Filed by:
G. Scott Shepherd, Sr. Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3807 - GShepherd@sbasite.com

December 1, 2021

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
101 Burbank Road, Ellington CT 06029
Latitude: 41.939764
Longitude: -72.387069
Dish Site# BOBDL00124A

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 101 Burbank Road, Ellington, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 MHz antennas and six (6) RRUs, at the 147-foot level of the existing 180-foot monopole tower, one (1) Fiber cables will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7' x 5' lease area. Included are plans by B+T Group, dated October 18, 2021 Exhibit 10. Also included is a structural analysis prepared by TES, dated September 10, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment, attached as Exhibit 8. This facility was approved by the Town of Ellington Zoning Board of Appeal Variance V9915 October 4, 1999. Please see attached Exhibit 6.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Noel Bishop, First Selectman for the Town of Westbrook, David Maiden-Building Official, as well as the tower owner (Crown Castle) and property owner (Toby Hill Farm LLC).

The planned modifications of the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the tower is 150-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 147-feet.

2. The proposed modifications will not result in the increase of the site boundary as depicted on the attached site plan.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. The incremental effect of the proposed changes will be negligent.

The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 6.52% as evidenced by Exhibit 7.

Connecticut General Statutes 16-50aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, Dish Wireless LLC respectfully indicates that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included as Exhibit 8.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this support tower in Ellington. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish Wireless LLC to obtain a building permit for the proposed installation. Further, a Letter of Authorization is included as Exhibit 2, authorizing Dish Wireless LLC to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 147-foot level of the existing 180-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit 7, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. Dish Wireless LLC will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist Dish Wireless LLC with this tower sharing application.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Dish Wireless LLC proposed loading.

Dish Wireless LLC is not aware of any public safety concerns relative to the proposed sharing of the existing guyed tower. Dish Wireless LLC intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Westbrook.

Sincerely,

Scott Shepherd
Site Development Specialist II
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3807 + T
508.366.2610 + F
508.868.6000 + C
GShepherd@sbasite.com

Attachments:

cc: Lori Spielman, First Selectman / with attachments
Town Hall, 55 Main St., Ellington, CT 06029
Lisa M. Houlihan, Town Planner, Planning Dept. / with attachments
Town Hall, 55 Main St., Ellington, CT 06029
Bernard & Jane K. Asumadu / with attachments
101 Burbank Rd., Ellington, CT 06029 (SBA address on file)

EXHIBIT LIST

Exhibit 1	Copy of Check	X
Exhibit 2	Letter of Intent to Allow Shared Use of the Existing SBA Telecommunications Site	X
Exhibit 3	Notification Receipts	x
Exhibit 4	Property Card	x
Exhibit 5	Property Map	x
Exhibit 6	Original Zoning Approval	Town of Ellington Zoning Board of Appeal Variance V9915 (10/4/99)
Exhibit 7	EME Report	EBI Consulting 11/30/21
Exhibit 8	Structural Analysis	TES 9/10/21
Exhibit 9	Mount Analysis	B+T Group 9/2/21
Exhibit 10	Construction Drawings	B+T Group 10/18/21

EXHIBIT 1

Copy of check

EXHIBIT 2
Letter of Intent

December 1, 2021

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

RE: **Notice of Intent to Allow Shared Use of the Existing SBA Telecommunications Site**
Location: **100 Burbank Rd., Ellington, CT**
Dish Wireless Site No: BOBDL00124A
Site No: CT10008-A

Dear Ms. Bachman:

Please let the following serve as Evidence of Intent to allow Dish Wireless' shared use of the existing SBA telecommunications site at **100 Burbank Rd., Ellington, CT**.

SBA Towers V, LLC ("Owner") and Dish Wireless ("Tenant") are entering into a Site Lease Agreement. Tenant will be provided ground space within the existing site compound for its base station equipment and space at the height of 147' for antennas and associated equipment.

Thank you,

Rick Woods
Site Development Manager
SBA COMMUNICATIONS CORPORATION
134 Flanders Road, Suite 125
Westboro, MA 01581

508.251.0720 x3800 + T
508.366.2610 + F
508.614.0389 + C
rwoods@sbasite.com

EXHIBIT 3

Fedex Labels

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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

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TRACK ANOTHER SHIPMENT

775360891486

ADD NICKNAME

ON TIME

Scheduled delivery:
Thursday, 12/2/2021 before 11:30 am

PICKED UP
WESTBOROUGH, MA

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods

134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Melanie A. Bachman Exec. Dir
Connecticut Siting Council

Ten Franklin Square
NEW BRITAIN, CT US 06051
508-251-0720

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
Local Scan Time

Wednesday, December 1, 2021

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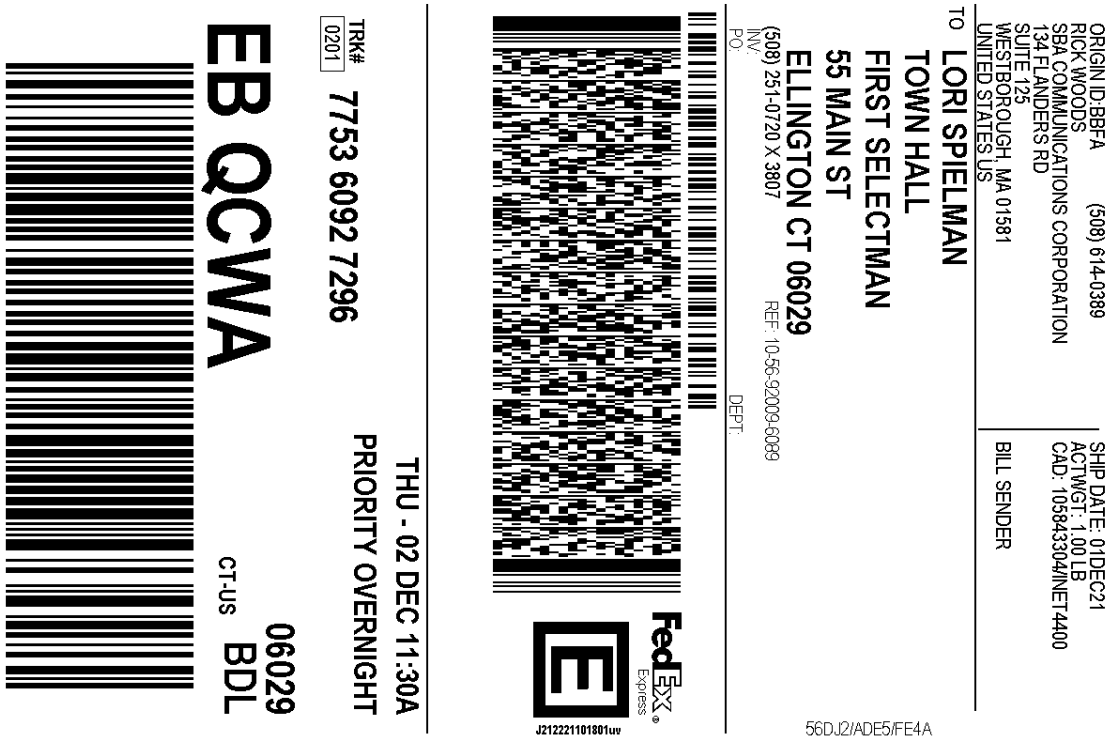
1	2 lbs / 0.91 kgs	Shipper



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FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Lori Spielman
Town Hall
First Selectman
55 Main St
ELLINGTON, CT US 06029
508-251-0720

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Travel History

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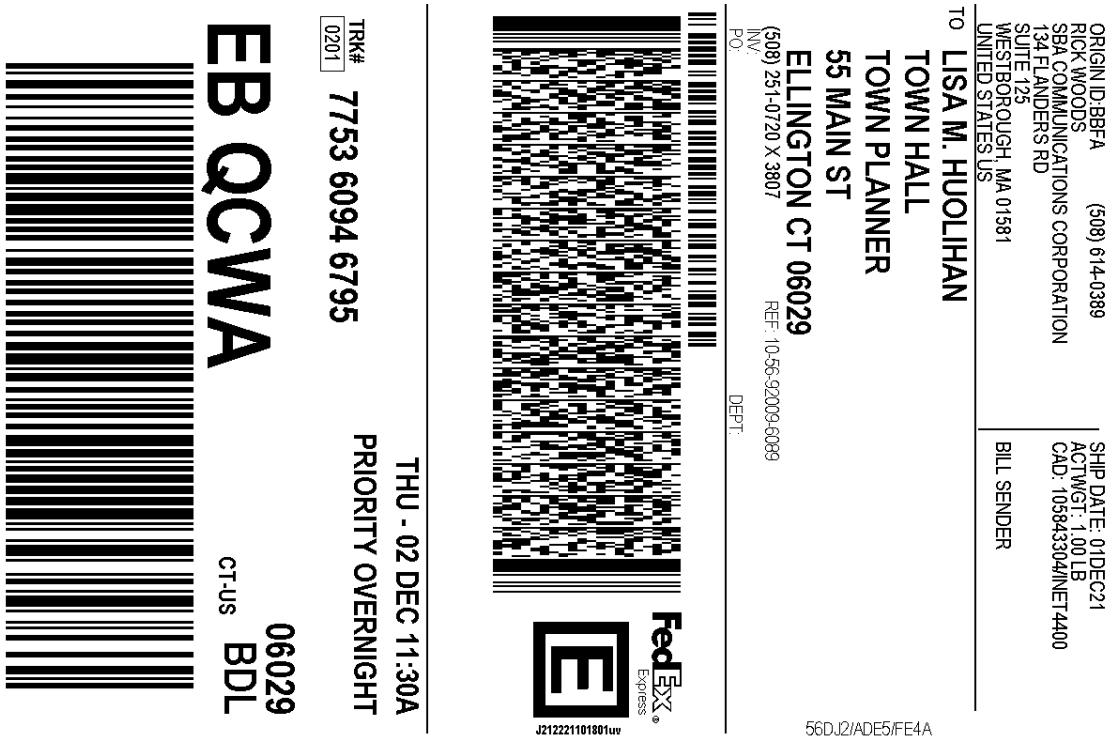

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FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Lisa M. Huolihan
Town Hall
Town Planner
55 Main St
ELLINGTON, CT US 06029
508-251-0720

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TIME ZONE
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Wednesday, December 1, 2021

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FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Bernard & Jane K. Asumadu
101 Burbank Rd
ELLINGTON, CT US 06029
508-251-0720

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
Local Scan Time

Wednesday, December 1, 2021

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TOTAL PIECES	**TOTAL SHIPMENT WEIGHT**	**TERMS**
1	0.5 lbs / 0.23 kgs	Shipper

EXHIBIT 4

Property Card

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2020.

Information on the Property Records for the Municipality of Ellington was last updated on 11/9/2021.

Parcel Information

Location:	101 BURBANK RD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	00396900	Map Block Lot:	148 017 0000	Acres:	6.20
490 Acres:	0.00	Zone:	RAR	Volume / Page:	0484/0677
Developers Map / Lot:	3600SF LEASE PCL; 21	Census:	5352		

Value Information

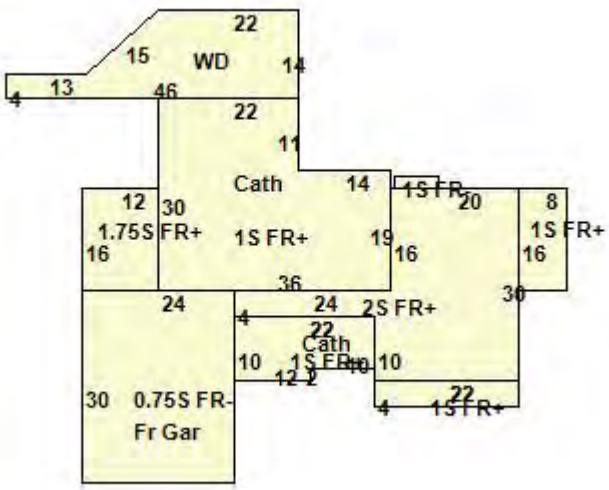
	Appraised Value	Assessed Value
Land	333,260	233,280
Buildings	372,200	260,540
Detached Outbuildings	26,390	18,480

	Appraised Value	Assessed Value
Total	731,850	512,300

Owner's Information

Owner's Data
ASUMADU BERNARD + JANE K 101 BURBANK RD ELLINGTON, CT 06029

Building 1



Building Use:	Single Family	Style:	Contemporary	Living Area:	3,664

Stories:	2.00	Construction:	Wood Frame	Year Built:	1987
Total Rooms:	11	Bedrooms:	4	Full Baths:	4
Half Baths:	1	Fireplaces:	0	Heating:	Forced Hot Air
Fuel:	Oil	Cooling Percent:	100	Basement Area:	2,250
Basement Finished Area:	1,000	Basement Garages:	0	Roof Material:	Asphalt
Siding:	Vinyl Siding	Units:			

Special Features

Extra Fixtures	3
Fireplace	1

Attached Components

Type:	Year Built:	Area:
Cathedral	1987	200
Cathedral	1987	926
Wood Deck	1987	459
Frame Garage	1987	720

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Patio	2019	0.00	0.00	700
Vinyl Pool	2018	0.00	0.00	680
with Electric	2018	0.00	0.00	288

Owner History - Sales

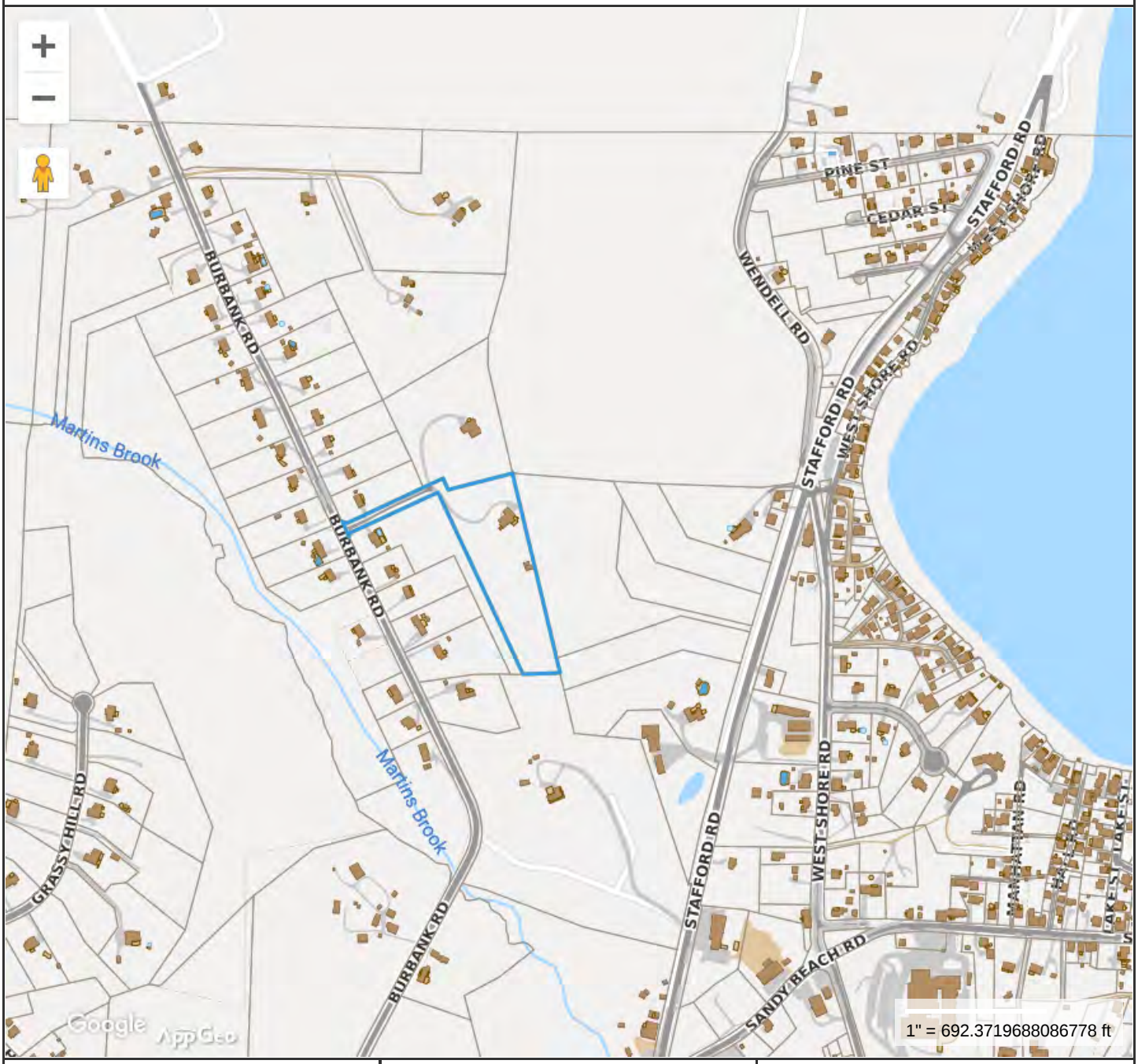
Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
ASUMADU BERNARD + JANE K	0484	0677	05/18/2017	Warranty Deed	$265,000
STAVENS DONALD E + ROSALIE M TRUSTEES	0375	1106	11/06/2006	Quit Claim	$0
STAVENS DONALD E + ROSALIE M	0139	0936	06/05/1986		$0
MCKAY JOYCE G	0111	0796	11/30/1978		$0
LIMBERGER JOHN A SR	0111	0794	11/30/1978		$0

Building Permits

Permit Number	Permit Type	Date Opened	Reason
K44081	Pool	05/21/2018	20x34 IG POOL
K43944	Finished Bsmt	03/19/2018	FINI BSMT+ADD FULL BATH
41530	Electrical	12/14/2015	NEW 200 AMP TO HOUSE FROM EXIST TRANSFORMER
26194	Electrical	03/01/2004	ELECTRIC FOR VERIZON WIRELESS BUILDING
26148	Commercial New	02/23/2004	CONSTRUCTION OF CINGULAR CELL SITE AT TELECOM TOWER
BD0092	Miscellaneous	09/03/2002	BD-2003-0092-INSTALL RADIO & CABINET AT BASE OF TOWER, ANTENNA AT TOP
EP0068	Electrical	09/03/2002	EP-2003-0068-ELECTRIC FOR RADIO & CABINET & ANTENNA AT TOWER
BD0091	Electrical	08/19/2002	BD-2003-0091-SUB PANEL & CABINATE
20650	Electrical	07/20/2000	ELECTRIC SERVICE FOR TOWER
20469	Miscellaneous	06/22/2000	180 FT TOWER
20070	Foundation	04/20/2000	Foundation for Tower

EXHIBIT 5

Property Map



Property Information

Property ID	148 017 0000
Location	101 BURBANK RD
Owner	ASUMADU BERNARD + JANE K

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Ellington, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 7/23/2020
Data updated 7/23/2020

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Google Maps 101 Burbank Rd

Imagery ©2021 Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2021 200 ft

EXHIBIT 6

Zoning Approval

SITE NAME: Ellington SITE ID: CT10008-A

Transaction: Mariner Tower Jill

ZONING/PERMITTING COMPLETION FORM

Address: 101 Burbank Rd., Ellington, CT

Landlord/Parcel ID:

Jurisdiction: Town of Ellington Zoning District: RA

Zoning Approval Type: Variance Case #: V9915

Approval Date: 10/4/99 Approved Height: 190 Tower Build Date:

Conditions of Approval:	Yes	No	N/A
Removal Bond	☐	☒	☐
Site Plan Submittal	☒	☐	☐
Fall Zone	☐	☒	☐
Periodic Inspections	☐	☒	☐
Periodic Reporting	☐	☒	☐
Approval Renewal	☐	☒	☐
Additional Conditions	☒	☐	☐

Be available to other providers & Public Safety Agencies of the Town of Ellington.

JURISDICTION POC/DEPT.

Planning/Zoning: Rianna Goodreau rgoodreau@ellington-ct.gov

Phone: 860-870-3120 Fax:

Bldg./Code Enforcement:

Phone: Fax:

Submitted by: Zoning Compliance Date: 4/10/07

TO BE COMPLETED BY CORPORATE

	Yes	No	N/A	
Zoning Approval Attached (required)	☒	☐	☐	
Ordinance Attached (required)	☐	☒	☐	
Building Permit Attached (required) 20469	☒	☐	☐	Date Recd 6/22/00
Certificate of Occupancy or Compliance (CO) attached (required)	☒	☐	☐	

Zoning Manager Approval: Diane E. Borchardt, AICP Date 4/10/2007

Section 7.3 Communication Tower

A. The applicant will be required to take reasonable steps to mitigate any adverse visual impact from all new communication tower facilities. Steps shall include but are not limited to: landscaping, fencing, painting or similar measures as appropriate to camouflage the communication tower.

B. A communication tower must comply with the setback requirements of the zone in which it is located or be set back from the property lines a distance equal to the height of the tower, whichever is greater.

C. Towers shall not exceed 190 feet in height above the ground.

D. To discourage unauthorized trespassing and provide for the public safety, the base of any ground-mounted tower shall be secured by fence enclosure to a height of 6 feet above the ground.

E. No lighting of any communication tower will be permitted, with the exception of ground lighting for maintenance purposes, except as required by the Federal Communications Commission, Federal Aviation Administration, or the Connecticut Siting Council.

F. No advertising or signs shall be permitted on any communication tower.

G. To avoid unnecessary proliferation of communication towers, new towers will not be approved unless there is a need demonstrated such as all available space on existing or approved towers covering the same geographic area has been utilized or that there is an area within Ellington or immediately adjacent to Ellington which is not served by existing facilities; i.e. a hole exists in a propagation mapped area.

H. To protect the public health from the unknown effects of electromagnetic fields, all communication transmitters much comply with FCC emissions regulations.

I. Communication towers shall provide space for municipal emergency service transmission antennas as required by the town.

J. The facility owner at their expense shall remove a communication tower facility not in use for 12 consecutive months. This removal shall occur within 20 days of the end of such a 12 month period. The commission may require a bond or other security to the Town of Ellington valid for the life of the tower to guarantee removal.

K. All utilities installed in conjunction with any communication tower site shall be installed underground unless otherwise approved by the commission.

Section 7.4 Composting Facility

A. A complete site development plan as required under Section 8.2 of these Regulations shall be submitted for any proposed composting facility. In addition, this site development plan shall show the following items.

1. The location of all wetlands, watercourses, and wells within 1,000 feet of the lot where the composting facility is located. Wetlands may be plotted using data obtained from USDA Soil Conservation Service soil surveys.
2. Existing and proposed topographic contours on the project site shall be shown on separate sheets at intervals of 2 feet or less, unless otherwise directed by the Commission.

Section 3.2 Lot Area and Bulk Requirements

3.2.1 Lot Area, Width & Yard Requirements

Table 3.2.1 Lot Area, Width & Yard Requirements

	Lot Area (Sq Ft)[1]	Minimum Width[1]	Front Yard	Side Yard[2]	Rear Yard[2]
AA - Residence Single-Family	40,000	150	35	15	10
A - Residence Single- Family	40,000	150[3]	35	10	10
A - Residence Two-Family	60,000	150	35	10	10
RA Rural Agricultural Residential Single-Family	40,000	150	35	10	10
RA Rural Agricultural Residential Two-Family	60,000	150	35	10	10
LR Lake Residence	40,000	150[4]	35	10	10

[1]May be increased because of poor soil conditions, terrain limitations, etc.

[2]Accessory buildings shall conform to building line requirements for front, side and rear yards applicable to main building.

[3]When connected to public sewers, the minimum frontage shall be 125 feet.

VOL. 257 PAGE 238

2773

RECEIVED
Nov 2 11 52 AM '99

TOWN OF ELLINGTON
CERTIFICATE OF VARIANCE

Notice is hereby given that the Zoning Board of Appeals of the Town of Ellington, at its Meeting on Monday, October 4, 1999, granted a Variance to Donald & Rosalie Stavens, 101 Burbank Road, Ellington, Connecticut 06029 as follows:

NATURE OF VARIANCE(S)

The Zoning Board of Appeals granted a Variance to allow construction of a communication tower with the condition that it be available to other providers and the Public Safety Agencies of the Town of Ellington.

ZONING REGULATION(S) VARIED

Ellington Zoning Regulations, Section 5.2, Area & Yard Requirements. Height Requirements 35' to 190'.

NAME OF OWNER(S) OF PROPERTY

Donald & Rosalie Stavens, 101 Burbank Road. Ellington, Connecticut 06029.

Dated at Ellington, Connecticut, this 29th day of October 1999.

I hereby certify that the above is a true and attested copy of the aforesaid Variance from the records of the Zoning Board of Appeals.

Signed Michael Riley, Chairman

Signed Cornelia B. Nichols, Clerk

Recorded-Ellington Land Records

on Nov 2, 1999

@ Volume 257 Page 238 Attest: Town Clerk

In order to issue a Zoning Permit involving this property, a copy of this document listing the date same was recorded in the Ellington Land Records, must be presented to the Zoning Enforcement Officer.

DAVID SMITH ENGINEERING
AND SURVEYING ASSOC., INC.
P.O. Box 286 Staffordville, CT 06077 860-684-3187

September 17, 1999

Mr. Wayne Kemp
1050 Buckley Highway
Union, Connecticut 06077

RE: Stavens Tower Proposal, 101 Burbank Road, Ellington

Dear Wayne,

I am glad that I finally got to speak with you this morning. I was somewhat anxious that I had acted properly on behalf of you and Andy, with regards to initiating the application process for this project. The Town Planner in Ellington informed me on Monday, the 13th , that for your project to proceed without delay, they would need an application for a variance of building height. The deadline for the next meeting was Tuesday, the 14th. On September 14th, I provided them with the application form, the site plans for this project, and a check for $ 85.00. Since I couldn't reach you and Andy was not available, I signed the application as the applicant.

We are on the agenda for the Ellington Zoning Board of Appeals for October 5th. I will take care of the notification of the neighboring property owners as requested by the Planner's secretary, and I will also be in attendance at this meeting, inasmuch as I'm the "applicant". I would be grateful if you could also be there, since I'm clearly overstepping my traditional role on this one.

Enclosed are copies of the plan, application, the legal notice for the meeting and an invoice for my services to date. Please look over the information to verify that it is correct. Naturally, any attention that you could give that invoice would be very much appreciated. Please contact me at your earliest convenience if you have any questions regarding this matter.

Sincerely,
David Smith Engineering and
Surveying Associates, inc.

Dave

David A. Smith, PE.,LS.
principal

Variance Application

Ellington Zoning Board of Appeals

Applicant	DAVID A. SMITH
Mailing Address	DAVID SMITH ENG. & SURVEYING ASSOC., INC. POB 286 STAFFORDVILLE, CT. 06077
Telephone Number	Work: 684-3187 Residence:
Owner of Record	DONALD & ROSALIE STAVENS
Owner's Address	101 BURBANK RD Ellington
Telephone Number	Work: Residence:
Assessor's Parcel Number	148-17 Zoning Classification: RA
Property Location	101 BURBANK RD
Requestion a Variance of Section	Section 5.2 Bldg Height
Written Description of the Variance	Proposal is to construct A 180' TELE-COMMUNICATION TOWER

Previous Appeals related to this property: Yes [ ] No [✓]

List Officers on an attachment if applicant is a corportation, sole proprietor, partnership or other form of business entity. N/A [✓]

Site within 500 feet of the Town Line? Yes [ ] No [✓]

Describe hardship and indicate why other options are unacceptable.

Tower Height determined by need to place antennas at elevations specified by FCC to serve multiple telecommunication providers

I hereby depose and say that all the above statements and the statements contained in any papers submitted herewith are true and grant permission for the members of the Ellington Zoning Board of Appeals and their represntatives to examine the site at reasonable hours.

Appellant	David A. Smith	Date	9/14/99
Owner		Date	

Town of Ellington
Planning and Zoning Commission
Application

Application # Z 9939
Date Received 10/5/99

Type of Application:

☐ Change of Zone ☐ Amendment to Regulations ☑ Site Plan Approval
☐ Special Permit ☐ Earth Excavation

Applicant's Information:

Name Crossroads Site Management, LLC

Mailing Address
1050 Buckley Hwy
Union, CT 06076

Telephone
Work 860-684-3060
Home 860-684-7747

Owner's Information:

Name Donald E Stavens Rosalie M. Stavens

Mailing Address
101 Burbank Road
Ellington, Connecticut

Telephone
Work
Home 875-8937

Property Description:

Street Address 101 Burbank Road, Ellington, CT
Assessor's Parcel Number 148-017-0000
Zone: Present RA Proposed
Is the parcel within 500 feet of any municipal boundary? ☐ Yes ☑ No

Description of Request:

Site Approval And Zoning Permit To Construct Telecommunications Tower And Related Equipment Buildings

Please Note: Zoning Board of Appeals variance (V9915) approval granted October 4, 1999 listed under "David Smith" the engineer.

Adjoining Property Owners: Please indicate on an attached list the names of property owners within 500 feet of the parcel which is the subject of this application, their mailing addresses (including zip code), and location. This information may be provided by a registered land surveyor, professional engineer, or attorney. The applicant shall be responsible for notifying all property owners within this area by US Postal Service Certificate of Mailing. Evidence of the mailing of the notification shall be delivered to the Planning Department no later than the Wednesday prior to the scheduled public hearing. The Planning Department will provide the applicant with a cop of the legal notice to be enclosed with the mailing.

Statement of Accuracy and Permission: I hereby certify that all information submitted with this application is true and accurate to the best of my knowledge. The applicant understands that this application is to be considered complete only when all information and documents required by the Commission have been submitted. The applicant grants permission for the members of the Planning and Zoning Commission and their designated agents to inspect the property which is the subject of this application.

October 4, 1999
Date

Donald E Stavens Rosalie M. Stavens
Signature of Petitioner CSM, LLC.
(Must be owner or holder of an option to purchase)

LEGAL NOTICE

The Ellington Zoning Board of Appeals will hold a Meeting on Monday, October 4, 1999, at 7:30 p.m. in the Town Hall to hear the following applications:

#V9912--- Larry Goralnick for a Dealer's & Repairer's License under CGS 14-55 on property located on West Road (CT RT 83) APN 046-005-0001 in A PC Zone.

#V9913 – Donald G. & Donna S. Piretti for Variances of Ellington Zoning Regulations, Section 5.2, Area & Yard Requirements for a replacementon house for year round occupancy on property located at 19 Hall Road APN 149-042-0000 in a LR Zone.

#V9914 – Ellington Congregational Church for a Variance of Ellington Zoning Regulations, Section 7.7b(6)(a) (2) for a sign on property located at 72 Main Street APN 063-040-0000 in an A Zone.

#V9915 – David A. Smith for a Variance of Ellington Zoning Regulations, Section 5.2, Area & Yard Requirements FOR A Communicationse Tower on property located at 101 Burbank Road APN 148-017-0000 in a RA Zone.

#V9916 – Paraco Gas for a Variance of Ellington Zoning Regulations, Section 5.2, Area & Yard Requirements to construct a structure within 12' of side yard on property located at 194 Windsorville Road APN 009-067-0000 in a C Zone.

All those interested may appear and be heard.
A copy of this notice is on file with the Town Clerk.
Dated at Ellington, Connecticut, this 17th Day of September 1999.

Michael Riley, Chairman
Cornelia B. Nichols
Cornelia B. Nichols, Clerk
Zoning Board of Appeals

JOURNAL INQUIRER PUBLISH TWO ISSUES

Monday, September 20, 1999
Monday, September 27, 1999

LEGAL NOTICE

The Ellington Planning and Zoning Commission, at their meeting on Monday, October 25, 1999, took the following actions:

#Z9934 - Approved the application of Paraco Gas for Site Plan Approval on property located at 194 Windsorville Road APN 009-067-0000 in a C Zone.

#Z9939 - Approved with Conditions, the application of Crossroads Site Management, LLC for Site Plan Approval for a telecommunications tower and related equipment buildings at 101 Burbank Road APN 148-017-0000 in a RA Zone.

#Z9940 - Approved with Conditions, the application of Boynton Construction for a Special Permit for an Accessory Apartment on property located at 5 Carolyn Circle APN 014-010-0012 in a AA Zone.

#S9911 - Continued to the 22 November 1999 meeting, the application of Ridge Country Estates-Section II for an 8-Lot Subdivision of property located at Tripp & Middle Roads APN 041-002-0000 in a AA Zone.

Z9941 - Continued to the 22 November 1999 meeting, the application of David Olender for a Special Permit for 2 Rear Lots on property located at Tripp & Middle Roads APN 041-002-0000 in a AA Zone.

#Z9938 - Approved the application of Homestead Fuel, Inc., Modification of Site Plan to allow installation of a temporary storage building on property located at 100 West Road APN 028-010-0000 in a C Zone.

A copy of this notice is on file with the Town Clerk.
Dated at Ellington, Connecticut this 26th day of October 1999.
The effective date of this notice is Friday, October 29, 1999.

Emery Zahner, Chairman
Cornelia B. Nichols
Cornelia B. Nichols, Clerk
Planning and Zoning Commission

JOURNAL INQUIRER PUBLISH ONE ISSUE

Thursday, October 28, 1999.

STATE OF CONNECTICUT – COUNTY OF TOLLAND
INCORPORATION 1786

TOWN OF ELLINGTON

55 MAIN STREET – PO BOX 187
ELLINGTON, CONNECTICUT 06029
860-871-1057

ZONING PERMIT

NOV 23 1999

Permit Number	Date of Issuance
5478	23-Nov-99

Applicant's Name	Phone Number	Work Phone Number
DONALD & ROSALIE STAVENS	860 875-8937	860 941-0150

Owner's Name	Home Phone	Work Phone Number
DONALD & ROSALIE STAVENS	860 875-8937	860 941-0150

Assessor's Parcel Number	Site Address	Town
148-017-0000	101 BURBANK ROAD	ELLINGTON

Date of Plot Plan	Land Use	Zone
13-Sep-99	COMMUNICATIONS TOWER	RA

Proposed Use
TO CONSTRUCT A COMMUNICATIONS TOWER AS PER SITE PLAN DATED 13 SEPTEMBER 1999

The issuance of this Zoning Permit is contingent upon compliance by the permit holder or their agents with all appropriate Ellington Zoning, Subdivision, and Wetlands Regulations. This Zoning Permit shall expire six (6) months from the date of issuance unless substantial construction shall have begun with in said time and been diligently pursued to completion by the holder of the permit or their agents.

Joseph W. Baker,
Zoning Enforcement Officer

STATE OF CONNECTICUT • COUNTY OF TOLLAND
INCORPORATED 1786

TOWN OF ELLINGTON

55 MAIN STREET • P.O. BOX 187
ELLINGTON, CONNECTICUT 06029

December 10, 1999

Crossroads Site Management LLC
1050 Buckley Highway
Union CT 06076

Dear Sirs:

The Ellington Planning and Zoning Commission, at their meeting on Monday, October 25, 1999, approved your application with the following motion:

MOVED (AUCTER) SECONDED (SPIELMAN) CARRIED UNANIMOUSLY (AYES: ZAHNER, AUCTER, SPIELMAN, KUPECKY, HEIDARI, HARFORD) (NAYES: 0) TO APPROVE #Z9939 SUBJECT TO THE RECOMMENDATIONS OF THE TOWN ENGINEER'S LETTER OF 10/25/99.

I am enclosing a copy of the Legal Notice for your records.

Very truly yours,
Cornelia B. Nichols
Cornelia B. Nichols, Clerk
Planning and Zoning Commission

enclosure

EXHIBIT 7

EME Report

EBI Consulting

environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

Dish Wireless Existing Facility

Site ID: BOBDL00124A

BOBDL00124A
101 Burbank Road
Ellington, Connecticut 06029

November 30, 2021

EBI Project Number: 6221007173

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**6.52%**

November 30, 2021

Dish Wireless

Emissions Analysis for Site: BOBDL00124A - BOBDL00124A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **101 Burbank Road** in **Ellington, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 101 Burbank Road in Ellington, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 4 n66 channels (AWS Band - 2190 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

5) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative

estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is 147 feet above ground level (AGL).

8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

9) All calculations were done with respect to uncontrolled / general population threshold limits.

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd
Height (AGL):	147 feet	Height (AGL):	147 feet	Height (AGL):	147 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna A1 MPE %:	**1.19%**	Antenna B1 MPE %:	**1.19%**	Antenna C1 MPE %:	**1.19%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	1.19%
T-Mobile	1.5%
Verizon	1.7%
Crossroads	0.25%
AT&T	1.88%
Site Total MPE % :	6.52%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.19%
Dish Wireless Sector B Total:	1.19%
Dish Wireless Sector C Total:	1.19%
Site Total MPE % :	6.52%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	147.0	1.62	600 MHz n71	400	0.40%
Dish Wireless 1900 MHz n70	4	542.70	147.0	3.93	1900 MHz n70	1000	0.39%
Dish Wireless 2190 MHz n66	4	542.70	147.0	3.93	2190 MHz n66	1000	0.39%
						Total:	**1.19%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the Dish Wireless facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Dish Wireless Sector	Power Density Value (%)
Sector A:	1.19%
Sector B:	1.19%
Sector C:	1.19%
Dish Wireless Maximum MPE % (Sector A):	1.19%
Site Total:	6.52%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **6.52%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

EXHIBIT 8

Structural Analysis

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 180 ft Rohn Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT10008-A

Customer Site Name: Ellington

Carrier Name: Dish Wireless (App#: 167823, V1)

Carrier Site ID / Name: BOBDL00124A / 0

Site Location: 101 Burbank Road

Ellington, Connecticut

Tolland County

Latitude: 41.939764

Longitude: -72.387069

Exp.10/31/2021

09/10/2021

Analysis Result:

Max Structural Usage: 66.8% [Pass]

Max Foundation Usage: 30.4% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Younus Alkarawi

Introduction

The purpose of this report is to summarize the analysis results on the 180 ft Rohn Self Supporting Tower to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Rohn File Number: 42895AE, dated: 05/30/2000.
Foundation Drawing	Rohn File Number: 42895AE, dated: 05/30/2000.
Geotechnical Report	Applied Earth Technologies (Site Address 101 Burbank Rd. Ellington ,CT) Report on Subsurface Investigation, dated February 14, 2000.
Modification Drawings	N/A
Mount Analysis	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** In accordance with this standard, the structure was analyzed using **TESTowers,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 125.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 97.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	189.0	1	Decibel DB222-A Dipole	Direct Mount	(1) 1 1/4"	NE Site Management
2	186.0	3	EMS RR90-17-02DP - Panels	(3) Sector Frames w/modifications	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
3		3	RFS APXVAARR24_43-U-NA20 - Panels			
4		3	Ericsson KRY 112 144/1 - TMAs			
5		3	Ericsson KRY 112 489/2 -TMAs			
6		3	Ericsson Radio 4449 B71+B12 -RRUs			
7		3	Kathrein 782 11056 - Bias Ts			
8	177.0	2	Antel BXA-70063-4CF-EDIN-X	(3) Sector Frames	(12) 1 5/8" (1) Fiber Cable	`Verizon
9		4	Antel BXA-70080-4CF-EDIN-0			
10		6	Commscope HBXX-6517DS-A2M			
11		3	Alcatel Lucent 1900 RRH 2x60W			
12		3	Alcatel Lucent RRH AWS			
13		6	RFS Celwave FD9R6004/2C-3L			
14	157.0	3	Kathrein 800-10121	(3) Sector Frames	(12) 1 5/8" (1) 3" Flex Conduit (1) 3/8" RET	AT&T
15		4	Powerwave P65-17-XLH-RR			
16		2	KMW AM-X-CD-16-65-005-RET			
17		3	Powerwave 7770.00			
18		6	Powerwave TT19-08BP111-001			
19		6	CCI DTMABP7819VG12A			
20		6	Kathrein 860-10025			
21		6	Ericsson RRUS-11			
22		1	DC6-48-60-18-8F			
27	78.0	1	Andrew GPS	Pipe Mount	(1) 1/2"	Verizon
28	32.0	1	GPS	Pipe Mount	(1) 1/2"	AT&T

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
23	147.0	3	JMA Wireless MX08FRO665-21 - Panel	Platform w/HRK (1) Commscope MTC3975083	(1) 1.6" Hybrid	Dish Wireless
24		3	Fujitsu TA08025-B605 -			
25		3	Fujitsu TA08025-B604 -			
26		1	Raycap RDIDC-9181-PF-48-OVP - OVP			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

Tower Component	Legs	Diagonals	Horizontals
Max. Usage:	**66.8%**	**66.5%**	**4.9%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Compression (Kips)	Uplift (Kips)
Original Design Reactions	369.0	332.7
Analysis Reactions	315.7	274.4
Factored Reactions*	498.2	449.1
% of Design Reactions	63.4%	61.1%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.2258 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Structure: CT10008-A-SBA

Site Name:	Ellington			**Code:**	EIA/TIA-222-G	9/10/2021
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	97.00	
Height:	180.00 (ft)	**Base Width:**	21.12	**Basic Ice WS:**	50.00	
Base Elev:	9.00 (ft)	**Top Width:**	4.58	**Operational WS:**	60.00	Page: 1

Tower Engineering Solutions

Section Properties

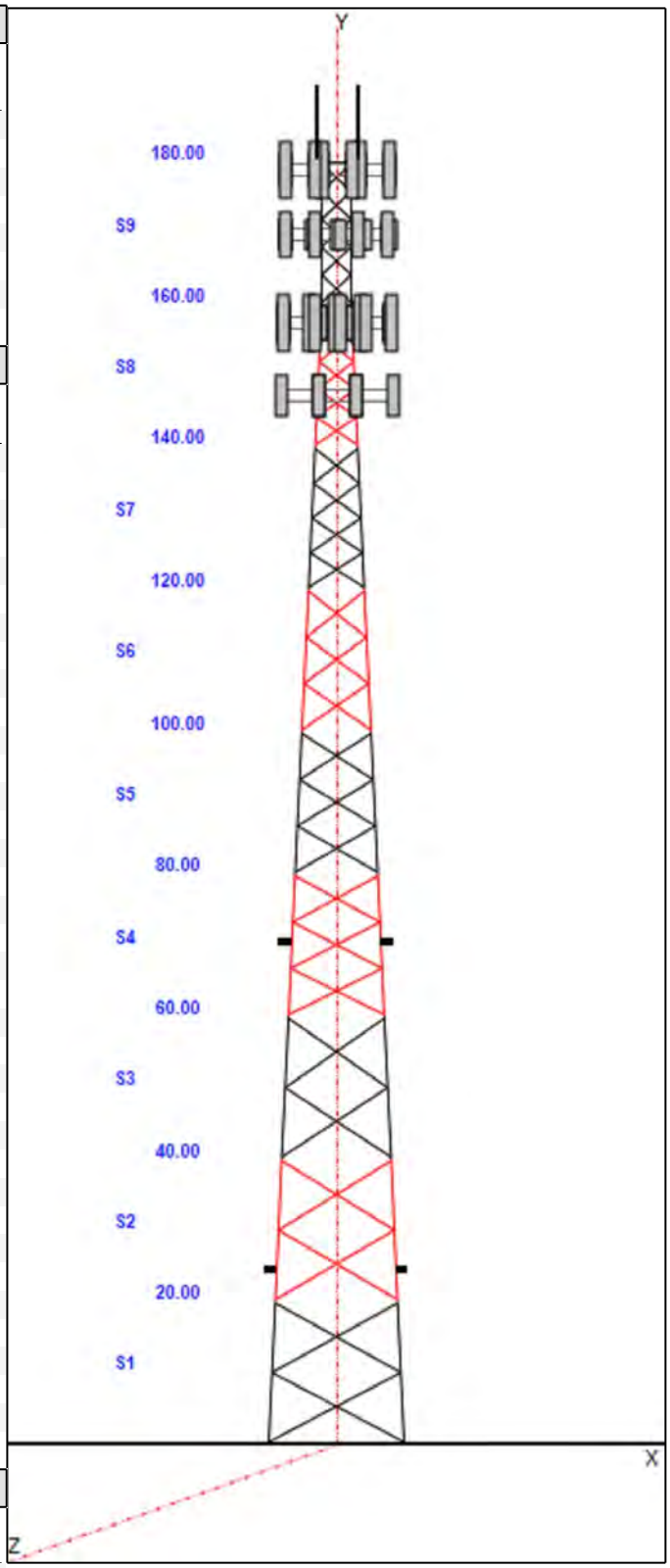
Sect	Leg Members	Diagonal Members	Horizontal Members
1-2	PX 8" DIA PIPE	SAE 4X4X0.25	
3	PSP ROHN 8 EHS	SAE 3.5X3.5X0.25	
4	PX 6" DIA PIPE	SAE 3X3X0.25	
5	PSP ROHN 6 EHS	SAE 2.5X2.5X0.25	
6	PX 5" DIA PIPE	SAE 2.5X2.5X0.25	
7	PX 4" DIA PIPE	SAE 2X2X0.25	
8	PX 3" DIA PIPE	SAE 2X2X0.25	SAE 2X2X0.25
9	PST 2-1/2" DIA PIPE	SAE 2X2X0.25	SAE 2X2X0.25

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.00	185.29	1	Decibel DB222-A Dipole
178.50	178.50	1	(3) Stabilizer Kit (12' FW) + Suport Rail
178.50	178.50	1	(3) HR w/ Double V-Brace Kits
178.50	178.50	3	RR90-17-02DP
178.50	178.50	3	APXVAARR24_43-U-NA20
178.50	178.50	3	KRY 112 144/1
178.50	178.50	3	KRY 112 489/2
178.50	178.50	3	Radio 4449 B71+B12
178.50	178.50	3	782 11056
178.50	178.50	3	Light Sector Frame-Flat
169.50	169.50	3	Light Sector Frame-Flat
169.50	169.50	2	Antel BXA-70063-4CF-EDIN-X
169.50	169.50	4	Antel BXA-70080-4CF-EDIN-0
169.50	169.50	6	Commscope HBXX-6517DS-A2M
169.50	169.50	3	Alcatel Lucent 1900 RRH 2x60W
169.50	169.50	3	Alcatel Lucent RRH AWS
169.50	169.50	6	RFS Celwave FD9R6004/2C-3L
157.00	157.00	3	Light Sector Frame-Flat
157.00	157.00	3	Kathrein 800-10121
157.00	157.00	4	Powerwave P65-17-XLH-RR
157.00	157.00	2	KMW AM-X-CD-16-65-005-RET
157.00	157.00	3	Powerwave 7770.00
157.00	157.00	6	Powerwave TT19-08BP111-001
157.00	157.00	6	CCI DTMABP7819VG12A
157.00	157.00	6	Kathrein 860-10025
157.00	157.00	6	Ericsson RRUS-11
157.00	157.00	1	DC6-48-60-18-8F
147.00	147.00	3	JMA Wireless MX08FRO665-21
147.00	147.00	1	(3) MTC3975083
147.00	147.00	3	Fujitsu TA08025-B605
147.00	147.00	3	Fujitsu TA08025-B604
147.00	147.00	1	Raycap RDIDC-9181-PF-48-OVP
70.50	70.50	1	Pipe Mount
70.50	70.50	1	Andrew GPS
24.50	24.50	1	GPS
24.50	24.50	1	Pipe Mount

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
0.00	180.00	1	1 1/4" Coax
0.00	180.00	1	Safety Cable



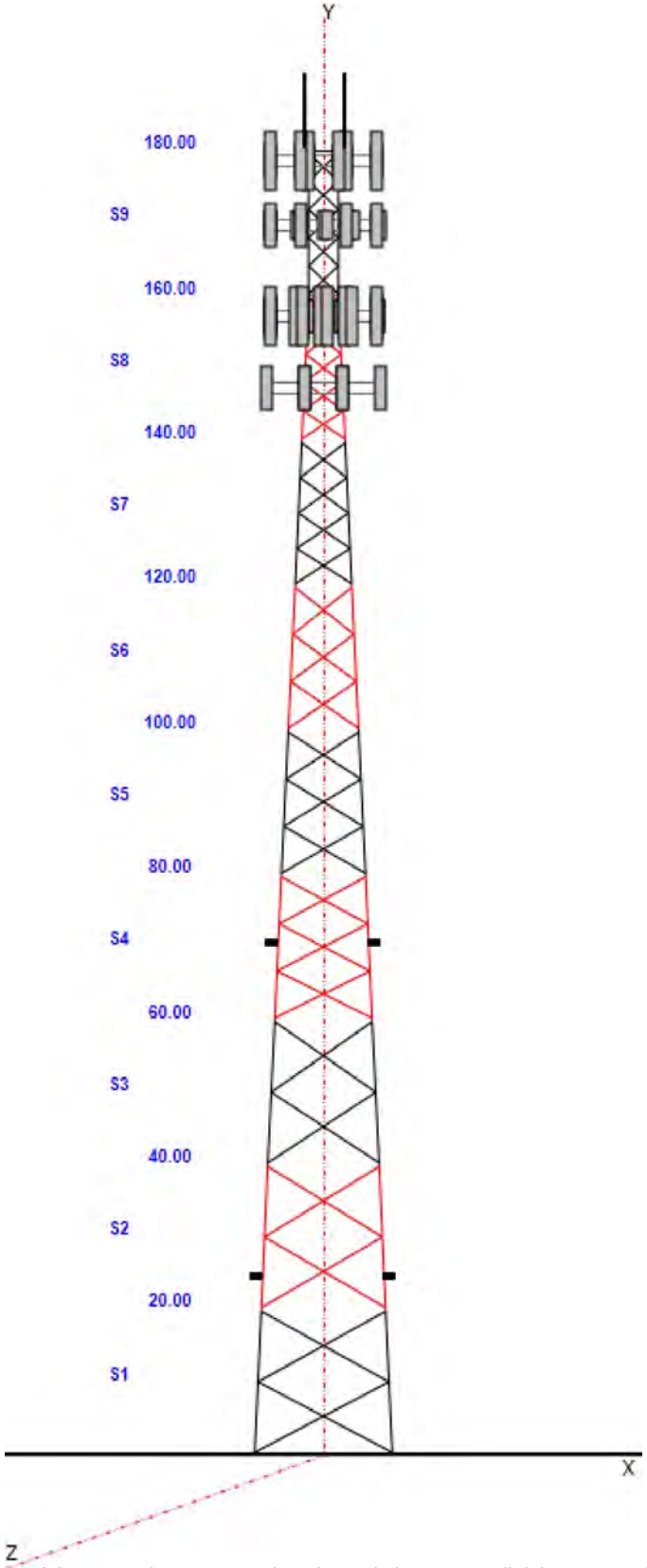
0.00	178.50	12	1 5/8" Coax
0.00	178.50	1	1 5/8" Fiber
0.00	178.50	1	W/G Ladder
0.00	169.50	12	1 5/8" Coax
0.00	169.50	1	1 5/8" Fiber
0.00	169.50	1	W/G Ladder
0.00	157.00	12	1 5/8" Coax
0.00	157.00	1	3" Flex Conduit
0.00	157.00	1	3/8" RET
0.00	157.00	1	W/G Ladder
0.00	147.00	1	1.6" Hybrid
0.00	70.50	1	1/2" Coax
0.00	24.50	1	1/2" Coax

Base Reactions

Leg			Overturning		
Max Uplift:	-274.43	(kips	Moment:	5450.69	(ft-kips)
Max Down:	315.66	(kips	Total Down:	52.96	(kips)
Max Shear:	31.92	(kips	Total Shear:	51.57	(kips)

Structure: CT10008-A-SBA

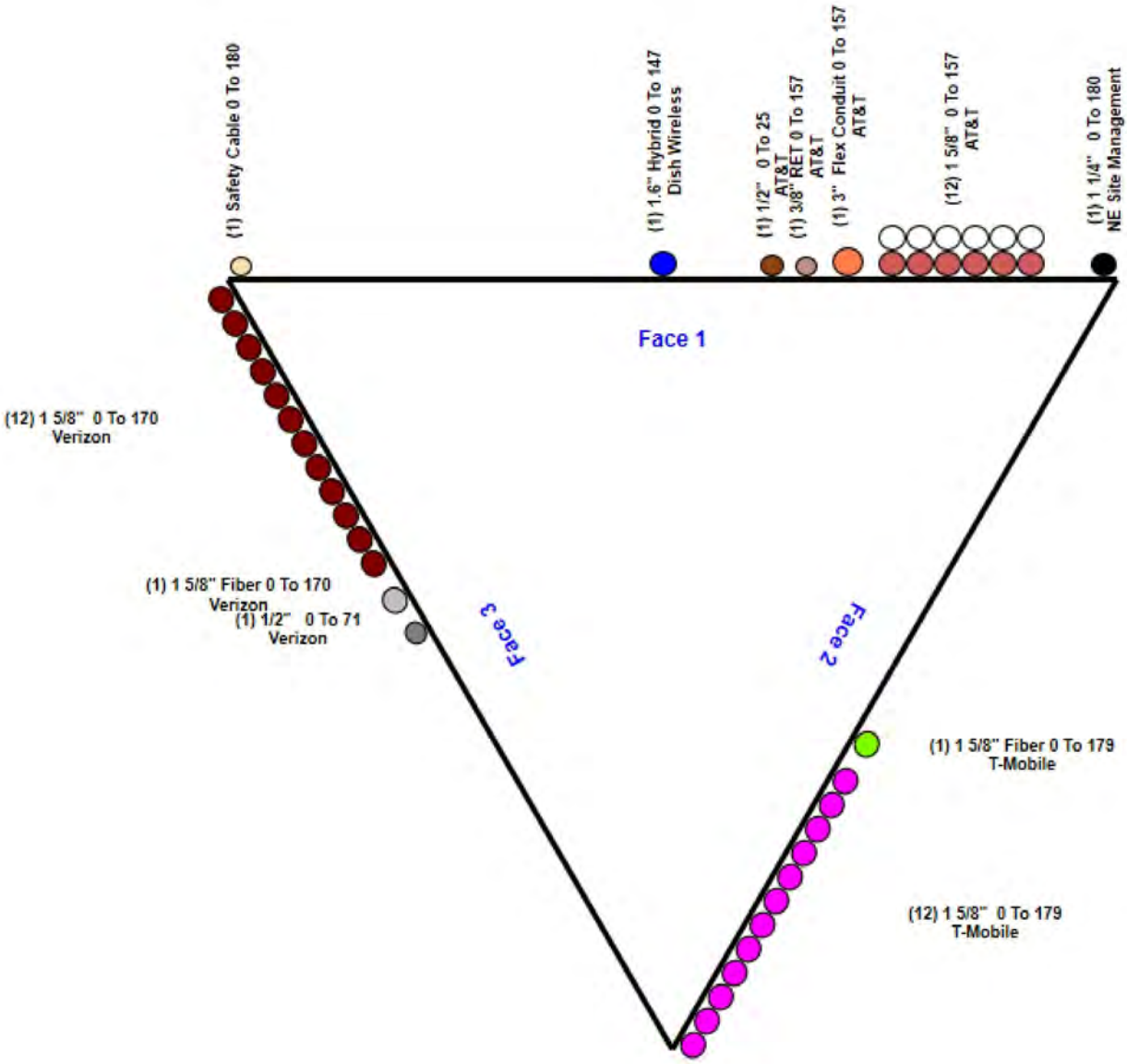
Site Name:	Ellington			**Code:**	EIA/TIA-222-G	9/10/2021
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	97.00	
Height:	180.00 (ft)	**Base Width:**	21.12	**Basic Ice WS:**	50.00	
Base Elev:	9.00 (ft)	**Top Width:**	4.58	**Operational WS:**	60.00	Page: 3



Structure: CT10008-A-SBA - Coax Line Placement

Type: Self Support
Site Name: Ellington
Height: 180.00 (ft)

9/10/2021



Loading Summary

Structure:	CT10008-A-SBA		**Code:**	EIA/TIA-222-G	9/10/2021
Site Name:	Ellington		**Exposure:**	B	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	9.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 5

Discrete Appurtenances Properties

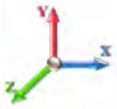
Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	Ice Weight (lb)	Ice CaAa (sf)	Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
180.00	Decibel DB222-A Dipole	1	16.00	2.250	110.06	10.476	127.000	0.000	0.000	1.00	1.00	5.292
178.50	(3) Stabilizer Kit (12' FW) + Suport	1	180.00	8.000	486.95	19.369	0.000	0.000	0.000	1.00	1.00	0.000
178.50	(3) HR w/ Double V-Brace Kits	1	650.00	15.500	1758.43	37.527	0.000	0.000	0.000	1.00	1.00	0.000
178.50	RR90-17-02DP	3	13.50	4.360	161.80	5.744	56.000	8.000	2.800	0.80	0.68	0.000
178.50	APXVAARR24_43-U-NA20	3	128.00	20.240	721.19	22.853	95.900	24.000	7.800	0.80	0.70	0.000
178.50	KRY 112 144/1	3	11.00	0.410	25.63	1.055	6.900	6.100	2.700	0.80	0.67	0.000
178.50	KRY 112 489/2	3	6.60	0.490	28.30	1.251	11.000	4.600	4.500	0.80	0.67	0.000
178.50	Radio 4449 B71+B12	3	71.00	1.970	143.44	2.713	13.100	14.900	9.200	0.80	0.67	0.000
178.50	782 11056	3	2.60	0.280	11.46	0.825	5.700	5.000	1.500	0.80	0.67	0.000
178.50	Light Sector Frame-Flat	3	500.00	17.500	1447.38	36.400	0.000	0.000	0.000	0.75	0.75	0.000
169.50	Light Sector Frame-Flat	3	500.00	17.500	1447.38	36.400	0.000	0.000	0.000	0.75	0.75	0.000
169.50	Antel BXA-70063-4CF-EDIN-X	2	9.90	4.720	148.12	7.229	47.400	11.200	5.200	0.80	0.73	0.000
169.50	Antel BXA-70080-4CF-EDIN-0	4	9.90	4.720	148.12	7.229	47.400	11.200	5.200	0.80	0.73	0.000
169.50	Commscope HBXX-6517DS-A2M	6	40.80	8.550	279.99	12.511	74.900	12.000	6.500	0.80	0.77	0.000
169.50	Alcatel Lucent 1900 RRH 2x60W	3	49.30	2.620	151.54	4.328	25.500	10.600	9.700	0.80	0.67	0.000
169.50	Alcatel Lucent RRH AWS	3	43.00	2.890	147.33	4.639	25.200	11.800	9.000	0.80	0.67	0.000
169.50	RFS Celwave FD9R6004/2C-3L	6	3.10	0.360	13.99	0.962	5.800	6.500	1.500	0.80	0.67	0.000
157.00	Light Sector Frame-Flat	3	500.00	17.500	1436.22	36.178	0.000	0.000	0.000	0.75	0.75	0.000
157.00	Kathrein 800-10121	3	44.10	5.150	198.14	7.975	54.500	10.300	5.900	0.80	0.79	0.000
157.00	Powerwave P65-17-XLH-RR	4	59.00	11.440	349.49	15.778	96.000	12.000	6.000	0.80	0.75	0.000
157.00	KMW AM-X-CD-16-65-005-RET	2	41.80	8.020	259.46	11.767	72.000	11.800	5.900	0.80	0.75	0.000
157.00	Powerwave 7770.00	3	35.00	5.500	230.59	6.961	55.000	11.000	5.000	0.80	0.73	0.000
157.00	Powerwave TT19-08BP111-001	6	16.00	0.640	43.14	1.435	9.900	6.700	5.400	0.80	0.67	0.000
157.00	CCI DTMABP7819VG12A	6	19.20	1.140	53.43	2.172	10.600	11.000	3.800	0.80	0.67	0.000
157.00	Kathrein 860-10025	6	1.10	0.160	8.30	0.626	6.900	2.400	2.000	0.80	0.67	0.000
157.00	Ericsson RRUS-11	6	51.00	2.520	147.93	3.369	17.000	17.800	7.200	0.80	0.67	0.000
157.00	DC6-48-60-18-8F	1	31.80	0.920	114.71	1.507	24.000	11.000	11.000	0.80	0.67	0.000
147.00	JMA Wireless MX08FRO665-21	3	64.50	12.490	454.60	14.454	72.000	20.000	8.000	0.80	0.74	0.000
147.00	(3) MTC3975083	1	1242.0	28.050	2869.90	75.320	0.000	0.000	0.000	0.75	1.00	0.000
147.00	Fujitsu TA08025-B605	3	75.00	1.960	145.15	2.712	15.800	15.000	9.100	0.80	0.67	0.000
147.00	Fujitsu TA08025-B604	3	63.90	1.960	131.80	2.712	15.800	15.000	7.900	0.80	0.67	0.000
147.00	Raycap RDIDC-9181-PF-48-OVP	1	21.90	2.010	93.31	2.772	16.600	14.600	8.500	1.00	1.00	0.000
70.50	Pipe Mount	1	350.00	1.500	716.65	2.809	0.000	0.000	0.000	1.00	1.00	0.000
70.50	Andrew GPS	1	10.00	0.160	16.93	0.640	8.000	2.000	2.000	1.00	1.00	0.000
24.50	GPS	1	10.00	0.160	16.46	0.608	8.000	2.000	2.000	1.00	1.00	0.000
24.50	Pipe Mount	1	350.00	1.500	691.66	2.720	0.000	0.000	0.000	1.00	1.00	0.000
	Totals:	**106**	**10,350.40**		**33,607.14**						**Number of Appurtenances :**	**36**

Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	180.00	1 1/4" Coax	1	1.55	0.66	100.00	1	Individual NR		N	1.00	1.00	
0.00	180.00	Safety Cable	1	0.38	0.27	100.00	1	Individual NR		N	1.00	1.00	
0.00	178.50	1 5/8" Coax	12	1.98	1.04	100.00	2	Individual IR		N	1.00	1.00	
0.00	178.50	1 5/8" Fiber	1	2.00	1.10	100.00	2	Individual NR		N	1.00	1.00	
0.00	178.50	W/G Ladder	1	2.00	6.00	100.00	2	Individual NR		N	1.00	1.00	
0.00	169.50	1 5/8" Coax	12	1.98	1.04	100.00	3	Individual IR		N	1.00	1.00	
0.00	169.50	1 5/8" Fiber	1	1.98	1.04	100.00	3	Individual NR		N	1.00	1.00	
0.00	169.50	W/G Ladder	1	2.00	6.00	100.00	3	Individual NR		N	1.00	1.00	
0.00	157.00	1 5/8" Coax	12	1.98	1.04	50.00	1	Block		N	0.50	1.00	
0.00	157.00	3" Flex Conduit	1	3.02	1.78	100.00	1	Individual NR		N	1.00	1.00	
0.00	157.00	3/8" RET	1	0.38	0.06	100.00	1	Individual NR		N	1.00	1.00	
0.00	157.00	W/G Ladder	1	2.00	6.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	147.00	1.6" Hybrid	1	1.60	1.82	100.00	1	Individual NR		N	1.00	1.00	
0.00	70.50	1/2" Coax	1	0.65	0.16	100.00	3	Individual NR		N	1.00	1.00	
0.00	24.50	1/2" Coax	1	0.65	0.16	100.00	1	Individual NR		N	1.00	1.00	

Section Forces

Structure:	CT10008-A-SBA	**Code:**	EIA/TIA-222-G	9/10/2021	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 7	



Tower Engineering Solutions

Load Case: 1.2D + 1.6W Normal Wind — 1.2D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	28.808	28.80	0.00	0.14	2.81	1.00	1.00	0.00	41.49	133.50	0.00	6,754.2	0.0	2275.62	2051.14	4,326.76
2	30.0	15.46	26.417	28.80	0.00	0.15	2.78	1.00	1.00	0.00	38.89	132.66	0.00	6,580.1	0.0	2275.46	2199.96	4,475.42
3	50.0	17.40	21.031	28.81	0.00	0.15	2.78	1.00	1.00	0.00	33.08	132.42	0.00	5,448.0	0.0	2172.48	2472.03	4,644.51
4	70.0	18.92	22.214	22.12	0.00	0.15	2.76	1.00	1.00	0.00	32.79	131.90	0.00	5,180.5	0.0	2327.77	2677.52	5,005.29
5	90.0	20.18	16.204	22.13	0.00	0.15	2.75	1.00	1.00	0.00	26.62	131.33	0.00	4,336.7	0.0	2012.13	2844.61	4,856.74
6	110.0	21.26	14.054	18.58	0.00	0.16	2.73	1.00	1.00	0.00	23.46	131.33	0.00	4,027.8	0.0	1855.13	2998.16	4,853.29
7	130.0	22.23	11.609	15.03	0.00	0.17	2.71	1.00	1.00	0.00	19.77	131.33	0.00	3,406.9	0.0	1622.06	3134.23	4,756.29
8	150.0	23.10	11.624	11.69	0.00	0.20	2.60	1.00	1.00	0.00	18.33	124.66	0.00	2,967.7	0.0	1499.63	3078.06	4,577.69
9	170.0	23.89	10.350	9.58	0.00	0.21	2.57	1.00	1.00	0.00	15.87	67.97	0.00	1,839.9	0.0	1326.96	1663.05	2,990.01
														40,541.8	**0.0**			**40,486.00**

Load Case: 1.2D + 1.6W 60° Wind — 1.2D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

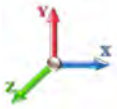
Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	28.808	28.80	0.00	0.14	2.81	0.80	1.00	0.00	35.72	133.50	0.00	6,754.2	0.0	1959.57	2051.14	4,010.71
2	30.0	15.46	26.417	28.80	0.00	0.15	2.78	0.80	1.00	0.00	33.61	132.66	0.00	6,580.1	0.0	1966.33	2199.96	4,166.29
3	50.0	17.40	21.031	28.81	0.00	0.15	2.78	0.80	1.00	0.00	28.87	132.42	0.00	5,448.0	0.0	1896.22	2472.03	4,368.25
4	70.0	18.92	22.214	22.12	0.00	0.15	2.76	0.80	1.00	0.00	28.35	131.90	0.00	5,180.5	0.0	2012.37	2677.52	4,689.89
5	90.0	20.18	16.204	22.13	0.00	0.15	2.75	0.80	1.00	0.00	23.38	131.33	0.00	4,336.7	0.0	1767.18	2844.61	4,611.79
6	110.0	21.26	14.054	18.58	0.00	0.16	2.73	0.80	1.00	0.00	20.65	131.33	0.00	4,027.8	0.0	1632.82	2998.16	4,630.98
7	130.0	22.23	11.609	15.03	0.00	0.17	2.71	0.80	1.00	0.00	17.45	131.33	0.00	3,406.9	0.0	1431.56	3134.23	4,565.79
8	150.0	23.10	11.624	11.69	0.00	0.20	2.60	0.80	1.00	0.00	16.01	124.66	0.00	2,967.7	0.0	1309.47	3078.06	4,387.53
9	170.0	23.89	10.350	9.58	0.00	0.21	2.57	0.80	1.00	0.00	13.80	67.97	0.00	1,839.9	0.0	1153.85	1663.05	2,816.90
														40,541.8	**0.0**			**38,248.13**

Section Forces

Structure:	CT10008-A-SBA	**Code:**	EIA/TIA-222-G	9/10/2021	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 8	



Tower Engineering Solutions

Load Case: 1.2D + 1.6W 90° Wind — 1.2D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60
Dead Load Factor: 1.20
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	28.808	28.80	0.00	0.14	2.81	0.85	1.00	0.00	37.16	133.50	0.00	6,754.2	0.0	2038.59	2051.14	4,089.73
2	30.0	15.46	26.417	28.80	0.00	0.15	2.78	0.85	1.00	0.00	34.93	132.66	0.00	6,580.1	0.0	2043.61	2199.96	4,243.57
3	50.0	17.40	21.031	28.81	0.00	0.15	2.78	0.85	1.00	0.00	29.92	132.42	0.00	5,448.0	0.0	1965.28	2472.03	4,437.32
4	70.0	18.92	22.214	22.12	0.00	0.15	2.76	0.85	1.00	0.00	29.46	131.90	0.00	5,180.5	0.0	2091.22	2677.52	4,768.74
5	90.0	20.18	16.204	22.13	0.00	0.15	2.75	0.85	1.00	0.00	24.19	131.33	0.00	4,336.7	0.0	1828.42	2844.61	4,673.03
6	110.0	21.26	14.054	18.58	0.00	0.16	2.73	0.85	1.00	0.00	21.35	131.33	0.00	4,027.8	0.0	1688.39	2998.16	4,686.55
7	130.0	22.23	11.609	15.03	0.00	0.17	2.71	0.85	1.00	0.00	18.03	131.33	0.00	3,406.9	0.0	1479.18	3134.23	4,613.41
8	150.0	23.10	11.624	11.69	0.00	0.20	2.60	0.85	1.00	0.00	16.59	124.66	0.00	2,967.7	0.0	1357.01	3078.06	4,435.07
9	170.0	23.89	10.350	9.58	0.00	0.21	2.57	0.85	1.00	0.00	14.31	67.97	0.00	1,839.9	0.0	1197.13	1663.05	2,860.18
														40,541.8	**0.0**			**38,807.60**

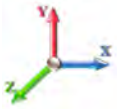
Load Case: 0.9D + 1.6W Normal Wind — 0.9D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	28.808	28.80	0.00	0.14	2.81	1.00	1.00	0.00	41.49	133.50	0.00	5,065.6	0.0	2275.62	2051.14	4,326.76
2	30.0	15.46	26.417	28.80	0.00	0.15	2.78	1.00	1.00	0.00	38.89	132.66	0.00	4,935.0	0.0	2275.46	2199.96	4,475.42
3	50.0	17.40	21.031	28.81	0.00	0.15	2.78	1.00	1.00	0.00	33.08	132.42	0.00	4,086.0	0.0	2172.48	2472.03	4,644.51
4	70.0	18.92	22.214	22.12	0.00	0.15	2.76	1.00	1.00	0.00	32.79	131.90	0.00	3,885.4	0.0	2327.77	2677.52	5,005.29
5	90.0	20.18	16.204	22.13	0.00	0.15	2.75	1.00	1.00	0.00	26.62	131.33	0.00	3,252.5	0.0	2012.13	2844.61	4,856.74
6	110.0	21.26	14.054	18.58	0.00	0.16	2.73	1.00	1.00	0.00	23.46	131.33	0.00	3,020.9	0.0	1855.13	2998.16	4,853.29
7	130.0	22.23	11.609	15.03	0.00	0.17	2.71	1.00	1.00	0.00	19.77	131.33	0.00	2,555.2	0.0	1622.06	3134.23	4,756.29
8	150.0	23.10	11.624	11.69	0.00	0.20	2.60	1.00	1.00	0.00	18.33	124.66	0.00	2,225.7	0.0	1499.63	3078.06	4,577.69
9	170.0	23.89	10.350	9.58	0.00	0.21	2.57	1.00	1.00	0.00	15.87	67.97	0.00	1,379.9	0.0	1326.96	1663.05	2,990.01
														30,406.3	**0.0**			**40,486.00**

Section Forces

Structure:	CT10008-A-SBA	**Code:**	EIA/TIA-222-G	9/10/2021	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 9	



Tower Engineering Solutions

Load Case: 0.9D + 1.6W 60° Wind — 0.9D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	28.808	28.80	0.00	0.14	2.81	0.80	1.00	0.00	35.72	133.50	0.00	5,065.6	0.0	1959.57	2051.14	4,010.71
2	30.0	15.46	26.417	28.80	0.00	0.15	2.78	0.80	1.00	0.00	33.61	132.66	0.00	4,935.0	0.0	1966.33	2199.96	4,166.29
3	50.0	17.40	21.031	28.81	0.00	0.15	2.78	0.80	1.00	0.00	28.87	132.42	0.00	4,086.0	0.0	1896.22	2472.03	4,368.25
4	70.0	18.92	22.214	22.12	0.00	0.15	2.76	0.80	1.00	0.00	28.35	131.90	0.00	3,885.4	0.0	2012.37	2677.52	4,689.89
5	90.0	20.18	16.204	22.13	0.00	0.15	2.75	0.80	1.00	0.00	23.38	131.33	0.00	3,252.5	0.0	1767.18	2844.61	4,611.79
6	110.0	21.26	14.054	18.58	0.00	0.16	2.73	0.80	1.00	0.00	20.65	131.33	0.00	3,020.9	0.0	1632.82	2998.16	4,630.98
7	130.0	22.23	11.609	15.03	0.00	0.17	2.71	0.80	1.00	0.00	17.45	131.33	0.00	2,555.2	0.0	1431.56	3134.23	4,565.79
8	150.0	23.10	11.624	11.69	0.00	0.20	2.60	0.80	1.00	0.00	16.01	124.66	0.00	2,225.7	0.0	1309.47	3078.06	4,387.53
9	170.0	23.89	10.350	9.58	0.00	0.21	2.57	0.80	1.00	0.00	13.80	67.97	0.00	1,379.9	0.0	1153.85	1663.05	2,816.90
														30,406.3	**0.0**			**38,248.13**

Load Case: 0.9D + 1.6W 90° Wind — 0.9D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

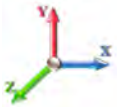
Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	28.808	28.80	0.00	0.14	2.81	0.85	1.00	0.00	37.16	133.50	0.00	5,065.6	0.0	2038.59	2051.14	4,089.73
2	30.0	15.46	26.417	28.80	0.00	0.15	2.78	0.85	1.00	0.00	34.93	132.66	0.00	4,935.0	0.0	2043.61	2199.96	4,243.57
3	50.0	17.40	21.031	28.81	0.00	0.15	2.78	0.85	1.00	0.00	29.92	132.42	0.00	4,086.0	0.0	1965.28	2472.03	4,437.32
4	70.0	18.92	22.214	22.12	0.00	0.15	2.76	0.85	1.00	0.00	29.46	131.90	0.00	3,885.4	0.0	2091.22	2677.52	4,768.74
5	90.0	20.18	16.204	22.13	0.00	0.15	2.75	0.85	1.00	0.00	24.19	131.33	0.00	3,252.5	0.0	1828.42	2844.61	4,673.03
6	110.0	21.26	14.054	18.58	0.00	0.16	2.73	0.85	1.00	0.00	21.35	131.33	0.00	3,020.9	0.0	1688.39	2998.16	4,686.55
7	130.0	22.23	11.609	15.03	0.00	0.17	2.71	0.85	1.00	0.00	18.03	131.33	0.00	2,555.2	0.0	1479.18	3134.23	4,613.41
8	150.0	23.10	11.624	11.69	0.00	0.20	2.60	0.85	1.00	0.00	16.59	124.66	0.00	2,225.7	0.0	1357.01	3078.06	4,435.07
9	170.0	23.89	10.350	9.58	0.00	0.21	2.57	0.85	1.00	0.00	14.31	67.97	0.00	1,379.9	0.0	1197.13	1663.05	2,860.18
														30,406.3	**0.0**			**38,807.60**

Section Forces

Structure:	CT10008-A-SBA	**Code:**	EIA/TIA-222-G	9/10/2021	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 10	



Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	3.81	28.808	69.61	40.81	0.23	2.49	1.00	1.00	1.89	69.25	208.02	56.78	17,697.	10943.7	558.01	804.54	1,362.55
2	30.0	4.11	26.417	70.21	41.42	0.25	2.43	1.00	1.00	2.03	67.54	210.00	55.76	18,037.	11457.6	572.93	866.10	1,439.03
3	50.0	4.62	21.031	69.45	40.65	0.26	2.39	1.00	1.00	2.12	61.93	211.48	56.52	16,717.	11269.6	582.52	979.39	1,561.91
4	70.0	5.03	22.214	70.22	48.10	0.31	2.27	1.00	1.00	2.18	64.53	212.22	54.74	16,789.	11609.2	624.53	1043.97	1,668.51
5	90.0	5.36	16.204	67.20	45.08	0.33	2.23	1.00	1.00	2.23	57.04	212.64	52.09	15,287.	10951.0	578.98	1100.37	1,679.35
6	110.0	5.65	14.054	60.38	41.80	0.35	2.17	1.00	1.00	2.27	51.30	213.47	53.05	14,630.	10602.7	533.82	1157.27	1,691.09
7	130.0	5.91	11.609	58.41	43.39	0.42	2.03	1.00	1.00	2.31	49.19	214.19	53.88	13,735.	10328.8	502.05	1163.97	1,666.02
8	150.0	6.14	11.624	55.78	44.09	0.54	1.86	1.00	1.00	2.34	50.95	205.79	47.20	12,906.	9938.6	493.76	911.37	1,377.51
9	170.0	6.35	10.350	50.93	41.34	0.59	1.81	1.00	1.00	2.37	47.83	115.74	26.84	8,607.9	6768.0	467.77	470.33	938.10
														134,411.0	**93869.2**			**13,384.06**

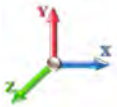
Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	3.81	28.808	69.61	40.81	0.23	2.49	0.80	1.00	1.89	63.49	208.02	56.78	17,697.	10943.7	511.58	804.54	1,316.13
2	30.0	4.11	26.417	70.21	41.42	0.25	2.43	0.80	1.00	2.03	62.25	210.00	55.76	18,037.	11457.6	528.11	866.10	1,394.21
3	50.0	4.62	21.031	69.45	40.65	0.26	2.39	0.80	1.00	2.12	57.72	211.48	56.52	16,717.	11269.6	542.95	979.39	1,522.34
4	70.0	5.03	22.214	70.22	48.10	0.31	2.27	0.80	1.00	2.18	60.09	212.22	54.74	16,789.	11609.2	581.54	1043.97	1,625.51
5	90.0	5.36	16.204	67.20	45.08	0.33	2.23	0.80	1.00	2.23	53.80	212.64	52.09	15,287.	10951.0	546.08	1100.37	1,646.46
6	110.0	5.65	14.054	60.38	41.80	0.35	2.17	0.80	1.00	2.27	48.49	213.47	53.05	14,630.	10602.7	504.57	1157.27	1,661.84
7	130.0	5.91	11.609	58.41	43.39	0.42	2.03	0.80	1.00	2.31	46.87	214.19	53.88	13,735.	10328.8	478.35	1163.97	1,642.32
8	150.0	6.14	11.624	55.78	44.09	0.54	1.86	0.80	1.00	2.34	48.63	205.79	47.20	12,906.	9938.6	471.23	911.37	1,382.59
9	170.0	6.35	10.350	50.93	41.34	0.59	1.81	0.80	1.00	2.37	45.76	115.74	26.84	8,607.9	6768.0	447.53	470.33	917.86
														134,411.0	**93869.2**			**13,109.25**

Section Forces

Structure:	CT10008-A-SBA	**Code:**	EIA/TIA-222-G	9/10/2021	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 11	



Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	3.81	28.808	69.61	40.81	0.23	2.49	0.85	1.00	1.89	64.93	208.02	56.78	17,697.	10943.7	523.19	804.54	1,327.73
2	30.0	4.11	26.417	70.21	41.42	0.25	2.43	0.85	1.00	2.03	63.57	210.00	55.76	18,037.	11457.6	539.32	866.10	1,405.41
3	50.0	4.62	21.031	69.45	40.65	0.26	2.39	0.85	1.00	2.12	58.77	211.48	56.52	16,717.	11269.6	552.84	979.39	1,532.23
4	70.0	5.03	22.214	70.22	48.10	0.31	2.27	0.85	1.00	2.18	61.20	212.22	54.74	16,789.	11609.2	592.29	1043.97	1,636.26
5	90.0	5.36	16.204	67.20	45.08	0.33	2.23	0.85	1.00	2.23	54.61	212.64	52.09	15,287.	10951.0	554.31	1100.37	1,654.68
6	110.0	5.65	14.054	60.38	41.80	0.35	2.17	0.85	1.00	2.27	49.19	213.47	53.05	14,630.	10602.7	511.88	1157.27	1,669.15
7	130.0	5.91	11.609	58.41	43.39	0.42	2.03	0.85	1.00	2.31	47.45	214.19	53.88	13,735.	10328.8	484.27	1163.97	1,648.25
8	150.0	6.14	11.624	55.78	44.09	0.54	1.86	0.85	1.00	2.34	49.21	205.79	47.20	12,906.	9938.6	476.86	911.37	1,388.23
9	170.0	6.35	10.350	50.93	41.34	0.59	1.81	0.85	1.00	2.37	46.28	115.74	26.84	8,607.9	6768.0	452.59	470.33	922.92
														134,411.0	**93869.2**			**13,184.86**

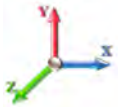
Load Case: 1.0D + 1.0W Normal Wind — 1.0D + 1.0W 60 mph Wind at Normal To Face

Wind Load Factor: 1.00
Dead Load Factor: 1.00
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	28.808	28.80	0.00	0.14	2.81	1.00	1.00	0.00	44.56	133.50	0.00	5,628.5	0.0	584.51	490.49	1,075.00
2	30.0	5.92	26.417	28.80	0.00	0.15	2.78	1.00	1.00	0.00	42.01	132.66	0.00	5,483.4	0.0	587.80	526.08	1,113.88
3	50.0	6.66	21.031	28.81	0.00	0.15	2.78	1.00	1.00	0.00	36.33	132.42	0.00	4,540.0	0.0	570.66	591.14	1,161.81
4	70.0	7.24	22.214	22.12	0.00	0.15	2.76	1.00	1.00	0.00	34.78	131.90	0.00	4,317.1	0.0	590.36	640.28	1,230.64
5	90.0	7.72	16.204	22.13	0.00	0.15	2.75	1.00	1.00	0.00	28.68	131.33	0.00	3,613.9	0.0	518.41	680.24	1,198.65
6	110.0	8.14	14.054	18.58	0.00	0.16	2.73	1.00	1.00	0.00	24.62	131.33	0.00	3,356.5	0.0	465.60	716.96	1,182.56
7	130.0	8.51	11.609	15.03	0.00	0.17	2.71	1.00	1.00	0.00	20.16	131.33	0.00	2,839.1	0.0	395.63	749.50	1,145.13
8	150.0	8.84	11.624	11.69	0.00	0.20	2.60	1.00	1.00	0.00	18.33	124.66	0.00	2,473.0	0.0	358.61	736.06	1,094.68
9	170.0	9.14	10.350	9.58	0.00	0.21	2.57	1.00	1.00	0.00	15.87	67.97	0.00	1,533.2	0.0	317.32	397.69	715.01
														33,784.8	**0.0**			**9,917.36**

Section Forces

Structure:	CT10008-A-SBA	**Code:**	EIA/TIA-222-G	9/10/2021	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 12	



Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60° Wind — 1.0D + 1.0W 60 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	28.808	28.80	0.00	0.14	2.81	0.80	1.00	0.00	38.80	133.50	0.00	5,628.5	0.0	508.93	490.49	999.42
2	30.0	5.92	26.417	28.80	0.00	0.15	2.78	0.80	1.00	0.00	36.73	132.66	0.00	5,483.4	0.0	513.88	526.08	1,039.96
3	50.0	6.66	21.031	28.81	0.00	0.15	2.78	0.80	1.00	0.00	32.13	132.42	0.00	4,540.0	0.0	504.60	591.14	1,095.75
4	70.0	7.24	22.214	22.12	0.00	0.15	2.76	0.80	1.00	0.00	30.33	131.90	0.00	4,317.1	0.0	514.94	640.28	1,155.22
5	90.0	7.72	16.204	22.13	0.00	0.15	2.75	0.80	1.00	0.00	25.44	131.33	0.00	3,613.9	0.0	459.83	680.24	1,140.07
6	110.0	8.14	14.054	18.58	0.00	0.16	2.73	0.80	1.00	0.00	21.81	131.33	0.00	3,356.5	0.0	412.44	716.96	1,129.39
7	130.0	8.51	11.609	15.03	0.00	0.17	2.71	0.80	1.00	0.00	17.84	131.33	0.00	2,839.1	0.0	350.08	749.50	1,099.57
8	150.0	8.84	11.624	11.69	0.00	0.20	2.60	0.80	1.00	0.00	16.01	124.66	0.00	2,473.0	0.0	313.14	736.06	1,049.20
9	170.0	9.14	10.350	9.58	0.00	0.21	2.57	0.80	1.00	0.00	13.80	67.97	0.00	1,533.2	0.0	275.92	397.69	673.61
														33,784.8	**0.0**			**9,382.21**

Load Case: 1.0D + 1.0W 90° Wind — 1.0D + 1.0W 60 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

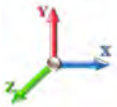
Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	28.808	28.80	0.00	0.14	2.81	0.85	1.00	0.00	40.24	133.50	0.00	5,628.5	0.0	527.82	490.49	1,018.32
2	30.0	5.92	26.417	28.80	0.00	0.15	2.78	0.85	1.00	0.00	38.05	132.66	0.00	5,483.4	0.0	532.36	526.08	1,058.44
3	50.0	6.66	21.031	28.81	0.00	0.15	2.78	0.85	1.00	0.00	33.18	132.42	0.00	4,540.0	0.0	521.12	591.14	1,112.26
4	70.0	7.24	22.214	22.12	0.00	0.15	2.76	0.85	1.00	0.00	31.44	131.90	0.00	4,317.1	0.0	533.79	640.28	1,174.08
5	90.0	7.72	16.204	22.13	0.00	0.15	2.75	0.85	1.00	0.00	26.25	131.33	0.00	3,613.9	0.0	474.48	680.24	1,154.72
6	110.0	8.14	14.054	18.58	0.00	0.16	2.73	0.85	1.00	0.00	22.51	131.33	0.00	3,356.5	0.0	425.73	716.96	1,142.68
7	130.0	8.51	11.609	15.03	0.00	0.17	2.71	0.85	1.00	0.00	18.42	131.33	0.00	2,839.1	0.0	361.46	749.50	1,110.96
8	150.0	8.84	11.624	11.69	0.00	0.20	2.60	0.85	1.00	0.00	16.59	124.66	0.00	2,473.0	0.0	324.51	736.06	1,060.57
9	170.0	9.14	10.350	9.58	0.00	0.21	2.57	0.85	1.00	0.00	14.31	67.97	0.00	1,533.2	0.0	286.27	397.69	683.96
														33,784.8	**0.0**			**9,515.99**

Force/Stress Compression Summary

Structure:	CT10008-A-SBA	**Code:**	EIA/TIA-222-G	9/10/2021	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 13	



Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PX - 8" DIA PIPE	-308.56	1.2D + 1.6W Normal Wind	9.77	100	100	100	40.73	50.00	508.62	60.7	Member X
2	40	PX - 8" DIA PIPE	-278.54	1.2D + 1.6W Normal Wind	9.77	100	100	100	40.72	50.00	508.65	54.8	Member X
3	60	PSP - ROHN 8 EHS	-246.67	1.2D + 1.6W Normal Wind	9.77	100	100	100	40.15	50.00	388.77	63.4	Member X
4	80	PX - 6" DIA PIPE	-217.86	1.2D + 1.6W Normal Wind	6.51	100	100	100	35.68	50.00	344.41	63.3	Member X
5	100	PSP - ROHN 6 EHS	-184.28	1.2D + 1.6W Normal Wind	6.51	100	100	100	35.12	50.00	276.03	66.8	Member X
6	120	PX - 5" DIA PIPE	-150.90	1.2D + 1.6W Normal Wind	6.51	100	100	100	42.47	50.00	240.98	62.6	Member X
7	140	PX - 4" DIA PIPE	-116.20	1.2D + 1.6W Normal Wind	4.88	100	100	100	39.60	50.00	176.96	65.7	Member X
8	160	PX - 3" DIA PIPE	-75.47	1.2D + 1.6W Normal Wind	3.91	100	100	100	41.12	50.00	120.09	62.8	Member X
9	180	PST - 2-1/2" DIA PIPE	-29.13	1.2D + 1.6W Normal Wind	3.90	100	100	100	49.42	50.00	64.14	45.4	Member X

Splices

		Top Splice					Bottom Splice				
Sect	Top Elev	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	1.2D + 1.6W Normal Wind	288.33	0.00	0.0			1.2D + 1.6W Normal Wind	316.54	0.00			
2	40	1.2D + 1.6W Normal Wind	255.21	0.00	0.0			1.2D + 1.6W Normal Wind	288.33	0.00		1 A325	8
3	60	1.2D + 1.6W Normal Wind	224.52	0.00	0.0			1.2D + 1.6W Normal Wind	255.21	0.00		1 A325	8
4	80	1.2D + 1.6W Normal Wind	190.66	0.00	0.0			1.2D + 1.6W Normal Wind	224.52	0.00		1 A325	8
5	100	1.2D + 1.6W Normal Wind	157.61	0.00	0.0			1.2D + 1.6W Normal Wind	190.66	0.00		1 A325	6
6	120	1.2D + 1.6W Normal Wind	121.72	0.00	0.0			1.2D + 1.6W Normal Wind	157.61	0.00		1 A325	6
7	140	1.2D + 1.6W Normal Wind	80.64	0.00	0.0			1.2D + 1.6W Normal Wind	121.72	0.00		1 A325	4
8	160	1.2D + 1.6W Normal Wind	34.33	0.00	0.0			1.2D + 1.6W Normal Wind	80.64	0.00		7/8 A325	4
9	180	1.2D + 1.0Di + 1.0Wi 90° Wind	0.44	0.00	0.0			1.2D + 1.6W Normal Wind	34.33	0.00		3/4 A325	4

HORIZONTAL MEMBERS

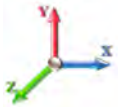
Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20										0.00	0	0				
2	40										0.00	0	0				
3	60										0.00	0	0				
4	80										0.00	0	0				
5	100										0.00	0	0				
6	120										0.00	0	0				
7	140										0.00	0	0				
8	160	SAE - 2X2X0.25	-0.27	0.9D + 1.6W Normal Wind	4.58	100	100	100	140.56	36.00	10.75	1	1	12.43	13.05	3	Member Z
9	180	SAE - 2X2X0.25	-0.37	0.9D + 1.6W 60° Wind	4.58	100	100	100	140.56	36.00	10.75	1	1	12.43	13.05	3	Member Z

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20	SAE - 4X4X0.25	-8.93	0.9D + 1.6W 90° Wind	21.87	49	49	49	161.75	50.00	16.75	1	1	17.89	16.0	56	Bolt Bear
2	40	SAE - 4X4X0.25	-9.11	0.9D + 1.6W 90° Wind	20.11	49	49	49	148.76	50.00	19.80	1	1	17.89	16.0	57	Bolt Bear
3	60	SAE - 3.5X3.5X0.25	-7.72	0.9D + 1.6W 90° Wind	19.20	49	49	49	162.65	50.00	14.43	1	1	17.89	16.0	53	Member Z
4	80	SAE - 3X3X0.25	-7.12	1.2D + 1.6W 90° Wind	15.95	49	49	49	158.46	50.00	12.96	1	1	17.89	16.0	55	Member Z
5	100	SAE - 2.5X2.5X0.25	-6.25	1.2D + 1.6W 90° Wind	14.12	49	49	49	169.14	36.00	9.40	1	1	12.43	13.0	67	Member Z
6	120	SAE - 2.5X2.5X0.25	-6.24	1.2D + 1.6W 90° Wind	11.14	50	50	50	136.16	36.00	14.50	1	1	12.43	13.0	50	Bolt Shear
7	140	SAE - 2X2X0.25	-5.19	1.2D + 1.6W 90° Wind	9.72	50	50	50	149.11	36.00	9.55	1	1	12.43	13.0	54	Member Z
8	160	SAE - 2X2X0.25	-4.88	1.2D + 1.6W 90° Wind	7.50	50	50	50	116.31	36.00	14.94	1	1	12.43	13.0	39	Bolt Shear
9	180	SAE - 2X2X0.25	-4.10	1.2D + 1.6W 90° Wind	6.02	50	50	50	99.23	36.00	18.14	1	1	12.43	13.0	33	Bolt Shear

Force/Stress Compression Summary

Structure:	CT10008-A-SBA	**Code:**	EIA/TIA-222-G	9/10/2021	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 14	



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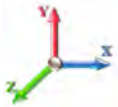
DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls

Force/Stress Tension Summary

Structure:	CT10008-A-SBA	**Code:**	EIA/TIA-222-G	9/10/2021	
Site Name:	Ellington	**Exposure:**	B		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	9.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 15	



Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PX - 8" DIA PIPE	275.99	0.9D + 1.6W 60° Wind	50	574.20	48.1	Member
2	40	PX - 8" DIA PIPE	251.89	0.9D + 1.6W 60° Wind	50	574.20	43.9	Member
3	60	PSP - ROHN 8 EHS	224.40	0.9D + 1.6W 60° Wind	50	437.40	51.3	Member
4	80	PX - 6" DIA PIPE	198.20	0.9D + 1.6W 60° Wind	50	378.00	52.4	Member
5	100	PSP - ROHN 6 EHS	169.11	0.9D + 1.6W 60° Wind	50	302.09	56.0	Member
6	120	PX - 5" DIA PIPE	139.76	0.9D + 1.6W 60° Wind	50	274.95	50.8	Member
7	140	PX - 4" DIA PIPE	107.32	0.9D + 1.6W 60° Wind	50	198.45	54.1	Member
8	160	PX - 3" DIA PIPE	69.36	0.9D + 1.6W 60° Wind	50	135.90	51.0	Member
9	180	PST - 2-1/2" DIA PIPE	28.65	0.9D + 1.6W 60° Wind	50	76.68	37.4	Member

Splices

		Top Splice					Bottom Splice				
Sect	Top Elev	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	0.9D + 1.6W 60° Wind	251.61	0.00	0.0			0.9D + 1.6W 60° Wind	275.9	0.00			
2	40	0.9D + 1.6W 60° Wind	223.94	0.00	0.0			0.9D + 1.6W 60° Wind	251.6	424.08	59.3	1 A325	8
3	60	0.9D + 1.6W 60° Wind	197.93	0.00	0.0			0.9D + 1.6W 60° Wind	223.9	424.08	52.8	1 A325	8
4	80	0.9D + 1.6W 60° Wind	168.85	0.00	0.0			0.9D + 1.6W 60° Wind	197.9	424.08	46.7	1 A325	8
5	100	0.9D + 1.6W 60° Wind	139.57	0.00	0.0			0.9D + 1.6W 60° Wind	168.8	318.06	53.1	1 A325	6
6	120	0.9D + 1.6W 60° Wind	107.15	0.00	0.0			0.9D + 1.6W 60° Wind	139.5	318.06	43.9	1 A325	6
7	140	0.9D + 1.6W 60° Wind	69.23	0.00	0.0			0.9D + 1.6W 60° Wind	107.1	212.04	50.5	1 A325	4
8	160	0.9D + 1.6W 60° Wind	28.75	0.00	0.0			0.9D + 1.6W 60° Wind	69.23	166.24	41.6	7/8 A325	4
9	180		0.00	0.00	0.0			0.9D + 1.6W 60° Wind	28.75	120.40	23.9	3/4 A325	4

HORIZONTAL MEMBERS

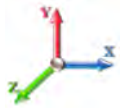
Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	-			50	0.00	0	0					
2	40	-			50	0.00	0	0					
3	60	-			50	0.00	0	0					
4	80	-			50	0.00	0	0					
5	100	-			36	0.00	0	0					
6	120	-			36	0.00	0	0					
7	140	-			36	0.00	0	0					
8	160	SAE - 2X2X0.25	0.26	1.2D + 1.6W 60° Wind	36	30.46	1	1	12.43	13.05	9.99	2.6	Blck Shear
9	180	SAE - 2X2X0.25	0.49	1.2D + 1.6W Normal Wi	36	30.46	1	1	12.43	13.05	9.99	4.9	Blck Shear

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	SAE - 4X4X0.25	8.73	0.9D + 1.6W 90° Wind	50	62.93	1	1	17.89	16.09	18.89	54.3	Bolt Bear
2	40	SAE - 4X4X0.25	8.97	0.9D + 1.6W 90° Wind	50	62.93	1	1	17.89	16.09	18.89	55.8	Bolt Bear
3	60	SAE - 3.5X3.5X0.25	7.59	0.9D + 1.6W 90° Wind	50	53.79	1	1	17.89	16.09	18.89	47.2	Bolt Bear
4	80	SAE - 3X3X0.25	7.12	1.2D + 1.6W 90° Wind	50	44.65	1	1	17.89	16.09	15.84	45.0	Blck Shear
5	100	SAE - 2.5X2.5X0.25	6.27	1.2D + 1.6W 90° Wind	36	32.71	1	1	12.43	13.05	12.71	50.4	Bolt Shear
6	120	SAE - 2.5X2.5X0.25	6.04	1.2D + 1.6W 90° Wind	36	32.71	1	1	12.43	13.05	12.71	48.6	Bolt Shear
7	140	SAE - 2X2X0.25	5.63	1.2D + 1.6W 90° Wind	36	24.55	1	1	12.43	13.05	9.99	56.4	Blck Shear
8	160	SAE - 2X2X0.25	4.86	1.2D + 1.6W 90° Wind	36	24.55	1	1	12.43	13.05	9.99	48.6	Blck Shear
9	180	SAE - 2X2X0.25	3.97	1.2D + 1.6W 90° Wind	36	24.55	1	1	12.43	13.05	9.99	39.7	Blck Shear

Support Forces Summary

Structure:	CT10008-A-SBA		**Code:**	EIA/TIA-222-G	9/10/2021
Site Name:	Ellington		**Exposure:**	B	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	9.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 16



Tower Engineering Solutions

Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	0.00	315.66	-31.92	
	1a	10.91	-131.35	-9.83	
	1b	-10.91	-131.35	-9.83	
1.2D + 1.6W 60° Wind	1	-2.80	161.70	-15.89	
	1a	-15.16	161.67	5.52	
	1b	-24.76	-270.41	-14.29	
1.2D + 1.6W 90° Wind	1	-3.33	17.66	-1.10	
	1a	-24.18	269.26	12.07	
	1b	-22.39	-233.96	-10.97	
0.9D + 1.6W Normal Wind	1	0.00	310.84	-31.62	
	1a	11.16	-135.56	-9.97	
	1b	-11.16	-135.56	-9.97	
0.9D + 1.6W 60° Wind	1	-2.81	157.09	-15.60	
	1a	-14.92	157.06	5.37	
	1b	-25.00	-274.43	-14.43	
0.9D + 1.6W 90° Wind	1	-3.33	13.25	-0.81	
	1a	-23.92	264.50	11.92	
	1b	-22.64	-238.03	-11.11	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	150.94	-10.28	
	1a	3.53	7.51	-3.16	
	1b	-3.53	7.51	-3.16	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.94	102.61	-5.24	
	1a	-5.00	102.59	1.81	
	1b	-8.20	-39.24	-4.73	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-1.09	55.32	-0.34	
	1a	-7.94	137.46	3.96	
	1b	-7.36	-26.82	-3.62	
1.0D + 1.0W Normal Wind	1	0.00	86.53	-8.45	
	1a	2.05	-21.20	-2.05	
	1b	-2.05	-21.20	-2.05	
1.0D + 1.0W 60° Wind	1	-0.70	49.44	-4.55	
	1a	-4.29	49.43	1.67	
	1b	-5.41	-54.73	-3.12	
1.0D + 1.0W 90° Wind	1	-0.82	14.71	-0.96	
	1a	-6.49	75.36	3.27	
	1b	-4.84	-45.94	-2.31	

Max Reactions

Leg			Overturning		
Max Uplift:	-274.43	(kips)	Moment:	5450.69	(ft-kips)
Max Down:	315.66	(kips)	Total Down:	52.96	(kips)
Max Shear:	31.92	(kips)	Total Shear:	51.57	(kips)

Analysis Summary

Structure:	CT10008-A-SBA		**Code:**	EIA/TIA-222-G	9/10/2021
Site Name:	Ellington		**Exposure:**	B	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	9.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 17

Max Reactions

Leg			Overturning		
Max Uplift:	-274.43	(kips)	Moment:	5450.69	(ft-kips)
Max Down:	315.66	(kips)	Total Down:	52.96	(kips)
Max Shear:	31.92	(kips)	Total Shear:	51.57	(kips)

Anchor Bolts

Bolt Size (in.):	1.00	Number Bolts:	10
Yield Strength (Ksi):	109.00	Tensile Strength (Ksi):	125.00
Detail Type:	A		

Interaction Ratio: 0.51

Max Usages

Max Leg: 66.8% (1.2D + 1.6W Normal Wind - Sect 5)
Max Diag: 66.5% (1.2D + 1.6W 90° Wind - Sect 5)
Max Horiz: 4.9% (1.2D + 1.6W Normal Wind - Sect 9)

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.6W 97 mph Wind at 60° From Face	20.25	0.0208	0.0053	0.1136
	73.25	0.2081	0.0162	0.3291
	148.05	0.9864	0.0395	0.9200
	155.85	1.1166	0.0401	0.9771
	168.05	1.3395	0.0481	1.1037
	179.75	1.5668	0.0542	1.1379
	180.00	1.5718	0.0543	1.1381
0.9D + 1.6W 97 mph Wind at 90° From Face	20.25	0.0207	-0.0060	0.1126
	73.25	0.2094	-0.0178	0.3332
	148.05	0.9927	-0.0399	0.9248
	155.85	1.1235	-0.0392	0.9883
	168.05	1.3478	-0.0422	1.1109
	179.75	1.5762	-0.0422	1.1193
	180.00	1.5811	-0.0422	1.1153
0.9D + 1.6W 97 mph Wind at Normal To Face	20.25	0.0217	0.0053	0.1182
	73.25	0.2148	-0.0158	0.3391
	148.05	1.0129	0.0350	0.9416
	155.85	1.1461	0.0347	1.0004
	168.05	1.3749	0.0370	1.1297
	179.75	1.6076	0.0364	1.2042
	180.00	1.6128	0.0364	1.2135

1.0D + 1.0W 60 mph Wind at 60° From Face	20.25	0.0050	0.0012	0.0278
	73.25	0.0501	0.0037	0.0791
	148.05	0.2367	0.0081	0.2206
	155.85	0.2678	0.0079	0.2336
	168.05	0.3213	0.0085	0.2645
	179.75	0.3757	0.0087	0.2745
	180.00	0.3768	0.0087	0.2747
1.0D + 1.0W 60 mph Wind at 90° From Face	20.25	0.0051	-0.0014	0.0275
	73.25	0.0505	-0.0042	0.0802
	148.05	0.2383	-0.0091	0.2218
	155.85	0.2697	-0.0088	0.2367
	168.05	0.3234	-0.0093	0.2661
	179.75	0.3780	-0.0091	0.2699
	180.00	0.3792	-0.0091	0.2690
1.0D + 1.0W 60 mph Wind at Normal To Face	20.25	0.0053	0.0013	0.0284
	73.25	0.0519	0.0037	0.0816
	148.05	0.2434	0.0080	0.2258
	155.85	0.2753	0.0077	0.2399
	168.05	0.3299	0.0081	0.2710
	179.75	0.3856	0.0079	0.2860
	180.00	0.3869	0.0079	0.2881
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	20.25	0.0080	0.0017	0.0368
	73.25	0.0695	0.0052	0.1075
	148.05	0.3201	0.0121	0.2960
	155.85	0.3616	0.0122	0.3116
	168.05	0.4330	0.0142	0.3568
	179.75	0.5058	0.0155	0.3680
	180.00	0.5074	0.0155	0.3677
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	20.25	0.0078	-0.0020	0.0392
	73.25	0.0695	-0.0058	0.1085
	148.05	0.3207	-0.0125	0.2963
	155.85	0.3622	-0.0122	0.3150
	168.05	0.4338	-0.0130	0.3571
	179.75	0.5066	-0.0129	0.3524
	180.00	0.5081	-0.0129	0.3490
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	20.25	0.0073	0.0017	0.0406
	73.25	0.0693	0.0050	0.1088
	148.05	0.3223	0.0107	0.2975
	155.85	0.3642	0.0105	0.3162
	168.05	0.4364	0.0111	0.3586
	179.75	0.5099	0.0109	0.3908
	180.00	0.5116	0.0109	0.3959
1.2D + 1.6W 97 mph Wind at 60° From Face	20.25	0.0208	0.0053	0.1137
	73.25	0.2084	0.0162	0.3297
	148.05	0.9886	0.0396	0.9227
	155.85	1.1191	0.0402	0.9799
	168.05	1.3427	0.0482	1.1069
	179.75	1.5708	0.0543	1.1424
	180.00	1.5758	0.0544	1.1426
1.2D + 1.6W 97 mph Wind at 90° From Face	20.25	0.0207	-0.0060	0.1126
	73.25	0.2097	-0.0179	0.3338
	148.05	0.9948	-0.0400	0.9276
	155.85	1.1260	-0.0393	0.9912
	168.05	1.3510	-0.0423	1.1143
	179.75	1.5801	-0.0423	1.1237
	180.00	1.5850	-0.0423	1.1197
1.2D + 1.6W 97 mph Wind at Normal To Face	20.25	0.0217	0.0053	0.1182
	73.25	0.2151	0.0159	0.3398
	148.05	1.0151	0.0351	0.9444
	155.85	1.1487	0.0348	1.0034
	168.05	1.3782	0.0371	1.1334
	179.75	1.6116	0.0365	1.2071
	180.00	1.6168	0.0364	1.2163

EXHIBIT 9

Antenna Mount Analysis

September 2, 2021

Sherri Knapik
SBA Network Services, LLC.
134 Flanders Road, Suite 125
Westborough, MA 01581
(508) 251-0720

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject:	**Appurtenance Mount Analysis Report**	
Carrier Designation:	***Dish Wireless* Co-Locate**	
	Site Number:	BOBDL00124A
	Site Name:	N/A
SBA Network Services Designation:	**Site Number:**	CT10008-A
	Site Name:	Ellington
	Application Number:	167823, v1
Engineering Firm Designation:	**B+T Group Project Number:**	149452.003.01
Site Data:	**101 Burbank Road, Ellington, CT, 06029, Tolland County** **Latitude *41.93976*°, Longitude *-72.38707*°** **Self-Support Tower** **(3) 8 ft. Sector Mount**	

Dear Ms. Knapik,

B+T Group is pleased to submit this **"Appurtenance Mount Analysis Report"** to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

Proposed Equipment Note: See Table 1 for the final loading configuration	**Sufficient Capacity** **(Passing at 62.3%)**

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis.

All the equipment proposed in this report shall be installed in accordance with the drawings for the determined available structural capacity to be effective.

We at *B+T Group* appreciate the opportunity of providing our continuing professional services to you and *SBA Network Services, LLC*. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Michael Harris

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2022

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
9/2/21

Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

The appurtenance mount consists of Commscope sector mount, Part# MTC3975083 at 147 ft., attached to self-support tower at 101 Burbank Road, Ellington, CT, 06029, Tolland County. The proposed antenna loading information was obtained from SBA Network Services, LLC. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-G-2-2005 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 using a 3-second gust wind speed of 97 mph with no ice and 50 mph with 1 inch escalated ice thickness Exposure category B & Topographic Category 1 and Risk Category II were used in the analysis. In addition, the sector mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500-pound man live load applied individually at mount pipe locations using a 3-second gust of 30mph. The mount was analyzed under 30º increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed Equipment Information

Loading	RAD Center Elev. (ft.)	Position	Qty.	Description	Note
Proposed	147	1	3	JMA Wireless MX08FRO665-21	1
			3	Fujitsu TA08025-B605	2
			3	Fujitsu TA08025-B604	
		-	1	Raycap RDIDC-9181-PF-48	3

Note:
1) Proposed Antenna to be installed on the Proposed Mount Pipe.
2) Proposed Equipment to be installed directly behind the Antenna
3) Proposed Equipment to be installed on Mount.

Table 2 - Documents Provided

Documents	Remarks	Reference	Source
SBA Application	Existing Loading Proposed Loading	Date: 08/02/2021	SBA Network Services, LLC.
RFDS		Date: 07/22/2021	

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

Manufacturer's drawings were used to create the model.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.

6. Serviceability with respect to antenna twist, tilt, roll, or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The following material grades were assumed (Unless Noted Otherwise):
   a) Connection Bolts : ASTM A325
   b) Steel Pipe : ASTM A53 (GR. 35)
   c) HSS (Round) : ASTM 500 (GR. B-42)
   d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   e) Channel : ASTM A36 (GR. 36)
   f) Steel Solid Rod : ASTM A36 (GR. 36)
   g) Steel Plate : ASTM A36 (GR. 36)
   h) Steel Angle : ASTM A36 (GR. 36)
   i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

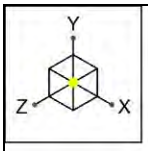
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Face Horizontals	147	16.5	Pass
-	Support Arms	147	35.8	Pass
-	Diagonals	147	42.8	Pass
-	Connection Plates	147	30.1	Pass
-	Verticals	147	62.3	Pass
-	Tiebacks	147	8.6	Pass
-	Mount Pipes	147	18.5	Pass

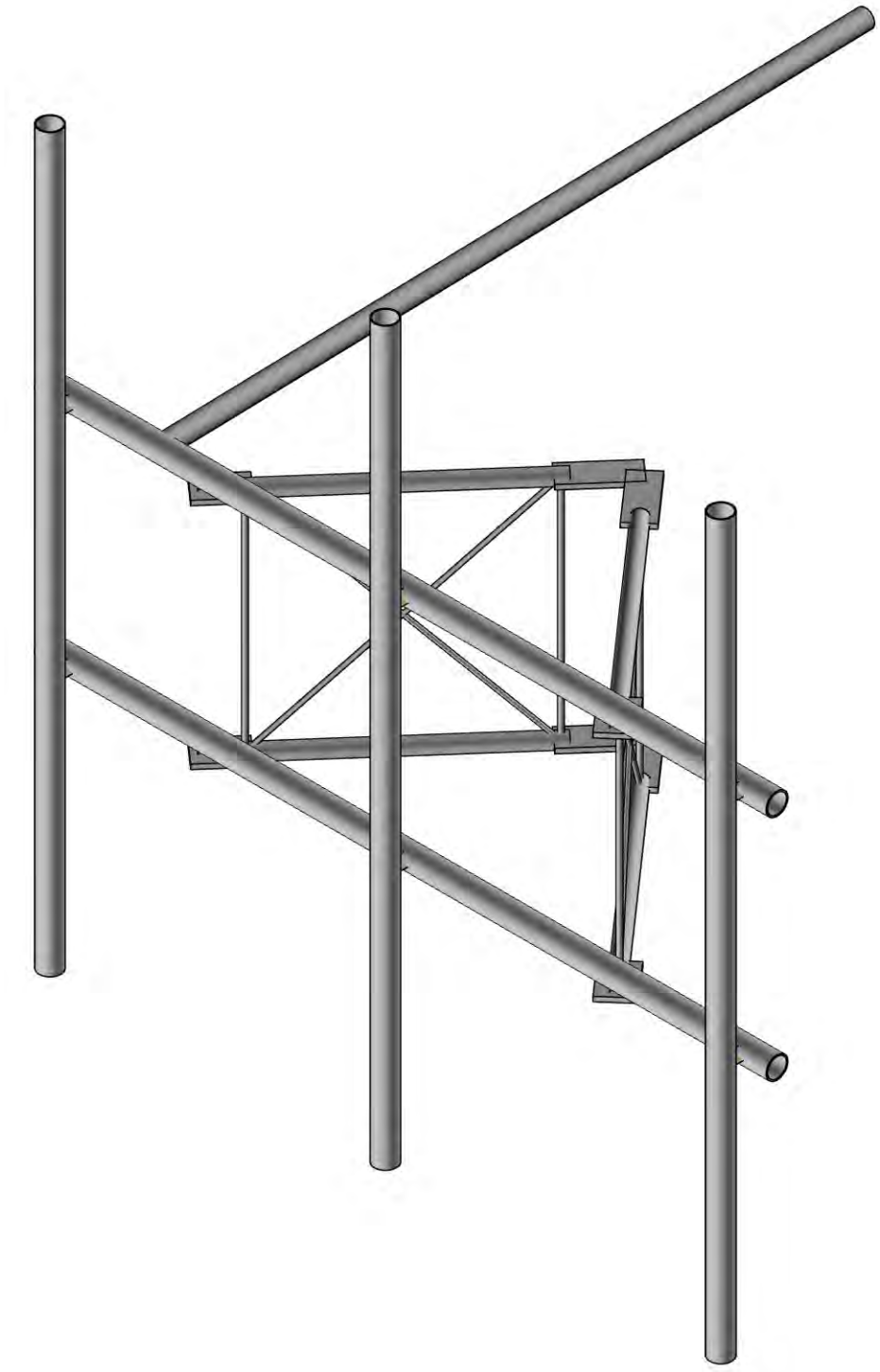
5) RECOMMENDATIONS

The Commscope sector mount, Part# MTC3975083 has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed loading. (Refer to the RISA output for the specific members).

APPENDIX A

(RISA-3D Output)





Envelope Only Solution

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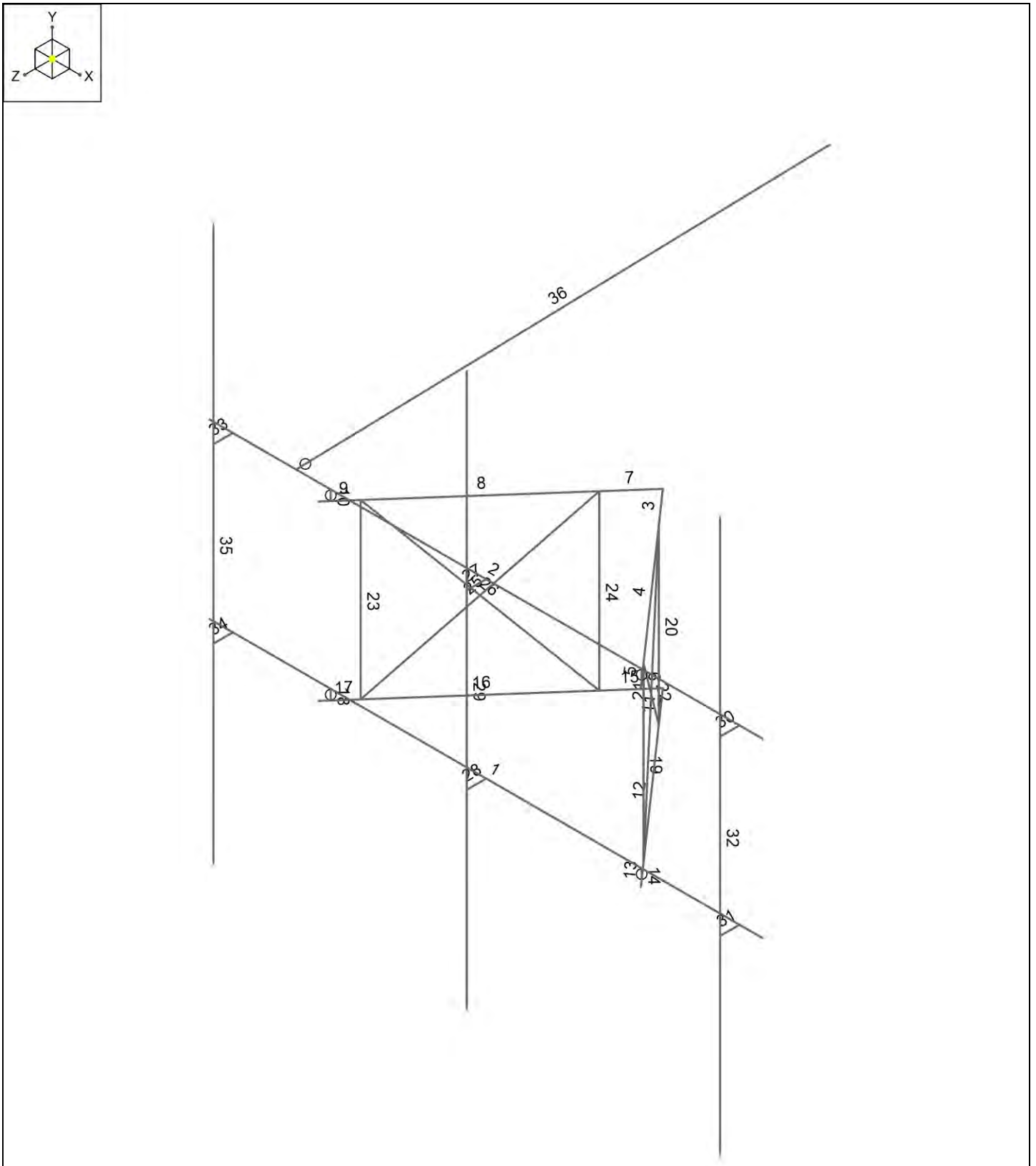

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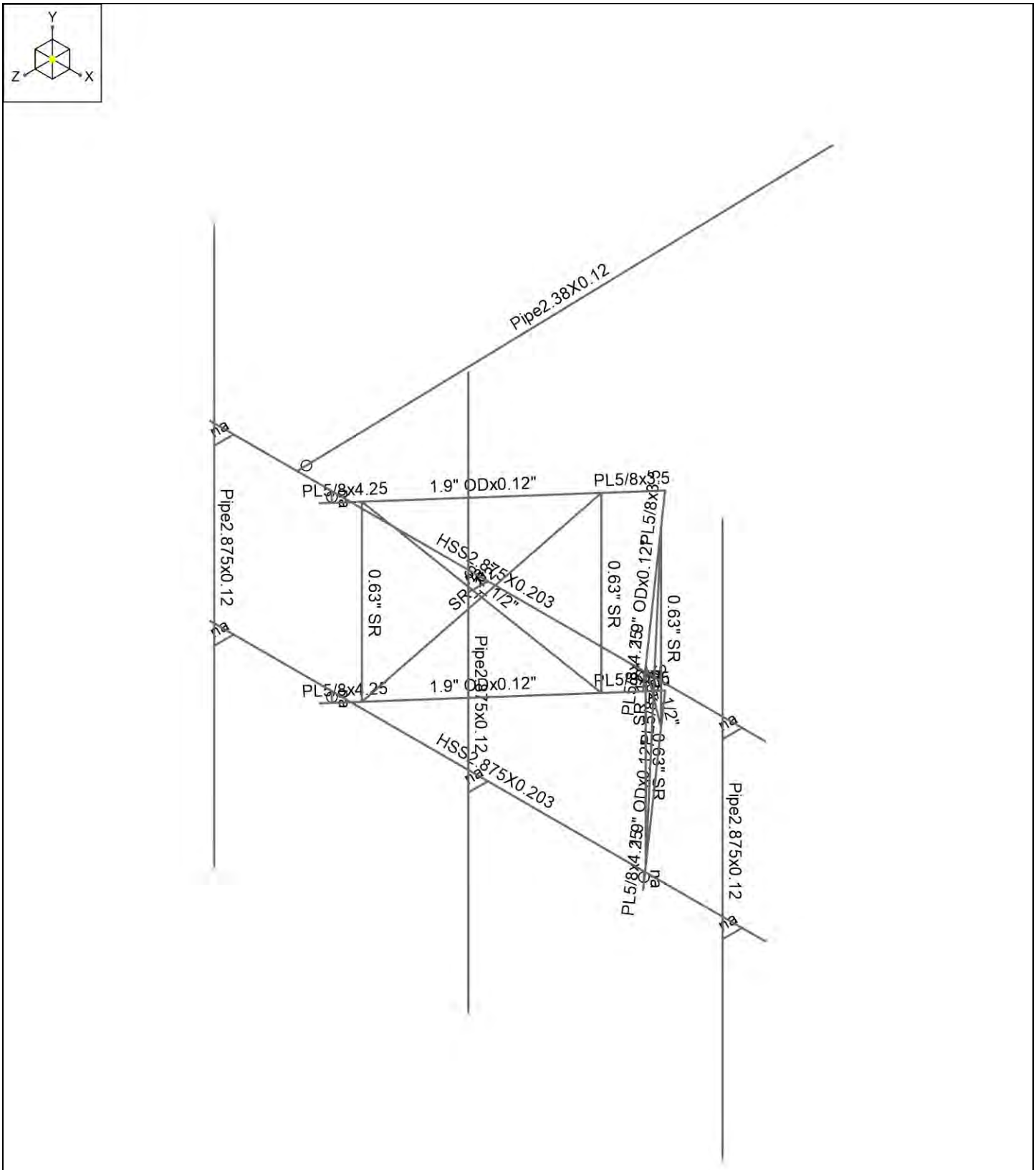

Envelope Only Solution

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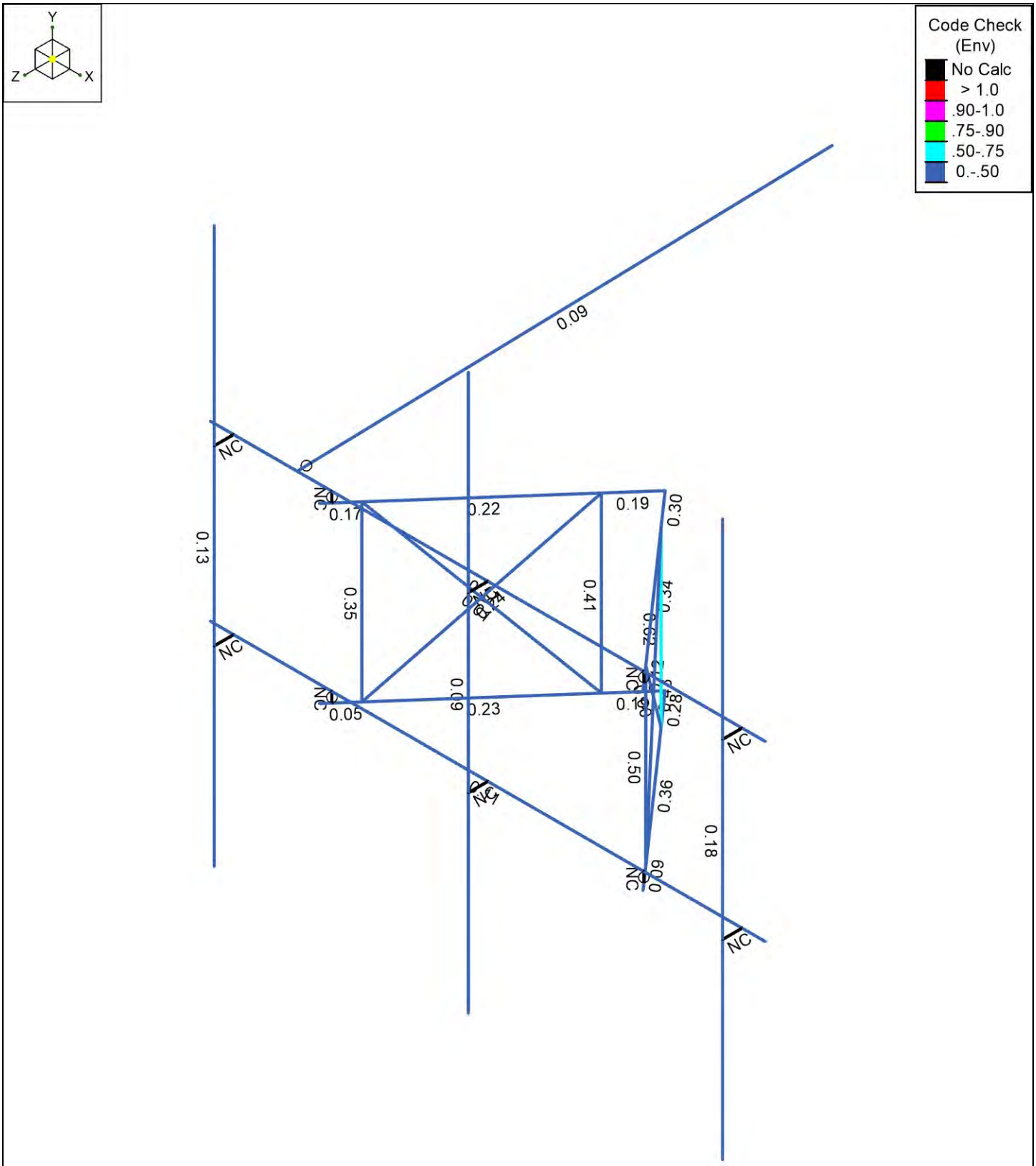

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Envelope Only Solution

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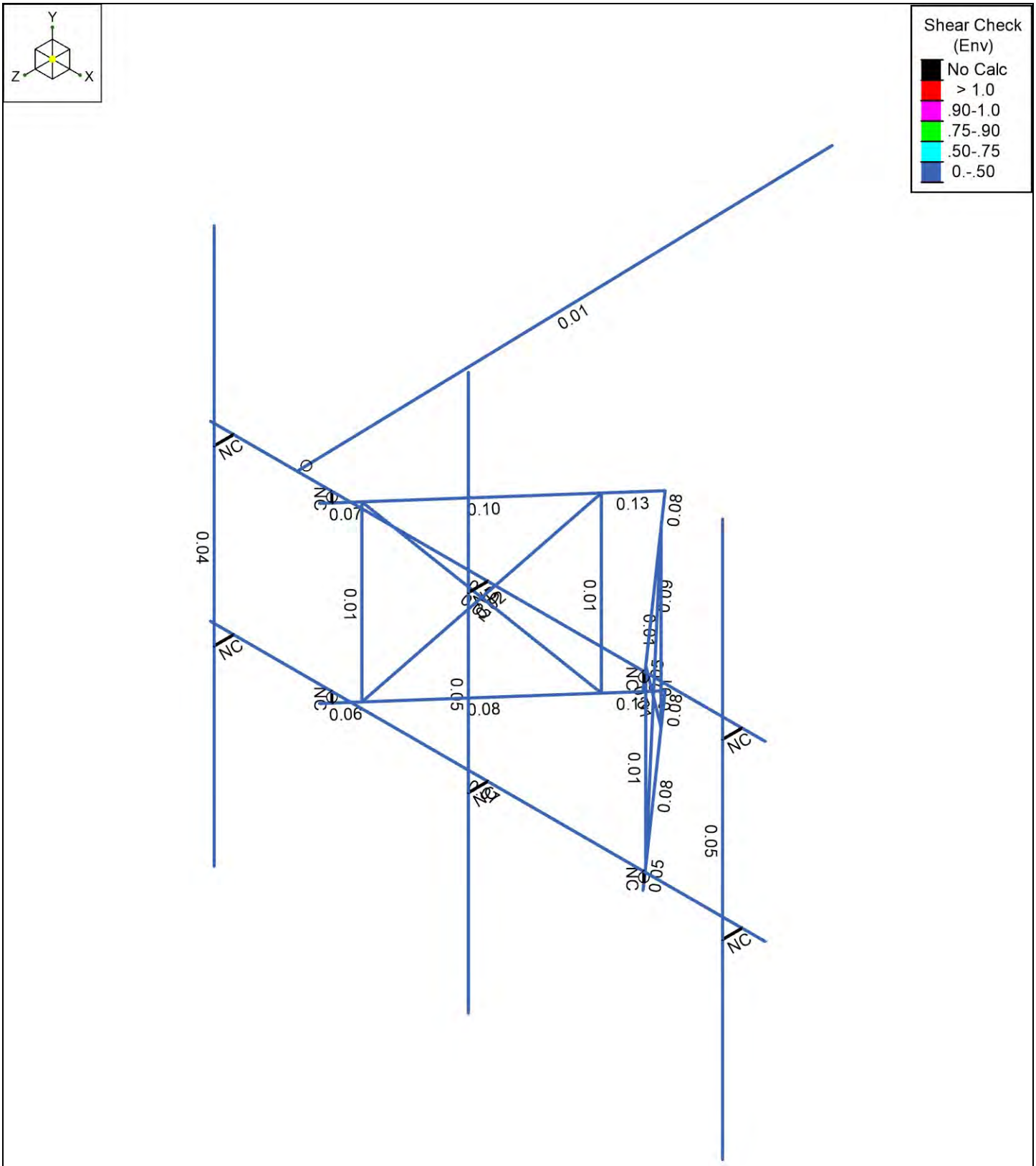

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	CT10008-A - Ellington	SK-5
AS		Sep 02, 2021
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Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	-4	-2.354167	2.796875	
2	2	4	-2.354167	2.796875	
3	3	-4	0.145833	2.796875	
4	4	4	0.145833	2.796875	
5	5	0.467947	0	0.771833	
6	6	0.385368	0	0.677994	
7	7	2.091999	0	2.61733	
8	8	2.00942	0	2.523491	
9	9	2.332579	0	2.890714	
10	10	2.25	0.145833	2.796875	
11	11	2.25	0	2.796875	
12	12	0	0	0.24008	
13	13	-0.467947	0	0.771833	
14	14	-0.385368	0	0.677994	
15	15	-2.091999	0	2.61733	
16	16	-2.00942	0	2.523491	
17	17	-2.332579	0	2.890714	
18	18	-2.25	0.145833	2.796875	
19	19	-2.25	0	2.796875	
20	20	0.467947	-2.5	0.771833	
21	21	0.385368	-2.5	0.677994	
22	22	2.091999	-2.5	2.61733	
23	23	2.00942	-2.5	2.523491	
24	24	2.332579	-2.5	2.890714	
25	25	2.25	-2.354167	2.796875	
26	26	2.25	-2.5	2.796875	
27	27	0	-2.5	0.24008	
28	28	-0.467947	-2.5	0.771833	
29	29	-0.385368	-2.5	0.677994	
30	30	-2.091999	-2.5	2.61733	
31	31	-2.00942	-2.5	2.523491	
32	32	-2.332579	-2.5	2.890714	
33	33	-2.25	-2.354167	2.796875	
34	34	-2.25	-2.5	2.796875	
35	35	0.430236	0	0.72898	
36	36	2.047131	-2.5	2.566344	
37	37	2.047131	0	2.566344	
38	38	0.430236	-2.5	0.72898	
39	39	-0.430236	0	0.72898	
40	40	-2.047131	-2.5	2.566344	
41	41	-2.047131	0	2.566344	
42	42	-0.430236	-2.5	0.72898	
43	43	0	0.145833	2.796875	
44	44	0	0.145833	3.078125	
45	45	0	-2.354167	2.796875	
46	46	0	-2.354167	3.078125	
47	47	0	2.895833	3.078125	
48	48	0	-5.104167	3.078125	
49	49	3.666667	0.145833	2.796875	
50	50	3.666667	0.145833	3.078125	
51	51	3.666667	-2.354167	2.796875	
52	52	3.666667	-2.354167	3.078125	
53	53	3.666667	2.895833	3.078125	
54	54	3.666667	-5.104167	3.078125	
55	55	-3.666667	0.145833	2.796875	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	-3.666667	0.145833	3.078125	
57	57	-3.666667	-2.354167	2.796875	
58	58	-3.666667	-2.354167	3.078125	
59	59	-3.666667	2.895833	3.078125	
60	60	-3.666667	-5.104167	3.078125	
61	61	0	0	0	
62	62	-2.75	0.145833	2.796875	
63	63	-2.961938	0.145833	-5.130226	
64	66	2.961938	0	-5.130226	
65	67	-2.961938	0	-5.130226	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]
1	12	Reaction	Reaction	Reaction
2	27	Reaction	Reaction	Reaction
3	63	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8	A529 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
9	A500 Gr.42	29000	11154	0.3	0.65	0.49	42	1.4	58	1.3
10	A500 Gr.46	29000	11154	0.3	0.65	0.49	46	1.4	58	1.3
11	A500 Gr.C	29000	11154	0.3	0.65	0.49	46	1.4	62	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	MF-H1	HSS2.875X0.203	Beam	HSS Pipe	A500 Gr.C	Typical	1.59	1.45	1.45	2.89
2	MF- SA1	1.9" ODx0.12"	Beam	Pipe	A500 Gr.B RND	Typical	0.671	0.267	0.267	0.534
3	MF-D1	SR_1/2"	VBrace	BAR	A529 Gr.50	Typical	0.196	0.003	0.003	0.006
4	MF-CP1	PL5/8x3.5	Beam	RECT	A572 Gr.50	Typical	2.205	0.073	2.251	0.259
5	MF-V1	0.63" SR	Column	BAR	A529 Gr.50	Typical	0.312	0.008	0.008	0.015
6	MF-CP2	PL5/8x4.25	Beam	RECT	A572 Gr.50	Typical	2.656	0.086	3.998	0.314
7	Tieback	Pipe2.38X0.12	Beam	Pipe	A500 Gr.C	Typical	0.852	0.545	0.545	1.091
8	MF-P1	Pipe2.875x0.12	Column	Pipe	A500 Gr.C	Typical	1.039	0.987	0.987	1.975

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		MF-H1	Beam	HSS Pipe	A500 Gr.C	Typical
2	2	3	4		MF-H1	Beam	HSS Pipe	A500 Gr.C	Typical
3	3	12	5	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
4	4	6	7		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
5	5	8	9	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
6	6	10	11	90	RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
7	7	12	13	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
8	8	14	15		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
9	9	16	17	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
10	10	18	19	90	RIGID	None	None	RIGID	Typical
11	11	27	20	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
12	12	21	22		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
13	13	23	24	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
14	14	25	26	90	RIGID	None	None	RIGID	Typical
15	15	27	28	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
16	16	29	30		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
17	17	31	32	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
18	18	33	34	90	RIGID	None	None	RIGID	Typical
19	19	37	36		MF-V1	Column	BAR	A529 Gr.50	Typical
20	20	35	38		MF-V1	Column	BAR	A529 Gr.50	Typical
21	21	35	36		MF-D1	VBrace	BAR	A529 Gr.50	Typical
22	22	37	38		MF-D1	VBrace	BAR	A529 Gr.50	Typical
23	23	41	40		MF-V1	Column	BAR	A529 Gr.50	Typical
24	24	39	42		MF-V1	Column	BAR	A529 Gr.50	Typical
25	25	39	40		MF-D1	VBrace	BAR	A529 Gr.50	Typical
26	26	41	42		MF-D1	VBrace	BAR	A529 Gr.50	Typical
27	27	43	44	90	RIGID	None	None	RIGID	Typical
28	28	45	46	90	RIGID	None	None	RIGID	Typical
29	29	47	48		MF-P1	Column	Pipe	A500 Gr.C	Typical
30	30	49	50	90	RIGID	None	None	RIGID	Typical
31	31	51	52	90	RIGID	None	None	RIGID	Typical
32	32	53	54		MF-P1	Column	Pipe	A500 Gr.C	Typical
33	33	55	56	90	RIGID	None	None	RIGID	Typical
34	34	57	58	90	RIGID	None	None	RIGID	Typical
35	35	59	60		MF-P1	Column	Pipe	A500 Gr.C	Typical
36	36	62	63		Tieback	Beam	Pipe	A500 Gr.C	Typical

Member Advanced Data

	Label	I Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
1	1			Yes	N/A	None
2	2			Yes	N/A	None
3	3			Yes	N/A	None
4	4			Yes	N/A	None
5	5			Yes	N/A	None
6	6	OOOOXO		Yes	** NA **	None
7	7			Yes	N/A	None
8	8			Yes	N/A	None
9	9			Yes	N/A	None
10	10	OOOOXO		Yes	** NA **	None
11	11			Yes	N/A	None
12	12			Yes	N/A	None
13	13			Yes	N/A	None
14	14	OOOOXO		Yes	** NA **	None
15	15			Yes	N/A	None
16	16			Yes	N/A	None
17	17			Yes	N/A	None
18	18	OOOOXO		Yes	** NA **	None
19	19			Yes	** NA **	None
20	20			Yes	** NA **	None
21	21			Yes	** NA **	None
22	22		Euler Buckling	Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
23	23			Yes	** NA **	None
24	24			Yes	** NA **	None
25	25			Yes	** NA **	None
26	26		Euler Buckling	Yes	** NA **	None
27	27			Yes	** NA **	None
28	28			Yes	** NA **	None
29	29			Yes	** NA **	None
30	30			Yes	** NA **	None
31	31			Yes	** NA **	None
32	32			Yes	** NA **	None
33	33			Yes	** NA **	None
34	34			Yes	** NA **	None
35	35			Yes	** NA **	None
36	36	BenPIN		Yes	Default	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	MF-H1	8	Lbyy	Lateral
2	2	MF-H1	8	Lbyy	Lateral
3	3	MF-CP1	0.708	Lbyy	Lateral
4	4	MF- SA1	2.583	Lbyy	Lateral
5	5	MF-CP2	0.489	Lbyy	Lateral
6	7	MF-CP1	0.708	Lbyy	Lateral
7	8	MF- SA1	2.583	Lbyy	Lateral
8	9	MF-CP2	0.489	Lbyy	Lateral
9	11	MF-CP1	0.708	Lbyy	Lateral
10	12	MF- SA1	2.583	Lbyy	Lateral
11	13	MF-CP2	0.489	Lbyy	Lateral
12	15	MF-CP1	0.708	Lbyy	Lateral
13	16	MF- SA1	2.583	Lbyy	Lateral
14	17	MF-CP2	0.489	Lbyy	Lateral
15	19	MF-V1	2.5	Lbyy	Lateral
16	20	MF-V1	2.5	Lbyy	Lateral
17	21	MF-D1	3.499	Lbyy	Lateral
18	22	MF-D1	3.499	Lbyy	Lateral
19	23	MF-V1	2.5	Lbyy	Lateral
20	24	MF-V1	2.5	Lbyy	Lateral
21	25	MF-D1	3.499	Lbyy	Lateral
22	26	MF-D1	3.499	Lbyy	Lateral
23	29	MF-P1	8	Lbyy	Lateral
24	32	MF-P1	8	Lbyy	Lateral
25	35	MF-P1	8	Lbyy	Lateral
26	36	Tieback	7.93	Lbyy	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Y	-0.032	%15
2	32	Y	-0.032	%85
3	32	Y	-0.075	%20
4	32	Y	-0.064	%50
5	32	Y	0	0
6	8	Y	-0.022	%50
7	8	Y	0	0

Member Point Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
8	8	Y	0	0
9	8	Y	0	0
10	8	Y	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Z	-0.158	%15
2	32	Z	-0.158	%85
3	32	Z	-0.05	%20
4	32	Z	-0.05	%50
5	32	Z	0	0
6	8	Z	-0.051	%50
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	X	-0.063	%15
2	32	X	-0.063	%85
3	32	X	-0.03	%20
4	32	X	-0.026	%50
5	32	X	0	0
6	8	X	-0.028	%50
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Z	-0.055	%15
2	32	Z	-0.055	%85
3	32	Z	-0.022	%20
4	32	Z	-0.022	%50
5	32	Z	0	0
6	8	Z	-0.023	%50
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	X	-0.028	%15
2	32	X	-0.028	%85
3	32	X	-0.016	%20
4	32	X	-0.014	%50
5	32	X	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
6	8	X	-0.015	%50
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Z	-0.015	%15
2	32	Z	-0.015	%85
3	32	Z	-0.005	%20
4	32	Z	-0.005	%50
5	32	Z	0	0
6	8	Z	-0.005	%50
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	X	-0.006	%15
2	32	X	-0.006	%85
3	32	X	-0.003	%20
4	32	X	-0.003	%50
5	32	X	0	0
6	8	X	-0.003	%50
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Y	-0.203	%15
2	32	Y	-0.203	%85
3	32	Y	-0.074	%20
4	32	Y	-0.072	%50
5	32	Y	0	0
6	8	Y	-0.075	%50
7	8	Y	0	0
8	8	Y	0	0
9	8	Y	0	0
10	8	Y	0	0

Member Point Loads (BLC 13 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	8	Y	-0.25	%50

Member Point Loads (BLC 14 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	16	Y	-0.25	%50

Member Point Loads (BLC 15 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	4	Y	-0.25	%50

Member Point Loads (BLC 16 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	12	Y	-0.25	%50

Member Point Loads (BLC 17 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	2	Y	-0.25	%95

Member Point Loads (BLC 18 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%95

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.007	-0.007	0	%100
2	2	Z	-0.007	-0.007	0	%100
3	3	Z	-0.002	-0.002	0	%100
4	4	Z	-0.004	-0.004	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	7	Z	-0.002	-0.002	0	%100
7	8	Z	-0.004	-0.004	0	%100
8	9	Z	-0.002	-0.002	0	%100
9	11	Z	-0.002	-0.002	0	%100
10	12	Z	-0.004	-0.004	0	%100
11	13	Z	-0.002	-0.002	0	%100
12	15	Z	-0.002	-0.002	0	%100
13	16	Z	-0.004	-0.004	0	%100
14	17	Z	-0.002	-0.002	0	%100
15	19	Z	-0.002	-0.002	0	%100
16	20	Z	-0.002	-0.002	0	%100
17	21	Z	-0.001	-0.001	0	%100
18	22	Z	-0.001	-0.001	0	%100
19	23	Z	-0.002	-0.002	0	%100
20	24	Z	-0.002	-0.002	0	%100
21	25	Z	-0.001	-0.001	0	%100
22	26	Z	-0.001	-0.001	0	%100
23	29	Z	-0.007	-0.007	0	%100
24	32	Z	-0.007	-0.007	0	%100
25	35	Z	-0.007	-0.007	0	%100
26	36	Z	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.007	-0.007	0	%100
2	2	X	-0.007	-0.007	0	%100
3	3	X	-0.002	-0.002	0	%100
4	4	X	-0.004	-0.004	0	%100
5	5	X	-0.002	-0.002	0	%100
6	7	X	-0.002	-0.002	0	%100
7	8	X	-0.004	-0.004	0	%100
8	9	X	-0.002	-0.002	0	%100
9	11	X	-0.002	-0.002	0	%100
10	12	X	-0.004	-0.004	0	%100
11	13	X	-0.002	-0.002	0	%100
12	15	X	-0.002	-0.002	0	%100
13	16	X	-0.004	-0.004	0	%100
14	17	X	-0.002	-0.002	0	%100
15	19	X	-0.002	-0.002	0	%100
16	20	X	-0.002	-0.002	0	%100
17	21	X	-0.001	-0.001	0	%100
18	22	X	-0.001	-0.001	0	%100
19	23	X	-0.002	-0.002	0	%100
20	24	X	-0.002	-0.002	0	%100
21	25	X	-0.001	-0.001	0	%100
22	26	X	-0.001	-0.001	0	%100
23	29	X	-0.007	-0.007	0	%100
24	32	X	-0.007	-0.007	0	%100
25	35	X	-0.007	-0.007	0	%100
26	36	X	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.003	-0.003	0	%100
2	2	Z	-0.003	-0.003	0	%100
3	3	Z	-0.007	-0.007	0	%100
4	4	Z	-0.002	-0.002	0	%100
5	5	Z	-0.008	-0.008	0	%100
6	7	Z	-0.007	-0.007	0	%100
7	8	Z	-0.002	-0.002	0	%100
8	9	Z	-0.008	-0.008	0	%100
9	11	Z	-0.007	-0.007	0	%100
10	12	Z	-0.002	-0.002	0	%100
11	13	Z	-0.008	-0.008	0	%100
12	15	Z	-0.007	-0.007	0	%100
13	16	Z	-0.002	-0.002	0	%100
14	17	Z	-0.008	-0.008	0	%100
15	19	Z	-0.004	-0.004	0	%100
16	20	Z	-0.004	-0.004	0	%100
17	21	Z	-0.004	-0.004	0	%100
18	22	Z	-0.004	-0.004	0	%100
19	23	Z	-0.004	-0.004	0	%100
20	24	Z	-0.004	-0.004	0	%100
21	25	Z	-0.004	-0.004	0	%100
22	26	Z	-0.004	-0.004	0	%100
23	29	Z	-0.003	-0.003	0	%100
24	32	Z	-0.003	-0.003	0	%100
25	35	Z	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
26	36	Z	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.003	-0.003	0	%100
2	2	X	-0.003	-0.003	0	%100
3	3	X	-0.007	-0.007	0	%100
4	4	X	-0.002	-0.002	0	%100
5	5	X	-0.008	-0.008	0	%100
6	7	X	-0.007	-0.007	0	%100
7	8	X	-0.002	-0.002	0	%100
8	9	X	-0.008	-0.008	0	%100
9	11	X	-0.007	-0.007	0	%100
10	12	X	-0.002	-0.002	0	%100
11	13	X	-0.008	-0.008	0	%100
12	15	X	-0.007	-0.007	0	%100
13	16	X	-0.002	-0.002	0	%100
14	17	X	-0.008	-0.008	0	%100
15	19	X	-0.004	-0.004	0	%100
16	20	X	-0.004	-0.004	0	%100
17	21	X	-0.004	-0.004	0	%100
18	22	X	-0.004	-0.004	0	%100
19	23	X	-0.004	-0.004	0	%100
20	24	X	-0.004	-0.004	0	%100
21	25	X	-0.004	-0.004	0	%100
22	26	X	-0.004	-0.004	0	%100
23	29	X	-0.003	-0.003	0	%100
24	32	X	-0.003	-0.003	0	%100
25	35	X	-0.003	-0.003	0	%100
26	36	X	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.0003	-0.0003	0	%100
2	2	Z	-0.0003	-0.0003	0	%100
3	3	Z	-0.0002	-0.0002	0	%100
4	4	Z	-0.0002	-0.0002	0	%100
5	5	Z	-0.0002	-0.0002	0	%100
6	7	Z	-0.0002	-0.0002	0	%100
7	8	Z	-0.0002	-0.0002	0	%100
8	9	Z	-0.0002	-0.0002	0	%100
9	11	Z	-0.0002	-0.0002	0	%100
10	12	Z	-0.0002	-0.0002	0	%100
11	13	Z	-0.0002	-0.0002	0	%100
12	15	Z	-0.0002	-0.0002	0	%100
13	16	Z	-0.0002	-0.0002	0	%100
14	17	Z	-0.0002	-0.0002	0	%100
15	19	Z	-0.0002	-0.0002	0	%100
16	20	Z	-0.0002	-0.0002	0	%100
17	21	Z	-1e-04	-1e-04	0	%100
18	22	Z	-1e-04	-1e-04	0	%100
19	23	Z	-0.0002	-0.0002	0	%100
20	24	Z	-0.0002	-0.0002	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
21	25	Z	-1e-04	-1e-04	0	%100
22	26	Z	-1e-04	-1e-04	0	%100
23	29	Z	-0.0003	-0.0003	0	%100
24	32	Z	-0.0003	-0.0003	0	%100
25	35	Z	-0.0003	-0.0003	0	%100
26	36	Z	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.0003	-0.0003	0	%100
2	2	X	-0.0003	-0.0003	0	%100
3	3	X	-0.0002	-0.0002	0	%100
4	4	X	-0.0002	-0.0002	0	%100
5	5	X	-0.0002	-0.0002	0	%100
6	7	X	-0.0002	-0.0002	0	%100
7	8	X	-0.0002	-0.0002	0	%100
8	9	X	-0.0002	-0.0002	0	%100
9	11	X	-0.0002	-0.0002	0	%100
10	12	X	-0.0002	-0.0002	0	%100
11	13	X	-0.0002	-0.0002	0	%100
12	15	X	-0.0002	-0.0002	0	%100
13	16	X	-0.0002	-0.0002	0	%100
14	17	X	-0.0002	-0.0002	0	%100
15	19	X	-0.0002	-0.0002	0	%100
16	20	X	-0.0002	-0.0002	0	%100
17	21	X	-1e-04	-1e-04	0	%100
18	22	X	-1e-04	-1e-04	0	%100
19	23	X	-0.0002	-0.0002	0	%100
20	24	X	-0.0002	-0.0002	0	%100
21	25	X	-1e-04	-1e-04	0	%100
22	26	X	-1e-04	-1e-04	0	%100
23	29	X	-0.0003	-0.0003	0	%100
24	32	X	-0.0003	-0.0003	0	%100
25	35	X	-0.0003	-0.0003	0	%100
26	36	X	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.015	-0.015	0	%100
2	2	Y	-0.015	-0.015	0	%100
3	3	Y	-0.017	-0.017	0	%100
4	4	Y	-0.012	-0.012	0	%100
5	5	Y	-0.019	-0.019	0	%100
6	7	Y	-0.017	-0.017	0	%100
7	8	Y	-0.012	-0.012	0	%100
8	9	Y	-0.019	-0.019	0	%100
9	11	Y	-0.017	-0.017	0	%100
10	12	Y	-0.012	-0.012	0	%100
11	13	Y	-0.019	-0.019	0	%100
12	15	Y	-0.017	-0.017	0	%100
13	16	Y	-0.012	-0.012	0	%100
14	17	Y	-0.019	-0.019	0	%100
15	19	Y	-0.008	-0.008	0	%100

Member Distributed Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
16	20	Y	-0.008	-0.008	0	%100
17	21	Y	-0.008	-0.008	0	%100
18	22	Y	-0.008	-0.008	0	%100
19	23	Y	-0.008	-0.008	0	%100
20	24	Y	-0.008	-0.008	0	%100
21	25	Y	-0.008	-0.008	0	%100
22	26	Y	-0.008	-0.008	0	%100
23	29	Y	-0.015	-0.015	0	%100
24	32	Y	-0.015	-0.015	0	%100
25	35	Y	-0.015	-0.015	0	%100
26	36	Y	-0.013	-0.013	0	%100

Node Loads and Enforced Displacements (BLC 9 : Live Load a)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	57	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 10 : Live Load b)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	45	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 11 : Live Load c)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	51	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Dead	DL	-1		10	
2	0 Wind - No Ice	WLZ			10	26
3	90 Wind - No Ice	WLX			10	26
4	0 Wind - Ice	WLZ			10	26
5	90 Wind - Ice	WLX			10	26
6	0 Wind - Service	WLZ			10	26
7	90 Wind - Service	WLX			10	26
8	Ice	OL1			10	26
9	Live Load a	LL		1		
10	Live Load b	LL		1		
11	Live Load c	LL		1		
12	Live Load d	LL				
13	Maint LL 1	LL			1	
14	Maint LL 2	LL			1	
15	Maint LL 3	LL			1	
16	Maint LL 4	LL			1	
17	Maint LL 5	LL			1	
18	Maint LL 6	LL			1	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	0.9 D + 1.6 - 0 W	Yes	Y	1	0.9	2	1.6				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
3	0.9 D + 1.6 - 30 W	Yes	Y	1	0.9	2	1.386	3	0.8		
4	0.9 D + 1.6 - 60 W	Yes	Y	1	0.9	3	1.386	2	0.8		
5	0.9 D + 1.6 - 90 W	Yes	Y	1	0.9	3	1.6				
6	0.9 D + 1.6 - 120 W	Yes	Y	1	0.9	3	1.386	2	-0.8		
7	0.9 D + 1.6 - 150 W	Yes	Y	1	0.9	2	-1.386	3	0.8		
8	0.9 D + 1.6 - 180 W	Yes	Y	1	0.9	2	-1.6				
9	0.9 D + 1.6 - 210 W	Yes	Y	1	0.9	2	-1.386	3	-0.8		
10	0.9 D + 1.6 - 240 W	Yes	Y	1	0.9	3	-1.386	2	-0.8		
11	0.9 D + 1.6 - 270 W	Yes	Y	1	0.9	3	-1.6				
12	0.9 D + 1.6 - 300 W	Yes	Y	1	0.9	3	-1.386	2	0.8		
13	0.9 D + 1.6 - 330 W	Yes	Y	1	0.9	2	1.386	3	-0.8		
14	1.2 D + 1.6 - 0 W	Yes	Y	1	1.2	2	1.6				
15	1.2 D + 1.6 - 30 W	Yes	Y	1	1.2	2	1.386	3	0.8		
16	1.2 D + 1.6 - 60 W	Yes	Y	1	1.2	3	1.386	2	0.8		
17	1.2 D + 1.6 - 90 W	Yes	Y	1	1.2	3	1.6				
18	1.2 D + 1.6 - 120 W	Yes	Y	1	1.2	3	1.386	2	-0.8		
19	1.2 D + 1.6 - 150 W	Yes	Y	1	1.2	2	-1.386	3	0.8		
20	1.2 D + 1.6 - 180 W	Yes	Y	1	1.2	2	-1.6				
21	1.2 D + 1.6 - 210 W	Yes	Y	1	1.2	2	-1.386	3	-0.8		
22	1.2 D + 1.6 - 240 W	Yes	Y	1	1.2	3	-1.386	2	-0.8		
23	1.2 D + 1.6 - 270 W	Yes	Y	1	1.2	3	-1.6				
24	1.2 D + 1.6 - 300 W	Yes	Y	1	1.2	3	-1.386	2	0.8		
25	1.2 D + 1.6 - 330 W	Yes	Y	1	1.2	2	1.386	3	-0.8		
26	0.9 D + 1.6 - 0 W/Ice	Yes	Y	1	0.9	4	1.6			8	1
27	0.9 D + 1.6 - 30 W/Ice	Yes	Y	1	0.9	4	1.386	5	0.8	8	1
28	0.9 D + 1.6 - 60 W/Ice	Yes	Y	1	0.9	5	1.386	4	0.8	8	1
29	0.9 D + 1.6 - 90 W/Ice	Yes	Y	1	0.9	5	1.6			8	1
30	0.9 D + 1.6 - 120 W/Ice	Yes	Y	1	0.9	5	1.386	4	-0.8	8	1
31	0.9 D + 1.6 - 150 W/Ice	Yes	Y	1	0.9	4	-1.386	5	0.8	8	1
32	0.9 D + 1.6 - 180 W/Ice	Yes	Y	1	0.9	4	-1.6			8	1
33	0.9 D + 1.6 - 210 W/Ice	Yes	Y	1	0.9	4	-1.386	5	-0.8	8	1
34	0.9 D + 1.6 - 240 W/Ice	Yes	Y	1	0.9	5	-1.386	4	-0.8	8	1
35	0.9 D + 1.6 - 270 W/Ice	Yes	Y	1	0.9	5	-1.6			8	1
36	0.9 D + 1.6 - 300 W/Ice	Yes	Y	1	0.9	5	-1.386	4	0.8	8	1
37	0.9 D + 1.6 - 330 W/Ice	Yes	Y	1	0.9	4	1.386	5	-0.8	8	1
38	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
39	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
40	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
41	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
42	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
43	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
44	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
45	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
46	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
47	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
48	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
49	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
50	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			9	1.5
51	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	9	1.5
52	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	9	1.5
53	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			9	1.5
54	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	9	1.5
55	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	9	1.5
56	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			9	1.5
57	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	9	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
58	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	9	1.5
59	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			9	1.5
60	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	9	1.5
61	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	9	1.5
62	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			10	1.5
63	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	10	1.5
64	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	10	1.5
65	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			10	1.5
66	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	10	1.5
67	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	10	1.5
68	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			10	1.5
69	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	10	1.5
70	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	10	1.5
71	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			10	1.5
72	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	10	1.5
73	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	10	1.5
74	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
75	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
76	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
77	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
78	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
79	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
80	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
81	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
82	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
83	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
84	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
85	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
86	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
87	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
88	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
89	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
90	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
91	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
92	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
93	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
94	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
95	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
96	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
97	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
98	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					13	1.5
99	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					14	1.5
100	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					15	1.5
101	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					16	1.5
102	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					17	1.5
103	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					18	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	12	max	0.795	53	1.215	43	1.525	13	0	103	0	103	0	103
2		min	-1.454	83	0.177	11	-2.912	31	0	1	0	1	0	1
3	27	max	1.442	77	1.1	49	2.336	38	0	103	0	103	0	103
4		min	-0.783	59	0.169	5	-0.007	8	0	1	0	1	0	1
5	63	max	0.063	18	0.066	48	1.129	18	0	103	0	103	0	103
6		min	-0.064	24	0.01	4	-1.129	24	0	1	0	1	0	1

Envelope Node Reactions (Continued)

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
7	Totals:	max	1.017	17	2.335	42	1.424	2						
8		min	-1.017	11	0.454	2	-1.424	20						

Envelope AISC 13TH (360-05): LRFD Member Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	HSS2.875X0.203	0.11	7.667	47	0.071	6.25		80	33.355	65.826	4.727	4.727	2.536	H1-1b
2	2	HSS2.875X0.203	0.165	6.25	20	0.096	1.75		18	33.355	65.826	4.727	4.727	1.511	H1-1b
3	3	PL5/8x3.5	0.301	0.583	42	0.084	0.583	y	42	84.578	99.225	1.302	7.235	1.053	H1-1b
4	4	1.9" ODx0.12"	0.338	0.135	42	0.094	2.449		42	21.867	25.364	1.2	1.2	2.037	H1-1b
5	5	PL5/8x4.25	0.122	0.127	19	0.053	0.362	y	48	110.629	119.531	1.556	10.583	1.432	H1-1b
6	7	PL5/8x3.5	0.188	0.583	61	0.128	0	y	43	84.578	99.225	1.302	7.235	1.239	H1-1b
7	8	1.9" ODx0.12"	0.217	1.292	98	0.098	2.449		31	21.867	25.364	1.2	1.2	1.318	H1-1b
8	9	PL5/8x4.25	0.166	0.362	25	0.071	0.127	y	30	110.629	119.531	1.556	10.583	1.427	H1-1b
9	11	PL5/8x3.5	0.284	0.583	41	0.08	0.583	y	57	84.578	99.225	1.302	7.235	1.074	H1-1b
10	12	1.9" ODx0.12"	0.358	0.135	41	0.083	2.449		32	21.867	25.364	1.2	1.2	2.022	H1-1b
11	13	PL5/8x4.25	0.094	0.127	20	0.054	0.362	y	32	110.629	119.531	1.556	10.583	1.443	H1-1b
12	15	PL5/8x3.5	0.186	0.583	61	0.118	0	y	40	84.578	99.225	1.302	7.235	1.051	H1-1b
13	16	1.9" ODx0.12"	0.234	0.135	61	0.084	2.449		44	21.867	25.364	1.2	1.2	2.056	H1-1b
14	17	PL5/8x4.25	0.048	0.362	37	0.06	0.362	y	32	110.629	119.531	1.556	10.583	1.528	H1-1b
15	19	0.63" SR	0.503	2.5	38	0.006	2.5		78	1.941	14.028	0.147	0.147	2.217	H1-1a
16	20	0.63" SR	0.623	2.5	39	0.013	0		80	1.941	14.028	0.147	0.147	2.163	H1-1a
17	21	SR_1/2"	0.428	3.499	40	0.008	3.499		60	0.393	8.836	0.074	0.074	2.06	H1-1a
18	22	SR_1/2"	0	3.499	103	0.007	0		55	0.393	8.836	0.074	0.074	1	H1-1a
19	23	0.63" SR	0.347	0	36	0.012	0		18	1.941	14.028	0.147	0.147	2.454	H1-1a
20	24	0.63" SR	0.414	2.5	61	0.014	0		80	1.941	14.028	0.147	0.147	2.262	H1-1a
21	25	SR_1/2"	0.237	0	61	0.015	3.499		26	0.393	8.836	0.074	0.074	1.769	H1-1a
22	26	SR_1/2"	0.013	3.499	6	0.015	0		19	0.393	8.836	0.074	0.074	3	H1-1b*
23	29	Pipe2.875x0.12	0.093	2.75	19	0.045	2.75		19	22.398	42.998	3.144	3.144	3	H1-1b
24	32	Pipe2.875x0.12	0.185	2.75	14	0.047	5.25		74	22.398	42.998	3.144	3.144	3	H1-1b
25	35	Pipe2.875x0.12	0.126	5.25	55	0.037	5.25		61	22.398	42.998	3.144	3.144	3	H1-1b
26	36	Pipe2.38X0.12	0.086	0	18	0.006	7.93		47	13.597	35.273	2.115	2.115	1.136	H1-1b*

APPENDIX B
(Additional Calculations)

PROJECT	**149452.003.01 - Ellington, CT**			**KSC**
SUBJECT	**Sector Mount Analysis**			
DATE	**09/02/21**	PAGE 1	OF	2

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

Tower Type		:	SST		
Ground Elevation	z_s	:	825.50	ft	[ASCE7 Hazard Tool]
Tower Height		:	189.00	ft	
Mount Elevation		:	147.00	ft	
Antenna Elevation		:	147.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	B		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	97	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.18		
	S_1	:	0.06		
	S_{DS}	:	0.19		
	S_{D1}	:	0.10		

Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.10		[Sec. 2.6.5.2]
Topography Factor	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.97		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.16	in	[Sec. 2.6.10]

Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.093		[Sec. 2.7.7.1]
Amplification	A_s	:	2.111111		[Sec. 16.7]

	q_z	:	24.50	psf

PROJECT	149452.003.01 - Ellington, CT				KSC
SUBJECT	Sector Mount Analysis				
DATE	09/02/21	PAGE	2	OF	2

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
JMA WIRELESS	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.10	0.04	0.03	0.01
JMA WIRELESS	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.10	0.04	0.03	0.01
FUJITSU	TA08025-B605	1	1.05	1.20	1.64	0.99	2.17	1.43	0.04	0.03	0.01	0.01
FUJITSU	TA08025-B604	1	1.05	1.20	1.64	0.86	2.17	1.28	0.04	0.02	0.01	0.01
RAYCAP	RDIDC-9181-PF-48	1	1.14	1.20	1.68	0.94	2.22	1.37	0.04	0.02	0.01	0.01

PROJECT	**149452.003.01 - Ellington, CT**				**KSC**
SUBJECT	**Sector Mount Analysis**				
DATE	**09/02/21**	PAGE	1	OF	1

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	2.336	k
Vertical Shear	:	1.1	k
Horizontal Shear	:	1.442	k
Torsion	:	0	k.ft
Moment from Horizontal Forces	:	0	k.ft
Moment from Vertical Forces	:	0	k.ft

Bolt Parameters

Bolt Grade	:	A307	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	2	bolts

Summary of Forces

Shear Resultant Force	:	1.81	k
Force from Horz. Moment	:	0.00	k
Force from Vert. Moment	:	0.00	k
Shear Load / Bolt	:	0.91	k
Tension Load / Bolt	:	1.17	k
Resultant from Moments / Bolt	:	0.00	k

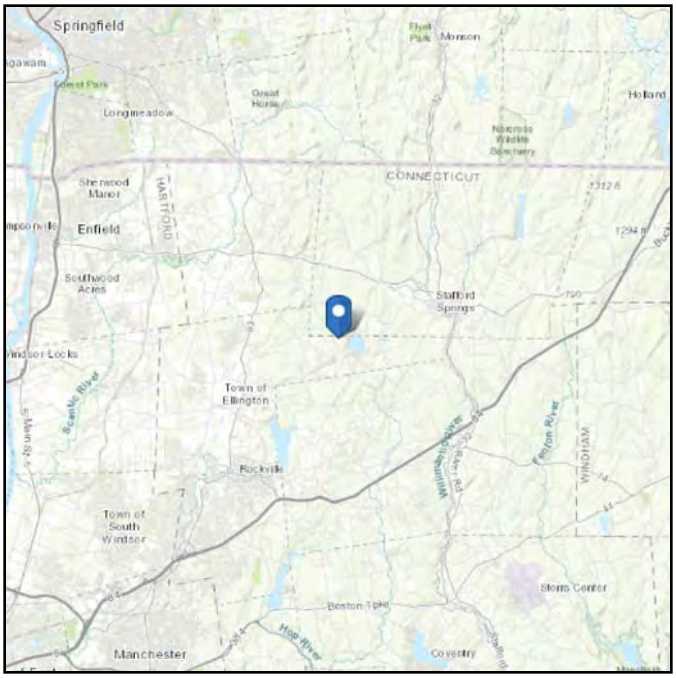
Bolt Checks

Nominal Tensile Stress, F_{nt}	:	45.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	10.36	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**11.27%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	24.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	5.53	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**37.55%**		**OKAY**
Unity Check, Combined	:	**48.82%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**2.62%**		**OKAY**

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	825.53 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.939764
Soil Class:	D - Stiff Soil	**Longitude:**	-72.387069



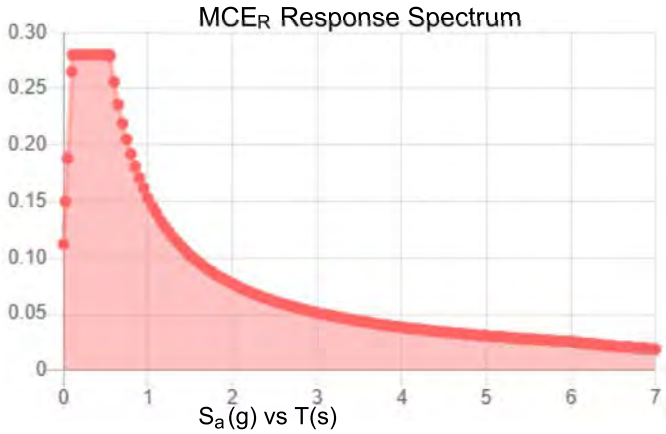
Seismic

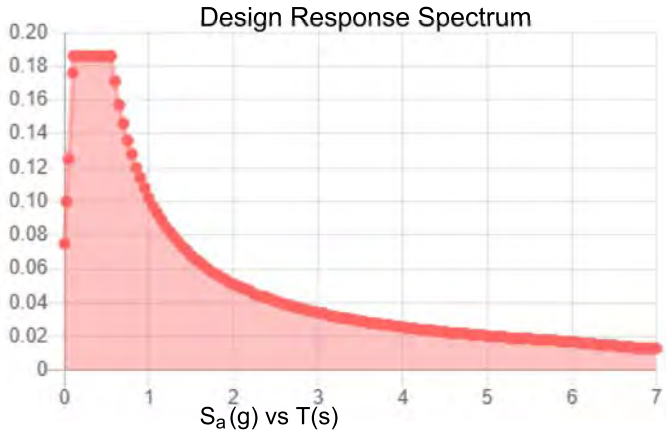
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.175	S_{DS} :	0.186
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.086
S_{MS} :	0.28	PGA_M :	0.138
S_{M1} :	0.153	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Sep 02 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:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Sep 02 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.

EXHIBIT 10

Construction Drawings

dish wireless™

DISH Wireless L.L.C. SITE ID:

BOBDL00124A

DISH Wireless L.L.C. SITE ADDRESS:

101 BURBANK ROAD
ELLINGTON, CT 06029

SBA APPROVED

By Stephen Roth at 5:18:17 AM, 10/22/2021

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

TOWER SCOPE OF WORK:
- REMOVE EXISTING ANTENNAS @ 149'-6".
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (3) PROPOSED SECTOR FRAMES
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)

SITE INFORMATION

PROPERTY OWNER:	ASUMADU BERNARD + JANE K
ADDRESS:	101 BURBANK RD ELLINGTON, CT 06029
TOWER TYPE:	SELF-SUPPORT TOWER
TOWER CO SITE ID:	CT10008-A
TOWER APP NUMBER:	167823
COUNTY:	TOLLAND
LATITUDE (NAD 83):	41° 56' 10.4" N 41.936229 N
LONGITUDE (NAD 83):	72° 23' 07.0" W 72.385288 W
ZONING JURISDICTION:	TOLLAND COUNTY
ZONING DISTRICT:	RAR
PARCEL NUMBER:	09013048-148-017-0000
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	CONNECTICUT LIGHT & POWER
TELEPHONE COMPANY:	AT&T

PROJECT DIRECTORY

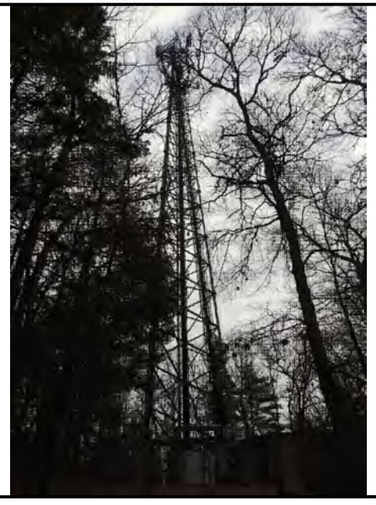
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	SBA COMMUNICATAIONS CORP. 8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800) 487-7483
SITE DESIGNER:	B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
SITE ACQUISITION:	JEAN COTTRELL JEAN.COTTRELL@DISH.COM
CONST. MANAGER:	JAVIER SOTO JAVIER.SOTO@DISH.COM
RF ENGINEER:	BOSSENER CHARLES BOSSENER.CHARLES@DISH.COM

CONNECTICUT CODE OF COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS 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 THESE CODES

CODE TYPE	CODE
BUILDING	2018 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS
MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS

SITE PHOTO



DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:

CONTINUE TO BRADLEY INTERNATIONAL AIRPORT CON, HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT, SLIGHT LEFT ONTO BRADLEY INTERNATIONAL AIRPORT, SLIGHT LEFT, FOLLOW CT-20 E, I-91 N AND CT-140 E TO WEBSTER RD IN ELLINGTON, CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON, CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON, USE THE LEFT 2 LANES TO MERGE WITH I-91 N TOWARD SPRINGFIELD, TAKE EXIT 45 FOR CT-140 TOWARD WAREHOUSE POINT/ELLINGTON, USE THE RIGHT 2 LANES TO TURN RIGHT ONTO CT-140 E, TURN RIGHT ONTO CT-140 E/MELROSE RD, TURN LEFT ONTO CT-140 E/CT-83 N, TURN RIGHT ONTO CT-140 E, CONTINUE ON WEBSTER RD TO STAFFORD, TURN LEFT ONTO WEBSTER RD, TURN RIGHT ONTO E PORTER RD, CONTINUE ONTO BOYER RD, TURN RIGHT ONTO BURBANK RD, TURN LEFT ON TO ACCESS ROAD, ARRIVING AT BOBDL00124A.

SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
LS1	SITE SURVEY
A-1	OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	EQUIPMENT PLATFORM AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODE
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES

UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

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, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

VICINITY MAP

NO SCALE

dish wireless™

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER

10/18/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
CDD	CDD	RCM

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	9/13/21	ISSUED FOR REVIEW
0	10/18/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149452.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00124A
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

LEGAL DESCRIPTION

LEASE PARCEL

COMMENCE AT THE NORTHWESTERLY CORNER OF LOT 21 AT THE SOUTHERLY LINE OF JOHN MARCH DRIVE, A PRIVATE RIGHT OF WAY;

THENCE NORTH 89 DEGREES 23 MINUTES 50 SECONDS EAST, 31.40 FEET ALONG THE SOUTHERLY LINE OF SAID JOHN MARCH DRIVE;

THENCE SOUTH 17 DEGREES 48 MINUTES 07 SECONDS EAST, 100.22 FEET ALONG THE EASTERLY LINE OF AN ACCESS AND UTILITY EASEMENT TO A POINT;

THENCE CONTINUING ALONG SAID EASEMENT, SOUTH 37 DEGREES 30 MINUTES 34 SECONDS EAST, 354.06 FEET TO A GALVANIZED FENCE POST BEING THE POINT OF BEGINNING OF THE FOLLOWING DESCRIBED PARCEL OF LAND;

THE FOLLOWING 9 COURSES COMPRISING THE LEASE PARCEL RUN ALONG A CHAIN LINK FENCE WITH EACH COURSE ENDING AT A GALVANIZED FENCE POST;

1.) THENCE NORTH 86 DEGREES 53 MINUTES 38 SECONDS EAST, 36.57 FEET TO A POINT;

2.) THENCE SOUTH 84 DEGREES 51 MINUTES 50 SECONDS EAST, 28.30 FEET TO A POINT;

3.) THENCE SOUTH 16 DEGREES 10 MINUTES 09 SECONDS EAST, 30.82 FEET TO A POINT;

4.) THENCE SOUTH 02 DEGREES 06 MINUTES 38 SECONDS WEST, 37.70 FEET TO A POINT;

5.) THENCE SOUTH 83 DEGREES 46 MINUTES 12 SECONDS WEST, 45.21 FEET TO A POINT;

6.) THENCE NORTH 43 DEGREES 53 MINUTES 24 SECONDS WEST, 36.62 FEET TO A POINT;

7.) THENCE NORTH 23 DEGREES 12 MINUTES 50 SECONDS WEST, 18.89 FEET TO A POINT;

8.) THENCE NORTH 35 DEGREES 28 MINUTES 56 SECONDS WEST, 15.16 FEET TO A POINT ON THE PREVIOUSLY REFERRED TO ACCESS AND UTILITY EASEMENT;

9.) THENCE ALONG SAID EASEMENT NORTH 41 DEGREES 24 MINUTES 50 SECONDS EAST, 22.19 FEET TO THE POINT OF BEGINNING.

CONTAINING 5022 SQUARE FEET, 0.12 ACRES MORE OR LESS

SKETCH AND LEGAL DESCRIPTION
SHEET 1 OF 2

NOTES

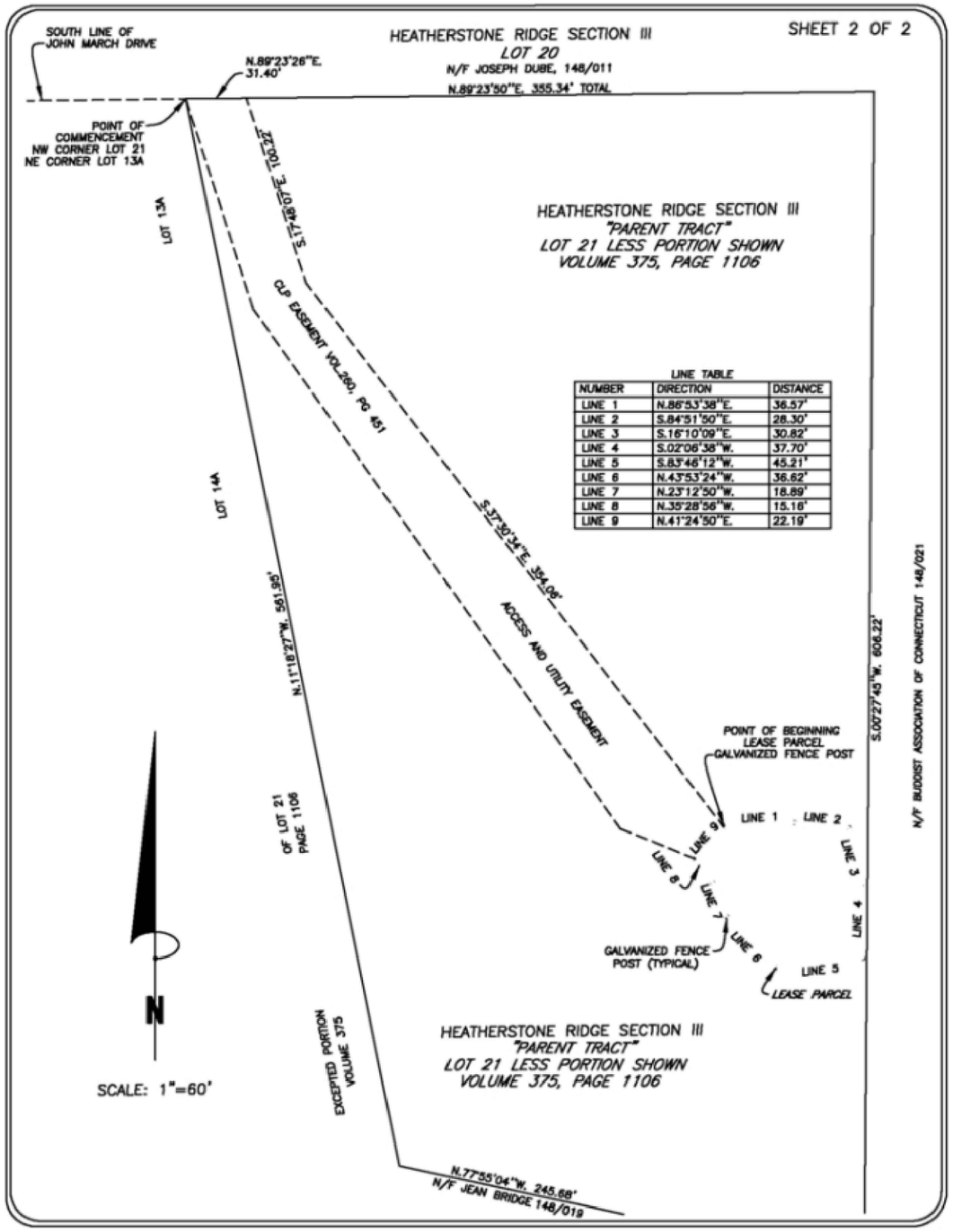
1. BASIS OF BEARINGS AS INDICATED ON SKETCH.
2. LEGAL DESCRIPTION COMPILED FROM FIELD MEASURMENTS OF OCUPATION AND WRITTEN BY THIS SURVEYOR.
3. DOCUMENTS USED: VOLUMES AND PAGES AS INDICATED IN THE SKETCH ON PAGE TWO.
4. THIS SKETCH AND LEGAL DESCRIPTION DOES NOT CONSTITUTE A BOUNDARY SURVEY.

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A CONNECTICUT LICENSED SURVEYOR AND MAPPER.

BY _____ _____

Digitally signed by PAUL J. STOWELL
DN: cn=PAUL J. STOWELL, o=LAND SURVEYING SERVICES, ou, email=PAULSTOWELL@OPTONLINE.NET, c=US
Reason: I am the author of this document
Date: 2018.10.13 15:03:05 -04'00'

PAUL J STOWELL PROFESSIONAL LAND SURVEYOR
171 WILCOX ROAD, MILFORD, CONNECTICUT, 06460
CONNECTICUT LAND SURVEYOR NO. 70216



SHEET 2 OF 2

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LITTLETON, CO 80120

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1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

CONNECTICUT No. 23924 LICENSED PROFESSIONAL ENGINEER

10/18/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
CDD	CDD	RCM

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	9/13/21	ISSUED FOR REVIEW
0	10/18/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149452.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00124A
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE

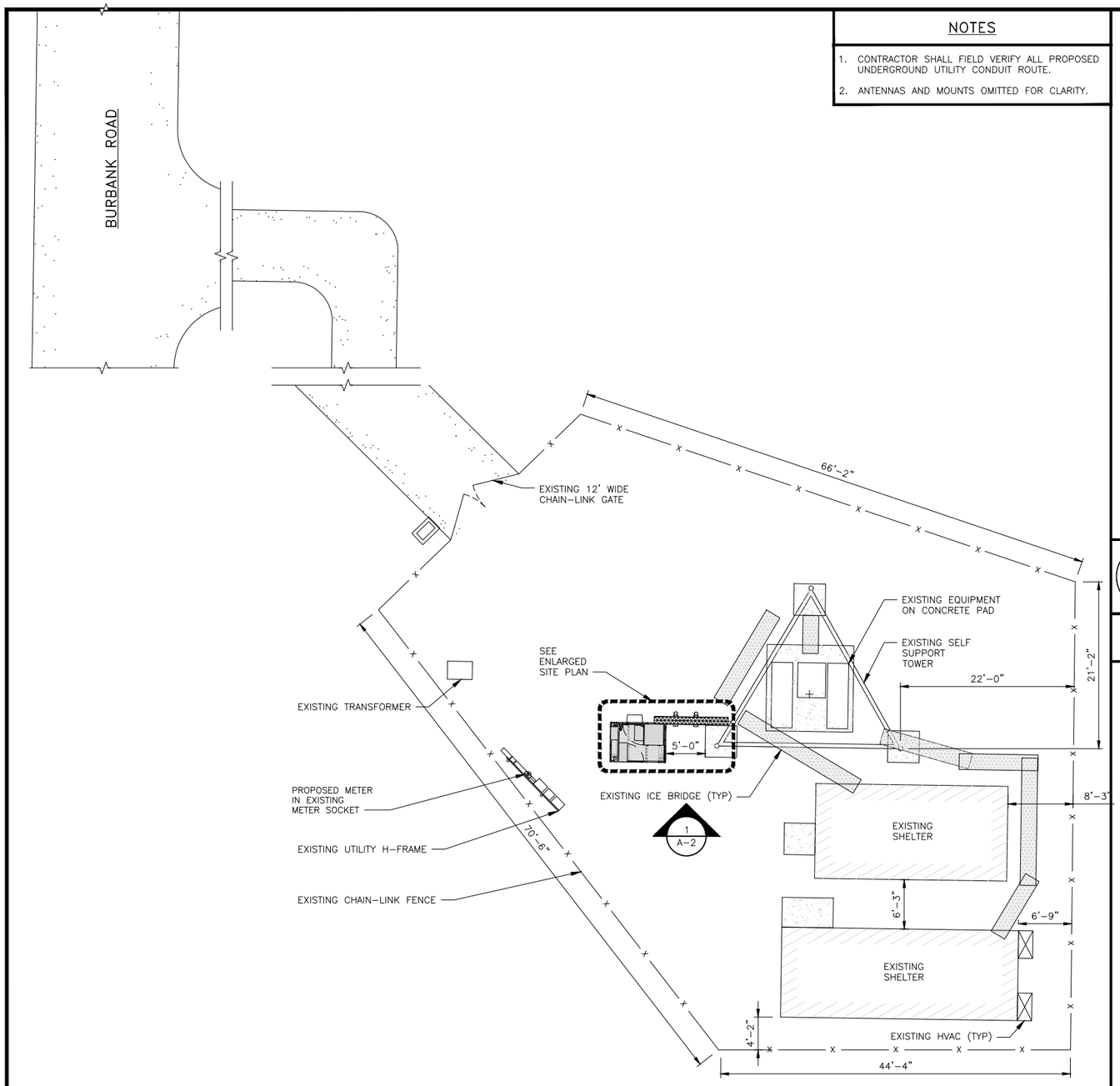
SITE SURVEY

SHEET NUMBER

LS-1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



N

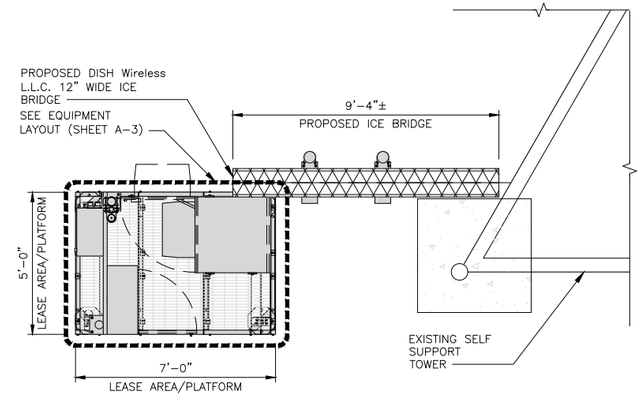
OVERALL SITE PLAN

8' 4' 0 8' 16'
1/8"=1'-0"

1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



N

ENLARGED SITE PLAN

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

2

NOT USED

3

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149452.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00124A
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE

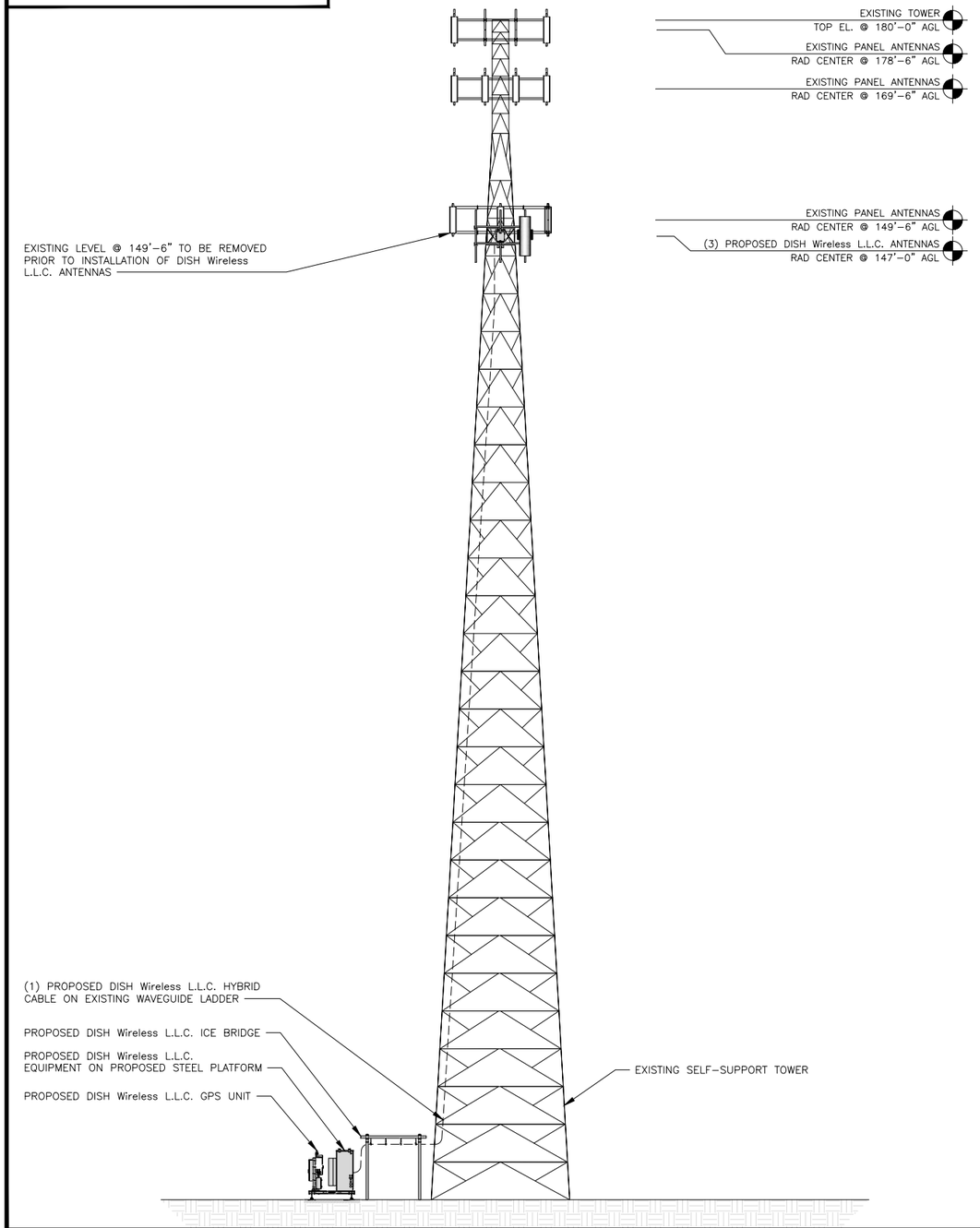
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

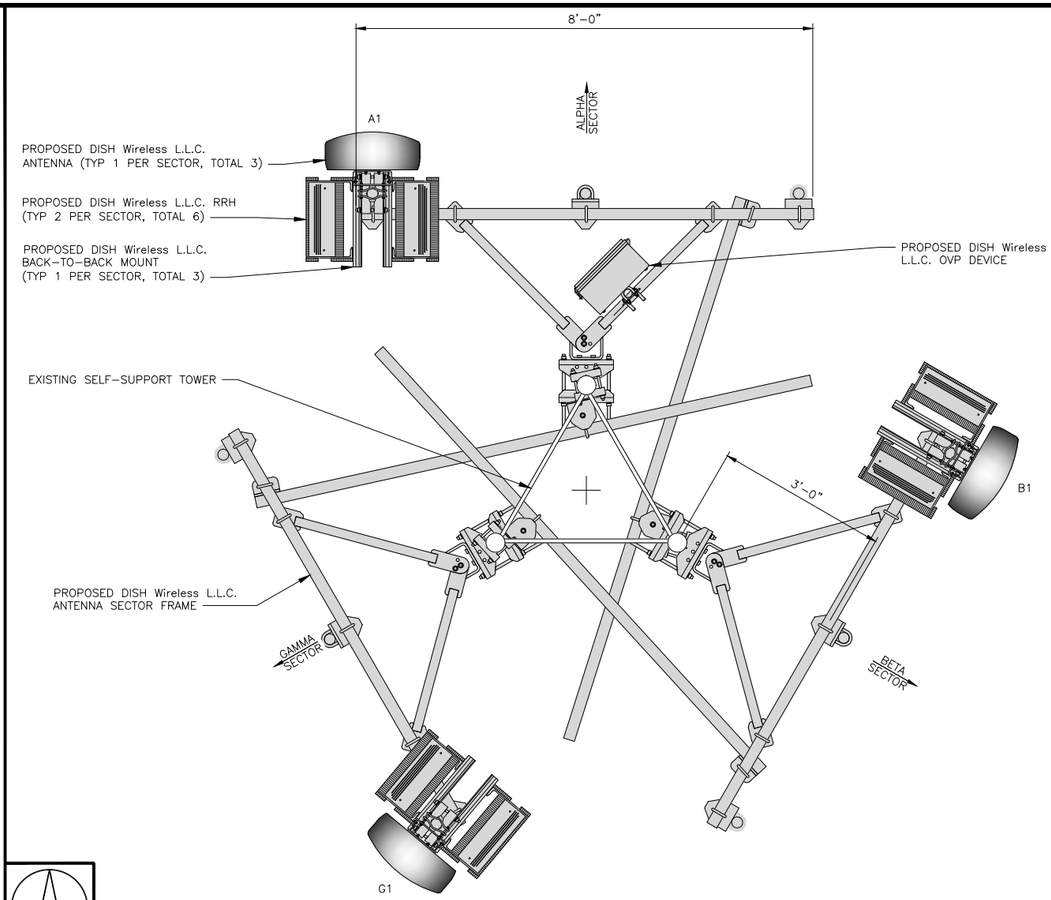
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED SOUTH ELEVATION

12' 8' 4' 0 10' 20'
3/32"=1'-0"

1



WIDTH OF TOWER FACE IS NOT TO BE CONSIDERED TO SCALE

ANTENNA LAYOUT

12" 6" 0 1' 2' 3'
3/4"=1'-0"

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" X 20.0"	0°	147'-0"	(1) HIGH-CAPACITY HYBRID CABLE (180' LONG)
BETA	B1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" X 20.0"	120°	147'-0"	
GAMMA	G1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" X 20.0"	220°	147'-0"	

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025-B604	5G
	A1	FUJITSU – TA08025-B605	5G
BETA	B1	FUJITSU – TA08025-B604	5G
	B1	FUJITSU – TA08025-B605	5G
GAMMA	G1	FUJITSU – TA08025-B604	5G
	G1	FUJITSU – TA08025-B605	5G

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

OVP		
EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	SIZE (HxWxD)
PROPOSED	RAYCAP-RDIDC-9181-PF-48	18.98"x14.39"x8.15"

ANTENNA SCHEDULE

NO SCALE

3

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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

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BOCA RATON, FL 33487

B+T GRP

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10/18/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
CDD	CDD	RCM

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	9/13/21	ISSUED FOR REVIEW
0	10/18/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149452.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

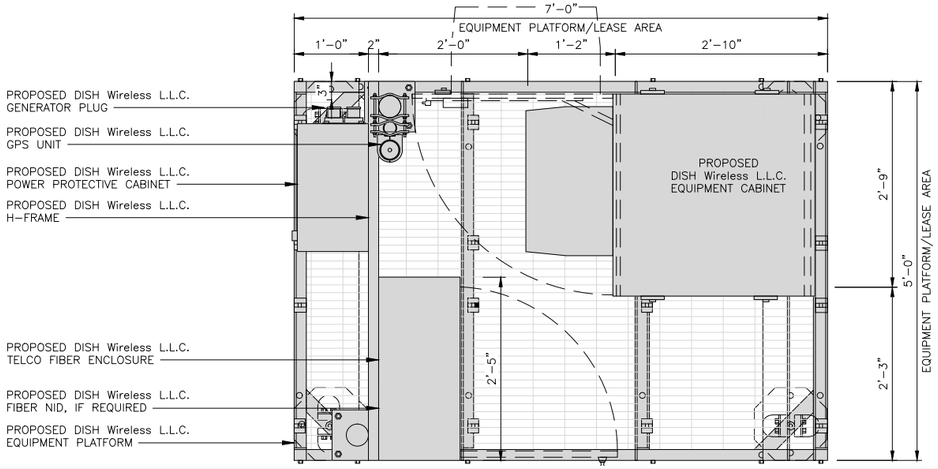
BOBDL00124A
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



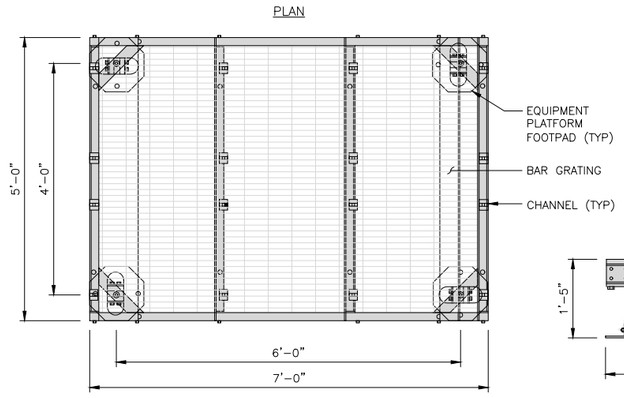
PLATFORM EQUIPMENT PLAN

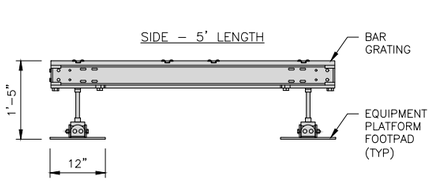
12" 9" 6" 3" 0 1' 2"
1"=1'-0"

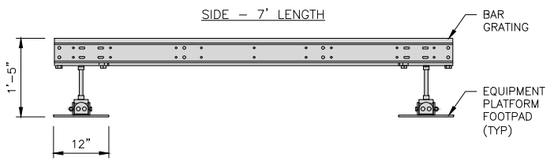
1

COMMSCOPE MTC4045LP 5X7 PLATFORM	
DIMENSIONS (HxWxD)	16"x84"x60"
TOTAL WEIGHT	423 LBS

NOTE:
GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"

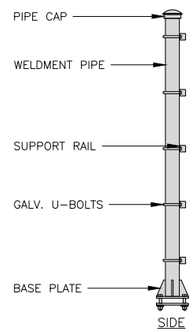




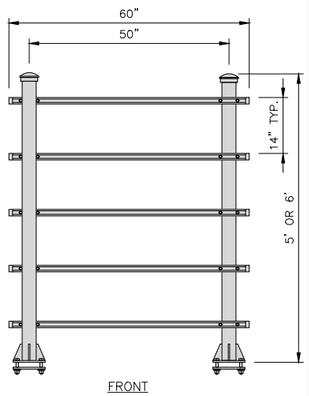


PLATFORM DETAIL | NO SCALE | 2

COMMSCOPE MTC4045HFLD H-FRAME	
UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs



NOTE:
OR DISH Wireless L.L.C. APPROVED EQUIVALENT

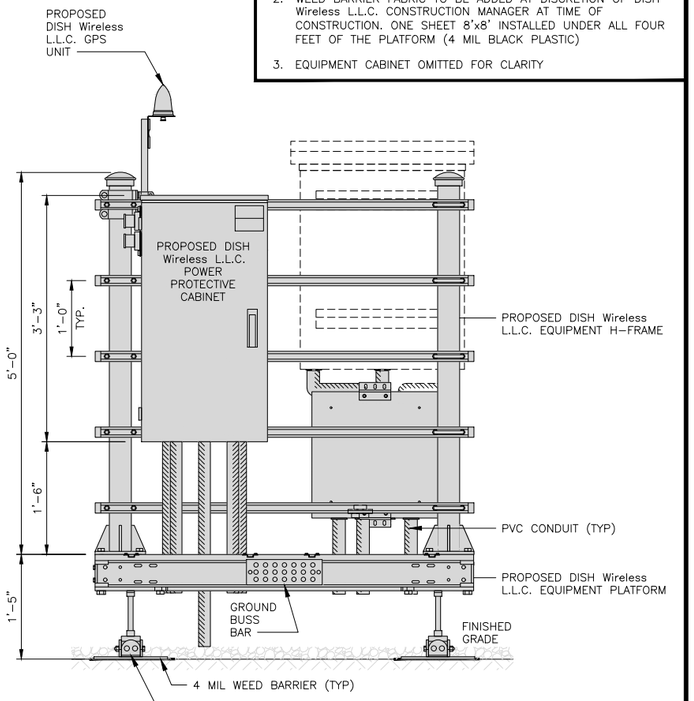


H-FRAME DETAIL | NO SCALE | 3

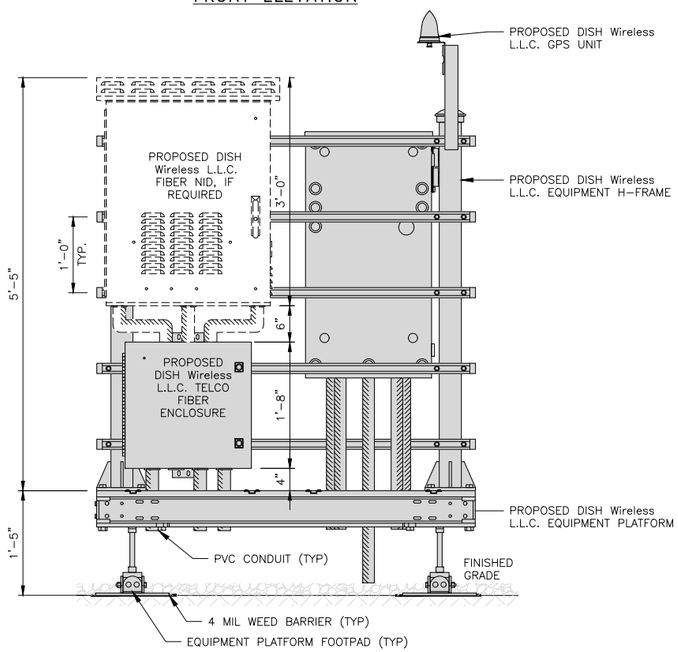
NOT USED | NO SCALE | 4

NOTES

1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH Wireless L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
3. EQUIPMENT CABINET OMITTED FOR CLARITY



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

12" 9" 6" 3" 0 1' 2"
1"=1'-0"

5

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PROJECT INFORMATION

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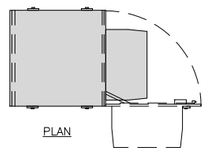
ELLINGTON, CT 06029

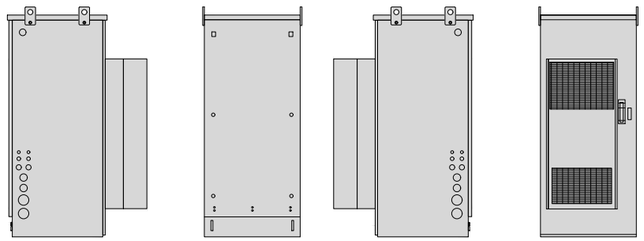
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

CHARLES INDUSTRY HEX CUBE–PM639155N4	
DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 LBS



PLAN

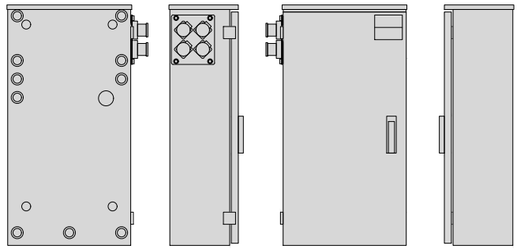


SIDE BACK SIDE FRONT

CABINET DETAIL | NO SCALE | 1

RAYCAP PPC RDIAC–2465–P–240–MTS	
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G

TOP



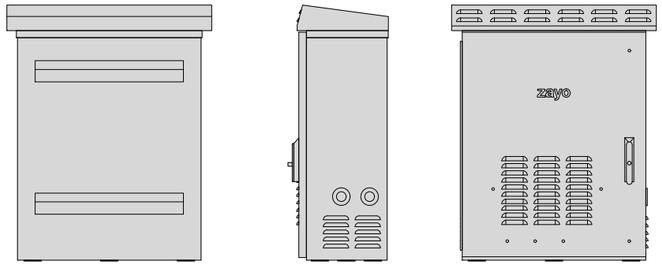
BACK SIDE FRONT SIDE

POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

NOT USED | NO SCALE | 3

ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs

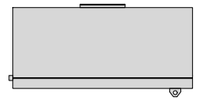
BOTTOM



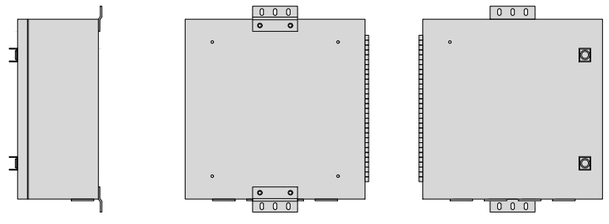
BACK SIDE FRONT

FIBER NID ENCLOSURE DETAIL | NO SCALE | 5

CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



FRONT

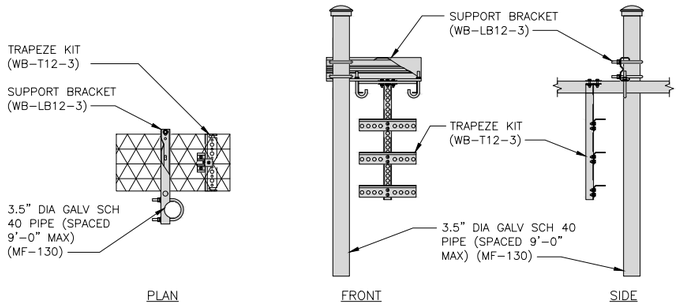


SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

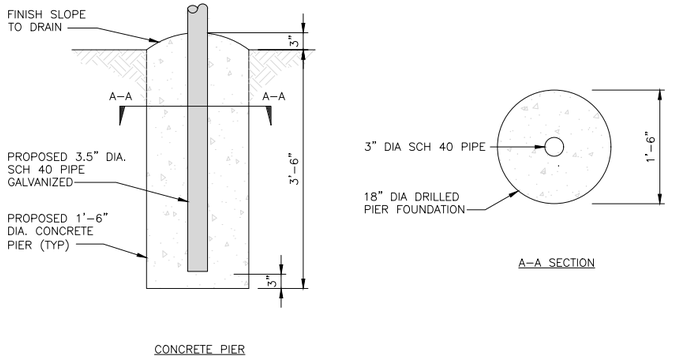
COMMSCOPE WB–K110–B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

INCLUDED PRODUCTS:	WB–T12–3 TRAPEZE KIT, 3 RUNGS
	WB–LB12–3 SUPPORT BRACKET
	MF–130 DIRECT BURIAL PIPE COLUMN, 13'–4"



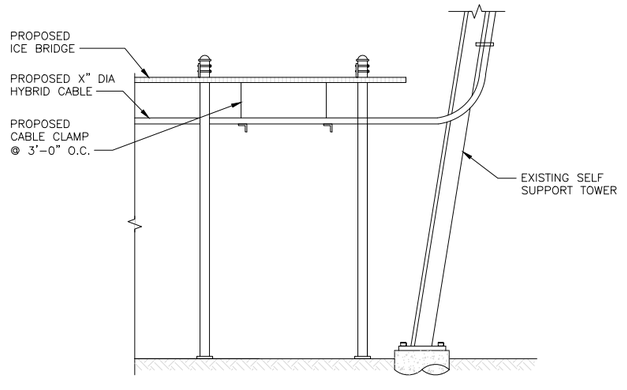
PLAN FRONT SIDE

ICE BRIDGE DETAIL | NO SCALE | 7



CONCRETE PIER A–A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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BOBDL00124A
101 BURBANK ROAD
ELLINGTON, CT 06029

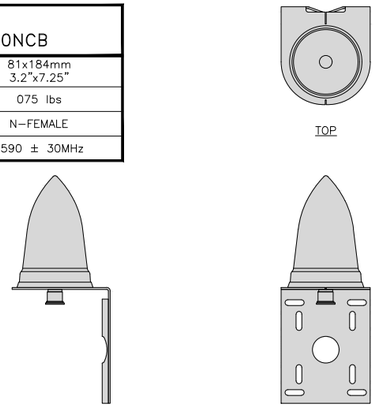
SHEET TITLE

EQUIPMENT DETAILS

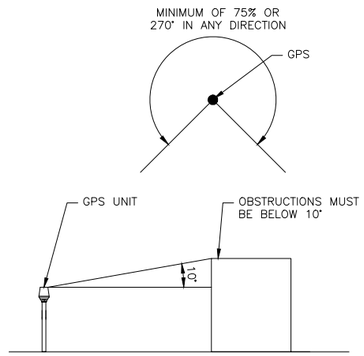
SHEET NUMBER

A-4

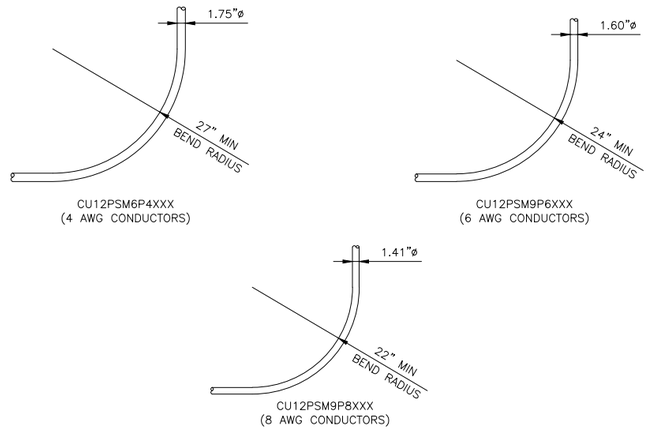
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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ELLINGTON, CT 06029

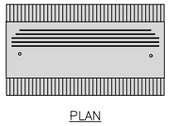
SHEET TITLE

EQUIPMENT DETAILS

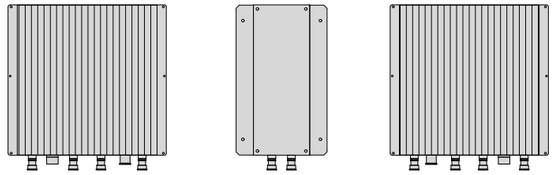
SHEET NUMBER

A-5

FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



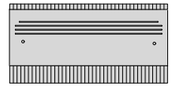
PLAN



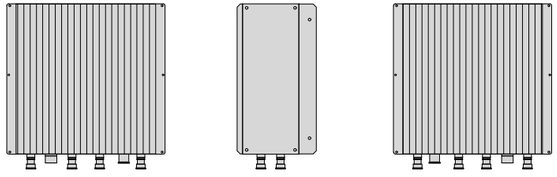
BACK SIDE FRONT

RRH DETAIL | NO SCALE | 1

FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



PLAN

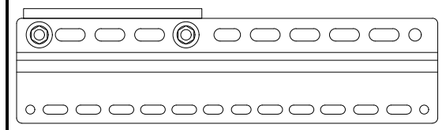


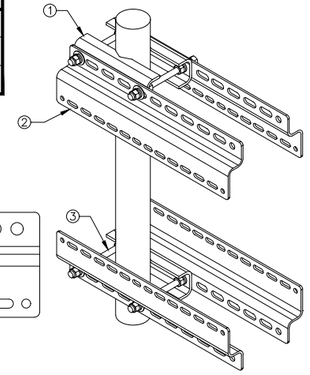
BACK SIDE FRONT

RRH DETAIL | NO SCALE | 2

SABRE DOUBLE Z-BRACKET C10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"

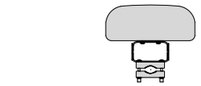




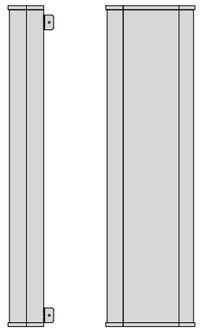
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



PLAN



SIDE FRONT

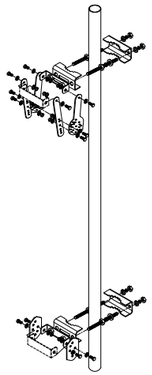
ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

JMA ANTENNA MOUNT BRACKET #91900318	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS

ANTENNA BRACKET NOT PART OF KIT



NOTE:
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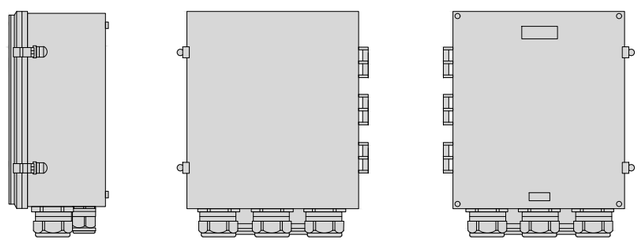
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL | NO SCALE | 6

RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS

PLAN

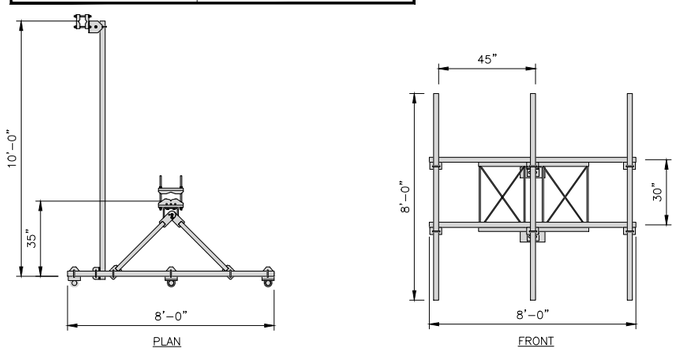


SIDE BACK FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

COMMSCOPE V-FRAME MTC3975083	
FACE SIZE	8'-0"
WEIGHT	352.136 lbs

NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



PLAN FRONT

ANTENNA FRAME DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

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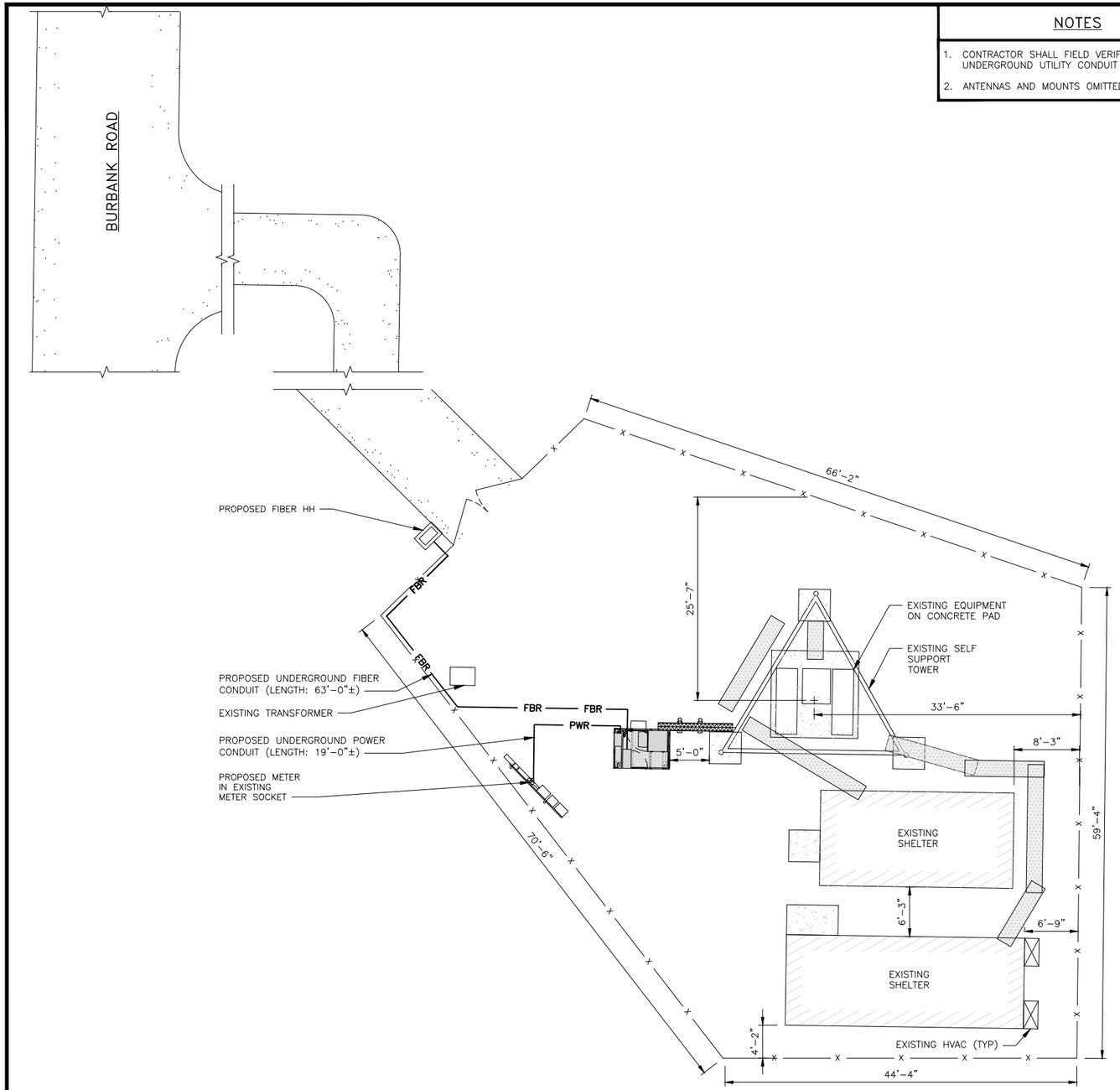
SHEET NUMBER

A-6



NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND −48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY −48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG.

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10/18/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
CDD	CDD	RCM

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	9/13/21	ISSUED FOR REVIEW
0	10/18/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149452.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00124A
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE

ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

E-1

N

UTILITY ROUTE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1

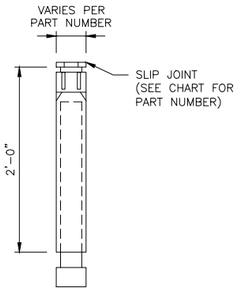
ELECTRICAL NOTES

NO SCALE

2

CARLON EXPANSION FITTINGS

COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N	E945NX	4"	5	8"
E945P	E945PX	5"	1	8"
E945R	E945RX	6"	1	8"

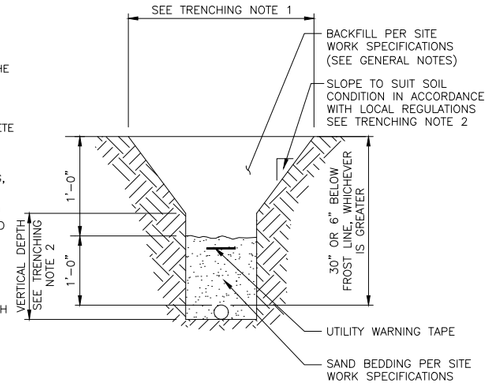


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

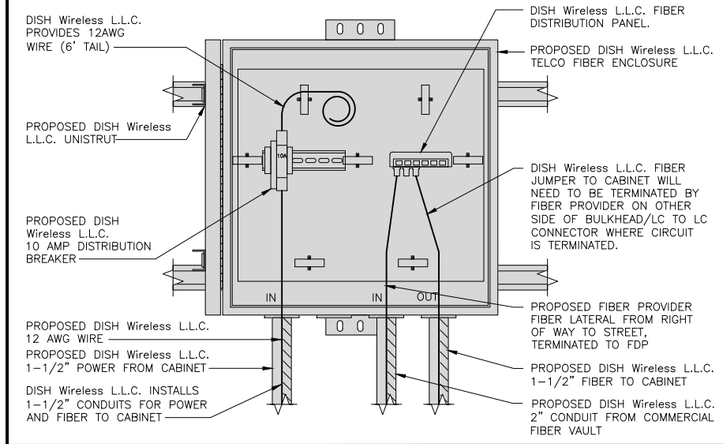
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

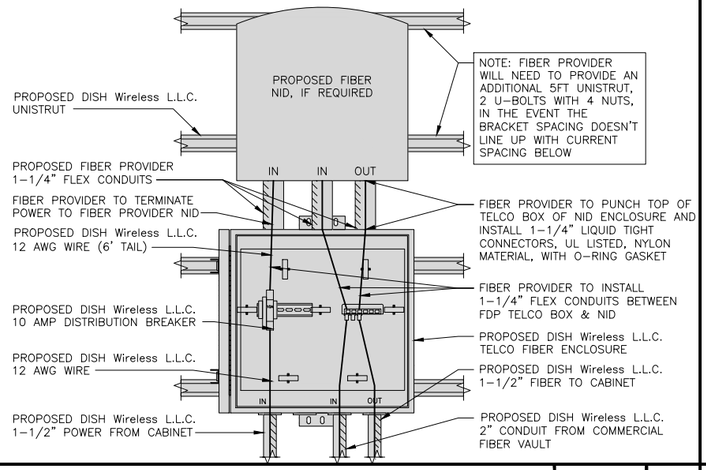
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
3. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



DARK TELCO BOX – INTERIOR WIRING LAYOUT | NO SCALE | 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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PROJECT INFORMATION

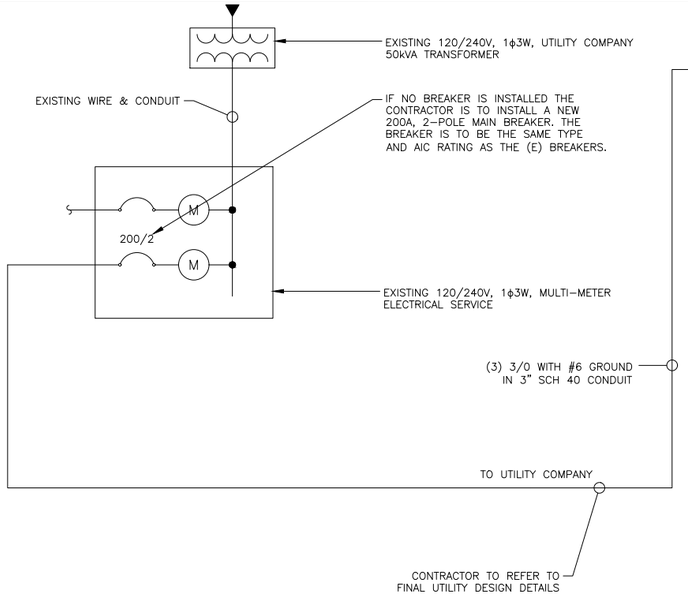
BOBDL00124A
101 BURBANK ROAD
ELLINGTON, CT 06029

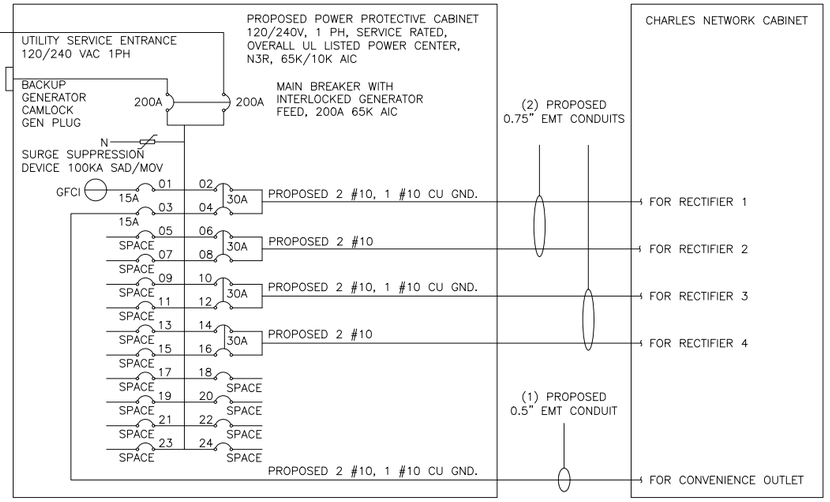
SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E-2





NOTE:
BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105°C, 600V, AND PVC INSULATED, IN THE SIZES SHOWN IN THE ONE-LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN-2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT.

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER - SQUARE D P/N:QO230
(1) 15A, 1P BREAKER - SQUARE D P/N:QO115

NOTES

THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.

#12 FOR 15A-20A/1P BREAKER: 0.8 x 30A = 24.0A
#10 FOR 25A-30A/2P BREAKER: 0.8 x 40A = 32.0A
#8 FOR 35A-40A/2P BREAKER: 0.8 x 55A = 44.0A
#6 FOR 45A-60A/2P BREAKER: 0.8 x 75A = 60.0A

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.
0.5" CONDUIT - 0.122 SQ. IN AREA
0.75" CONDUIT - 0.213 SQ. IN AREA
2.0" CONDUIT - 1.316 SQ. IN AREA
3.0" CONDUIT - 2.907 SQ. IN AREA

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.

#10 - 0.0211 SQ. IN X 2 = 0.0422 SQ. IN
#10 - 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
TOTAL = 0.0633 SQ. IN

0.5" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.

#10 - 0.0266 SQ. IN X 4 = 0.1064 SQ. IN
#10 - 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
TOTAL = 0.1146 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (5) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.

3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
#6 - 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
TOTAL = 0.8544 SQ. IN

3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC ONE-LINE DIAGRAM — NO SCALE — 1

PROPOSED CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
-SPACE-				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
-SPACE-				7	B	8			2880	
-SPACE-				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
-SPACE-				11	B	12			2880	
-SPACE-				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
-SPACE-				15	B	16			2880	
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						11520	11520	

200A MCB, 1ϕ, 24 SPACE, 120/240V	L1	L2	
MB RATING: 65,000 AIC	11700	11700	VOLTAGE AMPS
	98	98	AMPS
	98		MAX AMPS
	123		MAX 125%

PANEL SCHEDULE — NO SCALE — 2

NOT USED — NO SCALE — 3

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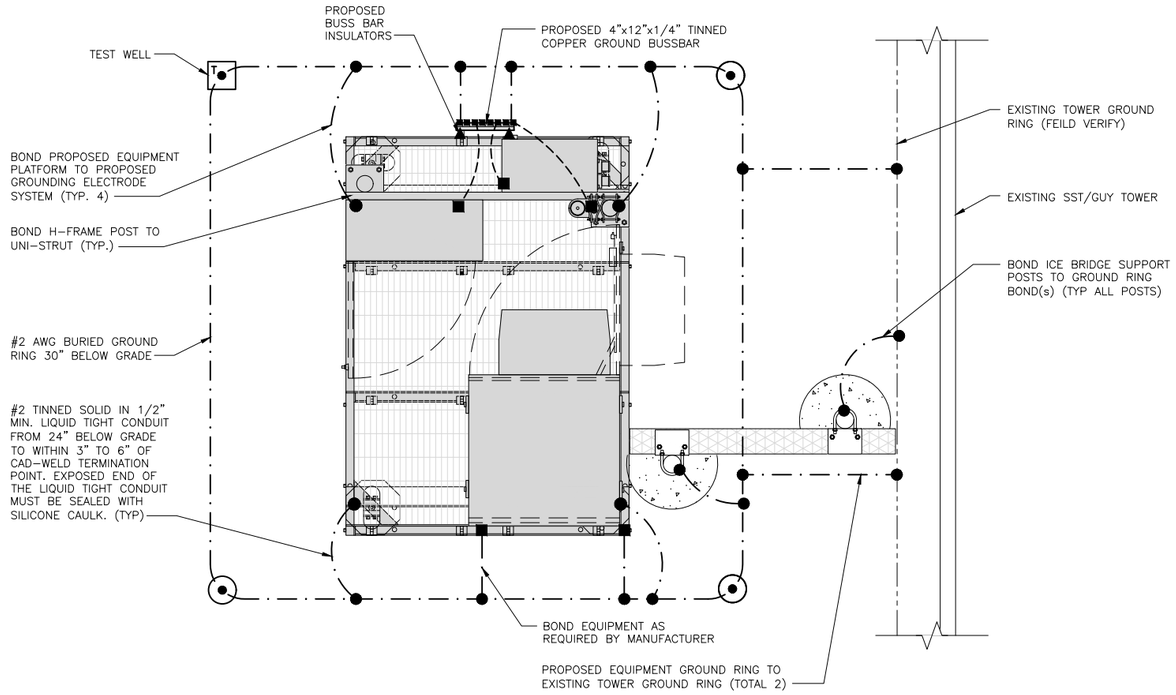
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00124A
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE
ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3

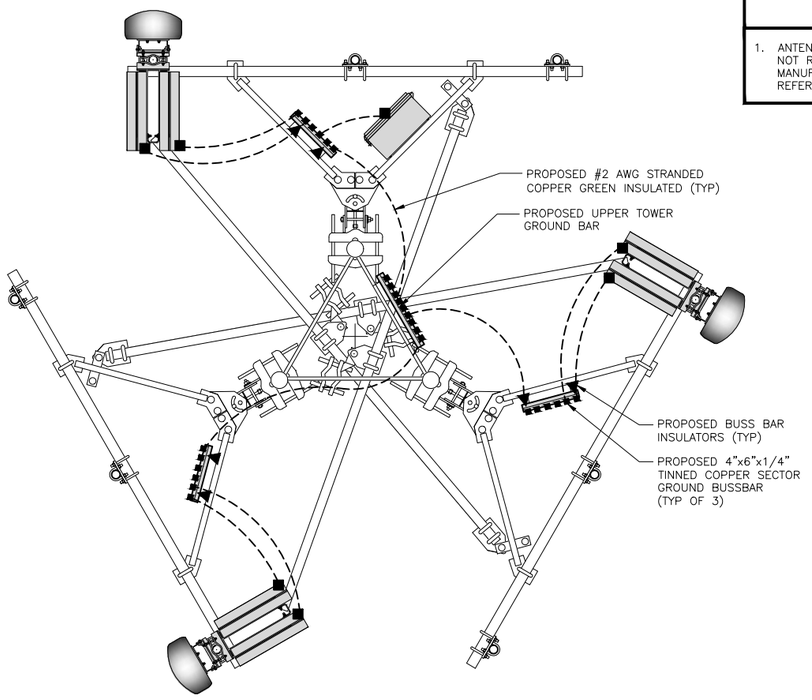


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1

NOTES

1. ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE ONLY



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BUS BAR
- GROUND ROD
- TEST GROUND ROD WITH INSPECTION SLEEVE
- #6 AWG STRANDED & INSULATED
- #2 AWG SOLID COPPER TINNED
- BUSS BAR INSULATOR

GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH Wireless L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.

(B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.

(C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.

(D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

(F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

(G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.

(H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.

(I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.

(J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.

(K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.

(L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

(M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE

(N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.

(O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR

(P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO TOWER STEEL.

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE | 3

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BOBDL00124A
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE

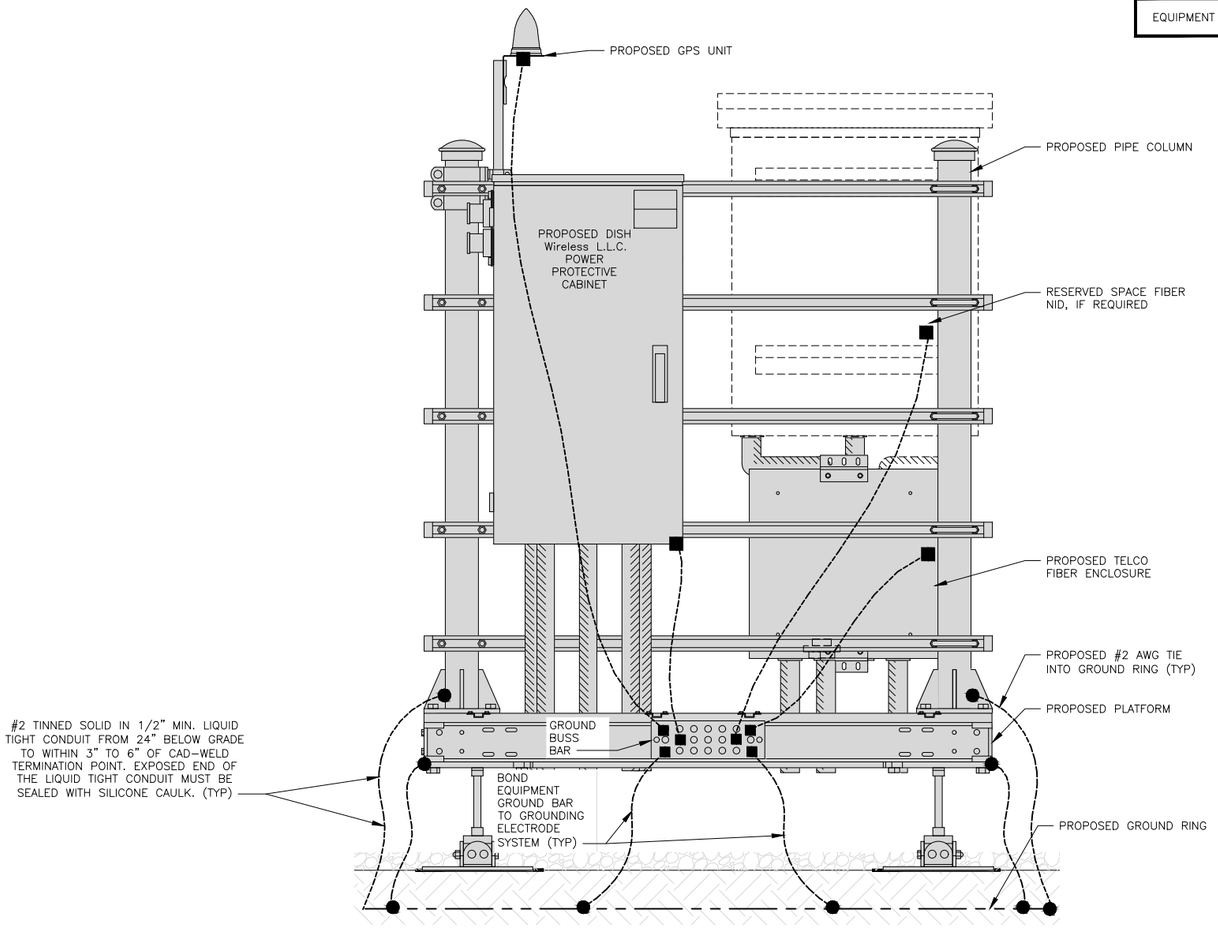
GROUNDING PLANS AND NOTES

SHEET NUMBER

G-1

NOTES

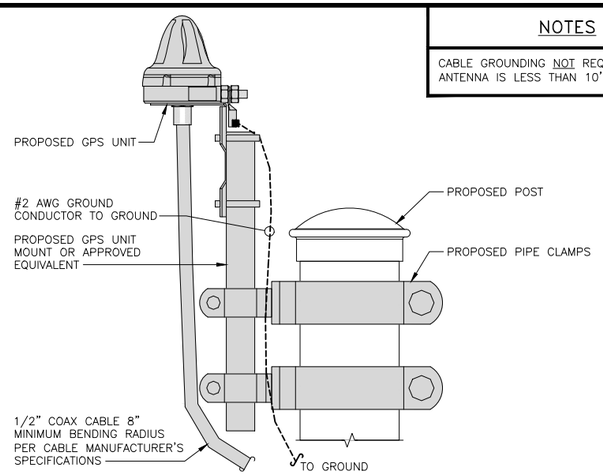
EQUIPMENT CABINET OMITTED FOR CLARITY



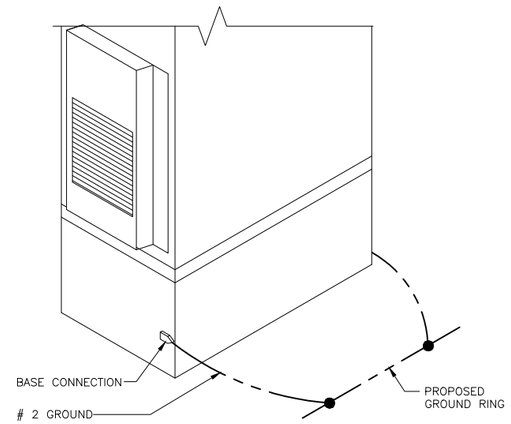
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

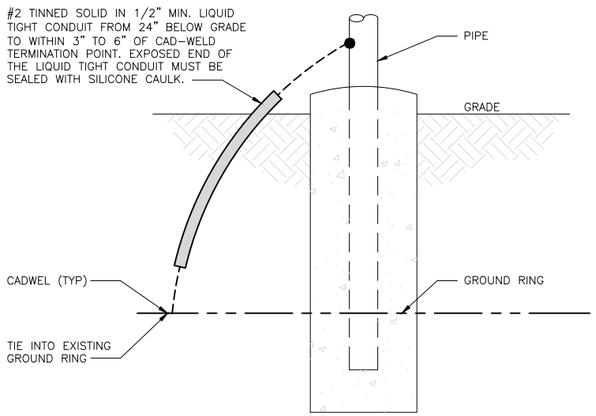
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



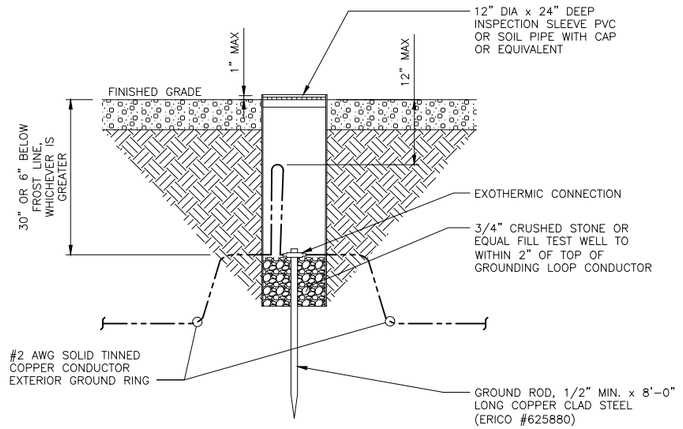
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



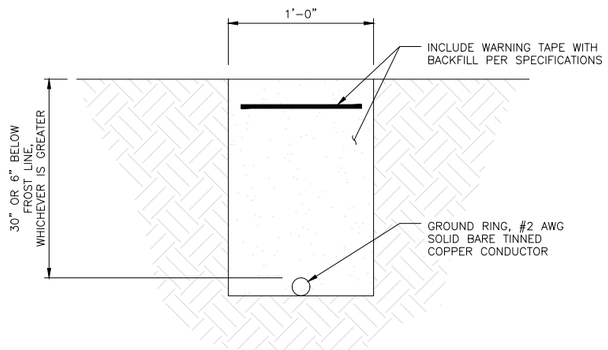
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE | NO SCALE | 5



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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SHEET TITLE

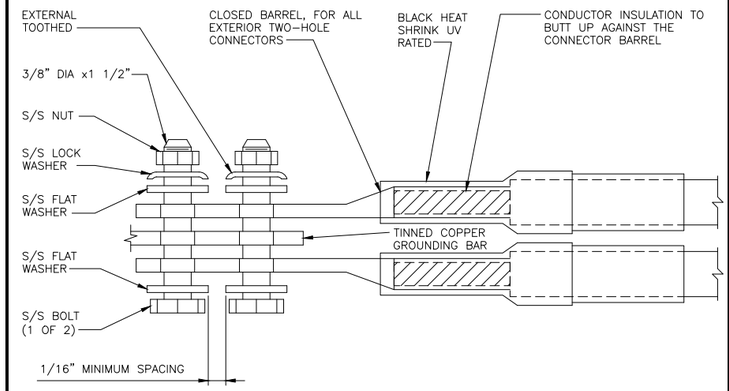
GROUNDING DETAILS

SHEET NUMBER

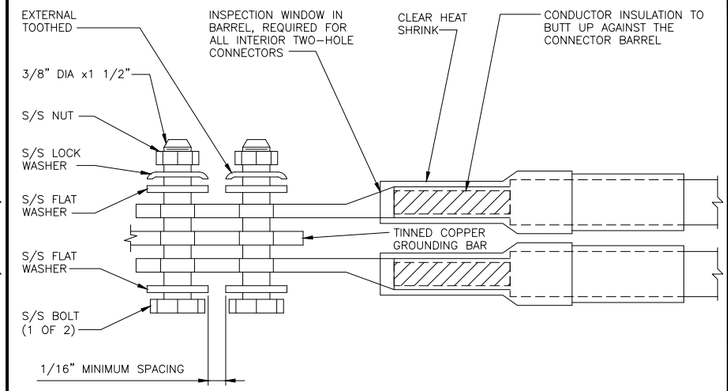
G-2

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR, ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

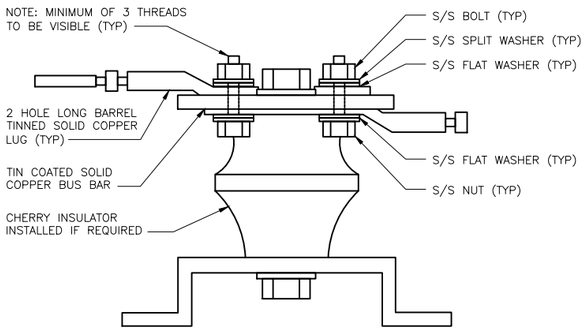
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

dish wireless.

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10/18/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
CDD	CDD	RCM

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	9/13/21	ISSUED FOR REVIEW
0	10/18/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149452.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00124A
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

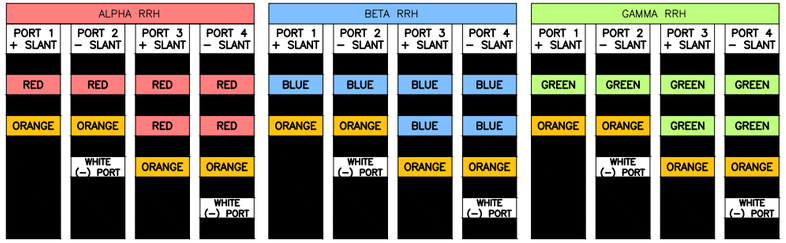
G-3

RF JUMPER COLOR CODING

3/4" TAPE WIDTHS WITH 3/4" SPACING

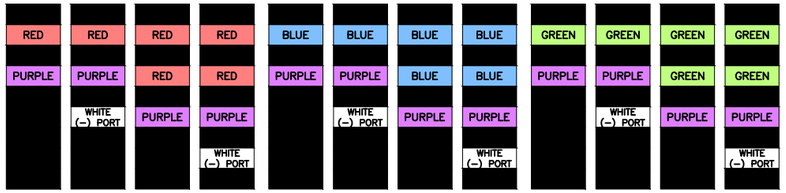
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)



MID-BAND RRH –
(AWS BANDS N66+N70)

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)

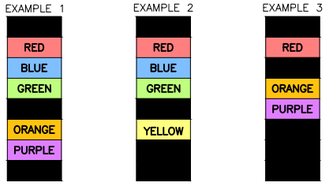


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

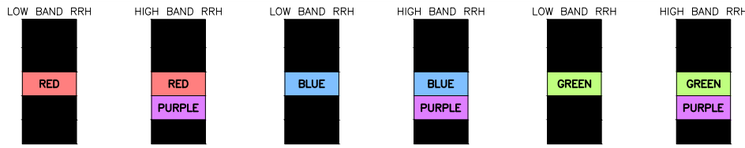
EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS
CBRS ONLY, ALL SECTORS



CONTRACTOR TO REFER TO FINAL
CONSTRUCTION RFDS FOR ALL RD DETAILS.
FINAL RFDS IS IN NEXSYSONE.

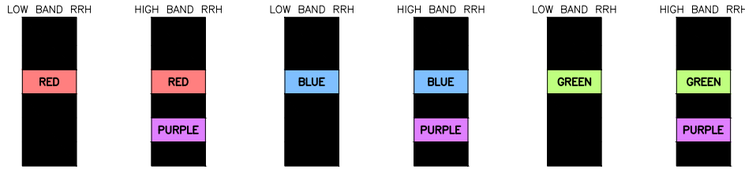
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

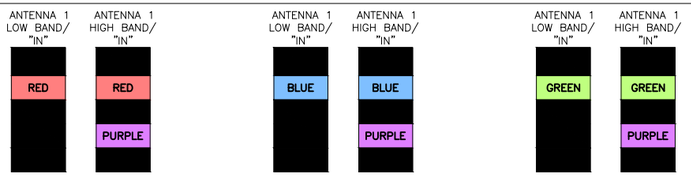


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



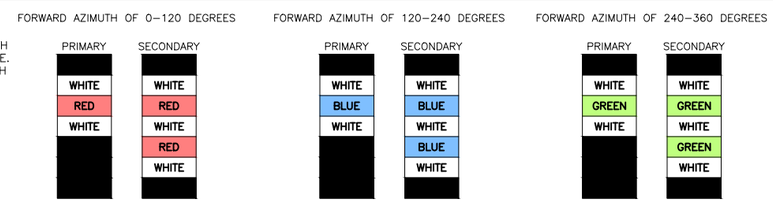
RET MOTORS AT ANTENNAS



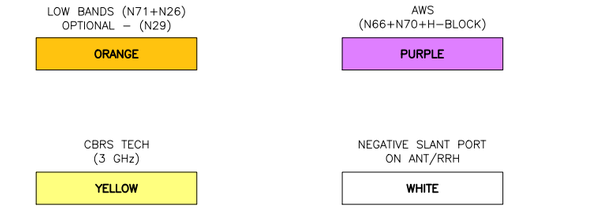
MICROWAVE RADIO LINKS

LINKS WILL HAVE A 1.5-2 INCH WHITE WRAP WITH
THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.
ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH
ADDITIONAL MW RADIO.

MICROWAVE CABLES WILL REQUIRE P-TOUCH
LABELS INSIDE THE CABINET TO IDENTIFY THE
LOCAL AND REMOTE SITE ID'S



RF CABLE COLOR CODES | NO SCALE | 1



COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

dish wireless.

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00124A
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE

RF
CABLE COLOR CODE

SHEET NUMBER

RF-1

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8 — F

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED–1–25A400/51K–SR4–120–PE–DDBTXD

CHAIN LINK FENCE — X X X X

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W W W W W

UNDERGROUND POWER — UGP UGP UGP UGP UGP

UNDERGROUND TELCO — UGT UGT UGT UGT UGT

OVERHEAD POWER — OHP OHP OHP OHP

OVERHEAD TELCO — OHT OHT OHT OHT

UNDERGROUND TELCO/POWER — UGT/P UGT/P UGT/P UGT/P

ABOVE GROUND POWER — AGP AGP AGP AGP AGP

ABOVE GROUND TELCO — AGT AGT AGT AGT AGT

ABOVE GROUND TELCO/POWER — AGT/P AGT/P AGT/P AGT/P

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

LEGEND

AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EC	ELECTRICAL CONDUCTOR
EL.	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENG	ENGINEER
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
EW	EACH WAY
FAB	FABRICATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIF	FACILITY INTERFACE FRAME
FIN	FINISH(ED)
FLR	FLOOR
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FS	FINISH SURFACE
FT	FOOT
FTG	FOOTING
GA	GAUGE
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GLB	GLUE LAMINATED BEAM
GLV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE
HDG	HOT DIPPED GALVANIZED
HDR	HEADER
HGR	HANGER
HVAC	HEAT/VENTILATION/AIR CONDITIONING
HT	HEIGHT
IGR	INTERIOR GROUND RING
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
LF	LINEAR FEET
LTE	LONG TERM EVOLUTION
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
NEC	NATIONAL ELECTRIC CODE
NM	NEWTON METERS
NO.	NUMBER
#	NUMBER
NTS	NOT TO SCALE
OC	ON–CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG	OPENING
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PCU	PRIMARY CONTROL UNIT
PRC	PRIMARY RADIO CABINET
PP	POLARIZING PRESERVING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWR	POWER CABINET
QTY	QUANTITY
RAD	RADIUS
RECT	RECTIFIER
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	REMOTE ELECTRIC TILT
RF	RADIO FREQUENCY
RMC	RIGID METALLIC CONDUIT
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SCH	SCHEDULE
SHT	SHEET
SIAD	SMART INTEGRATED ACCESS DEVICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
TEMP	TEMPORARY
THK	THICKNESS
TMA	TOWER MOUNTED AMPLIFIER
TN	TOE NAIL
TOA	TOP OF ANTENNA
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOP	TOP OF PLATE (PARAPET)
TOS	TOP OF STEEL
TOW	TOP OF WALL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

ABBREVIATIONS

dish wireless

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
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B+T GRP

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STATE OF CONNECTICUT — No. 23924 — LICENSED PROFESSIONAL ENGINEER

10/18/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
CDD	CDD	RCM

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00124A
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.

4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).

5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR 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. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.

10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.

11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.

12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.

14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.

15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.

16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

17. THE AREAS OF THE OWNERS 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 AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.

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

19. 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 OWNER.

20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

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

GENERAL NOTES:

1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.

4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.

5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.

6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR 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. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.

12. 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 DISH Wireless L.L.C. AND TOWER OWNER

13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

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10/18/21

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00124A
101 BURBANK ROAD
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SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.

3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.

4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.

5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER:
- #6 BARS AND LARGER 2"
- #5 BARS AND SMALLER 1-1/2"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLAB AND WALLS 3/4"
- BEAMS AND COLUMNS 1-1/2"

7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.

3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.

5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.

6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).

7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.

8. TIE WRAPS ARE NOT ALLOWED.

9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.

12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).

14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.

18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.

21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).

22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).

23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.

25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".

30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

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10/18/21

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00124A
101 BURBANK ROAD
ELLINGTON, CT 06029

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.

4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

5. 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.

6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.

7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.

8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.

11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.

13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.

14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.

17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.

19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING 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 CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

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