97	17.30	36.38	29.97	0.000%
26	0.00	-79.03	0.00	0.00	79.03	-0.00	0.000%
27	0.00	-79.03	-9.07	0.00	79.03	9.07	0.000%
28	4.53	-79.03	-7.85	-4.53	79.03	7.85	0.000%
29	7.85	-79.03	-4.53	-7.85	79.03	4.53	0.000%
30	9.07	-79.03	0.00	-9.07	79.03	-0.00	0.000%
31	7.85	-79.03	4.53	-7.85	79.03	-4.53	0.000%
32	4.53	-79.03	7.85	-4.53	79.03	-7.85	0.000%
33	0.00	-79.03	9.07	0.00	79.03	-9.07	0.000%
34	-4.53	-79.03	7.85	4.53	79.03	-7.85	0.000%
35	-7.85	-79.03	4.53	7.85	79.03	-4.53	0.000%
36	-9.07	-79.03	0.00	9.07	79.03	-0.00	0.000%
37	-7.85	-79.03	-4.53	7.85	79.03	4.53	0.000%
38	-4.53	-79.03	-7.85	4.53	79.03	7.85	0.000%
39	0.00	-40.42	-7.51	0.00	40.42	7.51	0.000%
40	3.75	-40.42	-6.50	-3.75	40.42	6.50	0.000%
41	6.50	-40.42	-3.75	-6.50	40.42	3.75	0.000%
42	7.51	-40.42	0.00	-7.51	40.42	0.00	0.000%
43	6.50	-40.42	3.75	-6.50	40.42	-3.75	0.000%
44	3.75	-40.42	6.50	-3.75	40.42	-6.50	0.000%
45	0.00	-40.42	7.51	0.00	40.42	-7.51	0.000%
46	-3.75	-40.42	6.50	3.75	40.42	-6.50	0.000%
47	-6.50	-40.42	3.75	6.50	40.42	-3.75	0.000%
48	-7.51	-40.42	0.00	7.51	40.42	0.00	0.000%
49	-6.50	-40.42	-3.75	6.50	40.42	3.75	0.000%
50	-3.75	-40.42	-6.50	3.75	40.42	6.50	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00011574
3	Yes	5	0.00000001	0.00002387
4	Yes	7	0.00000001	0.00039871
5	Yes	7	0.00000001	0.00007283
6	Yes	7	0.00000001	0.00040059
7	Yes	7	0.00000001	0.00007330
8	Yes	5	0.00000001	0.00021553
9	Yes	5	0.00000001	0.00008095
10	Yes	7	0.00000001	0.00039821
11	Yes	7	0.00000001	0.00007270
12	Yes	7	0.00000001	0.00040015
13	Yes	7	0.00000001	0.00007319
14	Yes	5	0.00000001	0.00011576
15	Yes	5	0.00000001	0.00002387
16	Yes	7	0.00000001	0.00040015
17	Yes	7	0.00000001	0.00007319
18	Yes	7	0.00000001	0.00039821
19	Yes	7	0.00000001	0.00007270

20	Yes	5	0.00000001	0.00021553
21	Yes	5	0.00000001	0.00008095
22	Yes	7	0.00000001	0.00040059
23	Yes	7	0.00000001	0.00007330
24	Yes	7	0.00000001	0.00039871
25	Yes	7	0.00000001	0.00007283
26	Yes	4	0.00000001	0.00004543
27	Yes	7	0.00003210	0.00028064
28	Yes	8	0.00000001	0.00027024
29	Yes	8	0.00000001	0.00027067
30	Yes	7	0.00003210	0.00028131
31	Yes	8	0.00000001	0.00027289
32	Yes	8	0.00000001	0.00027336
33	Yes	7	0.00003209	0.00028209
34	Yes	8	0.00000001	0.00027336
35	Yes	8	0.00000001	0.00027289
36	Yes	7	0.00003210	0.00028131
37	Yes	8	0.00000001	0.00027067
38	Yes	8	0.00000001	0.00027024
39	Yes	5	0.00000001	0.00002281
40	Yes	6	0.00000001	0.00010448
41	Yes	6	0.00000001	0.00010534
42	Yes	5	0.00000001	0.00002661
43	Yes	6	0.00000001	0.00010425
44	Yes	6	0.00000001	0.00010515
45	Yes	5	0.00000001	0.00002282
46	Yes	6	0.00000001	0.00010515
47	Yes	6	0.00000001	0.00010425
48	Yes	5	0.00000001	0.00002661
49	Yes	6	0.00000001	0.00010534
50	Yes	6	0.00000001	0.00010448

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	190 - 163.221	56.960	45	2.8350	0.0007
L2	166.779 - 126.831	43.480	45	2.6557	0.0007
L3	131.169 - 86.3984	25.687	45	2.0321	0.0004
L4	91.599 - 42.9401	11.792	45	1.2828	0.0002
L5	49.0547 - 0	3.240	45	0.6116	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.00	APXVSPP18-C-A20 w/ Mount Pipe	45	56.960	2.8350	0.0007	19897
180.00	Platform Mount [LP 401-1]	45	51.066	2.7739	0.0007	9948
160.00	AIR 6449 w/ Mount Pipe	45	39.759	2.5654	0.0006	3880

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	190 - 163.221	263.410	14	13.1619	0.0031
L2	166.779 - 126.831	201.317	14	12.3336	0.0031

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L3	131.169 - 86.3984	119.156	14	9.4441	0.0016
L4	91.599 - 42.9401	54.765	14	5.9637	0.0007
L5	49.0547 - 0	15.051	14	2.8426	0.0003

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.00	APXVSPP18-C-A20 w/ Mount Pipe	14	263.410	13.1619	0.0031	4734
180.00	Platform Mount [LP 401-1]	14	236.270	12.8801	0.0032	2365
160.00	AIR 6449 w/ Mount Pipe	14	184.159	11.9162	0.0029	909

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	190 - 163.221 (1)	TP24.4525x19.5x0.1875	26.78	0.00	0.0	14.0492	-6.59	821.88	0.008
L2	163.221 - 126.831 (2)	TP30.7144x23.4196x0.25	39.95	0.00	0.0	23.5449	-13.55	1377.37	0.010
L3	126.831 - 86.3984 (3)	TP37.6019x29.4221x0.3125	44.77	0.00	0.0	36.0440	-20.87	2108.57	0.010
L4	86.3984 - 42.9401 (4)	TP44.9268x36.0268x0.375	48.66	0.00	0.0	51.6966	-31.79	3024.25	0.011
L5	42.9401 - 0 (5)	TP52x43.0584x0.4375	49.05	0.00	0.0	71.6010	-48.46	4188.66	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	190 - 163.221 (1)	TP24.4525x19.5x0.1875	238.15	467.47	0.509	0.00	467.47	0.000
L2	163.221 - 126.831 (2)	TP30.7144x23.4196x0.25	962.68	1003.53	0.959	0.00	1003.53	0.000
L3	126.831 - 86.3984 (3)	TP37.6019x29.4221x0.3125	1956.68	1893.18	1.034	0.00	1893.18	0.000
L4	86.3984 - 42.9401 (4)	TP44.9268x36.0268x0.375	3194.33	3249.27	0.983	0.00	3249.27	0.000
L5	42.9401 - 0 (5)	TP52x43.0584x0.4375	4814.57	5314.63	0.906	0.00	5314.63	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	190 - 163.221 (1)	TP24.4525x19.5x0.1875	13.45	246.56	0.055	0.00	509.74	0.000
L2	163.221 - 126.831 (2)	TP30.7144x23.4196x0.25	23.18	413.21	0.056	0.00	1073.75	0.000
L3	126.831 - 86.3984 (3)	TP37.6019x29.4221x0.3125	26.99	632.57	0.043	0.00	2013.10	0.000
L4	86.3984 - 42.9401 (4)	TP44.9268x36.0268x0.375	31.03	907.27	0.034	0.00	3450.98	0.000
L5	42.9401 - 0 (5)	TP52x43.0584x0.4375	34.66	1256.60	0.028	0.00	5674.27	0.000

Pole Interaction Design Data

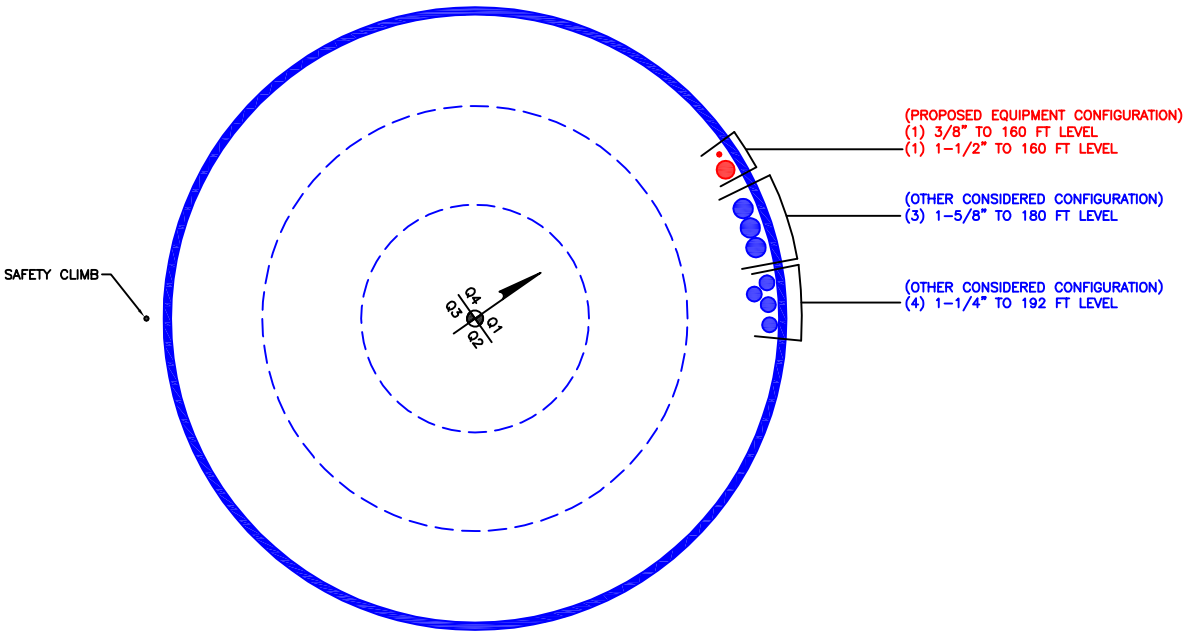
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	190 - 163.221 (1)	0.008	0.509	0.000	0.055	0.000	0.520	1.050	4.8.2
L2	163.221 - 126.831 (2)	0.010	0.959	0.000	0.056	0.000	0.972	1.050	4.8.2
L3	126.831 - 86.3984 (3)	0.010	1.034	0.000	0.043	0.000	1.045	1.050	4.8.2
L4	86.3984 - 42.9401 (4)	0.011	0.983	0.000	0.034	0.000	0.995	1.050	4.8.2
L5	42.9401 - 0 (5)	0.012	0.906	0.000	0.028	0.000	0.918	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	190 - 163.221	Pole	TP24.4525x19.5x0.1875	1	-6.59	862.97	49.6	Pass
L2	163.221 - 126.831	Pole	TP30.7144x23.4196x0.25	2	-13.55	1446.24	92.6	Pass
L3	126.831 - 86.3984	Pole	TP37.6019x29.4221x0.3125	3	-20.87	2214.00	99.5	Pass
L4	86.3984 - 42.9401	Pole	TP44.9268x36.0268x0.375	4	-31.79	3175.46	94.7	Pass
L5	42.9401 - 0	Pole	TP52x43.0584x0.4375	5	-48.46	4398.09	87.5	Pass
							Summary	
						Pole (L3)	99.5	Pass
						RATING =	**99.5**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876378 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

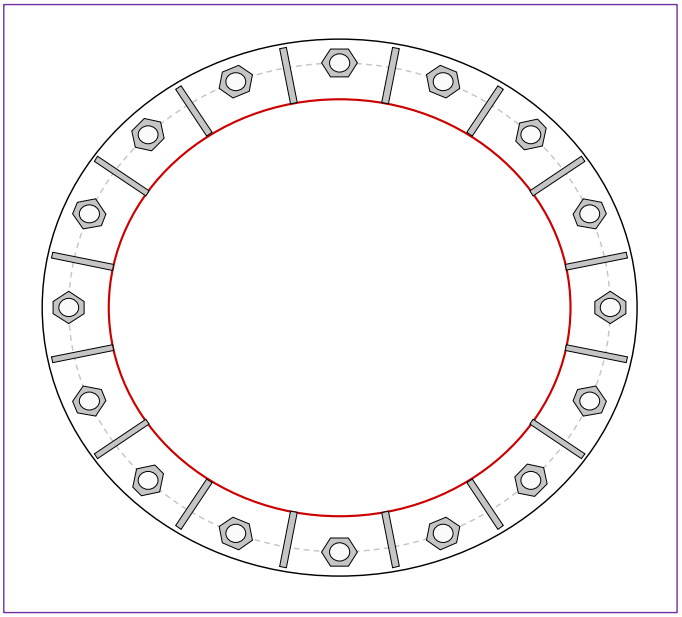
Monopole Base Plate Connection

Site Info	
BU #	876378
Site Name	Bethany / David Kludge
Order #	552246 Rev. 3

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{ar} (in)	0.375

Applied Loads	
Moment (kip-ft)	4814.57
Axial Force (kips)	48.46
Shear Force (kips)	34.66

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 61" BC

Base Plate Data

67" OD x 2" Plate (A871-GR60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

(16) 21"H x 7"W x 0.75"T, Notch: 0.75"
plate: Fy= 50 ksi ; weld: Fy= 80 ksi
horiz. weld: 0.375" groove, 45° dbl bevel, 0.25" fillet
vert. weld: 0.25" fillet

Pole Data

52" x 0.4375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary		*(units of kips, kip-in)*
Pu_t = 233.62	ϕPn_t = 243.75	**Stress Rating**
Vu = 2.17	ϕVn = 149.1	**87.5%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary		
Max Stress (ksi):	39.96	(Roark's Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**70.5%**	**Pass**

Stiffener Summary		
Horizontal Weld:	**69.2%**	**Pass**
Vertical Weld:	**59.4%**	**Pass**
Plate Flexure+Shear:	**19.8%**	**Pass**
Plate Tension+Shear:	**71.5%**	**Pass**
Plate Compression:	**72.6%**	**Pass**
Pole Summary		
Punching Shear:	**10.4%**	**Pass**

Pier and Pad Foundation

BU # :	876378
Site Name:	Bethany / David Klu
App. Number:	552246 Rev. 3

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☑
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	48.46	kips
Base Shear, Vu_comp:	34.66	kips
Moment, M_u:	4814.57	ft-kips
Tower Height, **H**:	190	ft
BP Dist. Above Fdn, bp_{dist}:	2.625	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	46	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	4	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	5	ft
Pad Width, W_1:	24.5	ft
Pad Thickness, **T**:	2.5	ft
Pad Rebar Size (Top dir.2), Sp_{top2}:	8	
Pad Rebar Quantity (Top dir. 2), mp_{top2}:	25	
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	40	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	130	pcf
Ultimate Gross Bearing, Qult:	15.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	39	degrees
SPT Blow Count, N_{blows}:	46	
Base Friction, μ:	0.3	
Neglected Depth, **N**:	4.17	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating***	**Check**
Lateral (Sliding) (kips)	134.91	34.66	**24.5%**	**Pass**
Bearing Pressure (ksf)	11.25	8.58	**76.2%**	**Pass**
*Overturning (kip*ft)*	5115.05	5030.11	**98.3%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	5891.49	4935.88	**79.8%**	**Pass**
Pier Compression (kip)	24494.62	72.71	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	3491.24	2964.24	**80.9%**	**Pass**
Pad Shear - 1-way (kips)	711.23	364.21	**48.8%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	3352.71	2961.53	**84.1%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Soil Rating*:	**98.3%**
Structural Rating*:	**84.1%**

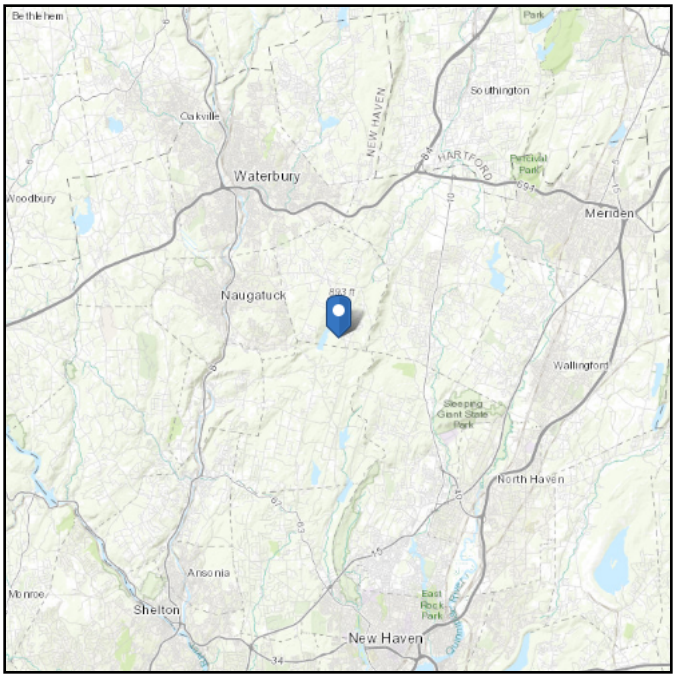
Version 4.0.1

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 791.71 ft (NAVD 88)
Latitude: 41.471236
Longitude: -72.971914



Wind

Results:

Wind Speed:	122 Vmph	Per City Exceptions [Appendix N], Vult = 125 mph
10-year MRI	76 Vmph	
25-year MRI	86 Vmph	
50-year MRI	92 Vmph	
100-year MRI	99 Vmph	

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Date Accessed: Mon Mar 22 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

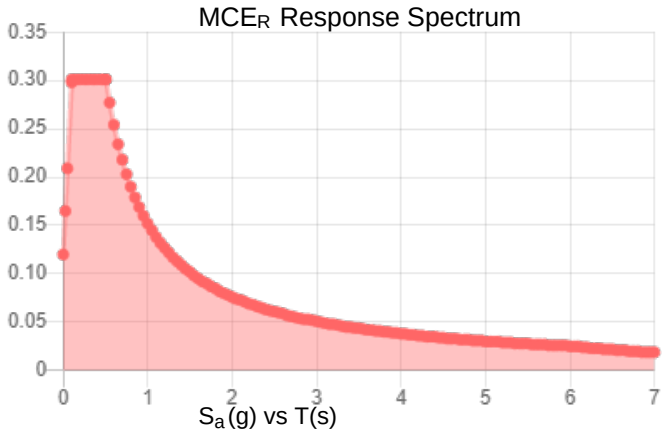
Seismic

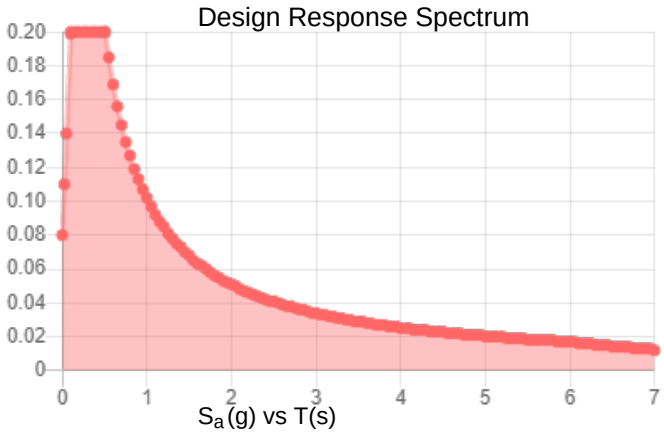
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.188	S_{DS} :	0.2
S_1 :	0.063	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.098
S_{MS} :	0.301	PGA_M :	0.156
S_{M1} :	0.152	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Mon Mar 22 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in. Design Ice Thickness = 0.75in. * 2 = 1.5 in
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon Mar 22 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

ATTACHMENT 4

SDC20 | 2.5L | 20 kW - AC
INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Model G007098-0 (Steel)

Standby Power Rating
20 kW AC, 60 Hz

*Built in the USA using domestic and foreign parts

Image used for illustration purposes only

Codes and Standards

Generac products are designed to the following standards:

- UL2200, UL508, UL142, UL489
- NFPA 37, 70, 99, 110
- NEC700, 701, 702, 708
- ISO 3046, 7637, 8528, 9001
- NEMA ICS10, MG1, 250, ICS6, AB1
- ANSI C62.41

Powering Ahead

For over 50 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Model G007098-0 (Steel)

STANDARD FEATURES

ENGINE SYSTEM

- Oil Drain Extension
- Air Cleaner with Service Indicator
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Exhaust Silencer with Drain
- Factory Filled Oil & Coolant

Fuel System

- Primary Fuel Filter

Cooling System

- 120V AC Coolant Heater
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze
- Radiator Drain Extension

Electrical System

- Battery Charging Alternator
- AGM Spill Proof Battery
- Battery Cables
- Sealed/Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor
- Output Circuit Breaker

ALTERNATOR SYSTEM

- Class H Insulation Material
- Vented Rotor
- 2/3 Pitch
- Skewed Stator
- Amortisseur Winding
- Brushless Excitation
- Sealed Bearings
- Rotor Dynamically Spin Balanced
- Full Load Capacity Alternator
- Protective Thermal Shutdown

GENERATOR SET

- Single Side Service
- Internal Genset Vibration Isolators
- Separation of Circuits- High/Low Voltage
- Silencer Heat Shield
- High Heat Wrapped Exhaust Piping
- Silencer Enclosed Within Generator
- 5 Year Extended Warranty
- Extended Factory Testing
- 12 Gallon System Spill Containment
- 2.5 Gallon Fuel Fill Spill Containment

ENCLOSURE

- Serviceable Items Accessible Though Lift-Off Door
- High Performance Sound-Absorbing Material
- Gasketed Door
- Stamped Air-Intake Louvers
- Single Door Latch Lockable with Key & Padlock
- Rhino Coat™ - Textured Polyester Powder Coat
- 150 MPH Wind Rating
- 36” Snow Rating

FUEL TANK

- UL 142 Compliant
- Double Wall Construction
- Factory Pressure Tested (5 psi)
- Rupture Basin Alarm
- Fuel Level Gauge and Sender
- Check Valve in Supply Line
- Rhino Coat™ - Textured Polyester Powder Coat
- Stainless Steel Hardware
- Integrated Fork Pockets

CONTROL SYSTEM

- Digital H Control Panel - Dual 4x20 Display
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC
- RS-232/485 Communications
- All-Phase Sensing Voltage Regulator
- Full System Status
- 2-Wire Start Compatible
- Power Output (kW)
- Power Factor
- kW Hours, Total & Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/Sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus protocol
- Predictive Maintenance Algorithm
- Sealed Boards
- Password Parameter Adjustment Protection
- Single Point Ground Connections
- 15 Channel Data Logging
- 0.2 msec High Speed Data Logging
- Alarm Information Automatically Comes Up On the Display

Alarms

- Generator Run- Dry Contact
- Major Alarm- Dry Contact
- Minor Alarm- Dry Contact
- Low Fuel Alarm- Dry Contact
- Rupture Basin Alarm- Dry Contact
- Alarms & Warnings Time and Date Stamped
- Alarms & Warnings for Transient and Steady State Conditions
- Snap Shots of Key Operation Parameters During Alarms & Warnings
- Alarms and Warnings Spelled Out (No Alarm Codes)

MODEL OPTIONS

CONTROL SYSTEM

- ○ 21 Light Annunciator- Shipped Loose Kit and Field Installed
- ○ External E-Stop-Shipped Loose Kit and Field Installed

ENCLOSURE

- ○ Aluminum Enclosure
- ○ Extreme Cold Weather Kit - Shipped Loose Kit and Field Installed

TANKS

- ○ External Fuel Vent- Shipped Loose Kit and Field Installed

SDC20 | 2.5L | 20 kW - AC
INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Model G007098-0 (Steel)

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Mitsubishi
EPA Emissions Compliance	Interim Tier 4
Cylinder #	4
Type	In-Line
Displacement - L (Cu In)	2.5 (158)
Bore - mm (in)	88 (3.5)
Stroke - mm (in)	103 (4.1)
Compression Ratio	22:1
Intake Air Method	Naturally Aspirated

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	± 0.25%

Lubrication System

Oil Pump Type	Trochoid Gear Pump
Oil Filter Type	Filtering Paper, Full Flow
Crankcase Capacity - L (qts)	6.5 (6.9)

Cooling System

Cooling System Type	Forced Circulation
Water Pump Type	Centrifugal Pump
Fan Type	Pusher
Fan Speed (rpm)	2100
Fan Diameter - mm (in)	431.8 (17)
Coolant Heater Wattage	1000
Coolant Heater Voltage	120

Fuel System

Fuel Type	Ultra Low Sulfur Diesel #2
Fuel Specifications	ASTM
Fuel Filtering (microns)	6
Fuel Inject Pump Make	Bosch
Injector Type	Engine Driven Gear
Engine Type	Diesel
Fuel Supply Line - mm (in.)	6.6 (0.26)

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	12V-50A
Battery Size	650 CCA
Battery Group	35
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	Mecc Alte ECP 28-2L/4
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<45
Standard Excitation	Brushless

Bearings	Dual Sealed
Coupling	Belt, Pulley
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.5%

RATING DEFINITIONS

Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.

SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Model G007098-0 (Steel)

OPERATING DATA

POWER RATINGS

Single-Phase 120/240 VAC @1.0pf	20 kW	Amps: 83
Circuit Breaker Size	100A	

FUEL CONSUMPTION RATES*

Diesel - gph (lph)

Percent Load	Standby
25%	0.74 (2.80)
50%	0.99 (3.75)
75%	1.41 (5.30)
100%	1.90 (7.19)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Coolant Flow per Minute	gpm (lpm)	11.9 (45)
Coolant System Capacity	gal (L)	3.5 (13.2)
Heat Rejection to Coolant	BTU/hr	238,200
Inlet Air	cfm (m^3/min)	2365 (67)
Max. Operating Ambient Temperature (Before Derate)	°F (°C)	77° (25°)
Maximum Radiator Backpressure	in H_2O	0.50

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power cfm (m^3/min)	88 (2.49)

ENGINE

		Standby
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	33.5
Piston Speed	ft/min	1220.47
BMEP	psi	96.5

EXHAUST

		Standby
Exhaust Flow (Rated Output)	cfm (m^3/min)	193 (328)
Max. Backpressure (Post Silencer)	inHg (kPa)	1.38 (4.67)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	928 (497.7)

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

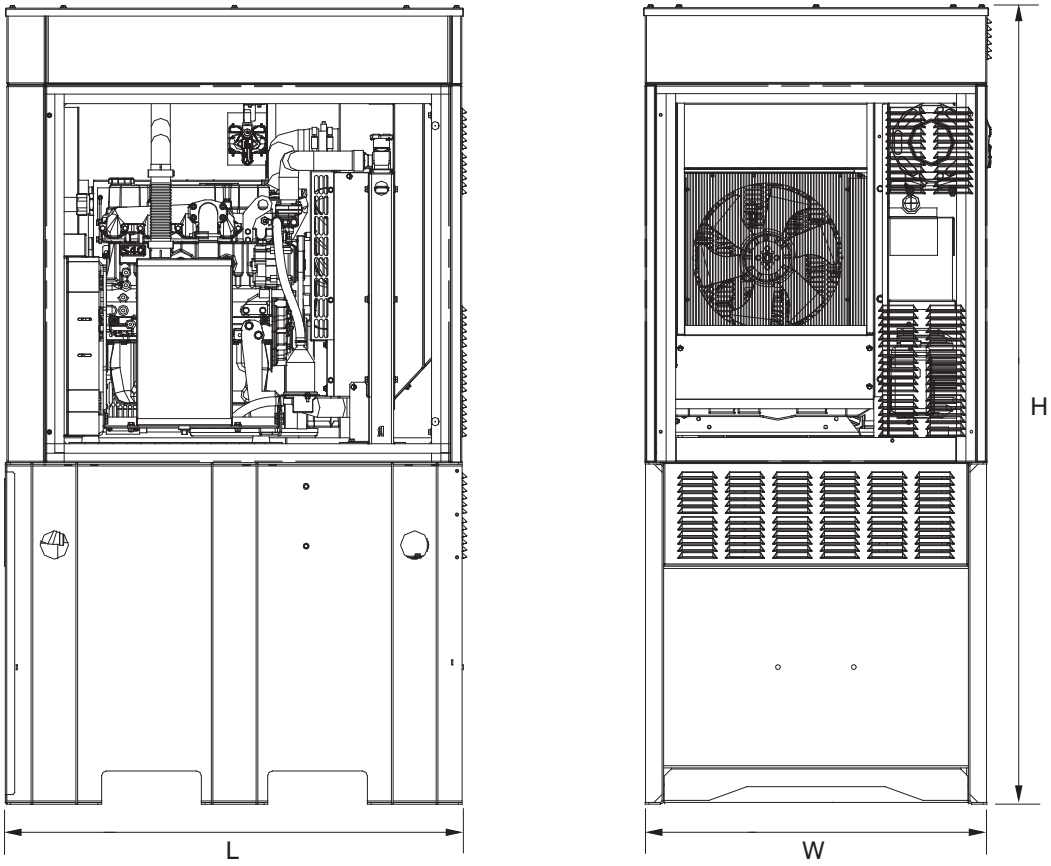
Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.
Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

SDC20 | 2.5L | 20 kW - AC
INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

Model G007098-0 (Steel)

DIMENSIONS AND WEIGHTS*



Level 2 Sound Attenuation Enclosure

Run Time Hours	48
Usable Capacity Gal (L)	92 (348.2)
L x W x H in (mm)	48 x 36 x 90 (1219.2 x 914.4 x 2286)
Weight lbs (kg)	2400 (1089)
Sound Level	71 dBA

* All measurements are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

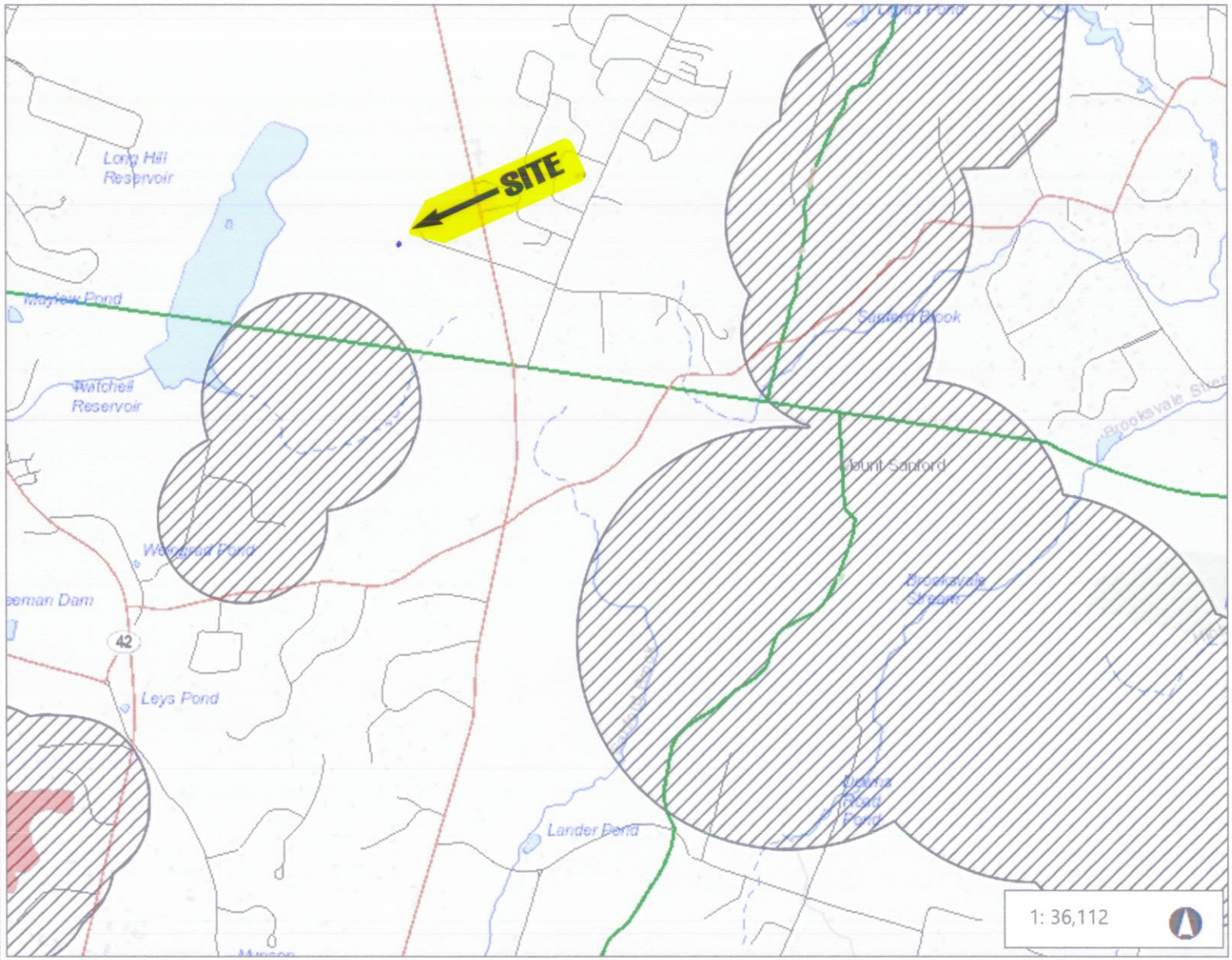
Generac Power Systems, Inc. | P.O.Box 8 | Waukesha, WI 53189
P: (262) 544-4811

Document No. 10000009019
Rev. WIP 11/04/16

ATTACHMENT 5

CT Environmental Conditions Online

15 Kluge



1: 36,112

1.1 0 0.57 1.1 Miles

Legend

Critical Habitat

- Beachshore, B
- Intertidal Marsh, IM
- Acidic Atlantic White Cedar Swamp
- Acidic Red/Black Spruce Basin Swa
- Circumneutral Northern White Ceda
- Floodplain Forest, FF
- Beachshore, B
- Circumneutral Spring Fen, CirSF
- Floodplain Forest, FF
- Freshwater Aquatic, FA
- Medium Fen, MF
- Poor Fen, PF
- Rich Fen, RF
- Sea Level Fen, SLF
- Coastal Woodland/Shrubland, CWS
- Dry Acidic Forest, DAF
- Dry Circumneutral Forest, DCF
- Dry Subacidic Forest, DSF
- Old Growth Forest, OGF
- Subacidic Cold Talus Forest/Woodl
- Acidic Rocky Summit Outcrop, AcR
- Alluvial Grassland/Outcrop, AllG/O
- Circumneutral Rocky Summit Outcr
- Coastal Bluffs and Headlands, CBH
- Coastal Grassland, CG

Notes

THIS MAP IS NOT TO BE USED FOR NAVIGATION

This map is intended for general planning, management, education, and research purposes only. Data shown on this map may not be complete or current. The data shown may have been compiled at different times and at different map scales, which may not match the scale at which the data is shown on this map.

ATTACHMENT 6

AT&T

SITE NAME: N.BETHANY / DAVID KLUDGE
SEARCH RING #: N/A
FA #: 15449390
USID: 298475
PACE # MRCTB049977
SITE ADDRESS: 15 KLUGE ROAD DUP
PROSPECT, CT 06712
STRUCTURE TYPE: MONOPOLE

APPROVED
By Radu Alecsandru at 1:10 pm, Apr 27, 2021

PROJECT TEAM

CLIENT REPRESENTATIVE:	SMARTLINKGROUP 85 RANGEWAY ROAD – BLDG 3, SUITE 102 NORTH BILLERICA, MA 01862
CONTACT:	TODD OLIVER TODD.OLIVER@SMARTLINKGROUP.COM
ARCHITECT & ENGINEER:	TRYLON TSF 1825 W. WALNUT HILL LANE, SUITE 120 IRVING, TX 75038
CONTACT:	KATYA SERAVALLE KATYA.SERAVALLE@TRYLON.COM 1–855–669–5421
RF ENGINEER:	AT&T 84 DEERFIELD LN, MERIDEN, CT 06450
CONTACT:	RADU ALECSANDRU RA9161@ATT.COM
PROJECT MANAGER:	SMARTLINKGROUP 85 RANGEWAY ROAD – BLDG 3, SUITE 102 NORTH BILLERICA, MA 01862
CONTACT:	APRIL GRASSO APRIL.GRASSO@SMARTLINKGROUP.COM (781) 248–0427
CONSTRUCTION MANAGER:	SMARTLINKGROUP 85 RANGEWAY ROAD – BLDG 3, SUITE 102 NORTH BILLERICA, MA 01862
CONTACT:	ROBERT PICARD ROBERT.PICARD@SMARTLINKGROUP.COM 603–762–1181

PROJECT INFORMATION

SITE NAME:	N.BETHANY / DAVID KLUDGE
USID:	298475
FA#:	15449390
SITE ADDRESS:	15 KLUGE ROAD DUP PROSPECT, CT 06712
PARCEL NUMBER (APN):	001314869
PROPERTY OWNER:	N/A
STRUCTURE TYPE:	190'–0" MONOPOLE
SITE TYPE:	COLLOCATION
TOWER OWNER:	CROWN CASTLE
LATITUDE (NAD 83):	41.4712300°
LONGITUDE (NAD 83):	–72.9719400°
GROUND ELEVATION:	±785' (AMSL)
COUNTY:	NEW HAVEN
ZONING JURISDICTION:	NEW HAVEN COUNTY
CURRENT ZONING:	N/A
AT&T LEASE AREA:	247 SQ. FT.
APPLICANT:	AT&T MOBILITY 7150 STANDARD DRIVE HANOVER, MD 21076

811 Know what's **Call** before you dig.

TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN CONNECTICUT, CONTACT CALL BEFORE YOU DIG
TOLL FREE: 1-800-922-4455 OR www.cbyd.com
CONNECTICUT STATUTE REQUIRES MIN OF 2 WORKING DAYS NOTICE BEFORE YOU EXCAVATE

VICINITY MAP

DRIVING DIRECTIONS

FROM 7150 STANDARD DRIVE HANOVER, MD 21076:

GET ON MD–100 E FROM STANDARD DR, PARK CIR DR AND COCA COLA DR. HEAD SOUTHWEST TOWARD STANDARD DR. TURN LEFT TOWARD STANDARD DR. TURN RIGHT ONTO STANDARD DR. TURN LEFT ONTO COCA COLA DR. TURN LEFT TO MERGE WITH MD–100 E TOWARD GLEN BURNIE. TAKE I–895 N, I–95 N, NJ TPKE, I–95 N AND CT–15 N TO CT–69 N/WHALLEY AVE IN NEW HAVEN. TAKE EXIT 59 FROM CT–15 N. TAKE EXIT 9B FOR MD–295 N/BALT/WASH PKWY TOWARD BALTIMORE. MERGE WITH MD–295 N. TAKE THE HARBOR TUNNEL THRWY/I–895 N EXIT. KEEP RIGHT AT THE Y JUNCTION TO CONTINUE ON I–295 N, FOLLOW SIGNS FOR NJTURNPIKE/DEL MEM BR/NY–NJ. KEEP LEFT AT THE Y JUNCTION TO CONTINUE ON US–40 E, FOLLOW SIGNS FOR NJ TURNPIKA N/ATLANTIC CITY. FOLLOW CT–69 N TO KLUGE RD IN PROSPECT. TURN LEFT ONTO CT–69 N/WHALLEY AVE. TURN LEFT ONTO KLUGE RD.

BUILDING CODES

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.

- 2015 INTERNATIONAL BUILDING CODE
- 2017 NATIONAL ELECTRICAL CODE WITH LOCAL AMENDMENTS

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
- ADA ACCESS REQUIREMENTS ARE NOT REQUIRED
- THIS FACILITY DOES NOT REQUIRE POTABLE WATER AND WILL NOT PRODUCE ANY SEWAG

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, PORTABLE WATER, OR TRASH DISPOSAL IS REQUIRED, NO COMMERCIAL SIGNAGE AND NO LANDSCAPING IS PROPOSED.

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

RFDS DATA

RFDS ID: 4363474 DATED: 02/15/21
REVISION: FINAL VERSION: 1.00
UPDATED BY: ra9161
DATE/TIME UPDATED: 2/22/2021 @ 5:48:44 PM

PROJECT DESCRIPTION

TOWER SCOPE OF WORK:

- INSTALL (9) NEW ANTENNAS, (3) PER SECTOR
- INSTALL (9) NEW RRH'S, (3) PER SECTOR
- INSTALL (2) NEW DC9 DC9–48–60–24–8C–EV
- INSTALL (4) NEW DC CABLES
- INSTALL (2) NEW FIBER CABLES
- INSTALL (3) NEW COMMSCOPE MOUNT MCG23–12–B3

GROUND SCOPE OF WORK:

- INSTALL (1) PRE–FABRICATED VERTIV STEEL WALK–IN–CABINET (SWIC) ON NEW CONCRETE PAD
- INSTALL (1) DIESEL GENERATOR ON NEW CONCRETE PAD
- INSTALL NEW ICE BRIDGE
- INSTALL NEW GPS ANTENNA
- INSTALL (2) NEW DC12
- INSTALL (1) NEW FIBER MANAGEMENT BOX

SHEET INDEX

SHEET #	DESCRIPTION
T–1	TITLE SHEET
T–2	GENERAL NOTES
A–1	OVERALL SITE PLAN
A–2	ENLARGED SITE PLAN
A–3	ENLARGED LEASE AREA
A–4	ELEVATION AND ANTENNA LAYOUT
A–5	ANTENNA SCHEDULE
D–6	CABLE AND MOUNT DETAILS
D–7	WALK–IN–CABINET DETAILS
D–8	GENERATOR DETAILS
D–9	CONCRETE MOUNT FOUNDATION KIT
D–10	CONCRETE PAD DETAILS
D–11	EQUIPMENT DETAILS
D–12	EQUIPMENT DETAILS
D–13	EQUIPMENT DETAILS
D–14	EQUIPMENT DETAILS
D–15	RFDS PLUMBING DIAGRAM
E–1	UTILITY PLAN
G–1	GROUNDING PLAN
G–2	GROUNDING DETAILS
G–3	GROUNDING DETAILS

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862

Trylon
1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1–855–669–5421

DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY.

SUBMITTALS

REV	DATE	DESCRIPTION	BY
A	03/20/21	90% CD	AVP
0	04/07/21	100% CD	AVP
1	04/21/21	100% CD	MSM

STATE OF CONNECTICUT
JINSHAN WANG
Apr 21, 2021
PEN.0034086
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

TITLE SHEET

SHEET NO.

T–1

GENERAL NOTES

GENERAL CONSTRUCTION

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   - 1.1. CONTRACTOR – T.B.D
   - 1.2. SUB–CONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   - 1.3. OWNER – AT&T MOBILITY
   - 1.4. OEM – ORIGINAL EQUIPMENT MANUFACTURER
2. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. THE PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
8. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. ERECTION SHALL BE DONE IN A WORKMAN–LIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. SUBCONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. SUBCONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND SUBCONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
21. THE GENERAL CONTRACTOR AND SUBCONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2A TO 2A:10B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO: A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
24. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
25. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE–APPROVED BY THE LOCAL JURISDICTION.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS–BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
31. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
32. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
33. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
34. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
35. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION OF AT&T GROUNDING STANDARD "GROUNDING AND BONDING REQUIREMENTS FOR NETWORK FACILITIES (ATT–TP–76416) AND "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES" (ATT–TP–76300). IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
36. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
37. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
38. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
39. NO WHITE STROBIC LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.
40. ALL COAXIAL CABLE INSTALLATIONS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

ANTENNA MOUNTING

41. DESIGN AND CONSTRUCTION OF ANNTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA–222 OR APPLICABLE LOCAL CODES.
42. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT–DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
43. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC–COATING (HOT–DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
44. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
45. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK WASHERS AND/OR DOUBLE NUTS, AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
46. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
47. ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50–OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
48. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN ±3° AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN ±0.5° AS DEFINED BY THE RFDS. REFER TO ND–00246.
49. JUMPERS FROM THE TOWER MOUNTED AMPLIFIERS MUST TERMINATE TO OPPOSITE POLARIZATIONS IN EACH SECTOR.
50. CONTRACTOR SHALL RECORD THE SERIAL NUMBER, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO AT&T.
51. ANTENNAS SHALL HAVE A 3'–0" MINIMUM CENTER–TO–CENTER HORIZONTAL SEPARATION.

TORQUE REQUIREMENTS

52. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
53. A TORQUE MARK FORMING A CONTINUOUS STRAIGHT LINE IS TO BE MADE IN THE FOLLOWING APPLICATIONS:
    - A. RF CONNECTIONS – MARK BOTH SIDES OF THE CONNECTOR
    - B. GROUNDING AND ANTENNA HARDWARE – MARK ON THE NUT SIDE OF THE BOLT, STARTING FROM THE THREADS TO THE SOLID SURFACE. SOLID SURFACE EXAMPLES INCLUDE A GROUND BAR OR ANTENNA BRACKET METAL.
54. ALL 8M ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB–FT (12 NM).
55. ALL 12M ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB–FT (58 NM).
56. ALL GROUNDING HARDWARE SHALL BE TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUNDING HARDWARE IS NO LONGER LOOSE.
57. ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 18–22 LB–FT (24.4 – 29.8 NM).
58. ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 15–20 LB–IN (1.7 – 2.3 NM).

FIBER & POWER CABLE MOUNTING

59. THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED IN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM, THEY SHALL BE INSTALLED INTO AN INTER DUCT AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INTER DUCT IN ORDER TO SEGREGATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SHALL BE SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ATRICLE 770 RULES SHALL APPLY.
60. TYPE TC–ER CABLES SHALL BE INSTALLED INTO CONDUITS OR CABLE TRAYS, AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) FEET. WHERE TYPE TC–ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE, CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS OR CABLE TRAYS THAT ARE SERVICING UTILIZATION EQUIPMENT OR DEVICES. A TRANSITION DISTACE EXCEEDING (6) FEET REQUIRES CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.
61. WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC–ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

COAXIAL CABLE NOTES

62. TYPES AND SIZES OF THE ANTENNA CABLES ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
63. CONTRACTOR SHALL VERIFY THAT THE DOWNTILT OF EACH ANTENNA IS WITHIN +/– 0.5 DEGREES OF SPECIFICATION WITH AN OCI APPROVED DIGITAL LEVEL.
64. CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION. REFER TO "ANTENNA SYSTEM LABELING STANDARD" ND–00027 LATEST VERSION.
65. ALL JUMPERS TO THE ANTENNAS FROM THE MAIN TRANSMISSION LINE SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'–0".
66. ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, NOT TO EXCEED 4'–0" OC.
67. COAXIAL CABLE SHALL BE SECURED TO THE DESIGNATED SUPPORT STRUCTURE(S) PER MANUFACTURER'S SPECIFICATIONS.
68. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
69. CONTRACTOR SHALL WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE. WEATHERPROOFING SHALL BE COMPLETED IN STRICT ACCORDANCE WITH AT&T STANDARDS.

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862

Trylon
1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1–855–669–5421

DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY.

SUBMITTALS

REV	DATE	DESCRIPTION	BY
A	03/20/21	90% CD	AVP
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STATE OF CONNECTICUT
JINSHAN WANG
PEN.0034086
LICENSED PROFESSIONAL ENGINEER
Apr 21, 2021

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

GENERAL NOTES

SHEET NO.

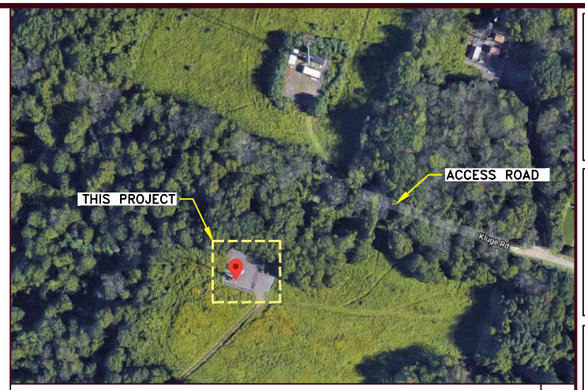
T–2

LEGEND

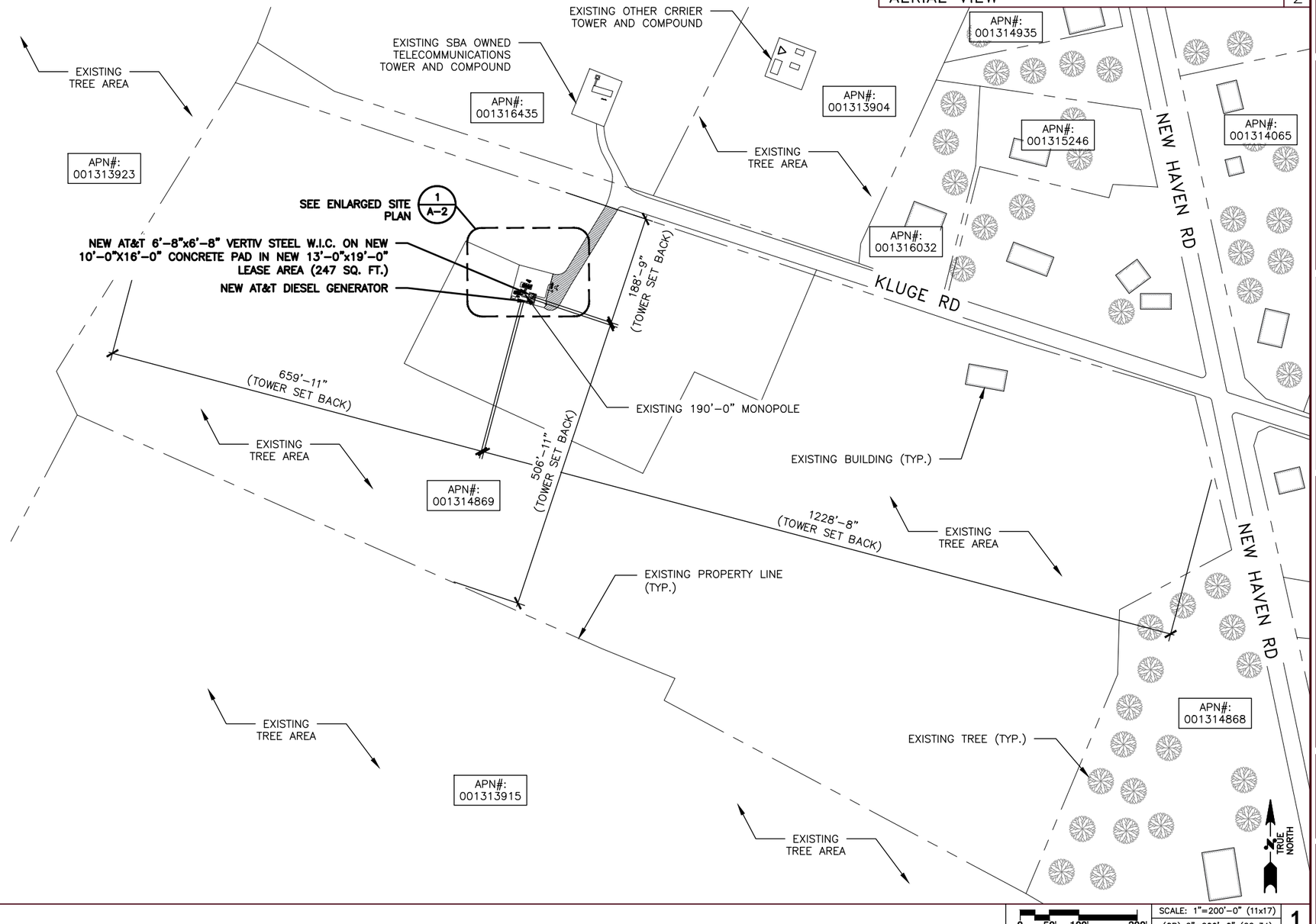
TREE	
ACCESS ROAD	
EXISTING BUILDING	
CHAIN LINK FENCE	— x — x —
PROPERTY LINE	
LEASE AREA LINE	
POWER	— E —
FIBER	— T —

GENERAL NOTES:

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY OR OTHER PUBLIC AUTHORITIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
3. THE CONTRACTOR SHALL NOTIFY THE AT&T CONSTRUCTION MANAGER IN WRITING, OF ANY CONFLICT, ERRORS OR OMISSION PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
5. THE SCOPE OF THE WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" TO LOCATE ALL UTILITIES AND NOTIFY UNDERGROUND FACILITIES PROTECTIVE ORGANIZATION AT (800) 424-5555 PRIOR TO EXCAVATION AT SITE.
8. ANY UNDERGROUND UTILITIES OR STRUCTURES THAT EXIST BENEATH THE PROJECT AREA, CONTRACTOR MUST LOCATE IT AND CONTACT THE APPLICANT & THE OWNER'S REPRESENTATIVE.
9. NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
10. POWER TO THE FACILITY WILL BE MONITORED BY A SEPARATE METER.
11. THERE ARE NO COMMERCIAL SIGNS PROPOSED FOR THIS INSTALLATION.
12. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED IN ANY FILL OR EMBANKMENT.
13. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE DIRECTED BY UTILITY OWNER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES.
14. THE AREAS DISTURBED DUE TO CONSTRUCTION ACTIVITY SHALL BE GRADED AND RESTORED PER CODE/LANDLORD REQUIREMENTS.
15. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION, EROSION CONTROL MEASURES SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL, AND COORDINATED WITH THE MUNICIPALITY.
16. UTILITY WARNING TAPE SHALL BE PLACED ABOVE ALL NEW CONDUITS AT MAX 18" DEPTH BELOW GRADE.



AERIAL VIEW | 2



OVERALL SITE PLAN | 1

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862

Trylon
1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421

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STATE OF CONNECTICUT
JUNSHAN WANG
Junshan Wang
Apr 21, 2021
PEN.0034086
LICENSED
PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

OVERALL SITE PLAN

SHEET NO.

A-1

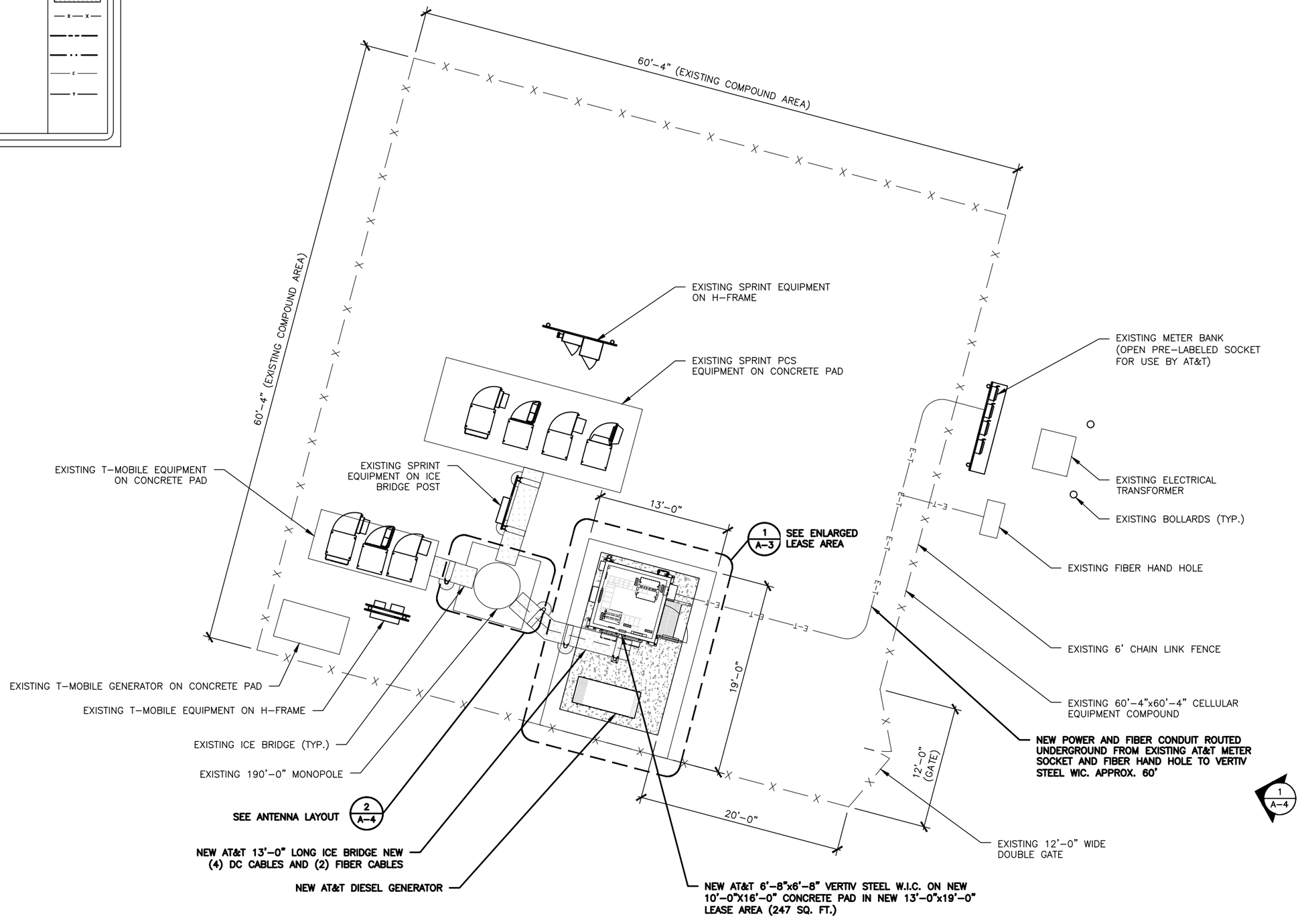
LEGEND

- TREE
- ACCESS ROAD
- EXISTING BUILDING
- CHAIN LINK FENCE
- PROPERTY LINE
- LEASE AREA LINE
- POWER
- FIBER

NOTE:

1. CONTRACTOR MUST FIELD VERIFY ALL MEASUREMENTS AND FIELD CONDITIONS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION

2. CONTRACTOR TO NOTE POTENTIAL INTERFERENCES WITH EXISTING UTILITIES AND HAND DIG IN VICINITY OF ALL UTILITY CROSSINGS



ENLARGED SITE PLAN

0 4' 8'

SCALE: 1/8"=1'-0" (11x17)
(OR) 1/4"=1'-0" (22x34)

1

AT&T
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SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

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USID: 298475

15 KLUGE ROAD DUP
PROSPECT, CT 06712

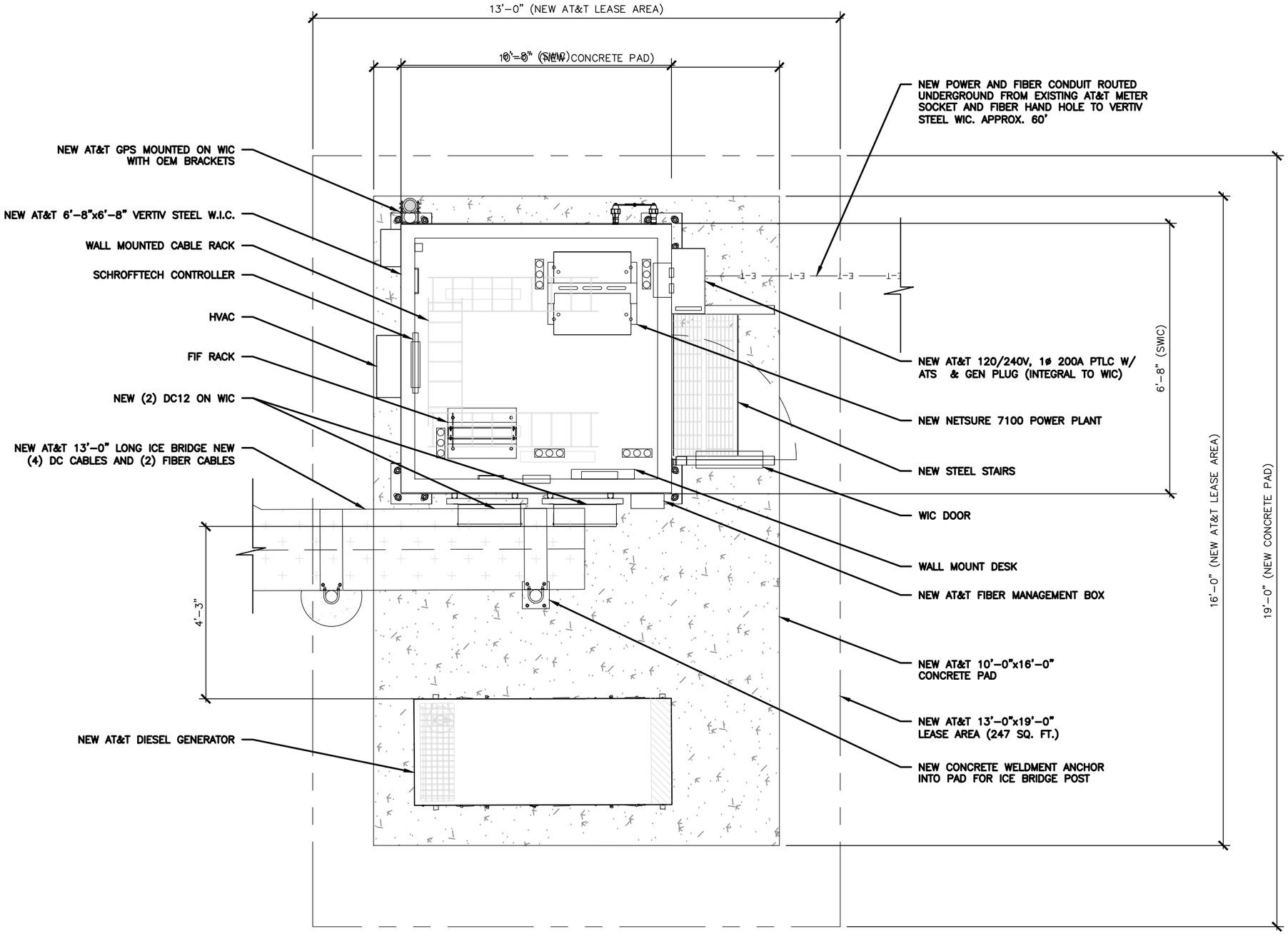
SHEET DESCRIPTION

ENLARGED SITE PLAN

SHEET NO.

A-2

NOTE:
THE CONTRACTOR MUST FIELD VERIFY ALL MEASUREMENTS AND FIELD CONDITIONS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.



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STATE OF CONNECTICUT
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LICENSED PROFESSIONAL ENGINEER

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N.BETHANY / DAVID KLUDGE

N/A

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USID: 298475

15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

ENLARGED LEASE AREA

SHEET NO.

A-3

NORTH
TRUE NORTH

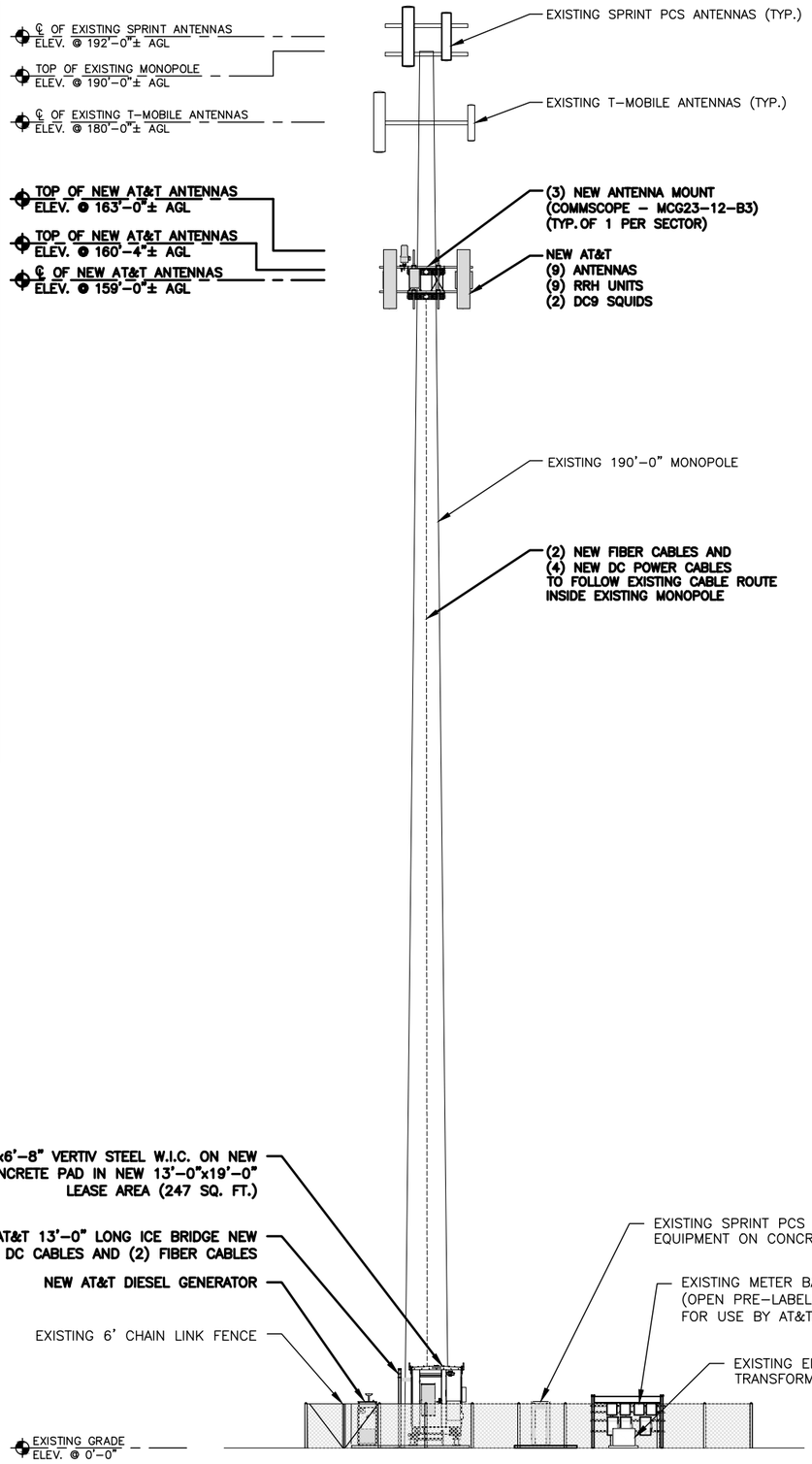
ENLARGED LEASE AREA

0 1' 2' 3'

SCALE: 3/8"=1'-0" (11x17)
(OR) 3/4"=1'-0" (22x34)

NOTES:

1. THESE DRAWINGS SHALL NOT BE RELIED UPON AS AN INDICATION THAT THE TOWER STRUCTURE, ITS COMPONENTS, AND ITS FOUNDATION HAVE ADEQUATE STRUCTURAL CAPACITY TO SUPPORT ALL EXISTING AND NEW ANTENNAS, MOUNTS, EQUIPMENT, AND COAXIAL CABLES. TRYLON HAS NOT PERFORMED A STRUCTURAL ANALYSIS ON THE TOWER, FOUNDATION, ANTENNA MOUNT, AND ALL ITS COMPONENTS. IT IS THE RESPONSIBILITY OF THE OWNER TO HAVE A STRUCTURAL ANALYSIS PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS PRIOR TO THE INSTALLATION OF ANY NEW EQUIPMENT, COAXIAL CABLES, ANTENNAS, OR APPURTENANCES ON THE TOWER. THIS STRUCTURAL ANALYSIS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN CT.
2. INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES, AND SUPPORT STRUCTURES. ANTENNA WORK TO BE INSTALLED PER THE REQUIREMENTS OF THE TOWER MANUFACTURER'S SPECIFICATION.
3. ANTENNA AND MOUNT DESIGN MUST COMPLY WITH ANSI/TIA-222-G AND ALL LOCAL CODES.
4. CONTRACTOR TO PROVIDE THE PROPER COAX JUMPER SUPPORT ATTACHMENTS TO THE TOWER AND ANTENNA MOUNT.
5. CONTRACTOR TO GET THE LATEST AT&T RFDS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. CONTRACTOR SHOULD REFER TO FINAL RFDS FOR ALL RF DETAILS.
7. THE CONTRACTOR MUST FIELD VERIFY ALL MEASUREMENTS AND FIELD CONDITIONS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

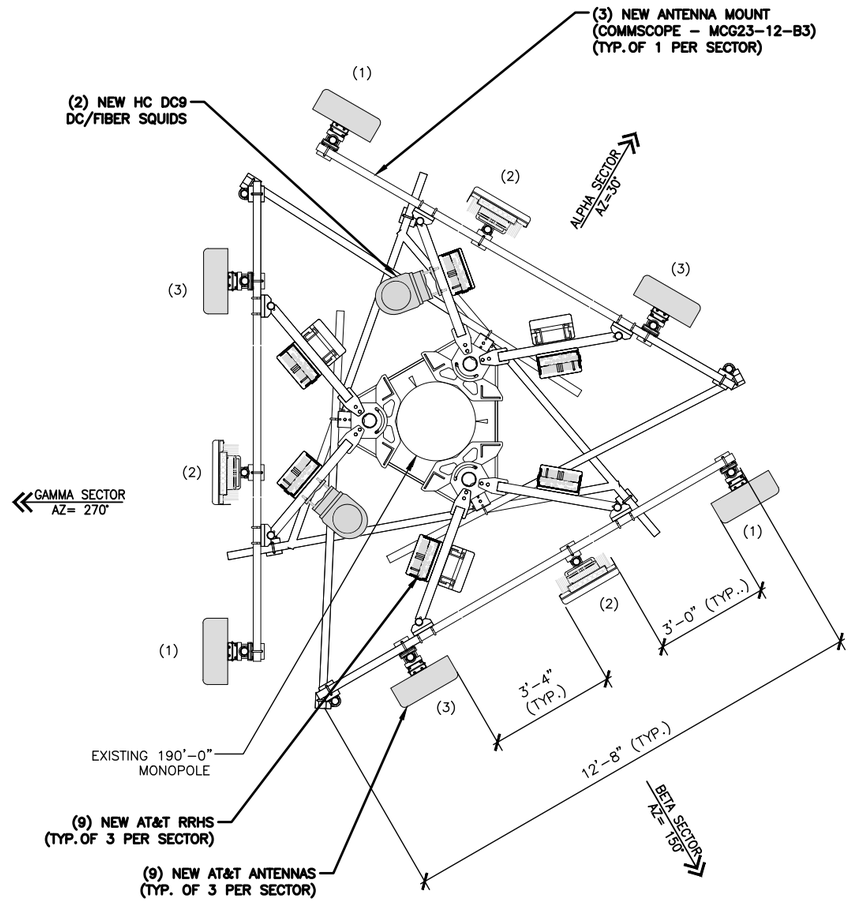


SOUTHEAST ELEVATION

0 10' 20'

SCALE: 1"=20'-0" (11x17)
(OR) 2"=20'-0" (22x34)

1



NEW ANTENNA LAYOUT

0 2' 4'

SCALE: 1/4"=1'-0" (11x17)
(OR) 1/2"=1'-0" (22x34)

2

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SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

ELEVATION AND
ANTENNA LAYOUT

SHEET NO.

A-4

PROPOSED ANTENNA SCHEDULE AND RF SYSTEM DESIGN PLAN (RFDS DATED 02/26/2021, VERSION 1.00)

SECTOR	ANTENNA POSITION	ANTENNA TYPE & STATUS	ANTENNA MAKE/MODEL	ANTENNA SIZE & WEIGHT	ANTENNA RAD CENTER	ANTENNA TIP HEIGHT	AZIMUTH	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	RRH MODEL	SQUID	ANTENNA PORTS	TECH.	FEEDLINE TYPE	FEEDLINE LENGTH
ALPHA	#1	**NEW LTE ANTENNA**	**CCI TPA65R-BU8DA-K**	**96"x21"x7.8" (86 LBS.)**	**159'-0"**	**163'-0"**	**30°**	0°	2°/2°	**(1) NEW RRUS-4478 B14**	**(1) DC9-48-60-24-8C-EV**	1	LTE 700	**(4) DC TRUNKS (2) FIBER TRUNKS**	**210'-0"± 210'-0"±**
												5	LTE AWS		
	#2	**NEW LTE ANTENNA**	**ERICSSON AIR6449 N77**	**31"x16"x8" (106 LBS.)**	**159'-0"**	**160'-4"**	**30°**	0°	2°	–		1	LTE 3.5 GHZ		
	#3	**NEW LTE ANTENNA**	**CCI DMP65R-BU8DA-K**	**96"x20.7"x7.7" (96 LBS.)**	**159'-0"**	**163'-0"**	**30°**	0°	2°/2°/2°	**(1) NEW RRUS-4449 B5/B12** **(1) NEW RRUS-8843 B2/B66A**		1	LTE 700		
												3	5G 850		
												5	LTE 1900		
	#4	–	–	–	–	–	–	–	–	–		–	–		
BETA	#1	**NEW LTE ANTENNA**	**CCI TPA65R-BU8DA-K**	**96"x21"x7.8" (86 LBS.)**	**159'-0"**	**163'-0"**	**150°**	0	2°/2°	**(1) NEW RRUS-4478 B14**	**(1) DC9-48-60-24-8C-EV**	1	LTE 700	**(4) DC TRUNKS (2) FIBER TRUNKS**	**SHARED**
												5	LTE AWS		
	#2	**NEW LTE ANTENNA**	**ERICSSON AIR6449 N77**	**31"x16"x8" (106 LBS.)**	**159'-0"**	**160'-4"**	**150°**	0	2°	–		1	LTE 3.5 GHZ		
	#3	**NEW LTE ANTENNA**	**CCI DMP65R-BU8DA-K**	**96"x20.7"x7.7" (96 LBS.)**	**159'-0"**	**163'-0"**	**150°**	0	2°/2°/2°	**(1) NEW RRUS-4449 B5/B12** **(1) NEW RRUS-8843 B2/B66A**		1	LTE 700		
												3	5G 850		
												5	LTE 1900		
	#4	–	–	–	–	–	–	–	–	–		–	–		
GAMMA	#1	**NEW LTE ANTENNA**	**CCI TPA65R-BU8DA-K**	**96"x21"x7.8" (86 LBS.)**	**159'-0"**	**163'-0"**	**270°**	0	2°/2°	**(1) NEW RRUS-4478 B14**	**SHARED**	1	LTE 700		**SHARED**
												5	LTE AWS		
	#2	**NEW LTE ANTENNA**	**ERICSSON AIR6449 N77**	**31"x16"x8" (106 LBS.)**	**159'-0"**	**160'-4"**	**270°**	0	2°	–		1	LTE 3.5 GHZ		
	#3	**NEW LTE ANTENNA**	**CCI DMP65R-BU8DA-K**	**96"x20.7"x7.7" (96 LBS.)**	**159'-0"**	**163'-0"**	**270°**	0	2°/2°/2°	**(1) NEW RRUS-4449 B5/B12** **(1) NEW RRUS-8843 B2/B66A**		1	LTE 700		
												3	5G 850		
												5	LTE 1900		
	#4	–	–	–	–	–	–	–	–	–		–	–		

PROPOSED ANTENNAS	PROPOSED RRHs	TOWER MOUNT	PROPOSED SQUIDs
9	**9**	**(3) NEW COMMSCOPE MOUNT MCG23-12-B3**	**2**

PROPOSED ANTENNA SCHEDULE

N.T.S.

1

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84 DEERFIELD LN
MERIDEN, CT 06450

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85 RANGEWAY ROAD
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1	04/21/21	100% CD	MSM

STATE OF CONNECTICUT
JINSHAN WANG
Apr 21, 2021
PEN.0034086
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

ANTENNA SCHEDULE

SHEET NO.

A-5

CABLE LENGTH

SECTOR		DISTANCE & CABLE TYPE		DISTANCE & CABLE TYPE		DISTANCE & CABLE TYPE		TOTAL CABLE LENGTH
ALPHA	PDF	15'	IN SHELTER RAYCAP SHELFS	180'	DC9	15'	RRH	210'
BETA		15'		180'		15'		210'
GAMMA		15'		180'		15'		210'

NOTE:
1. USE COMMSCOPE SNAPTAK CABLE HANGERS 10 FT. BELOW AND ABOVE ANTENNAS, AND 5 FT. BEHIND ANTENNAS TO MITIGATE PIM ISSUES.
2. CONTRACTOR TO REFER TO FINAL RFDS FOR ALL RF DETAILS.

CABLE COUNT

QUANTITY	CABLE TYPE
4	4 CONDUCTORS (3 PR) 3/4" DC CABLE 6 AWG
2	FIBER CABLES

CABLE LENGTH AND COUNT — N.T.S. — 1

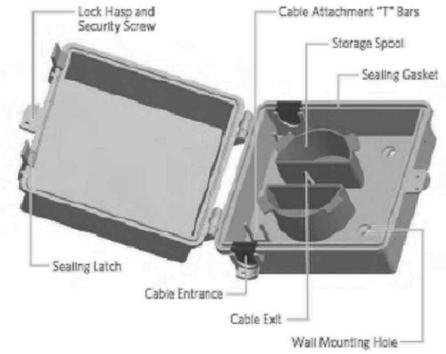
SNAPTAK PIM FREE POLYMER HANGERS

	PART #	AT&T ITEM NUMBER	CABLE SIZE RANGE	AT&T APPROVED CABLES
	SSH-47	ANT. 16979	4.0 TO 7.0 MM	2 FIBER JUMPERS AND 4 FIBER JUMPERS
	SSH-710	ANT. 16980	7.1 TO 10.0 MM	RET CABLES
	SSH-1014	ANT. 16981	10.1 TO 14.0 MM	2 CONDUCTOR POWER CABLES
	SSH-1416	ANT. 16982	14.1 TO 16.0 MM	1/2" COAX CABLE JUMPERS

NOTE:
1. USE SNAPTAK PIM FREE POLYMER HANGERS FOR COAX, DC AND FIBER JUMPER SUPPORT.
2. CONTRACTOR TO FOLLOW AT&T CONSTRUCTION STANDARDS DOCUMENT # ATT-CEM-18006 TITLED "HOSE CLAMP & METAL SNAP-IN SUPPORTS PIM PROBLEM RESOLUTION".

SNAPTAK PIM FREE POLYMER HANGERS — N.T.S. — 2

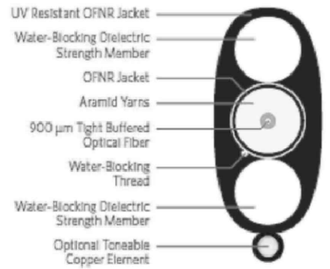
Slack Storage Module (SSM)



MODULE SPECIFICATIONS	
Dimensions in (mm)	Height: 6.7 (170) Width: 6.7 (170) Depth: 3.6 (92)
Weight lbs (kg)	0.5 (0.23)
Material	ABS plastic
Material Color	Light grey
Material Thickness in (mm)	0.10 (2.5)
Cable Entry	Two (2) in One (1) out
Maximum I/O Drop Cable Diameter in (mm)	0.18 x 0.40 (4.6 x 10.2)
Installation	Wall
Locking Mechanism	Two (2) levered cover latches and captive pin-in-hex security screw
Standards Compliance	Designed to meet NEMA 3 rating for environmental protection

MODULE PART NUMBER	
Part Number	Description
SSM-2C000	FTTP Slack Storage Module (SSM)

FTTP Tight Buffered Indoor/Outdoor Drop Series W7



CABLE SPECIFICATIONS	
Simplex OFNR Nominal Diameter in (mm)	0.11 (2.9)
Simplex OFNR Bend Radius in (mm)	Install: 2.2 (56) Long Term: 1.1 (28)
Cable Bend Radius in (mm)	Install: 3.6 (91) Long Term: 1.8 (46)
Cable Tensile Load lbs (N)	Install: 300 (1,350) Long Term: 90 (405)
Maximum Span Length at 1% Sag ft (m)	Light Loading: 350 (101) Medium Loading: 275 (84) Heavy Loading: 150 (46)
Standards Compliance	Telcordia® GR-20-CORE RoHS-compliant

Telcordia is a registered trademark of Ericsson Inc.

CABLE ENVIRONMENTAL SPECIFICATIONS	
Operation/Storage	-40°C to +70°C
Installation	-10°C to +70°C

CABLE MACRO BENDING PERFORMANCE		
10 Turns on 15 mm Radius Mandrel	ITU G.657.A	TeraFlex® SMF
Macro bending loss @ 1550 nm	0.25 dB Max.	≤ 0.20 dB
Macro bending loss @ 1625 nm	1.00 dB Max.	≤ 0.50 dB
1 Turn on 10 mm Radius Mandrel	ITU G.657.A	TeraFlex SMF
Macro bending loss @ 1550 nm	0.75 dB Max.	≤ 0.20 dB
Macro bending loss @ 1625 nm	1.50 dB Max.	≤ 0.20 dB

TeraFlex is an ITU G.657.A optical fiber that is completely compatible with ITU G.652.D optical fibers. TeraFlex exceeds the performance standards of ITU G.657.A as listed above.

CABLE PART NUMBERS AND PHYSICAL CHARACTERISTICS				
Part Number	Description	Fiber Count	Nominal Dimensions in (mm)	Weight lbs/kft (kg/km)
W7001KU01	Universal	1	0.32 (8.2) x 0.17 (4.5)	29 (44)
W7002KU01	Universal	2	0.32 (8.2) x 0.17 (4.5)	29 (44)
W7001K101	Toneable	1	0.40 (10.2) x 0.17 (4.5)	31 (47)
W7002K101	Toneable	2	0.40 (10.2) x 0.17 (4.5)	31 (47)

FIBER SLACK BOX DETAIL — N.T.S. — 3

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862

Trylon
1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421

DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY.

SUBMITTALS

REV	DATE	DESCRIPTION	BY
A	03/20/21	90% CD	AVP
0	04/07/21	100% CD	AVP
1	04/21/21	100% CD	MSM

STATE OF CONNECTICUT
JINSHAN WANG
Apr 21, 2021
PEN.0034086
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

CABLE AND MOUNT DETAILS

SHEET NO.

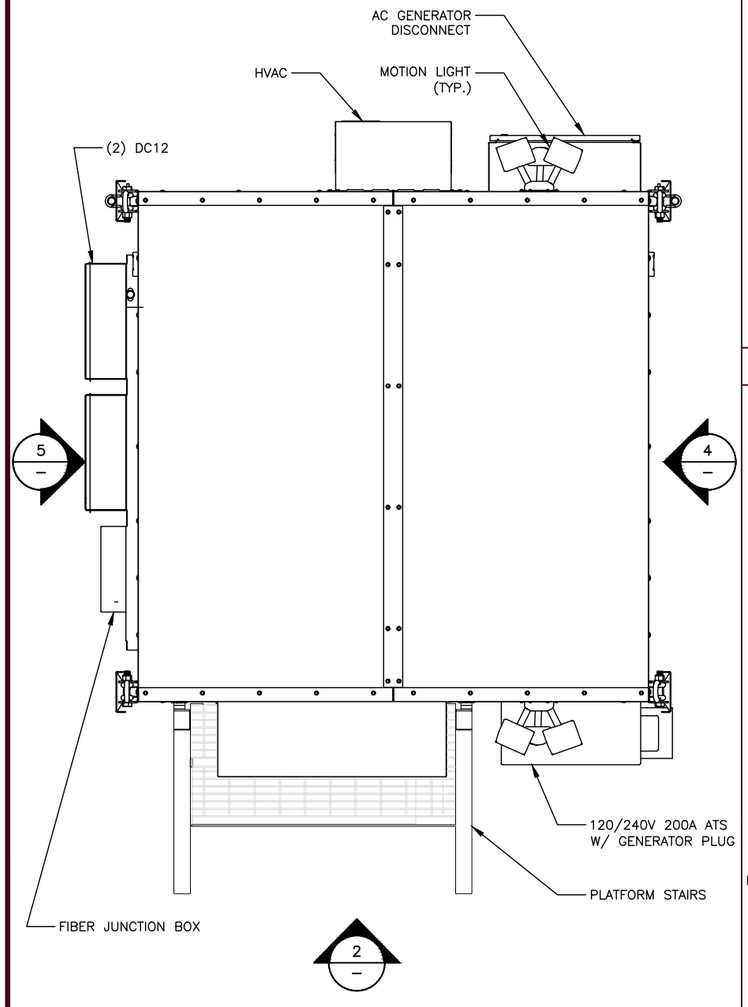
D-6

VERTIV

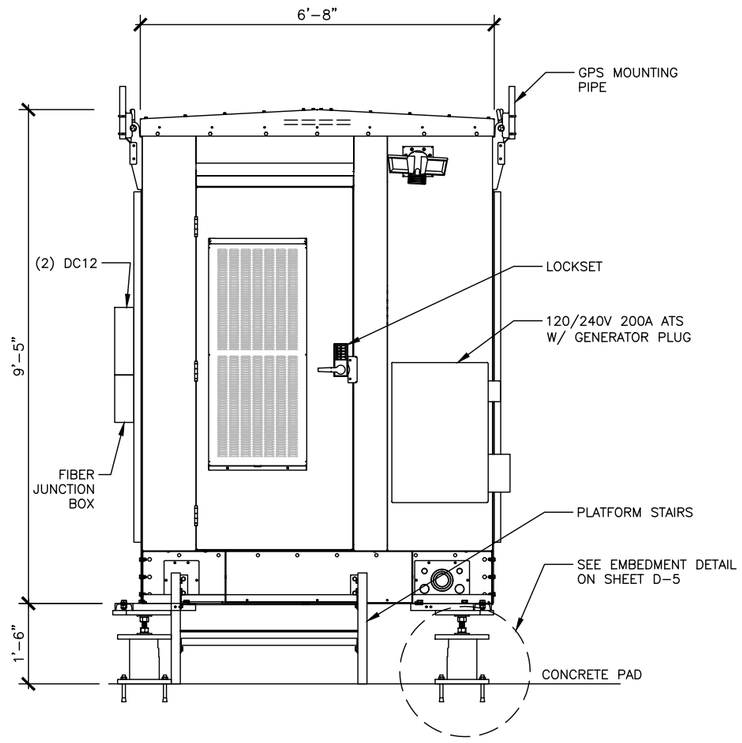
XTE 801 Series

Walk-In-Cabinet (WIC)

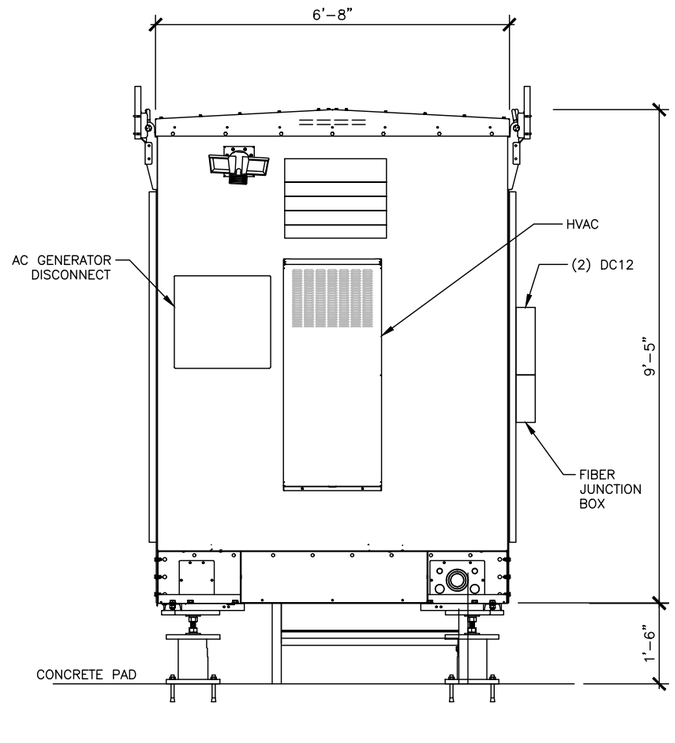
VertiveCo.com
1050 Dearborn Drive
Columbus, OH 43085
(614) 888-0246



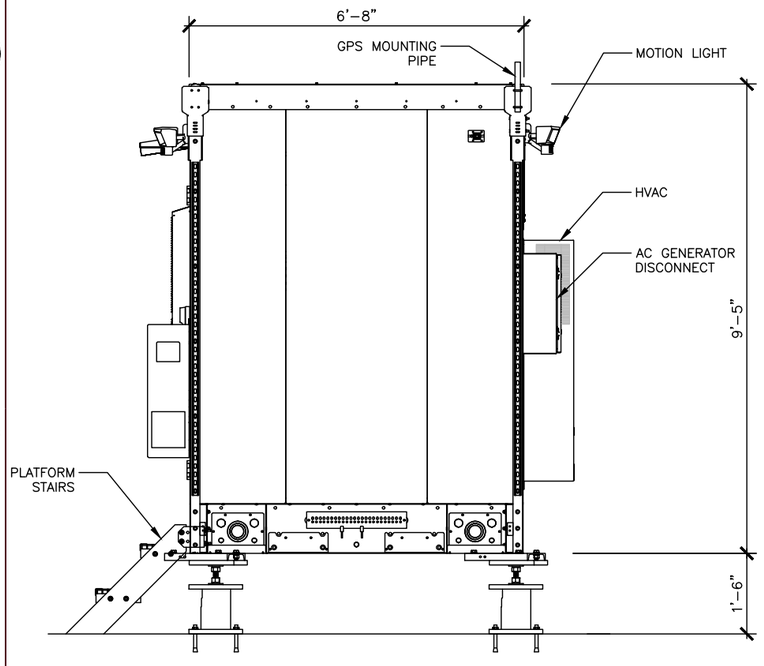
WALK–IN–CABINET PLAN — 0 1' 2' — SCALE: 1/2"=1'–0" (11x17) (OR) 1"=1'–0" (22x34) — 1



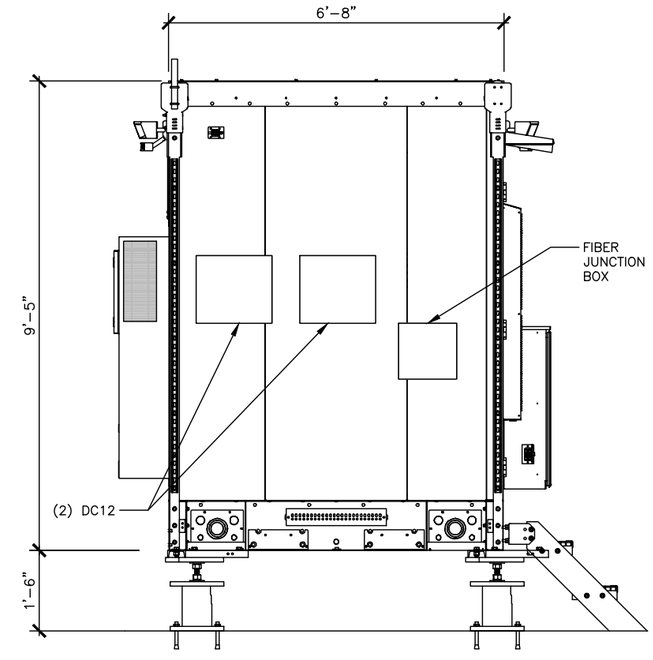
FRONT ELEVATION — N.T.S. — 2



REAR ELEVATION — N.T.S. — 3



SIDE ELEVATION — N.T.S. — 4



SIDE ELEVATION — N.T.S. — 5

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862

Trylon
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IRVING, TEXAS 75038
1–855–669–5421

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STATE OF CONNECTICUT — JINSHAN WANG — Jinshan Wang — Apr 21, 2021 — PEN.0034086 — LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

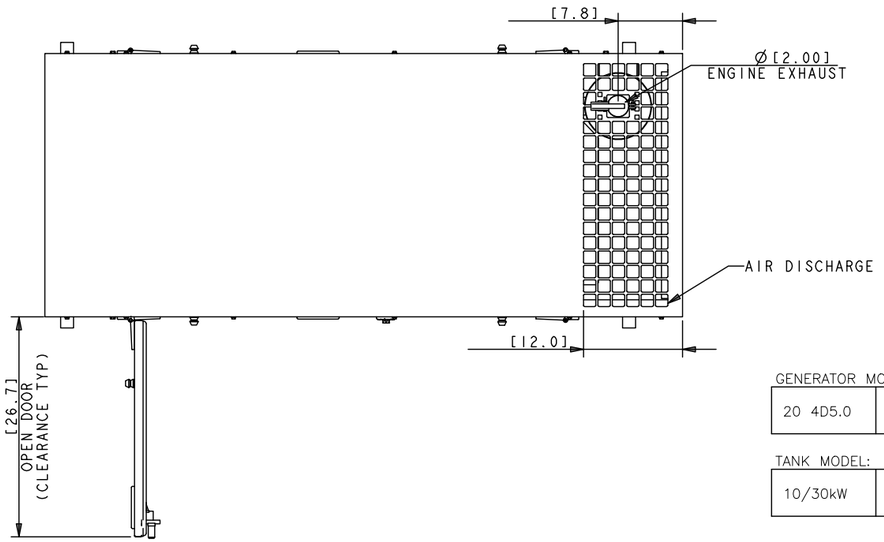
15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

WALK–IN–CABINET DETAILS

SHEET NO.

D–7

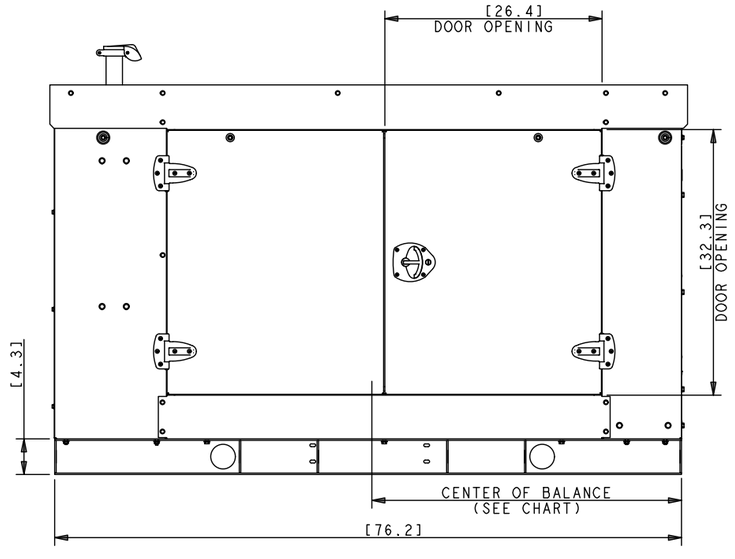


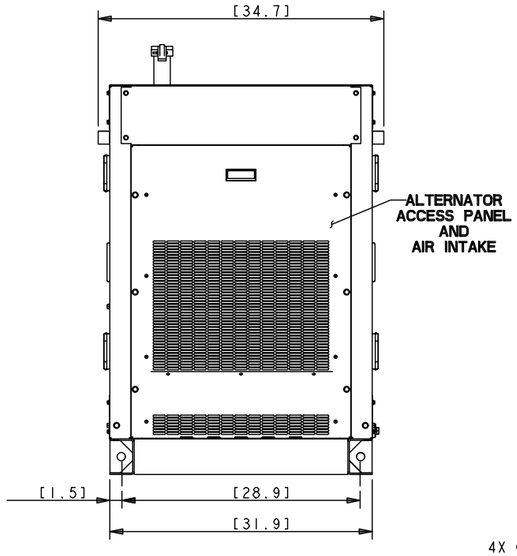
GENERATOR MODEL:

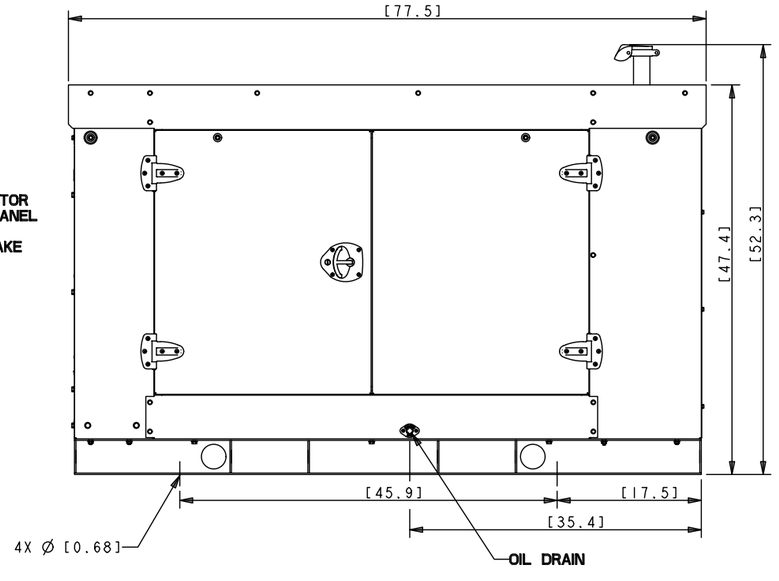
20 4D5.0	1010 LBS

TANK MODEL:

10/30kW	123 GALLON	586 LBS	76.2" LONG	25.0" TALL







DIMENSIONS IN INCHES

NOTE:

1. ENCLOSURE MOUNT DIRECTLY TO TANK
2. TANK MAY EXTEND BEYOND ENCLOSURE (DISCHARGE END ONLY)

DIESEL GENERATOR DETAIL

N.T.S.

1

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
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Trylon
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IRVING, TEXAS 75038
1-855-669-5421

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1	04/21/21	100% CD	MSM

STATE OF CONNECTICUT
JINSHAN WANG
Apr 21, 2021
PEN.0034086
LICENSED
PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

15 KLUGE ROAD DUP
PROSPECT, CT 06712

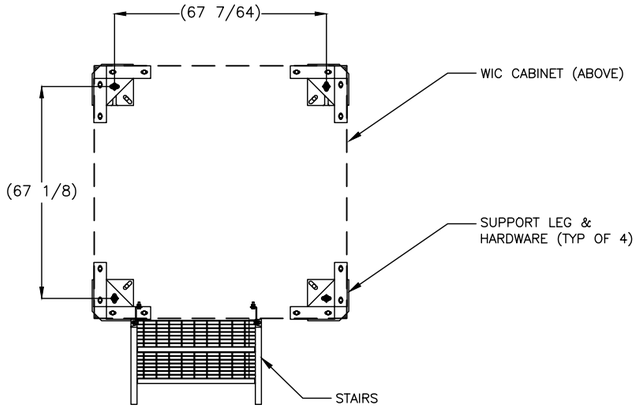
SHEET DESCRIPTION

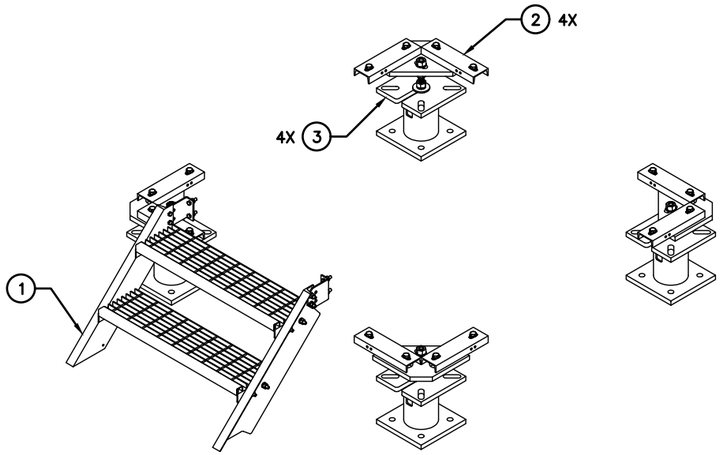
GENERATOR DETAILS

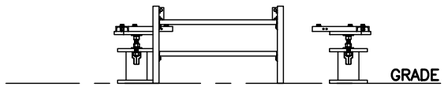
SHEET NO.

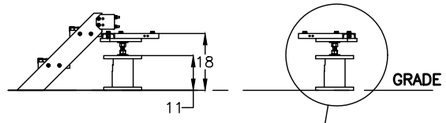
D-8

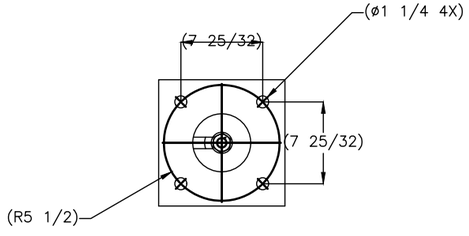
REVISIONS					
REV.	DCN #	DESCRIPTION	DATE	BY	APPROVED
3	DCN00475	ADDED CONCRETE ANCHOR CALLOUT	06.27.18	JCB	



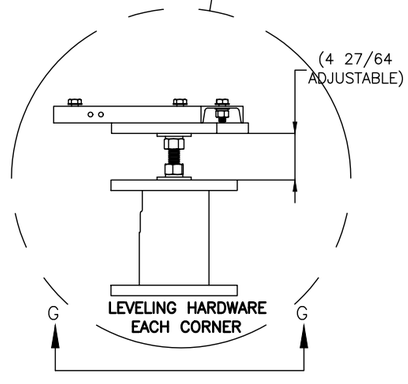








CONCRETE ANCHOR LAYOUT
SECTION G–G



△3 **MINIMUM ANCHOR SIZE: 5/8"**
MAXIMUM ANCHOR SIZE: 1"

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	WEIGHT
1	1	1003–0000–0016	WIC 2–STEP STAIRS KIT, 45 DEGREE	102.9
2	4	W–000–771	ATT WIC HELICAL ADAPTER WELDMENT	44.9
3	4	W–000–847	6" X 11" EXTENSION WELDMENT	81.5
4	4	002–0AT–H000	ROD, THREADED, 1.00"–8 X 9.00" LG, ASTM A193 B7, GALV	1.60
5	8	002–0NG–0000	NUT, HX, ANCO LOCK, 1.00–8UNC, GR 2H, GALV	0.43
6	8	002–0NG–0008	NUT, HX, 1.00"–8UNC, GR 2H, GALV	0.42
7	8	002–0LW–G008	WASHER, SPLIT LOCK, 1.00", GALV	0.09
8	8	002–0FW–G024	WASHER, FLAT, 1.063 ID, 3.25 OD, GALV	0.07
9	8	002–0FW–G009	WASHER, FLAT, 1.00", F436, GALV	0.08
10	16	002–0BG–0033	BOLT, HX HD, .625–11UNC X 1.75" LG, ASTM A325, GALV	0.03
11	16	002–0NG–0011	NUT, HX, .625–11UNC, GR DH, GALV	0.12
12	16	002–0LW–G004	WASHER, SPLIT LOCK, .625 INCH, GALV	0.03
13	32	002–0FW–G004	WASHER, FLAT, .625", ASTM F436, GALV	0.03

SURFACE FINISH √ UNLESS OTHERWISE SPECIFIED
MATERIAL: SEE PARTS LIST
THIRD ANGLE PROJECTION
NEXT ASSY | USED ON
APPLICATIONS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES
.0 ± .06
.00 ± .01
.000 ± .005
FRACTIONS ± 1/16
ANGLES ± .25°
HOLES:
DRILLED OR PUNCHED ± 1/32
BURNED ± 1/32

APPROVALS	DATE
DRAWN C. SANCHEZ	4.12.18
CHECKED J. BUSHMAN	5.2.18
ENGINEER/DESIGNER J. BUSHMAN	5.2.18
PRODUCTION J. SUNDERLAND	5.2.18

ELECTRO MECHANICAL INDUSTRIES, INC.
11230 NEESHAM DRIVE
HOUSTON, TEXAS 77065
1–800–453–0050

TITLE: CONCRETE MOUNT FOUNDATION KIT

SIZE B | DRAWING NO. 1000–0010–0112 | REV 3
SCALE: 140 | WEIGHT: 627 lbs. | SHEET 1 OF 2

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862

Trylon
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IRVING, TEXAS 75038
1–855–669–5421

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STATE OF CONNECTICUT
JINSHAN WANG
Jinshan Wang
Apr 21, 2021
PEN.0034086
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

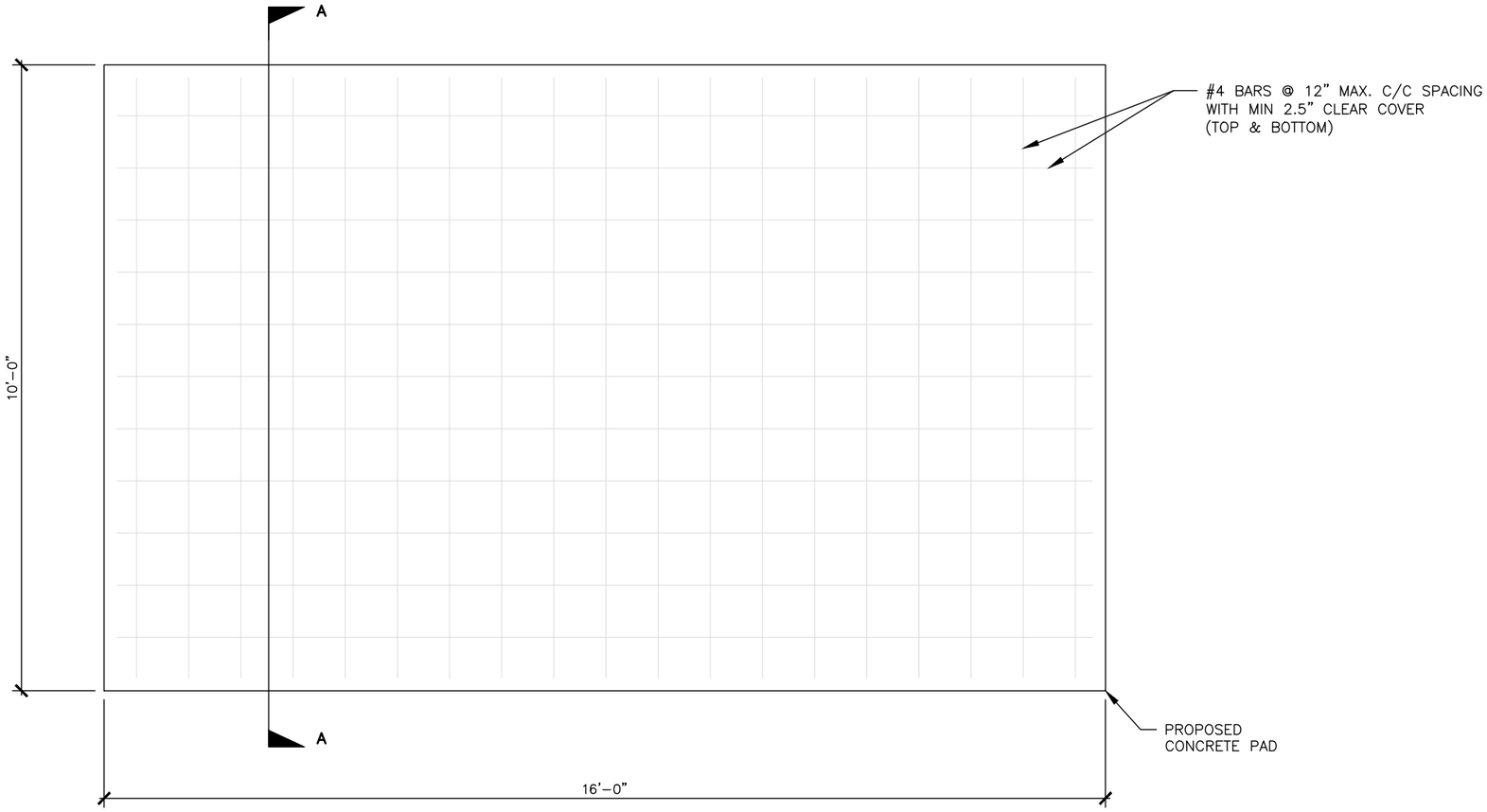
15 KLUGE ROAD DUP
PROSPECT, CT 06712

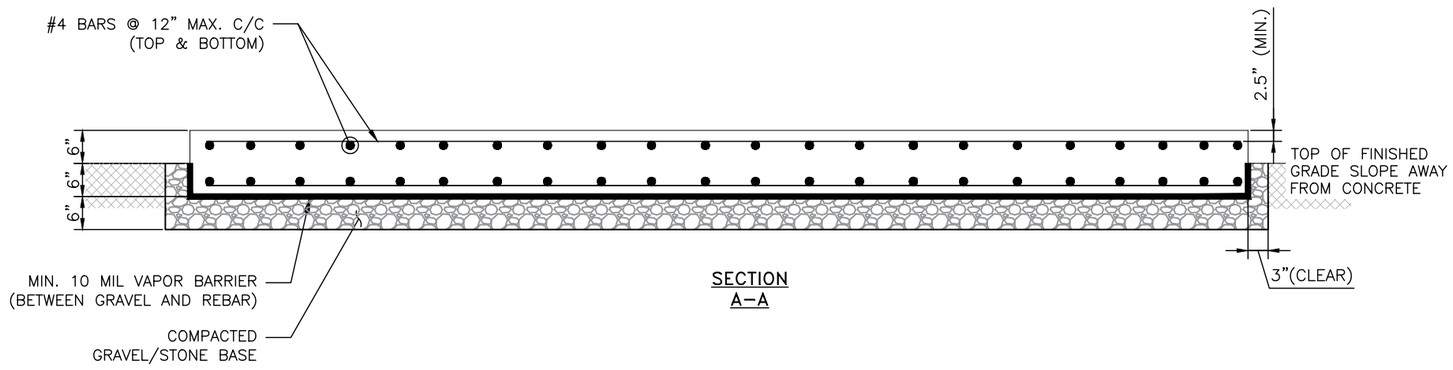
SHEET DESCRIPTION

CONCRETE MOUNT FOUNDATION KIT

SHEET NO.

D–9





SECTION
A–A

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862

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STATE OF CONNECTICUT
JINSHAN WANG
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PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

CONCRETE PAD DETAILS

SHEET NO.

D–10

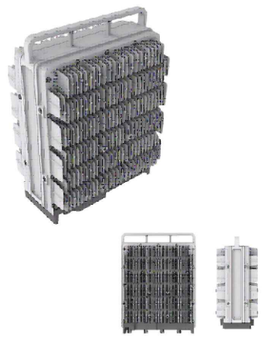
N/A

ANTENNA DETAIL | NOT TO SCALE | 1

RADIO 4449 DUAL BAND B5 & B12

Target PRA: 30 Oct 2018

- 4TX/4RX per Band (B5 & B12)
- 320W of total power
  - 4x40 W per band (4T4R in each band)
- Full IBW in each band
- Carrier BW:
  - 5, 10 MHz
- LTE: Max 6 carriers per port (DL), max 6 carriers per port (UL)
- CPRI Support:
  - 2.5; 4.9; 9.8; 10.1
- -48 VDC 3-wire (2-wire with adapter)
  - Two DC power ports of 20A
- AISG TMA & RET support via RS-485 or RF connectors
  - Bias-T only be supported on antenna port A and C.
- Four antenna connectors : 4 x 4.3-10 plus (f)
- 2 external alarm
- ~ 73 lb.
- ~33L (14.96" x 13.19" x 10.43")
  (Preliminary, final figures in Mar 18 pending B12 filter design)
- IP 65, -40 to +55℃

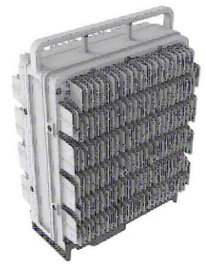


Ericsson Internal | 2018-03-02 | Page 6

RRH DETAIL | NOT TO SCALE | 2

RRUS 8843 B2, B66A

- B2, B66A
  - B2 TX =1930 - 1990 MHz, B66A TX =2110 - 2180 MHz
  - B2 RX = 1850 – 1910 MHz, B66A RX = 1710-1780 MHz
- CPRI 2 ports x 2.5/4.9/9.8/10.1 Gbps. Install 2 SFP7s and connect 2 fiber pair to the RRUS 8843 during initial install. 2nd CPRI is reserved for 5G NR deployment later. Do not connect SFP7 to DUL20.
- Only use Ericsson supplied and approved SFP7s RDH10265/25.
  - Install 2 SFP RDH 10265/3 for CPRI length 1.4 km – 10 km
  - Install SFP7 (pair): RDH 102 7D/1 and RDH 102 7D/2 (bi-directional SFP7 for CPRI length > 10 km
- 2 external alarm inputs
- Max wind load @ 50m/sec = 260 N
- Breaker size = 2x30A, DC Power Consumption = 1520 W (for dimensioning). Both power connections must be connected and operational for the radio to operate.
- 40 mm horizontal separation required between radios mounted side by side
- 200mm separation required from antenna backplane to radio
- 400mm vertical outdoor/indoor separation required between 2 radios
- 500mm vertical separation below antenna
- 200mm horizontal separation between radio and side edge of antenna
- Min, Max DC cable size from squid to radio = 10,8 AWG
  - Adaptor is required for 2-wire connection
  - Shielded DC cable is required
- Ground cable size = 2AWG
- Dimensions (incl. handles, feet and sunshield, w/o fan unit)
  - Height: 14.9" (380 mm)
  - Width: 13.2" (335 mm)
  - Depth: 10.9" (277 mm)
- Weight, excl. mounting hardware = 72 lbs (32.6 kg)



RRH DETAIL | NOT TO SCALE | 3

RRUS 4478 B14

- B14
  - TX = 758 – 768 MHz
  - RX = 788 – 798 MHz
- CPRI 2 ports x 2.5/4.9/9.8/10.1 Gbps. Install 1 SFP and connect 1 fiber pair to the RRUS 4478 during initial install.
- Only use Ericsson supplied and approved SFPs RDH10265/25 until 12/1/2017, after use RDH10247/25
- 2 external alarm inputs
- Max wind load @ 50m/sec = 260N
- Breaker size = 25A, DC Power Consumption = 650W (for dimensioning)
- 200mm horizontal separation required for side by side mounting
- 200mm separation required from antenna backplane to radio
- 500mm/800mm vertical outdoor/indoor separation required
- Min, Max DC cable size from squid to radio = 10,8 AWG
  - Adapter is required for 2-wire connection
  - Shielded DC cable is required
- Ground cable size = 2AWG
- Dimensions (incl. handles, feet and fan unit)
  - Height: 18.1" (460 mm)
  - Width: 13.4" (342 mm)
  - Depth: 8.26" (210 mm)
- Weight, excl. mounting hardware = 59.4 lbs (27 kg)

RRH DETAIL | NOT TO SCALE | 4

N/A

ANTENNA DETAIL | NOT TO SCALE | 5

N/A

ANTENNA DETAIL | NOT TO SCALE | 6

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862

Trylon
1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421

DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY.

SUBMITTALS

REV	DATE	DESCRIPTION	BY
A	03/20/21	90% CD	AVP
0	04/07/21	100% CD	AVP
1	04/21/21	100% CD	MSM

STATE OF CONNECTICUT
JINSHAN WANG
Apr 21, 2021
PEN.0034086
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

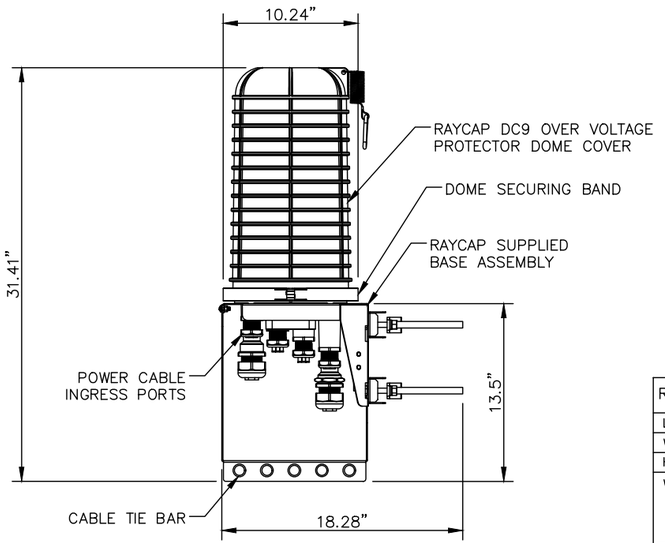
15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

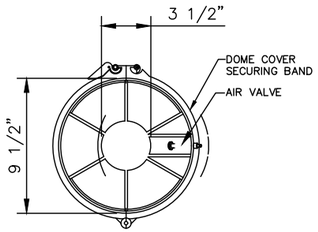
EQUIPMENT DETAILS

SHEET NO.

D-11



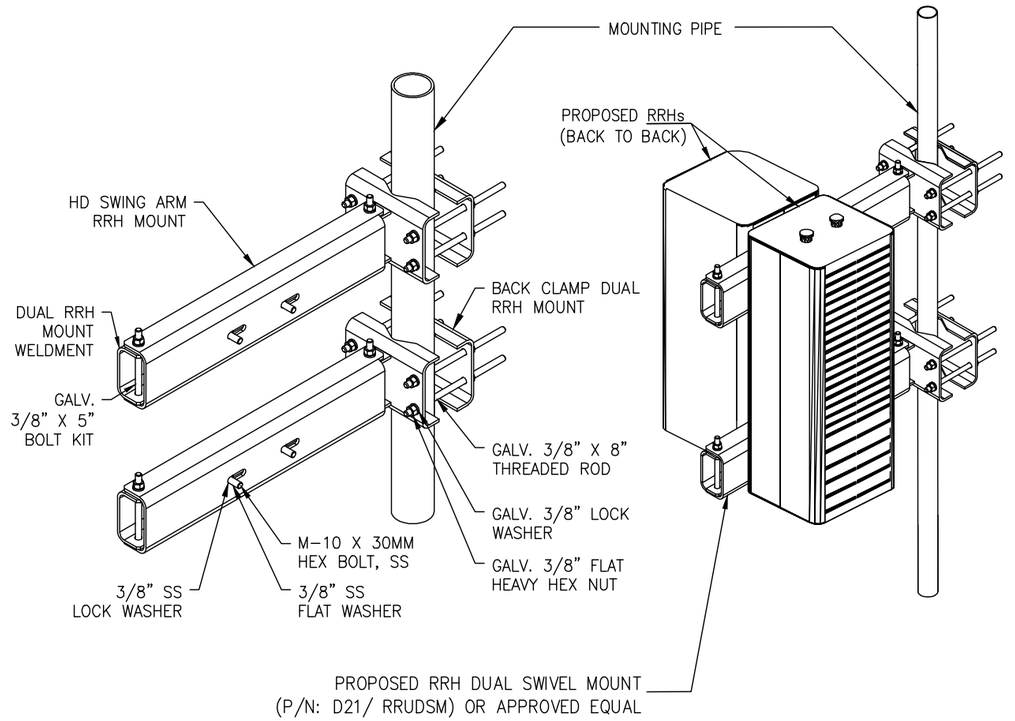
DC9-48-60-24-8C-EV



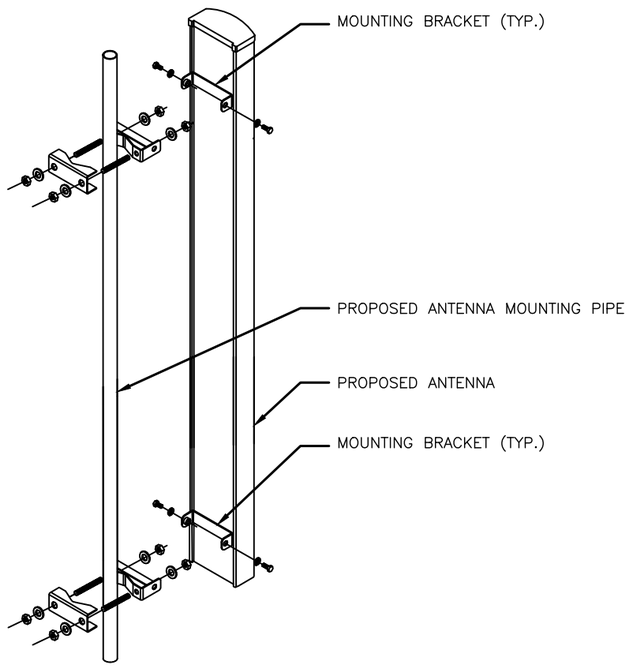
TOP VIEW

RAYCAP DC9-48-60-24-8C-EV (SQUID)	
LENGTH (H)	18.28"
WIDTH (W)	10.24"
HEIGHT (D)	31.41"
WEIGHT: SYSTEM MOUNT TOTAL:	 16.0 LBS 10.2 LBS 26.2 LBS
COMBINED WIND LOADING SUSTAINED | GUST	105.7 LBS | 213.6 LBS

DC9 SQUID DETAIL | NOT TO SCALE | 1



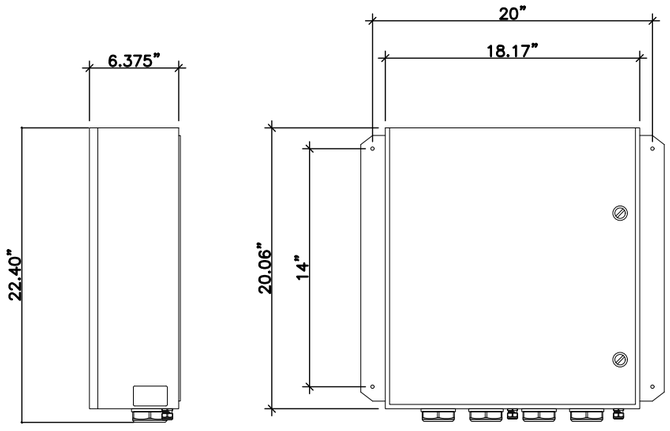
RRH MOUNTING DETAIL | NOT TO SCALE | 2



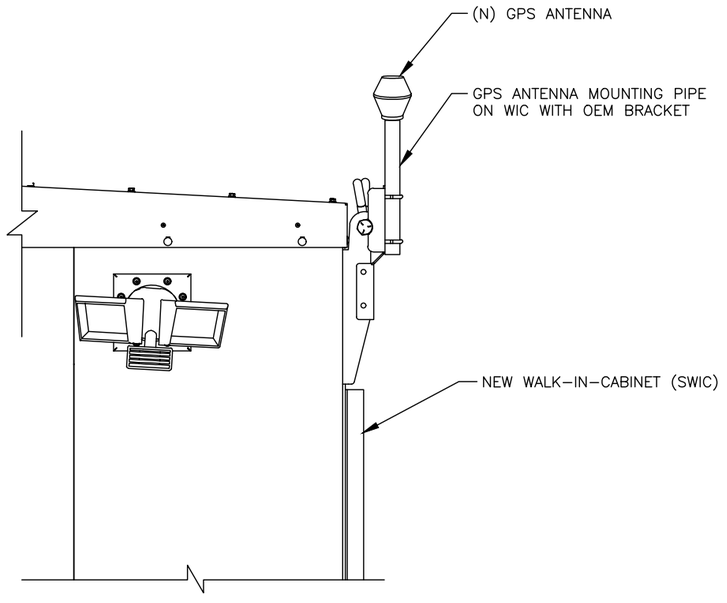
ANTENNA MOUNTING | NOT TO SCALE | 3

RAYCAP DC12-48-60-0-25E DC SURGE SUPPRESSOR

- DIMENSIONS, HXWXD: 20.06"X18.17"X6.375"
- WEIGHT: ±56.3 LBS (INCLUDES MOUNTING KIT)
- COLOR: LIGHT THAN



DC12 DETAIL | NOT TO SCALE | 4



GPS ANTENNA MOUNTING | NOT TO SCALE | 5

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862

Trylon
1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421

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SUBMITTALS

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STATE OF CONNECTICUT
YINSHAN WANG
Apr 21, 2021
PEN.0034086
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

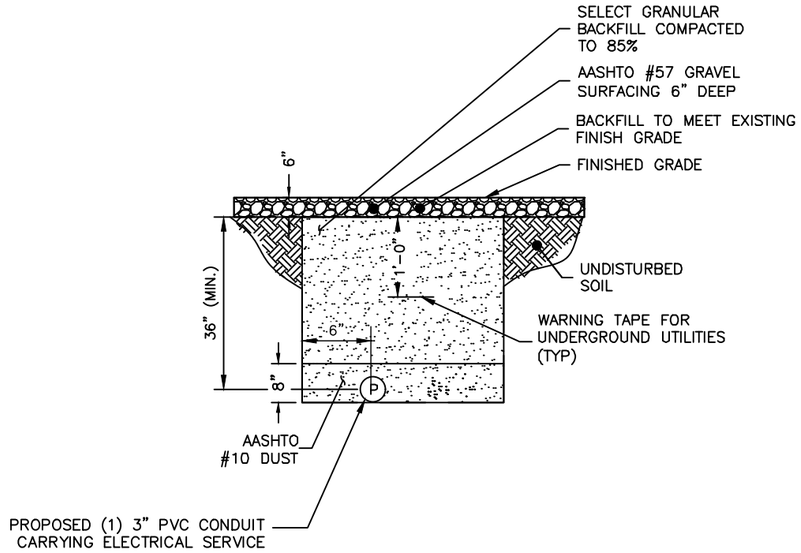
15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

EQUIPMENT DETAILS

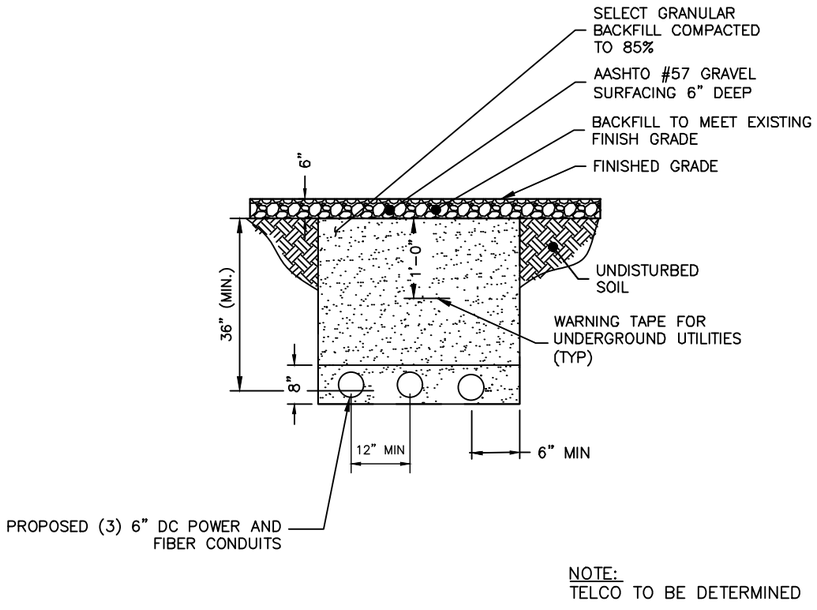
SHEET NO.

D-12



NOTE:
EXCAVATE EXISTING SUBGRADE AS REQUIRED TO INSTALL CONDUITS ACCORDING TO OSHA AND ALL APPLICABLE CODES.

TYPICAL TRENCH DETAIL (POWER) | NOT TO SCALE | 1

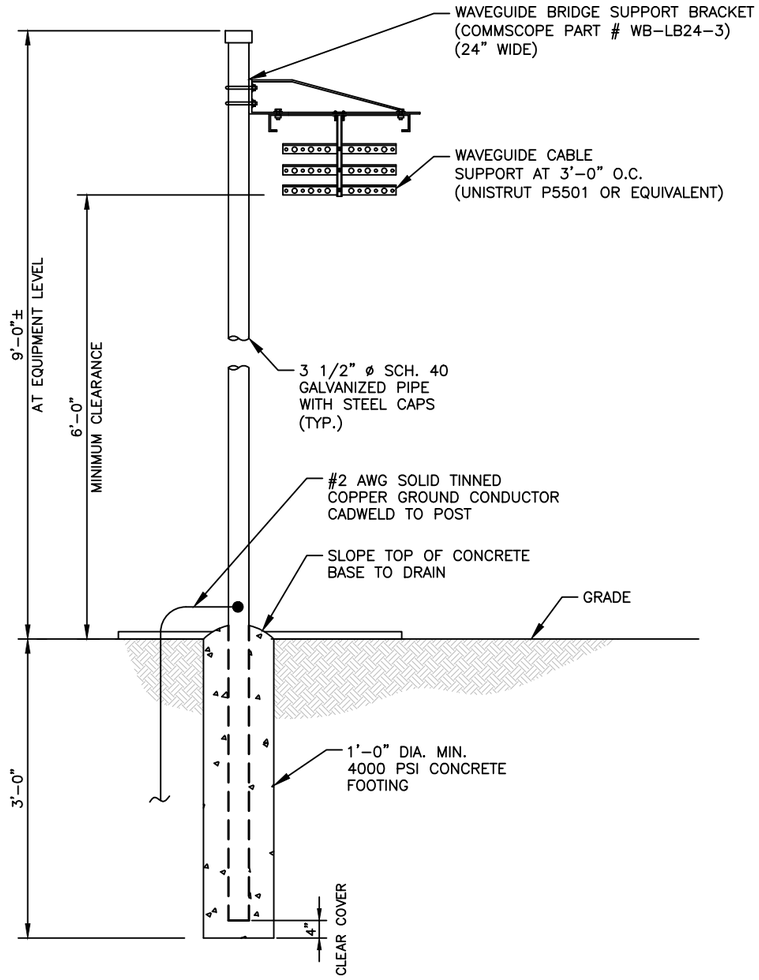


NOTE:
TELCO TO BE DETERMINED

TYPICAL TRENCH DETAIL (DC POWER & FIBER) | NOT TO SCALE | 2

NOTES:

1. ALL MATERIALS USED FOR ICE BRIDGE SHALL BE HOT DIPPED GALVANIZED. ALL FIELD CUTS OR DRILLED OPENINGS SHALL BE RESEALED WITH (3) COATS OF COLD-GALVANIZING COMPOUND TO CLEANED SURFACES.
2. ADDITIONAL SECTIONS OF ICE BRIDGE MAY BE REQUIRED AS INDICATED IN SITE PLAN. SUPPORT EACH 10'-0" SECTION WITH A MINIMUM OF TWO POSTS WITH A MAXIMUM SPACING OF 8'-0".
3. WHEN USING COMPONENTS FOR SPLICING BRIDGE CHANNEL SECTIONS, THE SPLICE SHOULD BE PROVIDED AT THE SUPPORT, IF POSSIBLE, OR AT A MAXIMUM OF 2'-0" FROM THE SUPPORT.
4. CUT BRIDGE CHANNEL SECTIONS SHOULD HAVE RAW EDGES TREATED WITH A MATERIAL TO RESTORE THE CUT EDGE TO THE ORIGINAL CHANNEL, OR EQUIVALENT, FINISH.



ICE BRIDGE DETAIL | NOT TO SCALE | 3

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862

Trylon
1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421

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STATE OF CONNECTICUT
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Apr 21, 2021
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SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

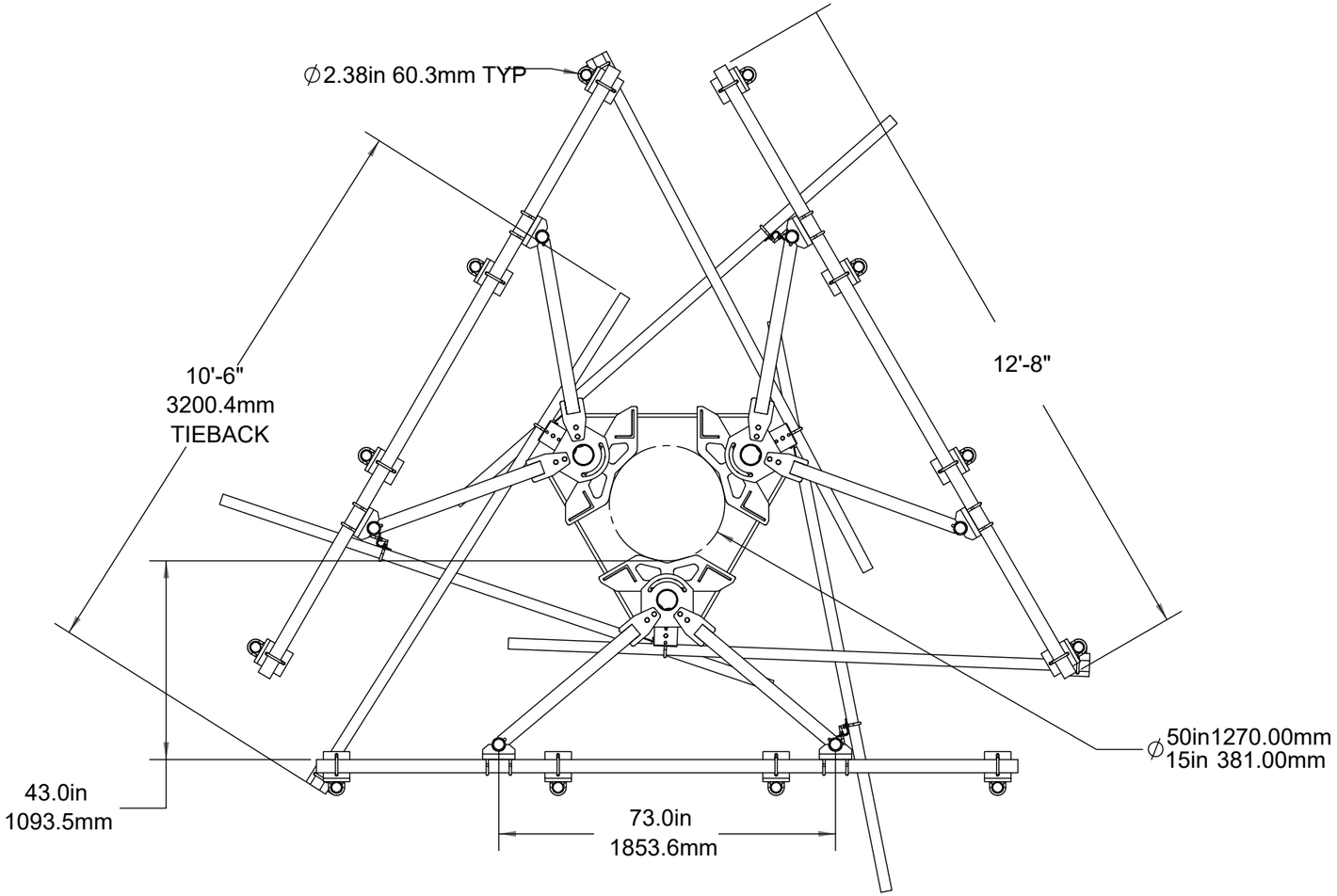
15 KLUGE ROAD DUP
PROSPECT, CT 06712

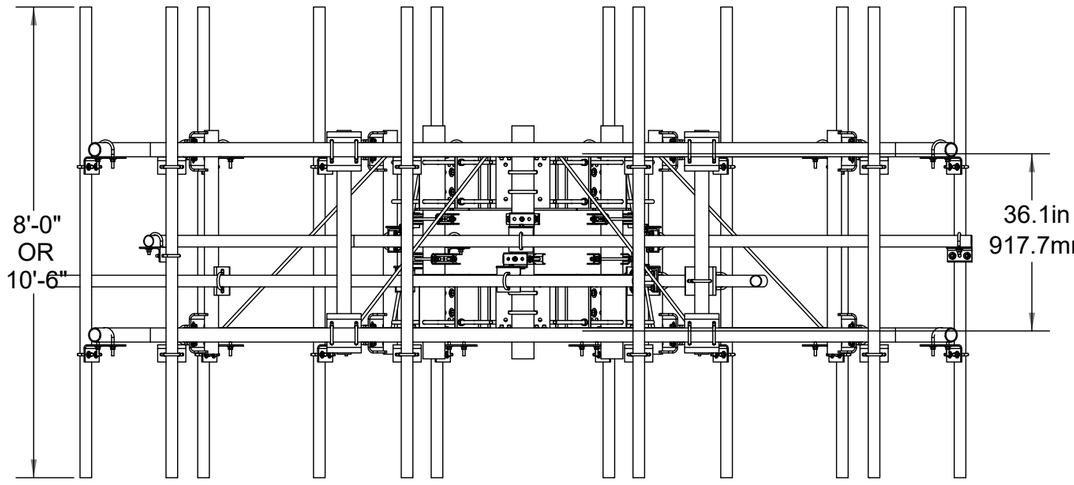
SHEET DESCRIPTION

EQUIPMENT DETAILS

SHEET NO.

D-13





COMMSCOPE MOUNT MCG23-12-B3 DETAIL

NOT TO SCALE

1

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
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BLDG 3, SUITE 102
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Trylon
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SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

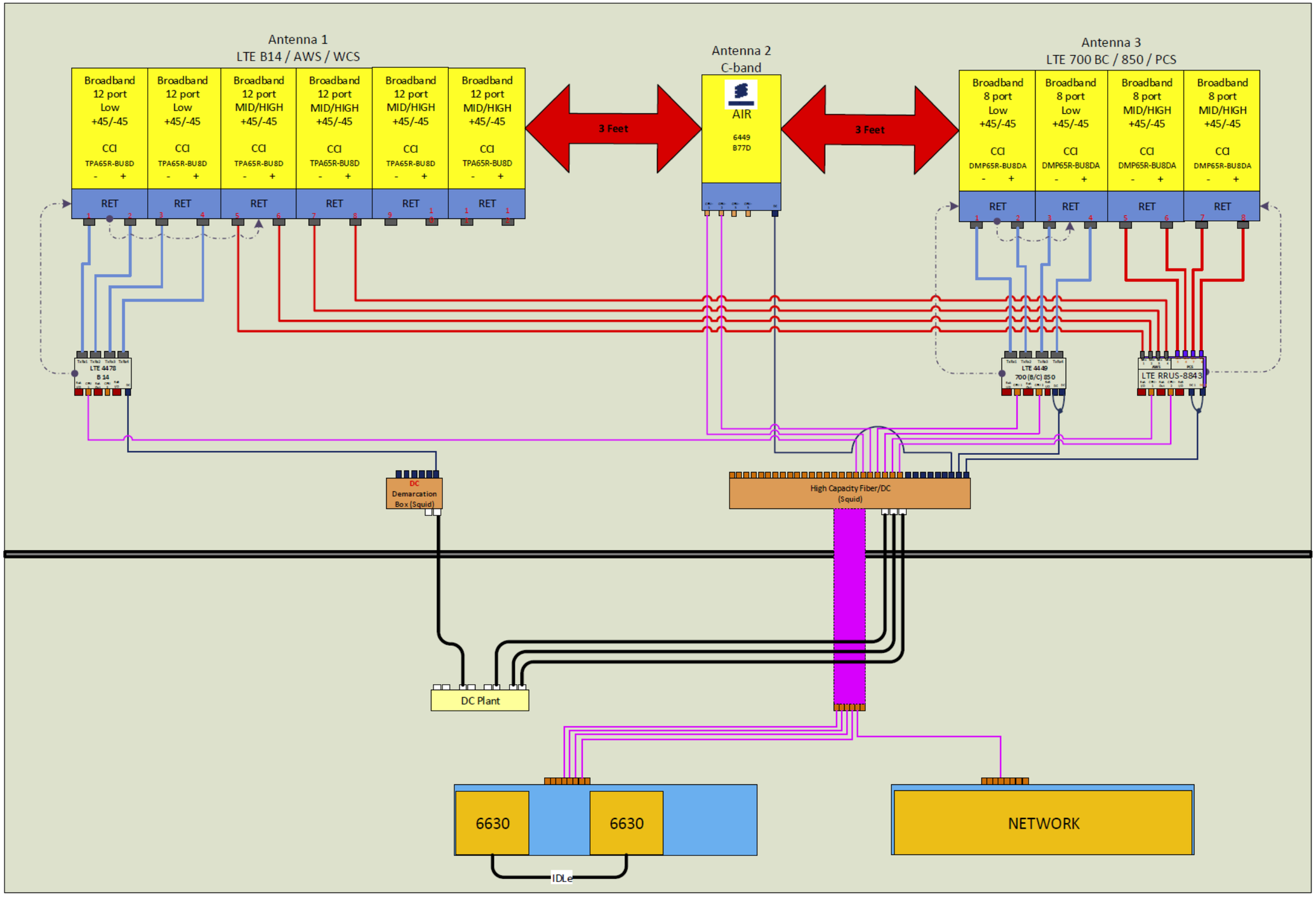
15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

ANTENNA MOUNT DETAILS

SHEET NO.

D-14



RFDS PLUMBING DIAGRAM FOR ALL SECTOR | NOT TO SCALE | 1

AT&T
84 DEERFIELD LN
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BLDG 3, SUITE 102
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Trylon
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IRVING, TEXAS 75038
1-855-669-5421

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STATE OF CONNECTICUT
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PEN.0034086
LICENSED
PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

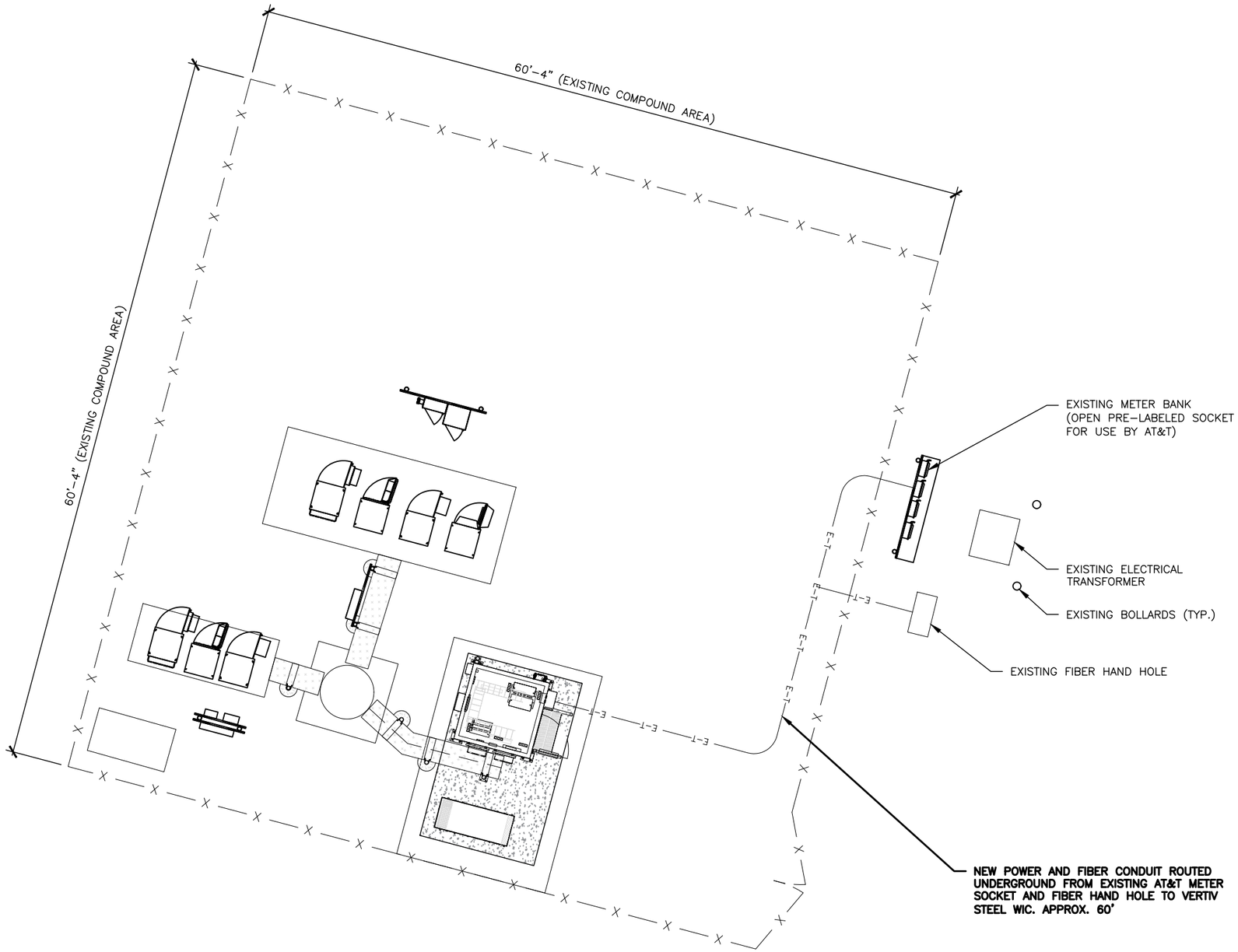
15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

RFDS PLUMBING DIAGRAM

SHEET NO.

D-15



AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862

Trylon
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JINSHAN WANG
Apr 21, 2021
PEN.0034086
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

UTILITY PLAN

SHEET NO.

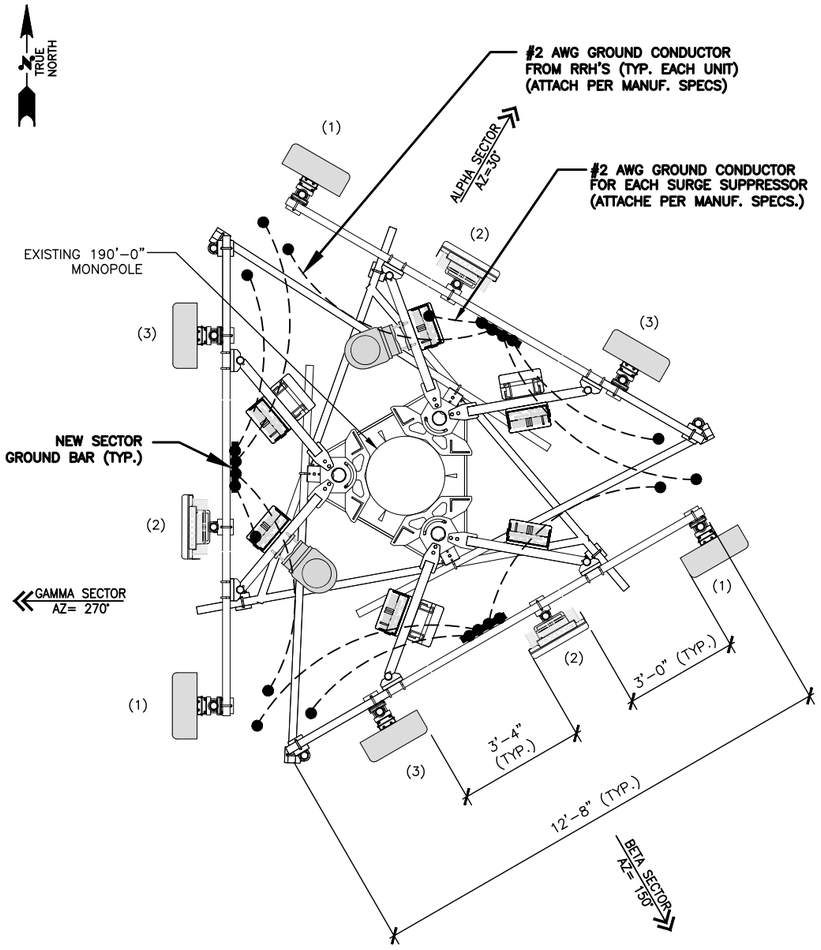
E-1

TRUE NORTH

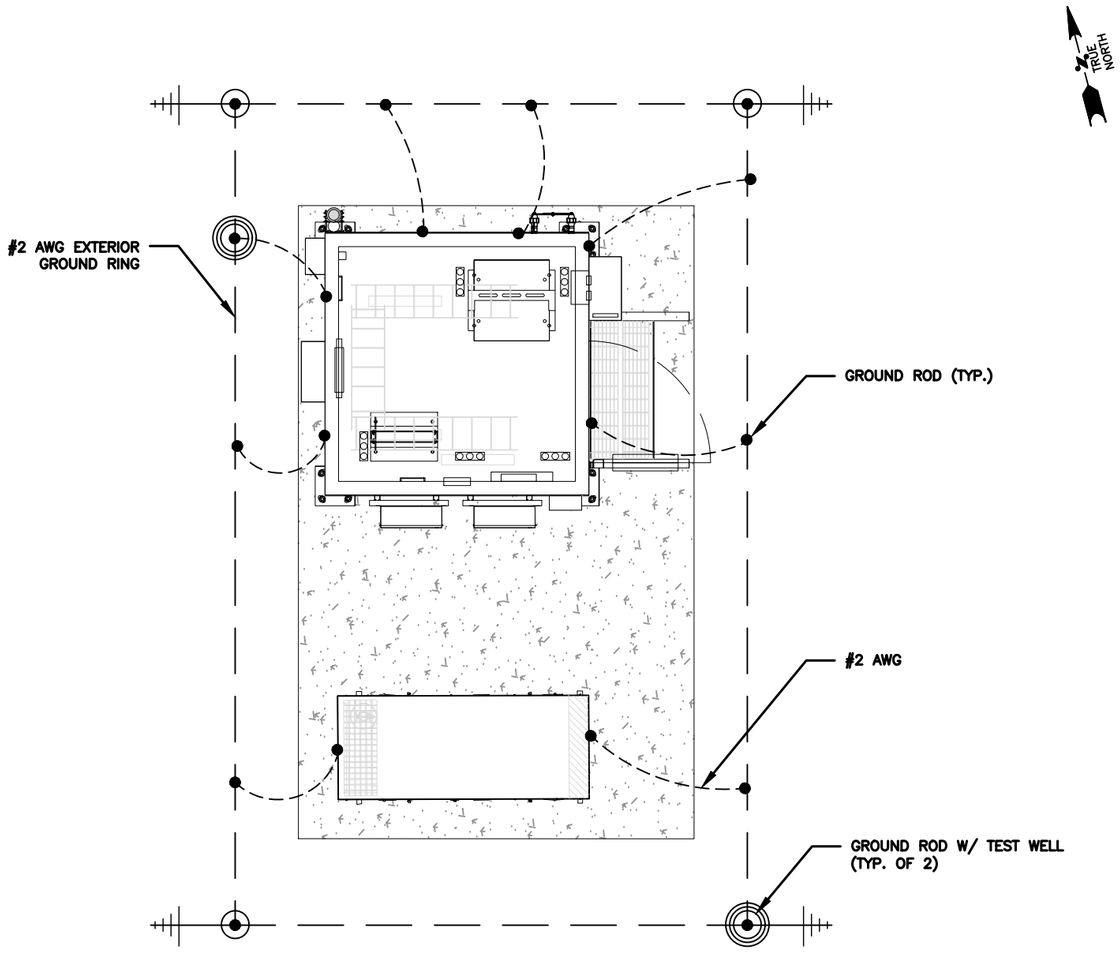
UTILITY PLAN

0 5' 10'

SCALE: 1"=10'-0" (11x17)
(OR) 2"=10'-0" (22x34)



GROUNDING LEGEND	
●	MECHANICAL CONNECTION
■	EXOTHERMIC CONNECTION
▬▬	SECTOR GROUND BAR
— — —	GROUND WIRE



NOTES:

1. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
2. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
3. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE AND UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
6. ANY EQUIPMENT, BOX, SKID TO BE GROUNDED AND DOES NOT HAVE A DESIGNATED GROUND CONNECTION SHALL BE DRILLED AS NECESSARY TO CONNECT A GROUND WIRE. REMOVE PAINT IN AREA UNDER LUG. APPLY ANTI-OXIDANT COMPOUND AND CONNECT WITH TWO-HOLE, COMPRESSION LUG.
7. GROUND BARS SHALL BE TINNED COPPER AND SHALL BE ENGRAVED OR IMPRESSED "STOLEN-DO NOT RECYCLE" AND/OR "PROPERTY OF AT&T", ETCHED OR STAMPED WITH SITE FA LOCATION AND SECURED WITH ANTI-THEFT HARDWARE.
8. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING FOR GROUND ELECTRODE SYSTEMS. TESTING SHALL BE IN ACCORDANCE WITH IEEE STD 81.
9. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS. WHEN ADDING ELECTRODES, CONTRACTOR SHALL MAINTAIN A MINIMUM DISTANCE BETWEEN THE ADDED ELECTRODE AND ANY OTHER EXISTING ELECTRODE EQUAL TO THE BURIED LENGTH OF THE ROD. IDEALLY, CONTRACTOR SHALL STRIVE TO KEEP THE SEPARATION DISTANCE EQUAL TO OR LESS THAN TWICE THE BURIED LENGTH OF THE RODS.
10. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
11. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
12. EACH INTERIOR COMMUNICATION CABINET FRAME/PLINTH SHALL BE ELECTRICALLY ISOLATED FROM GROUNDS AND SHALL BE DIRECTLY CONNECTED TO THE CELL REFERENCE GROUND BAR WITH 6 AWG OR LARGER STRANDED, GREEN INSULATED GROUND WIRES.
13. GROUND WIRING INSTALLED OUTDOOR EXPOSED SHALL BE 600V, GREEN SUNLIGHT RESISTANT UL LISTED TYPE THW OR THWN OR XHHW, ANNEALED, TINNED, OR UN-TUNNED CLASS B OR CLASS I STRANDED COPPER, SIZE 6 UNLESS OTHERWISE SPECIFIED.
14. GROUND RODS SHOULD BE SPACED AT APPROXIMATELY TWICE THEIR LENGTH AS PER ATT-TP-76416 SPECIFICATIONS.

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1-855-669-5421

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JINSHAN WANG
Apr 21, 2021
PEN.0034086
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

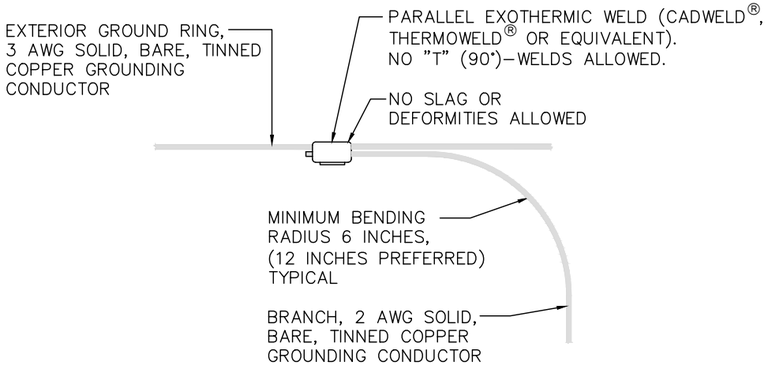
GROUNDING PLAN

SHEET NO.

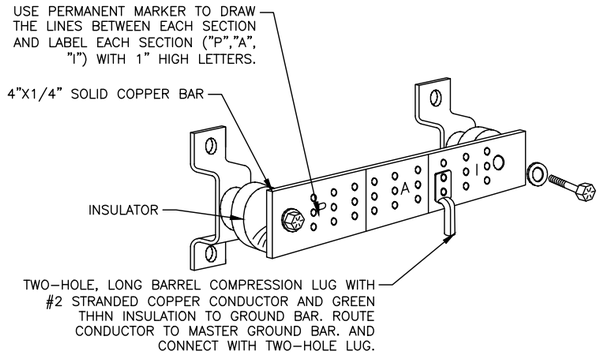
G-1

ANTENNA GROUNDING PLAN | NOT TO SCALE | 1

EQUIPMENT GROUNDING PLAN | N.T.S. | 2



TYPICAL EXTERIOR GROUND RING CONNECTION | NOT TO SCALE | 1

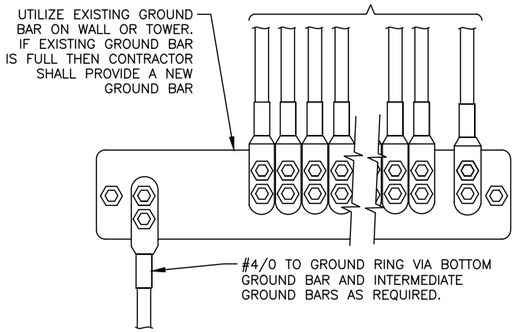


EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

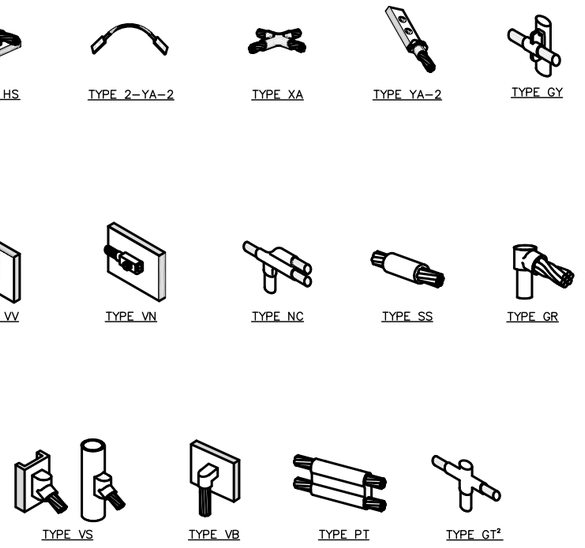
SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES)
GENERATOR FRAMEWORK (IF AVAILABLE)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND
+24V POWER SUPPLY RETURN BAR (#2)
–48V POWER SUPPLY RETURN BAR (#2)
RECTIFIER FRAMES

GROUND BAR | NOT TO SCALE | 2



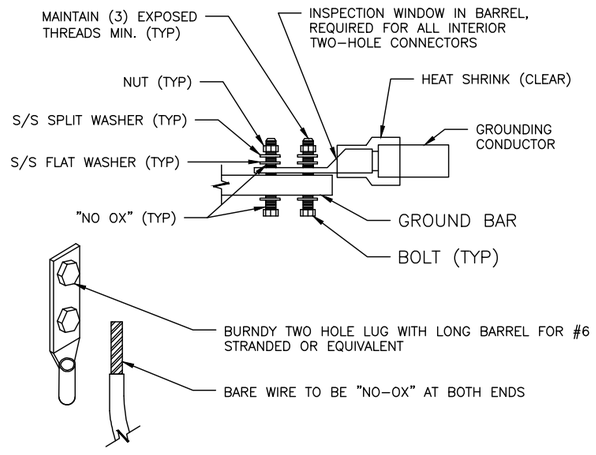
SECTOR GROUND BAR | NOT TO SCALE | 3



NOTE:

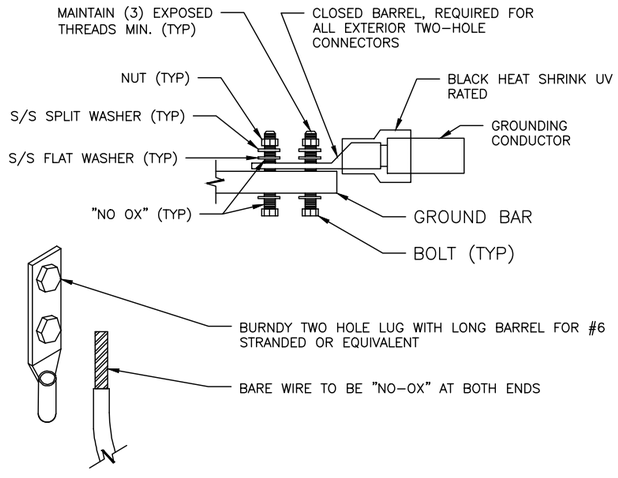
1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

CADWELD GROUNDING CONNECTIONS | NOT TO SCALE | 4



NOTES:
1. ALL HARDWARE SHALL BE 18–8 STAINLESS STEEL.
2. COAT ALL SURFACES WITH ANTIOXIDANT COMPOUND BEFORE MATING.
3. ALL EXPOSED EASILY ACCESSIBLE GROUND BARS SHALL BE TAGGED "DO NOT DISCONNECT".
4. COAT ALL BARRELS WITH ANTIOXIDANT BEFORE CRIMPING.

INTERIOR GROUND BAR LUG | NOT TO SCALE | 5



NOTES:
1. ALL HARDWARE SHALL BE 18–8 STAINLESS STEEL.
2. COAT ALL SURFACES WITH ANTIOXIDANT COMPOUND BEFORE MATING.
3. ALL EXPOSED EASILY ACCESSIBLE GROUND BARS SHALL BE TAGGED "DO NOT DISCONNECT".
4. COAT ALL BARRELS WITH ANTIOXIDANT BEFORE CRIMPING.

EXTERIOR GROUND BAR LUG | NOT TO SCALE | 6

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862

Trylon
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1–855–669–5421

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LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

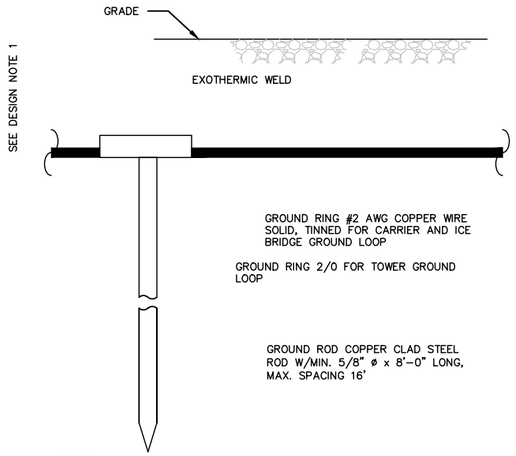
15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

GROUNDING DETAILS

SHEET NO.

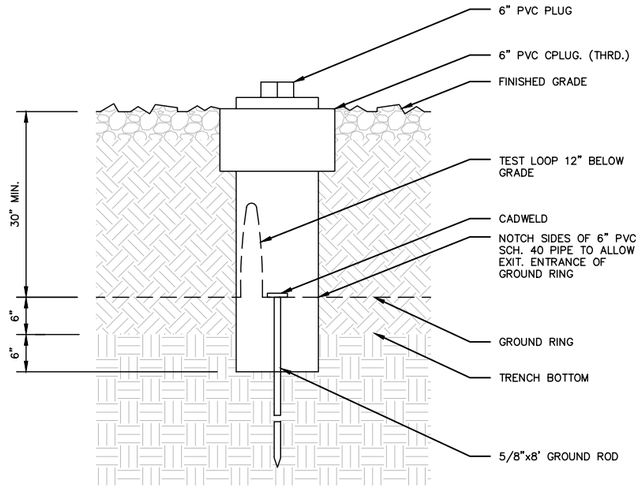
G–2



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

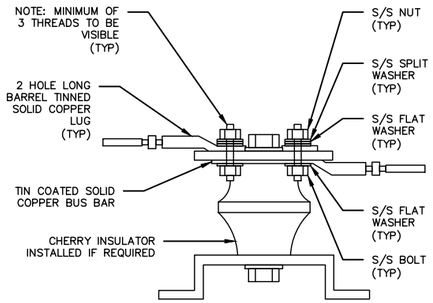
GROUND ROD | NOT TO SCALE | 1



NOTE:

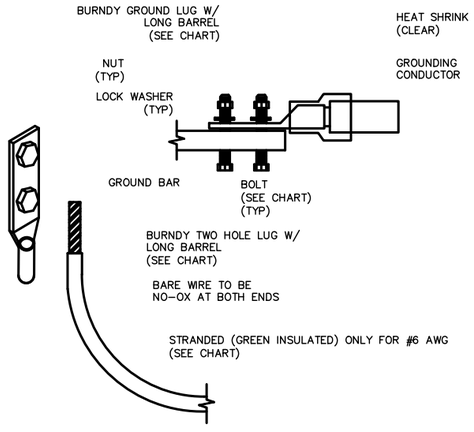
INSPECTION HAND HOLE MAY BE CONCRETE OR PVC AND SHALL BE A MINIMUM OF 6" IN WIDTH/DIAMETER

GROUND ROD WITH TEST WELL | NOT TO SCALE | 2



LUG DETAIL | NOT TO SCALE | 3

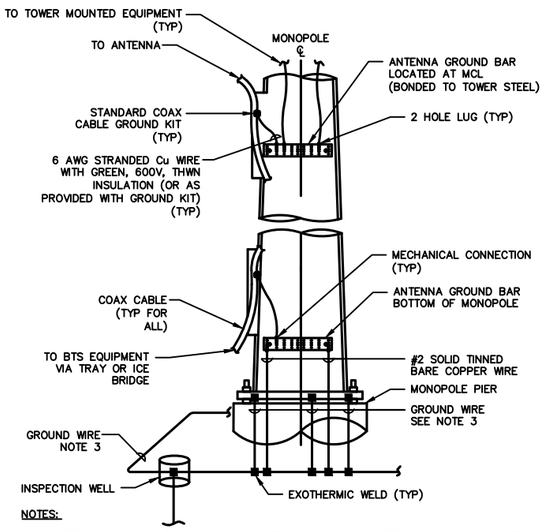
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER,GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

MECHANICAL LUG CONNECTION | NOT TO SCALE | 4



NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF MONOPOLE, ANTENNA LOCATION AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET IN/ON THE POLE SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222 AND NFPA 780. FOR TOWERS BEING BUILT TO REV G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE 2/0 AWG. STRANDED IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM 8 FEET TO 10 FEET.

TYPICAL ANTENNA CABLE GROUNDING | NOT TO SCALE | 5

NOT USED | NOT TO SCALE | 6

AT&T
84 DEERFIELD LN
MERIDEN, CT 06450

smartlink
85 RANGEWAY ROAD
BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862

Trylon
1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421

DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY.

SUBMITTALS

REV	DATE	DESCRIPTION	BY
A	03/20/21	90% CD	AVP
0	04/07/21	100% CD	AVP
1	04/21/21	100% CD	MSM

STATE OF CONNECTICUT
JINSHAN WANG
Apr 21, 2021
PEN.0034086
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

N.BETHANY / DAVID KLUDGE

N/A

FA#: 15449390

USID: 298475

15 KLUGE ROAD DUP
PROSPECT, CT 06712

SHEET DESCRIPTION

GROUNDING DETAILS

SHEET NO.

G-3

ATTACHMENT 7

C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
603-644-2800
support@csquaredsystems.com

Calculated Radio Frequency Exposure

CT1451 Prospect

15 Kluge Road, Prospect, CT

September 16, 2021

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed installation of the AT&T antenna arrays on a new monopole tower located at 15 Kluge Road, Prospect, CT. The coordinates of the tower are 41° 28' 16.43" N, 72° 58' 18.98" W.

AT&T is proposing the following:

1) Install nine (9) multi-band antennas (three per sector) to support its commercial LTE network and the FirstNet National Public Safety Broadband Network ("NPSBN").

This report considers the planned antenna configuration for AT&T[1] to derive the resulting % Maximum Permissible Exposure of its proposed installation in addition to the existing T-Mobile and Sprint installations.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

[1] As referenced to AT&T's Radio Frequency Design Sheet updated 2/15/2021.

3. RF Exposure Calculation Methods

The power density calculation results were generated using the following formula as outlined in FCC bulletin OET 65, and Connecticut Siting Council recommendations:

$$\text{Power Density} = \left(\frac{1.6^2 \times 1.64 \times \text{ERP}}{4\pi \times R^2}\right) \text{X Off Beam Loss}$$

Where:

ERP = Effective Radiated Power

R = Radial Distance = $\sqrt{\left(H^2 + V^2\right)}$

H = Horizontal Distance from antenna

V = Vertical Distance from radiation center of antenna

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all antenna channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not consider actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final installations.

4. Calculation Results

Table 1 below outlines the cumulative power density information for the AT&T equipment at the site. The proposed antennas are directional in nature; therefore, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.[2]

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	% MPE
T-Mobile	180	2100	4308	0.0512	1.0000	0.51%
T-Mobile	180	700	2256	0.0268	0.4667	0.57%
T-Mobile	180	600	1128	0.0134	0.4000	0.33%
T-Mobile	180	600	1128	0.0134	0.4000	0.33%
T-Mobile	180	1900	1583	0.0188	1.0000	0.19%
T-Mobile	180	1900	1583	0.0188	1.0000	0.19%
T-Mobile	180	2500	3590	0.0426	1.0000	0.43%
T-Mobile	180	2500	3591	0.0427	1.0000	0.43%
Sprint	192	1900	551	0.0115	1.0000	0.11%
Sprint	192	850	276	0.0029	0.5667	0.05%
Sprint	192	2500	693	0.0144	1.0000	0.14%
AT&T	159	739	3156	0.0048	0.4927	0.98%
AT&T	159	763	3541	0.0054	0.5087	1.07%
AT&T	159	885	3883	0.0060	0.5900	1.01%
AT&T	159	1900	5877	0.0090	1.0000	0.90%
AT&T	159	2100	9890	0.0152	1.0000	1.52%
AT&T	159	3500	79433	0.1221	1.0000	12.21%
AT&T	159	2300	6153	0.0095	1.0000	0.95%
					Total	**21.94%**

Table 1: Carrier Information

[2] % MPE values for the T-Mobile and Sprint installations are taken from the Connecticut Siting Council Power Density Table dated July 16, 2021.

5. Conclusion

The above analysis concludes that RF exposure at ground level from the proposed site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using conservative calculation methods, the highest expected percent of Maximum Permissible Exposure at ground level is **21.94% of the FCC General Population/Uncontrolled limit**.

As noted previously, the calculated % MPE levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in FCC OET Bulletin 65 Edition 97-01, ANSI/IEEE Std. C95.1 and ANSI/IEEE Std. C95.3.

September 16, 2021
Date

Reviewed/Approved By: Martin J. Lavin
Senior RF Engineer
C Squared Systems, LLC

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

IEEE C95.1-2005, IEEE Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2002 (R2008), IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[3]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[4]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[3] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

[4] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure

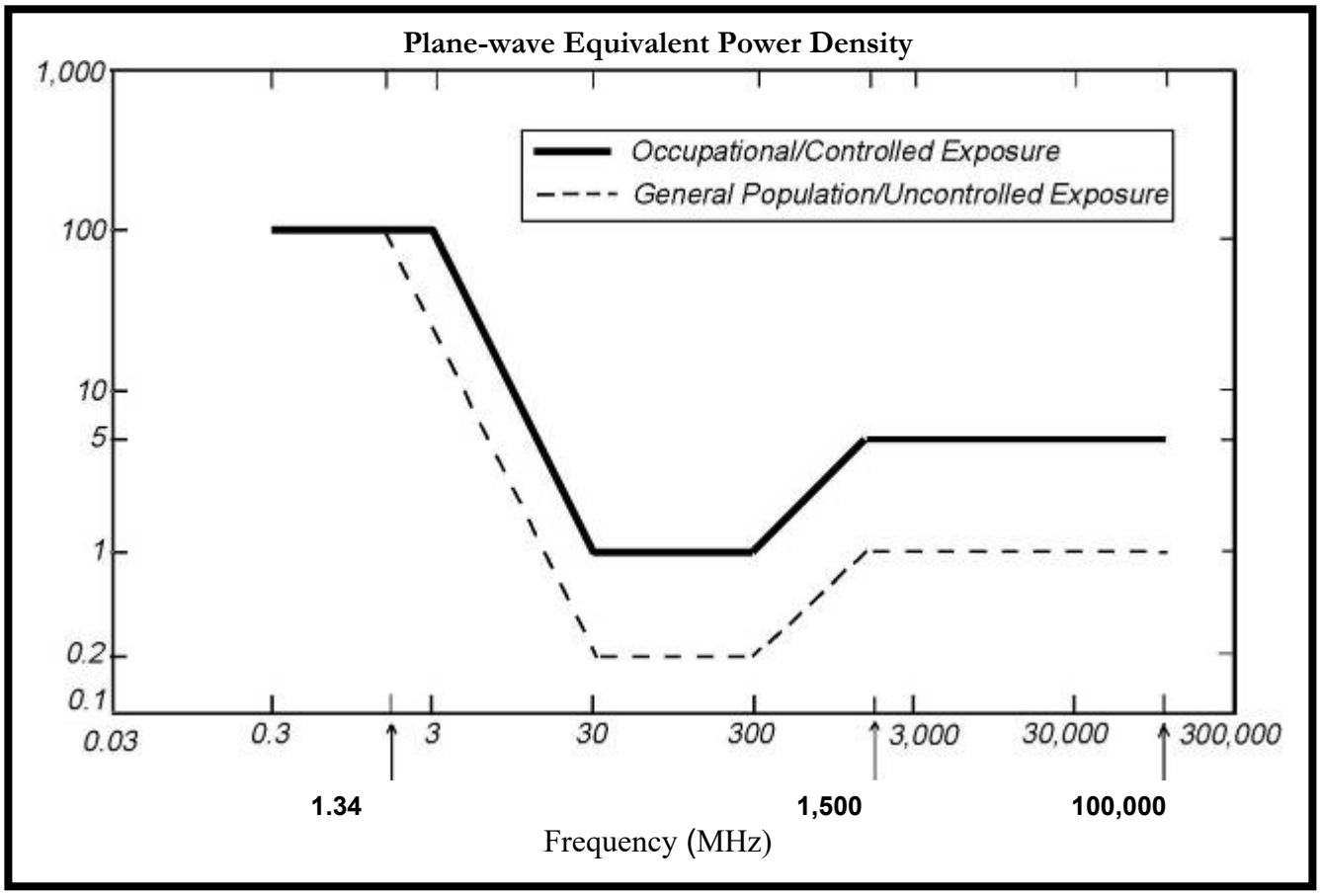
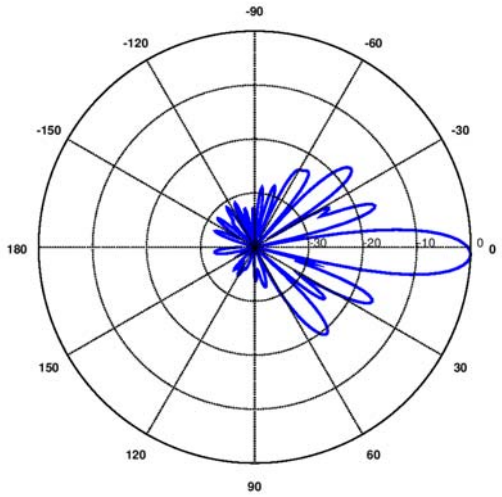


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

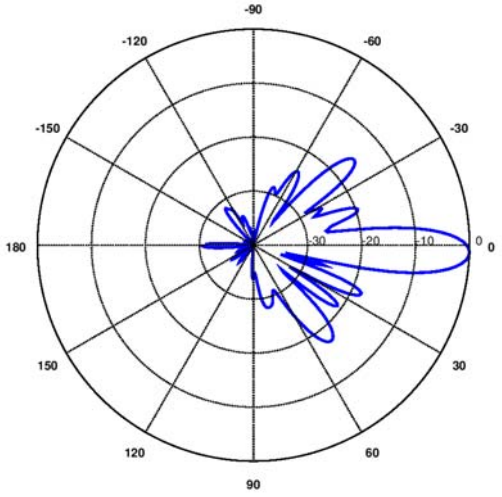
739 MHz

Manufacturer:	CCI Products
Model #:	DMP65R-BU8D
Frequency Band:	698-798 MHz
Gain:	15.1 dBi
Vertical Beamwidth:	9.5°
Horizontal Beamwidth:	75°
Polarization:	Dual Linear 45°
Size L x W x D:	96.0” x 20.7” x 7.7”



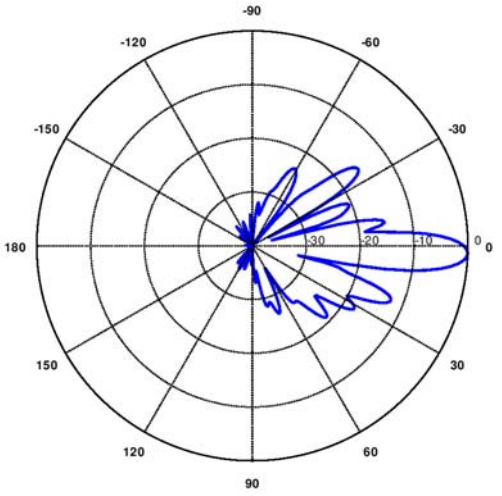
763 MHz

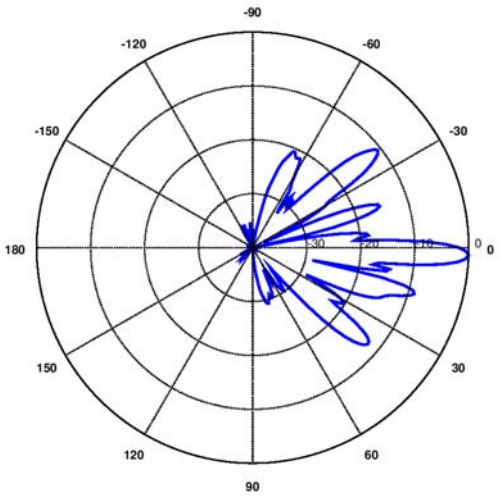
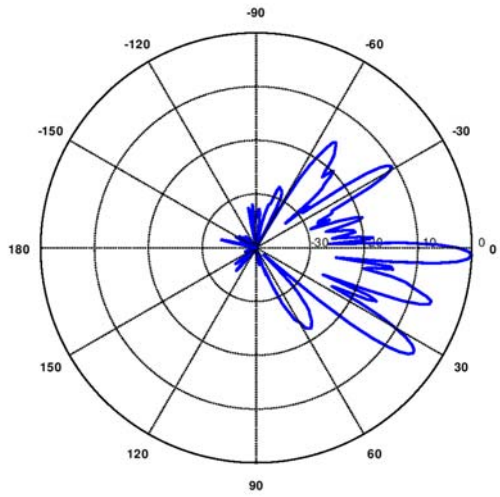
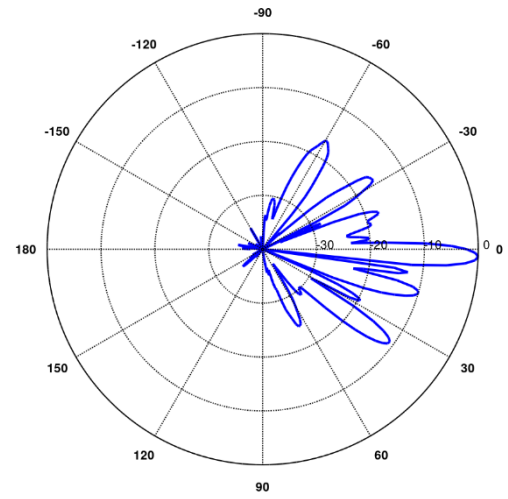
Manufacturer:	CCI Products
Model #:	TPA65R-BU8D
Frequency Band:	698 - 806MHz
Gain:	15.6 dBi
Vertical Beamwidth:	9.5°
Horizontal Beamwidth:	74°
Polarization:	Dual Linear 45°
Size L x W x D:	96.0” x 20.7” x 7.7”



885 MHz

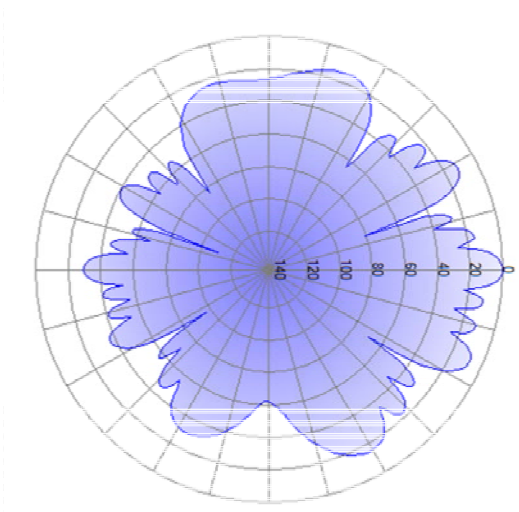
Manufacturer:	CCI Products
Model #:	DMP65R-BU8D
Frequency Band:	824 - 896 MHz
Gain:	16.0 dBi
Vertical Beamwidth:	8.0°
Horizontal Beamwidth:	64°
Polarization:	Dual Linear 45°
Size L x W x D:	96.0” x 20.7” x 7.7”



1900 MHz Manufacturer: CCI Products Model #: DMP65R-BU8D Frequency Band: 1850-1990 MHz Gain: 17.8 dBi Vertical Beamwidth: 5.1° Horizontal Beamwidth: 68° Polarization: Dual Linear 45° Size L x W x D: 96.0” x 20.7” x 7.7”	
2100 MHz Manufacturer: CCI Products Model #: TPA65R-BU8D Frequency Band: 1920-2180 MHz Gain: 18.3 dBi Vertical Beamwidth: 4.7° Horizontal Beamwidth: 67° Polarization: Dual Linear 45° Size L x W x D: 96.0” x 20.7” x 7.7”	
2300 MHz Manufacturer: CCI Products Model #: TPA65R-BU8D Frequency Band: 2300 - 2400 MHz Gain: 18.0 dBi Vertical Beamwidth: 4.1° Horizontal Beamwidth: 62° Polarization: Dual Linear 45° Size L x W x D: 96.0” x 20.7” x 7.7”	

3500 MHz

Manufacturer:	Ericsson
Model #:	AIR 6449
Frequency Band:	C-Band
Gain:	25.65 dBi
Vertical Beamwidth:	6.0°
Horizontal Beamwidth:	11°
Polarization:	±45°
Dimensions (L x W x D):	33.1” x 20.6” x 8.3”



ATTACHMENT 8

CERTIFICATE OF SERVICE

I hereby certify that on the 8th day of October, 2021, a copy of the following letter and notice of the intended filing of a Sub-Petition for a declaratory ruling filed with the Connecticut Siting Council was sent by certified mail, return receipt requested, to the attached list of Town officials:

Dated: October 8, 2021

Brown Rudnick LLP
Joseph A. Giammarco

Town of Prospect

ROBERT J. CHATFIELD, MAYOR TOWN HALL 36 CENTER STREET PROSPECT, CT 06712	MARY BARTON LAND USE INSPECTOR TOWN HALL 36 CENTER STREET PROSPECT, CT 06712
CONSERVATION COMMISSION TOWN HALL 36 CENTER STREET PROSPECT, CT 06712	M. CARRIE ANDERSON, TOWN CLERK TOWN HALL 36 CENTER STREET PROSPECT, CT 06712
PLANNING AND ZONING COMMISSION TOWN HALL 36 CENTER STREET PROSPECT, CT 06712	

CERTIFICATE OF SERVICE

I hereby certify that on the 8th day of October, 2021, a copy of the following letter and notice of the intended filing of a Sub-Petition for a declaratory ruling filed with the Connecticut Siting Council was sent by certified mail, return receipt requested, to the attached list of abutting property owners:

Dated: October 8, 2021

Brown Rudnick LLP
Joseph A. Giammarco

MARIE J. KLUGE AND ERICA PERYGA 15 KLUGE ROAD PROSPECT, CT 06712 *Parcel ID K0154000* *Map 112, Block 74, Lot 15* ***Subject Property:*** *15 Kluge Road, Prospect, CT* *Identified as parcel **A** on Abutters Map*	CONN LIGHT & POWER CO. P.O. BOX 270 PROSPECT, CT 06712 *Parcel ID: C0060800* *Map 112, Block 74, Lot 156* *Property Address: 18 Kluge Road, Prospect, CT* *Identified as parcel **B** on Abutters Map*
CONN WATER COMPANY 93 WEST MAIN STREET CLINTON, CT 06413 *Parcel ID: C0061900* *Map 112, Block 96, Lot 303* *Property Address: 303 New Haven Road, Prospect, CT* *Identified as parcel **C** on Abutters Map* *Parcel ID: C0062700* *Map 111, Block 96, Lot 120* *Property Address: 120 New Haven Road, Prospect, CT* *Identified as parcel **D** on Abutters Map*	ROBERT L. MITCHELL III 227 NEW HAVEN ROAD PROSPECT, CT 06712 *Parcel ID: D0075600* *Map 116, Block 96, Lot 227* *Property Address: 227 New Haven Road, Prospect, CT* *Identified as parcel **E** on Abutters Map*
FORTIER, PATRICIA M. & DENIS J., SR. 235 NEW HAVEN ROAD PROSPECT, CT 06712 Parcel ID: F0105400 Map 117, Block 96, Lot 235 *Property Address: 235 New Haven Road, Prospect, CT* *Identified as parcel F on Abutters Map*	JOSEPH A. & DENISE E. MASULLI 245 NEW HAVEN ROAD PROSPECT, CT 06712 Parcel ID: M0188600 Map 117, Block 96, Lot 245 *Property Address: 245 New Haven Road, Prospect, CT* *Identified as parcel **G** on Abutters Map*

THOMAS R. & EILEEN M. SATKUNAS 232 NEW HAVEN ROAD PROSPECT, CT 06712 Parcel ID: S0260800 Map 112, Block 74 Lot 8 *Property Address: 8 Kluge Road, Prospect, CT* *Identified as parcel **H** on Abutters Map* *Parcel ID: S0261200* *Map 112, Block 96, Lot 232* *Property Address: 232 New Haven Road* *Prospect, CT* *Identified as parcel **I** on Abutters Map*	PETER, JOSEPH, & VICTOR VISOCKIS 73 GRANDVIEW AVENUE NEWINGTON, CT 06111 Parcel ID: V0301200 Map 112, Block 96, Lot 178 *Property Address: 178 New Haven Road, Prospect, CT* *Identified as parcel **J** on Abutters Map* *Parcel ID: V0301201* *Map 112, Block 74, Lot 178* *Property Address: 24 Kluge Road* *Prospect, CT* *Identified as parcel **K** on Abutters Map*
JERRY S. & ANNE MARIE BURR 4 RADIO TOWER ROAD PROSPECT, CT 06712 Parcel ID: F0105200 Map 117, Block 117, Lot 4 *Property Address: 4 Radio Tower Road, Prospect, CT* *Identified as parcel **L** on Abutters Map*	KLUGE PROPERTIES LLC 15 KLUGE ROAD PROSPECT, CT 06712 Parcel ID: k0153900 Map 112, Block 96, Lot 246 *Property Address: 246 New Haven Road, Prospect, CT* *Identified as parcel **M** on Abutters Map*
ELIZABETH MCDONNELL (A/K/A ELIZABETH MARY MCDONNELL) 10 KLUGE ROAD PROSPECT, CT 06712 Parcel ID: M0191500 *Map 112, Block 74, Lot 10* *Property Address: 10 Kluge Road, Prospect, CT* *Identified as Parcel **N** on Abutters Map*	EDWARD & RACHEL PILAT 12 KLUGE ROAD, PROSPECT, CT 06712 Parcel ID: S0261000 Map 112, Block 74, Lot 12 *Property Address: 12 Kluge road, Prospect, CT* *Identified as parcel **O** on Abutters Map*
RICHARD M. SHARRON 241 NEW HAVEN ROAD PROSPECT, CT 06712 Parcel ID: F0105300 Map 117, Block 96, Lot 241 *Property Address: 241 New Haven Road, Prospect, CT* *Identified as parcel **P** on Abutters Map*	RICHARD M. SARGEANT, JR. & SHARRY L. SARGEANT 3 RADIO TOWER ROAD PROSPECT, CT 06712 Parcel ID: S0259600 Map 116, Block 117, Lot 1 *Property Address: 1 Radio Tower Road, Prospect, CT* *Identified as parcel **Q** on Abutters Map.*

October 8, 2021

VIA CERTIFIED MAIL/
RETURN RECEIPT REQUESTED

[Insert Abutter/official
Name and Address]

Re: New Cingular Wireless PCS, LLC ("AT&T") – Connecticut Siting Council Sub-Petition for a Declaratory Ruling – Modification of an Existing Monopole and Collocation of a Wireless Telecommunications Facility at 15 Kluge Road, Prospect, Connecticut

To Whom it May Concern:

On behalf of our client New Cingular Wireless PCS, LLC ("AT&T"), we are providing this notice to you with respect to the above-referenced matter pursuant to the Connecticut Siting Council's (the "Siting Council") ruling in Petition No. 1133. AT&T is filing a sub-petition (the "Sub-Petition") for a declaratory ruling with the Siting Council for approval to collocate a new wireless telecommunications facility (the "Facility") on the existing 190' monopole tower located at 15 Kluge Road, Prospect, Connecticut. The Facility consists of nine (9) panel antennas at the 159' antenna centerline height on the existing monopole tower (the "Monopole") together with related amplifiers, cables, fiber and other associated antenna equipment, including, without limitation, remote radio heads, surge arrestors, and global positioning system antennas with associated electronic equipment in a walk-in-cabinet, a diesel-fueled emergency backup power generator, and other appurtenances on a proposed equipment pad located within an existing compound enclosed by a chain link fence, all as depicted on the plans submitted with the Sub-Petition. The Monopole is owned by Crown Castle.

The Sub-Petition is an eligible facilities request submitted pursuant to the Federal Middle Class Tax Relief and Job Creation Act of 2012, also known as the Spectrum Act and codified at 47 U.S.C. § 1455(a). AT&T's proposed modification qualifies as an eligible facilities request under the Spectrum Act and associated regulations promulgated by the Federal Communications Commission.

Any comments or concerns regarding this Sub-Petition should be submitted to the Siting Council within thirty (30) days of the date of this notice.

If you have any questions, please do not hesitate to contact us or the Council at 860.827.2935.

Sincerely,

_____

Thomas J. Regan, Esq.

Abutters List

Parcel ID	Physical Address	Owner Name	Mailing Address	City	State	Zip Code
K0154000	15 Kluge Road Prospect, CT 06712	Marie J. Kluge and Erica Peryga	15 Kluge Road	Prospect	CT	06712
C0060800	18 Kluge Road Prospect, CT 06712	Conn Light & Power Co.	P.O. Box 270	Hartford	CT	06141
C0061900	303 New Haven Road Prospect, CT 06712	Conn Water Co.	93 West Main Street	Clinton	CT	06413
C0062700	120 New Haven Road Prospect, CT 06712	Conn Water Company	93 West Main Street	Clinton	CT	06413
D0075600	227 New Haven Road Prospect, CT 06712	Robert L. Mitchell, III	227 New Haven Road	Prospect	CT	06712
F0105400	235 New Haven Road Prospect, CT 06712	Fortier, Patricia M. & Denis J., Sr.	235 New Haven Road	Prospect	CT	06712
M0188600	245 New Haven Road Prospect, CT 06712	Joseph A. & Denise E. Masulli	245 New Haven Road	Prospect	CT	06712
S0260800	8 Kluge Road Prospect, CT 06712	Thomas R. & Eileen M. Satkunas	232 New Haven Road	Prospect	CT	06712
V0301200	178 New Haven Road Prospect, CT 06712	Peter, Joseph, & Victor Austin Visockis	73 Grandview Avenue	Prospect	CT	06712
S0259600	1 Radio Tower Road Prospect, CT 06712	Richard M. Sargeant, Jr. & Sharry L. Sargeant	3 Radio Tower Road	Prospect	CT	06712
S0261200	232 New Haven Road Prospect, CT 06712	Thomas Robert & Eileen Satkunas	232 New Haven Road	Prospect	CT	06712
V0301201	24 Kluge Road Prospect, CT 06712	Peter, Joseph, & Victor Austin Visockis	73 Grandview Avenue	Prospect	CT	06712

F0105200	4 Radio Tower Road, Prospect, CT 06712	Jerry S. & Anne Marie Burr	4 Radio Tower Road	Prospect	CT	06712
K0153900	246 New Haven Road Prospect, CT 06712	Kluge Properties LLC	15 Kluge Road	Prospect	CT	06712
M0191500	10 Kluge Road Prospect, CT 06712	Elizabeth McDonnell (a/k/a Elizabeth Mary McDonnell)	10 Kluge Road	Prospect	CT	06712
S0261000	12 Kluge Road Prospect, CT 06712	Edward & Rachel M. Pilat	12 Kluge Road	Prospect	CT	06712
F0105300	241 New Haven Road Prospect, CT 06712	Richard M. Sharron	241 New Haven Road	Prospect	CT	06712

Town of Prospect

Geographic Information System (GIS)

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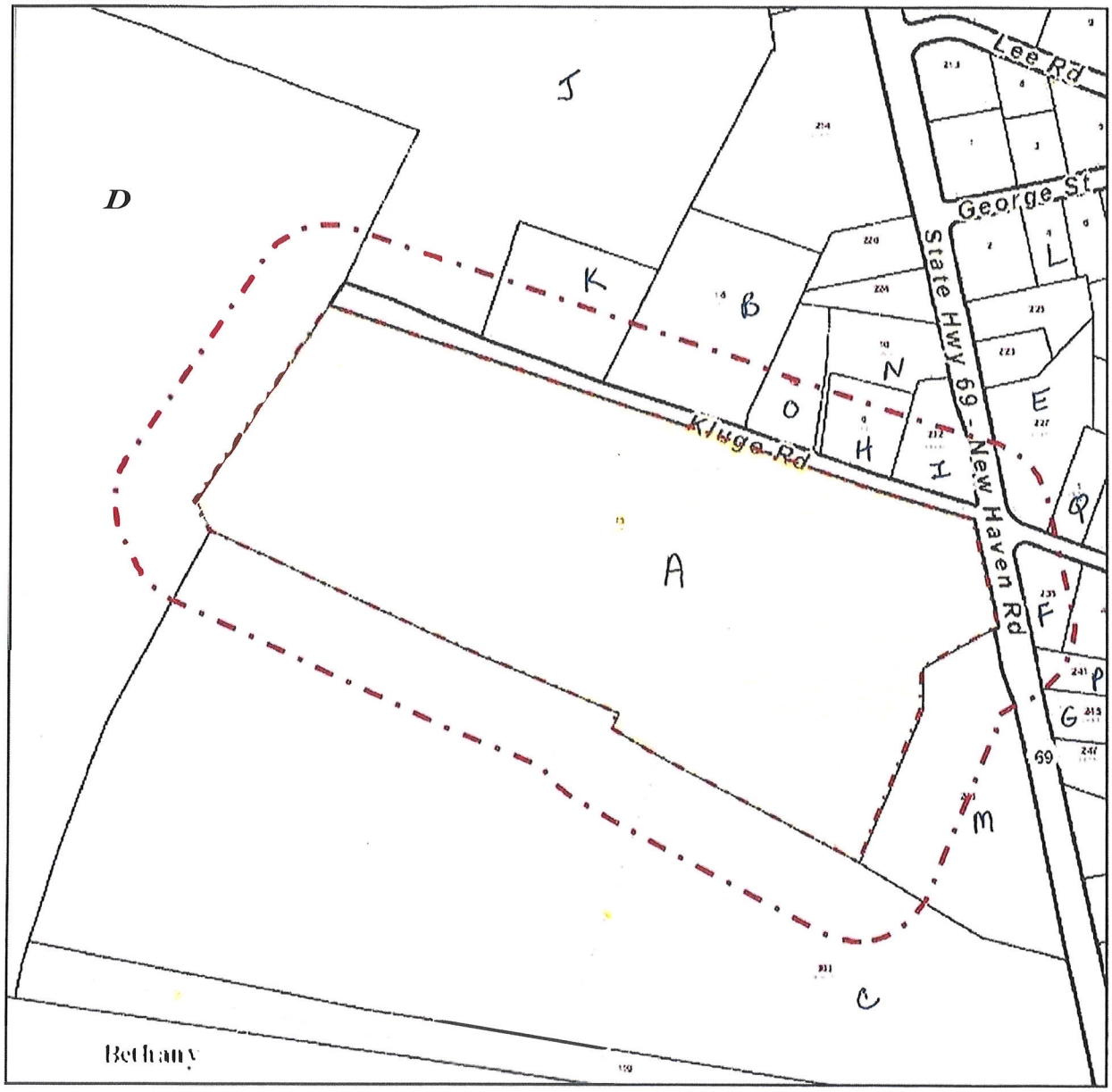

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