



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

October 22, 2021

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
51 Daniel's Ave., Waterford, CT 06385
Latitude: 41.330263
Longitude: -72.166672
Dish Site# BOBOS00050A

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 51 Daniel's Ave., Waterford, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 MHz antennas and six (6) RRUs, at the 150-foot level of the existing 180-foot Self Supporting 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 August 12, 2021, Exhibit 10. Also included is an Structural Analysis prepared by TES, dated July 8, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment and attached as Exhibit 8. This facility was approved by the Town of Waterford's Planning & Zoning Commission on November 24, 2008 under Special Permit# PZ2008-033. 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 Robert J. Brule, First Selectman for the Town of Waterford, Abby Piersall, AICP, Planning Director. The Property is owned by the Town of Waterford and a copy was also sent to the Finance Officer for the Town of Waterford..

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 150-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 negligible.
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 9.27% 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 Waterford. 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 Intent 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 150-foot level of the existing 180-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit 7, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.
- D. Economic Feasibility. Dish Wireless LLC will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Intent 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: Robert J. Brule, First Selectman / with attachments
15 Rope Ferry Rd., Waterford, CT 06385-2886
Abby Piersall, AICP, Planning Director / with attachments 5
15 Rope Ferry Rd., Waterford, CT 06385-2886
Finance Officer / with attachments
15 Rope Ferry Rd., Waterford, CT 06385-2886

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 Waterford P&Z Special Permit#PZ2008-033 11/24/08
Exhibit 7	EME Report	EBI Consulting 10/18/21
Exhibit 8	Structural Analysis	TES 7/8/21
Exhibit 9	Mount Analysis	B+T Group 7/23/21
Exhibit 10	Construction Drawings	B+T Group 8/12/21

EXHIBIT 1

Copy of check

EXHIBIT 2

Letter of Intent

October 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: 51 Daniel's Rd., Waterford, CT
Dish Wireless Site No: BOBOS00050A
Site No: CT09865-S

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 **51 Daniel's Rd., Waterford, 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 150' 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

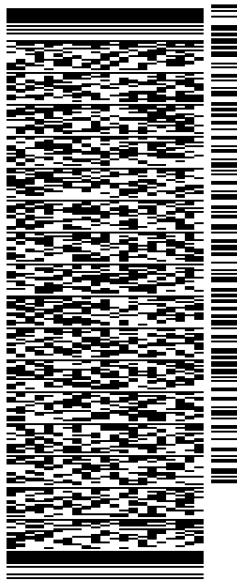
SHIP DATE: 22OCT21
ACTWGT: 5.00 LB
CAD: 105843304/NET4400

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# PO: DEPT:

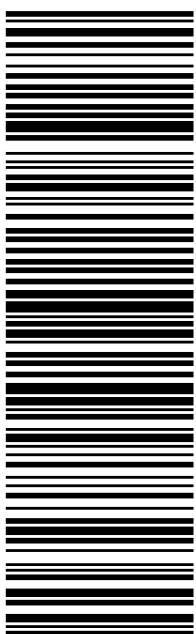


J212221101801uv

TRK# 7750 0303 4461
0201
MON - 25 OCT 10:30A
PRIORITY OVERNIGHT

K7 BDLA

06051
CT-US BDL



56DJ3/14BA/FE4A

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TRACK ANOTHER SHIPMENT

775003034461



[ADD NICKNAME](#)

ON TIME

Scheduled delivery:
Tuesday, 10/26/2021



PICKED UP

FRAMINGHAM, 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

[MANAGE DELIVERY](#)

Travel History

Shipment Facts

Travel History

TIME ZONE

Local Scan Time



Monday, October 25, 2021

1:10 PM

FRAMINGHAM, MA

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Friday, October 22,
2021

1:37 PM

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Shipment Facts

TRACKING NUMBER

775003034461

SERVICE

FedEx Priority Overnight

WEIGHT

5 lbs / 2.27 kgs

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

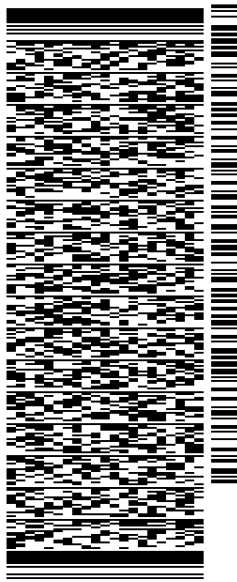
SHIP DATE: 22OCT21
ACTWGT: 5.00 LB
CAD: 105843304/NET4400

BILL SENDER

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

NEW BRITAIN CT 06051

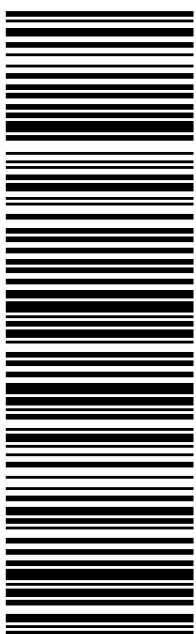
(508) 251-0720 X.3807 REF: 105692009-6089
INV# PO: DEPT:



TRK# 7750 0305 5702
0201
MON - 25 OCT 10:30A
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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

Local Scan Time



Monday, October 25, 2021

1:10 PM

FRAMINGHAM, MA

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Friday, October 22,
2021

1:38 PM

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Shipment Facts

TRACKING NUMBER

775003055702

SERVICE

FedEx Priority Overnight

WEIGHT

5 lbs / 2.27 kgs

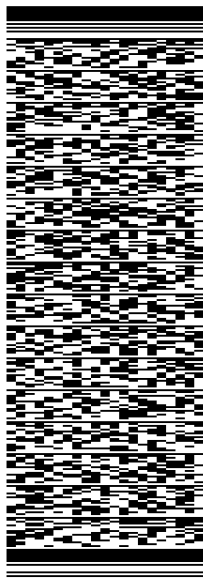
ORIGIN ID:BFBA (508) 614-0389
 RICK WOODS
 SBA COMMUNICATIONS CORPORATION
 134 FLANDERS RD
 SUITE 125
 WESTBOROUGH, MA 01581
 UNITED STATES US

SHIP DATE: 22OCT21
 ACTWGT: 1.00 LB
 CAD: 105843304/NET4400
 BILL SENDER

TO **ROBERT J. BRULE**
TOWN OF WATERFORD
FIRST SELECTMAN
15 ROPE FERRY RD.
WATERFORD CT 06385

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

56DJ3/14BA/FE4A



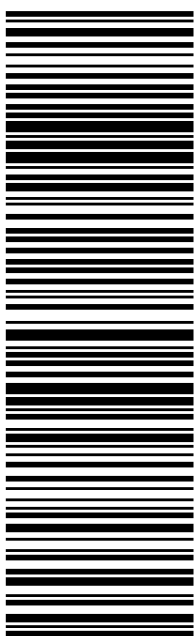
J212221101801uv

TRK# 7750 0310 1234
 0201

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XE SKKA

06385
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775003101234



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Tuesday, 10/26/2021



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FROM

SBA COMMUNICATIONS CORPORATION

Rick Woods

134 Flanders Rd

Suite 125

WESTBOROUGH, MA US 01581

508-614-0389

TO

Robert J. Brule

Town of Waterford

First Selectman

15 Rope Ferry Rd.

WATERFORD, CT US 06385

508-251-0720

[MANAGE DELIVERY](#)

Travel History

Shipment Facts

Travel History

TIME ZONE

Local Scan Time



Monday, October 25, 2021

1:10 PM

FRAMINGHAM, MA

Picked up

Friday, October 22,
2021

1:40 PM

Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER

775003101234

SERVICE

FedEx Priority Overnight

WEIGHT

0.5 lbs / 0.23 kgs

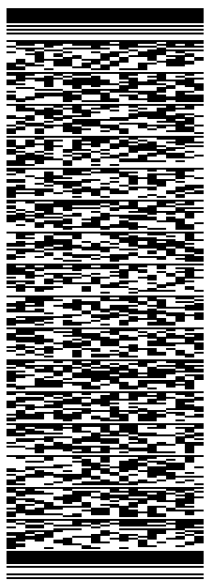
ORIGIN ID:BFBA (508) 614-0389
RICK WOODS
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 22OCT21
ACTWGT: 1.00 LB
CAD: 105843304/NET4400
BILL SENDER

TO
ABBY PIERSELL, AICP
TOWN OF WATERFORD
PLANNING DIRECTOR
15 ROPE FERRY RD.
WATERFORD CT 06385

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

56DJ3/14BA/FE4A



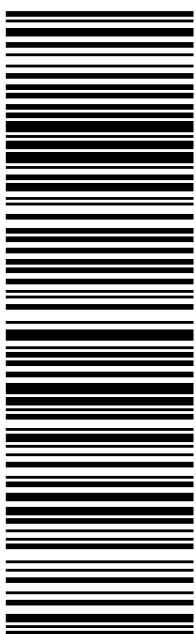
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TRK# 7750 0312 2770
0201

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06385
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775003122770



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FROM

SBA COMMUNICATIONS CORPORATION

Rick Woods

134 Flanders Rd

Suite 125

WESTBOROUGH, MA US 01581

508-614-0389

TO

Abby Piersall, AICP

Town of Waterford

Planning Director

15 Rope Ferry Rd.

WATERFORD, CT US 06385

508-251-0720

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Travel History

Shipment Facts

Travel History

TIME ZONE

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Monday, October 25, 2021

1:10 PM

FRAMINGHAM, MA

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Friday, October 22,
2021

1:41 PM

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Shipment Facts

TRACKING NUMBER

775003122770

SERVICE

FedEx Priority Overnight

WEIGHT

0.5 lbs / 0.23 kgs

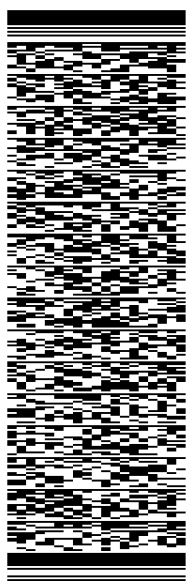
ORIGIN ID:BFBA (508) 614-0389
RICK WOODS
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 22OCT21
ACTWGT: 1.00 LB
CAD: 105843304/NET4400
BILL SENDER

TO **FINANCE OFFICER**
TOWN OF WATERFORD
15 ROPE FERRY RD.

WATERFORD CT 06385

(508) 251-0720 X 3807 REF: 1056920096089
INV# PO: DEPT:



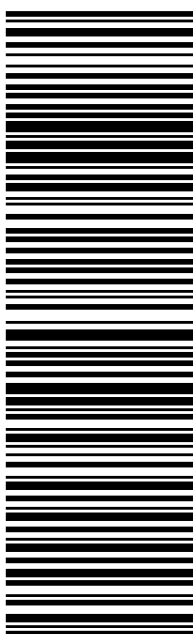
J212221101801uv

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TRK# 7750 0315 1515
0201
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XE SKKA

06385
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775003151515



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Tuesday, 10/26/2021



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FROM

SBA COMMUNICATIONS CORPORATION

Rick Woods

134 Flanders Rd

Suite 125

WESTBOROUGH, MA US 01581

508-614-0389

TO

Finance Officer

Town of Waterford

15 Rope Ferry Rd.

WATERFORD, CT US 06385

508-251-0720

[MANAGE DELIVERY](#)

Travel History

Shipment Facts

Travel History

TIME ZONE

Local Scan Time



Monday, October 25, 2021

1:10 PM

FRAMINGHAM, MA

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Friday, October 22, 2021

1:43 PM

Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER

775003151515

SERVICE

FedEx Priority Overnight

WEIGHT

0.5 lbs / 0.23 kgs

EXHIBIT 4

Property Card

51 DANIELS AVENUE

Location 51 DANIELS AVENUE

Mblu 143 / / 1783 / /

Acct# 00153300

Owner WATERFORD TOWN OF

Assessment \$2,924,780

Appraisal \$4,178,257

PID 1783

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$2,498,257	\$1,680,000	\$4,178,257

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$1,748,780	\$1,176,000	\$2,924,780

Parcel Addresses

Additional Addresses
No Additional Addresses available for this parcel

Owner of Record

Owner WATERFORD TOWN OF
Co-Owner SOUTHWEST SCHOOL

Sale Price \$0
Certificate
Book & Page 0107/0567
Sale Date 09/15/1956
Instrument 00

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
WATERFORD TOWN OF	\$0		0107/0567	00	09/15/1956

Building Information

Building 1 : Section 1

Year Built: 1960
Living Area: 29,627
Replacement Cost: \$3,608,900
Building Percent Good: 65

Building Attributes

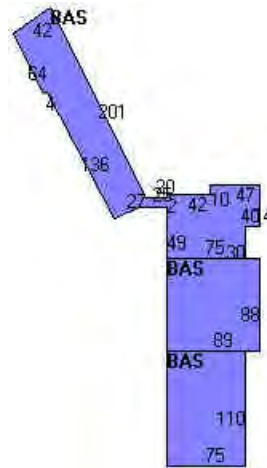
Field	Description
STYLE	School
MODEL	Comm/Ind
Grade	Above Ave
Stories:	1.00
Occupancy	1.00
Exterior Wall 1	Brick Veneer
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Rolled
Interior Wall 1	Typical
Interior Wall 2	
Interior Floor 1	Comp Tile
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Hot Water
% Central Air	0
Foundation	Poured Conc
Bldg Use	Exempt Comm
Total Rooms	0
Total Bedrms	0
Total Fixtures	0
% Wet Sprinkler	
% Dry Sprinkler	
1st Floor Use	
Heat/AC	Typical
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
% Finished	100
Class	C
Wall Height	10.00
Usrflid 214	

Building Photo



(<http://images.vgsi.com/photos/WaterfordCTPhotos/A000154\22.jpg>)

Building Layout



(http://images.vgsi.com/photos/WaterfordCTPhotos/Sketches/1783_1783.j)

Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	29,627	29,627
		29,627	29,627

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
ELV1	ELEVATOR PASS	1.00 STOPS	\$16,250	1
MSC13	RADIO TOWER	5000.00 UNIT	\$32,500	1
GEN	GEN BACKUP DIESEL	1.00 UNITS	\$10,000	1

Land

Land Use

Use Code 920
Description Exempt Comm
Zone R-40
Neighborhood 800
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 20
Frontage 0
Depth 0
Assessed Value \$1,176,000
Appraised Value \$1,680,000

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	Paving	AS	Asphalt	42000.00 S.F.	\$78,750	1
SHD1	Shed	FR	Frame	400.00 S.F.	\$6,750	1
SHD1	Shed	FR	Frame	200.00 S.F.	\$3,380	1
SHD1	Shed	FR	Frame	400.00 S.F.	\$6,750	1

Valuation History

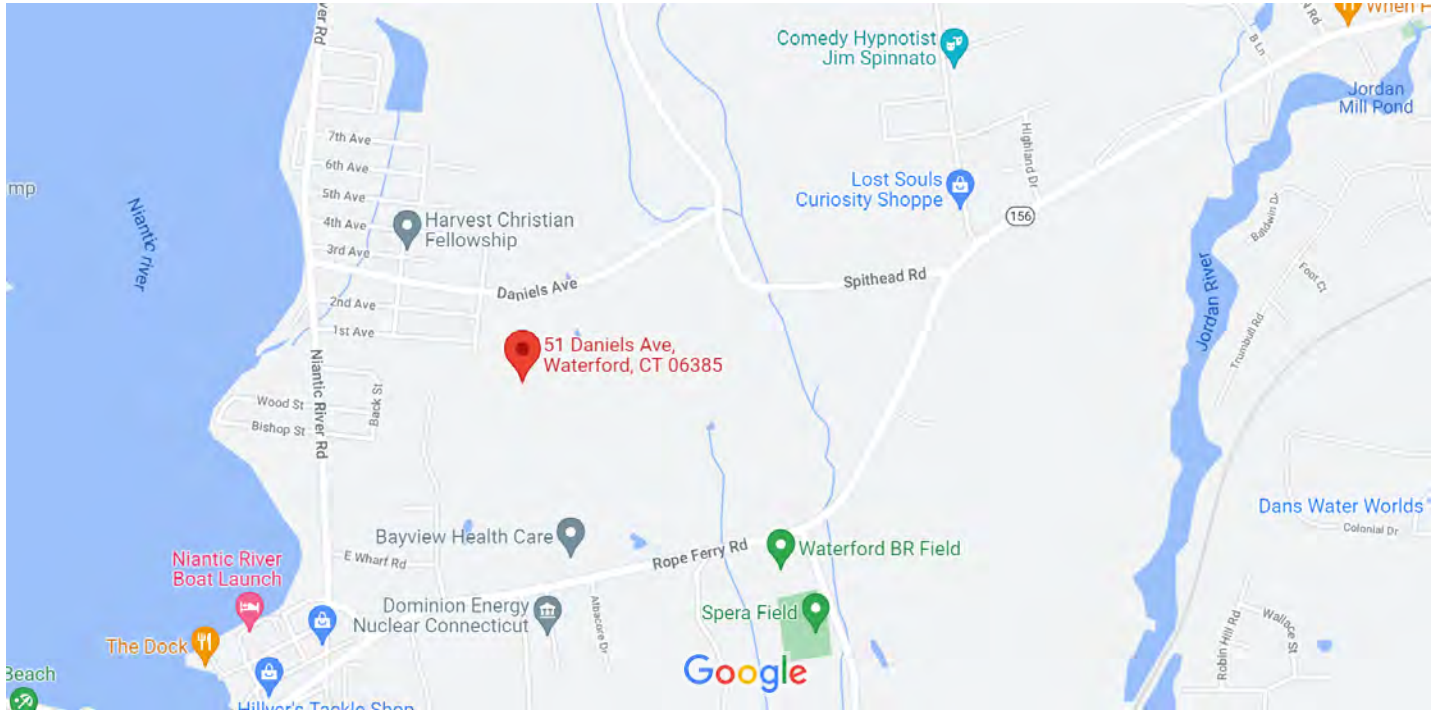
Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$2,498,257	\$1,680,000	\$4,178,257
4000	\$2,498,220	\$1,680,000	\$4,178,220

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$1,748,780	\$1,176,000	\$2,924,780
4000	\$1,748,780	\$1,176,000	\$2,924,780

EXHIBIT 5

Property Map

Google Maps 51 Daniels Ave



Map data ©2021 1000 ft

Google Maps 51 Daniels Ave



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

EXHIBIT 6

Zoning Approval

SITE NAME: Niantic SITE ID: CT 09865-5

ZONING/PERMITTING COMPLETION FORM

Address: 51 Daniels Avenue, Waterford

Jurisdiction: Town of Waterford Zoning District: R-40

Zoning Approval Type: Special Permit / Site Plan Approval Case #: PZ 2008-033

Approval Date: 11/24/2008 Approved Height: 180'

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"/>
Landscaping Required _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lighting Required _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Additional Conditions _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Coun. Siting Council approval was not required for this site. Tower is on Town of Waterford property for municipal use

TO BE COMPLETED BY CORPORATE

	Yes	No	N/A	Date Recd
Zoning Approval Attached (required)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Building Permit Attached (required)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>1/21/2009</u>

B2009-0004

Zoning Manager Approval: Diane E. Borchardt Date 1/22/2009
Diane E. Borchardt, AICP

FIFTEEN ROPE FERRY ROAD



WATERFORD, CT 06385-2886

**TOWN OF WATERFORD
PLANNING & ZONING COMMISSION**

NOTICE OF GRANT OF A SPECIAL PERMIT

This is to certify that on November 24, 2008, the Waterford Planning & Zoning Commission granted Special Permit #PZ2008-033.

Owner of Record: Town of Waterford

Address: 51 Daniels Avenue

Description of Premises:

As recorded in Volumes 107, Page(s) 567 of the Waterford Land Records.

Nature of Special Permit: Special Permit and site plan approval granted for erection of a telecommunications tower

Applicable Zoning Regulations: Sections 5, 22 & 23.

Permit findings, stipulations and conditions are filed in the office of the Town Clerk as stated in the minutes of the Planning & Zoning Commission meeting of November 24, 2008.

PLANNING & ZONING COMMISSION

By: *Dawn Choisy*
Dawn Choisy
Recording Secretary
Planning & Zoning Commission

This notice is to be recorded on the land records of the Town of Waterford, indexed in the Grantor's Index under the name of the record owner.

FIFTEEN ROPE FERRY ROAD



WATERFORD, CT 06385-2886

October 17, 2008

Christopher B. Fisher, Esq.
Cuddy & Feder LLP
445 Hamilton Avenue, 14th Floor
White Plains, NY 10601

RE: Conservation Permit #2008-041
51 Daniels Avenue - Communications Tower

Dear Mr. Fisher:

At a meeting held on October 16, 2008, the Waterford Conservation Commission approved the above referenced application with conditions.

Please submit two copies of the finalized site plans in accordance with the terms and conditions of the permit (attached). Once submitted, the Chairman will sign the plans and permit and a set will be forwarded to you for your records. If you have any questions, please feel free to call Maureen FitzGerald, Environmental Planner, at 860-444-5813.

Sincerely,

Carol Libby
Recording Secretary
Conservation Commission

Certified Mail #7006 0810 0006 0893 5010

cc: Town of Waterford - 1st Selectman
SBA Network Services, Inc.

FIFTEEN ROPE FERRY ROAD
November 25, 2008



WATERFORD, CT 06385-2886

SBA Towers II, LLC
c/o SBA Network Services, Inc.
80 Eastern Boulevard
Glastonbury, CT 06033

RE: Application #PZ2008-033
51 Daniels Avenue/Communications Tower

Dear Mr. Dupont:

At a meeting on November 24, 2008, the Town of Waterford Planning and Zoning Commission took the following action in regards to the above referenced application:

APPROVED WITH CONDITIONS: #PZ2008-033 - Request of the Town of Waterford by its agent SBA Towers II, LLC, applicant; Town of Waterford, owner, Christopher B. Fisher, Esq. agent for special permit and site plan approval to locate a communications tower at 51 Daniels Avenue, R-40 zone, in accordance with Sections 5.2.1, 5.2.2, 22 and 23 of the Zoning Regulations and as shown on plans entitled "Site Name: Southwest School, Site Address: 51 Daniels Avenue, Waterford, CT 06385" dated July 28, 2008 with revisions to September 13, 2008.

Please refer to the attached minutes and special permit for the conditions of the approval.

In order to comply with the record retention schedule required by the State of Connecticut, you are required to file a Notice of Special Permit with the Waterford Town Clerk. This Notice can be filed after the 15 day appeal period expires, which is December 16, 2008. At the time you are ready to file this Notice, please come to the Permitting Office and the original notice and one copy will be given to you. Both of these shall be stamped in at the Clerk's Office, and the copy is to be returned to this office.

Please also submit two sets of check prints incorporating the conditions of the Planning and Zoning Commission and Conservation Commission approvals for Staff review. After this review, you will be notified to submit one mylar and 12 sets of final plans for the Chairmen's signatures.

Sincerely,

Dawn Choisy
Recording Secretary
Planning and Zoning Commission

Enclosure: Minutes
Notice of Action

Certified #7008 0500 0000 7478 7841

Cc: Christopher B. Fisher, Esq., w/attachments

FIFTEEN ROPE FERRY ROAD



WATERFORD, CT 06385-2886

November 25, 2008

The Day Publishing Company – Legal Ads
Eugene O'Neill Drive
New London, CT 06320

Please prepare the following notice for publication in your newspaper on Monday December 1, 2008 and send a Publisher's Certificate along with your bill, charged to #92962:

**TOWN OF WATERFORD
PLANNING AND ZONING COMMISSION
NOTICE OF ACTION**

At a meeting held on November 24, 2008, the Waterford Planning and Zoning Commission took the following actions:

APPROVED WITH CONDITIONS

#PZ2008-033 - Request of the Town of Waterford by its agent SBA Towers II, LLC, applicant; Town of Waterford, owner, Christopher B. Fisher, Esq. agent for special permit and site plan approval to locate a communications tower at 51 Daniels Avenue, R-40 zone.

#PZ2008-030– Request of Jeffrey J. Barclay, applicant Edmund O & Vincent P. DeSantis owners; Boundaries, LLC, agent for Coastal Site Plan review and approval to construct a new single family home on property located at 14 Westcot Road, RU-120 zone.

#PZ2008-038 – Request of Michael Hoelck, applicant; Hoelck's Realty LLC, owner, for modification of an approved site plan at 341 Boston Post Road, R-20 zone. The approval of this site plan includes fire zones as may be established and enforced pursuant to Chapter 8.08 of the Waterford Code of Ordinances.

Information regarding the above actions is on file in the office of the Planning and Zoning Commission, Waterford, Connecticut.

Dated at Waterford, CT this 25th day of November, 2008.

Edwin Maguire, Chairman
Gwendolyn Hughes, Secretary


By:  Dawn Choisy, Recording Secretary 444-5813

EXHIBIT 7

EME Report

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

Dish Wireless Existing Facility

Site ID: BOBOS00050A

BOBOS00050A
51 Daniels Avenue
Waterford, Connecticut 06385

October 18, 2021

EBI Project Number: 6221005694

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	9.27%

October 18, 2021

Dish Wireless

Emissions Analysis for Site: BOBOS00050A - BOBOS00050A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **51 Daniels Avenue** in **Waterford, 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 51 Daniels Avenue in Waterford, 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 150 feet above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 9) All calculations were done with respect to uncontrolled / general population threshold limits.

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 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 %:	1.14%	Antenna BI MPE %:	1.14%	Antenna CI MPE %:	1.14%

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	1.14%
AT&T	2.38%
Verizon	3.86%
T-Mobile	1.89%
Site Total MPE % :	9.27%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.14%
Dish Wireless Sector B Total:	1.14%
Dish Wireless Sector C Total:	1.14%
Site Total MPE % :	9.27%

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	105.0	3.28	600 MHz n71	400	0.82%
Dish Wireless 1900 MHz n70	4	542.70	105.0	7.96	1900 MHz n70	1000	0.80%
Dish Wireless 2190 MHz n66	4	542.70	105.0	7.96	2190 MHz n66	1000	0.80%
						Total:	1.14%

• 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:	1.14%
Sector B:	1.14%
Sector C:	1.14%
Dish Wireless Maximum MPE % (Sector A):	1.14%
Site Total:	9.27%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **9.27%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

EXHIBIT 8

Structural Analysis



Tower Engineering Solutions

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

Structural Analysis Report

Existing 180 ft Sabre Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT09865-S

Customer Site Name: Niantic

Carrier Name: Dish Wireless (App#: 163262, V1)

Carrier Site ID / Name: BOBOS00050A / 0

Site Location: 51 Daniel'S Avenue

Waterford, Connecticut

New London County

Latitude: 41.330263

Longitude: -72.166672

Analysis Result:

Max Structural Usage: 80.5% [Pass]

Max Foundation Usage: 84.0% [Pass]

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



Report Prepared By : Delu Zhou

Introduction

The purpose of this report is to summarize the analysis results on the 180 ft Sabre 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	Tower Innovations, Project Number 5210 dated 11/05/2008
Foundation Drawing	Tower Innovations, Project Number 5210 dated 11/05/2008
Geotechnical Report	Dr. Clearance Welti, P.E., P.C. Geotechnical Engineering (Ref: Geotechnical Study for proposed Cell Tower at Southwest School 51 Daniels Road, Waterford, CT) dated 10/23/2008
Modification Drawings	N/A
Mount Analysis	N/A

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 135.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 105.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" 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:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_5 = 0.161, S_1 = 0.058$

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	180.0	2	Sinclair SC488-HF2LNF Omnis	(2) 6' Standoffs (SitePRO1 HM6)	(2) 1 5/8"	Town of Waterford
2		1	DBSpectra ATS8TMA10 TMA			
3	170.0	3	Powerwave 7770 - Panel	(3) Modified T-Frame (6) Crossover Plate – SitePro1 SCX2-K (3) 2 1/2" Pipe Mast	(12) 1 5/8" (2) 1/2" Fiber (6) 3/4" DC (1) 7/16" Fiber	AT&T
4		3	Commscope SBNHH-1D65A Panel			
5		3	KMW AM-X-CD-14-65-00T-RET Panel			
6		3	KMW EPBQ-654L8H6-L2 - Panel			
7		6	Powerwave TT19-08BP111-001 TTA			
8		6	Ericsson RRUS-11 RRU/RRH			
9		6	Ericsson RRUS-32 RRU/RRH			
10		3	Ericsson 4478 RRU/RRH			
11		2	Raycap DC6-48-60-18-8F			
12	160.0	3	RFS APX16DWV-16DWV-S-E-A20	(3) Modified T-Frame (3) Custom Mount Augmentations (3) Stabilizer Kits (3) 2.5STD x 8' Pipe Mounts	(16) 1 5/8" (3) 1 5/8" Fiber (1) 1/2"	T-Mobile
13		3	RFS APXVAARR24_43-U-NA20 Panel			
14		3	Ericsson KRY 112 144/1 TMA			
15		3	Ericsson KRY 112 489/2 TMA			
16		3	Ericsson Radio 4449 B71+B12 RRU			
17	3	Kathrein 782 11056 – Bias T				
22	140.0	3	Antel BXA-80063-6CF - Panel	(3) T-Frames	(16) 1 5/8" (2) 1 5/8" Fiber	Verizon
23		3	Antel BXA-70063-6CF-EDIN-0 Panel			
24		6	Commscope SBNHH-1D65B Panel			
25		3	Alcatel Lucent B66 RRH4X45 AWS Remote Radio			
26		3	Alcatel Lucent RRH 700 4X30 B13 Remote Radio			
27		2	Rfs Celwave DB-T1-6Z-8AB-OZ ODU			

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
18	150.0	3	JMA Wireless MX08FRO665-21 Panel	Commscope MTC3975083 Sector Mount	(1) 1.6" Hybrid	Dish Wireless
19		3	Fujitsu TA08025-B605 RRU			
20		3	Fujitsu TA08025-B604 RRU			
21		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:	80.5%	58.3%	34.3%
Pass/Fail	Pass	Pass	Pass

Foundations

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Analysis Reactions	431.0	376.9	51.1

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.2140 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: CT09865-S-SBA

Site Name: Niantic	Code: EIA/TIA-222-G	7/8/2021
Type: Self Support	Base Shape: Triangle	Basic WS: 105.00
Height: 180.00 (ft)	Base Width: 23.00	Basic Ice WS: 50.00
Base Elev: 0.00 (ft)	Top Width: 5.00	Operational WS: 60.00



Page: 1

Section Properties

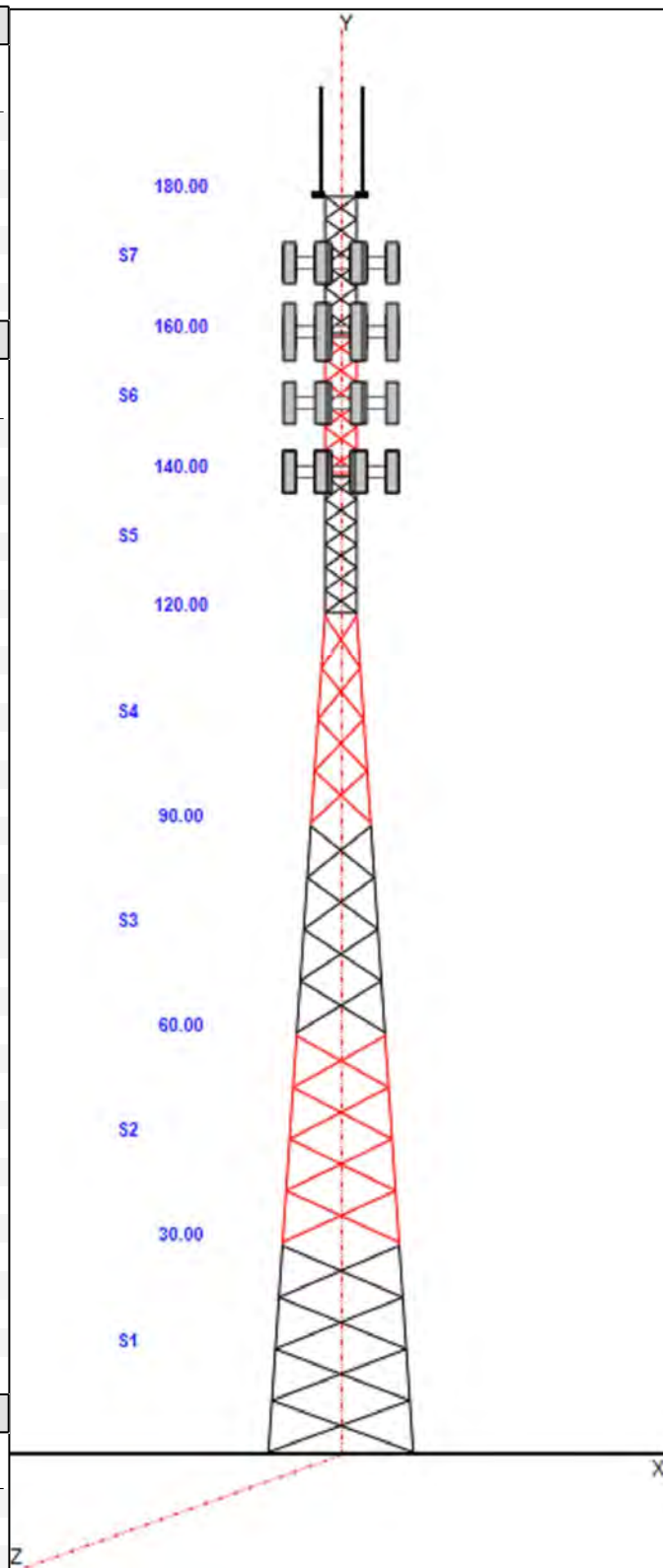
Sect	Leg Members	Diagonal Members	Horizontal Members
1	SOL 4 3/4" SOLID	SAE 4X4X0.3125	
2	SOL 4 3/4" SOLID	SAE 3.5X3.5X0.25	
3	SOL 4 1/2" SOLID	SAE 3X3X0.1875	
4	SOL 4 1/4" SOLID	SAE 2.5X2.5X0.1875	
5	SOL 3 1/2" SOLID	SAE 3X3X0.1875	SOL 1 1/8" SOLID
6	SOL 2 1/2" SOLID	SAE 2.5X2.5X0.1875	SOL 1" SOLID
7	SOL 1 3/4" SOLID	SAE 2X2X0.1875	SOL 7/8" SOLID

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.00	187.63	2	SC488-HF2LNF
180.00	180.00	1	ATS8TMA10
180.00	180.00	1	Lightning Rod
180.00	180.00	1	Beacon
180.00	180.00	2	SitePRO1 HM6 6' Standoffs
170.00	170.00	3	Modified T-Frame
170.00	170.00	3	7770
170.00	170.00	3	SBNHH-1D65A
170.00	170.00	3	AM-X-CD-14-65-00T-RET
170.00	170.00	3	EPBQ-654L8H6-L2
170.00	170.00	6	TT19-08BP111-001 TMA-TTA
170.00	170.00	6	RRUS-11 RRU/RRH
170.00	170.00	6	RRUS-32 RRU/RRH
170.00	170.00	3	4478 RRU/RRH
170.00	170.00	2	DC6-48-60-18-8F
160.00	160.00	3	APX16DWV-16DWV-S-E-A20
160.00	160.00	3	APXVAARR24_43-U-NA20
160.00	160.00	3	KRY 112 144/1
160.00	160.00	3	KRY 112 489/2
160.00	160.00	3	Radio 4449 B71+B12
160.00	160.00	3	782 11056
160.00	160.00	3	Modified T-Frame
150.00	150.00	3	MX08FRO665-21
150.00	150.00	1	(3) MTC3975083
150.00	150.00	3	TA08025-B605
150.00	150.00	3	TA08025-B604
150.00	150.00	1	RDIDC-9181-PF-48
140.00	140.00	3	T-Frame
140.00	140.00	3	BXA-80063-6CF
140.00	140.00	3	BXA-70063-6CF-EDIN-0
140.00	140.00	6	SBNHH-1D65B
140.00	140.00	3	B66 RRH4X45 AWS
140.00	140.00	3	RRH 700 4X30 B13 Remote
140.00	140.00	2	DB-T1-6Z-8AB-0Z ODU

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
0.00	180.00	2	1 5/8" Coax
0.00	180.00	1	W/G Ladder
0.00	170.00	12	1 5/8" Coax
0.00	170.00	2	1/2" Fiber
0.00	170.00	6	3/4" DC



Structure: CT09865-S-SBA

Site Name: Niantic	Code: EIA/TIA-222-G	7/8/2021
Type: Self Support	Base Shape: Triangle	Basic WS: 105.00
Height: 180.00 (ft)	Base Width: 23.00	Basic Ice WS: 50.00
Base Elev: 0.00 (ft)	Top Width: 5.00	Operational WS: 60.00



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0.00	170.00	1	7/16" Fiber
0.00	170.00	1	W/G Ladder
0.00	160.00	16	1 5/8" Coax
0.00	160.00	3	1 5/8" Fiber
0.00	160.00	1	1/2" Coax
0.00	160.00	1	W/G Ladder
0.00	150.00	1	1.6" Hybrid
0.00	140.00	16	1 5/8" Coax
0.00	140.00	2	1 5/8" Fiber
0.00	140.00	1	W/G Ladder

Base Reactions

Leg	Overturning
Max Uplift: -376.92 (kips)	Moment: 8138.00 (ft-kips)
Max Down: 431.02 (kips)	Total Down: 67.36 (kips)
Max Shear: 51.14 (kips)	Total Shear: 81.43 (kips)

Structure: CT09865-S-SBA

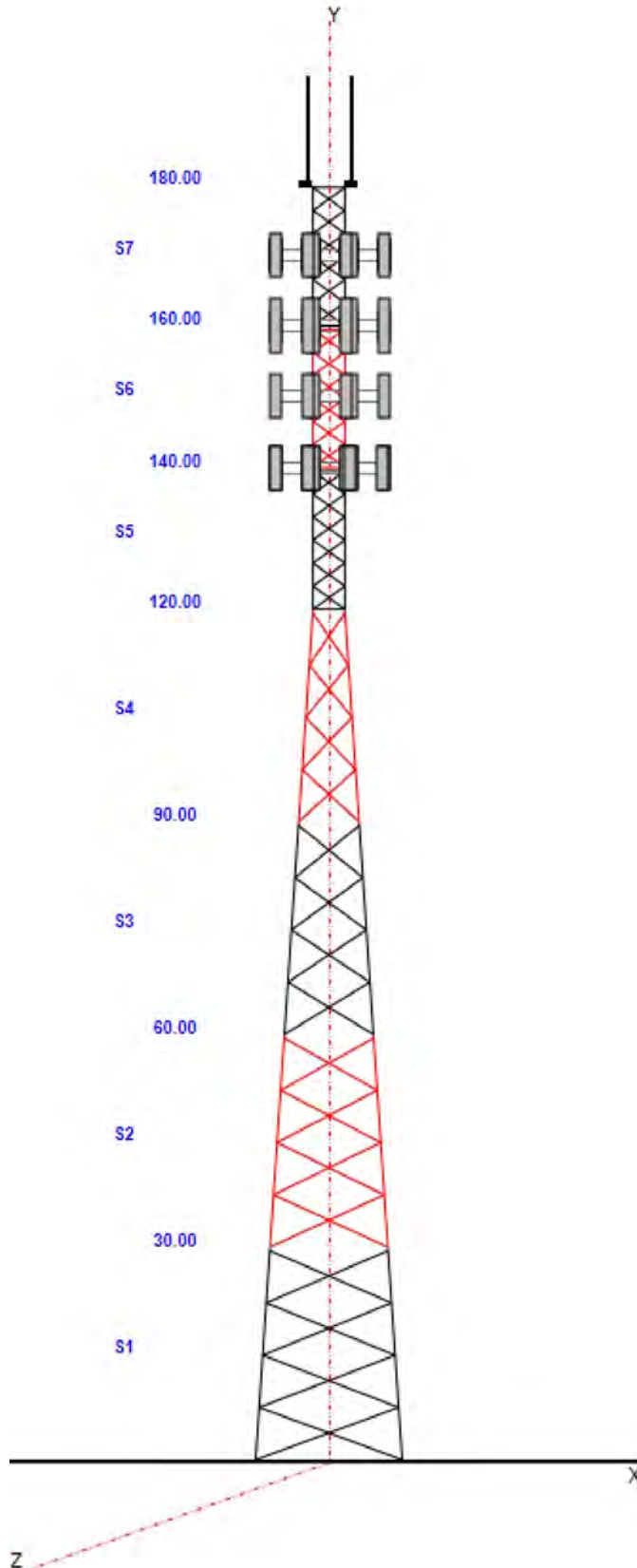
Site Name: Niantic
Type: Self Support
Height: 180.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: Triangle
Base Width: 23.00
Top Width: 5.00

Code: EIA/TIA-222-G
Basic WS: 105.00
Basic Ice WS: 50.00
Operational WS: 60.00

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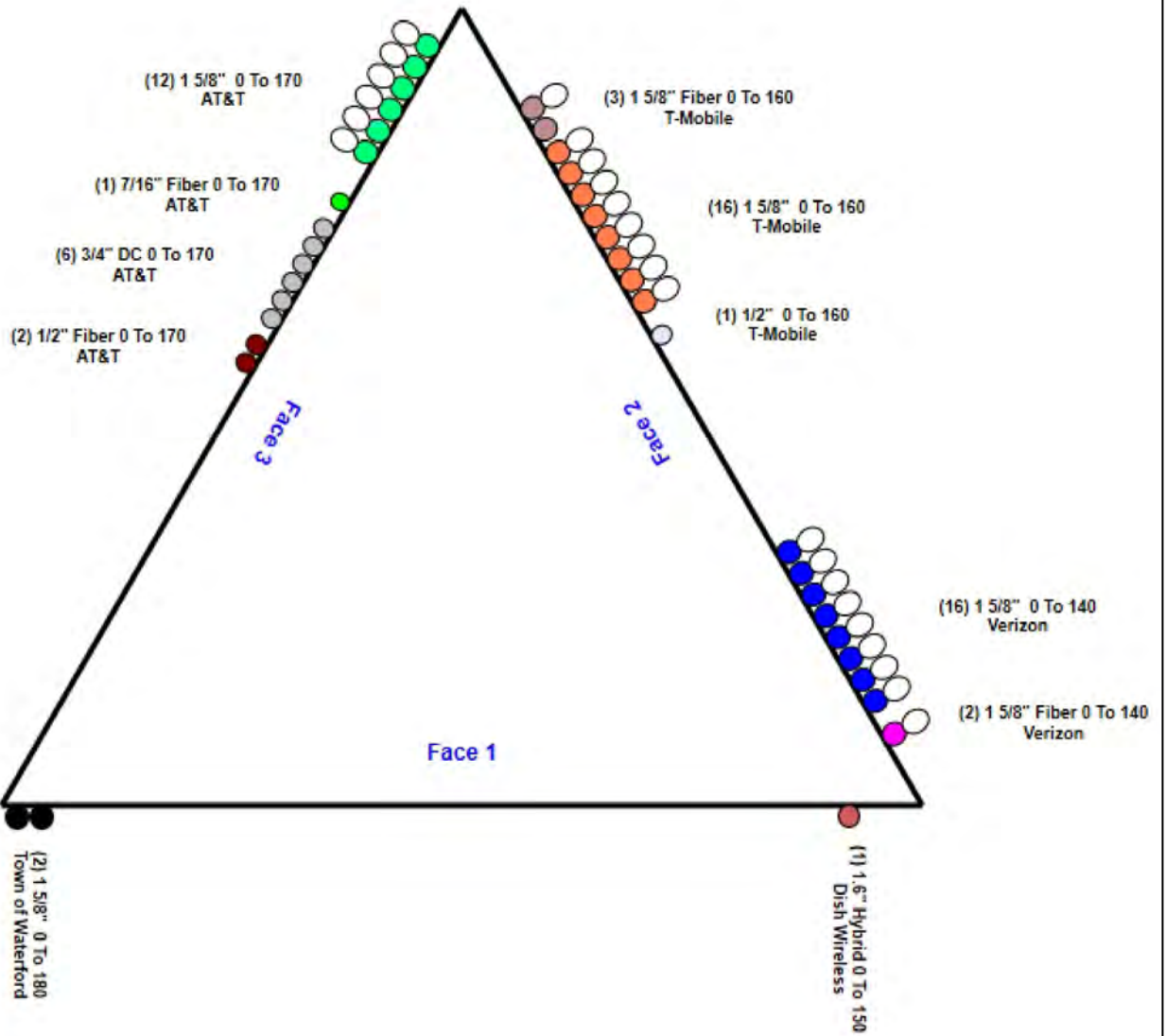


Structure: CT09865-S-SBA - Coax Line Placement

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

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Loading Summary

Structure: CT09865-S-SBA	Code: EIA/TIA-222-G	7/8/2021
Site Name: Niantic	Exposure: C	
Height: 180.00 (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)						
180.00	SC488-HF2LNF	2	30.00	3.810	213.06	9.380	183.000	2.500	2.500	1.00	1.00	7.625
180.00	ATS8TMA10	1	25.00	1.560	82.26	2.255	21.200	9.000	13.200	1.00	1.00	0.000
180.00	Lightning Rod	1	5.00	0.500	26.21	2.267	72.000	1.000	1.000	1.00	1.00	0.000
180.00	Beacon	1	36.00	2.720	170.87	3.681	28.000	17.500	17.500	1.00	1.00	0.000
180.00	SitePRO1 HM6 6' Standoffs	2	120.00	4.500	226.03	9.812	0.000	0.000	0.000	1.00	1.00	0.000
170.00	Modified T-Frame	3	360.00	20.540	868.95	37.092	0.000	0.000	0.000	0.75	0.75	0.000
170.00	7770	3	35.00	5.500	172.27	6.580	55.000	11.000	5.000	0.80	0.73	0.000
170.00	SBNHH-1D65A	3	33.50	5.880	194.26	6.975	55.000	11.900	7.100	0.80	0.83	0.000
170.00	AM-X-CD-14-65-00T-RET	3	36.40	5.000	149.33	6.898	48.000	11.800	5.900	0.80	0.75	0.000
170.00	EPBQ-654L8H6-L2	3	54.90	8.270	266.12	9.594	73.000	12.000	7.400	0.80	0.84	0.000
170.00	TT19-08BP111-001 TMA-TTA	6	16.00	0.640	36.49	1.240	9.900	6.700	5.400	0.80	0.50	0.000
170.00	RRUS-11 RRU/RRH	6	51.00	2.520	124.18	3.161	17.000	17.800	7.200	0.80	0.71	0.000
170.00	RRUS-32 RRU/RRH	6	77.00	3.870	192.32	4.117	29.900	13.300	9.500	0.80	0.67	0.000
170.00	4478 RRU/RRH	3	59.90	1.840	107.49	2.373	16.500	13.400	7.700	0.80	0.67	0.000
170.00	DC6-48-60-18-8F	2	31.80	0.920	94.40	1.363	24.000	11.000	11.000	0.80	0.75	0.000
160.00	APX16DWV-16DWV-S-E-A20	3	40.70	6.460	177.69	7.574	55.900	13.000	3.200	0.80	0.62	0.000
160.00	APXVAARR24_43-U-NA20	3	128.00	20.240	545.93	22.140	95.900	24.000	7.800	0.80	0.70	0.000
160.00	KRY 112 144/1	3	11.00	0.410	21.78	0.885	6.900	6.100	2.700	0.80	0.50	0.000
160.00	KRY 112 489/2	3	15.40	0.650	33.02	1.262	11.000	6.100	3.900	0.80	0.50	0.000
160.00	Radio 4449 B71+B12	3	70.00	1.650	138.25	2.188	15.000	13.200	9.300	0.80	0.85	0.000
160.00	782 11056	3	11.00	0.550	28.64	1.148	11.700	4.800	4.700	0.80	0.50	0.000
160.00	Modified T-Frame	3	517.00	20.600	1238.82	36.994	0.000	0.000	0.000	0.75	0.75	0.000
150.00	MX08FRO665-21	3	64.50	12.490	355.37	13.955	72.000	20.000	8.000	0.80	0.74	0.000
150.00	(3) MTC3975083	1	1056.4	29.450	2088.86	66.456	0.000	0.000	0.000	0.75	1.00	0.000
150.00	TA08025-B605	3	75.00	1.960	127.30	2.521	15.800	15.000	9.100	0.80	0.67	0.000
150.00	TA08025-B604	3	63.90	1.960	114.53	2.521	15.800	15.000	7.900	0.80	0.67	0.000
150.00	RDIDC-9181-PF-48	1	21.85	2.010	74.98	2.578	16.570	14.570	8.460	1.00	1.00	0.000
140.00	T-Frame	3	260.00	10.600	617.85	18.916	0.000	0.000	0.000	0.75	0.75	0.000
140.00	BXA-80063-6CF	3	17.00	7.570	163.19	10.294	71.000	11.200	5.200	0.80	0.73	0.000
140.00	BXA-70063-6CF-EDIN-0	3	17.00	7.570	163.19	10.294	71.000	11.200	5.200	0.80	0.73	0.000
140.00	SBNHH-1D65B	6	40.00	8.160	239.70	9.440	72.600	11.900	7.100	0.80	0.83	0.000
140.00	B66 RRH4X45 AWS	3	56.80	2.540	111.91	3.204	25.800	11.800	7.200	0.80	0.82	0.000
140.00	RRH 700 4X30 B13 Remote	3	57.20	2.160	118.61	2.762	21.600	12.000	9.000	0.80	0.88	0.000
140.00	DB-T1-6Z-8AB-OZ ODU	2	18.90	4.800	160.23	5.660	24.000	24.000	10.000	0.80	0.71	0.000
Totals:		100	8,602.26		24,530.33					Number of Appurtenances : 34		

Loading Summary

Structure: CT09865-S-SBA	Code: EIA/TIA-222-G	7/8/2021
Site Name: Niantic	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II



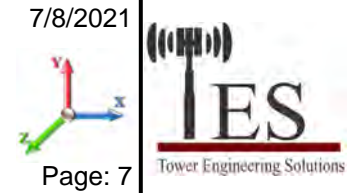
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Linear Appurtenances Properties

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	180.00	1 5/8" Coax	2	1.98	1.04	100.00	1	Individual NR		N	1.00	1.00	
0.00	180.00	W/G Ladder	1	2.00	6.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	170.00	1 5/8" Coax	12	1.98	1.04	50.00	3	Block		N	1.00	1.00	
0.00	170.00	1/2" Fiber	2	0.65	0.16	100.00	3	Individual NR		N	1.00	1.00	
0.00	170.00	3/4" DC	6	0.75	0.40	100.00	3	Individual NR		N	1.00	1.00	
0.00	170.00	7/16" Fiber	1	0.43	0.15	100.00	3	Individual NR		N	1.00	1.00	
0.00	170.00	W/G Ladder	1	2.00	6.00	100.00	3	Individual NR		N	1.00	1.00	
0.00	160.00	1 5/8" Coax	16	1.98	1.04	50.00	2	Block		N	1.00	1.00	
0.00	160.00	1 5/8" Fiber	3	2.00	1.10	66.60	2	Block		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	2.00	6.00	100.00	2	Individual NR		N	1.00	1.00	
0.00	150.00	1.6" Hybrid	1	1.60	1.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	140.00	1 5/8" Coax	16	1.98	1.04	50.00	2	Block		N	1.00	1.00	
0.00	140.00	1 5/8" Fiber	2	2.00	1.10	50.00	2	Block		N	1.00	1.00	
0.00	140.00	W/G Ladder	1	2.00	6.00	100.00	2	Individual NR		N	1.00	1.00	

Section Forces

Structure: CT09865-S-SBA	Code: EIA/TIA-222-G	7/8/2021
Site Name: Niantic	Exposure: C	
Height: 180.00 (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 + 1.6W Normal Wind - P1	1.2D + 1.6W 105 mph Wind at Normal To Face - P1
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

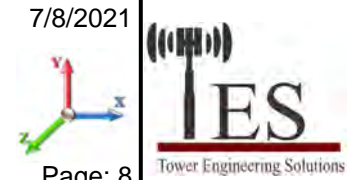
Sect Seq	Wind Height (ft)	qz (psf)	Total Area		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat (sqft)	Round (sqft)								Linear (sqft)	Linear (sqft)					
1 1	15.0	20.39	57.685	23.84	0.00	0.13	2.85	1.00	1.00	0.00	70.43	227.50	0.00	14,668.	0.0	5570.84	5614.58	11,185.42
1 2	45.0	25.66	40.739	23.84	0.00	0.13	2.85	1.00	1.00	0.00	52.94	227.50	0.00	12,448.	0.0	5264.39	7066.32	12,330.71
1 3	75.0	28.58	27.034	22.58	0.00	0.14	2.82	1.00	1.00	0.00	38.63	227.50	0.00	10,280.	0.0	4236.98	7868.62	12,105.60
1 4	105.0	30.68	16.718	21.33	0.00	0.17	2.71	1.00	1.00	0.00	27.91	227.50	0.00	9,080.2	0.0	3156.58	8446.22	11,602.80
1 5	130.0	32.09	17.015	12.55	0.00	0.28	2.35	1.00	1.00	0.00	24.36	151.67	0.00	5,387.7	0.0	2501.08	5889.77	8,390.85
1 6	150.0	33.07	14.388	9.13	0.00	0.23	2.51	1.00	1.00	0.00	19.70	105.60	0.00	3,434.5	0.0	2225.61	4171.15	6,396.76
2 7	170.0	33.95	11.635	6.54	0.00	0.18	2.68	1.00	1.00	0.00	15.38	30.86	0.00	1,741.7	0.0	1900.46	1253.62	3,154.08
														57,041.4	0.0			65,166.21

Load Case: 1.2D + 1.6W Normal Wind - P2	1.2D + 1.6W 105 mph Wind at Normal To Face - P2
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 (sqft)	Linear (sqft)					
1 1	15.0	12.24	57.685	23.84	0.00	0.13	2.85	1.00	1.00	0.00	70.43	227.50	0.00	14,668.	0.0	3342.50	3368.75	6,711.25
1 2	45.0	15.40	40.739	23.84	0.00	0.13	2.85	1.00	1.00	0.00	52.94	227.50	0.00	12,448.	0.0	3158.63	4239.79	7,398.43
1 3	75.0	17.15	27.034	22.58	0.00	0.14	2.82	1.00	1.00	0.00	38.63	227.50	0.00	10,280.	0.0	2542.19	4721.17	7,263.36
1 4	105.0	18.41	16.718	21.33	0.00	0.17	2.71	1.00	1.00	0.00	27.91	227.50	0.00	9,080.2	0.0	1893.95	5067.73	6,961.68
1 5	130.0	19.25	17.015	12.55	0.00	0.28	2.35	1.00	1.00	0.00	24.36	151.67	0.00	5,387.7	0.0	1500.65	3533.86	5,034.51
1 6	150.0	19.84	14.388	9.13	0.00	0.23	2.51	1.00	1.00	0.00	19.70	105.60	0.00	3,434.5	0.0	1335.37	2502.69	3,838.05
2 7	170.0	33.95	11.635	6.54	0.00	0.18	2.68	1.00	1.00	0.00	15.38	30.86	0.00	1,741.7	0.0	1900.46	1253.62	3,154.08
														57,041.4	0.0			40,361.36

Section Forces

Structure: CT09865-S-SBA	Code: EIA/TIA-222-G	7/8/2021
Site Name: Niantic	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 8



Load Case: 1.2D + 1.6W Normal Wind - P3	1.2D + 1.6W 105 mph Wind at Normal To Face - P3
Wind Load Factor: 1.60	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

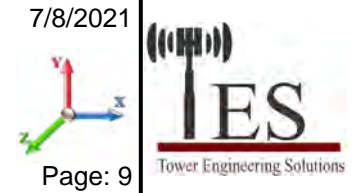
Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	15.0	20.39	57.685	23.84	0.00	0.13	2.85	1.00	1.00	0.00	70.43	227.50	0.00	14,668.	0.0	5570.84	5614.58	11,185.42
1 2	45.0	25.66	40.739	23.84	0.00	0.13	2.85	1.00	1.00	0.00	52.94	227.50	0.00	12,448.	0.0	5264.39	7066.32	12,330.71
1 3	75.0	28.58	27.034	22.58	0.00	0.14	2.82	1.00	1.00	0.00	38.63	227.50	0.00	10,280.	0.0	4236.98	7868.62	12,105.60
1 4	105.0	30.68	16.718	21.33	0.00	0.17	2.71	1.00	1.00	0.00	27.91	227.50	0.00	9,080.2	0.0	3156.58	8446.22	11,602.80
1 5	130.0	32.09	17.015	12.55	0.00	0.28	2.35	1.00	1.00	0.00	24.36	151.67	0.00	5,387.7	0.0	2501.08	5889.77	8,390.85
1 6	150.0	33.07	14.388	9.13	0.00	0.23	2.51	1.00	1.00	0.00	19.70	105.60	0.00	3,434.5	0.0	2225.61	4171.15	6,396.76
2 7	170.0	20.37	11.635	6.54	0.00	0.18	2.68	1.00	1.00	0.00	15.38	30.86	0.00	1,741.7	0.0	1140.28	752.17	1,892.45
57,041.4														0.0	63,904.58			

Load Case: 1.2D + 1.6W 60° Wind - P1	1.2D + 1.6W 105 mph Wind at 60° From Face - P1
Wind Load Factor: 1.60	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	15.0	20.39	57.685	23.84	0.00	0.13	2.85	0.80	1.00	0.00	58.89	227.50	0.00	14,668.	0.0	4658.28	5614.58	10,272.86
1 2	45.0	25.66	40.739	23.84	0.00	0.13	2.85	0.80	1.00	0.00	44.79	227.50	0.00	12,448.	0.0	4454.14	7066.32	11,520.47
1 3	75.0	28.58	27.034	22.58	0.00	0.14	2.82	0.80	1.00	0.00	33.22	227.50	0.00	10,280.	0.0	3643.91	7868.62	11,512.53
1 4	105.0	30.68	16.718	21.33	0.00	0.17	2.71	0.80	1.00	0.00	24.57	227.50	0.00	9,080.2	0.0	2778.46	8446.22	11,224.68
1 5	130.0	32.09	17.015	12.55	0.00	0.28	2.35	0.80	1.00	0.00	20.96	151.67	0.00	5,387.7	0.0	2151.75	5889.77	8,041.52
1 6	150.0	33.07	14.388	9.13	0.00	0.23	2.51	0.80	1.00	0.00	16.82	105.60	0.00	3,434.5	0.0	1900.51	4171.15	6,071.66
2 7	170.0	33.95	11.635	6.54	0.00	0.18	2.68	0.80	1.00	0.00	13.05	30.86	0.00	1,741.7	0.0	1612.93	1253.62	2,866.55
57,041.4														0.0	61,510.26			

Section Forces

Structure: CT09865-S-SBA	Code: EIA/TIA-222-G	7/8/2021
Site Name: Niantic	Exposure: C	
Height: 180.00 (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 + 1.6W 60° Wind - P2	1.2D + 1.6W 105 mph Wind at 60° From Face - P2
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

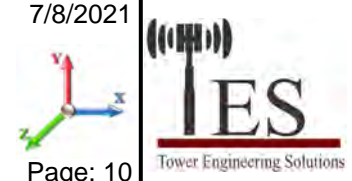
Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	15.0	12.24	57.685	23.84	0.00	0.13	2.85	0.80	1.00	0.00	58.89	227.50	0.00	14,668.	0.0	2794.97	3368.75	6,163.71
1 2	45.0	15.40	40.739	23.84	0.00	0.13	2.85	0.80	1.00	0.00	44.79	227.50	0.00	12,448.	0.0	2672.49	4239.79	6,912.28
1 3	75.0	17.15	27.034	22.58	0.00	0.14	2.82	0.80	1.00	0.00	33.22	227.50	0.00	10,280.	0.0	2186.35	4721.17	6,907.52
1 4	105.0	18.41	16.718	21.33	0.00	0.17	2.71	0.80	1.00	0.00	24.57	227.50	0.00	9,080.2	0.0	1667.08	5067.73	6,734.81
1 5	130.0	19.25	17.015	12.55	0.00	0.28	2.35	0.80	1.00	0.00	20.96	151.67	0.00	5,387.7	0.0	1291.05	3533.86	4,824.91
1 6	150.0	19.84	14.388	9.13	0.00	0.23	2.51	0.80	1.00	0.00	16.82	105.60	0.00	3,434.5	0.0	1140.31	2502.69	3,643.00
2 7	170.0	33.95	11.635	6.54	0.00	0.18	2.68	0.80	1.00	0.00	13.05	30.86	0.00	1,741.7	0.0	1612.93	1253.62	2,866.55
														57,041.4	0.0	38,052.78		

Load Case: 1.2D + 1.6W 60° Wind - P3	1.2D + 1.6W 105 mph Wind at 60° From Face - P3
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 1	15.0	20.39	57.685	23.84	0.00	0.13	2.85	0.80	1.00	0.00	58.89	227.50	0.00	14,668.	0.0	4658.28	5614.58	10,272.86
1 2	45.0	25.66	40.739	23.84	0.00	0.13	2.85	0.80	1.00	0.00	44.79	227.50	0.00	12,448.	0.0	4454.14	7066.32	11,520.47
1 3	75.0	28.58	27.034	22.58	0.00	0.14	2.82	0.80	1.00	0.00	33.22	227.50	0.00	10,280.	0.0	3643.91	7868.62	11,512.53
1 4	105.0	30.68	16.718	21.33	0.00	0.17	2.71	0.80	1.00	0.00	24.57	227.50	0.00	9,080.2	0.0	2778.46	8446.22	11,224.68
1 5	130.0	32.09	17.015	12.55	0.00	0.28	2.35	0.80	1.00	0.00	20.96	151.67	0.00	5,387.7	0.0	2151.75	5889.77	8,041.52
1 6	150.0	33.07	14.388	9.13	0.00	0.23	2.51	0.80	1.00	0.00	16.82	105.60	0.00	3,434.5	0.0	1900.51	4171.15	6,071.66
2 7	170.0	20.37	11.635	6.54	0.00	0.18	2.68	0.80	1.00	0.00	13.05	30.86	0.00	1,741.7	0.0	967.76	752.17	1,719.93
														57,041.4	0.0	60,363.64		

Section Forces

Structure: CT09865-S-SBA	Code: EIA/TIA-222-G	7/8/2021
Site Name: Niantic	Exposure: C	
Height: 180.00 (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 + 1.6W 90° Wind - P1	1.2D + 1.6W 105 mph Wind at 90° From Face - P1
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

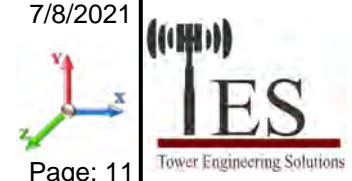
Sect Seq	Wind Height (ft)	qz (psf)	Total Area		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat (sqft)	Round (sqft)								Linear (sqft)	Linear (sqft)					
1 1	15.0	20.39	57.685	23.84	0.00	0.13	2.85	0.85	1.00	0.00	61.78	227.50	0.00	14,668.	0.0	4886.42	5614.58	10,501.00
1 2	45.0	25.66	40.739	23.84	0.00	0.13	2.85	0.85	1.00	0.00	46.83	227.50	0.00	12,448.	0.0	4656.70	7066.32	11,723.03
1 3	75.0	28.58	27.034	22.58	0.00	0.14	2.82	0.85	1.00	0.00	34.57	227.50	0.00	10,280.	0.0	3792.18	7868.62	11,660.80
1 4	105.0	30.68	16.718	21.33	0.00	0.17	2.71	0.85	1.00	0.00	25.40	227.50	0.00	9,080.2	0.0	2872.99	8446.22	11,319.21
1 5	130.0	32.09	17.015	12.55	0.00	0.28	2.35	0.85	1.00	0.00	21.81	151.67	0.00	5,387.7	0.0	2239.08	5889.77	8,128.85
1 6	150.0	33.07	14.388	9.13	0.00	0.23	2.51	0.85	1.00	0.00	17.54	105.60	0.00	3,434.5	0.0	1981.79	4171.15	6,152.93
1 7	170.0	33.95	11.635	6.54	0.00	0.18	2.68	0.85	1.00	0.00	13.64	30.86	0.00	1,741.7	0.0	1684.81	1253.62	2,938.43
														57,041.4	0.0	62,424.25		

Load Case: 1.2D + 1.6W 90° Wind - P2	1.2D + 1.6W 105 mph Wind at 90° From Face - P2
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 (sqft)	Linear (sqft)					
1 1	15.0	12.24	57.685	23.84	0.00	0.13	2.85	0.85	1.00	0.00	61.78	227.50	0.00	14,668.	0.0	2931.85	3368.75	6,300.60
1 2	45.0	15.40	40.739	23.84	0.00	0.13	2.85	0.85	1.00	0.00	46.83	227.50	0.00	12,448.	0.0	2794.02	4239.79	7,033.82
1 3	75.0	17.15	27.034	22.58	0.00	0.14	2.82	0.85	1.00	0.00	34.57	227.50	0.00	10,280.	0.0	2275.31	4721.17	6,996.48
1 4	105.0	18.41	16.718	21.33	0.00	0.17	2.71	0.85	1.00	0.00	25.40	227.50	0.00	9,080.2	0.0	1723.79	5067.73	6,791.53
1 5	130.0	19.25	17.015	12.55	0.00	0.28	2.35	0.85	1.00	0.00	21.81	151.67	0.00	5,387.7	0.0	1343.45	3533.86	4,877.31
1 6	150.0	19.84	14.388	9.13	0.00	0.23	2.51	0.85	1.00	0.00	17.54	105.60	0.00	3,434.5	0.0	1189.07	2502.69	3,691.76
1 7	170.0	33.95	11.635	6.54	0.00	0.18	2.68	0.85	1.00	0.00	13.64	30.86	0.00	1,741.7	0.0	1684.81	1253.62	2,938.43
														57,041.4	0.0	38,629.92		

Section Forces

Structure: CT09865-S-SBA	Code: EIA/TIA-222-G	7/8/2021
Site Name: Niantic	Exposure: C	
Height: 180.00 (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 + 1.6W 90° Wind - P3	1.2D + 1.6W 105 mph Wind at 90° From Face - P3
Wind Load Factor: 1.60	Wind Importance Factor: 1.00
Dead Load Factor: 1.20	
Ice Dead Load Factor: 0.00	Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	15.0	20.39	57.685	23.84	0.00	0.13	2.85	0.85	1.00	0.00	61.78	227.50	0.00	14,668.	0.0	4886.42	5614.58	10,501.00
1 2	45.0	25.66	40.739	23.84	0.00	0.13	2.85	0.85	1.00	0.00	46.83	227.50	0.00	12,448.	0.0	4656.70	7066.32	11,723.03
1 3	75.0	28.58	27.034	22.58	0.00	0.14	2.82	0.85	1.00	0.00	34.57	227.50	0.00	10,280.	0.0	3792.18	7868.62	11,660.80
1 4	105.0	30.68	16.718	21.33	0.00	0.17	2.71	0.85	1.00	0.00	25.40	227.50	0.00	9,080.2	0.0	2872.99	8446.22	11,319.21
1 5	130.0	32.09	17.015	12.55	0.00	0.28	2.35	0.85	1.00	0.00	21.81	151.67	0.00	5,387.7	0.0	2239.08	5889.77	8,128.85
1 6	150.0	33.07	14.388	9.13	0.00	0.23	2.51	0.85	1.00	0.00	17.54	105.60	0.00	3,434.5	0.0	1981.79	4171.15	6,152.93
2 7	170.0	20.37	11.635	6.54	0.00	0.18	2.68	0.85	1.00	0.00	13.64	30.86	0.00	1,741.7	0.0	1010.89	752.17	1,763.06
57,041.4														0.0	61,248.88			

Load Case: 0.9D + 1.6W Normal Wind	0.9D + 1.6W 105 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 Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	15.0	20.39	57.685	23.84	0.00	0.13	2.85	1.00	1.00	0.00	70.43	227.50	0.00	11,001.	0.0	5570.84	5614.58	11,185.42
1 2	45.0	25.66	40.739	23.84	0.00	0.13	2.85	1.00	1.00	0.00	52.94	227.50	0.00	9,336.5	0.0	5264.39	7066.32	12,330.71
1 3	75.0	28.58	27.034	22.58	0.00	0.14	2.82	1.00	1.00	0.00	38.63	227.50	0.00	7,710.4	0.0	4236.98	7868.62	12,105.60
1 4	105.0	30.68	16.718	21.33	0.00	0.17	2.71	1.00	1.00	0.00	27.91	227.50	0.00	6,810.1	0.0	3156.58	8446.22	11,602.80
1 5	130.0	32.09	17.015	12.55	0.00	0.28	2.35	1.00	1.00	0.00	24.36	151.67	0.00	4,040.8	0.0	2501.08	5889.77	8,390.85
1 6	150.0	33.07	14.388	9.13	0.00	0.23	2.51	1.00	1.00	0.00	19.70	105.60	0.00	2,575.8	0.0	2225.61	4171.15	6,396.76
2 7	170.0	33.95	11.635	6.54	0.00	0.18	2.68	1.00	1.00	0.00	15.38	30.86	0.00	1,306.3	0.0	1900.46	1253.62	3,154.08
42,781.0														0.0	65,166.21			

Section Forces

Structure: CT09865-S-SBA
Site Name: Niantic
Height: 180.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Topography: 1

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

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Load Case: 0.9D + 1.6W 60° Wind

0.9D + 1.6W 105 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)	Total Flat Area (psf) (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	15.0	20.39 57.685	23.84	0.00	0.13	2.85	0.80	1.00	0.00	58.89	227.50	0.00	11,001.0	0.0	4658.28	5614.58	10,272.86
1 2	45.0	25.66 40.739	23.84	0.00	0.13	2.85	0.80	1.00	0.00	44.79	227.50	0.00	9,336.5	0.0	4454.14	7066.32	11,520.47
1 3	75.0	28.58 27.034	22.58	0.00	0.14	2.82	0.80	1.00	0.00	33.22	227.50	0.00	7,710.4	0.0	3643.91	7868.62	11,512.53
1 4	105.0	30.68 16.718	21.33	0.00	0.17	2.71	0.80	1.00	0.00	24.57	227.50	0.00	6,810.1	0.0	2778.46	8446.22	11,224.68
1 5	130.0	32.09 17.015	12.55	0.00	0.28	2.35	0.80	1.00	0.00	20.96	151.67	0.00	4,040.8	0.0	2151.75	5889.77	8,041.52
1 6	150.0	33.07 14.388	9.13	0.00	0.23	2.51	0.80	1.00	0.00	16.82	105.60	0.00	2,575.8	0.0	1900.51	4171.15	6,071.66
2 7	170.0	33.95 11.635	6.54	0.00	0.18	2.68	0.80	1.00	0.00	13.05	30.86	0.00	1,306.3	0.0	1612.93	1253.62	2,866.55
													42,781.0	0.0			61,510.26

Load Case: 0.9D + 1.6W 90° Wind

0.9D + 1.6W 105 mph Wind at 90° From Face

Wind Load Factor: 1.60

Wind Importance Factor: 1.00

Dead Load Factor: 0.90

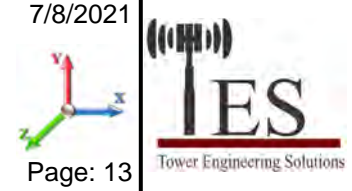
Ice Dead Load Factor: 0.00

Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	Total Flat Area (psf) (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	15.0	20.39 57.685	23.84	0.00	0.13	2.85	0.85	1.00	0.00	61.78	227.50	0.00	11,001.0	0.0	4886.42	5614.58	10,501.00
1 2	45.0	25.66 40.739	23.84	0.00	0.13	2.85	0.85	1.00	0.00	46.83	227.50	0.00	9,336.5	0.0	4656.70	7066.32	11,723.03
1 3	75.0	28.58 27.034	22.58	0.00	0.14	2.82	0.85	1.00	0.00	34.57	227.50	0.00	7,710.4	0.0	3792.18	7868.62	11,660.80
1 4	105.0	30.68 16.718	21.33	0.00	0.17	2.71	0.85	1.00	0.00	25.40	227.50	0.00	6,810.1	0.0	2872.99	8446.22	11,319.21
1 5	130.0	32.09 17.015	12.55	0.00	0.28	2.35	0.85	1.00	0.00	21.81	151.67	0.00	4,040.8	0.0	2239.08	5889.77	8,128.85
1 6	150.0	33.07 14.388	9.13	0.00	0.23	2.51	0.85	1.00	0.00	17.54	105.60	0.00	2,575.8	0.0	1981.79	4171.15	6,152.93
2 7	170.0	33.95 11.635	6.54	0.00	0.18	2.68	0.85	1.00	0.00	13.64	30.86	0.00	1,306.3	0.0	1684.81	1253.62	2,938.43
													42,781.0	0.0			62,424.25

Section Forces

Structure: CT09865-S-SBA	Code: EIA/TIA-222-G	7/8/2021
Site Name: Niantic	Exposure: C	
Height: 180.00 (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 + 1.0Di + 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

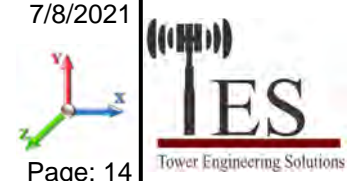
Sect Seq	Wind Height (ft)	qz (psf)	Total Area		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat (sqft)	Round (sqft)								Linear (sqft)	Linear (sqft)					
1 1	15.0	4.62	57.685	78.47	54.63	0.21	2.56	1.00	1.00	1.39	102.94	287.38	90.11	27,806.	13138.3	1033.93	1413.14	2,447.07
1 2	45.0	5.82	40.739	76.21	52.37	0.23	2.50	1.00	1.00	1.55	84.98	294.63	100.5	25,634.	13185.8	1049.60	1850.18	2,899.78
1 3	75.0	6.48	27.034	69.09	46.51	0.26	2.41	1.00	1.00	1.63	67.60	298.28	105.8	22,752.	12471.9	898.24	2082.60	2,980.84
1 4	105.0	6.96	16.718	61.55	40.22	0.33	2.22	1.00	1.00	1.68	54.21	300.78	109.4	20,828.	11747.8	710.64	2197.63	2,908.28
1 5	130.0	7.28	17.015	47.41	34.86	0.58	1.82	1.00	1.00	1.72	51.65	201.61	74.55	14,223.	8835.8	581.24	1055.33	1,449.00
1 6	150.0	7.50	14.388	44.49	35.36	0.54	1.86	1.00	1.00	1.75	45.76	138.84	72.72	10,349.	6915.0	542.05	898.64	1,440.68
2 7	170.0	7.70	11.635	42.34	35.80	0.50	1.91	1.00	1.00	1.77	40.57	42.64	38.29	5,567.0	3825.3	505.75	373.55	879.30
														127,161.4	70120.0			15,004.94

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 (sqft)	Round (sqft)								Linear (sqft)	Linear (sqft)					
1 1	15.0	4.62	57.685	78.47	54.63	0.21	2.56	0.80	1.00	1.39	91.40	287.38	90.11	27,806.	13138.3	918.05	1413.14	2,331.19
1 2	45.0	5.82	40.739	76.21	52.37	0.23	2.50	0.80	1.00	1.55	76.83	294.63	100.5	25,634.	13185.8	948.96	1850.18	2,799.14
1 3	75.0	6.48	27.034	69.09	46.51	0.26	2.41	0.80	1.00	1.63	62.19	298.28	105.8	22,752.	12471.9	826.39	2082.60	2,908.99
1 4	105.0	6.96	16.718	61.55	40.22	0.33	2.22	0.80	1.00	1.68	50.87	300.78	109.4	20,828.	11747.8	666.81	2197.63	2,864.45
1 5	130.0	7.28	17.015	47.41	34.86	0.58	1.82	0.80	1.00	1.72	48.24	201.61	74.55	14,223.	8835.8	542.94	1055.33	1,598.27
1 6	150.0	7.50	14.388	44.49	35.36	0.54	1.86	0.80	1.00	1.75	42.89	138.84	72.72	10,349.	6915.0	507.97	898.64	1,406.60
2 7	170.0	7.70	11.635	42.34	35.80	0.50	1.91	0.80	1.00	1.77	38.24	42.64	38.29	5,567.0	3825.3	476.74	373.55	850.29
														127,161.4	70120.0			14,758.93

Section Forces

Structure: CT09865-S-SBA	Code: EIA/TIA-222-G	7/8/2021
Site Name: Niantic	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 14



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 Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	15.0	4.62	57.685	78.47	54.63	0.21	2.56	0.85	1.00	1.39	94.29	287.38	90.11	27,806.	13138.3	947.02	1413.14	2,360.16
1 2	45.0	5.82	40.739	76.21	52.37	0.23	2.50	0.85	1.00	1.55	78.87	294.63	100.5	25,634.	13185.8	974.12	1850.18	2,824.30
1 3	75.0	6.48	27.034	69.09	46.51	0.26	2.41	0.85	1.00	1.63	63.54	298.28	105.8	22,752.	12471.9	844.36	2082.60	2,926.95
1 4	105.0	6.96	16.718	61.55	40.22	0.33	2.22	0.85	1.00	1.68	51.70	300.78	109.4	20,828.	11747.8	677.77	2197.63	2,875.40
1 5	130.0	7.28	17.015	47.41	34.86	0.58	1.82	0.85	1.00	1.72	49.09	201.61	74.55	14,223.	8835.8	552.52	1055.33	1,607.85
1 6	150.0	7.50	14.388	44.49	35.36	0.54	1.86	0.85	1.00	1.75	43.61	138.84	72.72	10,349.	6915.0	516.49	898.64	1,415.12
2 7	170.0	7.70	11.635	42.34	35.80	0.50	1.91	0.85	1.00	1.77	38.82	42.64	38.29	5,567.0	3825.3	483.99	373.55	857.54
														127,161.4	70120.0			14,867.33

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 Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	15.0	6.66	57.685	23.84	0.00	0.13	2.85	1.00	1.00	0.00	71.17	227.50	0.00	12,223.	0.0	1148.88	1145.83	2,294.72
1 2	45.0	8.38	40.739	23.84	0.00	0.13	2.85	1.00	1.00	0.00	54.23	227.50	0.00	10,373.	0.0	1100.49	1442.11	2,542.60
1 3	75.0	9.33	27.034	22.58	0.00	0.14	2.82	1.00	1.00	0.00	39.82	227.50	0.00	8,567.1	0.0	891.46	1605.84	2,497.30
1 4	105.0	10.02	16.718	21.33	0.00	0.17	2.71	1.00	1.00	0.00	28.86	227.50	0.00	7,566.8	0.0	666.16	1723.72	2,389.88
1 5	130.0	10.48	17.015	12.55	0.00	0.28	2.35	1.00	1.00	0.00	24.49	151.67	0.00	4,489.7	0.0	512.99	1201.99	1,714.98
1 6	150.0	10.80	14.388	9.13	0.00	0.23	2.51	1.00	1.00	0.00	19.70	105.60	0.00	2,862.0	0.0	454.21	851.25	1,305.46
2 7	170.0	11.09	11.635	6.54	0.00	0.18	2.68	1.00	1.00	0.00	15.38	30.86	0.00	1,451.4	0.0	387.85	255.84	643.69
														47,534.5	0.0			13,388.62

Section Forces

Structure: CT09865-S-SBA	Code: EIA/TIA-222-G	7/8/2021
Site Name: Niantic	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 1	Struct Class: II
		Page: 15



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)	Total Flat Area (psf) (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	15.0	6.66 57.685	23.84	0.00	0.13	2.85	0.80	1.00	0.00	59.63	227.50	0.00	12,223.	0.0	962.64	1145.83	2,108.48
1 2	45.0	8.38 40.739	23.84	0.00	0.13	2.85	0.80	1.00	0.00	46.08	227.50	0.00	10,373.	0.0	935.14	1442.11	2,377.24
1 3	75.0	9.33 27.034	22.58	0.00	0.14	2.82	0.80	1.00	0.00	34.42	227.50	0.00	8,567.1	0.0	770.42	1605.84	2,376.27
1 4	105.0	10.02 16.718	21.33	0.00	0.17	2.71	0.80	1.00	0.00	25.52	227.50	0.00	7,566.8	0.0	589.00	1723.72	2,312.71
1 5	130.0	10.48 17.015	12.55	0.00	0.28	2.35	0.80	1.00	0.00	21.08	151.67	0.00	4,489.7	0.0	441.70	1201.99	1,643.69
1 6	150.0	10.80 14.388	9.13	0.00	0.23	2.51	0.80	1.00	0.00	16.82	105.60	0.00	2,862.0	0.0	387.86	851.25	1,239.11
2 7	170.0	11.09 11.635	6.54	0.00	0.18	2.68	0.80	1.00	0.00	13.05	30.86	0.00	1,451.4	0.0	329.17	255.84	585.01
													47,534.5	0.0	12,642.51		

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)	Total Flat Area (psf) (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	15.0	6.66 57.685	23.84	0.00	0.13	2.85	0.85	1.00	0.00	62.52	227.50	0.00	12,223.	0.0	1009.20	1145.83	2,155.04
1 2	45.0	8.38 40.739	23.84	0.00	0.13	2.85	0.85	1.00	0.00	48.12	227.50	0.00	10,373.	0.0	976.48	1442.11	2,418.58
1 3	75.0	9.33 27.034	22.58	0.00	0.14	2.82	0.85	1.00	0.00	35.77	227.50	0.00	8,567.1	0.0	800.68	1605.84	2,406.52
1 4	105.0	10.02 16.718	21.33	0.00	0.17	2.71	0.85	1.00	0.00	26.36	227.50	0.00	7,566.8	0.0	608.29	1723.72	2,332.01
1 5	130.0	10.48 17.015	12.55	0.00	0.28	2.35	0.85	1.00	0.00	21.93	151.67	0.00	4,489.7	0.0	459.52	1201.99	1,661.51
1 6	150.0	10.80 14.388	9.13	0.00	0.23	2.51	0.85	1.00	0.00	17.54	105.60	0.00	2,862.0	0.0	404.45	851.25	1,255.70
2 7	170.0	11.09 11.635	6.54	0.00	0.18	2.68	0.85	1.00	0.00	13.64	30.86	0.00	1,451.4	0.0	343.84	255.84	599.68
													47,534.5	0.0	12,829.04		

Force/Stress Compression Summary

Structure: CT09865-S-SBA
Site Name: Niantic
Height: 180.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

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

7/8/2021

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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	30	SOL - 4 3/4" SOLID	-426.14	1.2D + 1.6W	Normal Wind - P1	7.40	100	100	100	74.81	50.00	529.67	80.5	Member X
2	60	SOL - 4 3/4" SOLID	-379.00	1.2D + 1.6W	Normal Wind - P1	7.40	100	100	100	74.81	50.00	529.67	71.6	Member X
3	90	SOL - 4 1/2" SOLID	-331.34	1.2D + 1.6W	Normal Wind - P1	7.40	100	100	100	78.96	50.00	453.66	73.0	Member X
4	120	SOL - 4 1/4" SOLID	-287.91	1.2D + 1.6W	Normal Wind - P1	7.40	100	100	100	83.61	50.00	382.92	75.2	Member X
5	140	SOL - 3 1/2" SOLID	-241.38	1.2D + 1.6W	Normal Wind - P1	3.25	100	100	100	44.57	50.00	374.41	64.5	Member X
6	160	SOL - 2 1/2" SOLID	-103.14	1.2D + 1.6W	Normal Wind - P1	3.25	100	100	100	62.40	50.00	166.16	62.1	Member X
7	180	SOL - 1 3/4" SOLID	-22.92	1.2D + 1.6W	Normal Wind - P1	3.25	100	100	100	89.14	50.00	60.54	37.9	Member X

Splices

Sect	Top Elev	Load Case	Top Splice				Bolt Type	Num Bolts	Load Case	Bottom Splice				Bolt Type	Num Bolts
			Force (kips)	Cap (kips)	Use %					Force (kips)	Cap (kips)	Use %			
1	30	1.2D + 1.6W Normal Wind - P1	386.97	0.00	0.0			1.2D + 1.6W Normal Wind - P1	433.09	0.00					
2	60	1.2D + 1.6W Normal Wind - P1	338.62	0.00	0.0			1.2D + 1.6W Normal Wind - P1	386.97	0.00			1/4 A325	6	
3	90	1.2D + 1.6W Normal Wind - P1	293.94	0.00	0.0			1.2D + 1.6W Normal Wind - P1	338.62	0.00			1/4 A325	6	
4	120	1.2D + 1.6W Normal Wind - P1	257.48	0.00	0.0			1.2D + 1.6W Normal Wind - P1	293.94	0.00			1/4 A325	6	
5	140	1.2D + 1.6W Normal Wind - P1	112.77	0.00	0.0			1.2D + 1.6W Normal Wind - P1	257.48	0.00			1/8 A325	6	
6	160	1.2D + 1.6W Normal Wind - P1	27.80	0.00	0.0			1.2D + 1.6W Normal Wind - P1	112.77	0.00			1/8 A325	6	
7	180	1.2D + 1.0Di + 1.0Wi 90° Wind	0.60	0.00	0.0			1.2D + 1.6W Normal Wind - P1	27.80	0.00			7/8 A325	6	

HORIZONTAL MEMBERS

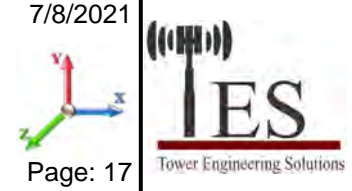
Sect	Top Elev	Member	Force		Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Bear		Use %	Controls
			(kips)			X	Y	Z					KL/R	(kips)		
1	30								0.00	0	0					
2	60								0.00	0	0					
3	90								0.00	0	0					
4	120								0.00	0	0					
5	140	SOL - 1 1/8" SOLID	-3.46	1.2D + 1.6W	60° Wind - P1	5.00	100	100	100	149.31	36.00	10.07	0	0	34	Member X
6	160	SOL - 1" SOLID	-1.59	1.2D + 1.6W	60° Wind - P1	5.00	100	100	100	168.00	36.00	6.29	0	0	25	Member X
7	180	SOL - 7/8" SOLID	-1.12	1.2D + 1.6W	Normal Wind - P2	5.00	100	100	100	191.96	36.00	3.69	0	0	30	Member X

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force		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	30	SAE - 4X4X0.3125	-8.74	1.2D + 1.6W	90° Wind - P3	23.59	50	50	50	178.97	36.00	16.93	1	1	24.35	21.7	52	Member Z
2	60	SAE - 3.5X3.5X0.25	-7.94	1.2D + 1.6W	90° Wind - P3	19.37	50	50	50	167.47	36.00	13.61	1	1	24.35	17.4	58	Member Z
3	90	SAE - 3X3X0.1875	-5.93	1.2D + 1.6W	90° Wind - P3	15.31	50	50	50	154.10	36.00	10.37	1	1	17.89	10.7	57	Member Z
4	120	SAE - 2.5X2.5X0.1875	-4.74	1.2D + 1.6W	Normal Wind - P3	9.26	50	50	50	114.18	36.00	14.71	1	1	17.89	10.7	44	Bolt Bear
5	140	SAE - 3X3X0.1875	-13.8	1.2D + 1.6W	90° Wind - P1	5.96	50	50	50	54.03	36.00	30.28	0	0			46	Member Z
6	160	SAE - 2.5X2.5X0.1875	-8.73	1.2D + 1.6W	90° Wind - P1	5.96	50	50	50	65.06	36.00	23.39	0	0			37	Member Z
7	180	SAE - 2X2X0.1875	-3.65	1.2D + 1.6W	90° Wind - P1	5.96	50	50	50	81.73	36.00	16.18	0	0			23	Member Z

Force/Stress Tension Summary

Structure: CT09865-S-SBA	Code: EIA/TIA-222-G	7/8/2021
Site Name: Niantic	Exposure: C	
Height: 180.00 (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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LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	30	SOL - 4 3/4" SOLID	379.97	0.9D + 1.6W 60° Wind	50	797.45	47.6	Member
2	60	SOL - 4 3/4" SOLID	343.05	0.9D + 1.6W 60° Wind	50	797.45	43.0	Member
3	90	SOL - 4 1/2" SOLID	304.11	0.9D + 1.6W 60° Wind	50	715.68	42.5	Member
4	120	SOL - 4 1/4" SOLID	267.11	0.9D + 1.6W 60° Wind	50	638.37	41.8	Member
5	140	SOL - 3 1/2" SOLID	235.84	0.9D + 1.6W 60° Wind	50	432.95	54.5	Member
6	160	SOL - 2 1/2" SOLID	100.12	0.9D + 1.6W 60° Wind	50	220.89	45.3	Member
7	180	SOL - 1 3/4" SOLID	22.00	0.9D + 1.6W 60° Wind	50	108.24	20.3	Member

Splices

Sect	Top Elev	Load Case	Top Splice				Load Case	Bottom Splice					
			Force (kips)	Cap (kips)	Use %	Bolt Type		Num Bolts	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	30	0.9D + 1.6W 60° Wind	342.57	0.00	0.0		0.9D + 1.6W 60° Wind	379.9	0.00				
2	60	0.9D + 1.6W 60° Wind	303.64	0.00	0.0		0.9D + 1.6W 60° Wind	342.5	457.92	74.8	1 1/4	A325	6
3	90	0.9D + 1.6W 60° Wind	266.74	0.00	0.0		0.9D + 1.6W 60° Wind	303.6	457.92	66.3	1 1/4	A325	6
4	120	0.9D + 1.6W 60° Wind	236.35	0.00	0.0		0.9D + 1.6W 60° Wind	266.7	457.92	58.3	1 1/4	A325	6
5	140	0.9D + 1.6W 60° Wind	99.53	0.00	0.0		0.9D + 1.6W 60° Wind	236.3	360.65	65.5	1 1/8	A325	6
6	160	0.9D + 1.6W 60° Wind	21.22	0.00	0.0		0.9D + 1.6W 60° Wind	99.53	360.65	27.6	1 1/8	A325	6
7	180		0.00	0.00	0.0		0.9D + 1.6W 60° Wind	21.22	249.36	8.5	7/8	A325	6

HORIZONTAL MEMBERS

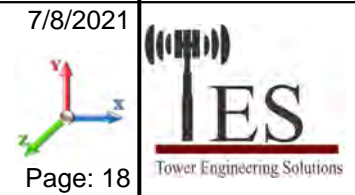
Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	30	-			36	0.00	0	0					
2	60	-			36	0.00	0	0					
3	90	-			36	0.00	0	0					
4	120	-			36	0.00	0	0					
5	140	SOL - 1 1/8" SOLID	2.91	0.9D + 1.6W Normal Wi	36	32.21	0	0				9.1	Member
6	160	SOL - 1" SOLID	1.69	1.2D + 1.6W Normal Wi	36	25.45	0	0				6.6	Member
7	180	SOL - 7/8" SOLID	1.16	1.2D + 1.6W 60° Wind -	36	19.48	0	0				6.0	Member

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	30	SAE - 4X4X0.3125	8.84	1.2D + 1.6W 90° Wind -	36	68.10	1	1	24.35	21.75	21.19	41.7	Blck Shear
2	60	SAE - 3.5X3.5X0.25	7.78	1.2D + 1.6W 90° Wind -	36	46.98	1	1	24.35	17.40	16.95	45.9	Blck Shear
3	90	SAE - 3X3X0.1875	5.72	1.2D + 1.6W 90° Wind -	36	30.21	1	1	17.89	10.77	10.42	54.9	Blck Shear
4	120	SAE - 2.5X2.5X0.1875	4.19	1.2D + 1.6W 60° Wind -	36	24.08	1	1	17.89	10.77	9.40	44.5	Blck Shear
5	140	SAE - 3X3X0.1875	13.55	1.2D + 1.6W 90° Wind -	36	35.32	0	0				38.4	Member
6	160	SAE - 2.5X2.5X0.1875	8.66	1.2D + 1.6W 90° Wind -	36	29.22	0	0				29.6	Member
7	180	SAE - 2X2X0.1875	3.63	1.2D + 1.6W 90° Wind -	36	23.00	0	0				15.8	Member

Seismic Section Forces

Structure: CT09865-S-SBA	Code: EIA/TIA-222-G	7/8/2021
Site Name: Niantic	Exposure: C	
Height: 180.00 (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 + 1.0E

Dead Load Factor	1.20	Sds 0.171	Ss 0.1610	Fa 1.6000	Ke 0.0000
Seismic Load Factor	1.00	Sd1 0.092	S1 0.0580	Fv 2.4000	Kg 0.0000
Seismic Importance Factor	1.00	SA 0.140	R 3.0000	Vs 3.1539	f1 1.5128

Sect #	Elev (ft)	Wz (lb)	Lateral			Fsz (lb)
			a	b	c	
1	15.00	12223.	0.01	0.06	0.03	56.37
2	45.00	10373.	0.12	0.07	0.03	105.60
3	75.00	8567.0	0.33	0.04	0.01	153.60
4	105.00	7566.8	0.64	-0.07	0.02	188.82
5	130.00	5991.5	0.99	-0.11	0.12	210.30
6	150.00	6929.8	1.31	0.14	0.35	399.87
7	170.00	4484.1	1.69	1.07	0.79	466.51

Load Case: 0.9D + 1.0E

Dead Load Factor	0.90	Sds 0.171	Ss 0.1610	Fa 1.6000	Ke 0.0000
Seismic Load Factor	1.00	Sd1 0.092	S1 0.0580	Fv 2.4000	Kg 0.0000
Seismic Importance Factor	1.00	SA 0.140	R 3.0000	Vs 3.1539	f1 1.5128

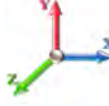
Sect #	Elev (ft)	Wz (lb)	Lateral			Fsz (lb)
			a	b	c	
1	15.00	12223.	0.01	0.06	0.03	56.37
2	45.00	10373.	0.12	0.07	0.03	105.60
3	75.00	8567.0	0.33	0.04	0.01	153.60
4	105.00	7566.8	0.64	-0.07	0.02	188.82
5	130.00	5991.5	0.99	-0.11	0.12	210.30
6	150.00	6929.8	1.31	0.14	0.35	399.87
7	170.00	4484.1	1.69	1.07	0.79	466.51

Support Forces Summary

Structure: CT09865-S-SBA
Site Name: Niantic
Height: 180.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Topography: 1

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

7/8/2021

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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind - P1	1	0.00	431.02	-51.14	
	1a	17.75	-181.83	-15.14	
	1b	-17.75	-181.83	-15.14	
1.2D + 1.6W Normal Wind - P2	1	0.00	330.35	-36.79	
	1a	12.37	-131.49	-9.91	
	1b	-12.37	-131.49	-9.91	
1.2D + 1.6W Normal Wind - P3	1	0.00	420.11	-50.27	
	1a	17.35	-176.37	-14.95	
	1b	-17.35	-176.37	-14.95	
1.2D + 1.6W 60° Wind - P1	1	-3.89	219.63	-25.44	
	1a	-23.97	219.42	9.35	
	1b	-39.49	-371.68	-22.79	
1.2D + 1.6W 60° Wind - P2	1	-2.22	171.64	-18.65	
	1a	-17.25	171.43	7.40	
	1b	-27.56	-275.70	-15.91	
1.2D + 1.6W 60° Wind - P3	1	-3.93	214.67	-25.04	
	1a	-23.64	214.46	9.12	
	1b	-38.79	-361.77	-22.39	
1.2D + 1.6W 90° Wind - P1	1	-4.61	22.46	-1.79	
	1a	-38.52	366.80	19.61	
	1b	-35.55	-321.89	-17.82	
1.2D + 1.6W 90° Wind - P2	1	-2.62	22.46	-1.83	
	1a	-27.70	282.67	14.49	
	1b	-24.56	-237.76	-12.66	
1.2D + 1.6W 90° Wind - P3	1	-4.65	22.46	-1.79	
	1a	-37.92	358.00	19.24	
	1b	-34.94	-313.09	-17.45	
0.9D + 1.6W Normal Wind	1	0.00	425.02	-50.67	
	1a	18.16	-187.25	-15.38	
	1b	-18.16	-187.25	-15.38	
0.9D + 1.6W 60° Wind	1	-3.90	213.83	-24.96	
	1a	-23.56	213.62	9.10	
	1b	-39.89	-376.92	-23.03	
0.9D + 1.6W 90° Wind	1	-4.62	16.84	-1.32	
	1a	-38.11	360.86	19.37	
	1b	-35.95	-327.18	-18.05	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	141.66	-12.43	
	1a	3.31	3.78	-2.99	
	1b	-3.31	3.78	-2.99	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.90	95.52	-6.77	
	1a	-6.31	95.44	2.61	
	1b	-8.52	-41.74	-4.92	

1.2D + 1.0Di + 1.0Wi 90° Wind	1	-1.05	49.74	-1.24
	1a	-9.68	129.29	4.98
	1b	-7.54	-29.82	-3.75
1.2D + 1.0E	1	0.00	32.64	3.55
	1a	4.38	17.36	-2.55
	1b	-4.38	17.36	-2.55
0.9D + 1.0E	1	0.00	27.02	4.04
	1a	4.80	11.75	-2.79
	1b	-4.80	11.75	-2.79
1.0D + 1.0W Normal Wind	1	0.00	102.35	-11.70
	1a	2.60	-23.11	-2.50
	1b	-2.60	-23.11	-2.50
1.0D + 1.0W 60° Wind	1	-0.81	59.08	-6.42
	1a	-5.96	59.04	2.51
	1b	-7.05	-61.98	-4.07
1.0D + 1.0W 90° Wind	1	-0.95	18.71	-1.56
	1a	-8.95	89.21	4.62
	1b	-6.25	-51.79	-3.06

Max Reactions

Leg			Overturning		
Max Uplift:	-376.92	(kips)	Moment:	8138.00	(ft-kips)
Max Down:	431.02	(kips)	Total Down:	67.36	(kips)
Max Shear:	51.14	(kips)	Total Shear:	81.43	(kips)

Analysis Summary

Structure: CT09865-S-SBA	Code: EIA/TIA-222-G	7/8/2021
Site Name: Niantic	Exposure: C	
Height: 180.00 (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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Max Reactions

	Leg	Overturning
Max Uplift:	-376.92 (kips)	Moment: 8138.00 (ft-kips)
Max Down:	431.02 (kips)	Total Down: 67.36 (kips)
Max Shear:	51.14 (kips)	Total Shear: 81.43 (kips)

Anchor Bolts

Bolt Size (in.): 1.50	Number Bolts: 8
Yield Strength (Ksi): 105.00	Tensile Strength (Ksi): 125.00
Detail Type: A	

Interaction Ratio: 0.39

Max Usages

Max Leg: 80.5% (1.2D + 1.6W Normal Wind - P1 - Sect 1)

Max Diag: 58.3% (1.2D + 1.6W 90° Wind - P3 - Sect 2)

Max Horiz: 34.3% (1.2D + 1.6W 60° Wind - P1 - Sect 5)

Max Deflection, Twist and Sway


Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.0E - Normal To Face	140.00	0.0260	-0.0009	0.0372
	150.00	0.0318	-0.0007	0.0356
	160.00	0.0384	-0.0005	0.0503
	170.00	0.0452	-0.0002	0.0396
	180.00	0.0522	-0.0001	0.0432
0.9D + 1.6W 105 mph Wind at 60° From Face	140.00	0.8441	0.1209	1.0838
	150.00	1.0144	0.1509	1.0141
	160.00	1.1980	0.1823	1.3557
	170.00	1.3884	0.3091	1.0926
	180.00	1.5773	0.4263	1.0432
0.9D + 1.6W 105 mph Wind at 90° From Face	140.00	0.8499	-0.0800	1.0774
	150.00	1.0211	-0.0800	1.0216
	160.00	1.2057	-0.0799	1.3457
	170.00	1.3977	-0.0799	1.1006
	180.00	1.5853	-0.0799	0.4951
0.9D + 1.6W 105 mph Wind at Normal To Face	140.00	0.8708	0.0623	1.1216
	150.00	1.0462	0.0627	1.0467
	160.00	1.2360	0.0617	1.4024
	170.00	1.4334	0.0625	1.1181
	180.00	1.6330	0.0624	1.8818
1.0D + 1.0W 60 mph Wind at 60° From Face	140.00	0.1726	0.0157	0.2220
	150.00	0.2074	0.0168	0.2072
	160.00	0.2449	0.0179	0.2775
	170.00	0.2840	0.0226	0.2232
	180.00	0.3225	0.0272	0.2105

1.0D + 1.0W 60 mph Wind at 90° From Face	140.00	0.1739	-0.0159	0.2200
	150.00	0.2089	-0.0157	0.2088
	160.00	0.2466	-0.0155	0.2748
	170.00	0.2859	-0.0149	0.2250
	180.00	0.3242	-0.0147	0.1018
1.0D + 1.0W 60 mph Wind at Normal To Face	140.00	0.1782	0.0137	0.2288
	150.00	0.2142	0.0135	0.2140
	160.00	0.2529	0.0133	0.2862
	170.00	0.2932	0.0128	0.2287
	180.00	0.3341	0.0125	0.3846
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	140.00	0.1950	0.0199	0.2513
	150.00	0.2343	0.0223	0.2356
	160.00	0.2772	0.0247	0.3190
	170.00	0.3215	0.0350	0.2563
	180.00	0.3659	0.0446	0.2668
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	140.00	0.1955	-0.0184	0.2478
	150.00	0.2349	-0.0183	0.2363
	160.00	0.2778	-0.0182	0.3144
	170.00	0.3222	-0.0179	0.2579
	180.00	0.3659	-0.0178	0.0447
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	140.00	0.1952	-0.0150	0.2524
	150.00	0.2349	-0.0149	0.2379
	160.00	0.2782	-0.0147	0.3219
	170.00	0.3233	-0.0144	0.2559
	180.00	0.3697	-0.0141	0.5215
1.2D + 1.0E - Normal To Face	140.00	0.0260	0.0009	0.0372
	150.00	0.0319	0.0007	0.0356
	160.00	0.0384	0.0005	0.0504
	170.00	0.0453	0.0002	0.0396
	180.00	0.0523	0.0001	0.0434
1.2D + 1.6W 105 mph Wind at 60° From Face - P1	140.00	0.8454	0.1213	1.0863
	150.00	1.0161	0.1514	1.0164
	160.00	1.2001	0.1829	1.3592
	170.00	1.3909	0.3099	1.0950
	180.00	1.5803	0.4274	1.0456
1.2D + 1.6W 105 mph Wind at 60° From Face - P2	140.00	0.6829	0.0916	0.9381
	150.00	0.8306	0.1184	0.8839
	160.00	0.9914	0.1463	1.2225
	170.00	1.1595	0.2589	0.9637
	180.00	1.3258	0.3632	0.9393
1.2D + 1.6W 105 mph Wind at 60° From Face - P3	140.00	0.8152	0.1176	1.0340
	150.00	0.9772	0.1458	0.9623
	160.00	1.1510	0.1752	1.2698
	170.00	1.3307	0.2943	1.0303
	180.00	1.5085	0.4043	0.9862
1.2D + 1.6W 105 mph Wind at 90° From Face - P1	140.00	0.8513	-0.0803	1.0798
	150.00	1.0228	-0.0803	1.0239
	160.00	1.2079	-0.0803	1.3490
	170.00	1.4003	-0.0803	1.1030
	180.00	1.5883	-0.0803	0.4978
1.2D + 1.6W 105 mph Wind at 90° From Face - P2	140.00	0.6870	-0.0538	0.9312
	150.00	0.8353	-0.0538	0.8898
	160.00	0.9969	-0.0538	1.2113
	170.00	1.1662	-0.0538	0.9703
	180.00	1.3310	-0.0537	0.3650
1.2D + 1.6W 105 mph Wind at 90° From Face - P3	140.00	0.8204	-0.0801	1.0265
	150.00	0.9830	-0.0801	0.9683
	160.00	1.1576	-0.0800	1.2586
	170.00	1.3386	-0.0800	1.0366
	180.00	1.5148	-0.0800	0.4228

1.2D + 1.6W 105 mph Wind at Normal To Face - P1	140.00	0.8722	-0.0625	1.1241
	150.00	1.0479	0.0629	1.0490
	160.00	1.2382	0.0619	1.4060
	170.00	1.4360	0.0627	1.1206
	180.00	1.6361	0.0626	1.8845

1.2D + 1.6W 105 mph Wind at Normal To Face - P2	140.00	0.7024	0.0412	0.9681
	150.00	0.8541	0.0415	0.9104
	160.00	1.0201	0.0405	1.2629
	170.00	1.1939	0.0411	0.9833
	180.00	1.3701	0.0411	1.7470

1.2D + 1.6W 105 mph Wind at Normal To Face - P3	140.00	0.8391	0.0631	1.0660
	150.00	1.0053	0.0635	0.9895
	160.00	1.1843	0.0626	1.3066
	170.00	1.3698	0.0632	1.0495
	180.00	1.5573	0.0631	1.8040

	Mat Foundation Design for Self Supporting Tower			Date
				7/8/2021
	Customer Name:	SBA Communications Corp	EIA/TIA Standard:	EIA-222-G
	Site Name:		Structure Height (Ft.):	180
	Site Nmber:	CT09865-S-SBA	Engineer Name:	D. Zhou
Engr. Number:	111860	Engineer Login ID:		

Foundation Info Obtained from:

Analysis or Design?

Number of Tower Legs:

Base Reactions (Factored):

(1). Individual Leg:

Axial Load (Kips):	431.0	Uplift Force (Kips):	376.9
Shear Force (Kips):	51.1		

(2). Tower Base:

Total Vertical Load (Kips):	67.4	Total Shear Force (Kips):	81.4
Moment (Kips-ft):	8138.0		

Foundation Geometries:

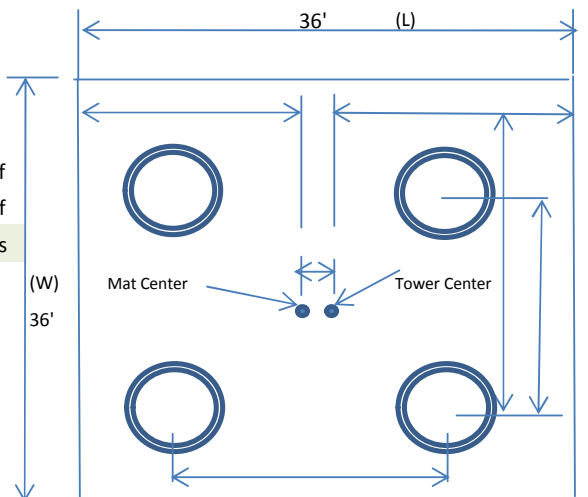
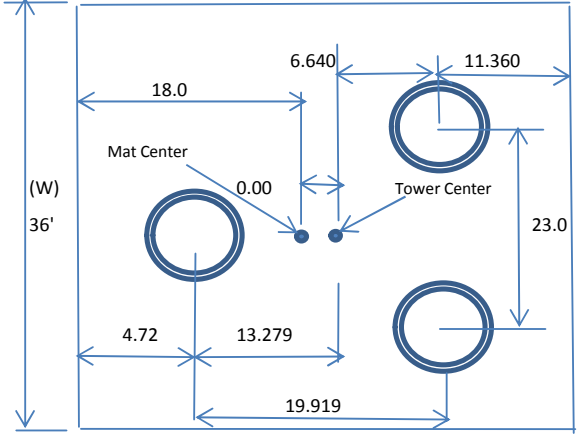
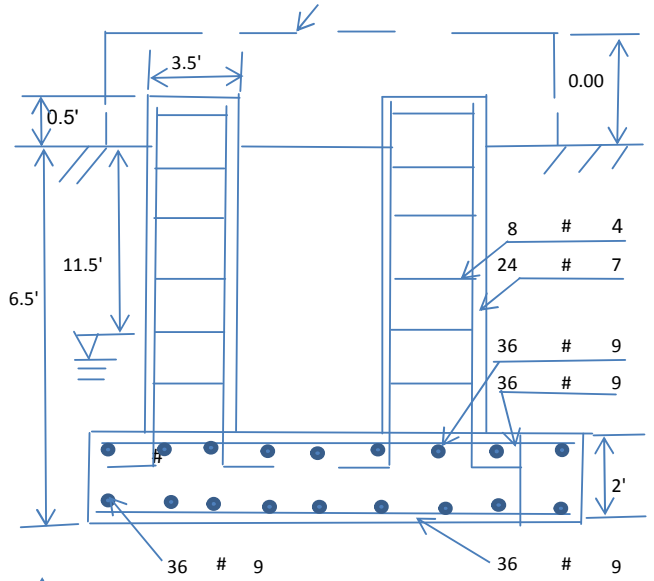
Leg distance (Center-to-Center ft.):	23.0	Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	Round 3.5	Pier Height A. G. (ft.):	0.50
Tower center to mat center (ft):	0	Depth of Base BG (ft.):	6.5
Length of Pad (ft.):	36	Width of Pad (ft.):	36
Thickness of Pad (ft):	2.00		

Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	7	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	24	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	36	Qty. of Rebar in Pad (W):	36	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	36	Qty. of Rebar in Pad (W):	36	

Soil Design Parameters:

Soil Unit Weight (pcf):	125.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	11.5	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	8000	Consider ties in concrete shear strength:	Yes	
Consider Soil Lateral Resistance ?				



Apply 1.35 for e/w per G/H: 1.35

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	5702.11
Total Buoyant Soil Volume (cu. Ft.):	0.00
Total Effective Soil Weight (Kips):	712.76
Total Dry Concrete Volume (cu. Ft.):	2736.32
Total Buoyant Concrete Volume (cu. Ft.):	0.00
Total Effective Concrete Weight (Kips):	410.45

Compression Strength Reduction Factor:	0.75
Total Dry Soil Weight (Kips):	712.76
Total Buoyant Soil Weight (Kips):	0.00
Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Weight (Kips):	410.45
Total Buoyant Concrete Weight (Kips):	0.00
Total Vertical Load on Base (Kips):	1190.58

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	2008.92	<	Allowable Factored Soil Bearing (psf):	6000	0.33	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	19408.6	>	Design Factored Momont (kips-ft):	8708	0.45	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.23					OK!

Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90		Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compression):	0.65		Wind Load Factor on Concrete Design:	1.00		
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	0.60		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	607.9	>	Design Factored Moment (Mu, Kips-Ft):	255.7	0.42	OK!
Calculated Shear Capacity (Kips):	97.8	>	Design Factored Shear (Kips):	51.1	0.52	OK!
Calculated Tension Capacity (Tn, Kips):	777.6	>	Design Factored Tension (Tu Kips):	376.9	0.48	OK!
Calculated Compression Capacity (Pn, Kips):	1818.0	>	Design Factored Axial Load (Pu Kips):	431.0	0.24	OK!
Moment & Tension Strength Combination:	0.42		OK! Check Tie Spacing (Design/Req'd):	1.00		
Pier Reinforcement Ratio:	0.010		Reinforcement Ratio is satisfied per ACI			

(2).Concrete Pad:

One-Way Design Shear Capacity (L or W Direction, Kips):	725.4	>	One-Way Factored Shear (L/W-Dir Kips):	394.6	0.54	OK!
One-Way Design Shear Capacity (Diagonal Dir., Kips):	674.5	>	One-Way Factored Shear (Dia. Dir, Kips)	355.0	0.53	OK!
Lower Steel Pad Reinforcement Ratio (L or W-Direct.):	0.0041		Lower Steel Reinf. Ratio (Dia. Dir.):	0.0037		
Lower Steel Pad Moment Capacity (L or W-Dir. Kips-ft):	3152.1	>	Moment at Bottom (L-Direct. K-Ft):	2511.8	0.80	OK!
Lower Steel Pad Moment Capacity (Dia. Direction,K-ft):	3007.3	>	Moment at Bottom (Dia. Dir. K-Ft):	2536.2	0.84	OK!
Upper Steel Pad Reinforcement Ratio (L or W -Direction):	0.0041		Upper Steel Reinf. Ratio (Dia. Dir.):	0.0037		
Upper Steel Pad Moment Capacity (L or W-Dir., Kips-ft):	3152.1	>	Moment at the top (L-Dir Kips-Ft):	983.4	0.31	OK!
Upper Steel Pad Moment Capacity (Dia. Direction, K-ft):	3007.3	>	Moment at the top (Dia. Dir., K-Ft):	732.3	0.24	OK!
Punching Failure Capacity (Kips):	658.7	>	Punch. Failure Factored Shear (K):	431.0	0.65	OK!

EXHIBIT 9

Antenna Mount Analysis



July 23, 2021

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

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

Subject: **Appurtenance Mount Analysis Report**

Carrier Designation: **Dish Wireless Co-Locate**
Site Number: BOBOS00050A
Site Name: N/A

SBA Network Services Designation: **Site Number:** CT09865-S
Site Name: Niantic
Application Number: 163262, v1

Engineering Firm Designation: **B+T Group Project Number:** 149451.003.01

Site Data: **51 Daniel's Avenue, CT, 06385, New London County**
Latitude 41.33026°, Longitude -72.16667°
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:

<p>Proposed Equipment Note: See Table 1 for the final loading configuration</p>	<p>Sufficient Capacity (Passing at 52.1%)</p>
--	--

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 135 mph converted to a nominal 3-second gust wind speed of 105 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C with a maximum topographic factor and Risk Category II were used in this analysis.

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

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

Mount structural analysis prepared by: Harrison Holmlund

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

Chad E. Tuttle, P.E.

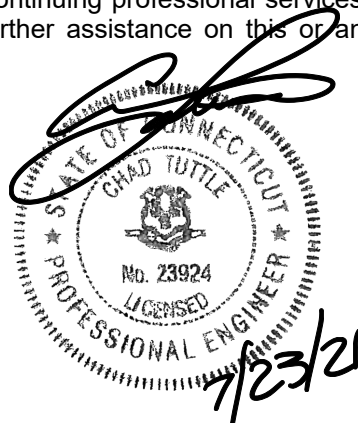


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1) INTRODUCTION

The appurtenance mount consists of Commscope sector mount, Part# MTC3975083 at 150 ft., attached to self-support tower at 51 Daniel's Avenue, CT, 06385, New London County. The proposed antenna loading information was obtained from SBA Network Services, LLC. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-G-2-2005 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 using a 3-second gust wind speed of 105 mph with no ice and 50 mph with 0.75-inch escalated ice thickness Exposure category B & Topographic Category 1 and Risk Category II were used in the analysis. In addition, the sector mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500-pound man live load applied individually at mount pipe locations using a 3-second gust of 30mph. The mount was analyzed under 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	150	1	3	JMA Wireless MX08FRO665-21	1
			3	Fujitsu TA08025-B605	2
			3	Fujitsu TA08025-B604	
		-	1	Raycap RDIDC-9181-PF-48	3

Note:

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

Table 2 - Documents Provided

Documents	Remarks	Reference	Source
SBA Application	Existing Loading Proposed Loading	Date: 06/24/2021	SBA Network Services, LLC.
RFDS		Date: 06/09/2021	

3) ANALYSIS PROCEDURE

3.1) Analysis Method

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

Manufacturer's drawings were used to create the model.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.

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

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

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

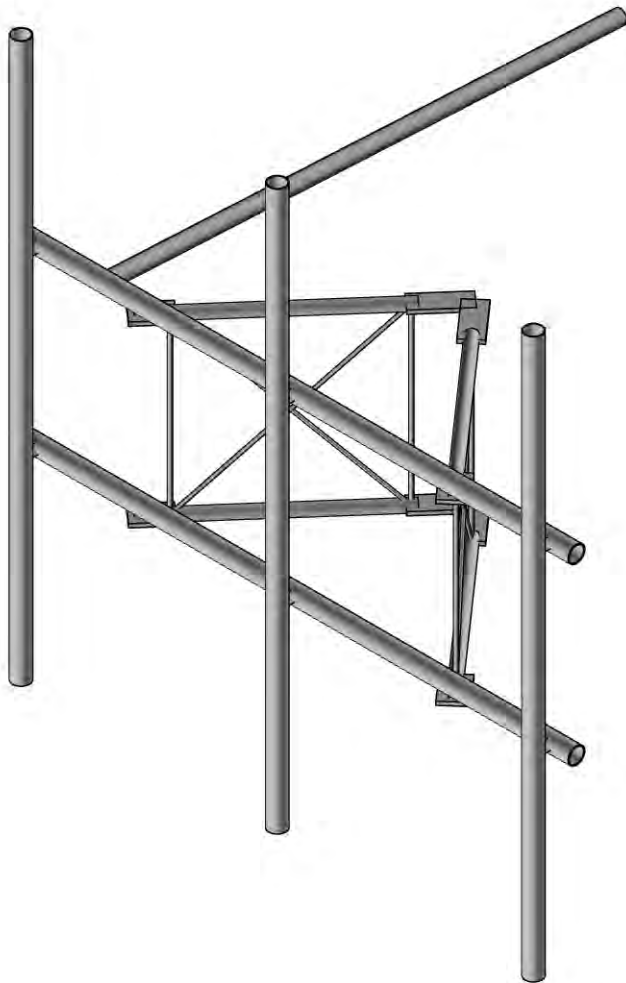
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Face Horizontals	150	19.4	Pass
-	Support Arms	150	27.0	Pass
-	Diagonals	150	32.7	Pass
-	Connection Plates	150	24.3	Pass
-	Verticals	150	52.1	Pass
-	Tiebacks	150	8.9	Pass
-	Mount Pipes	150	25.0	Pass
-	Connection Bolts	150	20.1	Pass

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-G standard for the proposed loading. (Refer to the RISA output for the specific members).

APPENDIX A

(RISA-3D Output)



Envelope Only Solution

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AK

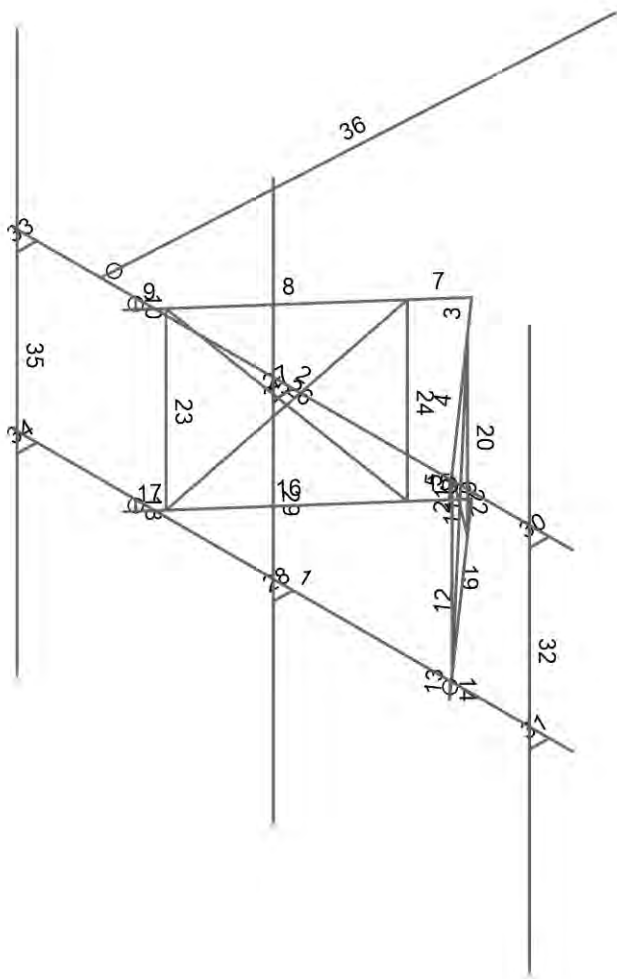
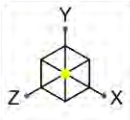
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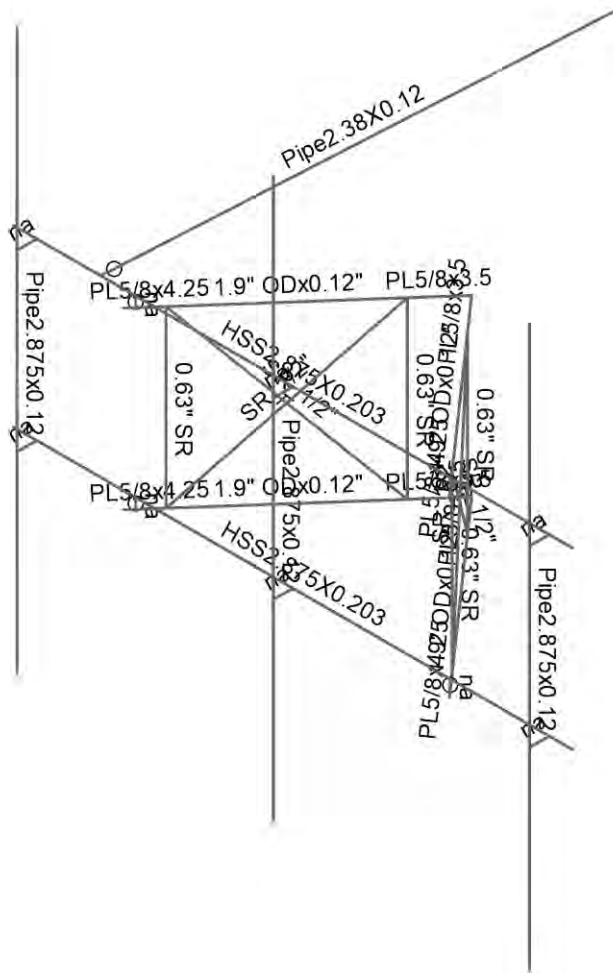
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CT09865-S - Niantic

AK2

Jul 22, 2021

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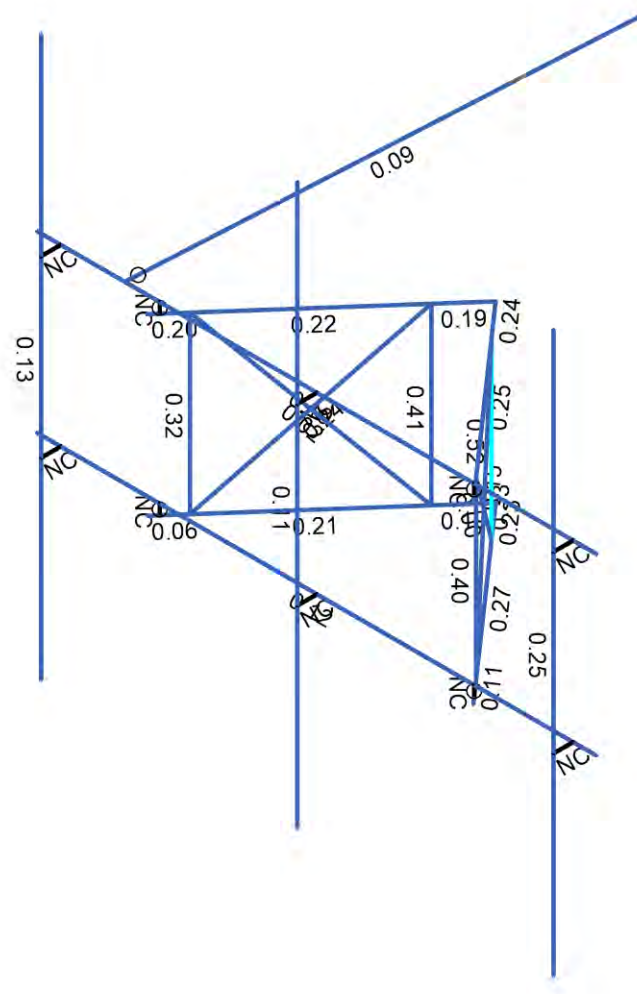
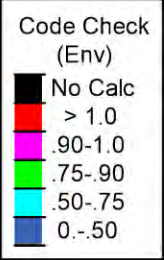


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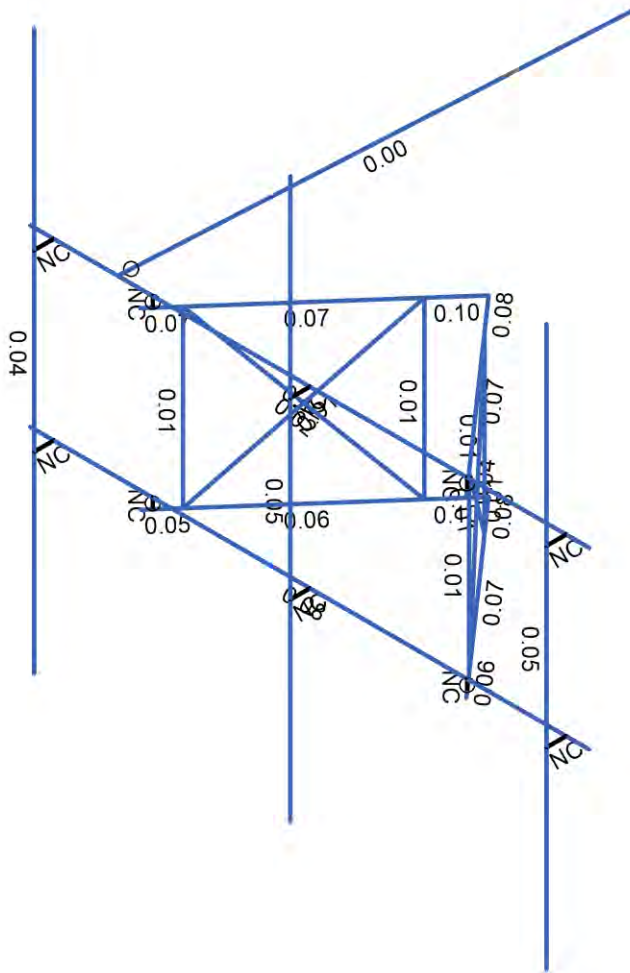
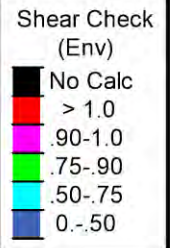


Member Code Checks Displayed (Enveloped)
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Member Shear Checks Displayed (Enveloped)
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149451_003_01_Niantic_CT.r3d

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	I _{yy} [in ⁴]	I _{zz} [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	SR 1/2"	VBrace	BAR	A529 Gr.50	Typical	0.196	0.003	0.003	0.006
4	MF-CP1	PL5/8x3.5	Beam	RECT	A572 Gr.50	Typical	2.205	0.073	2.251	0.259
5	MF-V1	0.63" SR	Column	BAR	A529 Gr.50	Typical	0.312	0.008	0.008	0.015
6	MF-CP2	PL5/8x4.25	Beam	RECT	A572 Gr.50	Typical	2.656	0.086	3.998	0.314
7	Tieback	Pipe2.38X0.12	Beam	Pipe	A500 Gr.C	Typical	0.852	0.545	0.545	1.091
8	MF-P1	Pipe2.875x0.12	Column	Pipe	A500 Gr.C	Typical	1.039	0.987	0.987	1.975

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		MF-H1	Beam	HSS Pipe	A500 Gr.C	Typical
2	2	3	4		MF-H1	Beam	HSS Pipe	A500 Gr.C	Typical
3	3	12	5	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
4	4	6	7		MF- SA1	Beam	Pipe	A500 Gr.C	Typical
5	5	8	9	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
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

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



Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
6	0 Wind - Service	WLZ			10	26
7	90 Wind - Service	WLX			10	26
8	Ice	OL1			10	26
9	Live Load a	LL		1		
10	Live Load b	LL		1		
11	Live Load c	LL		1		
12	Live Load d	LL				
13	Maint LL 1	LL			1	
14	Maint LL 2	LL			1	
15	Maint LL 3	LL			1	
16	Maint LL 4	LL			1	
17	Maint LL 5	LL			1	
18	Maint LL 6	LL			1	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	0.9 D + 1.6 - 0 W	Yes	Y	1	0.9	2	1.6				
3	0.9 D + 1.6 - 30 W	Yes	Y	1	0.9	2	1.386	3	0.8		
4	0.9 D + 1.6 - 60 W	Yes	Y	1	0.9	3	1.386	2	0.8		
5	0.9 D + 1.6 - 90 W	Yes	Y	1	0.9	3	1.6				
6	0.9 D + 1.6 - 120 W	Yes	Y	1	0.9	3	1.386	2	-0.8		
7	0.9 D + 1.6 - 150 W	Yes	Y	1	0.9	2	-1.386	3	0.8		
8	0.9 D + 1.6 - 180 W	Yes	Y	1	0.9	2	-1.6				
9	0.9 D + 1.6 - 210 W	Yes	Y	1	0.9	2	-1.386	3	-0.8		
10	0.9 D + 1.6 - 240 W	Yes	Y	1	0.9	3	-1.386	2	-0.8		
11	0.9 D + 1.6 - 270 W	Yes	Y	1	0.9	3	-1.6				
12	0.9 D + 1.6 - 300 W	Yes	Y	1	0.9	3	-1.386	2	0.8		
13	0.9 D + 1.6 - 330 W	Yes	Y	1	0.9	2	1.386	3	-0.8		
14	1.2 D + 1.6 - 0 W	Yes	Y	1	1.2	2	1.6				
15	1.2 D + 1.6 - 30 W	Yes	Y	1	1.2	2	1.386	3	0.8		
16	1.2 D + 1.6 - 60 W	Yes	Y	1	1.2	3	1.386	2	0.8		
17	1.2 D + 1.6 - 90 W	Yes	Y	1	1.2	3	1.6				
18	1.2 D + 1.6 - 120 W	Yes	Y	1	1.2	3	1.386	2	-0.8		
19	1.2 D + 1.6 - 150 W	Yes	Y	1	1.2	2	-1.386	3	0.8		
20	1.2 D + 1.6 - 180 W	Yes	Y	1	1.2	2	-1.6				
21	1.2 D + 1.6 - 210 W	Yes	Y	1	1.2	2	-1.386	3	-0.8		
22	1.2 D + 1.6 - 240 W	Yes	Y	1	1.2	3	-1.386	2	-0.8		
23	1.2 D + 1.6 - 270 W	Yes	Y	1	1.2	3	-1.6				
24	1.2 D + 1.6 - 300 W	Yes	Y	1	1.2	3	-1.386	2	0.8		
25	1.2 D + 1.6 - 330 W	Yes	Y	1	1.2	2	1.386	3	-0.8		
26	0.9 D + 1.6 - 0 W/Ice	Yes	Y	1	0.9	4	1.6			8	1
27	0.9 D + 1.6 - 30 W/Ice	Yes	Y	1	0.9	4	1.386	5	0.8	8	1
28	0.9 D + 1.6 - 60 W/Ice	Yes	Y	1	0.9	5	1.386	4	0.8	8	1
29	0.9 D + 1.6 - 90 W/Ice	Yes	Y	1	0.9	5	1.6			8	1
30	0.9 D + 1.6 - 120 W/Ice	Yes	Y	1	0.9	5	1.386	4	-0.8	8	1
31	0.9 D + 1.6 - 150 W/Ice	Yes	Y	1	0.9	4	-1.386	5	0.8	8	1
32	0.9 D + 1.6 - 180 W/Ice	Yes	Y	1	0.9	4	-1.6			8	1
33	0.9 D + 1.6 - 210 W/Ice	Yes	Y	1	0.9	4	-1.386	5	-0.8	8	1
34	0.9 D + 1.6 - 240 W/Ice	Yes	Y	1	0.9	5	-1.386	4	-0.8	8	1
35	0.9 D + 1.6 - 270 W/Ice	Yes	Y	1	0.9	5	-1.6			8	1
36	0.9 D + 1.6 - 300 W/Ice	Yes	Y	1	0.9	5	-1.386	4	0.8	8	1
37	0.9 D + 1.6 - 330 W/Ice	Yes	Y	1	0.9	4	1.386	5	-0.8	8	1
38	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
39	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
40	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
41	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
42	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1



Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
43	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
44	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
45	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
46	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
47	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
48	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
49	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
50	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			9	1.5
51	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	9	1.5
52	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	9	1.5
53	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			9	1.5
54	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	9	1.5
55	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	9	1.5
56	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			9	1.5
57	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	9	1.5
58	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	9	1.5
59	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			9	1.5
60	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	9	1.5
61	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	9	1.5
62	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			10	1.5
63	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	10	1.5
64	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	10	1.5
65	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			10	1.5
66	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	10	1.5
67	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	10	1.5
68	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			10	1.5
69	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	10	1.5
70	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	10	1.5
71	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			10	1.5
72	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	10	1.5
73	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	10	1.5
74	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
75	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
76	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
77	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
78	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
79	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
80	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
81	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
82	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
83	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
84	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
85	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
86	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
87	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
88	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
89	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
90	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
91	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
92	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
93	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
94	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
95	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
96	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
97	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
98	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					13	1.5
99	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					14	1.5
100	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					15	1.5



Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
101	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					16	1.5
102	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					17	1.5
103	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					18	1.5

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Y	-0.032	%10
2	32	Y	-0.032	%90
3	32	Y	-0.075	%50
4	32	Y	-0.064	%20
5	32	Y	0	0
6	8	Y	-0.022	%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 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Z	-0.186	%10
2	32	Z	-0.186	%90
3	32	Z	-0.058	%50
4	32	Z	-0.058	%20
5	32	Z	0	0
6	8	Z	-0.06	%50
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	X	-0.074	%10
2	32	X	-0.074	%90
3	32	X	-0.035	%50
4	32	X	-0.031	%20
5	32	X	0	0
6	8	X	-0.034	%50
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Z	-0.052	%10
2	32	Z	-0.052	%90
3	32	Z	-0.02	%50
4	32	Z	-0.02	%20
5	32	Z	0	0
6	8	Z	-0.02	%50
7	8	Z	0	0
8	8	Z	0	0

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

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

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	X	-0.025	%10
2	32	X	-0.025	%90
3	32	X	-0.014	%50
4	32	X	-0.012	%20
5	32	X	0	0
6	8	X	-0.013	%50
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Z	-0.015	%10
2	32	Z	-0.015	%90
3	32	Z	-0.005	%50
4	32	Z	-0.005	%20
5	32	Z	0	0
6	8	Z	-0.005	%50
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	X	-0.006	%10
2	32	X	-0.006	%90
3	32	X	-0.003	%50
4	32	X	-0.003	%20
5	32	X	0	0
6	8	X	-0.003	%50
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Y	-0.149	%10
2	32	Y	-0.149	%90
3	32	Y	-0.054	%50
4	32	Y	-0.052	%20
5	32	Y	0	0
6	8	Y	-0.054	%50
7	8	Y	0	0
8	8	Y	0	0
9	8	Y	0	0



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

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

Member Point Loads (BLC 13 : Maint LL 1)

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

Member Point Loads (BLC 14 : Maint LL 2)

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

Member Point Loads (BLC 15 : Maint LL 3)

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

Member Point Loads (BLC 16 : Maint LL 4)

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

Member Point Loads (BLC 17 : Maint LL 5)

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

Member Point Loads (BLC 18 : Maint LL 6)

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

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.009	-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



Member Distributed Loads (BLC 2 : 0 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, %)]
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
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	-0.002	-0.002	0	%100
16	20	Z	-0.002	-0.002	0	%100
17	21	Z	-0.003	-0.003	0	%100
18	22	Z	-0.003	-0.003	0	%100
19	23	Z	-0.002	-0.002	0	%100



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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
20	24	Z	-0.002	-0.002	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	-0.002	-0.002	0	%100
16	20	X	-0.002	-0.002	0	%100
17	21	X	-0.003	-0.003	0	%100
18	22	X	-0.003	-0.003	0	%100
19	23	X	-0.002	-0.002	0	%100
20	24	X	-0.002	-0.002	0	%100
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



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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
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	-0.0003	-0.0003	0	%100

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

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

Member Distributed Loads (BLC 8 : Ice)

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.01	-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	-0.013	-0.013	0	%100
6	7	Y	-0.011	-0.011	0	%100
7	8	Y	-0.008	-0.008	0	%100
8	9	Y	-0.013	-0.013	0	%100
9	11	Y	-0.011	-0.011	0	%100
10	12	Y	-0.008	-0.008	0	%100
11	13	Y	-0.013	-0.013	0	%100
12	15	Y	-0.011	-0.011	0	%100
13	16	Y	-0.008	-0.008	0	%100
14	17	Y	-0.013	-0.013	0	%100
15	19	Y	-0.005	-0.005	0	%100



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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
16	20	Y	-0.005	-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

Node Loads and Enforced Displacements (BLC 9 : 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 10 : 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 11 : 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

Envelope Node Reactions

Node	Label	X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
1	12	max	0.794	53	0.92	42	1.929	13	0	103	0	103	0	103
2		min	-1.456	83	0.172	10	-2.938	19	0	1	0	1	0	1
3	27	max	1.444	77	0.85	48	1.809	38	0	103	0	103	0	103
4		min	-0.781	59	0.145	5	-0.105	8	0	1	0	1	0	1
5	65	max	0.034	2	0.051	30	1.41	18	0	103	0	103	0	103
6		min	-0.035	8	-0.02	12	-1.412	24	0	1	0	1	0	1
7	Totals:	max	1.188	17	1.782	42	1.669	2						
8		min	-1.188	11	0.45	2	-1.669	20						

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

Member	Shape	Code	CheckLoc[ft]	LC	Shear	CheckLoc[ft]	Dir	Lcphi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn	
1	1	HSS2.875X0.203	0.124	6.25	20	0.083	6.25	20	33.355	65.826	4.727	4.727	1.608	H1-1b
2	2	HSS2.875X0.203	0.194	6.25	20	0.116	1.75	18	33.355	65.826	4.727	4.727	1.412	H1-1b
3	3	PL5/8x3.5	0.243	0.583	79	0.079	0.583	y 50	84.578	99.225	1.302	7.235	2.238	H1-1b
4	4	1.9" ODx0.12"	0.246	0.135	79	0.066	2.449	42	23.614	27.779	1.314	1.314	2.071	H1-1b
5	5	PL5/8x4.25	0.147	0.362	20	0.041	0.362	y 49	110.629	119.531	1.556	10.583	1.427	H1-1b
6	7	PL5/8x3.5	0.188	0.583	61	0.1	0.583	y 43	84.578	99.225	1.302	7.235	1.239	H1-1b
7	8	1.9" ODx0.12"	0.224	2.449	25	0.07	2.449	19	23.614	27.779	1.314	1.314	1.069	H1-1b
8	9	PL5/8x4.25	0.204	0.362	25	0.066	0.362	y 19	110.629	119.531	1.556	10.583	1.426	H1-1b
9	11	PL5/8x3.5	0.234	0.583	79	0.08	0.583	y 57	84.578	99.225	1.302	7.215	1.008	H1-1b
10	12	1.9" ODx0.12"	0.27	0.135	79	0.065	2.449	20	23.614	27.779	1.314	1.314	2.069	H1-1b
11	13	PL5/8x4.25	0.109	0.127	20	0.064	0.362	y 20	110.629	119.531	1.556	10.583	1.443	H1-1b
12	15	PL5/8x3.5	0.186	0.583	61	0.097	0.583	y 79	84.578	99.225	1.302	7.235	1.048	H1-1b
13	16	1.9" ODx0.12"	0.214	0.135	61	0.059	2.449	44	23.614	27.779	1.314	1.314	2.057	H1-1b
14	17	PL5/8x4.25	0.058	0.127	25	0.047	0.362	y 32	110.629	119.531	1.556	10.583	1.445	H1-1b
15	19	0.63" SR	0.4	2.5	39	0.006	2.5	79	1.941	14.028	0.147	0.147	1.937	H1-1a



Company : B+T Group
 Designer : AK
 Job Number : 149451.003.01
 Model Name : CT09865-S - Niantic

7/22/2021
 8:10:39 PM
 Checked By : _____

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

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	ϕP_n [k]	ϕP_t [k]	ϕM_n y-y [k-ft]	ϕM_n z-z [k-ft]	Cb	Eqn	
16	20	0.63" SR	0.521	2.5	79	0.013	0	79	1.941	14.028	0.147	0.147	2.266	H1-1a
17	21	SR 1/2"	0.327	3.499	40	0.008	3.499	59	0.393	8.836	0.074	0.074	2.041	H1-1a
18	22	SR 1/2"	0	3.499	103	0.007	0	54	0.393	8.836	0.074	0.074	1	H1-1a
19	23	0.63" SR	0.324	0	25	0.014	0	18	1.941	14.028	0.147	0.147	2.324	H1-1a
20	24	0.63" SR	0.414	2.5	61	0.014	0	80	1.941	14.028	0.147	0.147	2.264	H1-1a
21	25	SR 1/2"	0.237	0	61	0.012	3.499	49	0.393	8.836	0.074	0.074	1.769	H1-1a
22	26	SR 1/2"	0.021	3.499	6	0.018	0	19	0.393	8.836	0.074	0.074	3	H1-1b*
23	29	Pipe2.875x0.12	0.113	2.75	19	0.052	2.75	19	22.398	42.998	3.144	3.144	3	H1-1b
24	32	Pipe2.875x0.12	0.25	2.75	14	0.047	5.25	74	22.398	42.998	3.144	3.144	3	H1-1b
25	35	Pipe2.875x0.12	0.126	5.25	55	0.043	2.75	18	22.398	42.998	3.144	3.144	3	H1-1b
26	36	Pipe2.38X0.12	0.089	0	6	0.004	7.133	41	16.324	35.273	2.115	2.115	1.136	H1-1b*

APPENDIX B

(Additional Calculations)

PROJECT	Site # - Site Name	KSC
SUBJECT	XXXXXX.XXX.XX Mount Analysis	
DATE	07/22/21	PAGE 1 OF 1



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

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	1.809	k
Vertical Shear	:	0.85	k
Horizontal Shear	:	1.444	k
Torsion	:	0	k.ft
Moment from Horizontal Forces	:	0	k.ft
Moment from Vertical Forces	:	0	k.ft

Bolt Parameters

Bolt Grade	:	A307	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in ²
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	1.68	k
Force from Horz. Moment	:	0.00	k
Force from Vert. Moment	:	0.00	k
Shear Load / Bolt	:	0.42	k
Tension Load / Bolt	:	0.45	k
Resultant from Moments / Bolt	:	0.00	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	45.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	10.36	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	4.36%		OKAY
Nominal Shear Stress, F_{nv}	:	24.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	5.53	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	15.76%		OKAY
Unity Check, Combined	:	20.13%		OKAY
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	1.21%		OKAY

PROJECT	Site # - Site Name	KSC
SUBJECT	XXXXXX.XXX.XX Mount Analysis	
DATE	07/22/21	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_{nv}	:	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	:	0.31%		OKAY
Available Shear Yield	:	16.20	k	[Eq. J4-3]
Available Shear Rupture	:	104.40	k	[Eq. J4-4]
Unity Check, Plate Shear	:	10.34%		OKAY
Available Block Shear, ΦR_n	:	77.40	k	[Eq. J4-5]
Unity Check, Block Shear	:	2.16%		OKAY

APPENDIX C

(Supplemental Drawings)

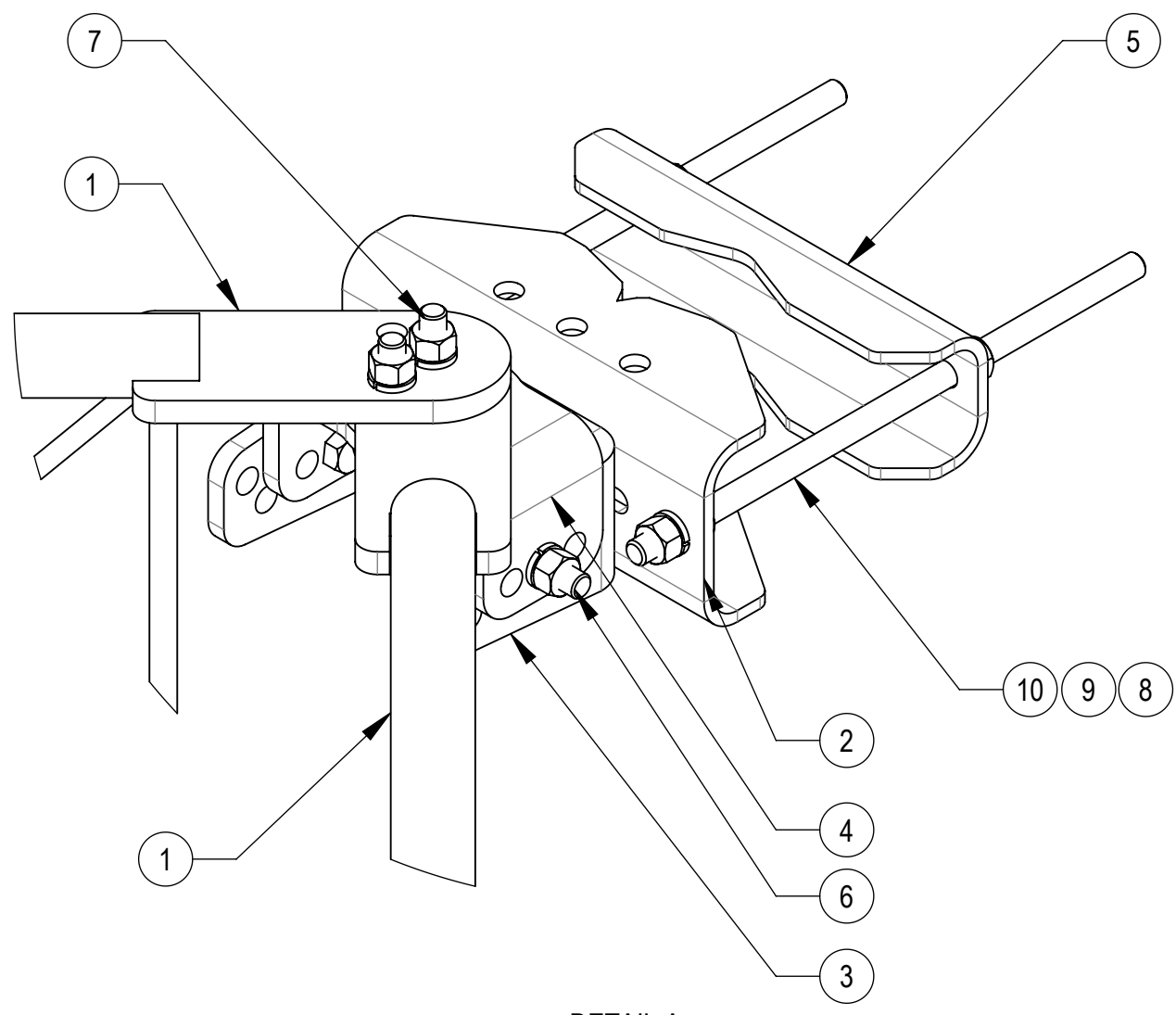
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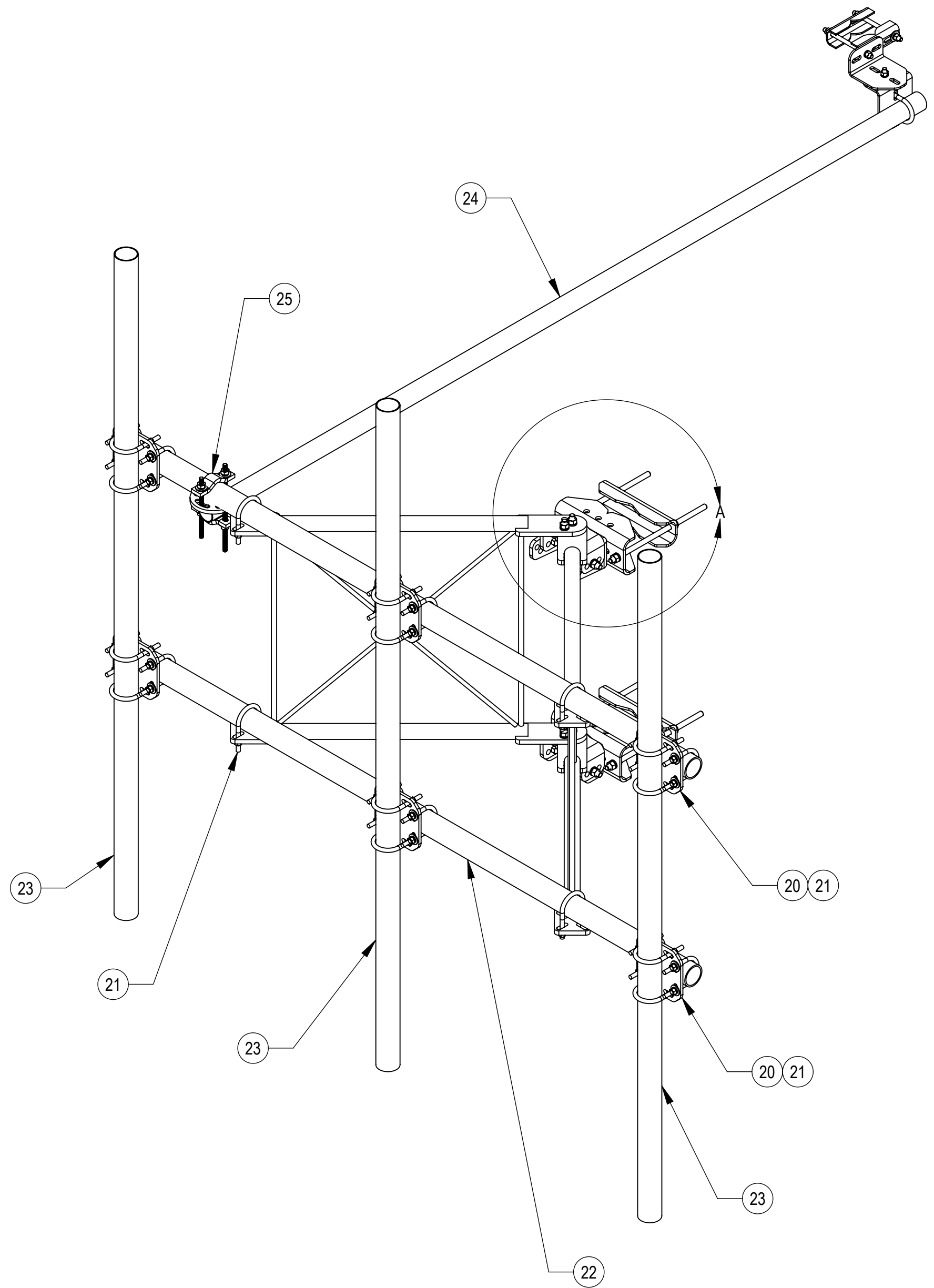
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
NOTES:



DETAIL A
SCALE 1:4



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	NOTE NO.
1	SFV01	WELDMENT, SF-V STANDOFF ARM	2	
2	MTC397522	CLAMP, FRONT MOUNTING	2	
3	SFV03	SFV TAPER BRACKET	1	
4	SFV02	SFV AZIMUTH BRACKET	3	
5	MTC397521	CLAMP, BACK	2	
6	GB-05225	5/8" X 2-1/4" GALV BOLT KIT	8	
7	GB-05305	5/8" X 3" GALV BOLT KIT	4	
8	GWL-05	5/8" GALV LOCK WASHER	8	
9	GN-05	5/8" GALV HEX NUT	12	
10	MT-382-16	5/8" X 16" GALV THREADED ROD	4	
11	GWF-05	5/8" GALV FLAT WASHER, 1.7OD	6	
12	GUB-4240	1/2" X 2-1/2" X 4" GALV U-BOLT	1	
13	XAU01	ANGLE, CROSSOVER, 1.9-3.5" X 1.9-3.5" OD	2	
14	SAB01	FORMED CLAMP	2	
15	MT-379-8	1/2" X 8" GALV THREADED ROD	2	
16	GB-04145	1/2" X 1-1/2" GALV BOLT KIT	1	
17	GWF-04	1/2" GALV FLAT WASHER	52	
18	GWL-04	1/2" GALV LOCK WASHER	41	
19	GN-04	1/2" GALV HEX NUT	41	
20	XPU01	PLATE, CROSSOVER, 1.9-3.5" X 1.9-3.5" OD	6	
21	GUB-4352	1/2" X 3" X 5-1/4" GALV U-BOLT	28	
22	MT54696	Ø 2.875" O.D. X 96 PIPE	2	
23	MT54696120	Ø 2.88" X 96" X .120" WALL GALV PIPE	3	
24	MT-651-120	2.375" OD X 120" PIPE	1	
25	XP-R	CROSSOVER PLATE, ROUND, UP TO 3.5" OD	1	

COMMSCOPE, INC. OF NORTH CAROLINA				
TITLE SECTOR FRAME, TW, SFG21, 8FT, 3 ANT PIPE				
SIZE C	SCALE 1:12	DOCUMENT NO. MTC3975083		
DRAWING		VERSION	STATUS	REVISION
 		00	RE	A
				SHEET 2 OF 7

4

3

2

1

EXHIBIT 10

Construction Drawings



DISH Wireless L.L.C. SITE ID:

BOBOS00050A

DISH Wireless L.L.C. SITE ADDRESS:

**51 DANIEL'S AVENUE
WATERFORD, CT 06385**



By Stephen Roth at 2:45:19 PM, 8/27/2021

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 ANTENNA MOUNTS (1 PER SECTOR)
 - INSTALL PROPOSED JUMPERS
 - INSTALL (6) PROPOSED RRU's (2 PER SECTOR)
 - INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
 - INSTALL (1) PROPOSED HYBRID CABLE

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

SITE INFORMATION	PROJECT DIRECTORY
PROPERTY OWNER: WATERFORD TOWN OF ADDRESS: 15 ROPE FERRY RD WATERFORD, CT 06385	APPLICANT: DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER TYPE: SELF-SUPPORT TOWER	TOWER OWNER: SBA COMMUNICATIONS CORP. 8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800) 487-7483
TOWER CO SITE ID: CT09865-S	SITE DESIGNER: B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
TOWER APP NUMBER: 63262	SITE ACQUISITION: JEAN COTTRELL JEAN.COTTRELL@DISH.COM
COUNTY: NEW LONDON	CONSTRUCTION MANAGER: JAVIER SOTO JAVIER.SOTO@DISH.COM
LATITUDE (NAD 83): 41° 19' 48.95" N 41.330264 N	RF ENGINEER: ARVIN SEBASTIAN ARVIN.SEBASTIAN@DISH.COM
LONGITUDE (NAD 83): 72° 10' 0.02" W 72.166672 W	
ZONING JURISDICTION: CT SITING COUNCIL	
ZONING DISTRICT: R-40	
PARCEL NUMBER: 1783	
OCCUPANCY GROUP: U	
CONSTRUCTION TYPE: II-B	
POWER COMPANY: T.B.D	
TELEPHONE COMPANY: XFINITY	



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



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: SP	CHECKED BY: MRE	APPROVED BY: BLB
--------------	-----------------	------------------

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	7/28/21	ISSUED FOR REVIEW
0	8/12/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149451.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00050A
51 DANIEL'S AVENUE
WATERFORD, CT 06385

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

CONNECTICUT CODE COMPLIANCE

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

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

SITE PHOTO



DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:
CONTINUE TO BRADLEY INTERNATIONAL AIRPORT CON, HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT, SLIGHT LEFT ONTO BRADLEY INTERNATIONAL AIRPORT, SLIGHT LEFT, TAKE I-91 S, CT-2 E AND CT-11 S TO CT-82 E IN SALEM. TAKE EXIT 4 FROM CT-11 S, CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON, CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON, USE THE RIGHT 2 LANES TO MERGE WITH I-91 S TOWARD HARTFORD, USE THE LEFT LANE TO TAKE EXIT 30 TO MERGE WITH I-84 E, TAKE EXIT 55 FOR CT-2 E TOWARD NORWICH/NEW LONDON/I-84 E, CONTINUE ONTO CT-2 E, KEEP RIGHT AT THE Y JUNCTION TO CONTINUE ON CT-11 S, FOLLOW SIGNS FOR NEW LONDON, CONTINUE ONTO EXIT 4 (SIGNS FOR CT-82/SALEM/HADLYME), TAKE CT-85 S, CT-181 S, US-1 N AND NIANTIC RIVER RD TO HIGH RIDGE DR IN WATERFORD, TURN LEFT ONTO CT-82 E, AT THE ROUNDABOUT, TAKE THE 1ST EXIT ONTO CT-85 S, TURN RIGHT ONTO CT-181 S, TURN LEFT ONTO US-1 N, TURN RIGHT ONTO NIANTIC RIVER RD, TURN LEFT ONTO E WHARF RD, TURN LEFT ONTO HIGH RIDGE DR. ARRIVE AT BOBOS00050A.

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.

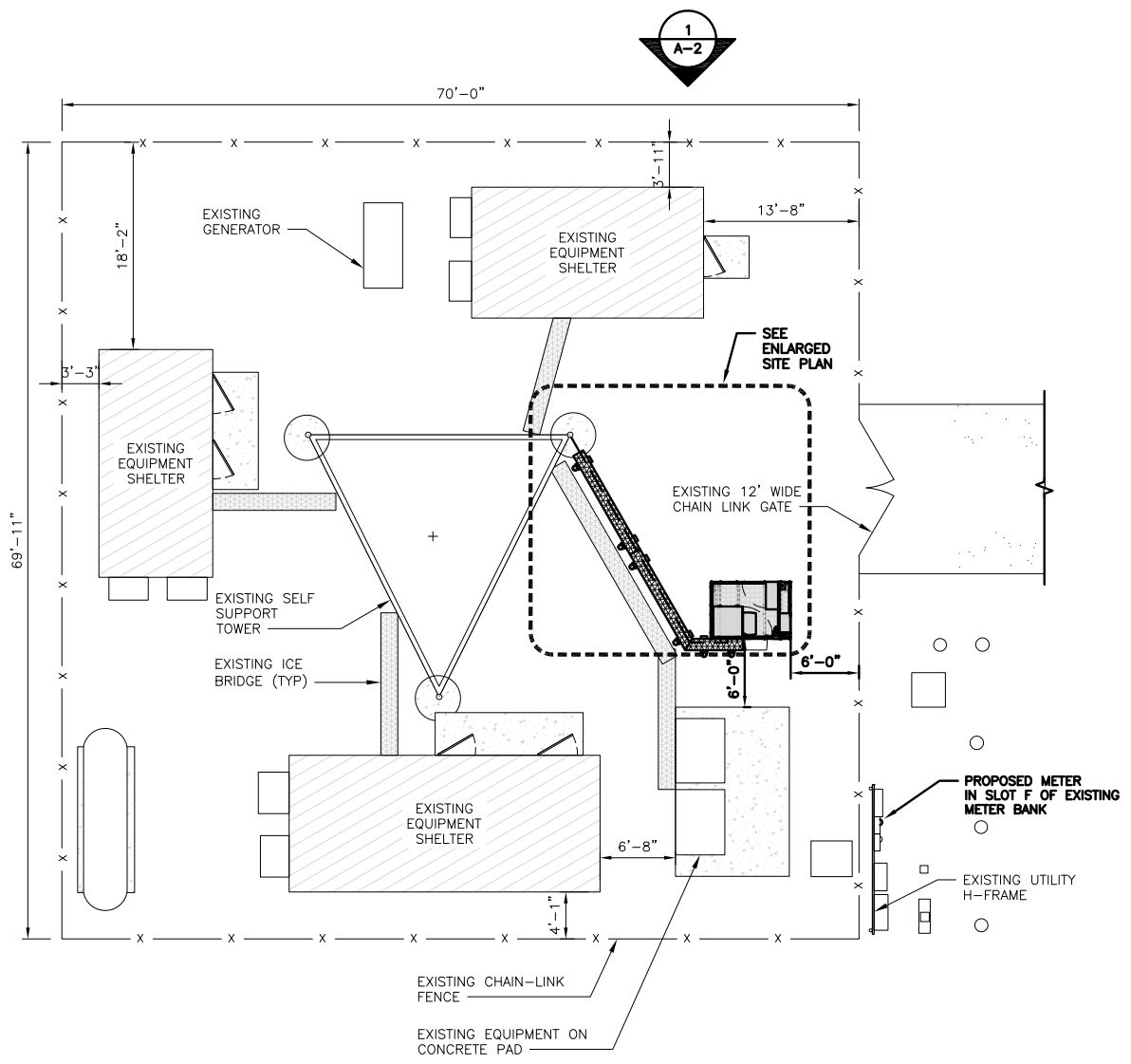
11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

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.

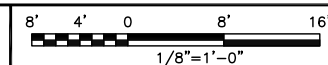
NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

DANIEL'S AVE



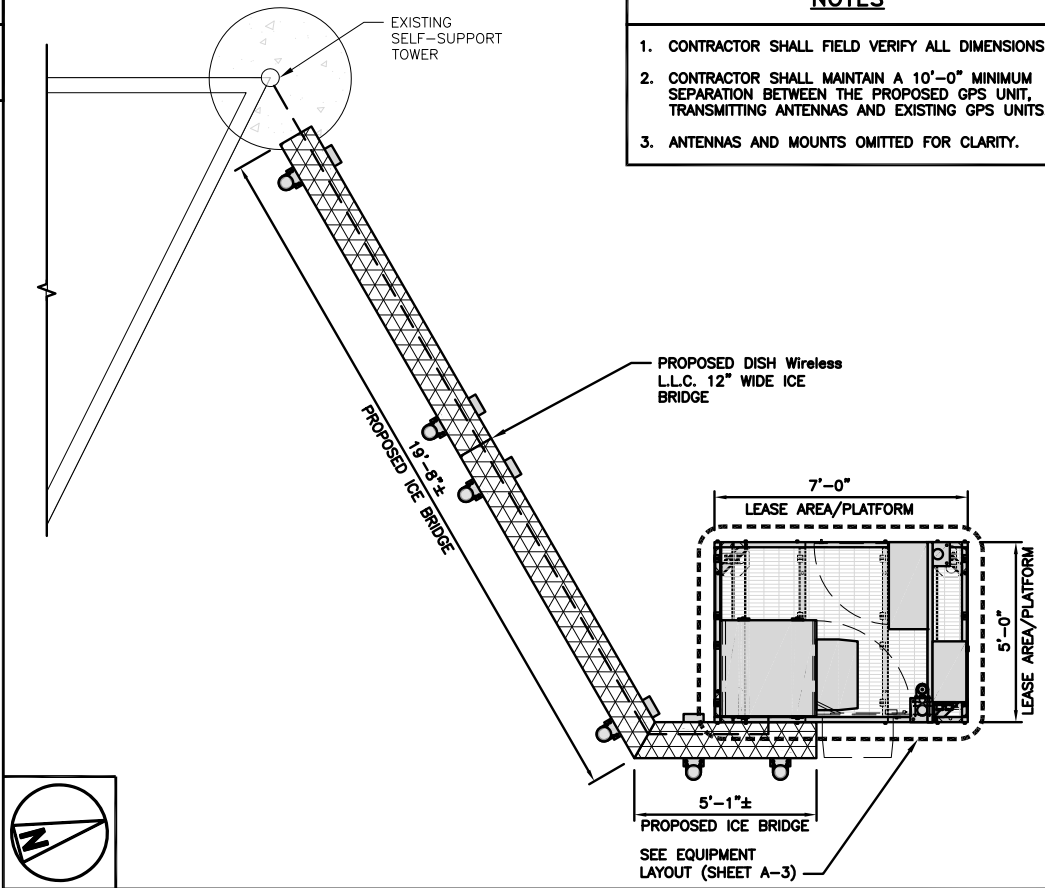
OVERALL SITE PLAN



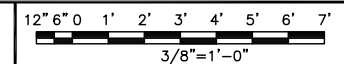
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NOTES

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



ENLARGED SITE PLAN



2



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



8/12/21

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:
SP	MRE	BLB

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	7/28/21	ISSUED FOR REVIEW
0	8/12/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149451.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00050A
51 DANIEL'S AVENUE
WATERFORD, CT 06385

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

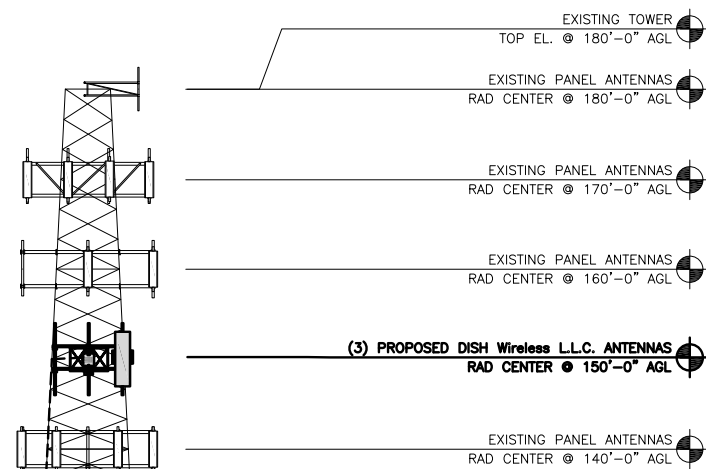
SHEET NUMBER
A-1

NOT USED

3

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.

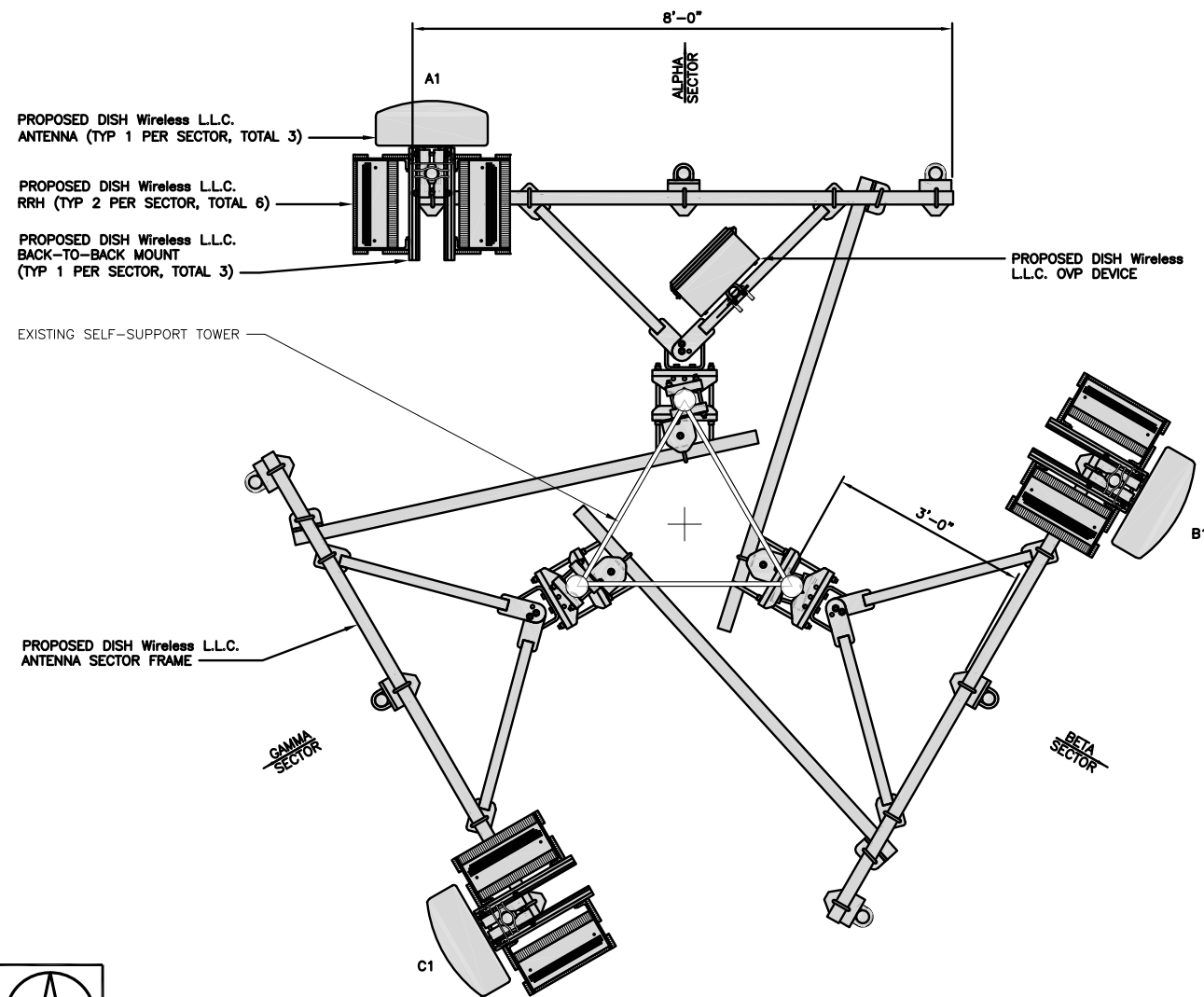
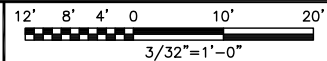


(1) PROPOSED DISH Wireless L.L.C. HYBRID CABLE ON EXISTING/NEW WAVEGUIDE LADDER

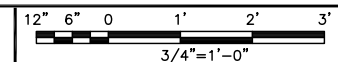
PROPOSED DISH Wireless L.L.C. ICE BRIDGE
 PROPOSED DISH Wireless L.L.C. EQUIPMENT ON PROPOSED STEEL PLATFORM
 PROPOSED DISH Wireless L.L.C. GPS UNIT

EXISTING SELF-SUPPORT TOWER

PROPOSED NORTHWEST ELEVATION



ANTENNA LAYOUT

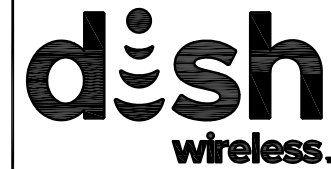


SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS - MX08FRO665-21	5G	72.0" x 20.0"	0°	150'-0"	(1) HIGH-CAPACITY HYBRID CABLE (195'-0" LONG)
BETA	B1	PROPOSED	JMA WIRELESS - MX08FRO665-21	5G	72.0" x 20.0"	120°	150'-0"	
GAMMA	C1	PROPOSED	JMA WIRELESS - MX08FRO665-21	5G	72.0" x 20.0"	240°	150'-0"	
SECTOR	POSITION	RRH		NOTES				
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY	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.				
ALPHA	A1	FUJITSU - TA08025-B604	5G					
	A1	FUJITSU - TA08025-B605	5G					
BETA	B1	FUJITSU - TA08025-B604	5G					
	B1	FUJITSU - TA08025-B605	5G					
GAMMA	C1	FUJITSU - TA08025-B604	5G					
	C1	FUJITSU - TA08025-B605	5G					

ANTENNA SCHEDULE

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



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RFDS REV #: 0

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A&E PROJECT NUMBER
149451.001.01

DISH Wireless L.L.C. PROJECT INFORMATION
 BOBOS00050A
 51 DANIEL'S AVENUE
 WATERFORD, CT 06385

SHEET TITLE
 ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



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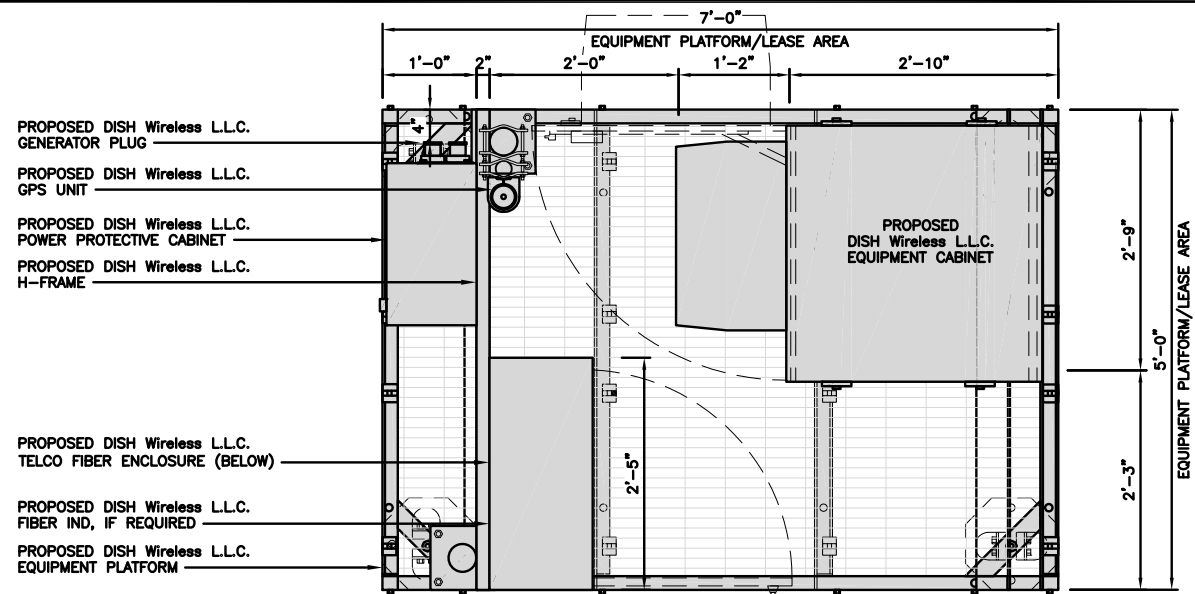
SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER

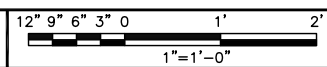
A-3

NOTES

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



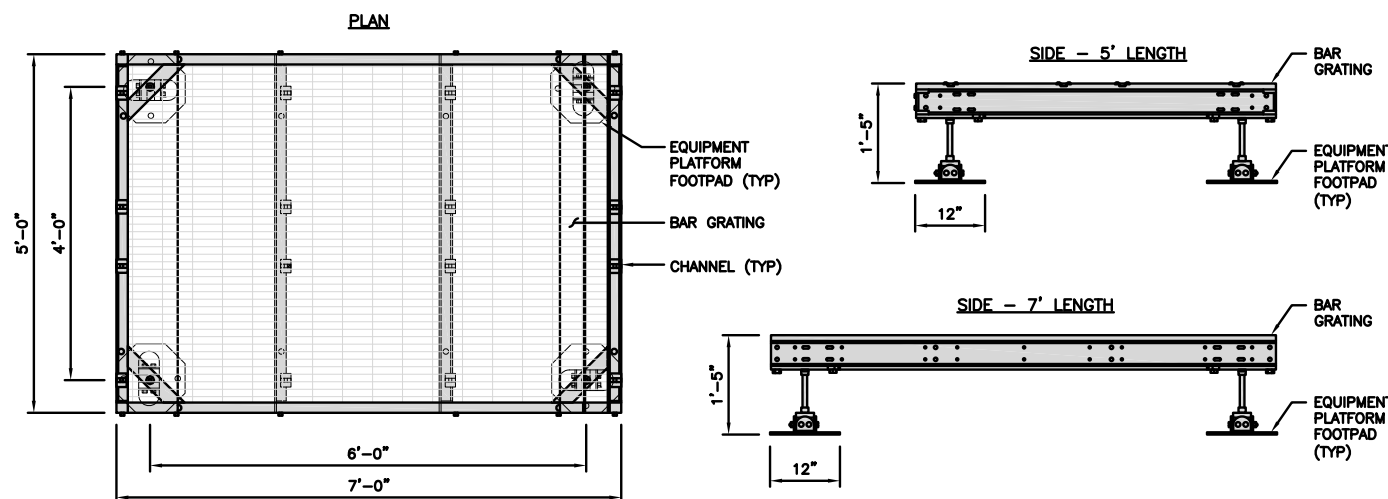
PLATFORM EQUIPMENT PLAN



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"



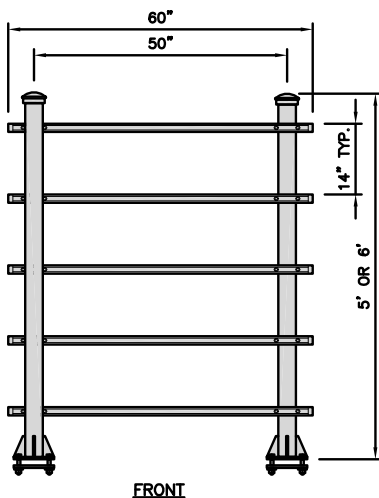
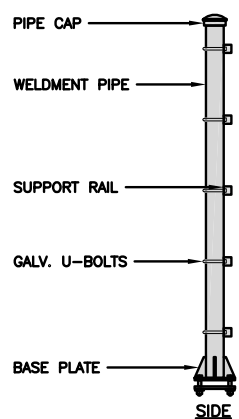
PLATFORM DETAIL

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

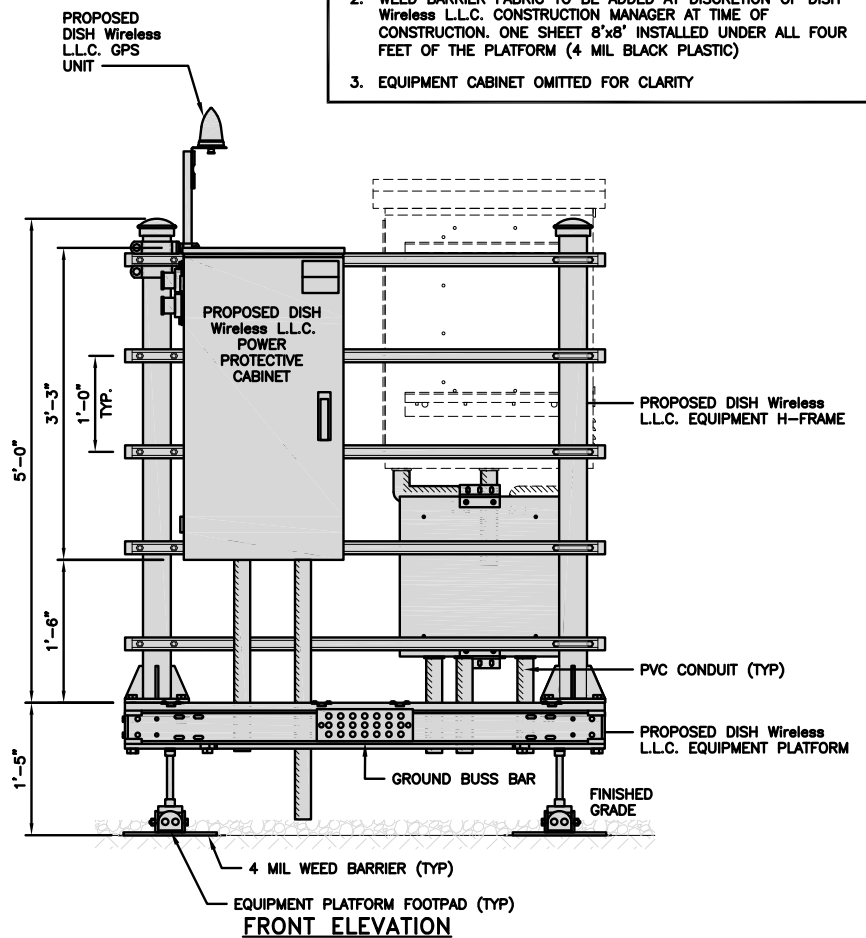
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3

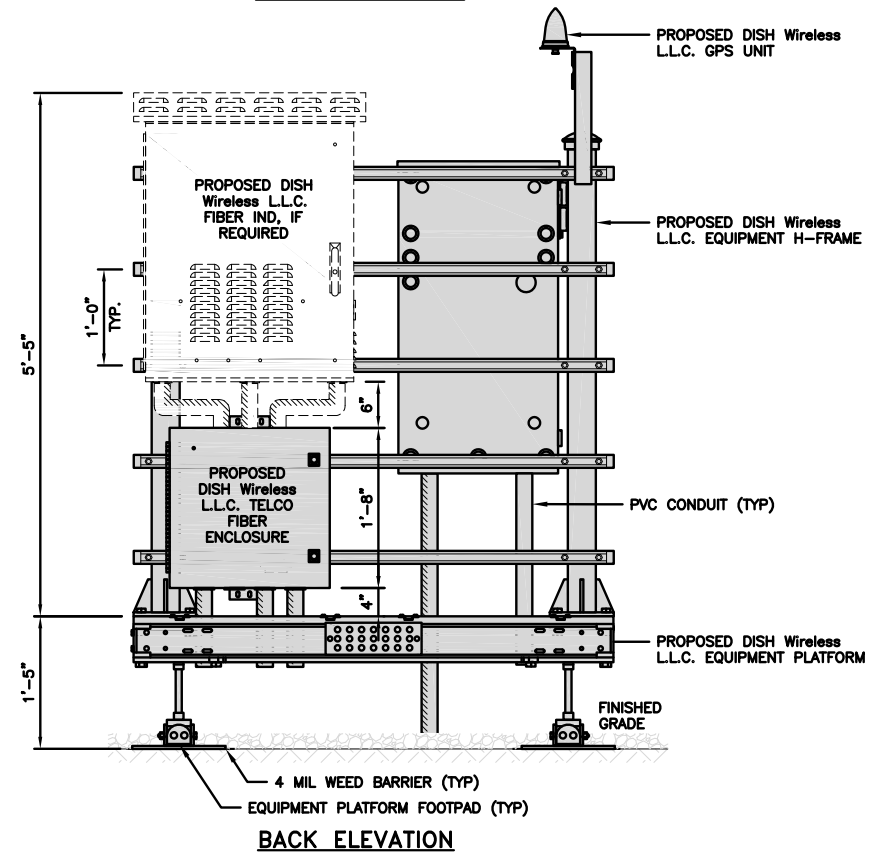
NOT USED

NO SCALE

4

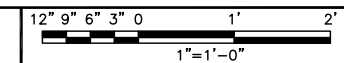


FRONT ELEVATION

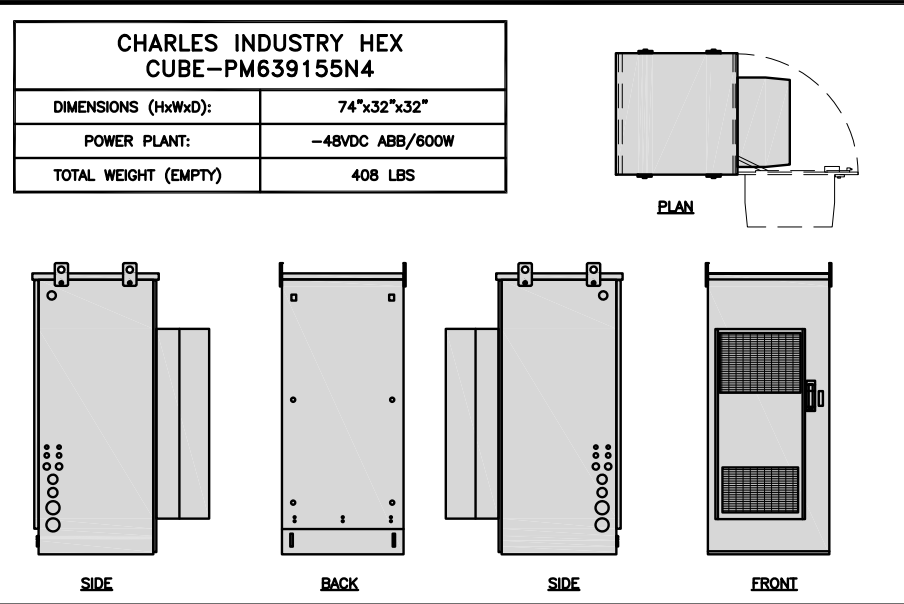


BACK ELEVATION

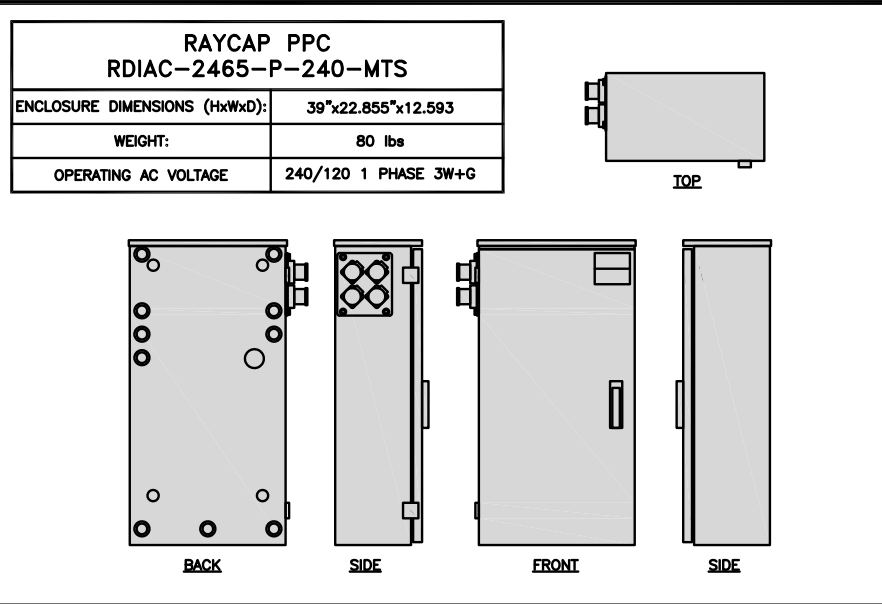
H-FRAME EQUIPMENT ELEVATION



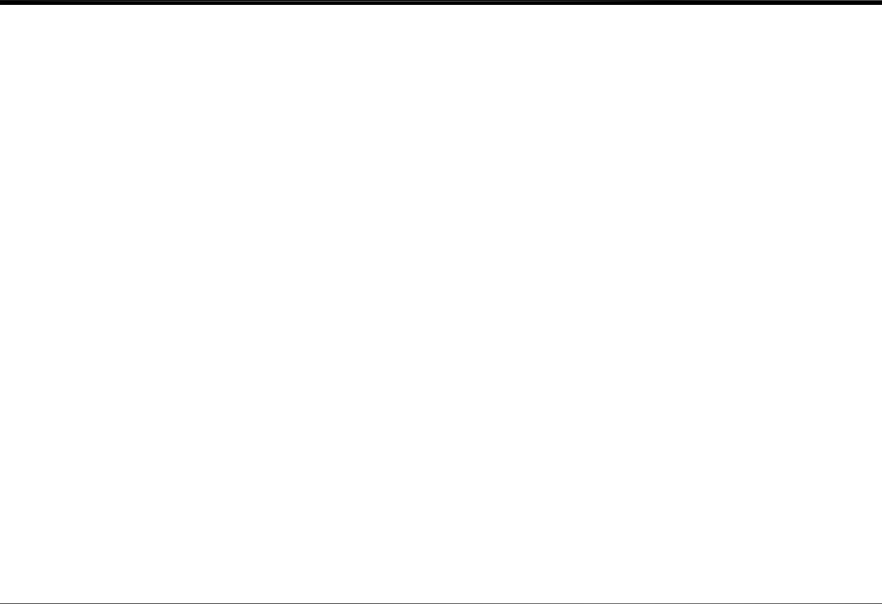
5



CABINET DETAIL NO SCALE 1



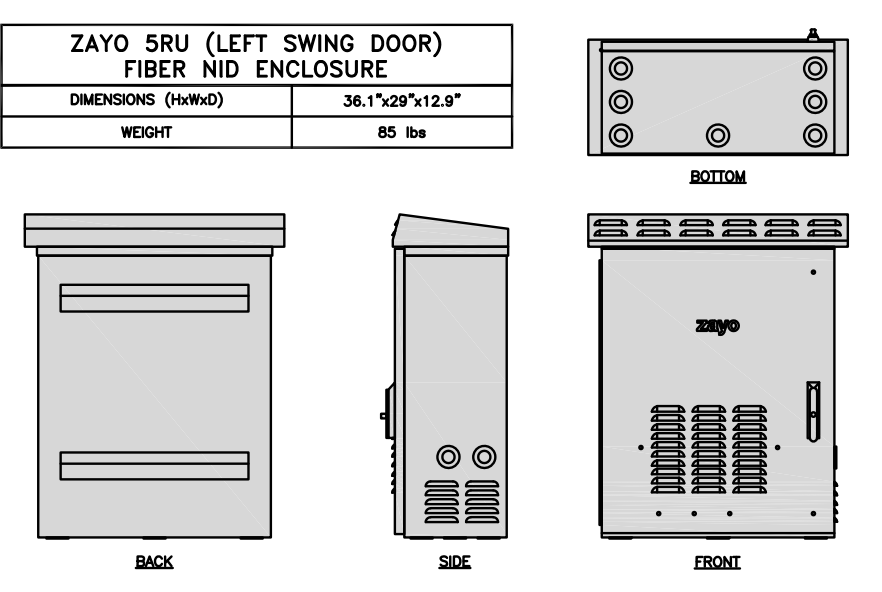
POWER PROTECTION CABINET (PPC) DETAIL NO SCALE 2



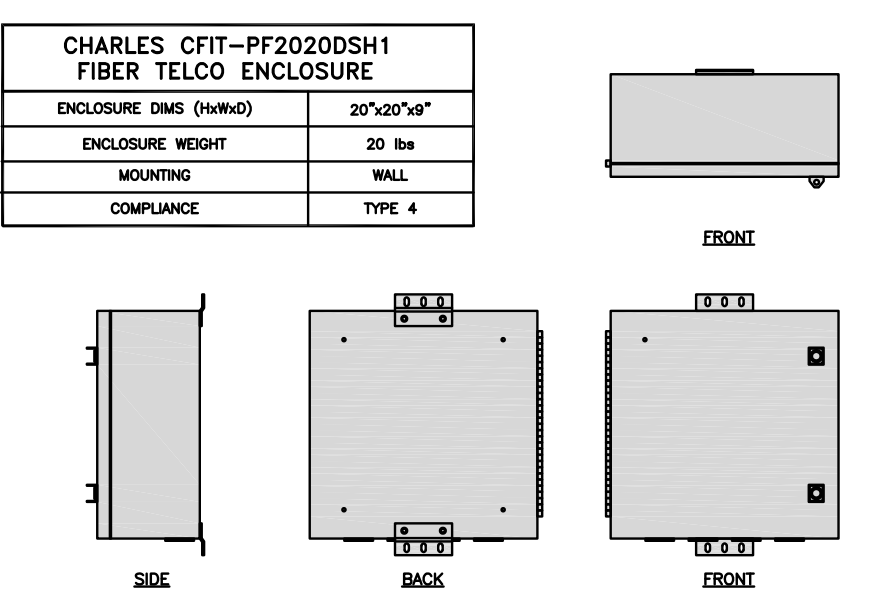
NOT USED NO SCALE 3



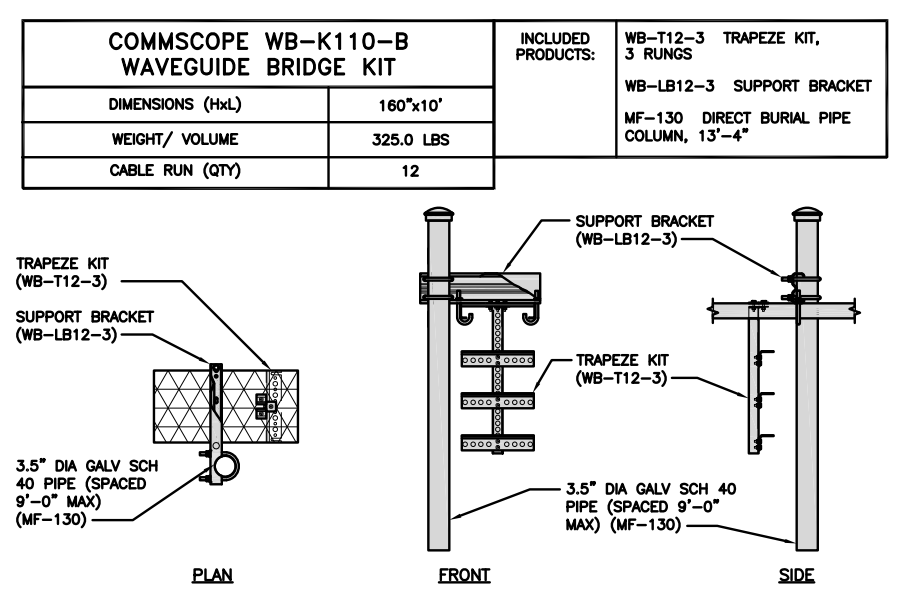
NOT USED NO SCALE 4



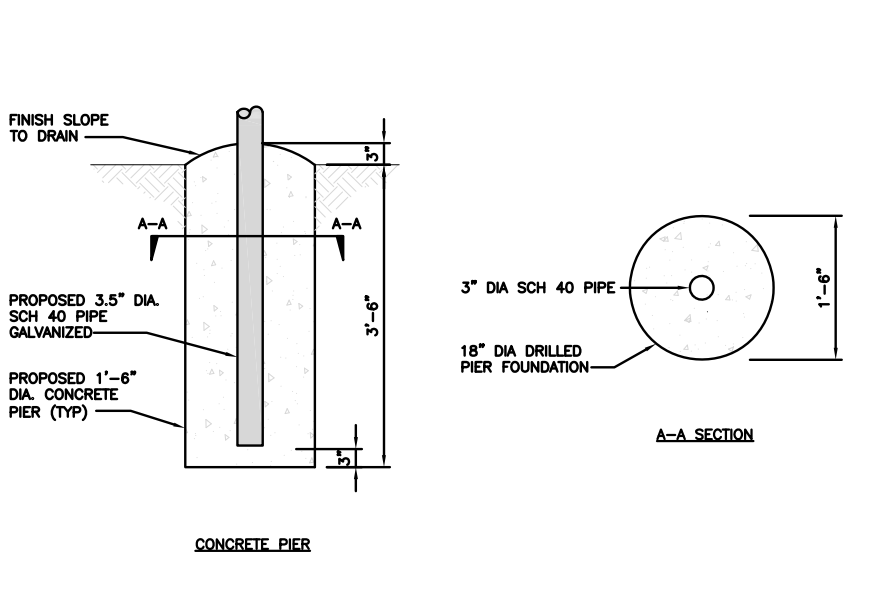
FIBER NID ENCLOSURE DETAIL NO SCALE 5



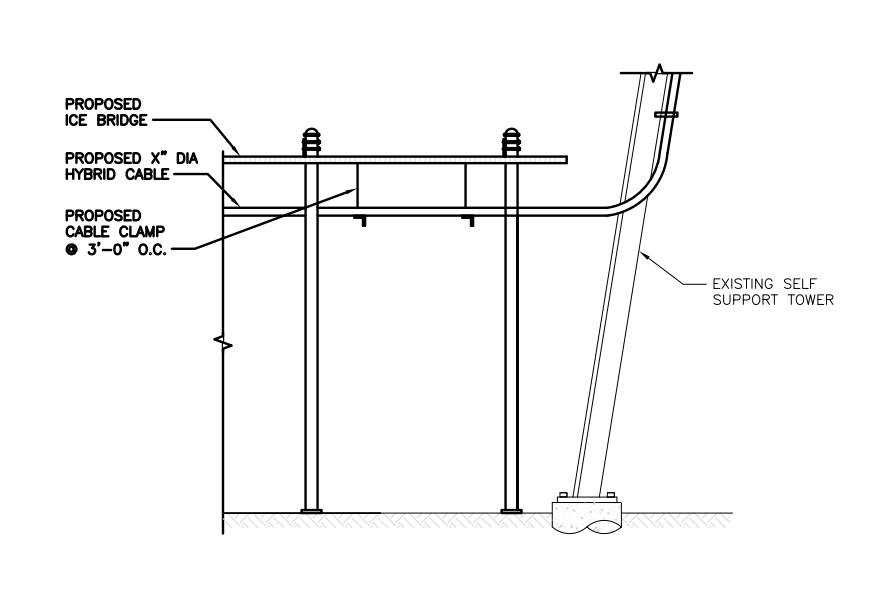
FIBER TELCO ENCLOSURE DETAIL NO SCALE 6



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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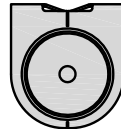
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DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00050A
51 DANIEL'S AVENUE
WATERFORD, CT 06385

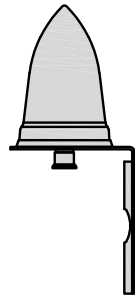
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

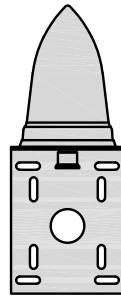
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



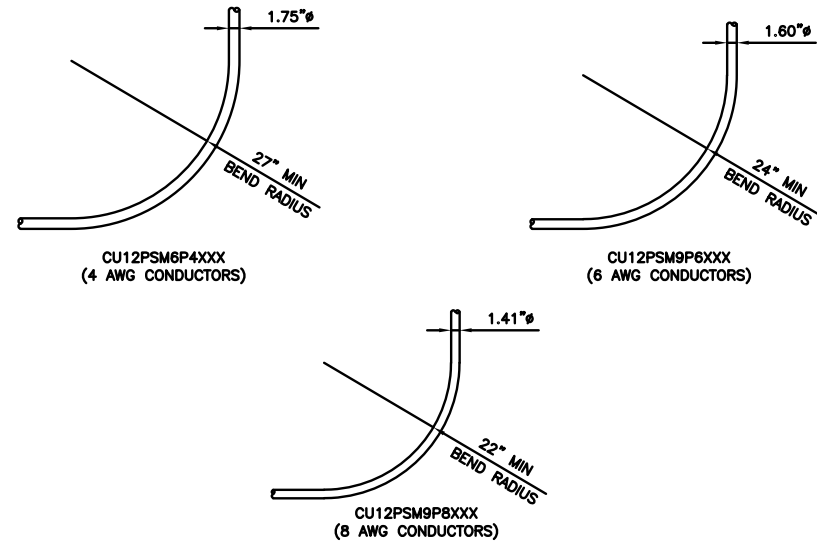
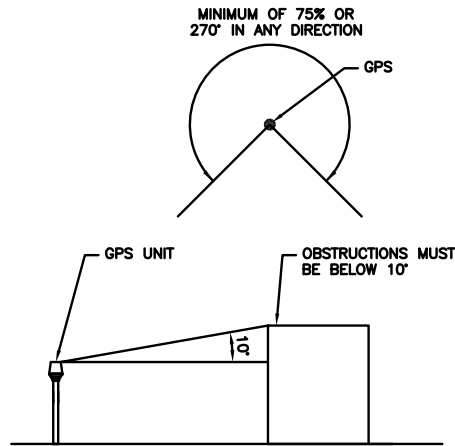
TOP



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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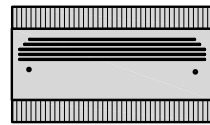
BOBOS00050A
51 DANIEL'S AVENUE
WATERFORD, CT 06385

SHEET TITLE
EQUIPMENT DETAILS

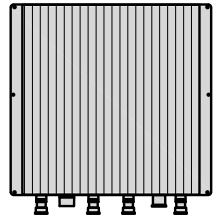
SHEET NUMBER

A-5

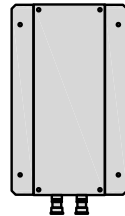
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



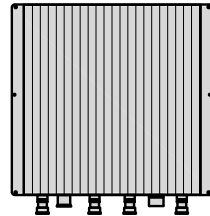
PLAN



BACK



SIDE



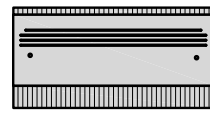
FRONT

RRH DETAIL

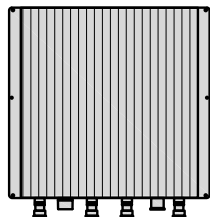
NO SCALE

1

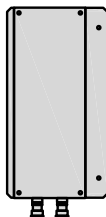
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



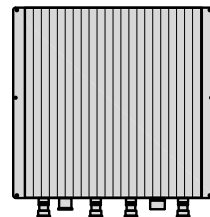
PLAN



BACK



SIDE



FRONT

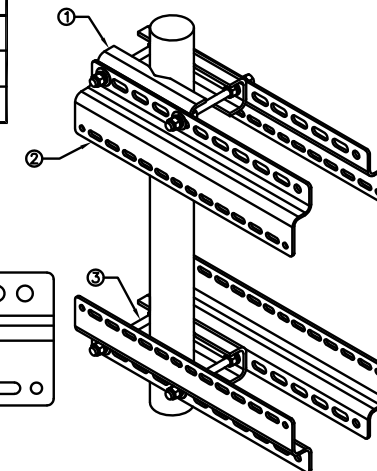
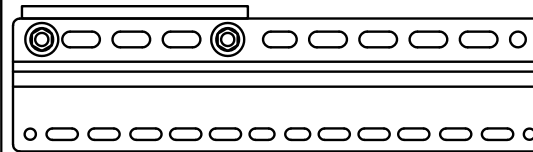
RRH DETAIL

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"



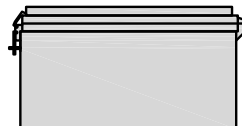
NOTE:
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RRH MOUNT DETAIL

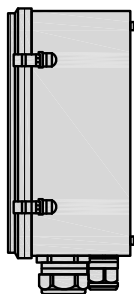
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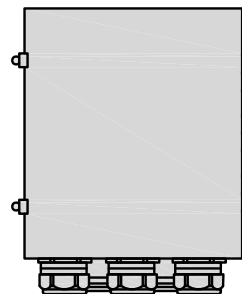
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



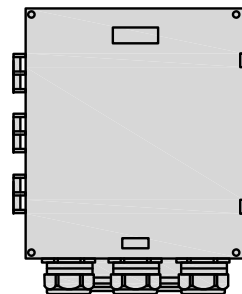
PLAN



SIDE



BACK



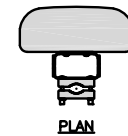
FRONT

SURGE SUPPRESSION DETAIL (OVP)

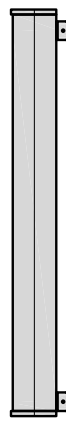
NO SCALE

4

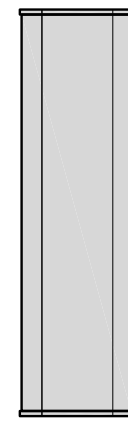
JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



PLAN



SIDE



FRONT

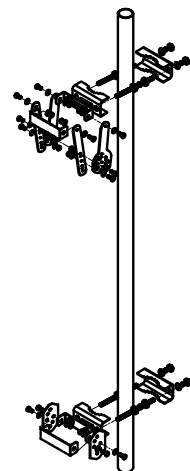
ANTENNA DETAIL

NO SCALE

5

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

NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS
FOR 4-, 6-, AND 8-FOOT ANTENNAS
ANTENNA BRACKET NOT PART OF KIT



NOTE:
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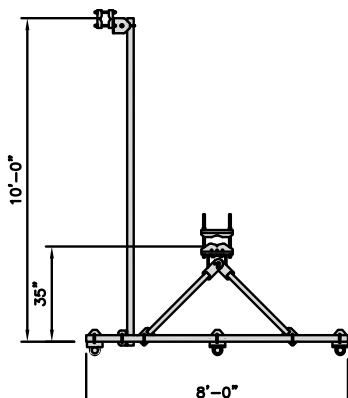
ANTENNA BRACKET DETAIL

NO SCALE

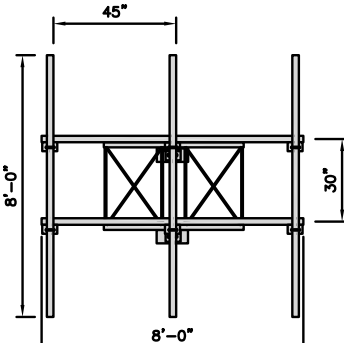
7

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

NOTE:
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APPROVED EQUIVALENT



PLAN



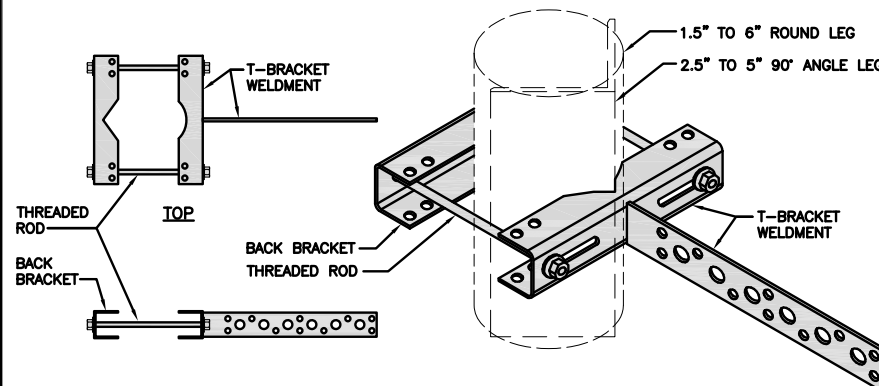
FRONT

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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SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

A-6

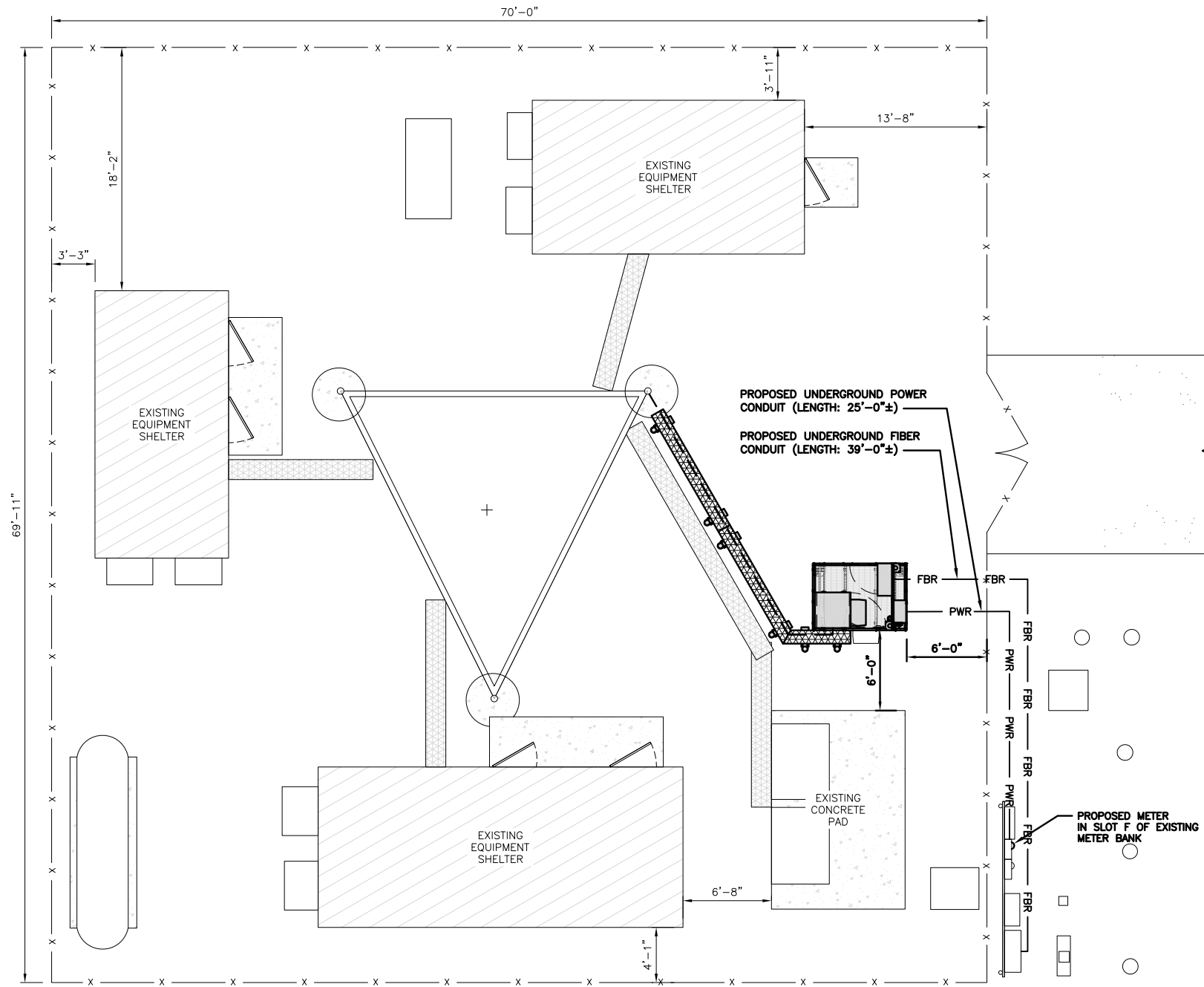
FINAL POWER OR FIBER DESIGN
NOT AVAILABLE AT TIME OF ISSUE

NOTES

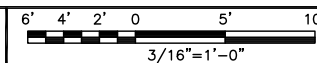
1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

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
14. AN EXISTING CONDITIONS SURVEY WAS NOT AVAILABLE AT THE TIME THIS DRAWING'S CREATION.



UTILITY ROUTE PLAN



1

ELECTRICAL NOTES

NO SCALE

2



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A&E PROJECT NUMBER
149451.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

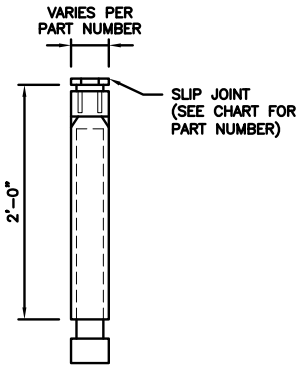
BOBOS00050A
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SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER

E-1

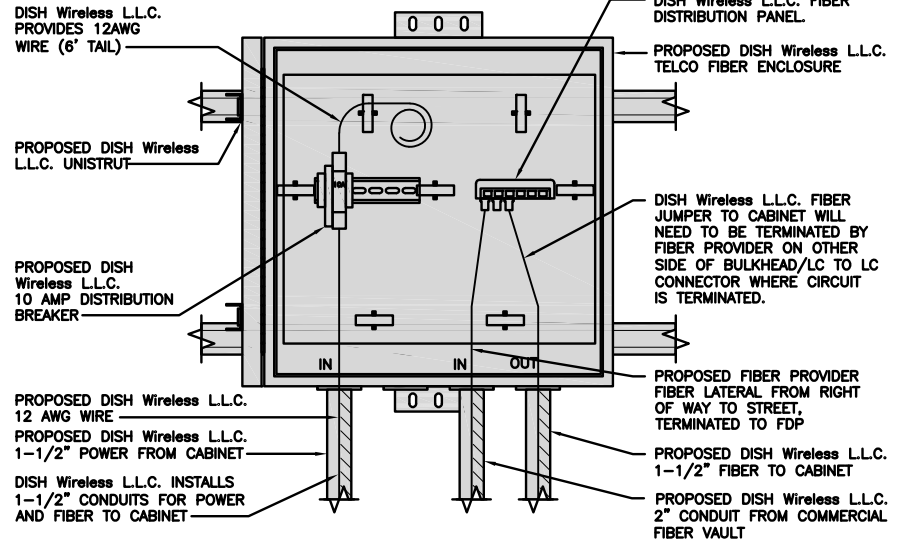
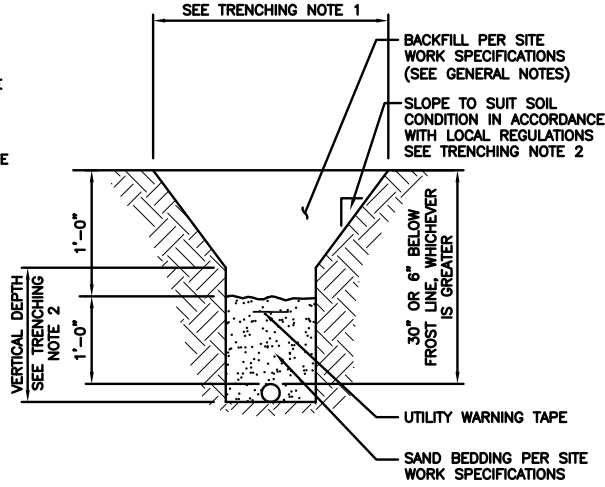
CARLON EXPANSION FITTINGS				
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"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

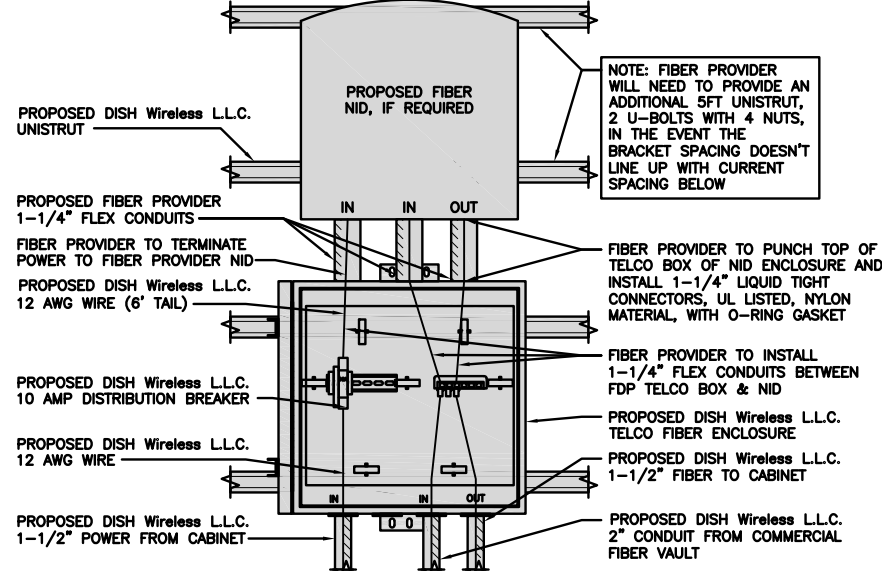
NO SCALE 1

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 8

NOT USED

NO SCALE 9



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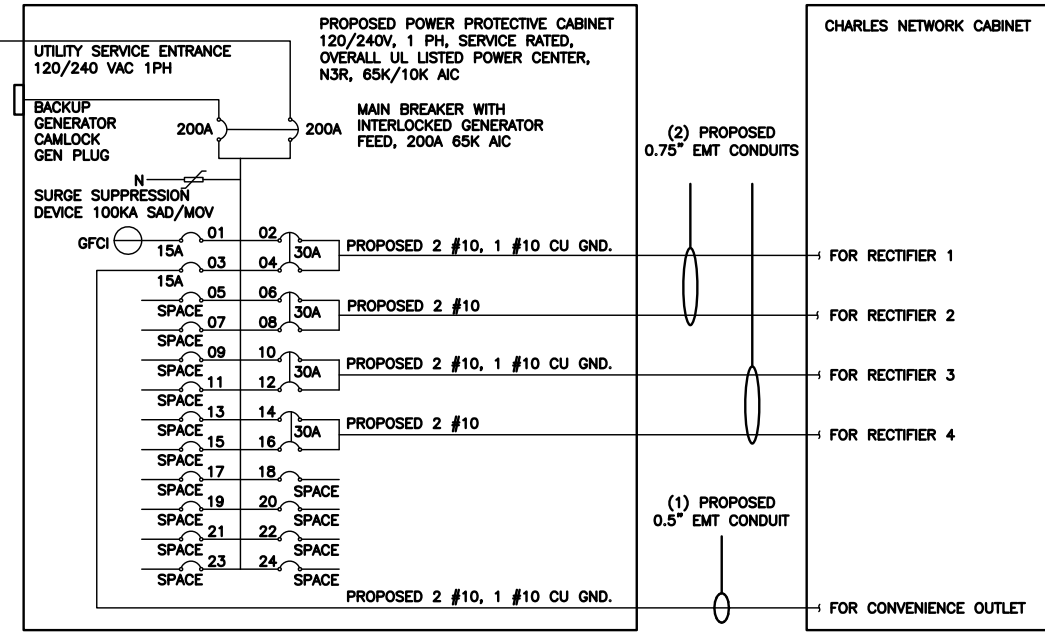
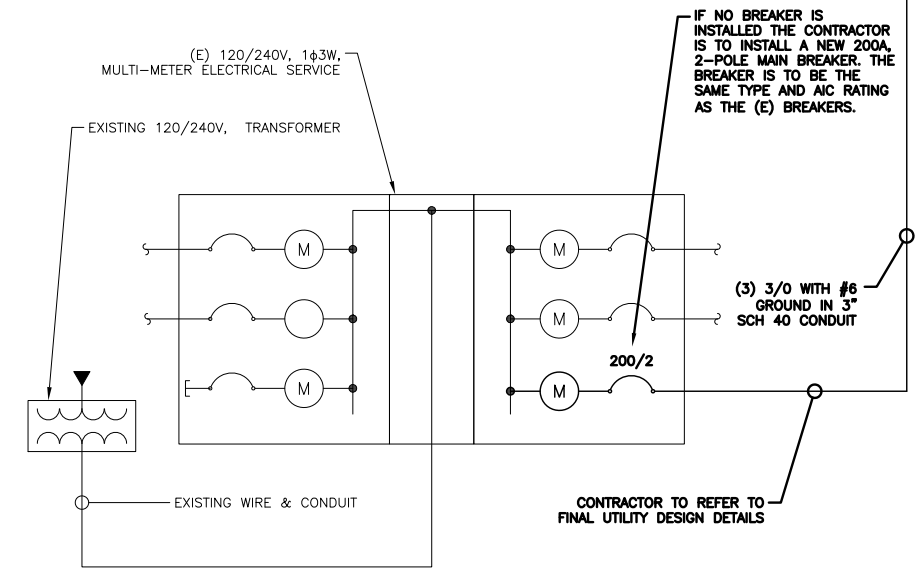
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WATERFORD, CT 06385

SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER
E-2



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

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER - SQUARE D P/N:Q0230
(1) 15A, 1P BREAKER - SQUARE D P/N:Q0115

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 2
-SPACE-				5	A	6	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3
-SPACE-				7	B	8	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4
-SPACE-				9	A	10				-SPACE-
-SPACE-				11	B	12				-SPACE-
-SPACE-				13	A	14				-SPACE-
-SPACE-				15	B	16				-SPACE-
-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		VOLTAGE AMPS			
MB RATING: 65,000 AIC			11700	11700			AMPS			
			98	98			MAX AMPS			
			98	123			MAX 125%			

PANEL SCHEDULE

NO SCALE 2

NOT USED

NO SCALE 3



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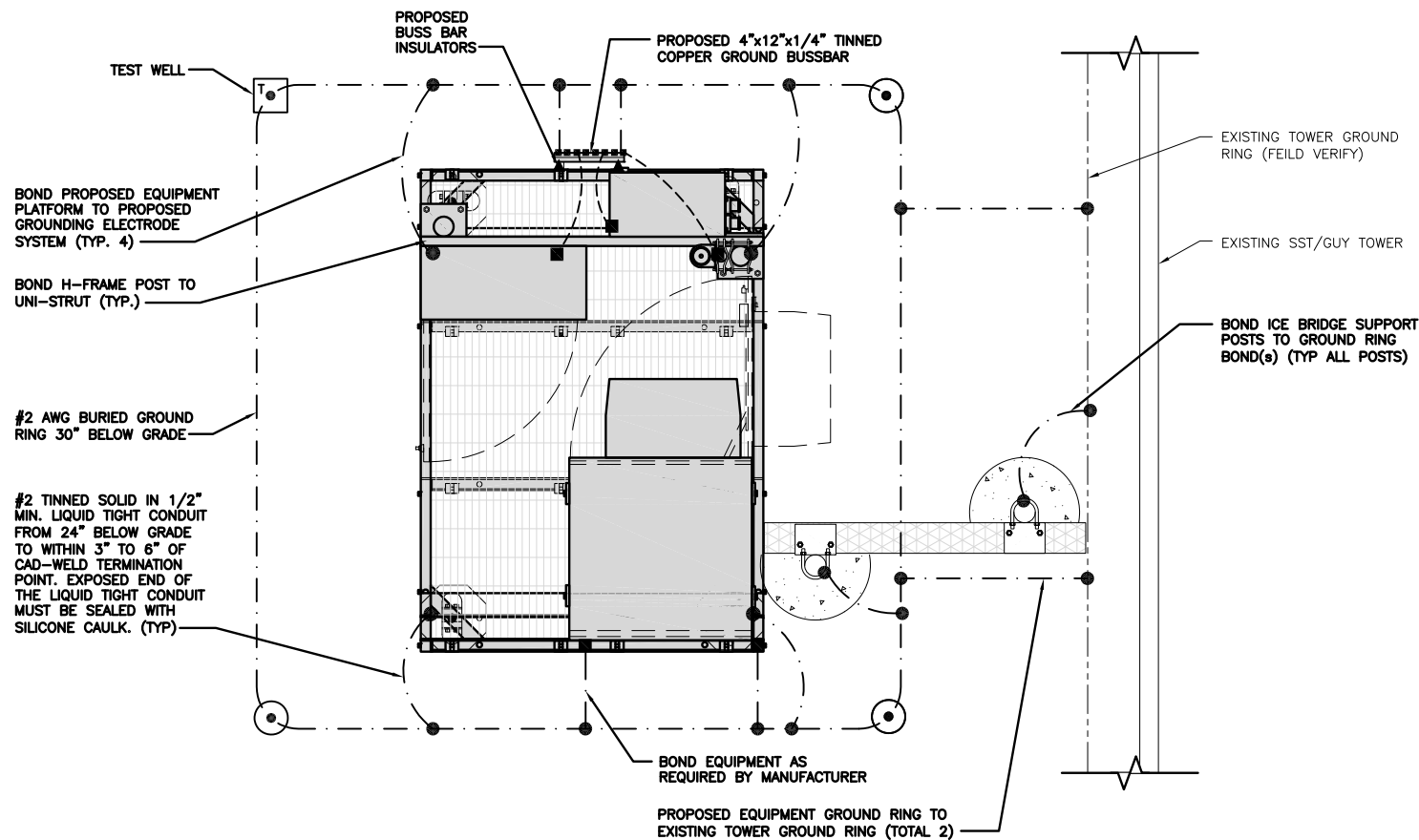
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WATERFORD, CT 06385

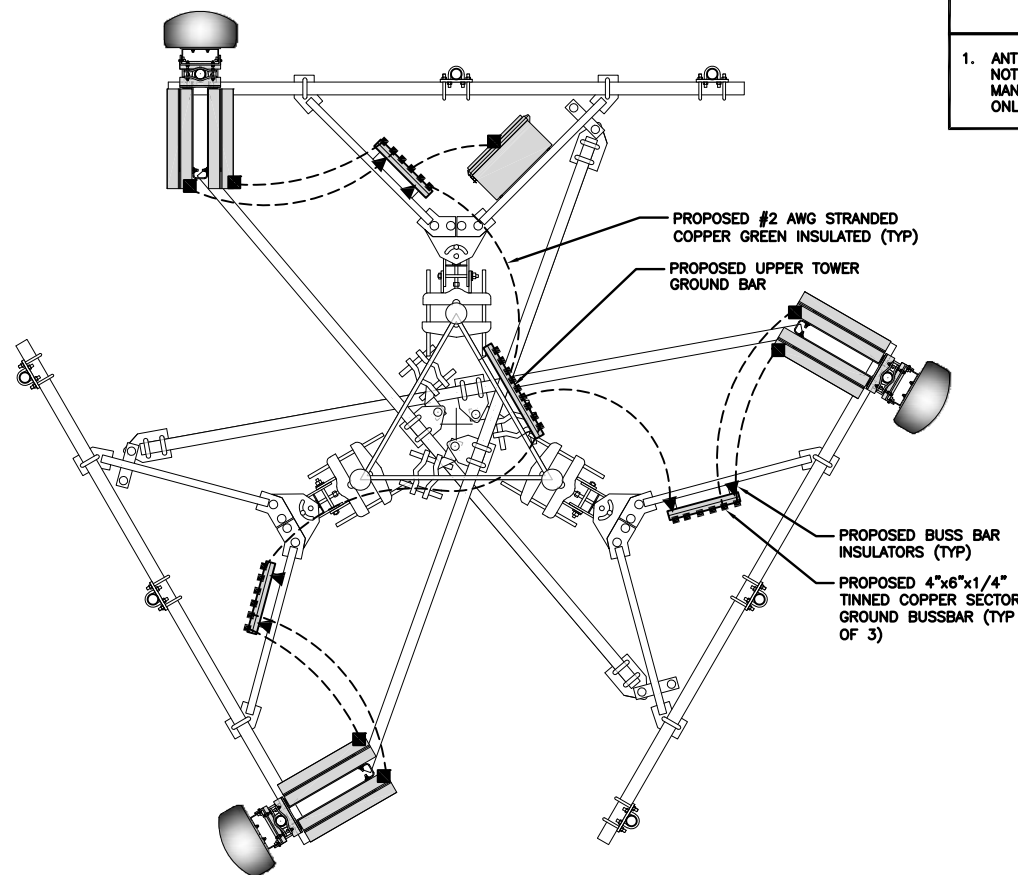
SHEET TITLE
ELECTRICAL ONE-LINE, FAULT
CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3



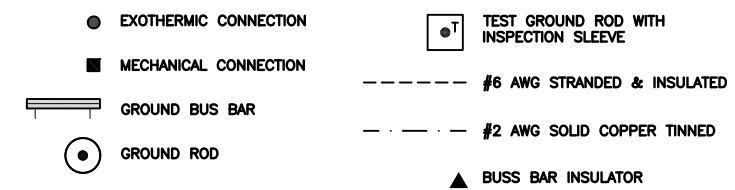
TYPICAL EQUIPMENT GROUNDING PLAN

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 GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- (D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.
- (E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- (F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- (G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.
- (H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.
- (I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- (J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
- (K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- (L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.
- (M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE
- (N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.
- (O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR
- (P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO TOWER STEEL.

GROUNDING KEY NOTES

NO SCALE 3



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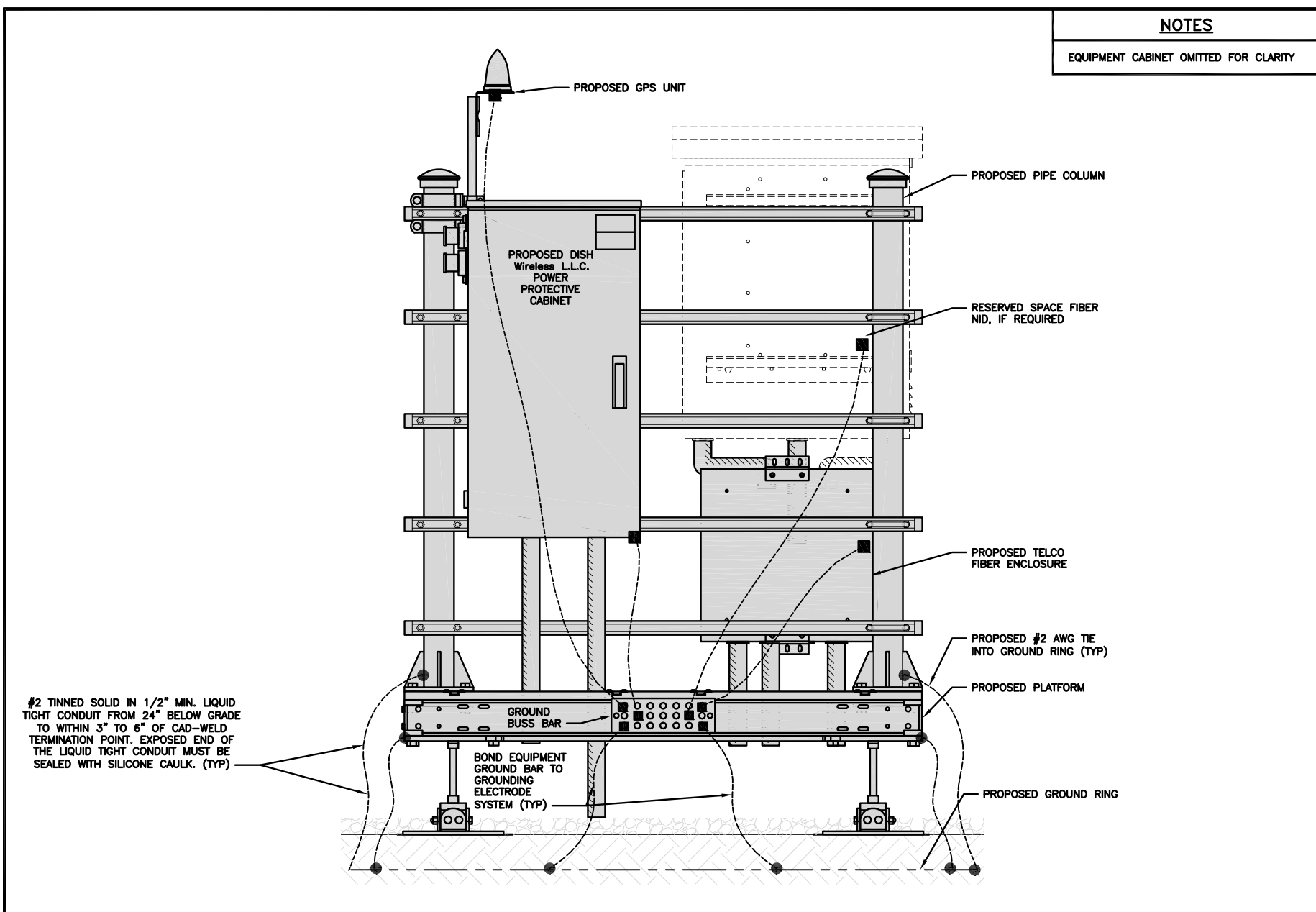
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SHEET TITLE
GROUNDING PLANS
AND NOTES

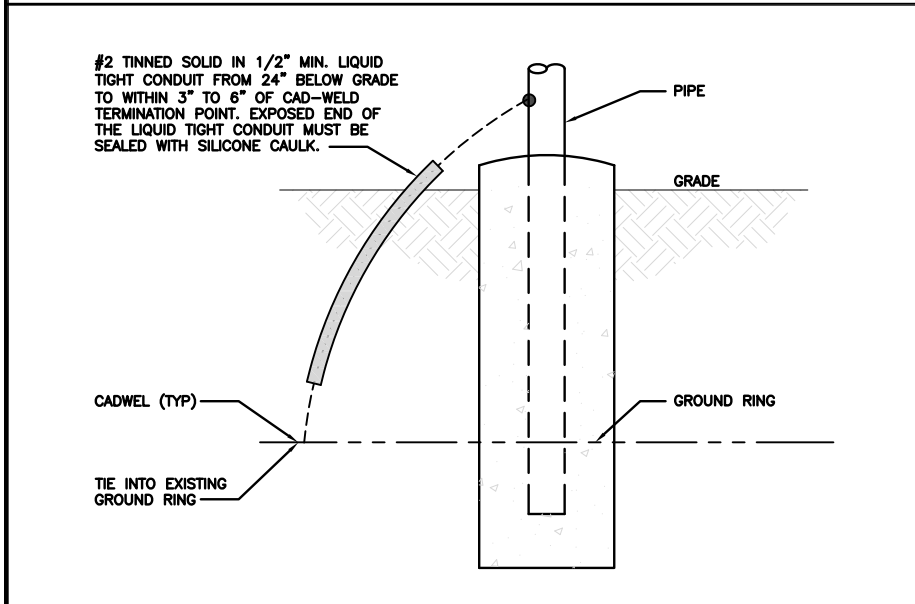
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G-1



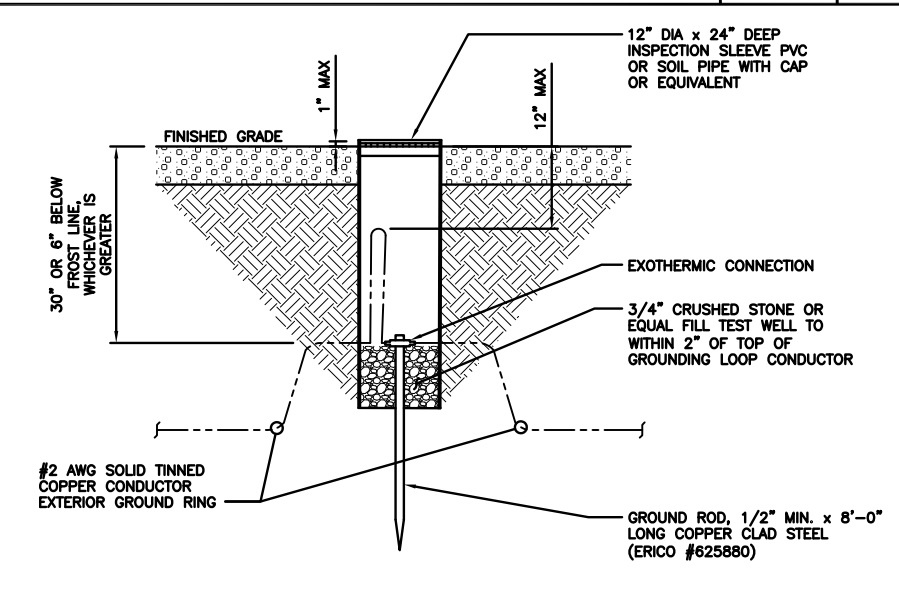
H-FRAME GROUNDING DETAIL

NO SCALE 1



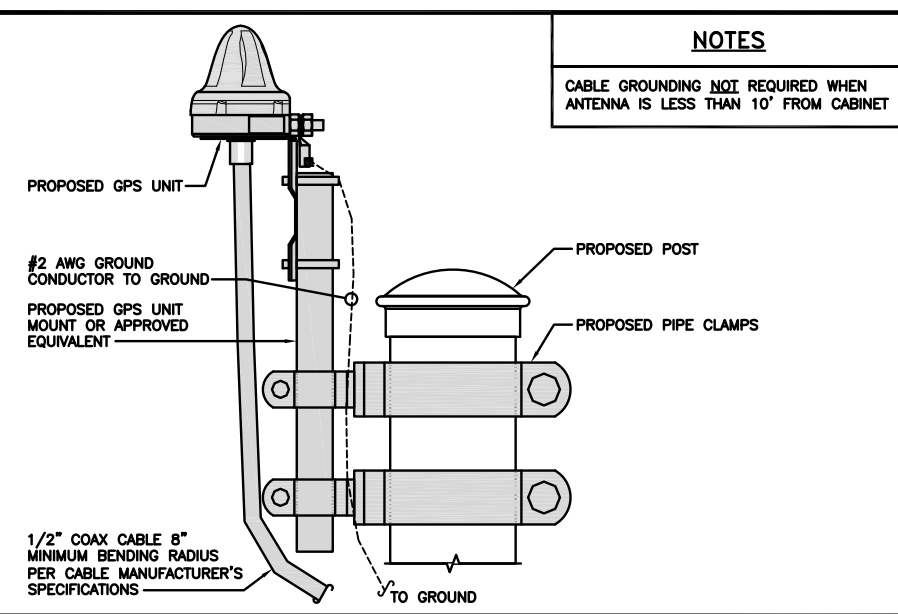
TRANSITIONING GROUND DETAIL

NO SCALE 4



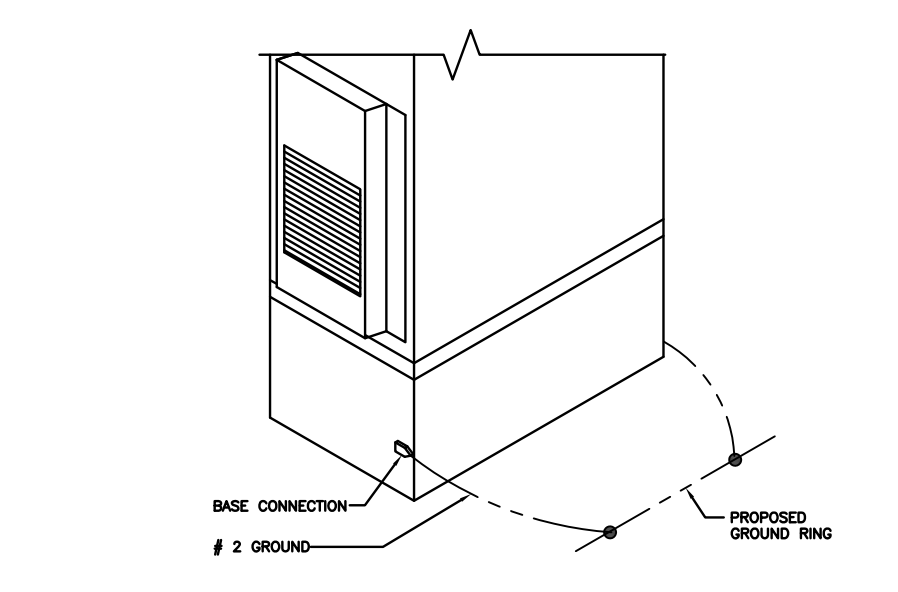
TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5



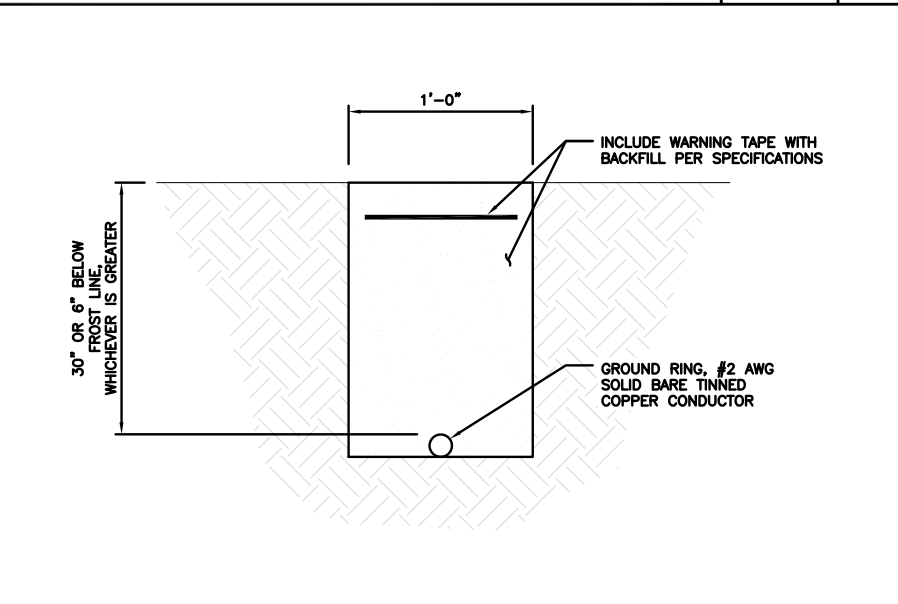
TYPICAL GPS UNIT GROUNDING

NO SCALE 2



OUTDOOR CABINET GROUNDING

NO SCALE 3



TYPICAL GROUND RING TRENCH

NO SCALE 6



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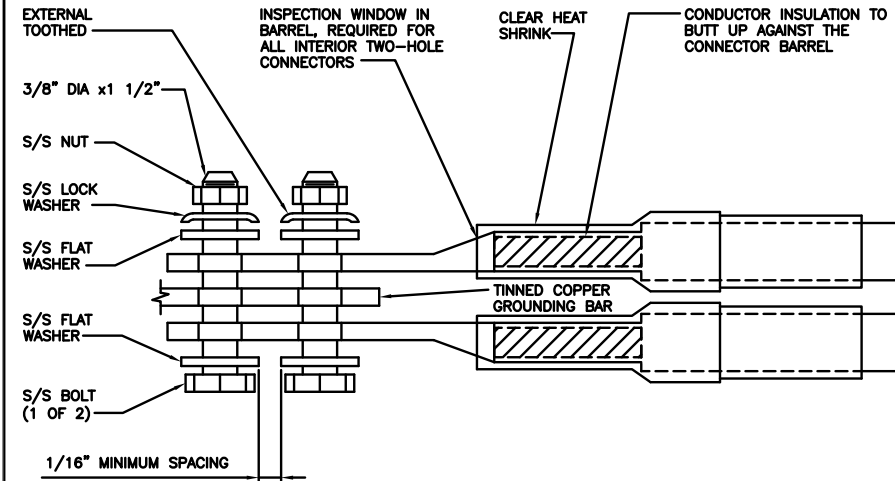
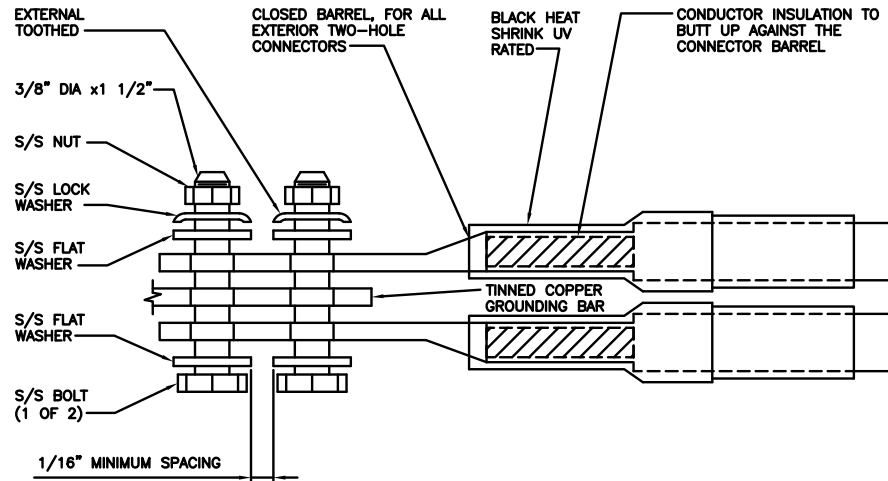
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SHEET TITLE
GROUNDING DETAILS

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

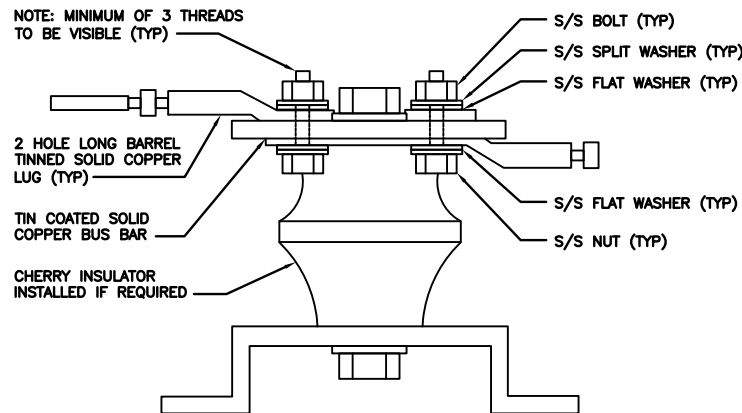
NO SCALE 1

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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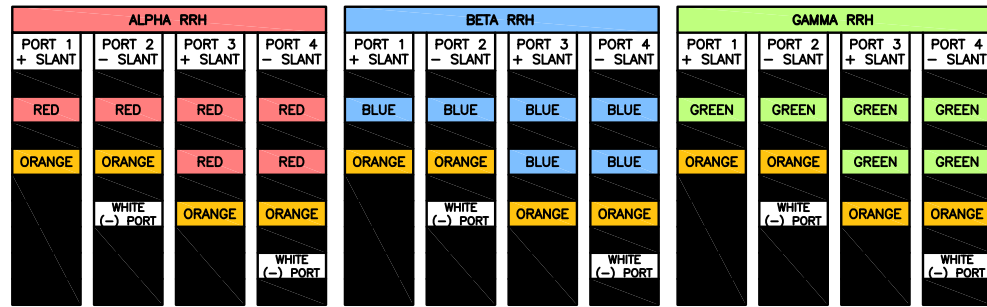
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

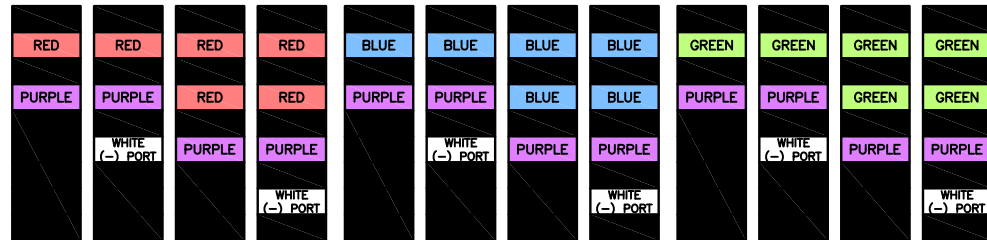
LOW-BAND RRH -
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) - OPTIONAL PER MARKET

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



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

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

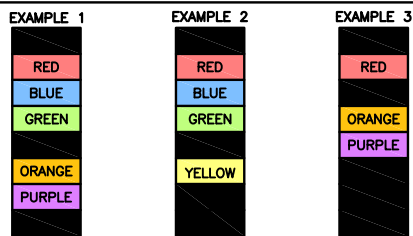


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

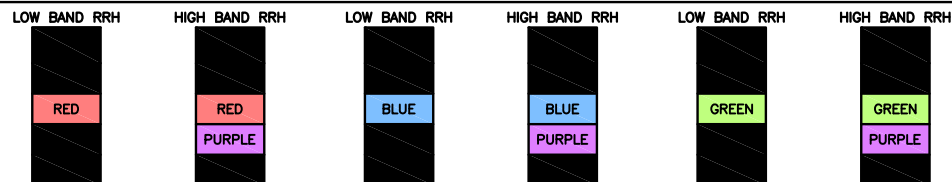
EXAMPLE 1 - HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



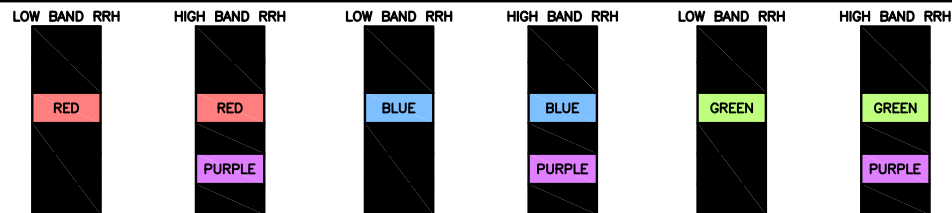
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

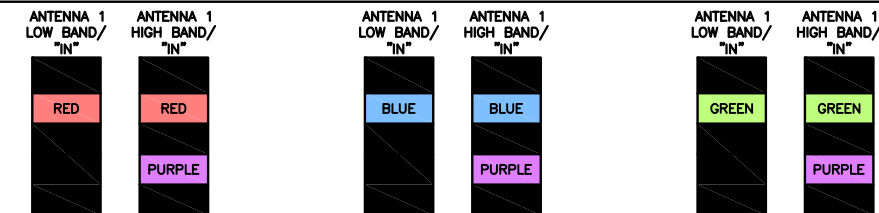


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



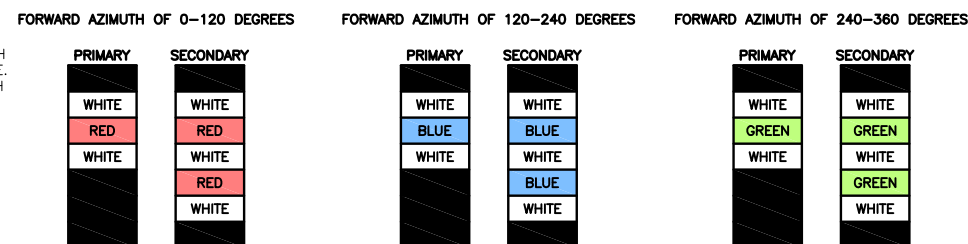
RET MOTORS AT ANTENNAS



MICROWAVE RADIO LINKS

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

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



NOTES

CONTRACTOR TO VERIFY TO FINAL
CONSTRUCTION RFDS FOR ALL RF
DETAILS.FINAL RFDS IS IN NEXYSONE

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



AWS
(N66+N70+H-BLOCK)



CBRS TECH
(3 GHz)



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



5701 SOUTH SANTA FE DRIVE
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8/12/21

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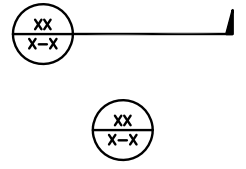
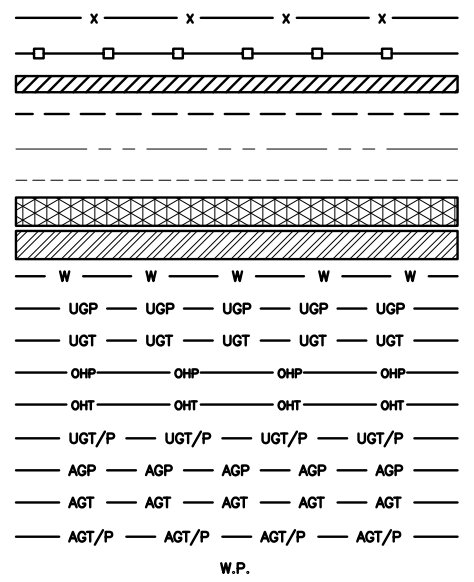
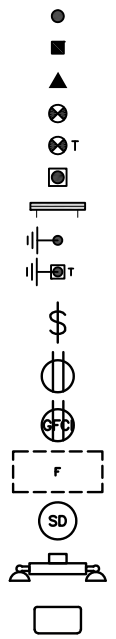
DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00050A
51 DANIEL'S AVENUE
WATERFORD, CT 06385

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



SECTION REFERENCE
 DETAIL REFERENCE

LEGEND

AB	ANCHOR BOLT	IN	INCH	INT	INTERIOR
ABV	ABOVE	LB(S)	POUND(S)	LF	LINEAR FEET
AC	ALTERNATING CURRENT	LTE	LONG TERM EVOLUTION	MAS	MASONRY
ADDL	ADDITIONAL	MAX	MAXIMUM	MGB	MASTER GROUND BAR
AFF	ABOVE FINISHED FLOOR	MECH	MECHANICAL	MIN	MINIMUM
AFG	ABOVE FINISHED GRADE	MFR	MANUFACTURER	MISC	MISCELLANEOUS
AGL	ABOVE GROUND LEVEL	MGT	MANUAL TRANSFER SWITCH	MTL	METAL
AIC	AMPERAGE INTERRUPTION CAPACITY	MW	MICROWAVE	MTS	MANUAL TRANSFER SWITCH
ALUM	ALUMINUM	NEC	NATIONAL ELECTRIC CODE	NO.	NUMBER
ALT	ALTERNATE	NM	NEWTON METERS	#	NUMBER
ANT	ANTENNA	NO.	NUMBER	NTS	NOT TO SCALE
APPROX	APPROXIMATE	OC	ON-CENTER	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
ARCH	ARCHITECTURAL	OPNG	OPENING	PCS	PERSONAL COMMUNICATION SERVICES
ATS	AUTOMATIC TRANSFER SWITCH	P/C	PRECAST CONCRETE	PCU	PRIMARY CONTROL UNIT
AWG	AMERICAN WIRE GAUGE	PRC	PRIMARY RADIO CABINET	PP	POLARIZING PRESERVING
BATT	BATTERY	PSF	POUNDS PER SQUARE FOOT	PSI	POUNDS PER SQUARE INCH
BLDG	BUILDING	PT	PRESSURE TREATED	PWR	POWER CABINET
BLK	BLOCK	QTY	QUANTITY	RAD	RADIUS
BLKG	BLOCKING	RECT	RECTIFIER	REF	REFERENCE
BM	BEAM	REINF	REINFORCEMENT	REQ'D	REQUIRED
BTC	BARE TINNED COPPER CONDUCTOR	RET	REMOTE ELECTRIC TILT	RF	RADIO FREQUENCY
BOF	BOTTOM OF FOOTING	RMC	RIGID METALLIC CONDUIT	RRH	REMOTE RADIO HEAD
CAB	CABINET	RRU	REMOTE RADIO UNIT	RWY	RACEWAY
CANT	CANTILEVERED	SCH	SCHEDULE	SHT	SHEET
CHG	CHARGING	SIAD	SMART INTEGRATED ACCESS DEVICE	SIM	SIMILAR
CLG	CEILING	SPEC	SPECIFICATION	SQ	SQUARE
CLR	CLEAR	SS	STAINLESS STEEL	STD	STANDARD
COL	COLUMN	STL	STEEL	TEMP	TEMPORARY
COMM	COMMON	THK	THICKNESS	TMA	TOWER MOUNTED AMPLIFIER
CONC	CONCRETE	TOA	TOP OF ANTENNA	TN	TOE NAIL
CONSTR	CONSTRUCTION	TOC	TOP OF CURB	TOA	TOP OF ANTENNA
DBL	DOUBLE	TOF	TOP OF FOUNDATION	TOF	TOP OF FOUNDATION
DC	DIRECT CURRENT	TOP	TOP OF PLATE (PARAPET)	TOS	TOP OF STEEL
DEPT	DEPARTMENT	TOW	TOP OF WALL	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
DF	DOUGLAS FIR	TYP	TYPICAL	UG	UNDERGROUND
DIA	DIAMETER	UL	UNDERWRITERS LABORATORY	UNO	UNLESS NOTED OTHERWISE
DIAG	DIAGONAL	UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM	UPS	UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
DIM	DIMENSION	VIF	VERIFIED IN FIELD	W	WIDE
DWG	DRAWING	W	WIDE	W/	WITH
DWL	DOWEL	WD	WOOD	WP	WEATHERPROOF
EA	EACH	WT	WEIGHT		
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				

ABBREVIATIONS



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DISH Wireless L.L.C.
 PROJECT INFORMATION
 BOBOS00050A
 51 DANIEL'S AVENUE
 WATERFORD, CT 06385

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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8/12/21

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DRAWN BY: CHECKED BY: APPROVED BY:

SP MRE BLB

RFDS REV #: 0

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00050A
51 DANIEL'S AVENUE
WATERFORD, CT 06385

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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8/12/21

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:
SP	MRE	BLB

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	7/28/21	ISSUED FOR REVIEW
0	8/12/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149451.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00050A
51 DANIEL'S AVENUE
WATERFORD, CT 06385

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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