



Filed by:

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

December 22, 2021

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
150 Lost Acres Road, North Granby CT 06035
Latitude: 42.009600
Longitude: -72.866544
Dish Wireless Site# BOBDL00125A

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 150 Lost Acres Road, North Granby, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 MHz antennas and six (6) RRUs, at the 140-foot level of the existing 170-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 19, 2021 Exhibit 10. Also included is an structural analysis prepared by TES, dated September 22, 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 Granby Planning & Zoning Commission May 12, 1998. 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 William F. Smith, Jr., Town Manager for the Town of Granby, Joel Skilton, Building Official & Zoning Enforcement, as well as to the property owners John G. Lombardi & Deborah Lindsey Lombardi.

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 140-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.
4. 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 5.66% 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 Granby. 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 140-foot level of the existing 170-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@sbsite.com

Attachments:

cc: William F. Smith, Jr., Town Manager/ with attachments
Granby Town Hall, 15 North Granby Rd., Granby, CT 06035
Joel Skilton, Building Official & Zoning Enforcement/ with
attachments Granby Town Hall, 15 North Granby
Rd., Granby, CT 06035
John G. Lombardi & Deborah Lindsey Lombardi
150 Lost Acres Rd., North Granby Ct. 06060



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 Granby Planning & Zoning Comm. 5/12/98
Exhibit 7	EME Report	EBI Consulting 12/20/21
Exhibit 8	Structural Analysis	TES 9/22/21
Exhibit 9	Mount Analysis	B + T Group 12/1/21
Exhibit 10	Construction Drawings	B + T Group 10/19/21

EXHIBIT 1

Copy of check

EXHIBIT 2

Letter of Intent

December 22, 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: 150 Lost Acres Road, North Granby CT 06035
Dish Wireless Site No: BOBDL00125A
Site No: CT10017-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 **150 Lost Acres Road, North Granby, CT.**

SBA Towers II, 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 140' 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@sbsite.com

EXHIBIT 3

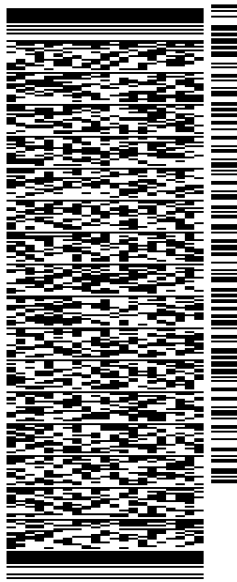
Fedex Labels

ORIGIN ID:BFBA (508) 614-0389
RICK WOODS
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 22DEC21
ACTWGT: 2.00 LB
CAD: 105843304/NET4400
BILL SENDER

TO **MELANIE A. BACHMAN EXEC. DIR**
CONNECTICUT SITING COUNCIL
TEN FRANKLIN SQUARE

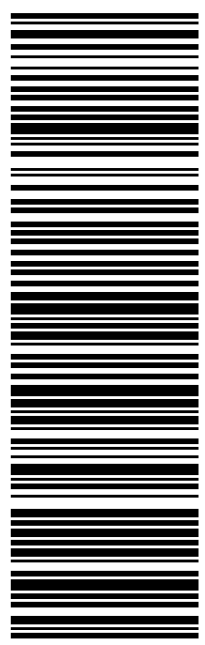
NEW BRITAIN CT 06051
(508) 251-0720 X.3807 REF: 105692009-6089
INV# DEPT:



J212321121601uv

TRK# 7755 8269 2351
0201
THU - 23 DEC 11:30A
PRIORITY OVERNIGHT

EB BDLA
06051
CT-US BDL



56D.J3/E934/FE4A

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775582692351



[ADD NICKNAME](#)

ON TIME

Scheduled delivery:
Thursday, 12/23/2021 before 11:30 am



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WESTBOROUGH, MA

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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

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Travel History

Shipment Facts

Travel History

TIME ZONE
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3:39 PM

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1:56 PM

Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER
775582692351

SERVICE
FedEx Priority Overnight

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TOTAL PIECES
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TOTAL SHIPMENT WEIGHT
2 lbs / 0.91 kgs

TERMS
Shipper

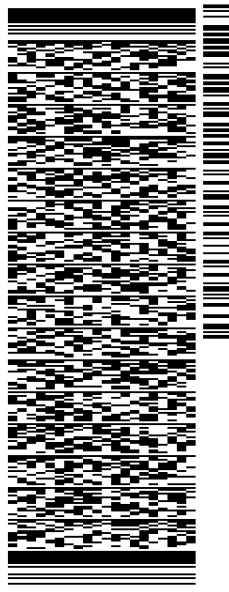
ORIGIN ID:BFBA (508) 614-0389
RICK WOODS
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 22DEC21
ACTWGT: 1.00 LB
CAD: 105843304/NET4400
BILL SENDER

TO WILLIAM F. SMITH
GRANBY TOWN HALL
TOWN MANAGER
15 NORTH GRANBY RD.
GRANBY CT 06035
(508) 251-0720 X 3807
INV#
PO: DEPT:

REF: 105692009-6089

56DJ3IE934/FE4A



TRK# 7755 8272 7989
0201
THU - 23 DEC 11:30A
PRIORITY OVERNIGHT

EB EHTA
06035
CT:US BDL

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

TO
William F. Smith
Granby Town Hall
Town Manager
15 North Granby Rd.
GRANBY, CT US 06035
508-251-0720

[MANAGE DELIVERY](#)
[Travel History](#)
[Shipment Facts](#)

Travel History

TIME ZONE
Local Scan Time



Wednesday, December 22, 2021

3:39 PM

WESTBOROUGH, MA

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1:58 PM

Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER

775582727989

SERVICE

FedEx Priority Overnight

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1 lbs / 0.45 kgs

TOTAL PIECES

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TOTAL SHIPMENT WEIGHT

1 lbs / 0.45 kgs

TERMS

Shipper

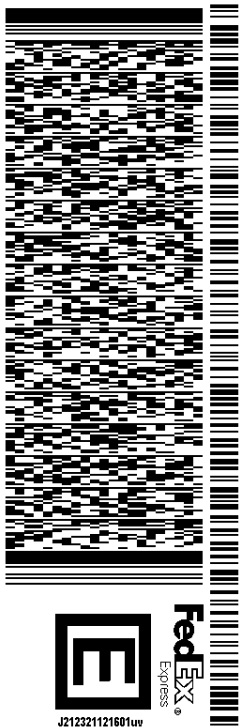
ORIGIN ID:BFBA (508) 614-0389
RICK WOODS
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 22DEC21
ACTWGT: 1.00 LB
CAD: 105843304/NET4400
BILL SENDER

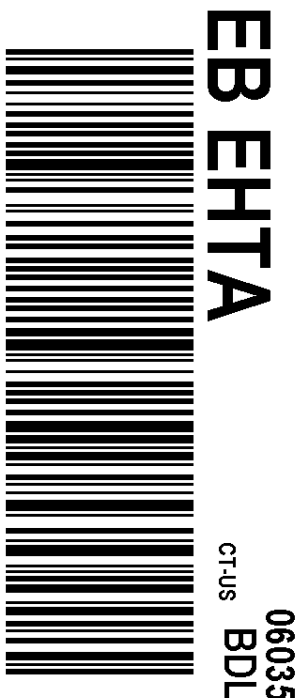
TO
JOEL KILTON
GRANBY TOWN HALL
BUILDING OFFICIAL & ZONE OFFICER
15 NORTH GRANBY RD.
GRANBY CT 06035

(508) 251-0720 X 3807 REF: 105692009-6089
INV/ PO: DEPT:

56DJ3IE934/FE4A



TRK# 7755 8274 6252 THU - 23 DEC 11:30A
0201 PRIORITY OVERNIGHT



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

TO
Joel Kilton
Granby Town Hall
Building Official & Zone Officer
15 North Granby Rd.
GRANBY, CT US 06035
508-251-0720

[MANAGE DELIVERY](#)

Travel History

Shipment Facts

Travel History

TIME ZONE
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Wednesday, December 22, 2021

3:39 PM

WESTBOROUGH, MA

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1:59 PM

Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER
775582746252

SERVICE
FedEx Priority Overnight

WEIGHT
1 lbs / 0.45 kgs

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
1 lbs / 0.45 kgs

TERMS
Shipper

ORIGIN ID:BFBA (508) 614-0389
RICK WOODS
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 22DEC21
ACTWGT: 1.00 LB
CAD: 105843304/NET4400
BILL SENDER

TO JOHN & DEBORAH LOMBARDI
150 LOST ACRES RD
NORTH GRANBY CT 06060

(508) 251-0720 X 3807 REF: 105692009-6089
INV: PO: DEPT:



TRK# 0201 7755 8276 8875
THU - 23 DEC 11:30A
PRIORITY OVERNIGHT

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CT:US BDL

56DJ3IE934/FE4A

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Thursday, 12/23/2021 before 1:00 pm



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

TO
John & Deborah Lombardi
150 Lost Acres Rd
NORTH GRANBY, CT US 06060
508-251-0720

[MANAGE DELIVERY](#)

Travel History

Shipment Facts

Travel History

TIME ZONE
Local Scan Time



Wednesday, December 22, 2021

3:39 PM

WESTBOROUGH, MA

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2:00 PM

Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER
775582768875

SERVICE
FedEx Priority Overnight

WEIGHT
1 lbs / 0.45 kgs

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
1 lbs / 0.45 kgs

TERMS
Shipper

EXHIBIT 4

Property Card

150 LOST ACRES RD

Location 150 LOST ACRES RD

Mblu C-20/ 6/ 82/ /

Acct# 09000150

Owner LOMBARDI JOHN G &

Assessment \$198,310

Appraisal \$283,300

PID 1748

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$215,000	\$68,300	\$283,300

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$150,500	\$47,810	\$198,310

Owner of Record

Owner LOMBARDI JOHN G &

Sale Price \$0

Co-Owner LOMBARDI DEBORAH LINDSEY

Certificate

Address 150 LOST ACRES RD

Book & Page 414/0219

NORTH GRANBY, CT 06060

Sale Date 07/12/2016

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
LOMBARDI JOHN G &	\$0		414/0219	07/12/2016
LOMBARDI JOHN G &	\$260,000		336/ 706	09/13/2006
KEMP MARGARET W	\$0		251/0786	07/06/2001
KEMP MARGARET W	\$0		166/0026	01/26/1990
KEMP GEORGE L & MARGARET W	\$0		097/0655	05/06/1976

Building Information

Building 1 : Section 1

Year Built: 1953

Living Area: 2,295

Replacement Cost: \$217,402

Building Percent Good: 70

Replacement Cost

Less Depreciation: \$152,200

Building Attributes

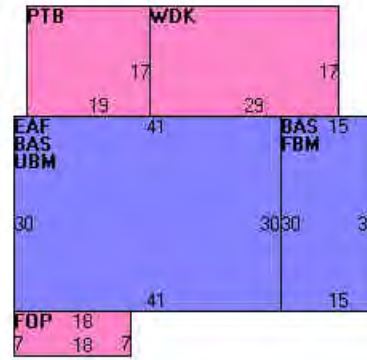
Field	Description
Style	Cape Cod
Model	Residential
Grade:	Average
Stories:	1 1/4 Stories
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Plastered
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Carpet
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	6 Bedrooms
Total Bthrms:	2
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	9 Rooms
Bath Style:	Average
Kitchen Style:	Average
Extra Kitchens	
Solar Panels	

Building Photo



(<http://images.vgsi.com/photos2/GranbyCTPhotos/\00\01\16\17.jpg>)

Building Layout



(http://images.vgsi.com/photos2/GranbyCTPhotos//Sketches/1748_1748.jp)

Building Sub-Areas (sq ft)			Legend	
Code	Description	Gross Area	Living Area	
BAS	First Floor	1,680	1,680	
EAF	Attic, Expansion, Finished	1,230	615	
FBM	Basement, Finished	450	0	
FOP	Porch, Open	126	0	
PTB	Patio, Brick	323	0	
UBM	Basement, Unfinished	1,230	0	
WDK	Deck, Wood	493	0	
		5,532	2,295	

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
FPL2	FIREPLACE 1.5 ST	1 UNITS	\$2,300	1

Land**Land Use**

Use Code 1010
Description Single Fam M01
Zone R2A
Neighborhood 400
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 1.22
Frontage 0
Depth 0
Assessed Value \$47,810
Appraised Value \$68,300

Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FGR1	GARAGE-AVE			400 S.F.	\$5,800	1
SHP5	W/IMPROV GOOD			360 S.F.	\$10,800	1
FN3	FENCE-6' CHAIN			240 L.F.	\$2,900	1
SHP5	W/IMPROV GOOD			240 S.F.	\$7,200	1
CELL	CELL TOWER			1 UNITS	\$33,800	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$215,000	\$68,300	\$283,300
2019	\$215,000	\$68,300	\$283,300
2018	\$215,000	\$68,300	\$283,300

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$150,500	\$47,810	\$198,310
2019	\$150,500	\$47,810	\$198,310
2018	\$150,500	\$47,810	\$198,310

EXHIBIT 5

Property Map

Google Maps 150 Lost Acres Rd



Map data ©2021 500 ft



150 Lost Acres Rd

North Granby, CT 06060

Building



Directions



Save



Nearby



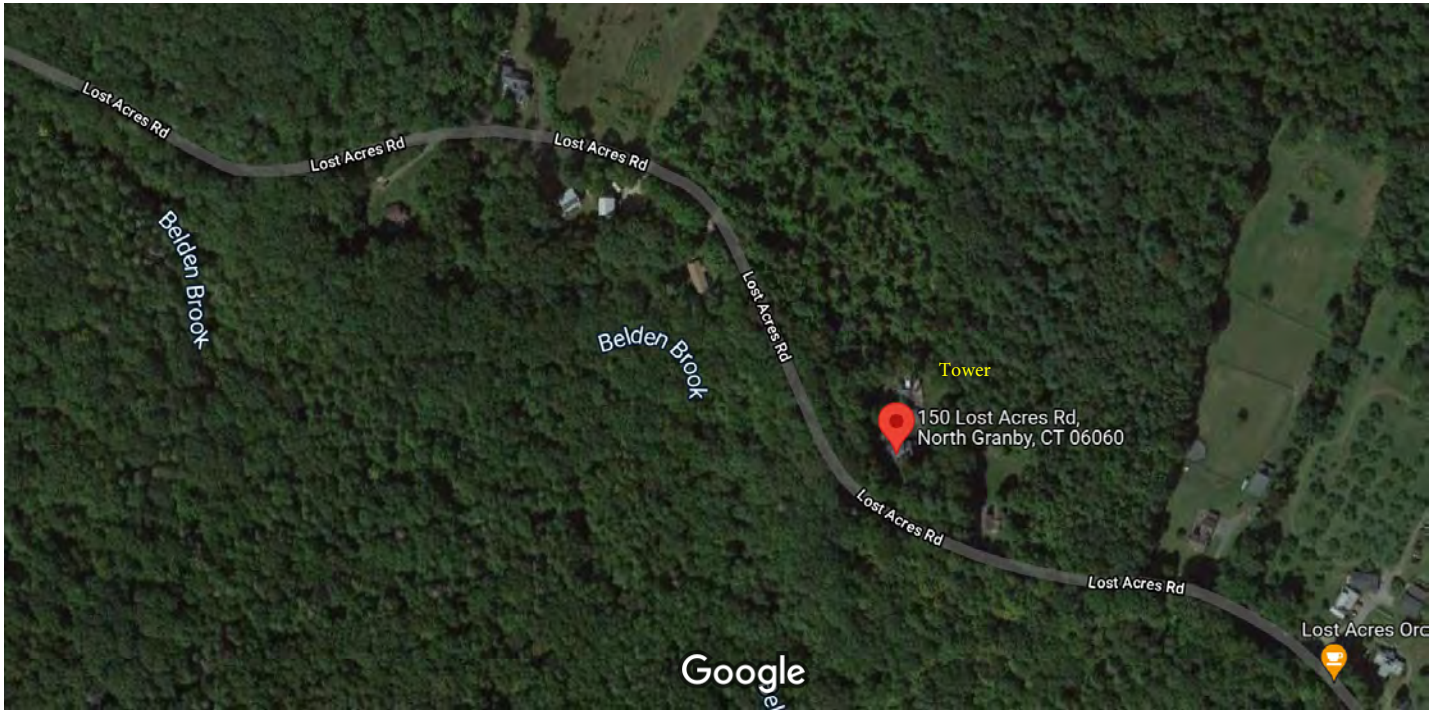
Send to your phone



Share

Photos





Imagery ©2021 MassGIS, Commonwealth of Massachusetts EOE, Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2021

200 ft



150 Lost Acres Rd

Building



Directions



Save



Nearby



Send to your phone



Share



150 Lost Acres Rd, North Granby, CT 06060

Photos



EXHIBIT 6

Zoning Approval

SITE NAME: NORTH GRANBY SITE ID: CT10017-A

Transaction: Mariner Tower

ZONING/PERMITTING COMPLETION FORM

Address: 150 Lost Acres Road, North Granby, CT

Jurisdiction: Town of Granby (time tower constructed) Zoning District: _____
Connecticut Siting Council (currently)

Zoning Approval Type: Planning & Zoning Commission approval Case #: _____

Approval Date: 5/12/98 (original) Approved Height: 150 Tower Build Date: 2002
11/12/02 (rebuild)

If tower is destroyed or drop/swap required, tower can likely be rebuilt? YES NO

Conditions of Approval:	Yes	No	N/A
Removal Bond _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Site Plan Submittal _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fall Zone _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Periodic Inspections _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Periodic Reporting _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Approval Renewal _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Additional Conditions _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Cell towers currently fall under complete jurisdiction of Connecticut Siting Council (CSD).

Tower build pre-dates CSC & obtained Town of Granby zoning approvals. No CSC Review on this tower & no Cert. of Environmental Compatibility & Public Need issued. Any modifications/collocations must go through CSC Review.

JURISDICTION POC/DEPT.

Planning/Zoning: Fran Armentano (Town of Granby)

Phone: 860-844-5319 Fax: _____

Bldg./Code Enforcement: Henry Miga

Phone: 860-844-5318 Fax: 860-844-5325

Submitted by: *Patches Lantis* Date: 2/4/08
Zoning Compliance

TO BE COMPLETED BY CORPORATE

	Yes	No	N/A	
Zoning Approval Attached (required)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Re</i>
Ordinance Attached (required)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Building Permit Attached (required)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Date Recd</u>
_____ 19338 _____				<u>7/20/98</u>
Certificate of Occupancy or Compliance (CO) attached (required)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>4/17/07</u>
_____ FINAL _____				

Zoning Manager Approval: *Diane E. Borchardt* Date 2/4/2008
Diane E. Borchardt, AICP

PLANNING & ZONING COMMISSION
Town of Granby
Minutes
May 12, 1998

Present: Paula Johnson, Chairwoman, Put Brown, Margaret Chapple, Charles Kraiza, Eric Lukingbeal, John Morgan, Fred Wilhelm. Francis Armentano, Director of Community Development and Ed Sweeney, Town Engineer.

The meeting opened at 7:06 p.m.

Public session: There was no public comment.

ON A MOTION by Put Brown, seconded by Fred Wilhelm, the Commission voted to approve the minutes of April 28, 1998. All approved. Margaret Chapple and Eric Lukingbeal abstained.

A The Commission held an informal public information session and continuation of a discussion of the proposed reconstruction of a communications tower at 150 Lost Acres Road. Mr. Wayne Kemp, business owner and the Zoning Enforcement Officer are seeking a determination regarding the non-conforming use of the property. The use of the property by Kemp Communications predates the current Zoning prohibitions of this type of commercial use within residential zones. At issue is whether the replacement of the existing tower with a new modern design, of the same height and with supporting accessory components is a illegal extension of the use or a permissible intensification of the use. Notices of the hearing were sent throughout the Lost Acres Road area. An abutting neighbor questioned the maintenance of the tower and if the proposed changes would increased traffic to the area. A resident commented that the existing tower is not visible from the road. The public information session was closed as no further comments were forthcoming.

The Commission opened a continuation of a discussion with Ed Lally, Engineer, representing Tom Fredo Builders, regarding the development of property located on Mountain Road, FRD subdivision. Fred Wilhelm and Put Brown abstained from any discussion. Mr. Lally continued to discuss the evolving design of the proposed development. Mr. Lally outlined property which could be donated to the Granby Land Trust, Homeowners Association and the Town of Granby, sequence of the building plan and schedule, landscaping, road elevation and grade. Mr. Lally also discussed the elimination of lots, changed lot numbers, storm water management, private drives and easements, driveway drains, fire pond and road entrance plans. Mr. Lally invited the members to walk the site. The public questioned various aspects of the proposal including increased traffic, trucks, the need for a public works facility, the preservation of ridge lines, driveways and future access to abutting property. One abutter expressed his displeasure for the location of the proposed new road, which would make his property a corner lot. The public hearing is set for May 26, 1998. Commission members intend to walk the property before the next meeting.

Page 2 PZC 11/12/02

379

PZC

Page 3

5-12-98

A
ON A MOTION by Fred Wilhelm, seconded by Put Brown, the Commission voted to inform the Zoning Enforcement Officer that, based on their review of the matter, the proposed replacement of the existing tower at 150 Lost Acres Road with a new modern design, of the same height and with supporting accessory components is a permissible intensification of the use. The vote was 4-2. Paula Johnson, Put Brown, John Morgan, Fred Wilhelm approved. Margaret Chapple and Eric Lukingbeal opposed.

The meeting adjourned at 9:50 p.m.

Respectfully submitted,

Dorcus S. Forsyth
Recording Secretary

Location	150	Lost Acres Road	Inspector	Henry Miga
Permit			Status	Pass
Date	12/20/2001	Time	Type	Electrical
Description	electric service			

Location	150	Lost Acres Road	Inspector	Henry Miga
Permit			Status	Pass
Date	9/28/1998	Time	Type	Footing
Description				

Location	150	Lost Acres Road	Inspector	Henry Miga
Permit			Status	Pass
Date	4/17/2007	Time	Type	Other
Description	final approval of cell tower			

PHONE (203) 653-8945
FAX (203) 653-4769

TOWN OF GRANBY
PERMIT APPLICATION

15 NORTH GRANBY ROAD
Granby, CT 06035

PROPERTY ADDRESS 150 Lost Acres Rd.

EST. COST OF JOB 37,000 COST OF PERMIT 944 CHECK# 0273 RCPT# 6499 BLANKET _____

TYPE OF PERMIT: BUILDING MECHANICAL PLUMBING ELECTRICAL OTHER

DESCRIPTION OF WORK: Build 30x30^{ft} Garage - Install new electric service
Replace Existing Tower

NEW HOME ADDITION ROOF SIDING POOL DECK SHED

BUILDING OFFICIAL COMMENTS: Min. 30' TO SIDE & 50' TO REAR

OWNER(S) <u>Margaret W. Kemp</u>	CONTRACTOR <u>Wayne Kemp</u>
ADDRESS <u>150 Lost Acres Rd</u>	ADDRESS <u>1050 Buckley Highway</u>
TOWN <u>North Granby</u> ST <u>CT</u> ZIP <u>06060</u>	TOWN <u>Union</u> ST <u>CT</u> ZIP <u>06076</u>
HOME PHONE # <u>653-6097</u> WORK PHONE # _____	LICENSE # _____ WORK PHONE # <u>684-3060</u>

AFFIDAVIT AND AGREEMENT

I HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY WHICH IS THE SUBJECT OF THIS APPLICATION OR THE AUTHORIZED AGENT OF THE PROPERTY OWNER; I AGREE TO CALL AT LEAST 24 HRS. IN ADVANCE FOR EACH INSPECTION INDICATED ON THE PERMIT; I AGREE TO UNCOVER AND EXPOSE ANY WORK WHICH IS COVERED OR CONCEALED WITHOUT INSPECTOR'S APPROVAL; I UNDERSTAND THAT WHEN A PERMIT IS ISSUED IT GRANTS NO RIGHT TO VIOLATE ANY CODE, ORDINANCE OR STATUTE, REGARDLESS OF WHAT MAY BE SHOWN OR OMITTED ON THE APPROVED PLANS AND SPECIFICATIONS AND REGARDLESS OF ANY AGREEMENT WITH ANY OFFICIAL.

I HAVE READ AND AGREE TO ALL THE ABOVE

SIGNATURE: Wayne Kemp DATE: 7-20-98

TOWN OF GRANBY BUILDING PERMIT

DATE ISSUED 7/20/98 BUILDING PERMIT # 19338

DATE CLOSED _____

[Signature]
BUILDING OFFICIAL SIGNATURE

** OTHER APPROVALS OR PERMITS REQUIRED **

FIRE MARSHAL FVHD WETLANDS DRIVEWAY P&Z ZBA ZONING TAX
WATER SEWER

REQUIRED INSPECTIONS

- | | |
|------------------------------------------------------------------------------|------------------------------------------------------|
| <input checked="" type="checkbox"/> FOOTING (FORMS IN PLACE BEFORE CONCRETE) | <input type="checkbox"/> ROUGH FRAME/MECHANICALS |
| <input type="checkbox"/> DAMPPROOF/DRAINS | <input type="checkbox"/> INSULATION |
| <input type="checkbox"/> INGROUND MECHANICALS | <input type="checkbox"/> DRIVEWAY |
| <input type="checkbox"/> FIREPLACE/THROAT | <input checked="" type="checkbox"/> FINAL INSPECTION |
| <input type="checkbox"/> CERTIFICATE OF OCCUPANCY | |

** THIS PERMIT IS NOT VALID UNLESS PERTINENT INFORMATION IS ATTACHED **

PHONE (860) 653-8945 FAX (860) 653-4769	TOWN OF GRANBY PERMIT APPLICATION	15 NORTH GRANBY ROAD Granby, CT 06035
--------------------------------------------	--------------------------------------	------------------------------------------

PROPERTY ADDRESS 150 LOST ACRES Rd.
 EST. COST OF JOB 2800.00 COST OF PERMIT 36.⁰⁰ CHECK# 5553 RCPT# 6359 ✓

TYPE OF PERMIT: BLANKET () NON-BLANKET ()
 BUILDING () HEATING () PLUMBING () ELECTRICAL OTHER ()

DESCRIPTION OF WORK: WIRING FOR NEW 4 METER ^{LOOP} / DISCONNECT
POWER FOR COMMUNICATION COMPANIES

NEW HOME () ADDITION () ROOF () SIDING () POOL () DECK () SHED () OTHER

BUILDING OFFICIAL
COMMENTS:

OWNER(S) <u>NEW ENGLAND SITE MANAGEMENT</u>	CONTRACTOR <u>ASHMORE ELECTRIC INC.</u>
ADDRESS <u>1515 NORTH STONE RD.</u>	ADDRESS <u>173 HARTFORD AVE.</u>
TOWN <u>SUFFIELD</u> ST <u>CT.</u> ZIP	TOWN <u>EAST GRANBY</u> ST <u>CT.</u> ZIP <u>06026</u>
HOME PHONE # <u>668-6208</u>	LICENSE # <u>125326</u> WORK PHONE # <u>653-6320</u>

AFFIDAVIT AND AGREEMENT

I HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY WHICH IS THE SUBJECT OF THIS APPLICATION OR THE AUTHORIZED AGENT OF THE PROPERTY OWNER; I AGREE TO CALL AT LEAST 24 HRS. IN ADVANCE FOR EACH INSPECTION INDICATED ON THE PERMIT; I AGREE TO UNCOVER AND EXPOSE ANY WORK WHICH IS COVERED OR CONCEALED WITHOUT INSPECTOR'S APPROVAL; I UNDERSTAND THAT WHEN A PERMIT IS ISSUED IT GRANTS NO RIGHT TO VIOLATE ANY CODE, ORDINANCE OR STATUTE, REGARDLESS OF WHAT MAY BE SHOWN OR OMITTED ON THE APPROVED PLANS AND SPECIFICATIONS AND REGARDLESS OF ANY AGREEMENT WITH ANY OFFICIAL.

I HAVE READ AND AGREE TO ALL THE ABOVE

SIGNATURE: Joseph Ashmore DATE: 12/14/01

TOWN OF GRANBY BUILDING PERMIT

DATE ISSUED 12/19/01 BUILDING PERMIT # 22613

DATE CLOSED _____

[Signature]
BUILDING OFFICIAL SIGNATURE

**** OTHER APPROVALS OR PERMITS REQUIRED ****

FIRE MARSHAL () FVHD () WETLANDS () DRIVEWAY () P&Z () ZBA () ZONING () TAX ()
 WATER () SEWER ()

REQUIRED INSPECTIONS

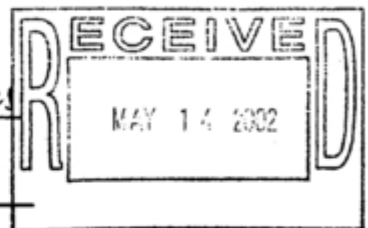
- | | |
|----------------------------------------------|-----------------------------|
| () FOOTING (FORMS IN PLACE BEFORE CONCRETE) | () ROUGH FRAME/MECHANICALS |
| () DAMPPROOF/WATERPROOF/DRAINS | () INSULATION |
| () INGROUND MECHANICALS | () DRIVEWAY |
| () FIREPLACE/THROAT | () FINAL INSPECTION |
| () CERTIFICATE OF OCCUPANCY | |

**** THIS PERMIT IS NOT VALID UNLESS PERTINENT INFORMATION IS ATTACHED ****

Pd
\$20.00
chk # 3557
rec # 0157

TOWN OF GRANBY
PERMIT FOR EXCAVATION
WITHIN
TOWN RIGHT-OF-WAY

Permit Fee: \$20.00
Permit # _____



Nature of Work: Road Crossing for Utilities

Location: 150 Lost Acres Rd.

Start Date: A.S.A.P. Completion Date: _____

Contractor: Copper Hill Exc. LLC

Address: Po Box 246 Suffield CT.

Phone: 860-668-7171

Permission Granted: Yes No

By: James Klase

Title: Public Works Superint. Date: 5-17-02

- ✓ Please note that you must contact Call Before You Dig at 1(800) 922-4465, before you start work.
- ✓ The Town may require a plan of the construction before issuing the permit.
- ✓ Construction, which is done in conjunction with a Building Permit, may be exempt from this permit.
- ✓ All contractors shall have a minimum \$1,000 bond, or a bond in an amount as directed by the Town Engineer.

AVON
BARKHAMSTED
CANTON
COLEBROOK
EAST GRANBY
FARMINGTON
GRANBY
HARTLAND
NEW HARTFORD
SIMSBURY



christie
FARMINGTON VALLEY HEALTH DISTRICT
Susan

FEE: \$25.00

50 SIMSBURY ROAD, AVON, CONNECTICUT 06001 Telephone (860) 676-1953 Fax (860) 676-2131 800# 1-800-908-FVHD

APPLICATION FOR LOCATION APPROVAL/ADDITION

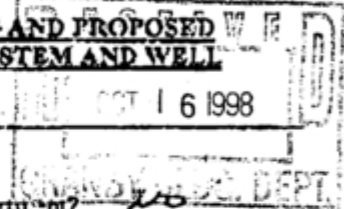
PROPERTY OWNER: Margaret W. Kemp PHONE # (H): 653-6097

ADDRESS: 150 Lost Acres Rd. N. Granby CT (W): _____

CONTRACTOR: Wayne Kemp PHONE #: 860-614-3060

YOU MUST PROVIDE A PLAN OR A SKETCH SHOWING THE EXISTING AND PROPOSED STRUCTURES AND THEIR SEPARATING DISTANCES TO THE SEPTIC SYSTEM AND WELL

I. TYPE OF ADDITION: Garage
Detached Building? YES NO Plumbing: YES NO



Size of addition: 28X28 Garage Is this an Accessory Apartment? no

Number of rooms in addition: 1 Use of rooms: Garage & Equip Storage

Number of bedrooms in existing home: _____ Number of bedrooms after addition: _____

Please check: Full foundation Craw Space Slab Piers None Footing Drains: Yes No

II. SWIMMING POOL

Please check: In-ground Above ground Deck provided Yes No

Type of filter system: _____

Filter backwash & pool water discharge to: _____

III. DISTANCE BETWEEN ADDITION AND/OR POOL AND:

Septic system: 17 ft. (NA if sewers) Well: 70 ft. (NA if public water)

Size of septic tank: 1,000 gallons; Please check: concrete metal

SIGNED: Wayne Kemp DATE: 10-13-98

I certify that I am the owner or the owners contractual representative and that the information above is accurate to the best of my knowledge and that I have received the attached information sheet.

FOR OFFICE USE ONLY: Soil testing required? 110 Date of tasting: _____ Observed By: _____
THE FVHD ASSUMES NO RESPONSIBILITY OF THE PRESENT OR FUTURE OPERATION OF THE SEPTIC SYSTEM OR FOR ANY DAMAGE TO THE SEPTIC SYSTEM CAUSED BY THE NEW CONSTRUCTION OR ANY NECESSARY TESTING.

APPROVED BY: Justin M. Halpin DATE: 10/15/98

NOTES:
D:\np\sew\test\of\formal\app\1.60.979

EXHIBIT 7

EME Report

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

Dish Wireless Existing Facility

Site ID: BOBDL00125A

BOBDL00125A
150 Lost Acres Road
Granby, Connecticut 06035

December 20, 2021

EBI Project Number: 6221007646

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	5.66%

December 20, 2021

Dish Wireless

Emissions Analysis for Site: BOBDL00125A - BOBDL00125A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **150 Lost Acres Road in Granby, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ 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 ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is $1000 \mu\text{W}/\text{cm}^2$. 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 antenna facility located at 150 Lost Acres Road in Granby, 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 140 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 #:	I	Antenna #:	I	Antenna #:	I
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):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 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 AI MPE %:	1.32%	Antenna BI MPE %:	1.32%	Antenna CI MPE %:	1.32%

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	1.32%
Verizon	1.9%
AT&T	2.44%
Site Total MPE % :	5.66%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.32%
Dish Wireless Sector B Total:	1.32%
Dish Wireless Sector C Total:	1.32%
Site Total MPE % :	5.66%

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 ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	140.0	1.79	600 MHz n71	400	0.45%
Dish Wireless 1900 MHz n70	4	542.70	140.0	4.35	1900 MHz n70	1000	0.43%
Dish Wireless 2190 MHz n66	4	542.70	140.0	4.35	2190 MHz n66	1000	0.43%
						Total:	1.32%

• 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:	1.32%
Sector B:	1.32%
Sector C:	1.32%
Dish Wireless Maximum MPE % (Sector A):	1.32%
Site Total:	5.66%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **5.66%** 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 170 ft Rohn Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT10017-A

Customer Site Name: North Granby

Carrier Name: Dish Wireless (App#: 167824-2)

Carrier Site ID / Name: BOBDL00125A / 0

Site Location: 150 Lost Acres Road

North Granby, Connecticut

Hartford County

Latitude: 42.009600

Longitude: -72.866544

Exp.10/31/2021



09/22/2021

Analysis Result:

Max Structural Usage: 96.1% [Pass]

Max Foundation Usage: 75.0% [Pass]

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

Report Prepared By: Mohammed Al Rubaye

Introduction

The purpose of this report is to summarize the analysis results on the 170 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	Roh, Eng File # 37696Mp Dated 08/03/1998
Foundation Drawing	N/A
Geotechnical Report	N/A
Modification Drawings	Extension Drawings by FDH, Project # 09-07094E S2 Dated 10/23/2009 PCI by FDH, Project # 09-07094E S2 Dated 01/06/2010

Analysis Criteria

The feasibility 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 $V_{ult} = 120.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 93.0$ 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
Seismic Parameters:	$S_s = 0.176$, $S_1 = 0.065$

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	170.0	3	Cci DMP65R-BU8DA Panel	(3) T-Frames w/Modifications	(7) 1 5/8" (3) 3/8" RET (1) 3" Conduit Housing (2) 3/4" DC and (1) 7/16" Fiber (2) 3" Conduit Housing (3) 1" DC and (1) 7/16" Fiber	AT&T
2		3	Powerwave 7770 Panel			
3		3	Cci OPA65R-BU8DA Panel			
4		6	Powerwave TT08-19DB111-001 TMA			
5		3	Ericsson 4449 B5/B12 RRU			
6		3	Ericsson RRUS 8843 B2 B66A RRU			
7		1	Raycap DC6-48-60-18-8F - OVP			
8		1	Raycap DC9-48-60-24-8C-EV - OVP			
9		3	Andrew ABT-DF-DMADBH Bias-T			
10	160.0	1	Antel BXA-70063-4CF Panel	(3) T-Frames	(12) 1 5/8" (1) 1/2"	Verizon
11		3	Antel BXA-171085-12BF Panel			
12		2	Antel BXA-70063-6CF Panel			
13		4	Antel LPA-80063/4CF Panel			
14		2	Antel LPA-80080/6CF Panel			
15		1	GPS			
16		6	RFS FD9R6004/2C-3L Diplexer			
17	150.0	3	RFS - APX16DWV-16DWVS-E-A20 - Panel	(3) Sitepro VFA12-HD	(3) 1.9" Fiber	T-Mobile
18		3	RFS - APXVAALL24_43-U-NA20 - Panel			
19		3	Ericsson - AIR6449 B41 - Panel			
20		3	Ericsson 4460 B25 + B66			
21		3	Ericsson 4480 B71 + B85			

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
22	140.0	3	JMA Wireless MX08FRO665-21 - Panel	(3) Platform w/HRK Commscope MTC3975083	(1) 1.6" Hybrid	Dish Wireless
23		3	Fujitsu TA08025-B604 - RRU			
24		3	Fujitsu TA08025-B605 - RRU			
25		1	Raycap RDIDC-9181-PF-48 - 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:	96.1%	74.1%	24.1%
Pass/Fail	Pass	Pass	Pass

Foundations

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Original Design Reactions	240.1	214.2	28.5
Analysis Reactions	243.1	206.9	24.6
Factored Reactions*	324.1	289.2	38.5
% of Design Reactions	75.0%	71.6%	64.0%

* 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.

No foundation drawing or geotechnical report is available for the analysis of the existing foundation. Since the reactions calculated from the current analysis are less than those indicated on the original structural design drawing, the foundations are assumed to be adequate to resist the reactions from the current analysis.

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 0.3237 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: CT10017-A-SBA

Site Name: North Granby	Code: EIA/TIA-222-G	9/22/2021
Type: Self Support	Base Shape: Triangle	Basic WS: 93.00
Height: 170.00 (ft)	Base Width: 20.96	Basic Ice WS: 50.00
Base Elev: 0.00 (ft)	Top Width: 6.58	Operational WS: 60.00



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Section Properties

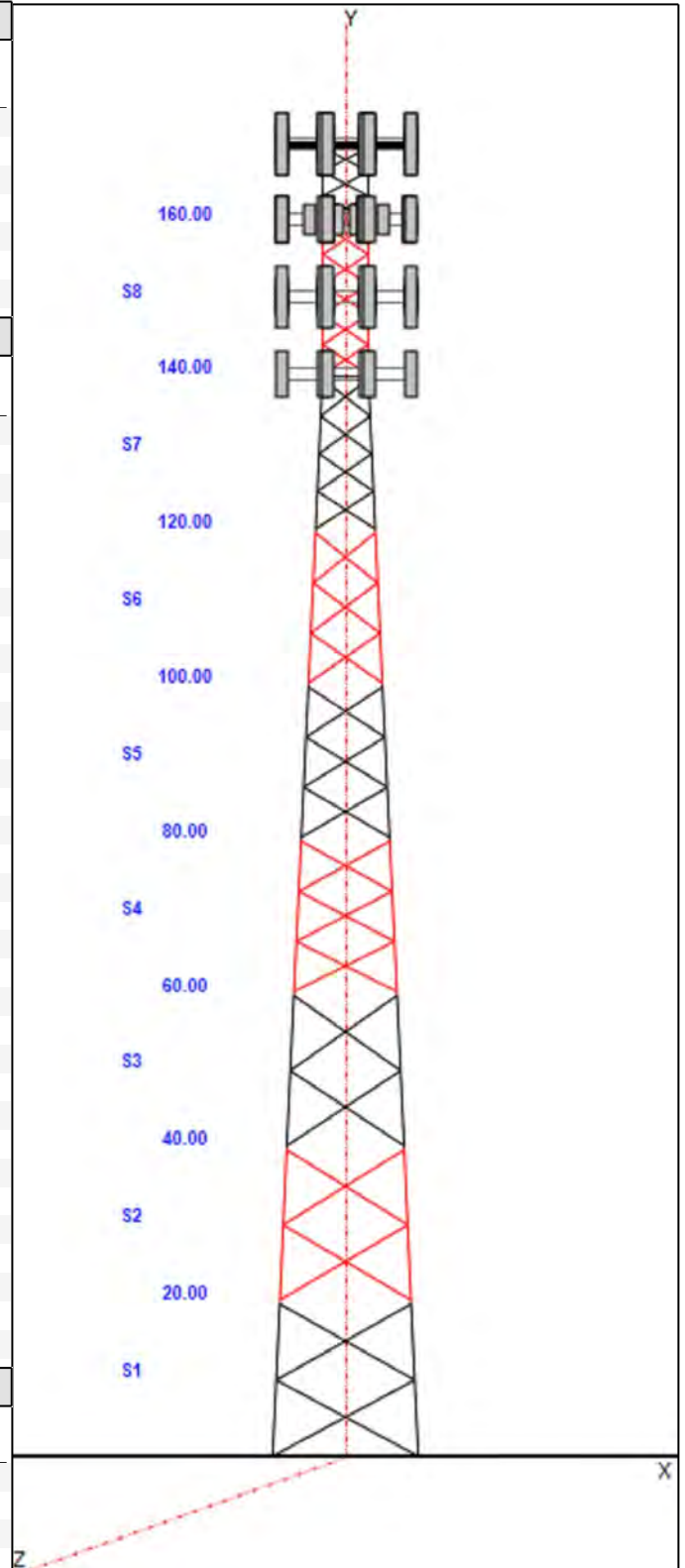
Sect	Leg Members	Diagonal Members	Horizontal Members
1-2	PX 6" DIA PIPE	SAE 3.5X3.5X0.25	
3	PSP ROHN 6 EHS	SAE 3.5X3.5X0.25	
4	PX 5" DIA PIPE	SAE 3X3X0.25	
5	PX 4" DIA PIPE	SAE 2.5X2.5X0.1875	
6	PX 3-1/2" DIA PIPE	SAE 2.5X2.5X0.1875	
7	PST 3" DIA PIPE	SAE 2X2X0.1875	SAE 2X2X0.1875
8-9	PST 2-1/2" DIA PIPE	SAE 1.75X1.75X0.1875	SAE 1.75X1.75X0.1875

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
170.00	170.00	1	6' Lightning rod
170.00	170.00	1	Beacon
170.00	170.00	3	DMP65R-BU8DA
170.00	170.00	3	7770.00
170.00	170.00	3	OPA65R-BU8DA
170.00	170.00	6	TT08-19DB111-001
170.00	170.00	3	4449 B5/B12
170.00	170.00	3	B2 B66A 8843
170.00	170.00	1	DC6-48-60-18-8F
170.00	170.00	1	DC9-48-60-24-8C-EV
170.00	170.00	3	ABT-DMDF-ADBH
170.00	170.00	3	T-Frames
170.00	170.00	1	(3) 12.5' - 2" Horizontal Pipe
170.00	170.00	2	(3) Stabilizer Kit (12' FW)
160.00	160.00	3	T-Frames
160.00	160.00	1	BXA-70063-4CF-EDIN-10
160.00	160.00	3	BXA-171085-12BF-EDIN-X
160.00	160.00	2	BXA-70063-6CF-EDIN-X
160.00	160.00	4	LPA-80063/4CF
160.00	160.00	2	LPA-80080/6CF
160.00	160.00	1	GPS
160.00	160.00	6	FD9R6004/2C-3L 3.1#
150.00	150.00	3	APX16DWV-16DWVS-E-A20
150.00	150.00	3	APXVAALL24_43-U-NA20
150.00	150.00	3	AIR6449 B41
150.00	150.00	3	4460 B25 + B66
150.00	150.00	3	4480 B71 + B85
150.00	150.00	1	(3) VFA12-HD
140.00	140.00	3	JMA Wireless MX08FRO665-21
140.00	140.00	3	Fujitsu TA08025-B604
140.00	140.00	3	Fujitsu TA08025-B605
140.00	140.00	1	Raycap RDIDC-9181-PF-48
140.00	140.00	1	(3) Commscope MTC3975083

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
0.00	170.00	7	1 5/8" Coax
0.00	170.00	3	1" DC
0.00	170.00	3	3" Conduit
0.00	170.00	2	3/4" DC
0.00	170.00	3	3/8" RET
0.00	170.00	2	7/16" Fiber



Structure: CT10017-A-SBA

Site Name: North Granby	Code: EIA/TIA-222-G	9/22/2021
Type: Self Support	Base Shape: Triangle	Basic WS: 93.00
Height: 170.00 (ft)	Base Width: 20.96	Basic Ice WS: 50.00
Base Elev: 0.00 (ft)	Top Width: 6.58	Operational WS: 60.00



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0.00	170.00	1	W/G Ladder
0.00	160.00	12	1 5/8" Coax
0.00	160.00	1	1/2" Coax
0.00	160.00	1	W/G Ladder
0.00	150.00	3	1.9" Fiber
0.00	140.00	1	1.6" Hybrid
0.00	140.00	1	W/G Ladder

Base Reactions

	Leg		Overturning
Max Uplift:	-206.91 (kips)	Moment:	4133.04 (ft-kips)
Max Down:	243.10 (kips)	Total Down:	46.24 (kips)
Max Shear:	24.61 (kips)	Total Shear:	39.61 (kips)

Structure: CT10017-A-SBA

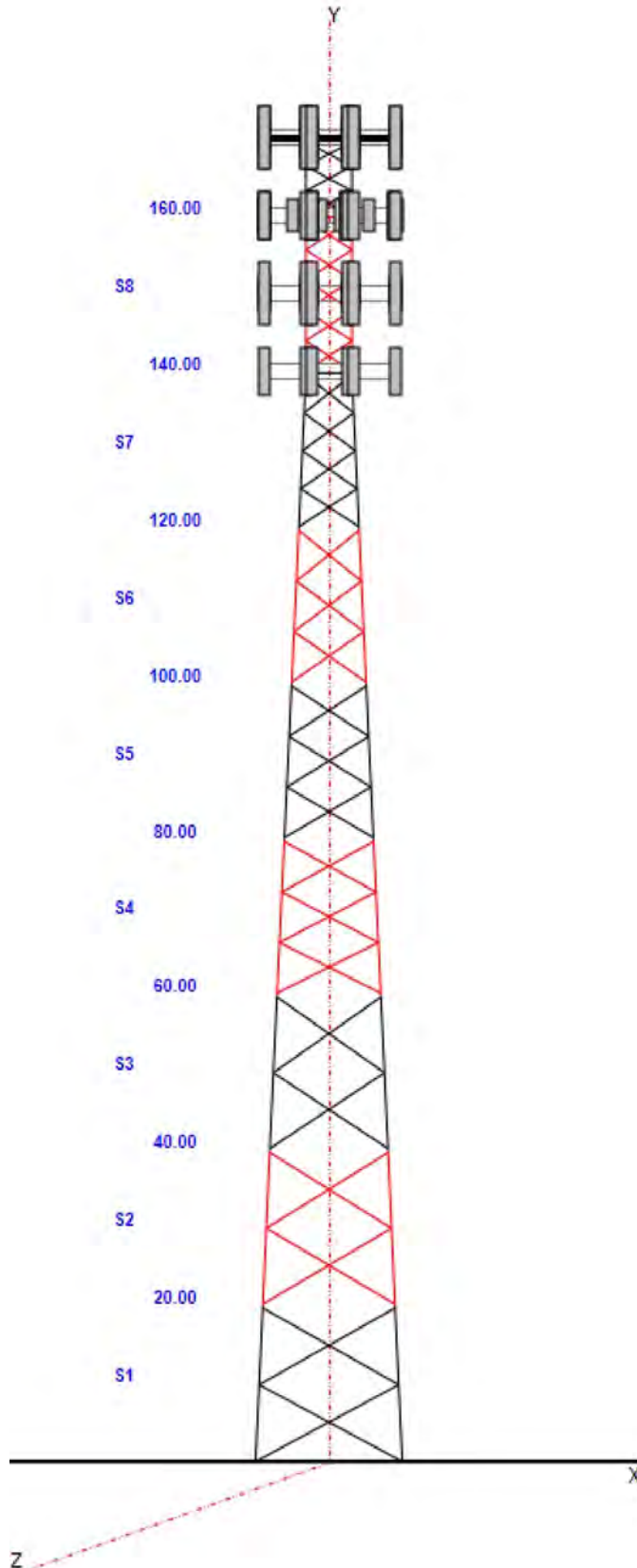
Site Name: North Granby
Type: Self Support
Height: 170.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: Triangle
Base Width: 20.96
Top Width: 6.58

Code: EIA/TIA-222-G
Basic WS: 93.00
Basic Ice WS: 50.00
Operational WS: 60.00

9/22/2021

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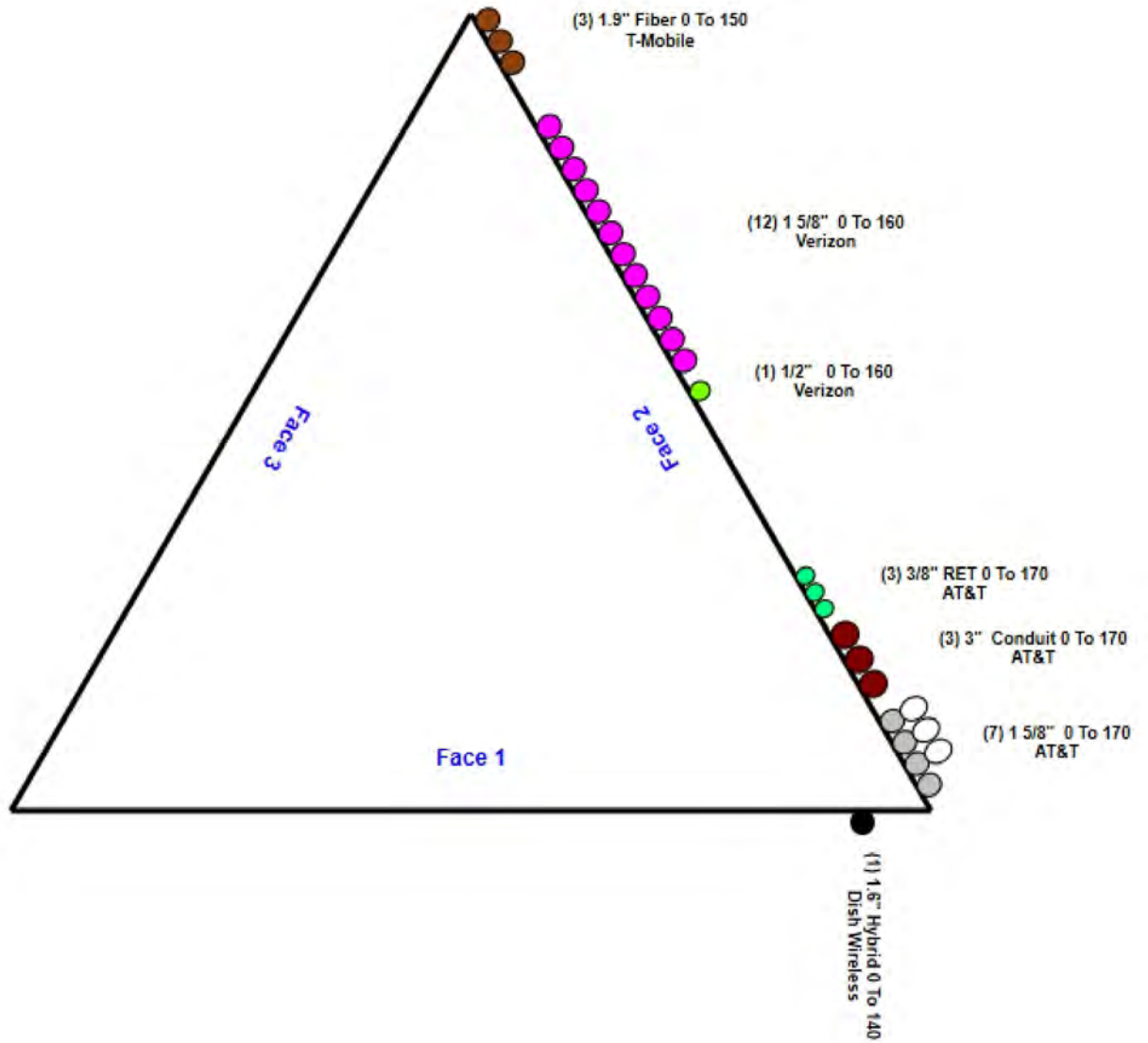
Structure: CT10017-A-SBA - Coax Line Placement

Type: Self Support
Site Name: North Granby
Height: 170.00 (ft)

9/22/2021



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Loading Summary

Structure: CT10017-A-SBA	Code: EIA/TIA-222-G	9/22/2021
Site Name: North Granby	Exposure: B	
Height: 170.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



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Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice		Ice		Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
			Weight (lb)	CaAa (sf)	Weight (lb)	CaAa (sf)						
170.00	6' Lightning rod	1	6.50	0.380	55.36	1.844	72.000	0.600	0.600	1.00	1.00	0.000
170.00	Beacon	1	36.00	2.720	215.29	3.998	28.000	17.500	17.500	1.00	1.00	0.000
170.00	DMP65R-BU8DA	3	95.70	17.870	714.95	20.288	96.000	20.700	7.700	0.80	0.72	0.000
170.00	7770.00	3	35.00	5.500	231.52	6.967	55.000	11.000	5.000	0.80	0.30	0.000
170.00	OPA65R-BU8DA	3	76.50	17.870	571.51	20.288	96.000	21.000	7.800	0.80	0.72	0.000
170.00	TT08-19DB111-001	6	22.00	0.920	57.83	1.915	14.200	6.700	5.400	0.80	0.75	0.000
170.00	4449 B5/B12	3	71.00	1.970	142.86	2.707	17.900	13.200	9.400	0.80	0.67	0.000
170.00	B2 B66A 8843	3	70.00	1.640	131.90	2.335	15.000	13.200	9.300	0.80	0.67	0.000
170.00	DC6-48-60-18-8F	1	31.80	0.920	115.02	1.510	24.000	11.000	11.000	0.80	1.00	0.000
170.00	DC9-48-60-24-8C-EV	1	26.20	1.140	168.87	3.276	31.400	10.200	18.200	0.80	1.00	0.000
170.00	ABT-DMDF-ADBH	3	1.10	0.050	4.10	0.309	1.700	1.600	3.200	0.80	0.98	0.000
170.00	T-Frames	3	525.00	16.000	1265.01	44.066	0.000	0.000	0.000	0.75	0.75	0.000
170.00	(3) 12.5' - 2" Horizontal Pipe	1	137.25	5.938	317.81	15.981	0.000	0.000	0.000	0.75	1.00	0.000
170.00	(3) Stabilizer Kit (12' FW)	2	180.00	6.100	484.46	14.698	0.000	0.000	0.000	0.75	1.00	0.000
160.00	T-Frames	3	525.00	16.000	1257.99	43.799	0.000	0.000	0.000	0.75	0.75	0.000
160.00	BXA-70063-4CF-EDIN-10	1	9.90	4.720	145.70	7.185	47.400	11.200	5.200	0.80	0.73	0.000
160.00	BXA-171085-12BF-EDIN-X	3	15.00	4.740	141.58	7.873	71.700	6.100	4.100	0.80	0.84	0.000
160.00	BXA-70063-6CF-EDIN-X	2	17.00	7.570	214.73	11.255	71.000	11.200	5.200	0.80	0.73	0.000
160.00	LPA-80063/4CF	4	20.00	6.150	309.76	7.559	47.400	15.200	13.200	0.80	0.93	0.000
160.00	LPA-80080/6CF ____	2	21.00	4.330	298.07	5.952	70.900	5.500	13.200	0.80	0.80	0.000
160.00	GPS	1	10.00	1.000	49.09	1.949	12.000	9.000	6.000	0.80	1.00	0.000
160.00	FD9R6004/2C-3L 3.1#	6	3.10	0.360	13.80	0.951	5.800	6.500	1.500	0.80	0.50	0.000
150.00	APX16DWV-16DWVS-E-A20	3	40.70	6.610	196.78	9.514	55.900	13.300	3.100	0.80	0.62	0.000
150.00	APXVAALL24_43-U-NA20	3	128.00	20.240	709.08	22.805	95.900	24.000	7.800	0.80	0.70	0.000
150.00	AIR6449 B41	3	103.00	5.650	285.83	6.917	33.100	20.500	8.300	0.80	0.71	0.000
150.00	4460 B25 + B66	3	109.00	2.850	204.88	3.749	21.800	15.700	7.500	0.80	0.67	0.000
150.00	4480 B71 + B85	3	93.00	2.850	188.91	3.749	21.800	15.700	7.500	0.80	0.67	0.000
150.00	(3) VFA12-HD	1	2322.0	50.700	5347.78	135.64	0.000	0.000	0.000	0.75	0.75	0.000
140.00	JMA Wireless MX08FRO665-21	3	64.50	12.490	446.82	14.415	72.000	20.000	8.000	0.80	0.74	0.000
140.00	Fujitsu TA08025-B604	3	63.90	1.960	130.45	2.697	15.800	15.000	7.900	0.80	0.67	0.000
140.00	Fujitsu TA08025-B605	3	75.00	1.960	143.75	2.697	15.800	15.000	9.100	0.80	0.67	0.000
140.00	Raycap RDIDC-9181-PF-48	1	21.90	2.010	91.89	2.757	16.600	14.600	8.500	1.00	1.00	0.000
140.00	(3) Commscope MTC3975083	1	1242.0	28.050	2837.45	74.377	0.000	0.000	0.000	0.75	1.00	0.000
Totals:		83	10,784.35		33,311.32						Number of Appurtenances :	33

Loading Summary

Structure: CT10017-A-SBA	Code: EIA/TIA-222-G	9/22/2021
Site Name: North Granby	Exposure: B	
Height: 170.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



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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	170.00	1 5/8" Coax	7	1.98	1.04	50.00	2	Block		N	0.50	1.00	
0.00	170.00	1" DC	3	0.00	1.00	100.00	2	Individual NR		N	1.00	1.00	0
0.00	170.00	3" Conduit	3	3.00	1.78	100.00	2	Individual NR		N	1.00	1.00	
0.00	170.00	3/4" DC	2	0.00	0.40	100.00	2	Individual NR		N	1.00	1.00	0
0.00	170.00	3/8" RET	3	0.38	0.06	100.00	2	Individual NR		N	1.00	1.00	
0.00	170.00	7/16" Fiber	2	0.00	0.08	100.00	2	Individual NR		N	1.00	1.00	0
0.00	170.00	W/G Ladder	1	3.00	6.00	100.00	2	Individual NR		N	1.00	1.00	
0.00	160.00	1 5/8" Coax	12	1.98	1.04	100.00	2	Individual NR		N	1.00	1.00	
0.00	160.00	1/2" Coax	1	0.65	0.16	100.00	2	Individual NR		N	1.00	1.00	
0.00	160.00	W/G Ladder	1	3.00	6.00	100.00	2	Individual NR		N	1.00	1.00	
0.00	150.00	1.9" Fiber	3	1.90	6.00	100.00	2	Individual NR		N	1.00	1.00	
0.00	140.00	1.6" Hybrid	1	1.60	1.82	100.00	1	Individual NR		N	1.00	1.00	
0.00	140.00	W/G Ladder	1	3.00	6.00	100.00	1	Individual NR		N	1.00	1.00	

Section Forces

Structure: CT10017-A-SBA

Code: EIA/TIA-222-G

9/22/2021

Site Name: North Granby

Exposure: B



Height: 170.00 (ft)

Crest Height: 0.00

Base Elev: 0.000 (ft)

Site Class: D - Stiff Soil

Gh: 0.85

Topography: 1

Struct Class: II

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Load Case: 1.2D + 1.6W Normal Wind

1.2D + 1.6W 93 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)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	13.17	25.312	22.12	0.00	0.12	2.90	1.00	1.00	0.00	36.58	100.43	0.00	5,532.2	0.0	1901.26	1475.13	3,376.39
2	30.0	13.19	23.140	22.12	0.00	0.12	2.87	1.00	1.00	0.00	34.43	100.43	0.00	5,376.3	0.0	1774.87	1476.38	3,251.24
3	50.0	15.26	21.096	22.12	0.00	0.13	2.84	1.00	1.00	0.00	32.08	100.43	0.00	4,817.1	0.0	1890.70	1708.37	3,599.07
4	70.0	16.80	22.170	18.58	0.00	0.14	2.80	1.00	1.00	0.00	31.93	100.43	0.00	4,725.6	0.0	2040.60	1880.76	3,921.36
5	90.0	18.05	16.261	15.03	0.00	0.13	2.85	1.00	1.00	0.00	24.60	100.43	0.00	3,581.3	0.0	1719.88	2020.77	3,740.65
6	110.0	19.11	14.103	13.36	0.00	0.14	2.82	1.00	1.00	0.00	21.67	100.43	0.00	3,285.1	0.0	1586.24	2140.02	3,726.26
7	130.0	20.05	12.689	11.69	0.00	0.15	2.75	1.00	1.00	0.00	19.33	100.43	0.00	2,851.8	0.0	1451.25	2244.64	3,695.89
8	150.0	20.88	11.730	9.58	0.00	0.16	2.75	1.00	1.00	0.00	17.18	88.01	0.00	2,260.5	0.0	1340.74	2016.25	3,356.99
9	165.0	21.46	7.105	4.79	0.00	0.17	2.68	1.00	1.00	0.00	9.84	18.79	0.00	866.2	0.0	770.52	471.05	1,241.57
														33,296.0	0.0			29,909.41

Load Case: 1.2D + 1.6W 60° Wind

1.2D + 1.6W 93 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)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	13.17	25.312	22.12	0.00	0.12	2.90	0.80	1.00	0.00	31.51	100.43	0.00	5,532.2	0.0	1638.12	1475.13	3,113.25
2	30.0	13.19	23.140	22.12	0.00	0.12	2.87	0.80	1.00	0.00	29.80	100.43	0.00	5,376.3	0.0	1536.30	1476.38	3,012.67
3	50.0	15.26	21.096	22.12	0.00	0.13	2.84	0.80	1.00	0.00	27.86	100.43	0.00	4,817.1	0.0	1642.01	1708.37	3,350.39
4	70.0	16.80	22.170	18.58	0.00	0.14	2.80	0.80	1.00	0.00	27.50	100.43	0.00	4,725.6	0.0	1757.24	1880.76	3,638.00
5	90.0	18.05	16.261	15.03	0.00	0.13	2.85	0.80	1.00	0.00	21.35	100.43	0.00	3,581.3	0.0	1492.54	2020.77	3,513.32
6	110.0	19.11	14.103	13.36	0.00	0.14	2.82	0.80	1.00	0.00	18.85	100.43	0.00	3,285.1	0.0	1379.76	2140.02	3,519.78
7	130.0	20.05	12.689	11.69	0.00	0.15	2.75	0.80	1.00	0.00	16.79	100.43	0.00	2,851.8	0.0	1260.69	2244.64	3,505.33
8	150.0	20.88	11.730	9.58	0.00	0.16	2.75	0.80	1.00	0.00	14.83	88.01	0.00	2,260.5	0.0	1157.61	2016.25	3,173.86
9	165.0	21.46	7.105	4.79	0.00	0.17	2.68	0.80	1.00	0.00	8.42	18.79	0.00	866.2	0.0	659.24	471.05	1,130.28
														33,296.0	0.0			27,956.87

Section Forces

Structure: CT10017-A-SBA	Code: EIA/TIA-222-G	9/22/2021
Site Name: North Granby	Exposure: B	
Height: 170.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 90° Wind	1.2D + 1.6W 93 mph Wind at 90° 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 Area		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat (sqft)	Round (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	13.17	25.312	22.12	0.00	0.12	2.90	0.85	1.00	0.00	32.78	100.43	0.00	5,532.2	0.0	1703.90	1475.13	3,179.03
2	30.0	13.19	23.140	22.12	0.00	0.12	2.87	0.85	1.00	0.00	30.96	100.43	0.00	5,376.3	0.0	1595.94	1476.38	3,072.32
3	50.0	15.26	21.096	22.12	0.00	0.13	2.84	0.85	1.00	0.00	28.91	100.43	0.00	4,817.1	0.0	1704.18	1708.37	3,412.56
4	70.0	16.80	22.170	18.58	0.00	0.14	2.80	0.85	1.00	0.00	28.61	100.43	0.00	4,725.6	0.0	1828.08	1880.76	3,708.84
5	90.0	18.05	16.261	15.03	0.00	0.13	2.85	0.85	1.00	0.00	22.17	100.43	0.00	3,581.3	0.0	1549.38	2020.77	3,570.15
6	110.0	19.11	14.103	13.36	0.00	0.14	2.82	0.85	1.00	0.00	19.55	100.43	0.00	3,285.1	0.0	1431.38	2140.02	3,571.40
7	130.0	20.05	12.689	11.69	0.00	0.15	2.75	0.85	1.00	0.00	17.42	100.43	0.00	2,851.8	0.0	1308.33	2244.64	3,552.97
8	150.0	20.88	11.730	9.58	0.00	0.16	2.75	0.85	1.00	0.00	15.42	88.01	0.00	2,260.5	0.0	1203.39	2016.25	3,219.64
9	165.0	21.46	7.105	4.79	0.00	0.17	2.68	0.85	1.00	0.00	8.77	18.79	0.00	866.2	0.0	687.06	471.05	1,158.11
														33,296.0	0.0			28,445.00

Load Case: 0.9D + 1.6W Normal Wind	0.9D + 1.6W 93 mph Wind at Normal To 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 Area		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat (sqft)	Round (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	13.17	25.312	22.12	0.00	0.12	2.90	1.00	1.00	0.00	36.58	100.43	0.00	4,149.1	0.0	1901.26	1475.13	3,376.39
2	30.0	13.19	23.140	22.12	0.00	0.12	2.87	1.00	1.00	0.00	34.43	100.43	0.00	4,032.2	0.0	1774.87	1476.38	3,251.24
3	50.0	15.26	21.096	22.12	0.00	0.13	2.84	1.00	1.00	0.00	32.08	100.43	0.00	3,612.8	0.0	1890.70	1708.37	3,599.07
4	70.0	16.80	22.170	18.58	0.00	0.14	2.80	1.00	1.00	0.00	31.93	100.43	0.00	3,544.2	0.0	2040.60	1880.76	3,921.36
5	90.0	18.05	16.261	15.03	0.00	0.13	2.85	1.00	1.00	0.00	24.60	100.43	0.00	2,686.0	0.0	1719.88	2020.77	3,740.65
6	110.0	19.11	14.103	13.36	0.00	0.14	2.82	1.00	1.00	0.00	21.67	100.43	0.00	2,463.9	0.0	1586.24	2140.02	3,726.26
7	130.0	20.05	12.689	11.69	0.00	0.15	2.75	1.00	1.00	0.00	19.33	100.43	0.00	2,138.8	0.0	1451.25	2244.64	3,695.89
8	150.0	20.88	11.730	9.58	0.00	0.16	2.75	1.00	1.00	0.00	17.18	88.01	0.00	1,695.3	0.0	1340.74	2016.25	3,356.99
9	165.0	21.46	7.105	4.79	0.00	0.17	2.68	1.00	1.00	0.00	9.84	18.79	0.00	649.6	0.0	770.52	471.05	1,241.57
														24,972.0	0.0			29,909.41

Section Forces

Structure: CT10017-A-SBA

Code: EIA/TIA-222-G

9/22/2021

Site Name: North Granby

Exposure: B



Height: 170.00 (ft)

Crest Height: 0.00

Base Elev: 0.000 (ft)

Site Class: D - Stiff Soil

Gh: 0.85

Topography: 1

Struct Class: II

Page: 9

Load Case: 0.9D + 1.6W 60° Wind

0.9D + 1.6W 93 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)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	13.17	25.312	22.12	0.00	0.12	2.90	0.80	1.00	0.00	31.51	100.43	0.00	4,149.1	0.0	1638.12	1475.13	3,113.25
2	30.0	13.19	23.140	22.12	0.00	0.12	2.87	0.80	1.00	0.00	29.80	100.43	0.00	4,032.2	0.0	1536.30	1476.38	3,012.67
3	50.0	15.26	21.096	22.12	0.00	0.13	2.84	0.80	1.00	0.00	27.86	100.43	0.00	3,612.8	0.0	1642.01	1708.37	3,350.39
4	70.0	16.80	22.170	18.58	0.00	0.14	2.80	0.80	1.00	0.00	27.50	100.43	0.00	3,544.2	0.0	1757.24	1880.76	3,638.00
5	90.0	18.05	16.261	15.03	0.00	0.13	2.85	0.80	1.00	0.00	21.35	100.43	0.00	2,686.0	0.0	1492.54	2020.77	3,513.32
6	110.0	19.11	14.103	13.36	0.00	0.14	2.82	0.80	1.00	0.00	18.85	100.43	0.00	2,463.9	0.0	1379.76	2140.02	3,519.78
7	130.0	20.05	12.689	11.69	0.00	0.15	2.75	0.80	1.00	0.00	16.79	100.43	0.00	2,138.8	0.0	1260.69	2244.64	3,505.33
8	150.0	20.88	11.730	9.58	0.00	0.16	2.75	0.80	1.00	0.00	14.83	88.01	0.00	1,695.3	0.0	1157.61	2016.25	3,173.86
9	165.0	21.46	7.105	4.79	0.00	0.17	2.68	0.80	1.00	0.00	8.42	18.79	0.00	649.6	0.0	659.24	471.05	1,130.28
														24,972.0	0.0			27,956.87

Load Case: 0.9D + 1.6W 90° Wind

0.9D + 1.6W 93 mph Wind at 90° From Face

Wind Load Factor: 1.60

Wind Importance Factor: 1.00

Dead Load Factor: 0.90

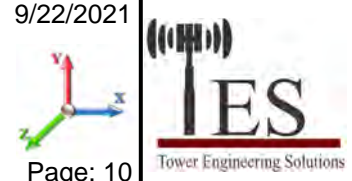
Ice Dead Load Factor: 0.00

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)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	13.17	25.312	22.12	0.00	0.12	2.90	0.85	1.00	0.00	32.78	100.43	0.00	4,149.1	0.0	1703.90	1475.13	3,179.03
2	30.0	13.19	23.140	22.12	0.00	0.12	2.87	0.85	1.00	0.00	30.96	100.43	0.00	4,032.2	0.0	1595.94	1476.38	3,072.32
3	50.0	15.26	21.096	22.12	0.00	0.13	2.84	0.85	1.00	0.00	28.91	100.43	0.00	3,612.8	0.0	1704.18	1708.37	3,412.56
4	70.0	16.80	22.170	18.58	0.00	0.14	2.80	0.85	1.00	0.00	28.61	100.43	0.00	3,544.2	0.0	1828.08	1880.76	3,708.84
5	90.0	18.05	16.261	15.03	0.00	0.13	2.85	0.85	1.00	0.00	22.17	100.43	0.00	2,686.0	0.0	1549.38	2020.77	3,570.15
6	110.0	19.11	14.103	13.36	0.00	0.14	2.82	0.85	1.00	0.00	19.55	100.43	0.00	2,463.9	0.0	1431.38	2140.02	3,571.40
7	130.0	20.05	12.689	11.69	0.00	0.15	2.75	0.85	1.00	0.00	17.42	100.43	0.00	2,138.8	0.0	1308.33	2244.64	3,552.97
8	150.0	20.88	11.730	9.58	0.00	0.16	2.75	0.85	1.00	0.00	15.42	88.01	0.00	1,695.3	0.0	1203.39	2016.25	3,219.64
9	165.0	21.46	7.105	4.79	0.00	0.17	2.68	0.85	1.00	0.00	8.77	18.79	0.00	649.6	0.0	687.06	471.05	1,158.11
														24,972.0	0.0			28,445.00

Section Forces

Structure: CT10017-A-SBA	Code: EIA/TIA-222-G	9/22/2021
Site Name: North Granby	Exposure: B	
Height: 170.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 10



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

Sect Seq	Wind Height (ft)	qz (psf)	Total Area		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	3.81	25.312	60.30	38.18	0.21	2.58	1.00	1.00	1.77	60.02	124.09	177.4	14,996.	9464.1	500.39	826.38	1,326.78
2	30.0	3.81	23.140	62.27	40.15	0.23	2.51	1.00	1.00	1.98	59.24	126.84	198.1	16,089.	10713.0	481.18	867.75	1,348.93
3	50.0	4.41	21.096	61.95	39.82	0.25	2.44	1.00	1.00	2.08	57.30	128.22	208.4	16,021.	11204.6	525.14	1016.90	1,542.04
4	70.0	4.86	22.170	65.85	47.27	0.30	2.29	1.00	1.00	2.16	61.63	129.17	215.6	16,632.	11907.0	583.13	1081.85	1,664.98
5	90.0	5.22	16.261	59.39	44.36	0.30	2.29	1.00	1.00	2.21	51.91	129.91	221.1	14,868.	11287.4	525.95	1178.14	1,704.09
6	110.0	5.52	14.103	54.63	41.27	0.33	2.21	1.00	1.00	2.26	47.41	130.50	225.5	14,424.	11139.6	492.62	1225.25	1,717.87
7	130.0	5.79	12.689	57.12	45.43	0.42	2.02	1.00	1.00	2.29	49.60	131.01	229.3	14,121.	11269.3	493.75	1156.65	1,650.40
8	150.0	6.04	11.730	57.31	47.73	0.48	1.93	1.00	1.00	2.33	50.35	111.28	213.3	12,704.	10443.8	498.30	943.79	1,442.10
9	165.0	6.20	7.105	32.35	27.56	0.55	1.85	1.00	1.00	2.35	30.13	26.62	50.90	4,535.3	3669.1	293.26	165.98	459.23
														124,393.9	91097.9			12,856.42

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

Sect Seq	Wind Height (ft)	qz (psf)	Total Area		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	3.81	25.312	60.30	38.18	0.21	2.58	0.80	1.00	1.77	54.96	124.09	177.4	14,996.	9464.1	458.19	826.38	1,284.57
2	30.0	3.81	23.140	62.27	40.15	0.23	2.51	0.80	1.00	1.98	54.62	126.84	198.1	16,089.	10713.0	443.59	867.75	1,311.34
3	50.0	4.41	21.096	61.95	39.82	0.25	2.44	0.80	1.00	2.08	53.08	128.22	208.4	16,021.	11204.6	486.47	1016.90	1,503.37
4	70.0	4.86	22.170	65.85	47.27	0.30	2.29	0.80	1.00	2.16	57.20	129.17	215.6	16,632.	11907.0	541.18	1081.85	1,623.03
5	90.0	5.22	16.261	59.39	44.36	0.30	2.29	0.80	1.00	2.21	48.65	129.91	221.1	14,868.	11287.4	492.99	1178.14	1,671.13
6	110.0	5.52	14.103	54.63	41.27	0.33	2.21	0.80	1.00	2.26	44.59	130.50	225.5	14,424.	11139.6	463.32	1225.25	1,688.57
7	130.0	5.79	12.689	57.12	45.43	0.42	2.02	0.80	1.00	2.29	47.07	131.01	229.3	14,121.	11269.3	468.49	1156.65	1,625.14
8	150.0	6.04	11.730	57.31	47.73	0.48	1.93	0.80	1.00	2.33	48.01	111.28	213.3	12,704.	10443.8	475.09	943.79	1,418.88
9	165.0	6.20	7.105	32.35	27.56	0.55	1.85	0.80	1.00	2.35	28.71	26.62	50.90	4,535.3	3669.1	279.43	165.98	445.40
														124,393.9	91097.9			12,571.43

Section Forces

Structure: CT10017-A-SBA	Code: EIA/TIA-222-G	9/22/2021
Site Name: North Granby	Exposure: B	
Height: 170.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 11



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

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)						
1	10.0	3.81	25.312	60.30	38.18	0.21	2.58	0.85	1.00	1.77	56.22	124.09	177.4	14,996.	9464.1	468.74	826.38	1,295.12	
2	30.0	3.81	23.140	62.27	40.15	0.23	2.51	0.85	1.00	1.98	55.77	126.84	198.1	16,089.	10713.0	452.99	867.75	1,320.74	
3	50.0	4.41	21.096	61.95	39.82	0.25	2.44	0.85	1.00	2.08	54.13	128.22	208.4	16,021.	11204.6	496.14	1016.90	1,513.04	
4	70.0	4.86	22.170	65.85	47.27	0.30	2.29	0.85	1.00	2.16	58.31	129.17	215.6	16,632.	11907.0	551.67	1081.85	1,633.52	
5	90.0	5.22	16.261	59.39	44.36	0.30	2.29	0.85	1.00	2.21	49.47	129.91	221.1	14,868.	11287.4	501.23	1178.14	1,679.37	
6	110.0	5.52	14.103	54.63	41.27	0.33	2.21	0.85	1.00	2.26	45.30	130.50	225.5	14,424.	11139.6	470.65	1225.25	1,695.89	
7	130.0	5.79	12.689	57.12	45.43	0.42	2.02	0.85	1.00	2.29	47.70	131.01	229.3	14,121.	11269.3	474.81	1156.65	1,631.45	
8	150.0	6.04	11.730	57.31	47.73	0.48	1.93	0.85	1.00	2.33	48.59	111.28	213.3	12,704.	10443.8	480.89	943.79	1,424.68	
9	165.0	6.20	7.105	32.35	27.56	0.55	1.85	0.85	1.00	2.35	29.06	26.62	50.90	4,535.3	3669.1	282.88	165.98	448.86	
														124,393.9	91097.9				12,642.68

Load Case: 1.0D + 1.0W Normal Wind	1.0D + 1.0W 60 mph Wind at Normal To 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		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)						
1	10.0	5.48	25.312	22.12	0.00	0.12	2.90	1.00	1.00	0.00	37.81	100.43	0.00	4,610.2	0.0	511.28	383.75	895.03	
2	30.0	5.49	23.140	22.12	0.00	0.12	2.87	1.00	1.00	0.00	35.64	100.43	0.00	4,480.2	0.0	478.00	384.07	862.08	
3	50.0	6.35	21.096	22.12	0.00	0.13	2.84	1.00	1.00	0.00	33.62	100.43	0.00	4,014.2	0.0	515.44	444.43	959.87	
4	70.0	6.99	22.170	18.58	0.00	0.14	2.80	1.00	1.00	0.00	32.70	100.43	0.00	3,938.0	0.0	543.63	489.27	1,032.91	
5	90.0	7.51	16.261	15.03	0.00	0.13	2.85	1.00	1.00	0.00	24.76	100.43	0.00	2,984.4	0.0	450.31	525.70	976.00	
6	110.0	7.96	14.103	13.36	0.00	0.14	2.82	1.00	1.00	0.00	21.67	100.43	0.00	2,737.6	0.0	412.65	556.72	969.37	
7	130.0	8.34	12.689	11.69	0.00	0.15	2.75	1.00	1.00	0.00	19.33	100.43	0.00	2,376.5	0.0	377.54	583.93	961.47	
8	150.0	8.69	11.730	9.58	0.00	0.16	2.75	1.00	1.00	0.00	17.18	88.01	0.00	1,883.7	0.0	348.79	524.52	873.31	
9	165.0	8.93	7.105	4.79	0.00	0.17	2.68	1.00	1.00	0.00	9.84	18.79	0.00	721.8	0.0	200.45	122.54	322.99	
														27,746.7	0.0				7,853.01

Section Forces

Structure: CT10017-A-SBA	Code: EIA/TIA-222-G	9/22/2021
Site Name: North Granby	Exposure: B	
Height: 170.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 12



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)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	25.312	22.12	0.00	0.12	2.90	0.80	1.00	0.00	32.75	100.43	0.00	4,610.2	0.0	442.82	383.75	826.57
2	30.0	5.49	23.140	22.12	0.00	0.12	2.87	0.80	1.00	0.00	31.02	100.43	0.00	4,480.2	0.0	415.94	384.07	800.01
3	50.0	6.35	21.096	22.12	0.00	0.13	2.84	0.80	1.00	0.00	29.40	100.43	0.00	4,014.2	0.0	450.75	444.43	895.17
4	70.0	6.99	22.170	18.58	0.00	0.14	2.80	0.80	1.00	0.00	28.27	100.43	0.00	3,938.0	0.0	469.92	489.27	959.19
5	90.0	7.51	16.261	15.03	0.00	0.13	2.85	0.80	1.00	0.00	21.51	100.43	0.00	2,984.4	0.0	391.17	525.70	916.86
6	110.0	7.96	14.103	13.36	0.00	0.14	2.82	0.80	1.00	0.00	18.85	100.43	0.00	2,737.6	0.0	358.94	556.72	915.66
7	130.0	8.34	12.689	11.69	0.00	0.15	2.75	0.80	1.00	0.00	16.79	100.43	0.00	2,376.5	0.0	327.96	583.93	911.90
8	150.0	8.69	11.730	9.58	0.00	0.16	2.75	0.80	1.00	0.00	14.83	88.01	0.00	1,883.7	0.0	301.15	524.52	825.66
9	165.0	8.93	7.105	4.79	0.00	0.17	2.68	0.80	1.00	0.00	8.42	18.79	0.00	721.8	0.0	171.50	122.54	294.04
														27,746.7	0.0			7,345.07

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)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	25.312	22.12	0.00	0.12	2.90	0.85	1.00	0.00	34.01	100.43	0.00	4,610.2	0.0	459.94	383.75	843.69
2	30.0	5.49	23.140	22.12	0.00	0.12	2.87	0.85	1.00	0.00	32.17	100.43	0.00	4,480.2	0.0	431.46	384.07	815.53
3	50.0	6.35	21.096	22.12	0.00	0.13	2.84	0.85	1.00	0.00	30.45	100.43	0.00	4,014.2	0.0	466.92	444.43	911.35
4	70.0	6.99	22.170	18.58	0.00	0.14	2.80	0.85	1.00	0.00	29.38	100.43	0.00	3,938.0	0.0	488.35	489.27	977.62
5	90.0	7.51	16.261	15.03	0.00	0.13	2.85	0.85	1.00	0.00	22.32	100.43	0.00	2,984.4	0.0	405.95	525.70	931.65
6	110.0	7.96	14.103	13.36	0.00	0.14	2.82	0.85	1.00	0.00	19.55	100.43	0.00	2,737.6	0.0	372.37	556.72	929.08
7	130.0	8.34	12.689	11.69	0.00	0.15	2.75	0.85	1.00	0.00	17.42	100.43	0.00	2,376.5	0.0	340.36	583.93	924.29
8	150.0	8.69	11.730	9.58	0.00	0.16	2.75	0.85	1.00	0.00	15.42	88.01	0.00	1,883.7	0.0	313.06	524.52	837.58
9	165.0	8.93	7.105	4.79	0.00	0.17	2.68	0.85	1.00	0.00	8.77	18.79	0.00	721.8	0.0	178.74	122.54	301.28
														27,746.7	0.0			7,472.05

Force/Stress Compression Summary

Structure: CT10017-A-SBA
Site Name: North Granby
Height: 170.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Code: EIA/TIA-222-G
Exposure: B
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II
Topography: 1

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LEG MEMBERS

Sect	Top Elev	Member	Force		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls	
			(kips)				X	Y	Z					KL/R
1	20	PX - 6" DIA PIPE	-237.57	1.2D + 1.6W	Normal Wind	9.89	100	100	100	54.21	50.00	304.92	77.9	Member X
2	40	PX - 6" DIA PIPE	-213.28	1.2D + 1.6W	Normal Wind	9.77	100	100	100	53.51	50.00	306.60	69.6	Member X
3	60	PSP - ROHN 6 EHS	-187.76	1.2D + 1.6W	Normal Wind	9.77	100	100	100	52.68	50.00	246.61	76.1	Member X
4	80	PX - 5" DIA PIPE	-164.09	1.2D + 1.6W	Normal Wind	6.51	100	100	100	42.47	50.00	240.98	68.1	Member X
5	100	PX - 4" DIA PIPE	-137.45	1.2D + 1.6W	Normal Wind	6.51	100	100	100	52.80	50.00	161.86	84.9	Member X
6	120	PX - 3-1/2" DIA PIPE	-109.53	1.2D + 1.6W	Normal Wind	6.51	100	100	100	59.65	50.00	127.67	85.8	Member X
7	140	PST - 3" DIA PIPE	-79.99	1.2D + 1.6W	Normal Wind	4.88	100	100	100	50.52	50.00	83.27	96.1	Member X
8	160	PST - 2-1/2" DIA PIPE	-42.54	1.2D + 1.6W	Normal Wind	3.90	100	100	100	49.42	50.00	64.14	66.3	Member X
9	170	PST - 2-1/2" DIA PIPE	-9.35	1.2D + 1.6W	Normal Wind	0.25	100	100	100	3.17	50.00	76.62	12.2	Member X

Splices

Sect	Top Elev	Load Case	Top Splice				Load Case	Bottom Splice				Controls
			Force (kips)	Cap (kips)	Use %	Bolt Type		Num Bolts	Force (kips)	Cap (kips)	Use %	
1	20	1.2D + 1.6W Normal Wind	220.92	0.00	0.0		1.2D + 1.6W Normal Wind	243.66	0.00			
2	40	1.2D + 1.6W Normal Wind	194.92	0.00	0.0		1.2D + 1.6W Normal Wind	220.92	0.00		1 A325	6
3	60	1.2D + 1.6W Normal Wind	169.38	0.00	0.0		1.2D + 1.6W Normal Wind	194.92	0.00		1 A325	6
4	80	1.2D + 1.6W Normal Wind	142.75	0.00	0.0		1.2D + 1.6W Normal Wind	169.38	0.00		1 A325	6
5	100	1.2D + 1.6W Normal Wind	115.20	0.00	0.0		1.2D + 1.6W Normal Wind	142.75	0.00		1 A325	6
6	120	1.2D + 1.6W Normal Wind	84.65	0.00	0.0		1.2D + 1.6W Normal Wind	115.20	0.00		7/8 A325	4
7	140	1.2D + 1.6W Normal Wind	48.62	0.00	0.0		1.2D + 1.6W Normal Wind	84.65	0.00		7/8 A325	4
8	160	1.2D + 1.0Di + 1.0Wi Normal Wi	10.51	0.00	0.0		1.2D + 1.6W Normal Wind	48.62	0.00		3/4 A325	4
9	170	1.2D + 1.0Di + 1.0Wi 90° Wind	3.89	0.00	0.0		1.2D + 1.0Di + 1.0Wi Normal Wi	10.51	0.00		5/8 A325	4

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Bear		Use %	Controls	
			(kips)				X	Y	Z					KL/R	(kips)			(kips)
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	SAE - 2X2X0.1875	-0.51	1.2D + 1.6W	60° Wind	6.58	100	100	100	200.41	36.00	3.99	1	1	12.43	7.84	13	Member Z
8	160	SAE - 1.75X1.75X0.1875	-0.18	0.9D + 1.6W	60° Wind	6.58	100	100	100	230.20	36.00	2.64	1	1	12.43	7.84	7	Member Z
9	170	SAE - 1.75X1.75X0.1875	-0.64	0.9D + 1.6W	60° Wind	6.58	100	100	100	230.20	36.00	2.64	1	1	12.43	7.84	24	Member Z

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Bear		Use %	Controls	
			(kips)				X	Y	Z					KL/R	(kips)			(kips)
1	20	SAE - 3.5X3.5X0.25	-6.67	1.2D + 1.6W	90° Wind	22.71	49	49	49	192.40	50.00	10.31	1	1	17.89	14.1	65	Member Z
2	40	SAE - 3.5X3.5X0.25	-7.01	1.2D + 1.6W	90° Wind	20.81	49	49	49	176.28	50.00	12.29	1	1	17.89	14.1	57	Member Z
3	60	SAE - 3.5X3.5X0.25	-6.48	1.2D + 1.6W	90° Wind	18.20	49	49	49	154.20	50.00	16.06	1	1	17.89	14.1	46	Bolt Bear
4	80	SAE - 3X3X0.25	-5.69	1.2D + 1.6W	90° Wind	14.63	49	49	49	145.32	50.00	15.41	1	1	12.43	11.7	49	Bolt Bear
5	100	SAE - 2.5X2.5X0.1875	-5.05	1.2D + 1.6W	90° Wind	13.98	49	49	49	166.05	36.00	7.39	1	1	12.43	7.84	68	Member Z
6	120	SAE - 2.5X2.5X0.1875	-5.33	1.2D + 1.6W	90° Wind	11.06	49	49	49	131.42	36.00	11.77	1	1	12.43	7.84	68	Bolt Bear
7	140	SAE - 2X2X0.1875	-5.17	1.2D + 1.6W	90° Wind	8.41	48	48	48	122.93	36.00	10.38	1	1	12.43	7.84	66	Bolt Bear
8	160	SAE - 1.75X1.75X0.1875	-5.18	1.2D + 1.6W	90° Wind	7.65	46	46	46	123.10	36.00	9.05	1	1	12.43	7.84	66	Bolt Bear
9	170	SAE - 1.75X1.75X0.1875	-1.95	1.2D + 1.6W	90° Wind	7.30	46	46	46	118.14	36.00	9.63	1	1	12.43	7.84	25	Bolt Bear

Force/Stress Compression Summary

Structure: CT10017-A-SBA	Code: EIA/TIA-222-G	9/22/2021
Site Name: North Granby	Exposure: B	
Height: 170.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



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DIAGONAL MEMBERS

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

Force/Stress Tension Summary

Structure: CT10017-A-SBA
Site Name: North Granby
Height: 170.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Code: EIA/TIA-222-G
Exposure: B
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II
Topography: 1

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LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PX - 6" DIA PIPE	202.63	0.9D + 1.6W 60° Wind	50	378.00	53.6	Member
2	40	PX - 6" DIA PIPE	188.71	0.9D + 1.6W 60° Wind	50	378.00	49.9	Member
3	60	PSP - ROHN 6 EHS	167.28	0.9D + 1.6W 60° Wind	50	302.09	55.4	Member
4	80	PX - 5" DIA PIPE	145.81	0.9D + 1.6W 60° Wind	50	274.95	53.0	Member
5	100	PX - 4" DIA PIPE	123.23	0.9D + 1.6W 60° Wind	50	198.45	62.1	Member
6	120	PX - 3-1/2" DIA PIPE	98.98	0.9D + 1.6W 60° Wind	50	165.60	59.8	Member
7	140	PST - 3" DIA PIPE	71.43	0.9D + 1.6W 60° Wind	50	100.35	71.2	Member
8	160	PST - 2-1/2" DIA PIPE	38.38	0.9D + 1.6W 60° Wind	50	76.68	50.0	Member
9	170	PST - 2-1/2" DIA PIPE	6.41	0.9D + 1.6W 60° Wind	50	76.68	8.4	Member

Splices

Sect	Top Elev	Top Splice					Bottom Splice						
		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	188.41	0.00	0.0			0.9D + 1.6W 60° Wind	208.1	0.00			
2	40	0.9D + 1.6W 60° Wind	166.92	0.00	0.0			0.9D + 1.6W 60° Wind	188.4	318.06	59.2	1 A325	6
3	60	0.9D + 1.6W 60° Wind	145.53	0.00	0.0			0.9D + 1.6W 60° Wind	166.9	318.06	52.5	1 A325	6
4	80	0.9D + 1.6W 60° Wind	123.02	0.00	0.0			0.9D + 1.6W 60° Wind	145.5	318.06	45.8	1 A325	6
5	100	0.9D + 1.6W 60° Wind	98.82	0.00	0.0			0.9D + 1.6W 60° Wind	123.0	318.06	38.7	1 A325	6
6	120	0.9D + 1.6W 60° Wind	71.29	0.00	0.0			0.9D + 1.6W 60° Wind	98.82	166.24	59.4	7/8 A325	4
7	140	0.9D + 1.6W 60° Wind	38.08	0.00	0.0			0.9D + 1.6W 60° Wind	71.29	166.24	42.9	7/8 A325	4
8	160	0.9D + 1.6W 60° Wind	5.80	0.00	0.0			0.9D + 1.6W 60° Wind	38.08	120.40	31.6	3/4 A325	4
9	170		0.00	0.00	0.0			0.9D + 1.6W 60° Wind	5.80	82.80	7.0	5/8 A325	4

HORIZONTAL MEMBERS

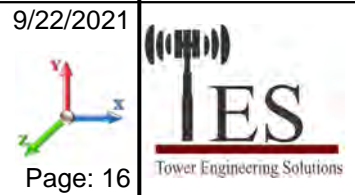
Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	-			50	0.00	0	0					
2	40	-			50	0.00	0	0					
3	60	-			50	0.00	0	0					
4	80	-			50	0.00	0	0					
5	100	-			36	0.00	0	0					
6	120	-			36	0.00	0	0					
7	140	SAE - 2X2X0.1875	0.37	0.9D + 1.6W Normal Wi	36	18.58	1	1	12.43	7.84	7.85	4.7	Bolt Bear
8	160	SAE - 1.75X1.75X0.1875	0.29	1.2D + 1.0Di + 1.0Wi Nc	36	15.64	1	1	12.43	7.84	6.83	4.2	Blck Shear
9	170	SAE - 1.75X1.75X0.1875	0.67	1.2D + 1.6W Normal Wi	36	15.64	1	1	12.43	7.84	6.83	9.8	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 - 3.5X3.5X0.25	6.86	0.9D + 1.6W 90° Wind	50	53.79	1	1	17.89	14.14	24.07	48.5	Bolt Bear
2	40	SAE - 3.5X3.5X0.25	6.93	0.9D + 1.6W 90° Wind	50	53.79	1	1	17.89	14.14	24.07	49.1	Bolt Bear
3	60	SAE - 3.5X3.5X0.25	6.24	0.9D + 1.6W 90° Wind	50	53.79	1	1	17.89	14.14	24.07	44.2	Bolt Bear
4	80	SAE - 3X3X0.25	5.53	0.9D + 1.6W 90° Wind	50	45.79	1	1	12.43	11.71	17.83	47.3	Bolt Bear
5	100	SAE - 2.5X2.5X0.1875	5.21	1.2D + 1.6W 90° Wind	36	24.84	1	1	12.43	7.84	9.89	66.4	Bolt Bear
6	120	SAE - 2.5X2.5X0.1875	5.12	1.2D + 1.6W 90° Wind	36	24.84	1	1	12.43	7.84	9.89	65.3	Bolt Bear
7	140	SAE - 2X2X0.1875	4.88	0.9D + 1.6W 90° Wind	36	18.58	1	1	12.43	7.84	7.85	62.3	Bolt Bear
8	160	SAE - 1.75X1.75X0.1875	5.07	1.2D + 1.6W 90° Wind	36	15.64	1	1	12.43	7.84	6.83	74.1	Blck Shear
9	170	SAE - 1.75X1.75X0.1875	1.91	1.2D + 1.6W 90° Wind	36	15.64	1	1	12.43	7.84	6.83	28.0	Blck Shear

Seismic Section Forces

Structure: CT10017-A-SBA	Code: EIA/TIA-222-G	9/22/2021
Site Name: North Granby	Exposure: B	
Height: 170.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.0E

Dead Load Factor	1.20	Sds 0.187	Ss 0.1760	Fa 1.6000	Ke 0.0000
Seismic Load Factor	1.00	Sd1 0.104	S1 0.0650	Fv 2.4000	Kg 0.0000
Seismic Importance Factor	1.00	SA 0.186	R 3.0000	Vs 2.8759	f1 1.7933

Sect #	Elev (ft)	Wz (lb)	a	b	c	Lateral Fsz (lb)
1	10.00	4610.1	0.01	0.05	0.03	15.77
2	30.00	4480.2	0.06	0.07	0.04	35.86
3	50.00	4014.2	0.16	0.07	0.03	56.90
4	70.00	3937.9	0.32	0.04	0.01	88.06
5	90.00	2984.4	0.53	-0.03	0.01	92.85
6	110.00	2737.6	0.79	-0.11	0.05	112.82
7	130.00	4250.5	1.11	-0.07	0.19	251.15
8	150.00	7441.3	1.47	0.43	0.51	718.09
9	165.00	4074.4	1.78	1.45	0.94	588.99

Load Case: 0.9D + 1.0E

Dead Load Factor	0.90	Sds 0.187	Ss 0.1760	Fa 1.6000	Ke 0.0000
Seismic Load Factor	1.00	Sd1 0.104	S1 0.0650	Fv 2.4000	Kg 0.0000
Seismic Importance Factor	1.00	SA 0.186	R 3.0000	Vs 2.8759	f1 1.7933

Sect #	Elev (ft)	Wz (lb)	a	b	c	Lateral Fsz (lb)
1	10.00	4610.1	0.01	0.05	0.03	15.77
2	30.00	4480.2	0.06	0.07	0.04	35.86
3	50.00	4014.2	0.16	0.07	0.03	56.90
4	70.00	3937.9	0.32	0.04	0.01	88.06
5	90.00	2984.4	0.53	-0.03	0.01	92.85
6	110.00	2737.6	0.79	-0.11	0.05	112.82
7	130.00	4250.5	1.11	-0.07	0.19	251.15
8	150.00	7441.3	1.47	0.43	0.51	718.09
9	165.00	4074.4	1.78	1.45	0.94	588.99

Support Forces Summary

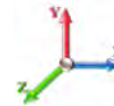
Structure: CT10017-A-SBA

Code: EIA/TIA-222-G

9/22/2021

Site Name: North Granby

Exposure: B



Height: 170.00 (ft)

Crest Height: 0.00

Base Elev: 0.000 (ft)

Site Class: D - Stiff Soil

Gh: 0.85

Topography: 1

Struct Class: II

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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	0.00	243.10	-24.61	
	1a	8.30	-98.43	-7.50	
	1b	-8.30	-98.43	-7.50	
1.2D + 1.6W 60° Wind	1	-2.20	124.84	-12.20	
	1a	-11.66	124.84	4.20	
	1b	-18.75	-203.45	-10.83	
1.2D + 1.6W 90° Wind	1	-2.58	15.42	-0.91	
	1a	-18.58	206.86	9.23	
	1b	-16.99	-176.04	-8.33	
0.9D + 1.6W Normal Wind	1	0.00	238.85	-24.36	
	1a	8.51	-102.09	-7.62	
	1b	-8.51	-102.09	-7.62	
0.9D + 1.6W 60° Wind	1	-2.20	120.80	-11.95	
	1a	-11.45	120.80	4.07	
	1b	-18.96	-206.91	-10.95	
0.9D + 1.6W 90° Wind	1	-2.58	11.56	-0.66	
	1a	-18.36	202.67	9.11	
	1b	-17.20	-179.55	-8.45	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	142.92	-11.05	
	1a	2.34	6.86	-2.45	
	1b	-2.34	6.86	-2.45	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.93	96.95	-6.20	
	1a	-5.84	96.95	2.29	
	1b	-6.80	-37.25	-3.93	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-1.08	52.22	-1.51	
	1a	-8.64	129.96	4.36	
	1b	-6.02	-25.53	-2.85	
1.2D + 1.0E	1	0.00	30.29	1.79	
	1a	3.15	7.97	-1.86	
	1b	-3.15	7.97	-1.86	
0.9D + 1.0E	1	0.00	26.41	2.05	
	1a	3.37	4.14	-1.99	
	1b	-3.37	4.14	-1.99	
1.0D + 1.0W Normal Wind	1	0.00	72.15	-7.02	
	1a	1.67	-16.81	-1.68	
	1b	-1.67	-16.81	-1.68	
1.0D + 1.0W 60° Wind	1	-0.58	41.33	-3.77	
	1a	-3.55	41.33	1.38	
	1b	-4.40	-44.13	-2.54	
1.0D + 1.0W 90° Wind	1	-0.68	12.84	-0.82	
	1a	-5.37	62.73	2.70	
	1b	-3.95	-37.04	-1.89	

Max Reactions

Leg			Overturning		
Max Uplift:	-206.91	(kips)	Moment:	4133.04	(ft-kips)
Max Down:	243.10	(kips)	Total Down:	46.24	(kips)
Max Shear:	24.61	(kips)	Total Shear:	39.61	(kips)

Analysis Summary

Structure: CT10017-A-SBA	Code: EIA/TIA-222-G	9/22/2021
Site Name: North Granby	Exposure: B	
Height: 170.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 19



Max Reactions

	Leg	Overturning
Max Uplift:	-206.91 (kips)	Moment: 4133.04 (ft-kips)
Max Down:	243.10 (kips)	Total Down: 46.24 (kips)
Max Shear:	24.61 (kips)	Total Shear: 39.61 (kips)

Anchor Bolts

Bolt Size (in.): 1.00	Number Bolts: 8
Yield Strength (Ksi): 109.00	Tensile Strength (Ksi): 125.00
Detail Type: C	

Interaction Ratio: 0.52

Max Usages

Max Leg: 96.1% (1.2D + 1.6W Normal Wind - Sect 7)
 Max Diag: 74.1% (1.2D + 1.6W 90° Wind - Sect 8)
 Max Horiz: 24.1% (0.9D + 1.6W 60° Wind - Sect 9)

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.0E - Normal To Face	140.00	0.0768	-0.0020	0.1058
	148.05	0.0892	-0.0018	0.0928
	160.00	0.1089	-0.0016	0.1108
	170.00	0.1256	-0.0015	0.0971
0.9D + 1.6W 93 mph Wind at 60° From Face	140.00	0.9697	-0.0489	1.2116
	148.05	1.1132	-0.0480	1.0579
	160.00	1.3380	-0.0487	1.2455
	170.00	1.5302	-0.0482	1.1812
0.9D + 1.6W 93 mph Wind at 90° From Face	140.00	0.9774	-0.0551	1.1954
	148.05	1.1218	-0.0550	1.0660
	160.00	1.3481	-0.0550	1.2336
	170.00	1.5415	-0.0550	1.1803
0.9D + 1.6W 93 mph Wind at Normal To Face	140.00	1.0011	-0.0492	1.2534
	148.05	1.1484	-0.0500	1.0874
	160.00	1.3792	-0.0492	1.2781
	170.00	1.5766	-0.0496	1.2082
1.0D + 1.0W 60 mph Wind at 60° From Face	140.00	0.2523	-0.0103	0.3179
	148.05	0.2896	-0.0097	0.2766
	160.00	0.3481	-0.0090	0.3248
	170.00	0.3981	-0.0087	0.3084
1.0D + 1.0W 60 mph Wind at 90° From Face	140.00	0.2546	-0.0126	0.3121
	148.05	0.2922	-0.0122	0.2788
	160.00	0.3512	-0.0116	0.3220
	170.00	0.4016	-0.0114	0.3084

1.0D + 1.0W 60 mph Wind at Normal To Face	140.00	0.2608	0.0112	0.3237
	148.05	0.2992	0.0107	0.2841
	160.00	0.3593	0.0100	0.3322
	170.00	0.4108	0.0098	0.3137

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	140.00	0.3879	-0.0175	0.4775
	148.05	0.4433	-0.0171	0.4154
	160.00	0.5302	-0.0168	0.4800
	170.00	0.6043	-0.0166	0.4552

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	140.00	0.3888	-0.0205	0.4660
	148.05	0.4444	-0.0203	0.4158
	160.00	0.5315	-0.0201	0.4735
	170.00	0.6057	-0.0200	0.4528

1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	140.00	0.3919	-0.0182	0.4699
	148.05	0.4479	-0.0181	0.4168
	160.00	0.5356	-0.0177	0.4776
	170.00	0.6103	-0.0177	0.4497

1.2D + 1.0E - Normal To Face	140.00	0.0770	0.0020	0.1058
	148.05	0.0894	0.0018	0.0933
	160.00	0.1092	0.0016	0.1109
	170.00	0.1259	0.0015	0.0973

1.2D + 1.6W 93 mph Wind at 60° From Face	140.00	0.9724	-0.0491	1.2170
	148.05	1.1164	-0.0482	1.0620
	160.00	1.3421	-0.0489	1.2507
	170.00	1.5350	-0.0485	1.1862

1.2D + 1.6W 93 mph Wind at 90° From Face	140.00	0.9801	-0.0553	1.1997
	148.05	1.1250	-0.0553	1.0699
	160.00	1.3521	-0.0552	1.2386
	170.00	1.5463	-0.0552	1.1853

1.2D + 1.6W 93 mph Wind at Normal To Face	140.00	1.0039	-0.0494	1.2579
	148.05	1.1517	-0.0502	1.0917
	160.00	1.3834	-0.0494	1.2829
	170.00	1.5815	-0.0498	1.2125

EXHIBIT 9

Antenna Mount Analysis



December 1, 2021

Sherri Knapik
SBA Network Services, LLC.
134 Flanders Road, Suite 125
Westborough, MA 01581
(508) 251-0720 x 3805

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 Co-Locate**
Site Number: BOBDL00125A
Site Name: SBA - Lost Acres Road

SBA Network Services Designation: **Site Number:** CT10017-A
Site Name: North Granby
Application Number: 167824, v2

Engineering Firm Designation: **Project Number:** 149454.003.01

Site Data: **150 Lost Acres Road, Granby, CT, 06035, Hartford County**
Latitude 42.00960°, Longitude -72.86654°
Self-Support Tower
(3) 8 ft. Sector Mount

Dear Mr. 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	Sufficient Capacity
Note: See Table 1 for the final loading configuration	(Passing at 48.7%)

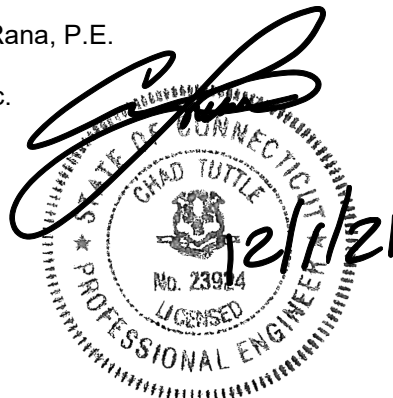
This analysis utilizes an ultimate 3-second gust wind speed of 115 mph as required by the 2018 Connecticut State Building Code(2018 IBC). Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

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: Suman Rana, P.E.

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



Chad E. Tuttle, P.E.

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Additional Calculations

1) INTRODUCTION

The appurtenance mount consists of sector mount designed by CommScope (Part #MTC3975083) at 140 ft., attached to self-support tower at 150 Lost Acres Road, Granby, CT, 06035, Hartford 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-H-2017 Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures using a 3-second gust wind speed of 115 mph with no ice and 50 mph with 1.5 inch escalated ice thickness. Exposure Category B & Topographic Category 1 and Risk Category II were used in this analysis. In addition, the platform 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 30 mph. The mount was analyzed under 30° 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	140	2	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 the mount.

Table 2 – Documents Provided

Documents	Remarks	Reference	Source
RFDS	Proposed Loading	Date: 08/26/2021	SBA Network Services, LLC.
Collo App		Date: 08/24/2021	

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.

Manufacturers drawing 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 area 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

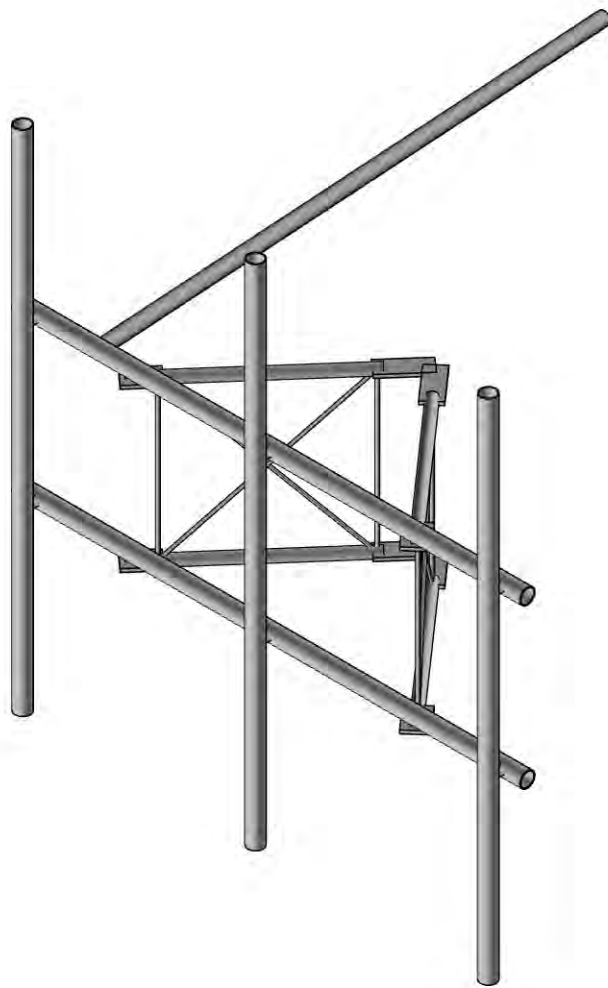
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Face Horizontals	140	10.2	Pass
-	Support Arms	140	24.6	Pass
-	Diagonals	140	26.6	Pass
-	Connection Plates	140	22.0	Pass
-	Verticals	140	48.7	Pass
-	Tiebacks	140	6.1	Pass
-	Mount Pipes	140	11.3	Pass
-	Connection Bolt	-	9.16	Pass

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

B+T Group

AK

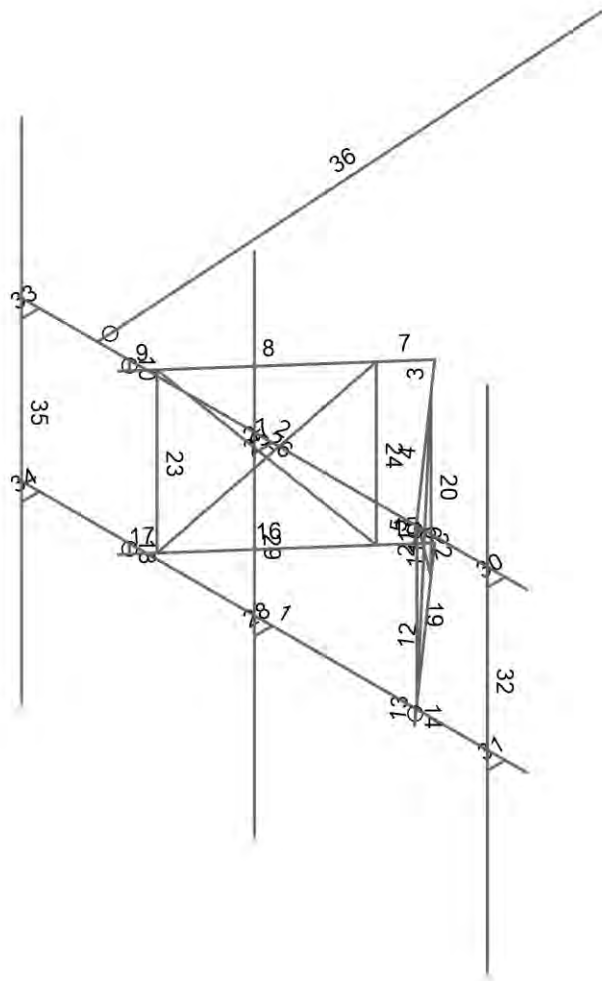
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CT10017-A - North Granby

AK1

Dec 01, 2021

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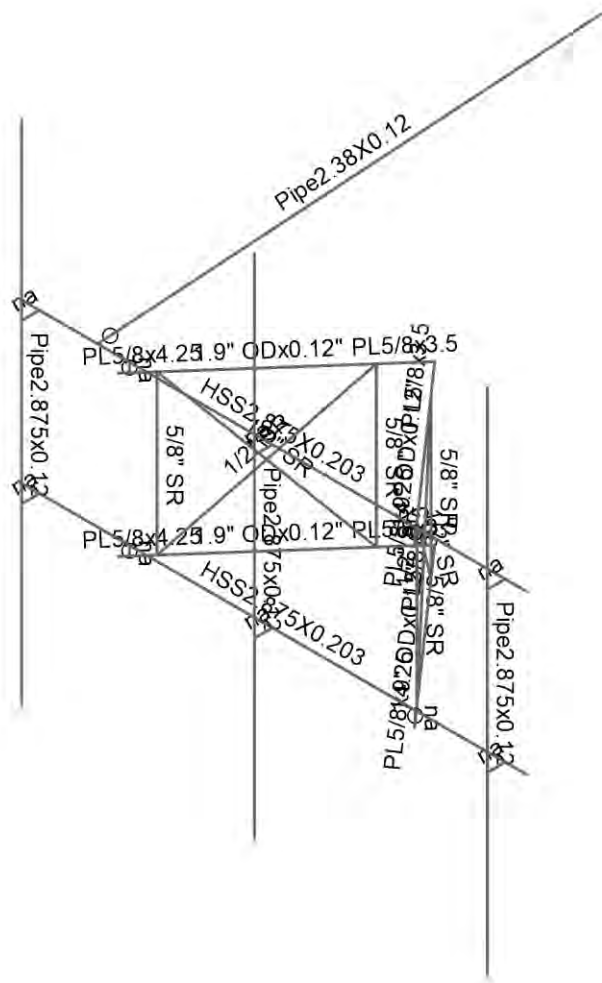
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CT10017-A - North Granby

AK2

Dec 01, 2021

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Envelope Only Solution

B+T Group

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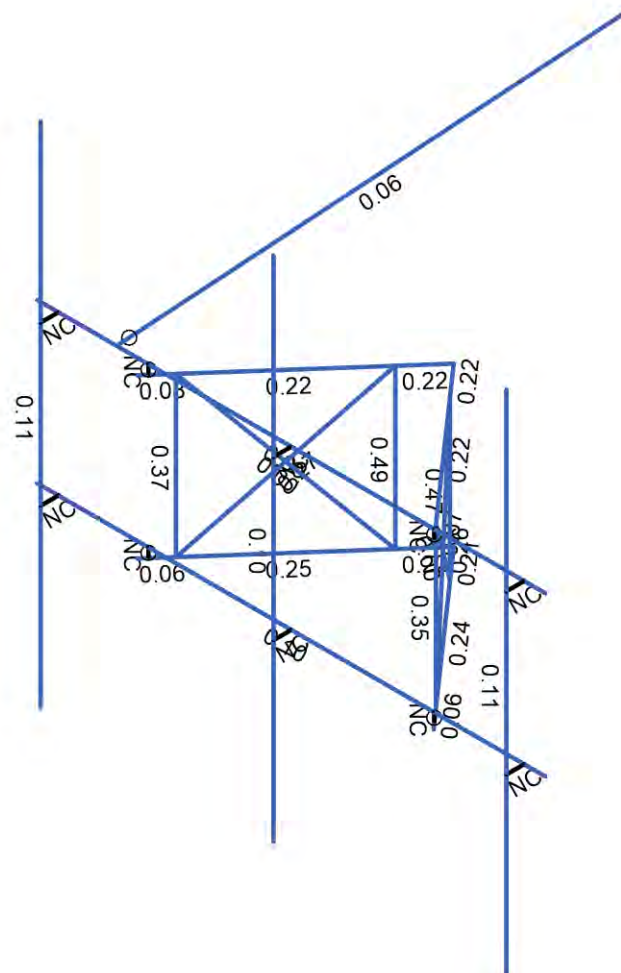
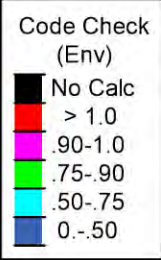
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CT10017-A - North Granby

AK3

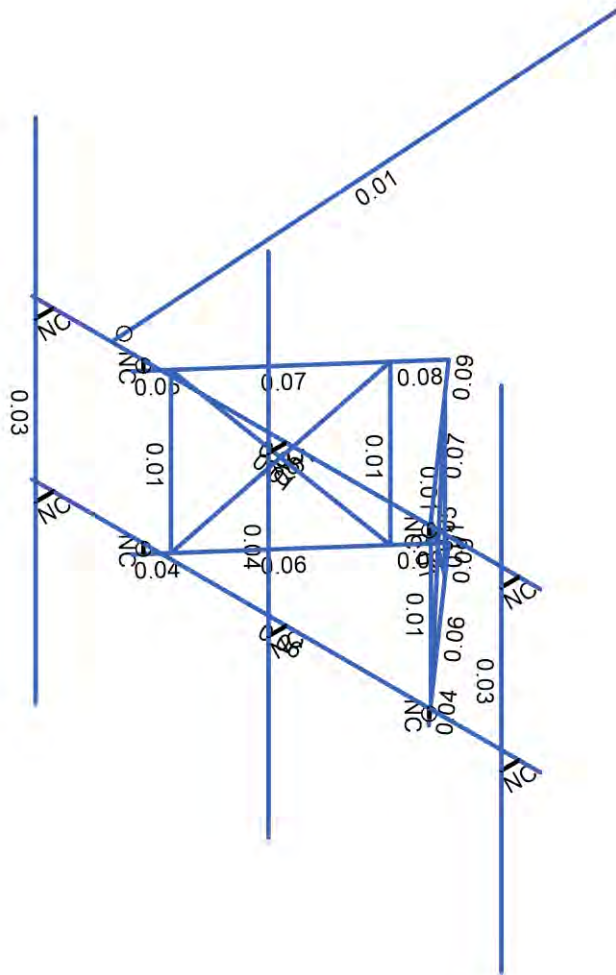
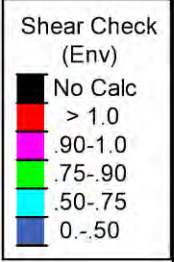
Dec 01, 2021

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Member Code Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	CT10017-A - North Granby	AK4
AK		Dec 01, 2021
149454.003.01		149454_003_01_North Granby_C...



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group
AK
149454.003.01

CT10017-A - North Granby
AK5
Dec 01, 2021
149454_003_01_North Granby_C...

AK5
Dec 01, 2021
149454_003_01_North Granby_C...



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	3.29	0	-5.698447	
64	64	-3.29	0	-5.698447	
65	65	-3.29	0.146	-5.698447	

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	64			
4	65	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.C	Typical	0.671	0.267	0.267	0.534
3	MF-D1	1/2" SR	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	2.188	0.071	2.233	0.253
5	MF-V1	5/8" SR	Column	BAR	A529 Gr.50	Typical	0.307	0.007	0.007	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.C	Typical
5	5	8	9	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical



Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
6	6	10	11	90	RIGID	None	None	RIGID	Typical
7	7	12	13	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
8	8	14	15		MF- SA1	Beam	Pipe	A500 Gr.C	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.C	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.C	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	65		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

Member Advanced Data (Continued)

	Label	I Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
22	22		Euler Buckling	Yes	** NA **	None
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	8.512	Lbyy	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Y	-0.032	%15
2	29	Y	-0.032	%85
3	29	Y	-0.075	%20
4	29	Y	-0.064	%50
5	29	Y	0	0
6	8	Y	-0.022	%50

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
7	8	Y	0	0
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	29	Z	-0.137	%15
2	29	Z	-0.137	%85
3	29	Z	-0.06	%20
4	29	Z	-0.06	%50
5	29	Z	0	0
6	8	Z	-0.062	%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	29	X	-0.055	%15
2	29	X	-0.055	%85
3	29	X	-0.037	%20
4	29	X	-0.032	%50
5	29	X	0	0
6	8	X	-0.035	%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	29	Z	-0.031	%15
2	29	Z	-0.031	%85
3	29	Z	-0.011	%20
4	29	Z	-0.011	%50
5	29	Z	0	0
6	8	Z	-0.012	%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	29	X	-0.015	%15
2	29	X	-0.015	%85
3	29	X	-0.007	%20
4	29	X	-0.006	%50

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
5	29	X	0	0
6	8	X	-0.007	%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	29	Z	-0.009	%15
2	29	Z	-0.009	%85
3	29	Z	-0.004	%20
4	29	Z	-0.004	%50
5	29	Z	0	0
6	8	Z	-0.004	%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	29	X	-0.004	%15
2	29	X	-0.004	%85
3	29	X	-0.003	%20
4	29	X	-0.002	%50
5	29	X	0	0
6	8	X	-0.002	%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	29	Y	-0.164	%15
2	29	Y	-0.164	%85
3	29	Y	-0.053	%20
4	29	Y	-0.052	%50
5	29	Y	0	0
6	8	Y	-0.054	%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 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Z	-0.013	%15
2	29	Z	-0.013	%85

Member Point Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
3	29	Z	-0.015	%20
4	29	Z	-0.013	%50
5	29	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 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	X	-0.013	%15
2	29	X	-0.013	%85
3	29	X	-0.015	%20
4	29	X	-0.013	%50
5	29	X	0	0
6	8	X	-0.005	%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 15 : Maint LL 1)

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

Member Point Loads (BLC 16 : Maint LL 2)

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

Member Point Loads (BLC 17 : Maint LL 3)

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

Member Point Loads (BLC 18 : Maint LL 4)

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

Member Point Loads (BLC 19 : Maint LL 5)

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

Member Point Loads (BLC 20 : Maint LL 6)

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



Company : B+T Group
 Designer : AK
 Job Number : 149454.003.01
 Model Name : CT10017-A - North Granby

12/1/2021
 4:02:08 PM
 Checked By : _____

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	-0.009	-0.009	0	%100
2	2	Z	-0.009	-0.009	0	%100
3	3	Z	-0.003	-0.003	0	%100
4	4	Z	-0.005	-0.005	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	7	Z	-0.003	-0.003	0	%100
7	8	Z	-0.005	-0.005	0	%100
8	9	Z	-0.002	-0.002	0	%100
9	11	Z	-0.003	-0.003	0	%100
10	12	Z	-0.005	-0.005	0	%100
11	13	Z	-0.002	-0.002	0	%100
12	15	Z	-0.003	-0.003	0	%100
13	16	Z	-0.005	-0.005	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	-0.002	-0.002	0	%100
18	22	Z	-0.002	-0.002	0	%100
19	23	Z	-0.002	-0.002	0	%100
20	24	Z	-0.002	-0.002	0	%100
21	25	Z	-0.002	-0.002	0	%100
22	26	Z	-0.002	-0.002	0	%100
23	29	Z	-0.009	-0.009	0	%100
24	32	Z	-0.009	-0.009	0	%100
25	35	Z	-0.009	-0.009	0	%100
26	36	Z	-0.007	-0.007	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	-0.009	-0.009	0	%100
2	2	X	-0.009	-0.009	0	%100
3	3	X	-0.003	-0.003	0	%100
4	4	X	-0.005	-0.005	0	%100
5	5	X	-0.002	-0.002	0	%100
6	7	X	-0.003	-0.003	0	%100
7	8	X	-0.005	-0.005	0	%100
8	9	X	-0.002	-0.002	0	%100
9	11	X	-0.003	-0.003	0	%100
10	12	X	-0.005	-0.005	0	%100
11	13	X	-0.002	-0.002	0	%100
12	15	X	-0.003	-0.003	0	%100
13	16	X	-0.005	-0.005	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	-0.002	-0.002	0	%100
18	22	X	-0.002	-0.002	0	%100
19	23	X	-0.002	-0.002	0	%100
20	24	X	-0.002	-0.002	0	%100
21	25	X	-0.002	-0.002	0	%100
22	26	X	-0.002	-0.002	0	%100
23	29	X	-0.009	-0.009	0	%100
24	32	X	-0.009	-0.009	0	%100
25	35	X	-0.009	-0.009	0	%100



Member Distributed Loads (BLC 3 : 90 Wind - No 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	X	-0.007	-0.007	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	-0.002	-0.002	0	%100
2	2	Z	-0.002	-0.002	0	%100
3	3	Z	-0.005	-0.005	0	%100
4	4	Z	-0.002	-0.002	0	%100
5	5	Z	-0.005	-0.005	0	%100
6	7	Z	-0.005	-0.005	0	%100
7	8	Z	-0.002	-0.002	0	%100
8	9	Z	-0.005	-0.005	0	%100
9	11	Z	-0.005	-0.005	0	%100
10	12	Z	-0.002	-0.002	0	%100
11	13	Z	-0.005	-0.005	0	%100
12	15	Z	-0.005	-0.005	0	%100
13	16	Z	-0.002	-0.002	0	%100
14	17	Z	-0.005	-0.005	0	%100
15	19	Z	-0.003	-0.003	0	%100
16	20	Z	-0.003	-0.003	0	%100
17	21	Z	-0.003	-0.003	0	%100
18	22	Z	-0.003	-0.003	0	%100
19	23	Z	-0.003	-0.003	0	%100
20	24	Z	-0.003	-0.003	0	%100
21	25	Z	-0.003	-0.003	0	%100
22	26	Z	-0.003	-0.003	0	%100
23	29	Z	-0.002	-0.002	0	%100
24	32	Z	-0.002	-0.002	0	%100
25	35	Z	-0.002	-0.002	0	%100
26	36	Z	-0.002	-0.002	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	-0.002	-0.002	0	%100
2	2	X	-0.002	-0.002	0	%100
3	3	X	-0.005	-0.005	0	%100
4	4	X	-0.002	-0.002	0	%100
5	5	X	-0.005	-0.005	0	%100
6	7	X	-0.005	-0.005	0	%100
7	8	X	-0.002	-0.002	0	%100
8	9	X	-0.005	-0.005	0	%100
9	11	X	-0.005	-0.005	0	%100
10	12	X	-0.002	-0.002	0	%100
11	13	X	-0.005	-0.005	0	%100
12	15	X	-0.005	-0.005	0	%100
13	16	X	-0.002	-0.002	0	%100
14	17	X	-0.005	-0.005	0	%100
15	19	X	-0.003	-0.003	0	%100
16	20	X	-0.003	-0.003	0	%100
17	21	X	-0.003	-0.003	0	%100
18	22	X	-0.003	-0.003	0	%100
19	23	X	-0.003	-0.003	0	%100
20	24	X	-0.003	-0.003	0	%100



Member Distributed Loads (BLC 5 : 90 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, %)]
21	25	X	-0.003	-0.003	0	%100
22	26	X	-0.003	-0.003	0	%100
23	29	X	-0.002	-0.002	0	%100
24	32	X	-0.002	-0.002	0	%100
25	35	X	-0.002	-0.002	0	%100
26	36	X	-0.002	-0.002	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	-1e-04	-1e-04	0	%100
16	20	Z	-1e-04	-1e-04	0	%100
17	21	Z	-1e-04	-1e-04	0	%100
18	22	Z	-1e-04	-1e-04	0	%100
19	23	Z	-1e-04	-1e-04	0	%100
20	24	Z	-1e-04	-1e-04	0	%100
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	-0.0002	-0.0002	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	-1e-04	-1e-04	0	%100



Member Distributed Loads (BLC 7 : 90 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, %)]
16	20	X	-1e-04	-1e-04	0	%100
17	21	X	-1e-04	-1e-04	0	%100
18	22	X	-1e-04	-1e-04	0	%100
19	23	X	-1e-04	-1e-04	0	%100
20	24	X	-1e-04	-1e-04	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	-0.0002	-0.0002	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	-0.01	-0.01	0	%100
2	2	Y	-0.01	-0.01	0	%100
3	3	Y	-0.011	-0.011	0	%100
4	4	Y	-0.008	-0.008	0	%100
5	5	Y	-0.022	-0.022	0	%100
6	7	Y	-0.011	-0.011	0	%100
7	8	Y	-0.008	-0.008	0	%100
8	9	Y	-0.022	-0.022	0	%100
9	11	Y	-0.011	-0.011	0	%100
10	12	Y	-0.008	-0.008	0	%100
11	13	Y	-0.022	-0.022	0	%100
12	15	Y	-0.011	-0.011	0	%100
13	16	Y	-0.008	-0.008	0	%100
14	17	Y	-0.022	-0.022	0	%100
15	19	Y	-0.005	-0.005	0	%100
16	20	Y	-0.005	-0.005	0	%100
17	21	Y	-0.005	-0.005	0	%100
18	22	Y	-0.005	-0.005	0	%100
19	23	Y	-0.005	-0.005	0	%100
20	24	Y	-0.005	-0.005	0	%100
21	25	Y	-0.005	-0.005	0	%100
22	26	Y	-0.005	-0.005	0	%100
23	29	Y	-0.01	-0.01	0	%100
24	32	Y	-0.01	-0.01	0	%100
25	35	Y	-0.01	-0.01	0	%100
26	36	Y	-0.009	-0.009	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

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	-0.001	-0.001	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	4	Z	-0.0006	-0.0006	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	7	Z	-0.001	-0.001	0	%100
7	8	Z	-0.0006	-0.0006	0	%100
8	9	Z	-0.002	-0.002	0	%100
9	11	Z	-0.001	-0.001	0	%100
10	12	Z	-0.0006	-0.0006	0	%100



Member Distributed Loads (BLC 9 : 0 Seismic) (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, %)]
11	13	Z	-0.002	-0.002	0	%100
12	15	Z	-0.001	-0.001	0	%100
13	16	Z	-0.0006	-0.0006	0	%100
14	17	Z	-0.002	-0.002	0	%100
15	19	Z	-0.0004	-0.0004	0	%100
16	20	Z	-0.0004	-0.0004	0	%100
17	21	Z	-0.0003	-0.0003	0	%100
18	22	Z	-0.0003	-0.0003	0	%100
19	23	Z	-0.0004	-0.0004	0	%100
20	24	Z	-0.0004	-0.0004	0	%100
21	25	Z	-0.0003	-0.0003	0	%100
22	26	Z	-0.0003	-0.0003	0	%100
23	29	Z	-0.0007	-0.0007	0	%100
24	32	Z	-0.0007	-0.0007	0	%100
25	35	Z	-0.0007	-0.0007	0	%100
26	36	Z	-0.0009	-0.0009	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

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	-0.001	-0.001	0	%100
2	2	X	-0.001	-0.001	0	%100
3	3	X	-0.001	-0.001	0	%100
4	4	X	-0.0006	-0.0006	0	%100
5	5	X	-0.002	-0.002	0	%100
6	7	X	-0.001	-0.001	0	%100
7	8	X	-0.0006	-0.0006	0	%100
8	9	X	-0.002	-0.002	0	%100
9	11	X	-0.001	-0.001	0	%100
10	12	X	-0.0006	-0.0006	0	%100
11	13	X	-0.002	-0.002	0	%100
12	15	X	-0.001	-0.001	0	%100
13	16	X	-0.0006	-0.0006	0	%100
14	17	X	-0.002	-0.002	0	%100
15	19	X	-0.0004	-0.0004	0	%100
16	20	X	-0.0004	-0.0004	0	%100
17	21	X	-0.0003	-0.0003	0	%100
18	22	X	-0.0003	-0.0003	0	%100
19	23	X	-0.0004	-0.0004	0	%100
20	24	X	-0.0004	-0.0004	0	%100
21	25	X	-0.0003	-0.0003	0	%100
22	26	X	-0.0003	-0.0003	0	%100
23	29	X	-0.0007	-0.0007	0	%100
24	32	X	-0.0007	-0.0007	0	%100
25	35	X	-0.0007	-0.0007	0	%100
26	36	X	-0.0009	-0.0009	0	%100

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

Node	Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)]
1	57	L	Y	-0.5



Node Loads and Enforced Displacements (BLC 12 : Live Load b)

Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)]
1 45	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 13 : Live Load c)

Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *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 0 Seismic	ELZ			10	26
10 90 Seismic	ELX			10	26
11 Live Load a	LL		1		
12 Live Load b	LL		1		
13 Live Load c	LL		1		
14 Live Load d	LL				
15 Maint LL 1	LL			1	
16 Maint LL 2	LL			1	
17 Maint LL 3	LL			1	
18 Maint LL 4	LL			1	
19 Maint LL 5	LL			1	
20 Maint LL 6	LL			1	
21 Maint LL 7	LL				
22 Maint LL 8	LL				
23 Maint LL 9	LL				
24 Maint LL 10	LL				
25 Maint LL 11	LL				
26 Maint LL 12	LL				

Load Combinations

Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1 1.4 Dead	Yes	Y	1	1.4						
2 1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3 1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4 1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5 1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6 1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7 1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8 1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9 1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10 1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11 1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12 1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13 1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14 1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5
101	1.2 D + 1.5 LL Maint (16)	Yes	Y	1	1.2					30	1.5
102	1.2 D + 1.5 LL Maint (17)	Yes	Y	1	1.2					31	1.5
103	1.2 D + 1.5 LL Maint (18)	Yes	Y	1	1.2					32	1.5
104	1.2 D + 1.5 LL Maint (19)	Yes	Y	1	1.2					33	1.5
105	1.2 D + 1.5 LL Maint (20)	Yes	Y	1	1.2					34	1.5
106	1.2 D + 1.5 LL Maint (21)	Yes	Y	1	1.2					35	1.5
107	1.2 D + 1.5 LL Maint (22)	Yes	Y	1	1.2					36	1.5
108	1.2 D + 1.5 LL Maint (23)	Yes	Y	1	1.2					37	1.5
109	1.2 D + 1.5 LL Maint (24)	Yes	Y	1	1.2					38	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	1.148	41	0.941	18	0.244	12	0	109	0	109	0	109
2		min	-1.09	71	0.266	10	-1.973	18	0	1	0	1	0	1
3	27	max	1.081	65	0.869	24	1.85	14	0	109	0	109	0	109
4		min	-1.139	47	0.254	4	0.257	8	0	1	0	1	0	1
5	65	max	0.069	5	0.053	23	0.595	5	0	109	0	109	0	109
6		min	-0.069	11	0.015	5	-0.595	11	0	1	0	1	0	1
7	Totals:	max	0.729	5	1.845	24	0.973	2						
8		min	-0.729	11	0.604	26	-0.973	8						



Company : B+T Group
 Designer : AK
 Job Number : 149454.003.01
 Model Name : CT10017-A - North Granby

12/1/2021
 4:02:08 PM
 Checked By : _____

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	C	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	0.102	4	54	0.062	1.75	47	33.355	65.826	4.727	4.727	1.549	H1-1b						
2	2	HSS2.875X0.203	0.087	4	60	0.048	1.75	5	33.355	65.826	4.727	4.727	1.639	H1-1b						
3	3	PL5/8x3.5	0.216	0.583	66	0.088	0.583	y 49	83.691	98.438	1.282	7.178	1.128	H1-1b						
4	4	1.9" ODX0.12"	0.215	0.135	65	0.065	2.449	16	23.614	27.779	1.314	1.314	2.065	H1-1b						
5	5	PL5/8x4.25	0.072	0.127	66	0.048	0.127	y 25	110.629	119.531	1.556	10.583	1.373	H1-1b						
6	7	PL5/8x3.5	0.22	0.583	46	0.085	0.583	y 65	83.691	98.438	1.282	7.178	1.181	H1-1b						
7	8	1.9" ODX0.12"	0.219	0.135	41	0.068	2.449	17	23.614	27.779	1.314	1.314	1.996	H1-1b						
8	9	PL5/8x4.25	0.078	0.127	41	0.046	0.127	y 17	110.629	119.531	1.556	10.583	1.386	H1-1b						
9	11	PL5/8x3.5	0.209	0.583	64	0.091	0.583	y 45	83.691	98.438	1.282	7.178	1.066	H1-1b						
10	12	1.9" ODX0.12"	0.237	0.135	64	0.061	2.449	20	23.614	27.779	1.314	1.314	2.064	H1-1b						
11	13	PL5/8x4.25	0.059	0.127	67	0.044	0.362	y 19	110.629	119.531	1.556	10.583	1.534	H1-1b						
12	15	PL5/8x3.5	0.217	0.583	48	0.086	0.583	y 67	83.691	98.438	1.282	7.178	1.045	H1-1b						
13	16	1.9" ODX0.12"	0.246	0.135	47	0.056	2.449	20	23.614	27.779	1.314	1.314	2.063	H1-1b						
14	17	PL5/8x4.25	0.06	0.127	44	0.041	0.127	y 68	110.629	119.531	1.556	10.583	1.478	H1-1b						
15	19	5/8" SR	0.35	2.5	62	0.006	2.5	48	1.88	13.806	0.144	0.144	2.265	H1-1a						
16	20	5/8" SR	0.466	2.5	65	0.011	2.5	48	1.88	13.806	0.144	0.144	2.259	H1-1a						
17	21	1/2" SR	0.259	0	67	0.01	0	44	0.393	8.836	0.074	0.074	1.782	H1-1a						
18	22	1/2" SR	0	3.499	109	0.008	3.499	49	0.393	8.836	0.074	0.074	1.785	H1-1a						
19	23	5/8" SR	0.366	2.5	49	0.006	0	11	1.88	13.806	0.144	0.144	2.297	H1-1a						
20	24	5/8" SR	0.487	2.5	47	0.011	2.5	65	1.88	13.806	0.144	0.144	2.26	H1-1a						
21	25	1/2" SR	0.266	0	44	0.01	0	69	0.393	8.836	0.074	0.074	1.823	H1-1a						
22	26	1/2" SR	0	3.499	109	0.009	3.499	4	0.393	8.836	0.074	0.074	1.631	H1-1a						
23	29	Pipe2.875x0.12	0.103	2.75	2	0.037	2.75	46	22.398	42.998	3.144	3.144	3	H1-1b						
24	32	Pipe2.875x0.12	0.112	5.25	71	0.033	2.75	70	22.398	42.998	3.144	3.144	3	H1-1b						
25	35	Pipe2.875x0.12	0.113	5.25	41	0.035	5.25	47	22.398	42.998	3.144	3.144	3	H1-1b						
26	36	Pipe2.38X0.12	0.061	4.256	17	0.005	8.512	23	11.799	35.273	2.115	2.115	1.136	H1-1b						

APPENDIX B

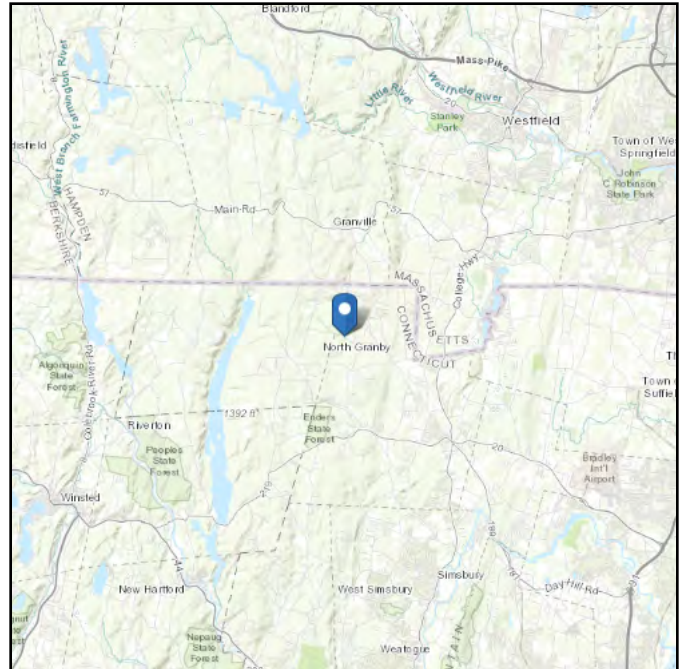
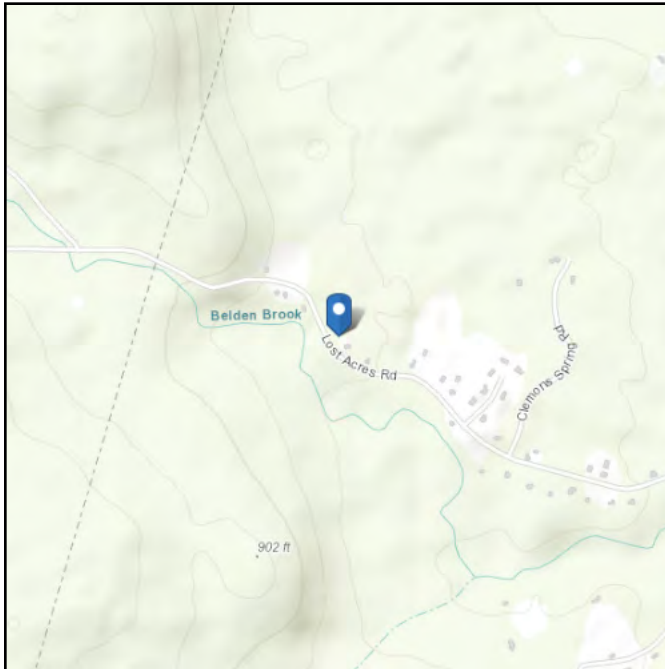
Additional Calculations

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 653.16 ft (NAVD 88)
Latitude: 42.0096
Longitude: -72.866544



Wind

Results:

Wind Speed	115 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	89 Vmph
100-year MRI	95 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Dec 01 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

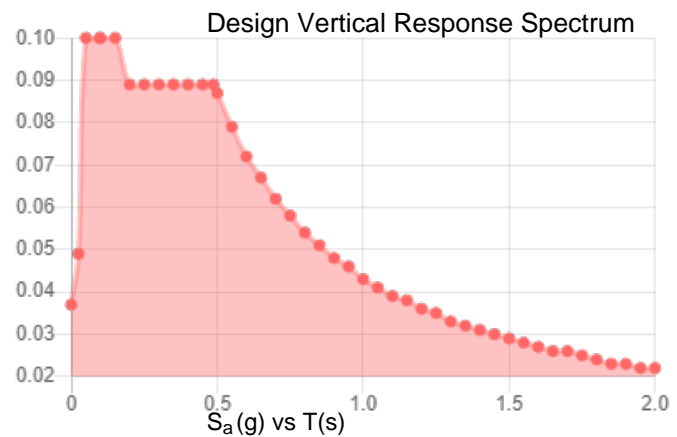
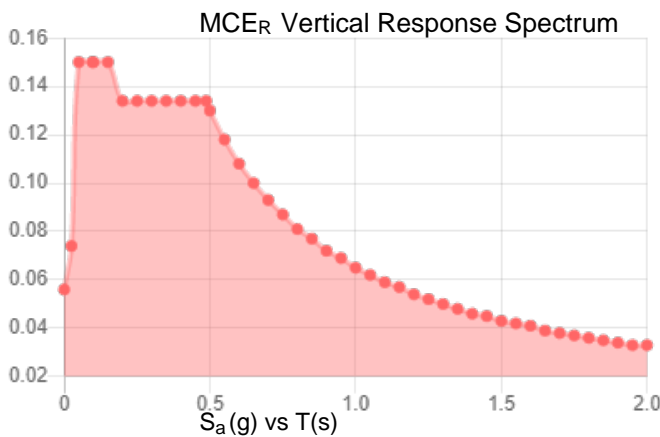
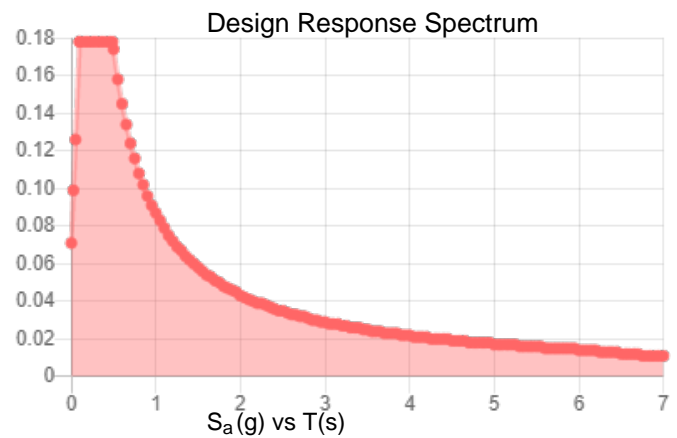
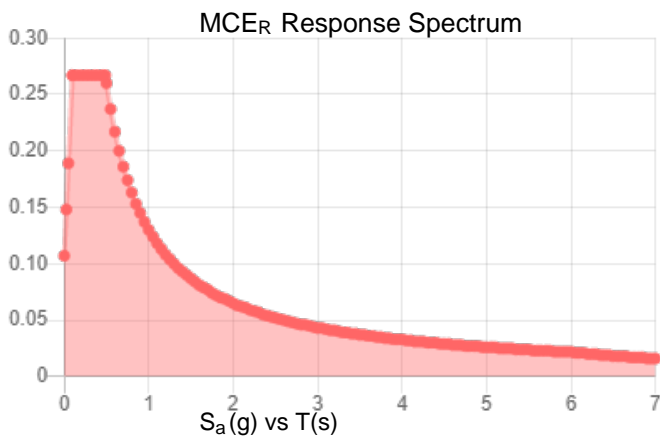
Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_s :	0.167	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.087
F_v :	2.4	PGA _M :	0.139
S_{MS} :	0.267	F_{PGA} :	1.6
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.178	C_v :	0.7

Seismic Design Category B



Data Accessed: Wed Dec 01 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.50 in.

Concurrent Temperature: 5 F

Gust Speed 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Wed Dec 01 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 500-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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

PROJECT	149454.003.01 - North Granby, CT	SR
SUBJECT	Sector Mount Analysis	
DATE	12/01/21	PAGE 1 OF 1



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

B+T GRP

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	0.244	k
Vertical Shear	:	0.941	k
Horizontal Shear	:	1.148	k
Torsion	:	0	k.ft
Moment from Horizontal Forces	:	0	k.ft
Moment from Vertical Forces	:	0	k.ft

Bolt Parameters

Bolt Grade	:	A325	
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	:	4	bolts

Summary of Forces

Shear Resultant Force	:	1.48	k
Force from Horz. Moment	:	0.00	k
Force from Vert. Moment	:	0.00	k
Shear Load / Bolt	:	0.37	k
Tension Load / Bolt	:	0.06	k
Resultant from Moments / Bolt	:	0.00	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	0.29%		OKAY
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	3.91%		OKAY
Unity Check, Combined	:	4.20%		OKAY
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	1.07%		OKAY

PROJECT	149454.003.01 - North Granby, CT			SR
SUBJECT	Sector Mount Analysis			
DATE	12/01/21	PAGE	1	OF 1



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

[REF: AISC 360-05]

Connecting Member Parameters

Plate Yield Strength, F_y	:	36.00	ksi	[AISC Table 2-5]
Plate Tensile Strength, F_u	:	58.00	ksi	[AISC Table 2-5]
Plate Height	:	9.00	in	
Plate Width	:	9.00	in	
Plate Thickness	:	0.50	in	
Edge Distance	:	1.06	in	
Gross Tension Area, A_{gt}	:	4.50	in ²	
Gross Shear Area, A_{gv}	:	0.75	in ²	
Net Area for tension, A_{nt}	:	4.16	in ²	
Net Area for shear, A_{nt}	:	3.00	in ²	

Plate Check

Available Tensile Yield	:	145.80	k	[Eq. J4-1]
Available Tensile Rupture	:	180.80	k	[Eq. J4-2]
Unity Check, Plate Tension	:	0.04%		OKAY
Available Shear Yield	:	16.20	k	[Eq. J4-3]
Available Shear Rupture	:	104.40	k	[Eq. J4-4]
Unity Check, Plate Shear	:	9.16%		OKAY
Available Block Shear, ΦR_n	:	77.40	k	[Eq. J4-5]
Unity Check, Block Shear	:	1.92%		OKAY

EXHIBIT 10

Construction Drawings



DISH Wireless L.L.C. SITE ID:

BOBDL00125A

DISH Wireless L.L.C. SITE ADDRESS:

**150 LOST ACRES ROAD
GRANBY, CT 06035**



By Stephen Roth at 6:04:47 AM, 10/26/2021

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:**
- 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)
 - INSTALL (1) PROPOSED METER CANISTER IN EXISTING METER SOCKET

SITE INFORMATION

PROPERTY OWNER: LOMBARDI JOHN G
 ADDRESS: 150 LOST ACRES RD
 NORTH GRANBY, CT 06060

TOWER TYPE: SELF-SUPPORT TOWER

TOWER CO SITE ID: CT10017-A

TOWER APP NUMBER: 167824

COUNTY: HARTFORD

LATITUDE (NAD 83): 42° 00' 34.6" N
 42.009600° N

LONGITUDE (NAD 83): 72° 51' 57.56" W
 72.865989° W

ZONING JURISDICTION: GRANBY

ZONING DISTRICT: R2A

PARCEL NUMBER: 09003056-09000150

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: EVERSOURCE

TELEPHONE COMPANY: CROWN CASTLE

PROJECT DIRECTORY

APPLICANT: DISH Wireless L.L.C.
 5701 SOUTH SANTA FE DRIVE
 LITTLETON, CO 80120

TOWER OWNER: SBA COMMUNICATIIONS 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: RYAN LYNCH
 RYAN.LYNCH@DISH.COM

CONST. MANAGER: JAVIER SOTO
 JAVIER.SOTO@DISH.COM

RF ENGINEER: BOSSENER CHARLES
 BOSSENER.CHARLES@DISH.COM



5701 SOUTH SANTA FE DRIVE
 LITTLETON, CO 80120



8051 CONGRESS AVENUE
 BOCA RATON, FL 33487



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



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

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:
 MLM BLJ BLJ

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	9/13/21	ISSUED FOR REVIEW
0	10/19/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
 149454.001.01

DISH Wireless L.L.C.
 PROJECT INFORMATION
 BOBDL00125A
 150 LOST ACRES ROAD
 GRANBY, CT 06035

SHEET TITLE
 TITLE SHEET

SHEET NUMBER
T-1

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

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

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 W AND CT-189 N TO LOST ACRES RD IN GRANBY. CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON, TAKE THE CT-20 W EXIT TOWARD E GRANBY/GRANBY. CONTINUE ONTO CT-20 W, CONTINUE STRAIGHT ONTO CT-189 N/N GRANBY RD. TURN LEFT ONTO LOST ACRES RD, ARRIVE AT BOBDL00125A.

VICINITY MAP



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

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.

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



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



10/19/21

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

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UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:
MLM BLJ BLJ

RFDS REV #: 1

CONSTRUCTION
DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	9/13/21	ISSUED FOR REVIEW
0	10/19/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149454.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00125A
150 LOST ACRES ROAD
GRANBY, CT 06035

SHEET TITLE
SITE SURVEY

SHEET NUMBER
LS-1

*Final CT0017-A; North Granby

IMPROVEMENT LOCATION SURVEY
AND EASEMENT MAP
150 LOST ACRES ROAD
NORTH GRANBY, CT
PREPARED FOR
SBA TOWERS II LLC.

LEGAL DESCRIPTION

A LEASHOLD ESTATE, AND LEASHOLD BEING A PORTION OF THE FOLLOWING DESCRIBED PARENT PARCEL:
A CERTAIN PIECE OR PARCEL OF LAND, WITH THE BUILDINGS THEREON, SITUATED ON THE NORTHEASTERLY SIDE OF LOST ACRES ROAD IN THE TOWN OF GRANBY, COUNTY OF HARTFORD AND STATE OF CONNECTICUT, KNOWN AS 150 LOST ACRES ROAD, BOUNDARY: NORTHERLY BY LAND NOW OR FORMERLY OF C.J. BUSTON, 234 MORE OR LESS; EASTERLY BY LAND NOW OR FORMERLY OF H.S. FOWLER ET AL, 345 FEET MORE OR LESS; SOUTHERLY, SOUTHWESTERLY AND WESTERLY BY LOST ACRES ROAD, 436 FEET, MORE OR LESS.

LEGAL DESCRIPTION

UTILITY AND ACCESS EASEMENT
TOGETHER WITH AN AFFIRMANT EASEMENT FROM THE LAD CORPORATION, A CONNECTICUT CORPORATION, SHOWN AS THE "PROPOSED ACCESS EASEMENT" ON A MAP ENTITLED, "EASEMENT MAP PREPARED FOR DISH WIRELESS FOR IMPROVING 150 LOST ACRES ROAD, GRANBY, CONNECTICUT, AND ASSOCIATED LAND SURVEYED BY PROFESSIONAL ENGINEER PAUL J. STOWELL, REGISTERED PROFESSIONAL ENGINEER, LICENSE NO. 2008-01, SHEET 1 OF 1; SAID EASEMENT WAS RECORDED WITH THE TOWN CLERK ON JULY 24, 2007 IN VOLUME 292, PAGE 362. SAID LEASHOLD BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
THAT CERTAIN PORTION OF THE LAND AS SHOWN ON A CLAP EASEMENT MAP PROVIDED BY DENNIS G. FOWLER DATED JUNE 30, 1989 AS PROJECT NO. 8785 COMPRISED OF THE FOLLOWING:
AN ACCESS AND EASEMENT AREA BEGINNING AT A POINT ON THE NORTHERLY LINE OF LOST ACRES ROAD WHICH POINTS MARKS THE INTERSECTION OF THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF MARGARET W. KEAP WITH THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF RICHARD J. FOWLER;

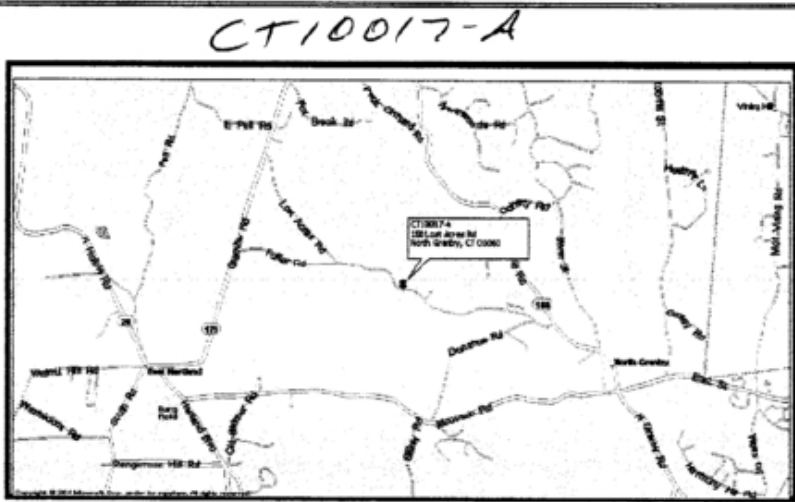
THENCE NORTH 41 DEGREES 50 MINUTES 40 SECONDS WEST, A DISTANCE OF 88.53 FEET ALONG THE NORTHEASTERLY LINE OF LOST ACRES ROAD TO A POINT; THENCE NORTH 28 DEGREES 18 MINUTES 20 SECONDS EAST, A DISTANCE OF 114.08 FEET TO A POINT; THENCE NORTH 11 DEGREES 16 MINUTES 07 SECONDS EAST, A DISTANCE OF 77.88 FEET TO A POINT; THENCE NORTH 78 DEGREES 40 MINUTES 23 SECONDS EAST, A DISTANCE OF 38.00 FEET TO A POINT; THENCE NORTH 11 DEGREES 07 MINUTES 07 SECONDS EAST, A DISTANCE OF 30.00 FEET TO A POINT; THENCE SOUTH 78 DEGREES 40 MINUTES 23 SECONDS EAST, A DISTANCE OF 38.00 FEET TO A POINT; THENCE SOUTH 11 DEGREES 07 MINUTES 07 SECONDS WEST, A DISTANCE OF 30.00 FEET ALONG THE WESTERLY BOUNDARY OF LAND NOW OR FORMERLY OF RICHARD J. FOWLER TO THE POINT OF BEGINNING; THENCE SOUTH 58 DEGREES 18 MINUTES 30 SECONDS WEST, A DISTANCE OF 134.62 FEET CONTINUING ALONG THE WESTERLY BOUNDARY OF LAND NOW OR FORMERLY OF RICHARD J. FOWLER TO THE POINT AND PLACE OF BEGINNING.

LEGAL DESCRIPTION

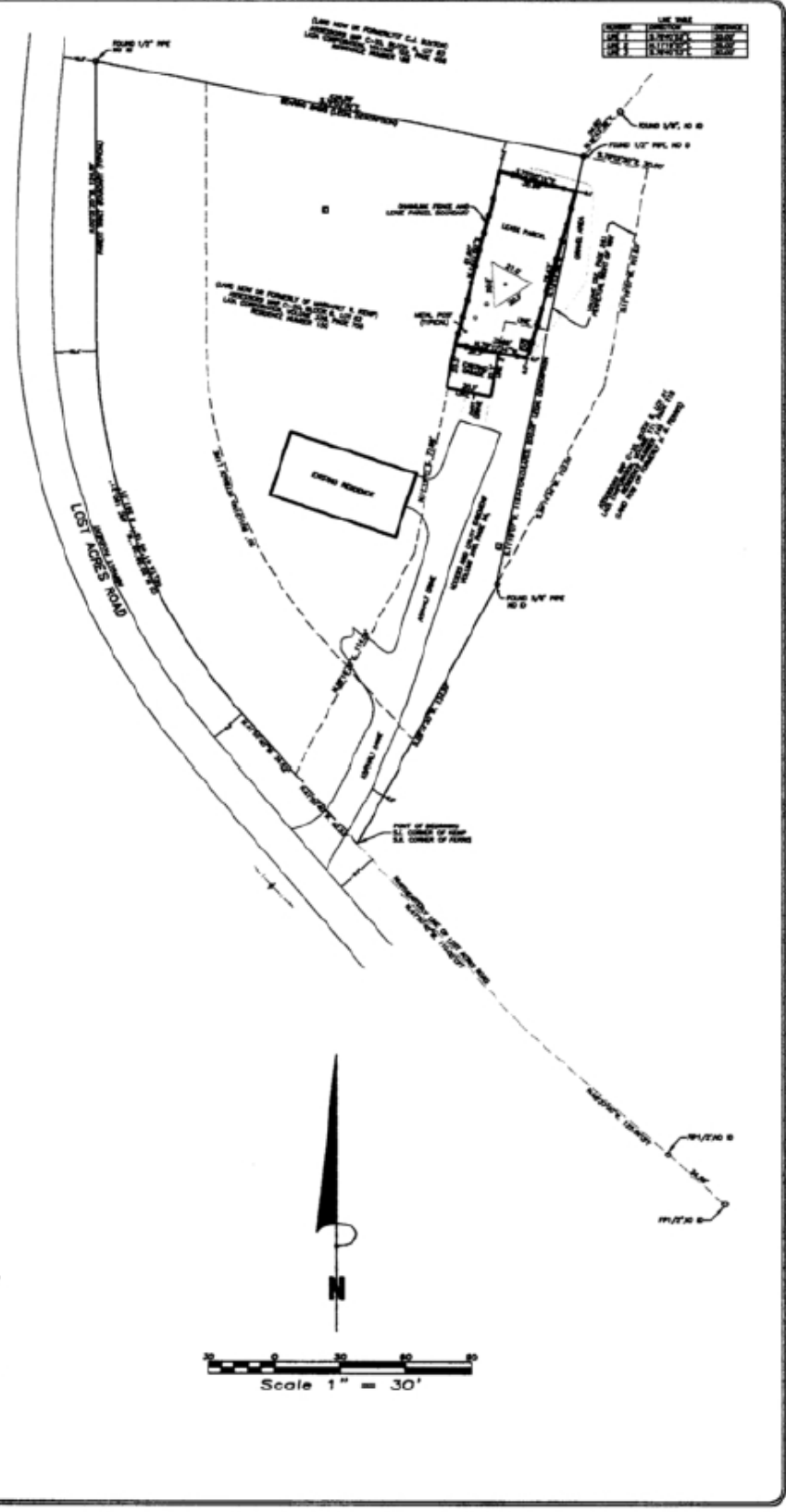
LEASE PARCEL
THE ENTIRE AREA COVERED WITHIN AND BOUNDED BY A CHAIN LINK FENCE AS SHOWN ON SAID MAP IMMEDIATELY ADJACENT TO AND OVERLAPPING A PORTION OF THE ABOVE DESCRIBED ACCESS AND EASEMENT AREA TO ITS NORTH, A PORTION OF LAND DESCRIBED AS "PARENT TRACT" A LEASHOLD ESTATE, AND LEASHOLD BEING A PORTION OF THE FOLLOWING DESCRIBED PARENT PARCEL:
A CERTAIN PIECE OR PARCEL OF LAND, WITH THE BUILDINGS THEREON, SITUATED ON THE NORTHEASTERLY SIDE OF LOST ACRES ROAD IN THE TOWN OF GRANBY, COUNTY OF HARTFORD AND STATE OF CONNECTICUT, KNOWN AS 150 LOST ACRES ROAD, BOUNDARY: NORTHERLY BY LAND NOW OR FORMERLY OF C.J. BUSTON, 234.00 MORE OR LESS; EASTERLY BY LAND NOW OR FORMERLY OF H.S. FOWLER ET AL, 345.00 FEET MORE OR LESS; SOUTHERLY, SOUTHWESTERLY AND WESTERLY BY LOST ACRES ROAD, 436.00 FEET MORE OR LESS.

ABBREVIATIONS

PLAN	DESCRIPTION	REFERENCE
CONC	CONCRETE	CONCRETE
CEM	CEMENT	CEMENT
CLAP	CLAP EASEMENT	CLAP EASEMENT
...



VICINITY MAP NOT TO SCALE



NOTES
1. THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SUBJECTS 20-208B-1 THROUGH 20-208B-28 AND THE STANDARDS FOR SURVEYS AND MAPS AT THE SCENE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1994.
THIS SURVEY CONFORMS TO A CLASS 1-3 HORIZONTAL ACCURACY.
SURVEY TYPE: IMPROVEMENT LOCATION SURVEY AND EASEMENT MAP
BOUNDARY DETERMINATION CATEGORY:
RELIABILITY:
THE DIMENSION LINES INDICATED HEREON REFLECT THE INFORMATION CONTAINED IN THE BELOW PLOTTABLE MAP REFERENCES.
PROPERTY OWNERS: JOHN G. LOUBARDY AND DEBORAH LINDSEY
MAP REFERENCES:
1. EASEMENT MAP PROVIDED FOR IMPROVING 150 LOST ACRES ROAD, GRANBY, CT BY J.P. RUSSO AND ASSOCIATES DATED 8-15-01.
2. PLAN OF PROPERTY OWNED BY LAD CORPORATION 146 LOST ACRES ROAD, GRANBY, CT, DATED 02-19-80, BY HENRY CHARLES DOTTOL, CONSULTANT AND LAND SURVEYOR.
3. UPDATED PLAN OF PROPERTY OWNED BY LAD CORPORATION 146 LOST ACRES ROAD, GRANBY, CT, BY HENRY CHARLES DOTTOL, CONSULTANT AND LAND SURVEYOR.
4. EASEMENT MAP DEPOSITED RETURNED, FILE NO. 0038A, CLAP EASEMENT MAP BY DENNIS G. FOWLER.

PLOTTABLE TITLE EXCEPTIONS (LAYERS TITLE INSURANCE CORPORATION # 0802482117)

DISTRICT NO.	INSTRUMENT	COMMENT
15	232-323	AS SHOWN ON SURVEY
16	215-34	AS SHOWN ON SURVEY
17	238-434	NOT PLOTTABLE
18	322-85	NOT PLOTTABLE

GENERAL NOTES
1. FIELD SURVEY DATE: 04-08-2021
2. VERTICAL CURVATURE: 800
3. HORIZONTAL SCALES: 80
4. TOWER COORDINATES:
ELEVATION: 42.00 METERS 34.16 METERS
CONVERTED: 73 DEGREES 51 MINUTES 27.36 SECONDS
5. POINTS OF TOWERS:
HEIGHT OF TOWERS:
HEIGHT OF CENTER ON TOWER:
PROPERTY OWNERS: JOHN G. LOUBARDY AND DEBORAH LINDSEY
6. SITE NAME: NORTH GRANBY
7. SITE ADDRESS: 150 LOST ACRES ROAD
8. SITE ADDRESS: NORTH GRANBY, CT
9. APPROXIMATION: NORTH GRANBY, CT
ZONE: R-24
ADDRESS: 150 LOST ACRES ROAD
DEED VOL. 336, PG. 706
ACCESSORS ID: MAP #0-10, BLOCK 6, LOT #0
FLOOR ZONE: 1 "1" MAP #00123 5005 C, DATED 03-02-1987.
AREA OF LEASE PARCEL: 2903 SQUARE FEET
AREA OF ACCESS EASEMENT: 8907 SQUARE FEET

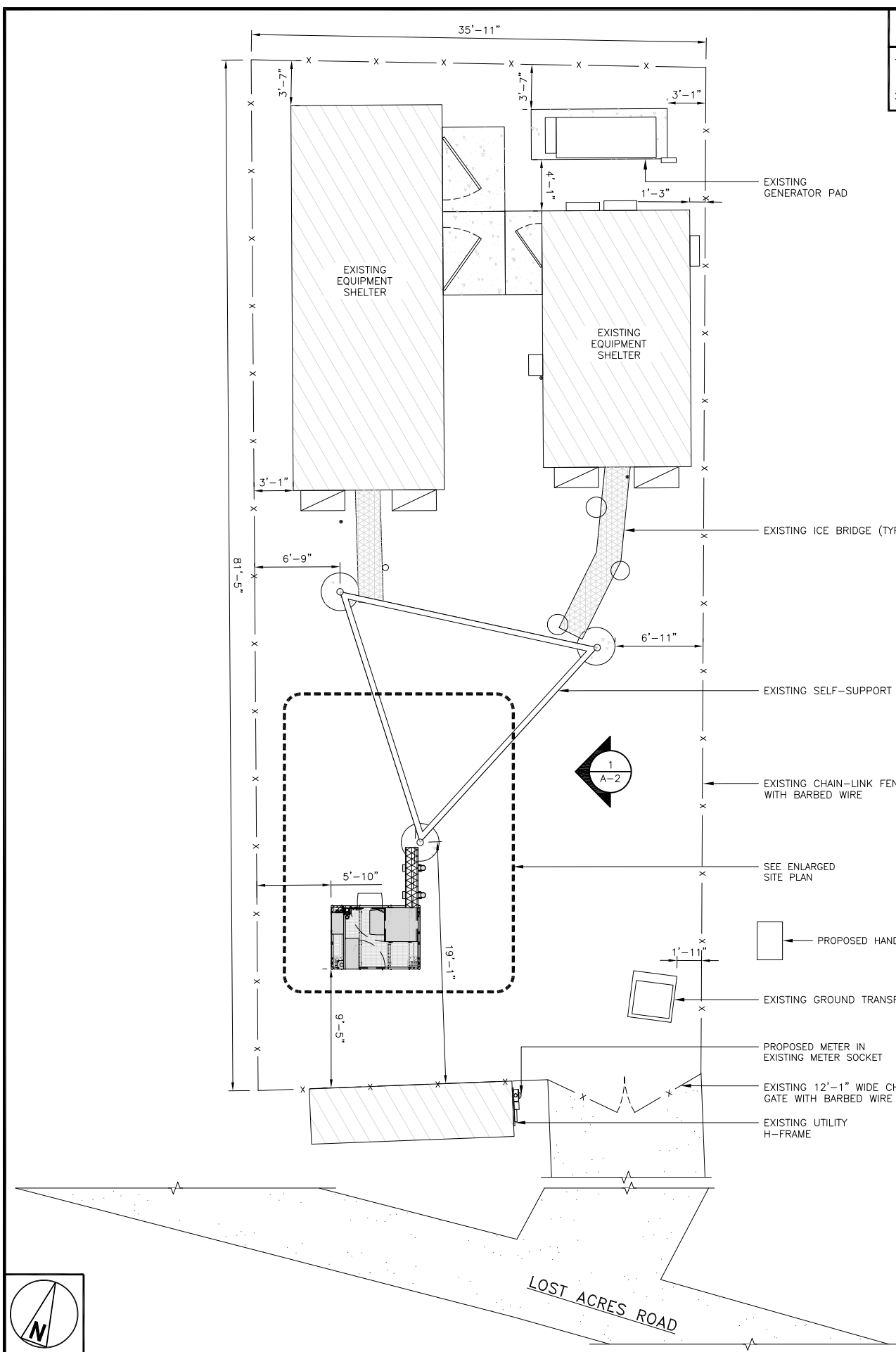
I HEREBY CERTIFY TO SBA TOWERS II, LLC A FLORIDA LIMITED LIABILITY COMPANY, 350946, PHOENIX & DIBELLO, PA AND LAYERS TITLE INSURANCE CORPORATION, THE FOLLOWING:
THIS SURVEYOR HAS RECEIVED AND REVIEWED THAT CERTAIN TITLE COMMITMENT NO. 0802482117 ISSUED BY LAYERS TITLE INSURANCE CORPORATION WITH AN EFFECTIVE DATE OF MARCH 21, 2007, WHICH PROPOSES TO INCLUDE THE LANDS DESCRIBED UNDER ITS SCHEDULE A.
THIS SURVEYOR KNOWS OF HIS OWN KNOWLEDGE THAT THE LANDS DESCRIBED UNDER SAID SCHEDULE A OF THE TITLE COMMITMENT CONFORM OR INCLUDE THE LANDS DESCRIBED IN AND DEPICTED ON THIS SURVEY.
THIS SURVEYOR FURTHER KNOWS OF HIS OWN KNOWLEDGE THAT THE EASEMENTS OF RECORD AND DEVELOPED UNDER SCHEDULES B & C OF SAID TITLE COMMITMENT CHARGE THE LANDS DESCRIBED ON THIS SURVEY, BUT SAID EASEMENTS WILL NOT INTERFERE WITH THE LOCATION OF THE PROPOSED INSURED LANDS, INCLUDING THE LEASED AREA AND ANY AND ALL ACCESS, UTILITY AND USE SPECIFIC EASEMENT PARCELS.
PAUL J. STOWELL REGISTERED LAND SURVEYOR 70210 DATED: 04-08-07
NOT VALID WITHOUT THE ORIGINAL SIGNATURE AND SEAL OF THE STATE LICENSED REGISTERED LAND SURVEYOR.

PAUL J. STOWELL
LAND SURVEYOR
171 WOODS ROAD
MIDDLETOWN, CT 06450
PHONE (203) 991-9995
FAX (203) 977-9508

LEGEND

CONC	CONCRETE	CEM	CEMENT
CLAP	CLAP EASEMENT

I HEREBY CERTIFY THAT THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SUBJECTS 20-208B-1 THROUGH 20-208B-28 AND THE STANDARDS FOR SURVEYS AND MAPS AT THE SCENE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1994.
DATE: 06-01-07
PAUL J. STOWELL, PROFESSIONAL LAND SURVEYOR, CONNECTICUT LICENSE NO. 70210



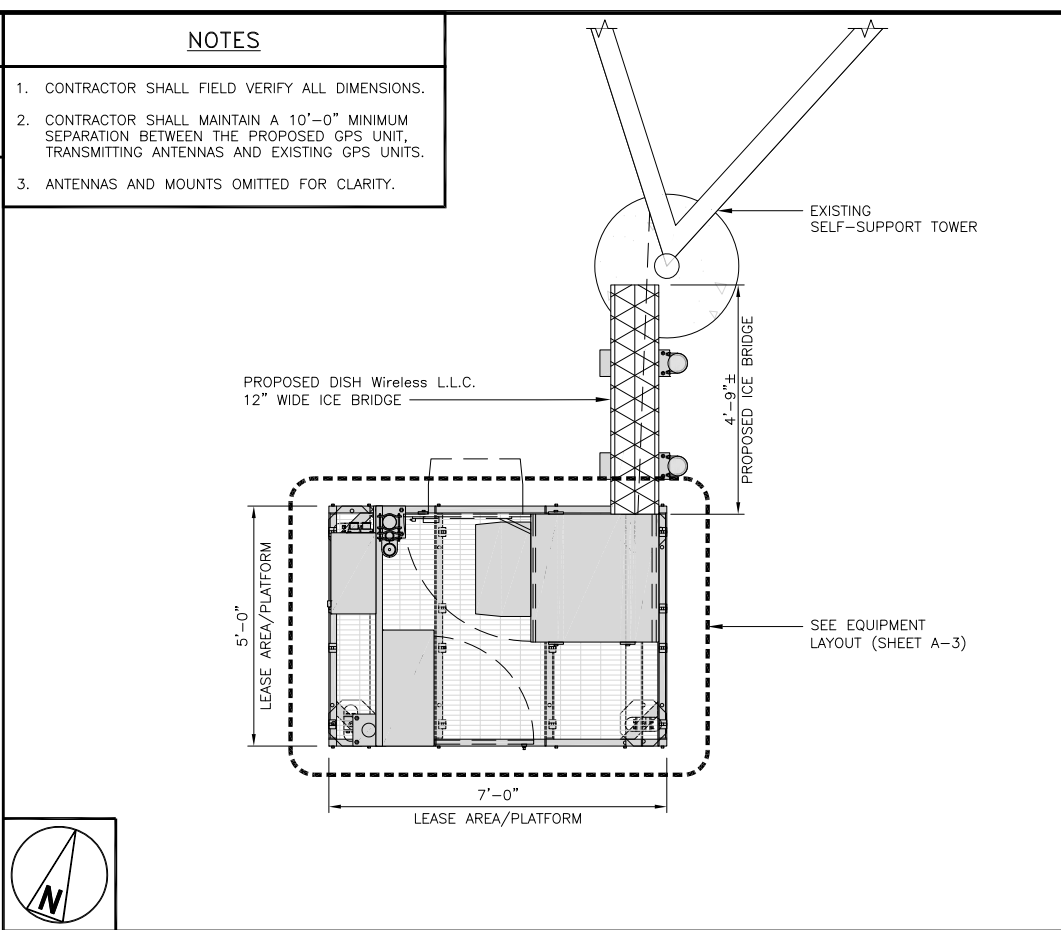
NOTES

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

OVERALL SITE PLAN

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

1



NOTES

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

ENLARGED SITE PLAN

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

2

NOT USED

3

dish wireless.

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SBA

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

PROFESSIONAL ENGINEER
No. 27004
10/19/21

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

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DRAWN BY: CHECKED BY: APPROVED BY:
MLM BLJ BLJ

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	9/13/21	ISSUED FOR REVIEW
0	10/19/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149454.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

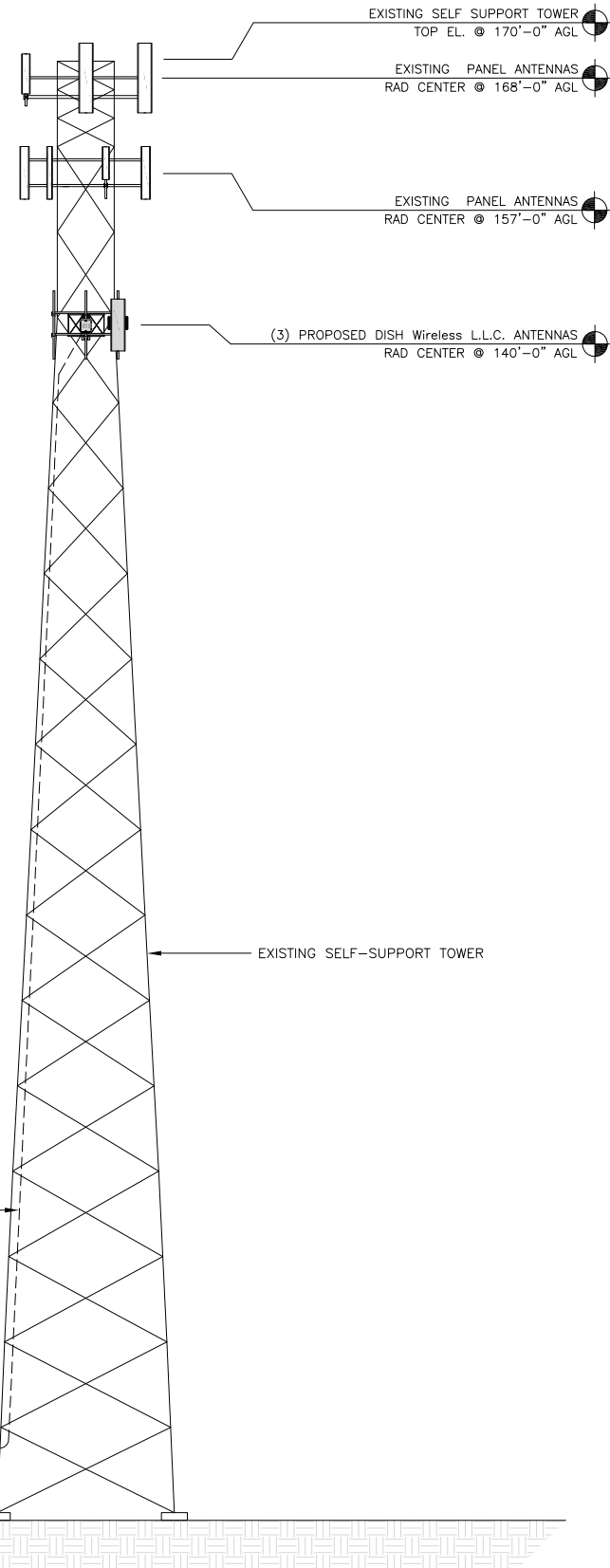
BOBDL00125A
150 LOST ACRES ROAD
GRANBY, CT 06035

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

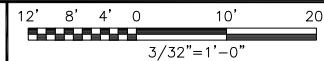
SHEET NUMBER
A-1

NOTES

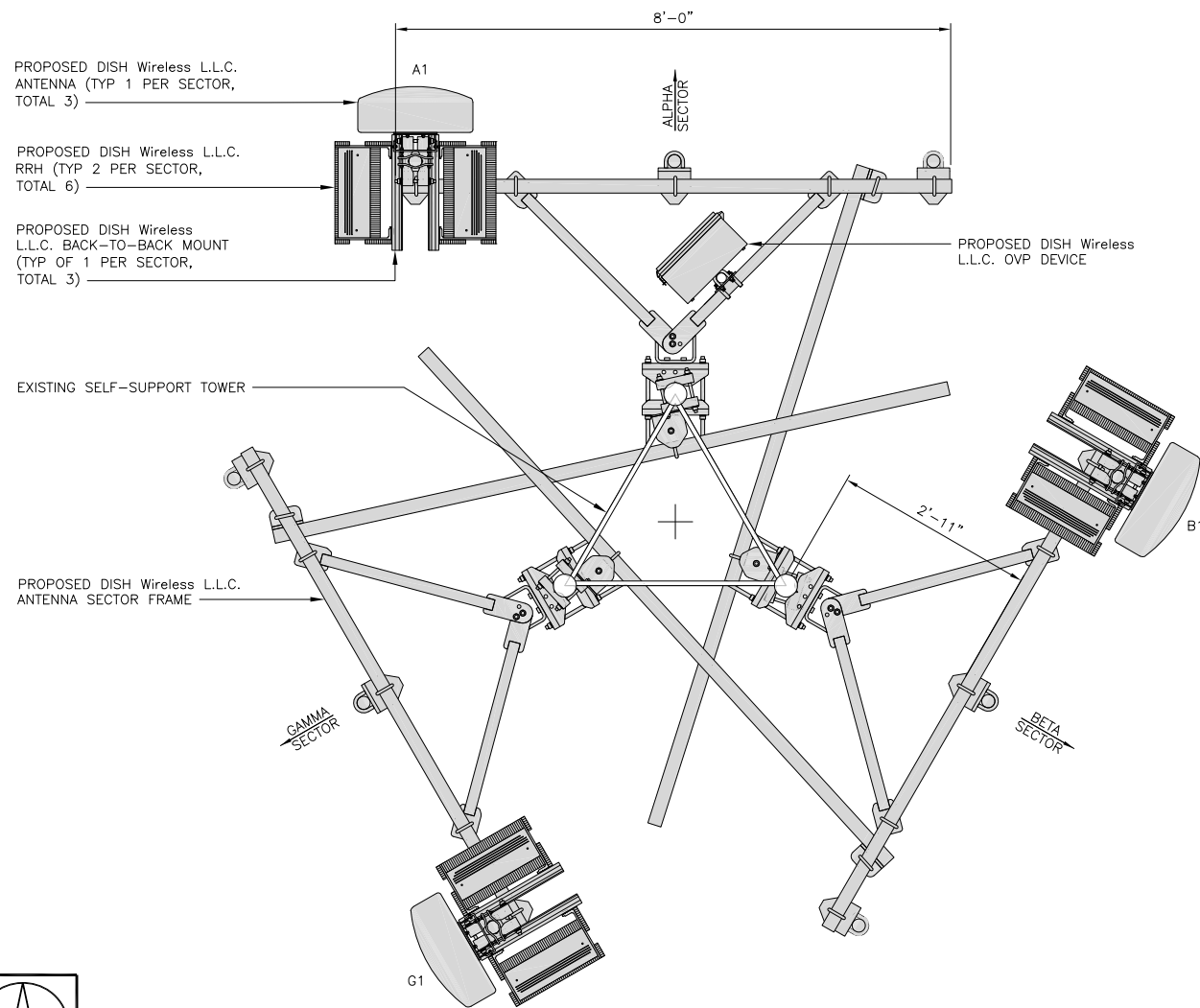
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



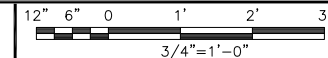
PROPOSED EAST ELEVATION



1



WIDTH OF TOWER FACE IS NOT TO BE CONSIDERED TO SCALE



ANTENNA LAYOUT

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	
ALPHA	A1	PROPOSED	JMA WIRELESS-MX08FR0665-21	5G	72.0" x 20.0"	0°	140'-0"	(1) HIGH-CAPACITY HYBRID CABLE (170' LONG)
BETA	B1	PROPOSED	JMA WIRELESS-MX08FR0665-21	5G	72.0" x 20.0"	120°	140'-0"	
GAMMA	G1	PROPOSED	JMA WIRELESS-MX08FR0665-21	5G	72.0" x 20.0"	240°	140'-0"	

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

ANTENNA SCHEDULE

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
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A&E PROJECT NUMBER
149454.001.01

DISH Wireless L.L.C. PROJECT INFORMATION
BOBDL00125A
150 LOST ACRES ROAD
GRANBY, CT 06035

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



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149454.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00125A
150 LOST ACRES ROAD
GRANBY, CT 06035

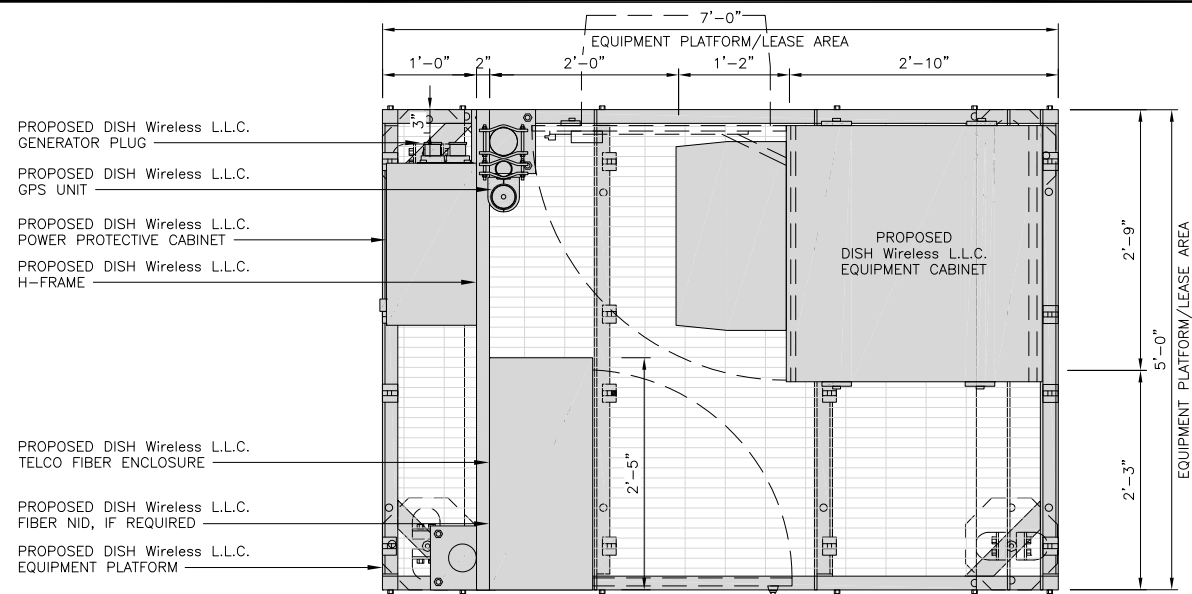
SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER

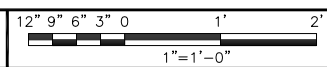
A-3

NOTES

- CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
- 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)
- EQUIPMENT CABINET OMITTED FOR CLARITY



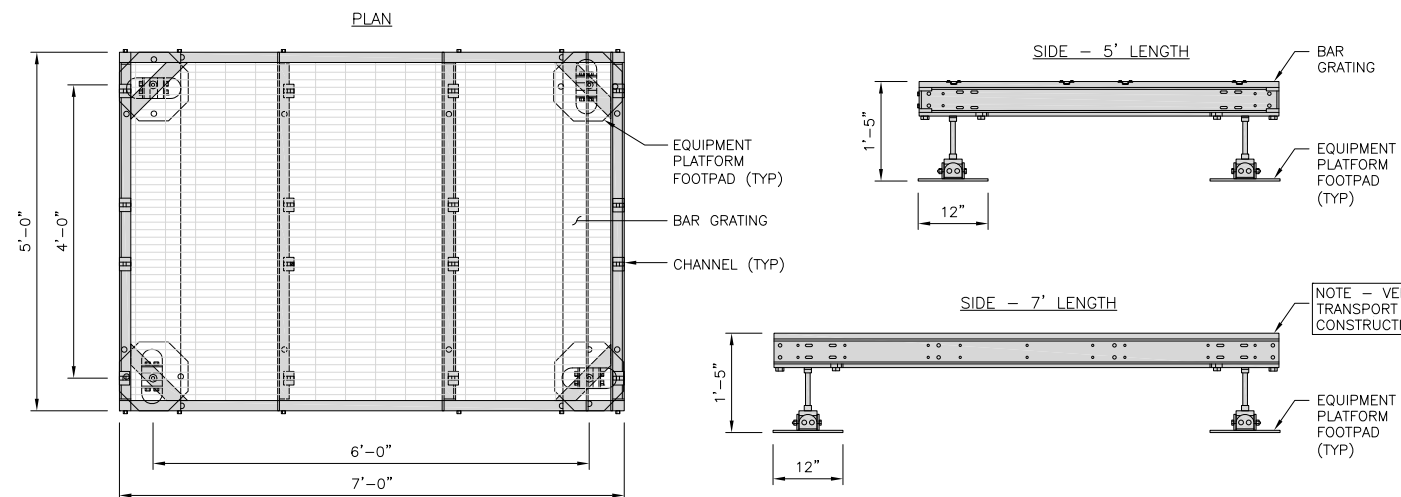
PLATFORM EQUIPMENT PLAN



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"



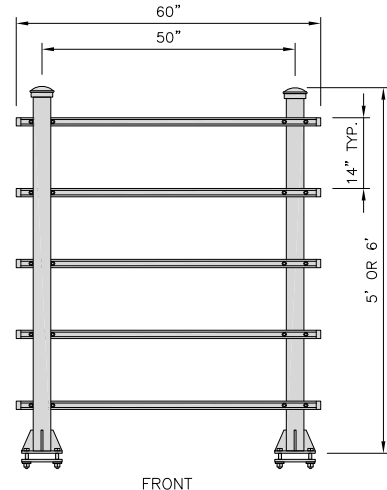
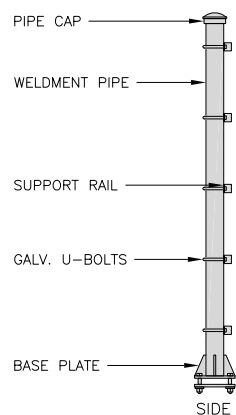
PLATFORM DETAIL

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

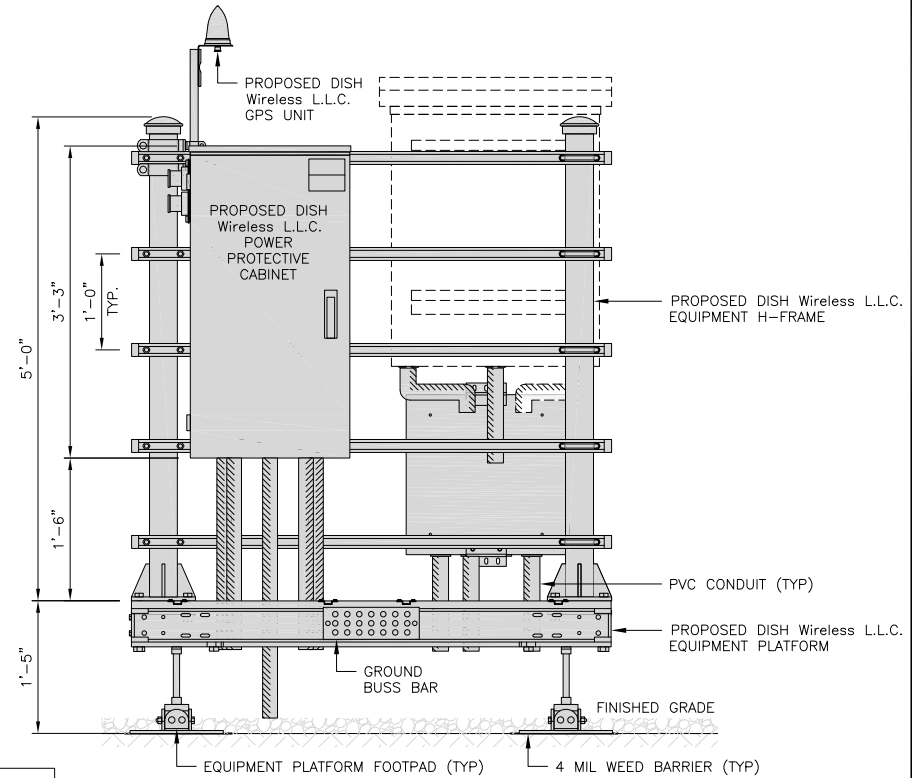
NO SCALE

3

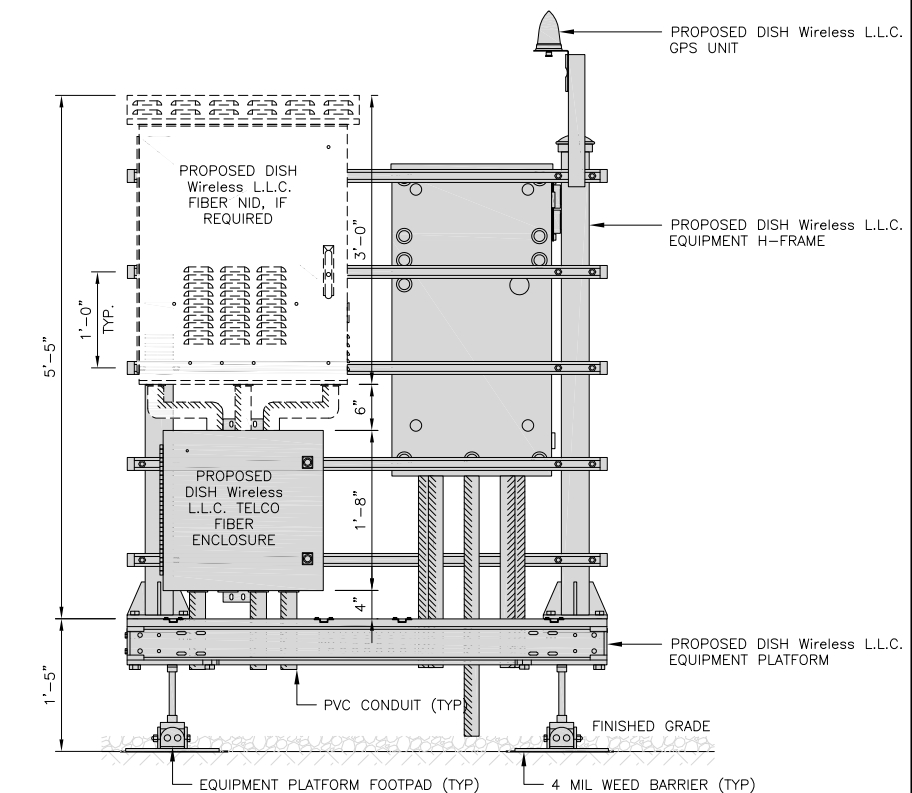
NOT USED

NO SCALE

4

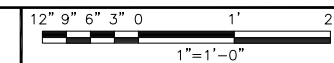


FRONT ELEVATION

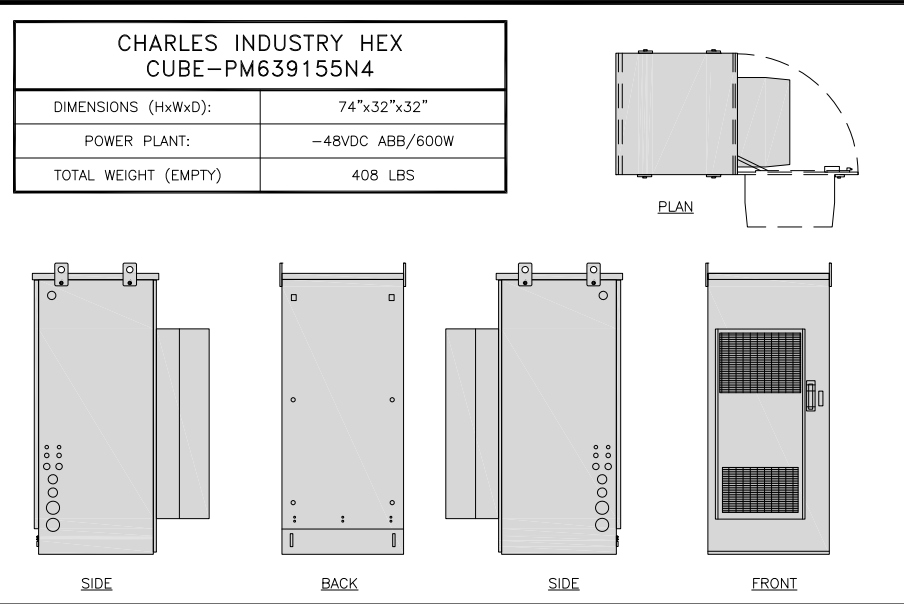


BACK ELEVATION

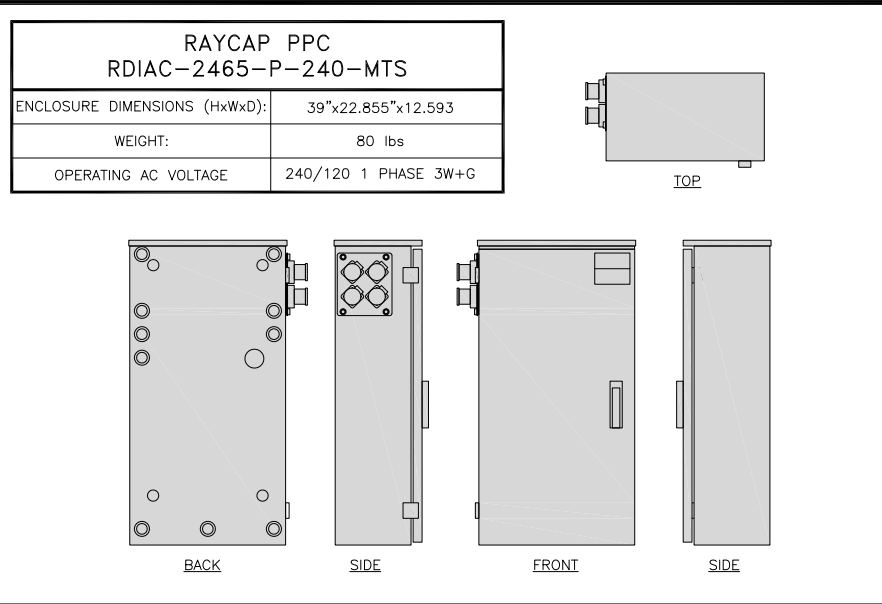
H-FRAME EQUIPMENT ELEVATION



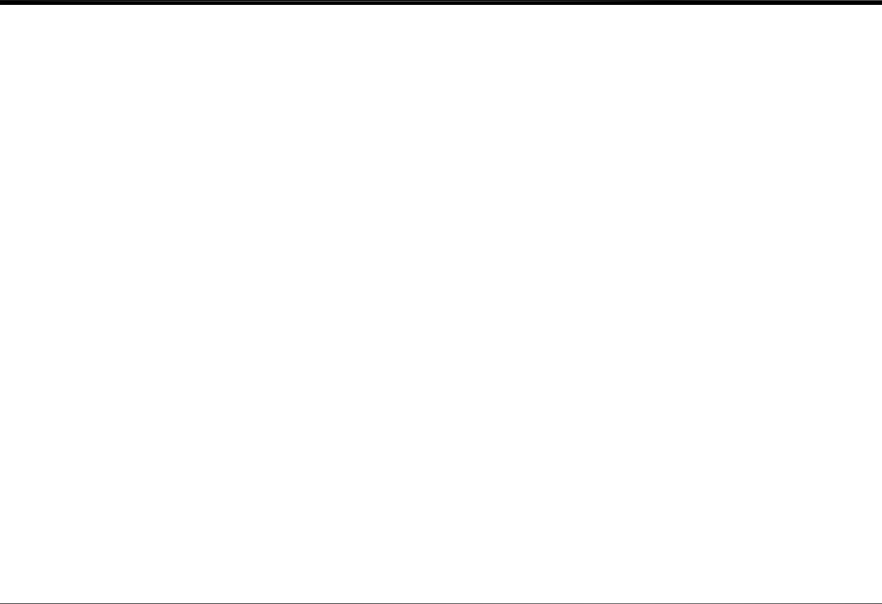
5



CABINET DETAIL NO SCALE **1**



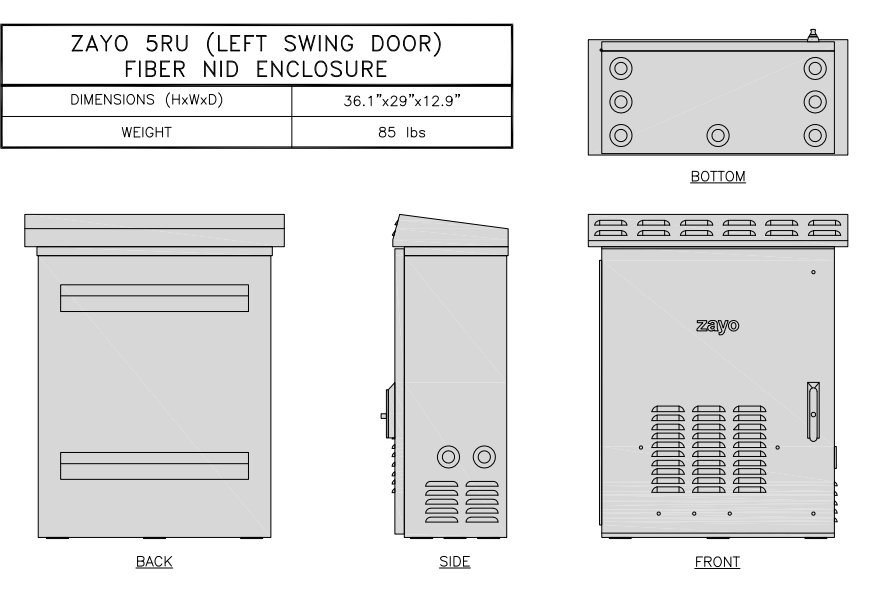
POWER PROTECTION CABINET (PPC) DETAIL NO SCALE **2**



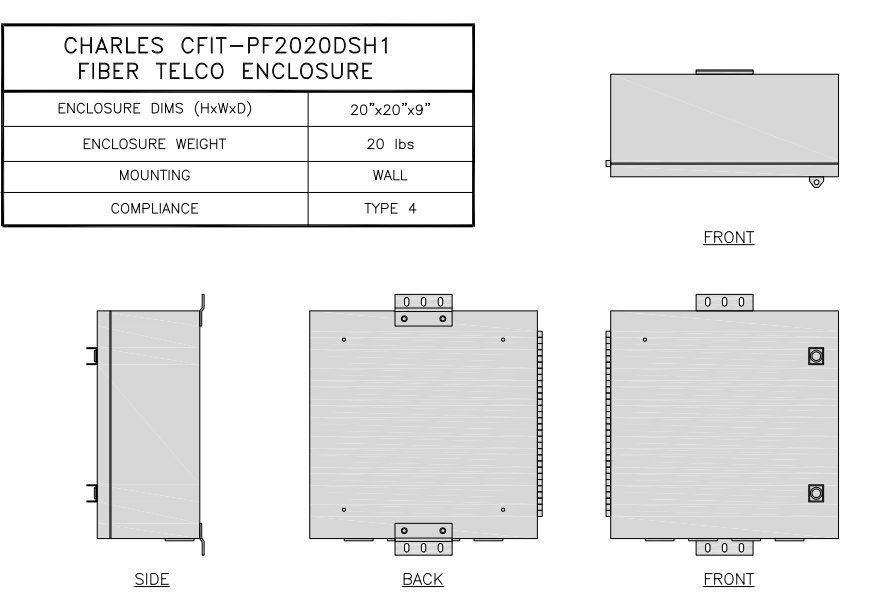
NOT USED NO SCALE **3**



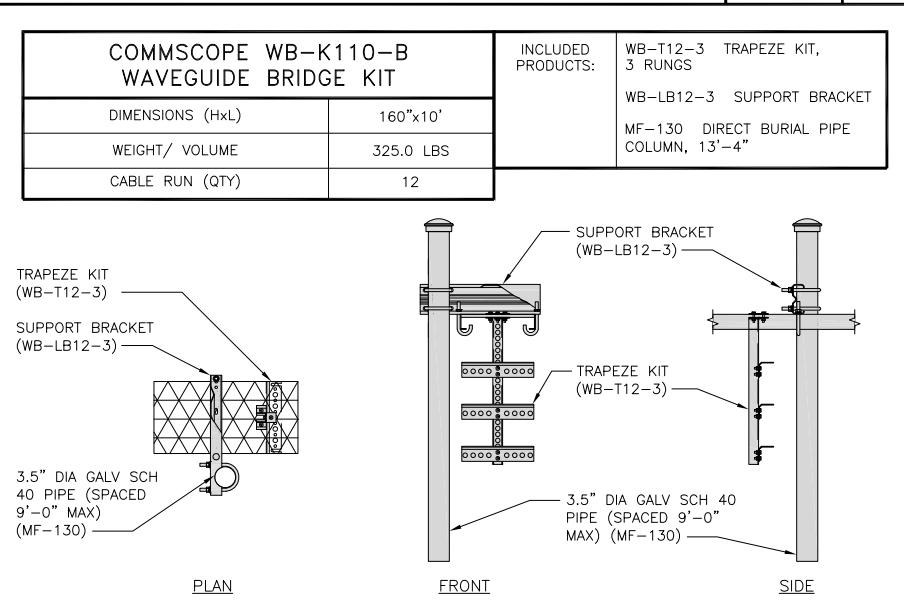
NOT USED NO SCALE **4**



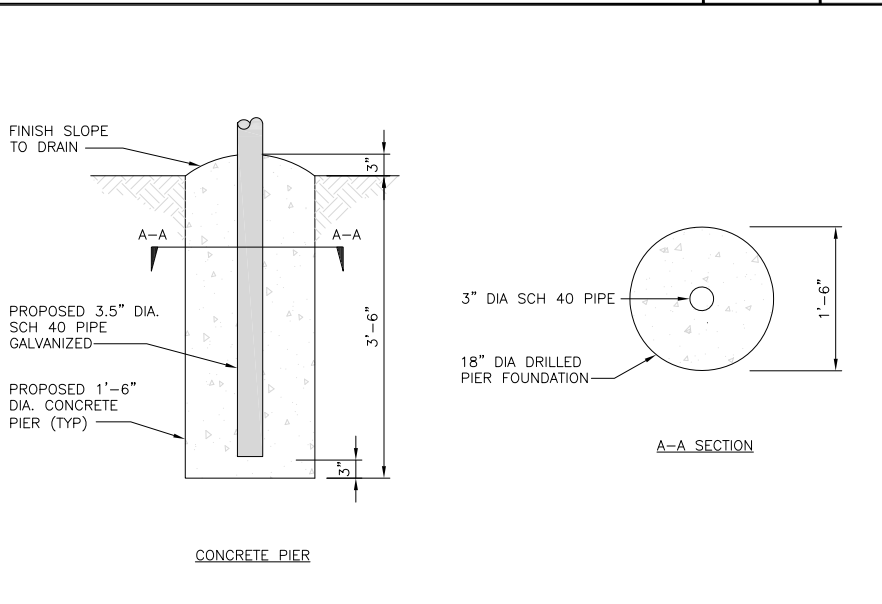
FIBER NID ENCLOSURE DETAIL NO SCALE **5**



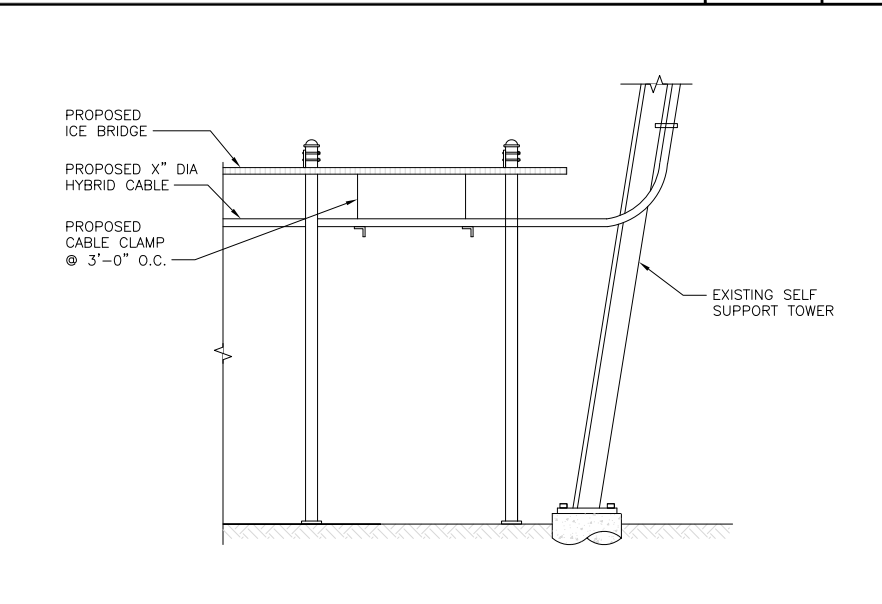
FIBER TELCO ENCLOSURE DETAIL NO SCALE **6**



ICE BRIDGE DETAIL NO SCALE **7**



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL NO SCALE **8**



HYBRID CABLE RUN NO SCALE **9**

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CONSTRUCTION DOCUMENTS

SUBMITTALS		
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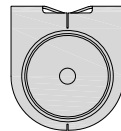
A&E PROJECT NUMBER
149454.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00125A
150 LOST ACRES ROAD
GRANBY, CT 06035

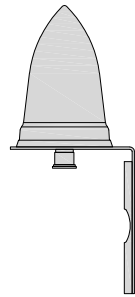
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

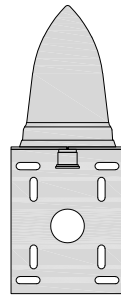
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



TOP



BACK

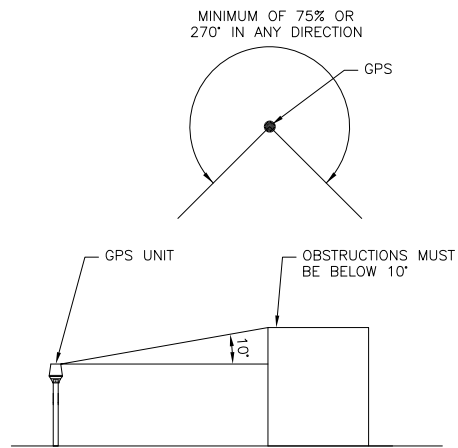


SIDE

GPS DETAIL

NO SCALE

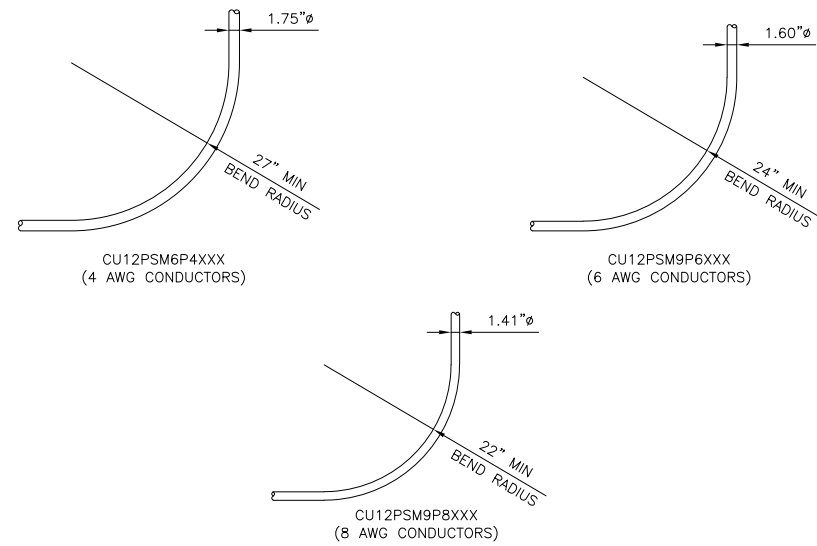
1



GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2



CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIUS

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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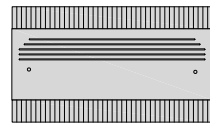
A&E PROJECT NUMBER
149454.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00125A
150 LOST ACRES ROAD
GRANBY, CT 06035

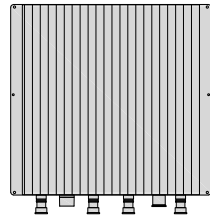
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

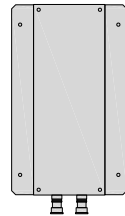
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



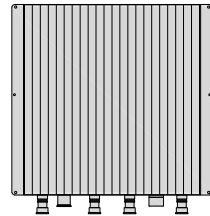
PLAN



BACK



SIDE



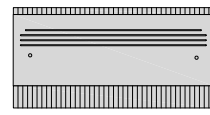
FRONT

RRH DETAIL

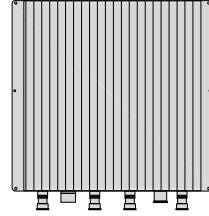
NO SCALE

1

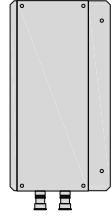
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



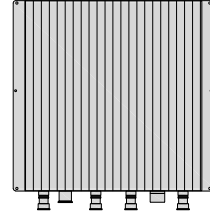
PLAN



BACK



SIDE



FRONT

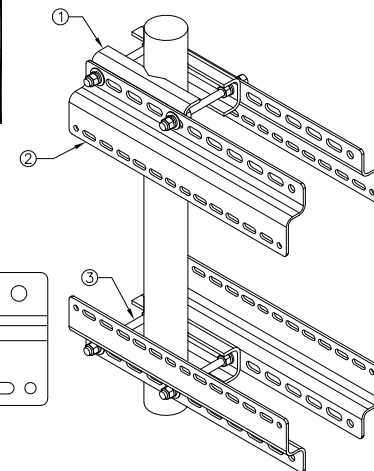
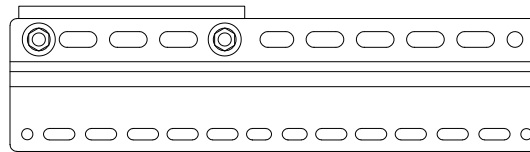
RRH DETAIL

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"



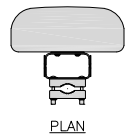
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL

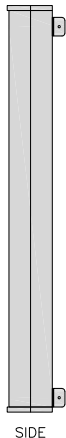
NO SCALE

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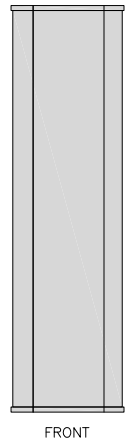
JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



PLAN



SIDE



FRONT

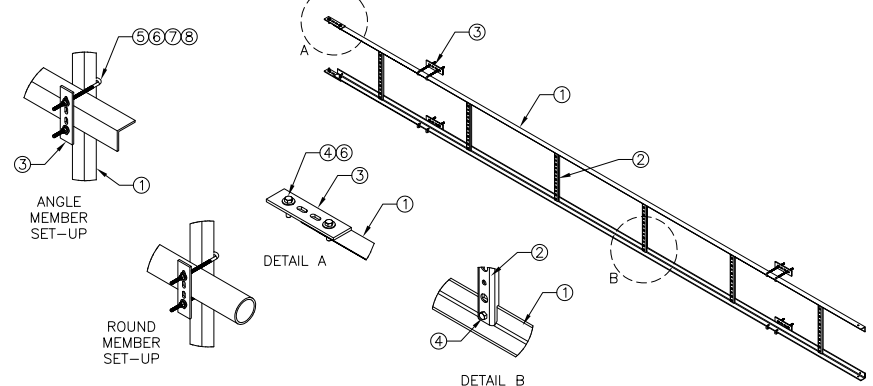
ANTENNA DETAIL

NO SCALE

4

COMMSCOPE 20' CABLE LADDER 6 HOLE RUNGS	
DIMENSIONS (WxL)	20.5"x240"
WEIGHT	84.94 lbs

ITEM#	DESCRIPTION
1	20" ANGLE SIDE RAIL
2	20" LADDER RUNG
3	BACKING PLATE
4	3/8"x1-1/2" GALV BOLT KIT
5	8" GALV J-BOLT KIT
6	3/8" GALV FLAT WASHER
7	3/8" GALV LOCK WASHER
8	3/8" GALV HEX NUT



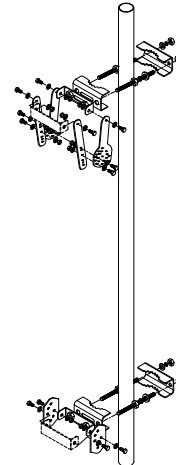
CABLE LADDER DETAIL

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

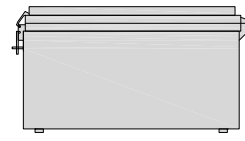


ANTENNA BRACKET DETAIL

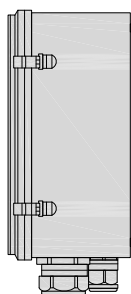
NO SCALE

6

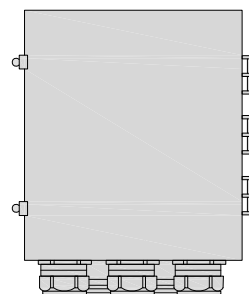
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



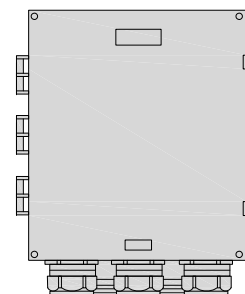
PLAN



SIDE



BACK



FRONT

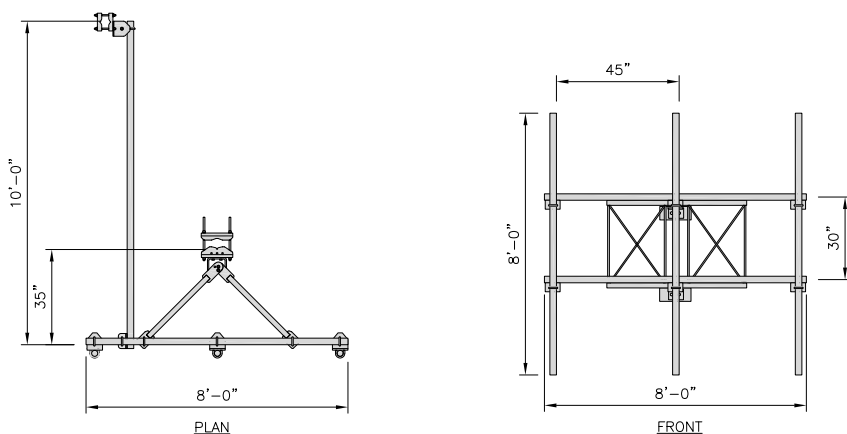
SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

7

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

NOTE:
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APPROVED EQUIVALENT

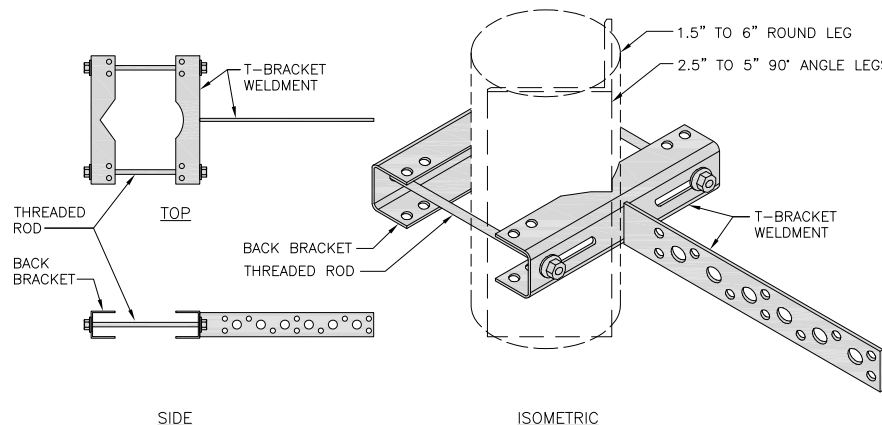


ANTENNA FRAME DETAIL

NO SCALE

8

SITEPRO1 T600 UNIVERSAL T-BRACKET	
DIMENSIONS (HxWxL)	2.25"x10.0"x15.25"
WEIGHT/ VOLUME	5.60 LBS



SIDE

ISOMETRIC

VERTICAL CABLE SUPPORT DETAIL

NO SCALE

9



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GRANBY, CT 06035

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

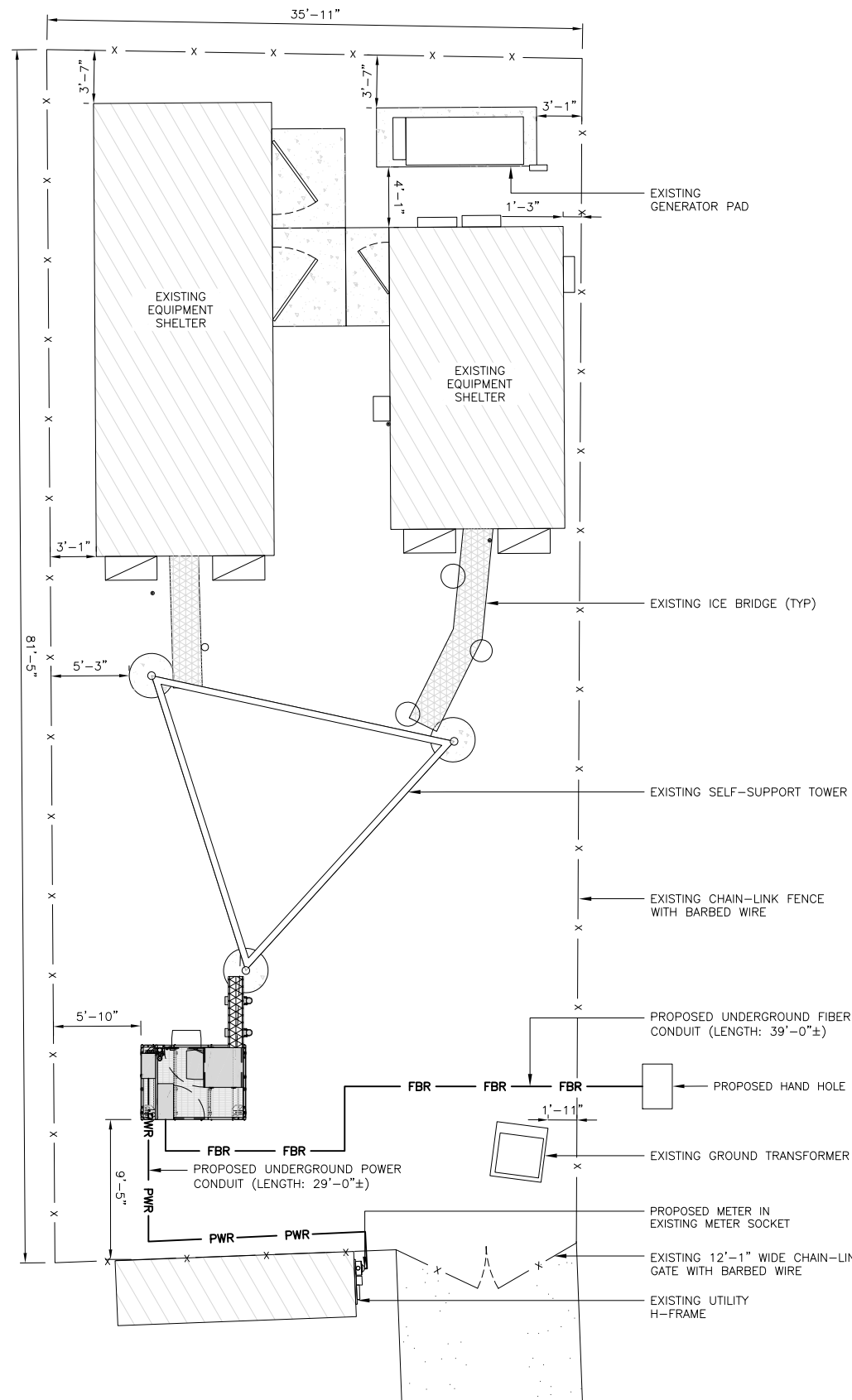
A-6

NOTES

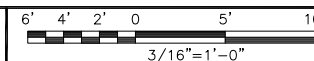
1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

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.



UTILITY ROUTE PLAN



1

ELECTRICAL NOTES

NO SCALE

2



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PROJECT INFORMATION
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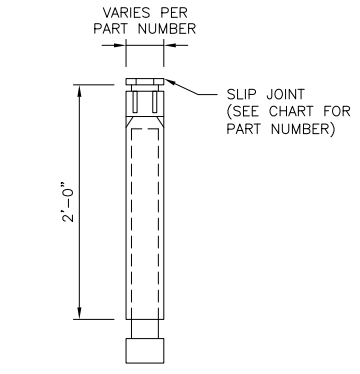
SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER

E-1

CARLON EXPANSION FITTINGS

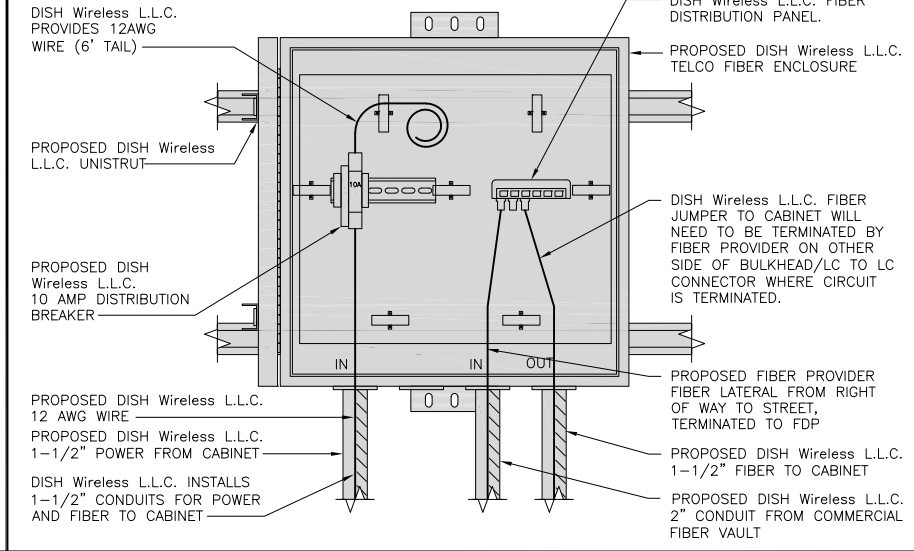
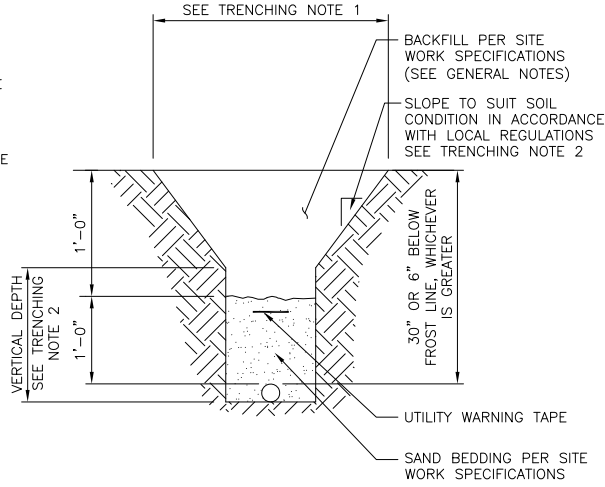
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N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

TRENCHING NOTES

- 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.
- TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
- 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.



EXPANSION JOINT DETAIL

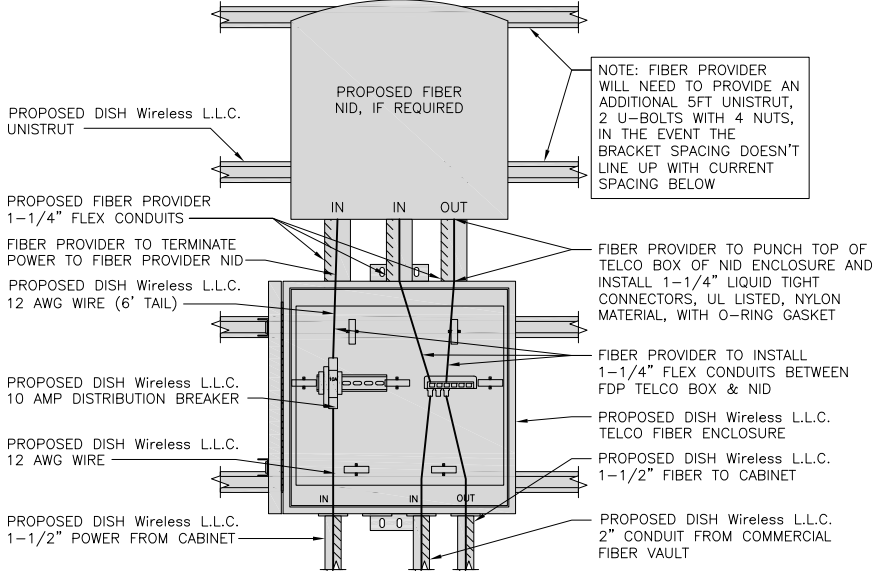
NO SCALE 1

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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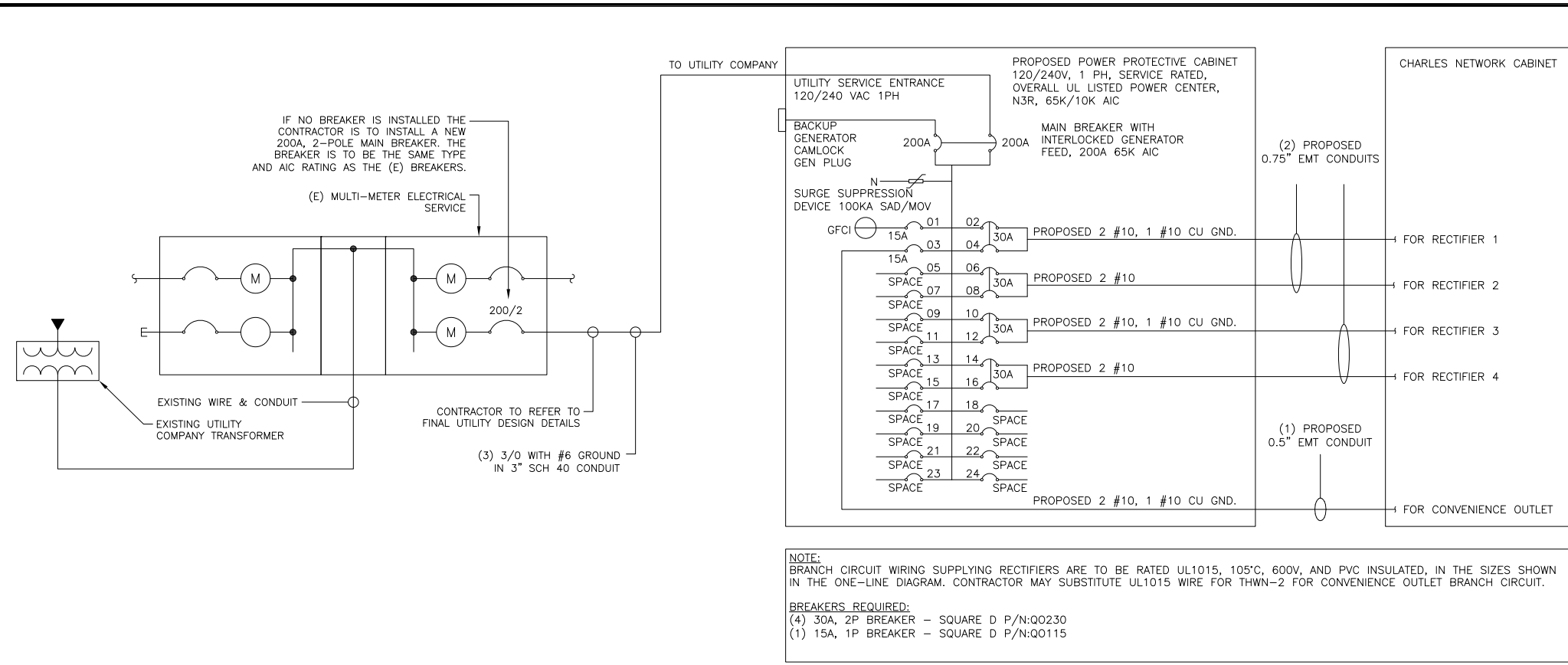
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PROJECT INFORMATION
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GRANBY, CT 06035

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



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)(g) 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)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
PPC GFCI OUTLET	180	180	15A	1	A	2	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET			15A	3	B	4	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1
-SPACE-				5	A	6	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2
-SPACE-				7	B	8	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2
-SPACE-				9	A	10	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3
-SPACE-				11	B	12	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3
-SPACE-				13	A	14	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4
-SPACE-				15	B	16	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4
-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					
				98	98					VOLTAGE AMPS
										AMPS
										MAX AMPS
										MAX 125%

PANEL SCHEDULE

NO SCALE 2

NOT USED

NO SCALE 3



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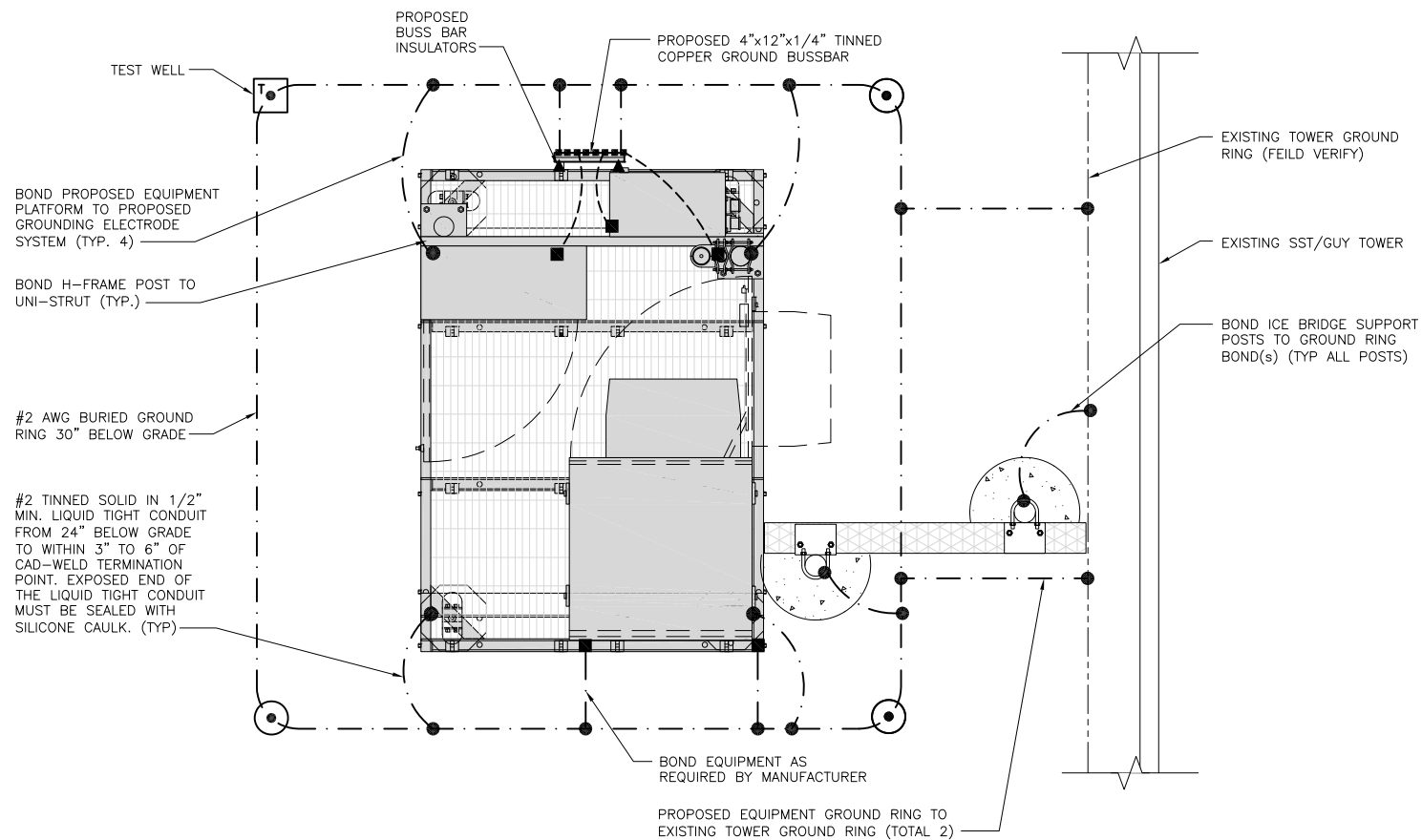
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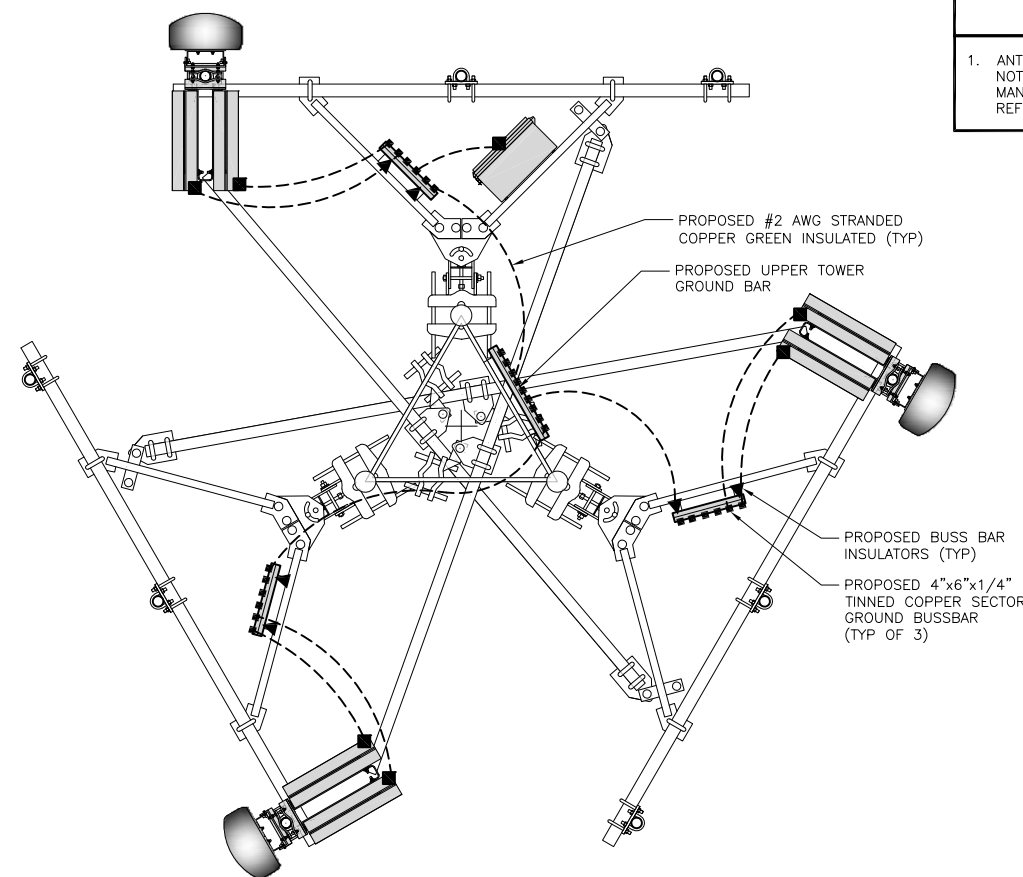
SHEET TITLE
ELECTRICAL ONE-LINE, FAULT
CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3



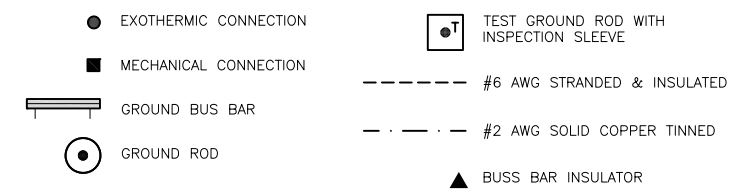
TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



GROUNDING LEGEND

- GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
- 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.
- 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 GROUND 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.

GROUNDING KEY NOTES

NO SCALE 3



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CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	9/13/21	ISSUED FOR REVIEW
0	10/19/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149454.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00125A
150 LOST ACRES ROAD
GRANBY, CT 06035

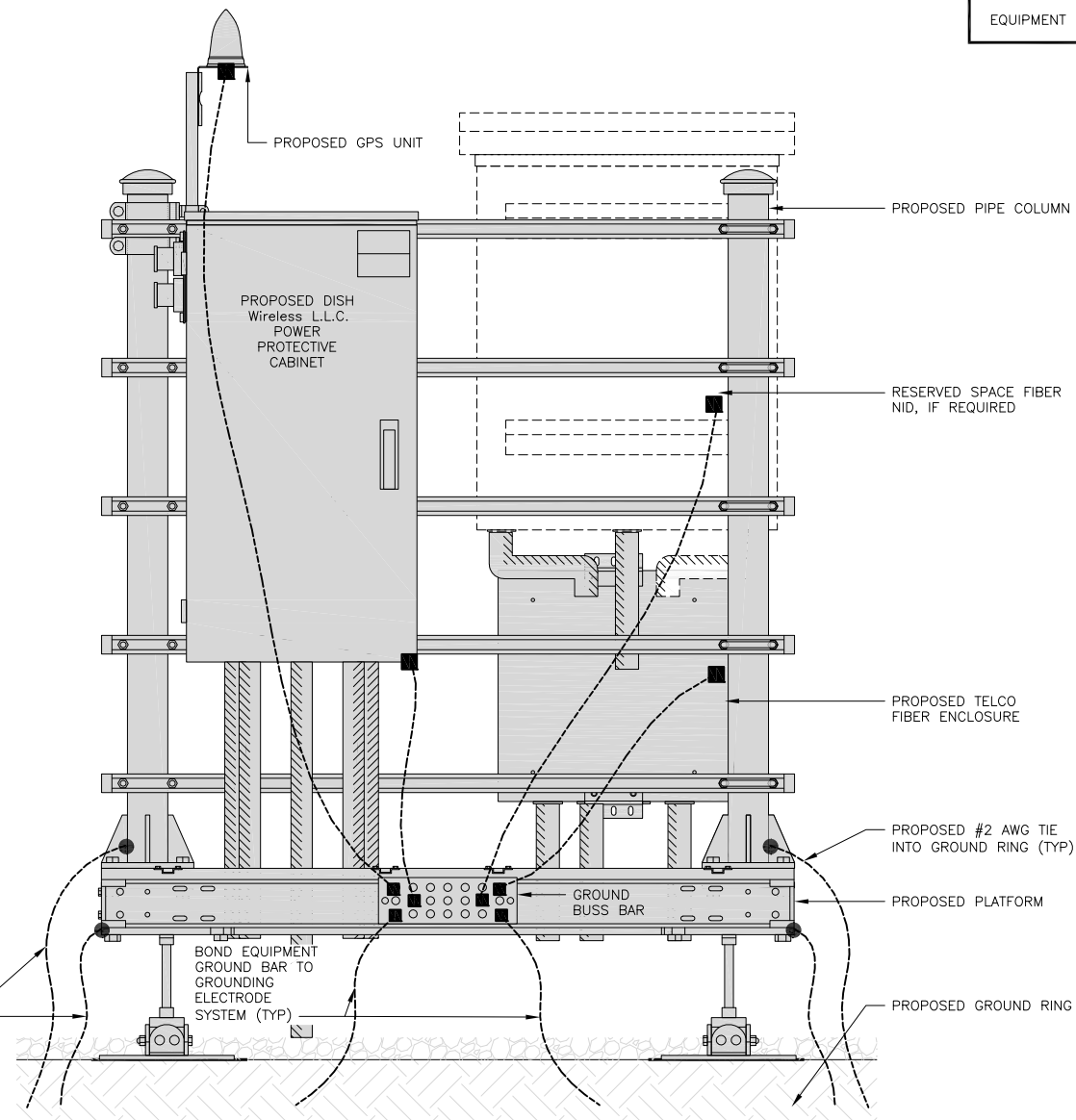
SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER

G-1

NOTES

EQUIPMENT CABINET OMITTED FOR CLARITY

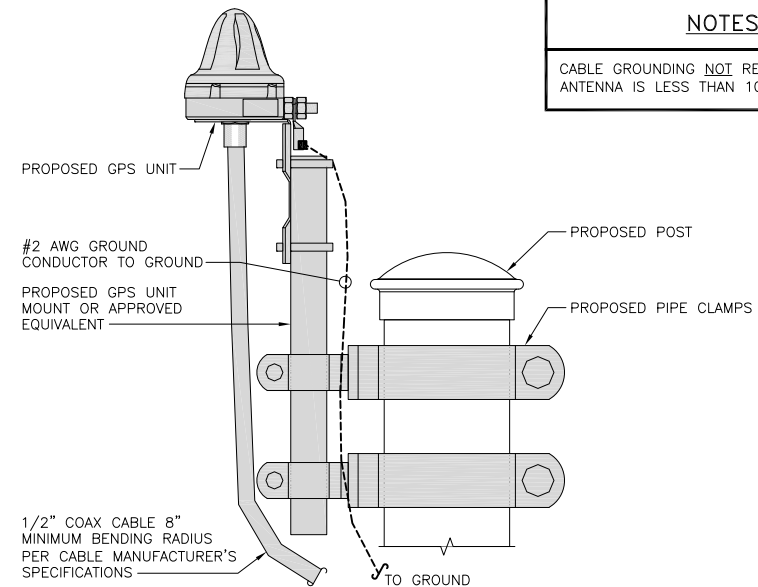


H-FRAME GROUNDING DETAIL

NO SCALE 1

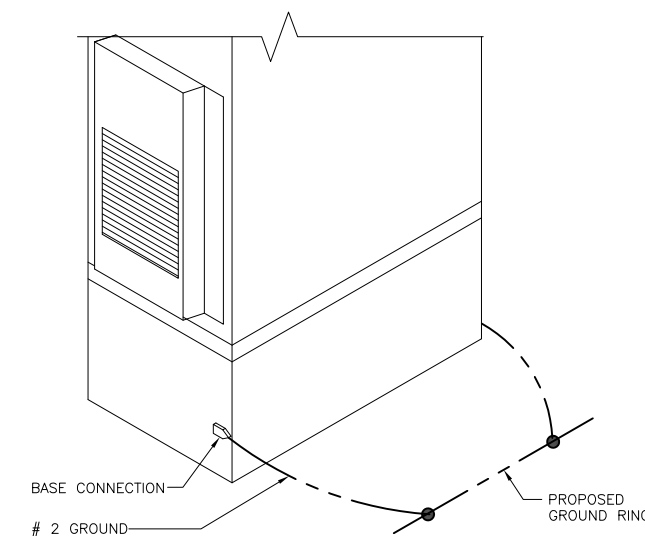
NOTES

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



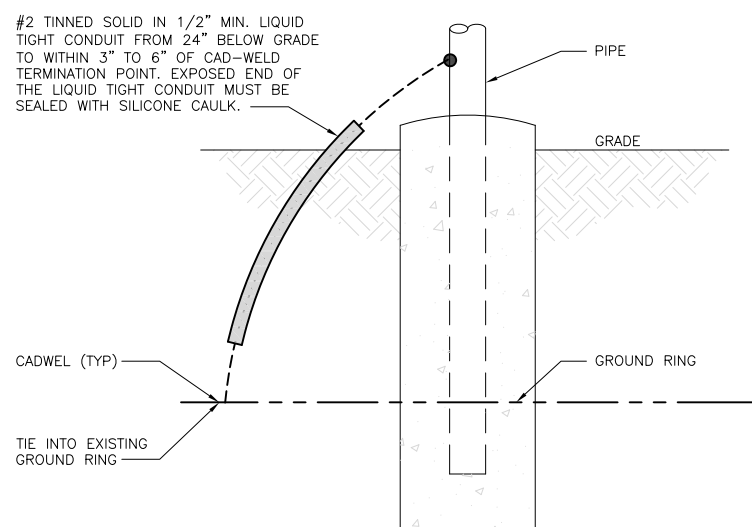
TYPICAL GPS UNIT GROUNDING

NO SCALE 2



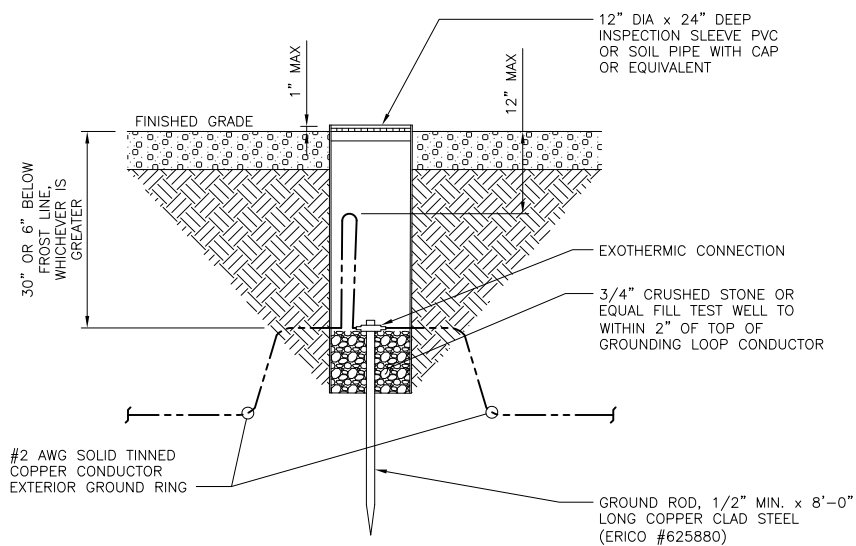
OUTDOOR CABINET GROUNDING

NO SCALE 3



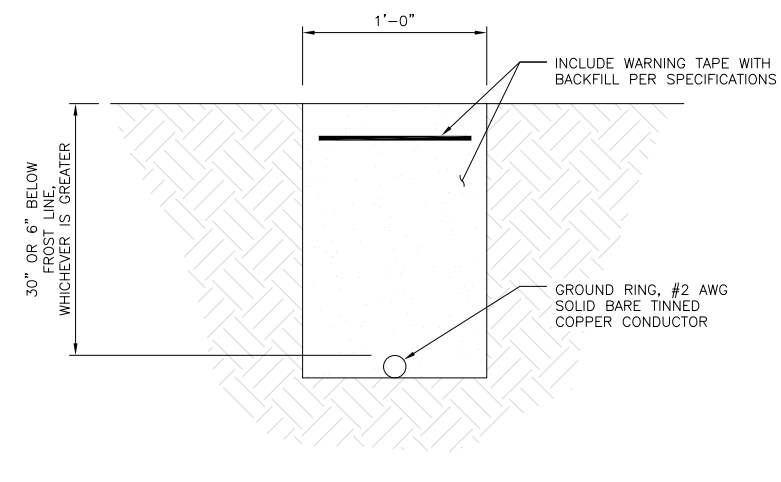
TRANSITIONING GROUND DETAIL

NO SCALE 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5



TYPICAL GROUND RING TRENCH

NO SCALE 6



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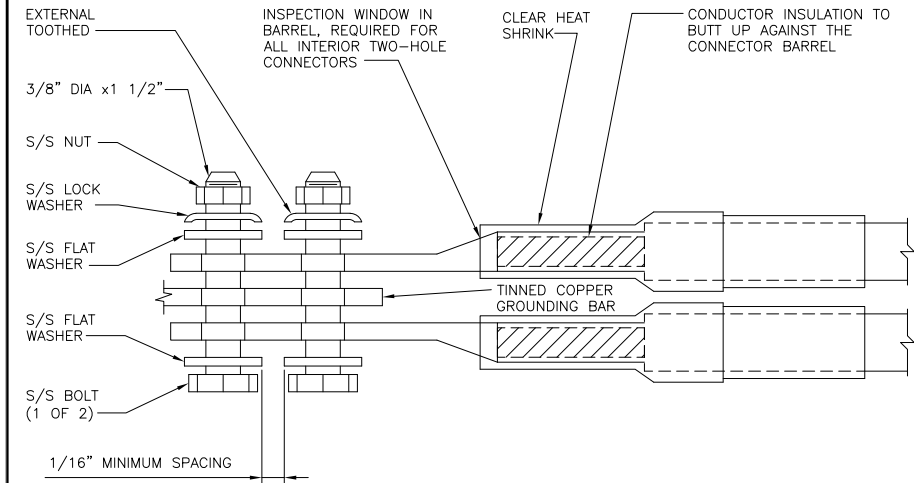
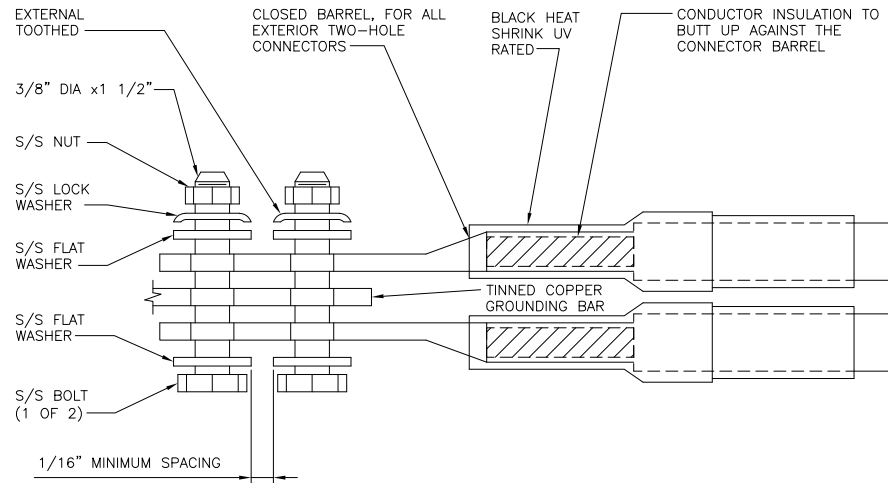
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SHEET TITLE
GROUNDING DETAILS

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

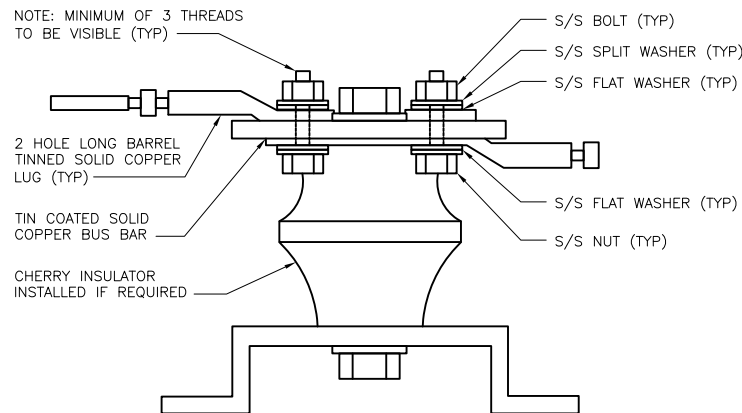
NO SCALE

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



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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)

ALPHA RRH				BETA RRH				GAMMA RRH			
PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT
RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
ORANGE	ORANGE	RED	RED	ORANGE	ORANGE	BLUE	BLUE	ORANGE	ORANGE	GREEN	GREEN
	WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT

MID-BAND RRH -
(AWS BANDS N66+N70)

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

RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
PURPLE	PURPLE	RED	RED	PURPLE	PURPLE	BLUE	BLUE	PURPLE	PURPLE	GREEN	GREEN
	WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT

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

EXAMPLE 1	EXAMPLE 2	EXAMPLE 3
RED	RED	RED
BLUE	BLUE	
GREEN	GREEN	ORANGE
ORANGE	YELLOW	PURPLE
PURPLE		

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

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

RET MOTORS AT ANTENNAS

ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

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

FORWARD AZIMUTH OF 0-120 DEGREES		FORWARD AZIMUTH OF 120-240 DEGREES		FORWARD AZIMUTH OF 240-360 DEGREES	
PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
RED	RED	BLUE	BLUE	GREEN	GREEN
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
	RED		BLUE		GREEN
	WHITE		WHITE		WHITE

LOW BANDS (N71+N26)
OPTIONAL - (N29)



CBRS TECH
(3 GHz)



AWS
(N66+N70+H-BLOCK)



NEGATIVE SLANT PORT
ON ANT/RRH



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR



COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

3

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4



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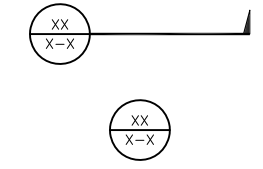
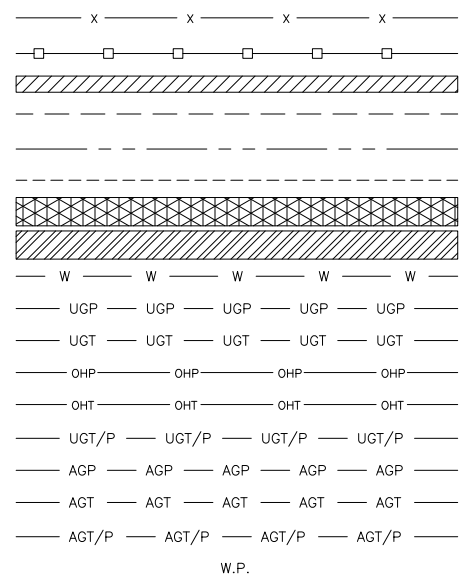
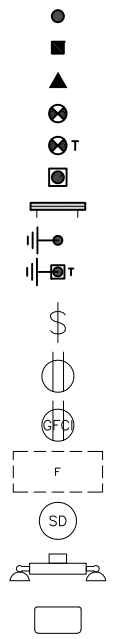
A&E PROJECT NUMBER
149454.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00125A
150 LOST ACRES ROAD
GRANBY, CT 06035

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
 EXOTHERMIC WITH INSPECTION SLEEVE
 GROUNDING BAR
 GROUND ROD
 TEST GROUND ROD WITH INSPECTION SLEEVE
 SINGLE POLE SWITCH
 DUPLEX RECEPTACLE
 DUPLEX GFCI RECEPTACLE
 FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8
 SMOKE DETECTION (DC)
 EMERGENCY LIGHTING (DC)
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
 LED-1-25A400/51K-SR4-120-PE-DOBXTD
 CHAIN LINK FENCE
 WOOD/WROUGHT IRON FENCE
 WALL STRUCTURE
 LEASE AREA
 PROPERTY LINE (PL)
 SETBACKS
 ICE BRIDGE
 CABLE TRAY
 WATER LINE
 UNDERGROUND POWER
 UNDERGROUND TELCO
 OVERHEAD POWER
 OVERHEAD TELCO
 UNDERGROUND TELCO/POWER
 ABOVE GROUND POWER
 ABOVE GROUND TELCO
 ABOVE GROUND TELCO/POWER
 WORKPOINT



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 UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
 VIF VERIFIED IN FIELD
 W WIDE
 W/ WITH
 WD WOOD
 WP WEATHERPROOF
 WT WEIGHT

ABBREVIATIONS



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 150 LOST ACRES ROAD
 GRANBY, CT 06035

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

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DRAWN BY:	CHECKED BY:	APPROVED BY:
MLM	BLJ	BLJ

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	9/13/21	ISSUED FOR REVIEW
0	10/19/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149454.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00125A
150 LOST ACRES ROAD
GRANBY, CT 06035

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

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DRAWN BY:	CHECKED BY:	APPROVED BY:
MLM	BLJ	BLJ

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	9/13/21	ISSUED FOR REVIEW
0	10/19/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149454.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00125A
150 LOST ACRES ROAD
GRANBY, CT 06035

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

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
MLM	BLJ	BLJ

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	9/13/21	ISSUED FOR REVIEW
0	10/19/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149454.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00125A
150 LOST ACRES ROAD
GRANBY, CT 06035

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4