NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
4 Angela's Way, Burlington CT 06013
203-435-3640
denise@northeastsitesolutions.com

March 31, 2022

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
890 Evergreen Ave, Hamden, CT 06518
Latitude: 41.406667
Longitude: -72.904722
Site #: 800529_Crown_Dish

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 890 Evergreen Ave, Hamden, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 66-foot level of the existing 108-foot stealth silo tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the base of the stealth structure. Included are plans by Kimley Horn, dated March 1, 2022, Exhibit C. Also included is a structural analysis prepared by GPD, dated September 13, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was approved by the Connecticut Siting Council, Docket No. 195 on October 8, 1999. Please see attached Exhibit A.

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 Mayor Lauren Garrett and Erik Johnson, Acting Town Planner for the Town of Hamden, as well as the tower owner (Crown Castle) and property owner (Conn Agricultural Expt Station).

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 existing silo tower is 108-feet and the Dish Wireless LLC antennas will be located at a centerline height of 66-feet.

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

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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 79.58% as evidenced by Exhibit F.

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 submits 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 D.

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 tower in Hamden. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish Wireless LLC to obtain a building permit for the proposed installation. Further, a Letter of Authorization is included as Exhibit G, 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 66-foot level of the existing 108-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 F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Dish Wireless LLC proposed loading. Dish Wireless LLC is not aware of any public safety concerns relative to the proposed sharing of the existing 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 Hamden.

Sincerely,

Denise Sabo

Denise Sabo
Mobile: 203-435-3640
Fax: 413-521-0558
Office: 4 Angela's Way, Burlington CT 06013
Email: denise@northeastsitesolutions.com

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Attachments

Cc: Mayor Lauren Garrett
Town of Hamden
2750 Dixwell Avenue
Hamden, CT 06518

Erik Johnson, Acting Town Planner
Town of Hamden
2750 Dixwell Avenue
3rd Floor, Government Center
Hamden, CT 06518

Conn Agricultural Expt Station, Property Owner
890 Evergreen Ave,
Hamden, CT 06518

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

Connecticut Siting Council(/CSC)

Decisions (/CSC/Decisions/Decisions) >

Meetings and Minutes (/CSC/Common-Elements/v4-template/Council-Activity) >

Pending Matters (/CSC/1_Applications-and-Other-Pending-Matters/Pending-Matters) >

About Us (/CSC/Common-Elements/Common-Elements/Connecticut-Siting-Council---Description) >

Contact Us (/CSC/Common-Elements/Common-Elements/Contact-Us) >

Search Connecticut Siting Council

DOCKET NO. 195 - An application by Cellco Partnership d/b/a Bell Atlantic Mobile for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications tower disguised as an agricultural silo located at Lockwood Farm, 890 Evergreen Avenue in Hamden, Connecticut.	}	Connecticut Siting Council
	}	
	}	October 8, 1999

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility located at Lockwood Farm in Hamden, Connecticut, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Bell Atlantic Mobile (BAM) for the construction,

operation, and maintenance of a telecommunications tower, disguised as an agricultural silo, and associated equipment building located at Lockwood Farm, 890 Evergreen Avenue in Hamden, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as proposed, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of BAM, Springwich Cellular Limited Partnership (SCLP), and Nextel Communications of the Mid-Atlantic, Inc. (Nextel); and other entities, both public and private, but such tower shall not exceed a height of 108 feet above ground level (AGL). No antennas shall be mounted to the exterior of the tower, except for the Town of Hamden's public safety whip antenna(s) mounted to the top of the tower, if necessary, as approved by the Council.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include: a final site plan(s) for site development to include the location and specifications for the antennas, emergency generator and fuel tank, access road, utility line, and for the tower foundation and equipment building to be re-oriented north/south and relocated to maintain an appropriate set-back from residential properties; construction plans for water drainage, and erosion and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended; provisions for the installation of radiofrequency transparent material; and provisions for the prevention and containment of spills and/or other discharge into surface water and groundwater bodies.
3. Upon the establishment of any new State or federal radiofrequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
4. The Certificate Holder shall provide the Council a recalculated report of electromagnetic radiofrequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. If the facility does not initially provide, or permanently ceases to provide cellular services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antenna becomes obsolete and ceases to function.
8. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant, the New Haven Register, and the Hamden Chronicle.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

APPLICANT	**ITS REPRESENTATIVE**
Bell Atlantic Mobile	Kenneth C. Baldwin, Esq. Robinson & Cole 280 Trumbull Street Hartford, CT 06103-3597 David S. Malko, P.E. Sandy M. Carter Bell Atlantic Mobile 20 Alexander Drive Wallingford, CT 06492
INTERVENORS	**ITS REPRESENTATIVE**
Springwich Cellular Limited Partnership	Peter W. vanWilgen Springwich Cellular Limited Partnership 500 Enterprise Drive Rocky Hill, CT 06067-3900
Nextel Communications of the Mid-Atlantic, Inc. d/b/a Nextel Communications	Christopher B. Fisher, Esq. Daniel F. Leary, Esq. Cuddy, Feder & Worby, Esq. 90 Maple Avenue White Plains, NY 10601

TOWN OF HAMDEN

CONNECTICUT

BOND RELEASE RECOMMENDATION/ACTION

MEMO TO: Planning & Zoning Commission

FROM: Joseph J. Venditto, Zoning Enforcement Officer

DATE: March 7, 2002

RE: Bond Release

ADDRESS: 890 Evergreen Ave

PROJECT: Site Plan 00-1263

TOTAL BOND AMOUNT:	Present Amt.	Recommendation Amt. to Retain
Site Work	13,527.	0
Right of Way	0.	0
Subtotal	13,527.	0
Other 10%	1,473.	0
TOTAL	15,000.	0

Bond total covers all items listed or not listed. Categories are for estimation purposes only.

Comments: All Site Work Complete. Bond Release Can Be Recommended.

$60.00 FEE

#_____

TOWN OF HAMDEN
APPLICATION FOR CERTIFICATE OF ZONING COMPLIANCE

Property Address 890 EVERGREEN ~~AVE~~ PARK Zoning District R-4 CELL (860) 306-0337

Property Owner CROWN CASTLE ATLANTIC LLC Phone # (860) 657-1563

Property Owner Address 703 HARTFORD AVE, GLASTONBURY, CT 06033

Type of Zoning Permit CONNECTICUT SITING COUNCIL

I certify that the work required has been completed in accordance with approved plans except as noted on attached asbuilt drawing.

Applicant Signature _____ Date 8-26-02
Owner/Agent

PRINTED NAME WILLIAM G WATSON - JR

ADDRESS 703 HARTFORD AVE, GLASTONBURY, CT 06033

TELEPHONE # (860) 657-1563 FAX # (860) 633-7078

Certificate #_____

Certificate of Zoning Compliance

Zoning Enforcement Officer Findings, based upon inspection of MARCH 5, 2002

Unconditional [X] Meets all requirements

Conditional [ ] See list below

Following is a list of requirements determined from inspection which while not yet complete do not adversely affect use/occupancy of the premises and for which sufficient security is being held:

Signed _____ Date 3/5/02
Zoning Enforcement Officer

This is not a Certificate of Occupancy under the Building Code

RECEIVED
TOWN OF HAMDEN
AUG 26 2002
PLANNING AND ZONING DEPT.

Rev 08/1601

CROWN INTERNATIONAL

Crown Castle Atlantic LLC
Northeast Region
703 Hebron Avenue, 2nd Floor
Glastonbury, CT 06033

Tel 860 633.9369
Fax 860 633.7078
www.crowncastle.com

February 25, 2002

Mr. Joseph J. Venditto
Town of Hamden
2372 Whitney Avenue
Hamden, CT 06518

Re: Hamden Telecommunications Facility
CT Agricultural Station
Hamden, CT

Dear Mr. Venditto,

Please find enclosed two (2) stamped original as built drawings for the referenced Telecommunications facility.

Also enclosed is a copy of a letter dated January 11, 2002 from Mr. Roberts of URS Corporation the A&E firm of record for this project addressing the Bollard issue.

I am requesting that a Certificate of Zoning Compliance be issued for this project.

If you have any questions and/or need any additional information please do not hesitate to call. If I'm not in the office you can reach me on my cell phone (860) 306-0337.

Sincerely,
Crown Atlantic Company.LLC

William W. Watson
Project Manager

WWW:www

TOWN OF HAMDEN

CONNECTICUT

Draft Minutes subject to Commission approval

MINUTES: ZONING SECTION, Planning & Zoning Commission, Town of Hamden, held a Public Hearing and Regular Meeting on Tuesday, September 25, 2001 and the following were reviewed:

Commissioners in Attendance:	Mr. Crocco Mr. Del Vecchio Mr. Sims Mr. Cesare, (for Mr. Vegliante) Ms. Woodward, (for Ms. Benevides)
Staff in Attendance:	Mr. O'Brien, Town Planner Mr. Lee, Town Attorney Ms. Raccio, Stenographer Ms. Gaiolini, Clerk

Mr. Del Vecchio opened the Regular Meeting at 7:10 p.m. He introduced the Commission, and staff and gave an overview of the procedures for the evening.

A. Regular Meeting

1. Site Plan/WS 01-1308
   72 Crest Way, Lot #12
   Office/Storage
   Robert Massaro, Applicant
   Deadline: October 18, 2001

Bernard Wright, 71 Charnes Dr., East Haven, CT. Will answer any questions the Commission may have.

Mr. O'Brien stated this had been submitted several months back. There were questions from the Town Engineer, those questions have since been answered & incorporated on the map. Mr. Savarese's letter dated 9/20/01 states the plan is now satisfactory to his department. The comments from December 18th have been addressed. RWA comments dated 9/17/01. The comment on slope stabilization has already been discussed.

Mr. Del Vecchio said item #3 (stabilization) will be taken care of, it has already been discussed with the applicant. Mr. O'Brien noted the parking lot is not paved but crushed stone. Sometimes that is better with respect to drainage. Mr. Del Vecchio read the RWA letter. Mr. Wright said there are 3 dry wells to retain and also take any water coming down the slope. Also provided pipe from dry well to dry well so if 1 fills up it drains into next one. No heavy equipment to speak of. Mr. Crocco questioned location of parking and catch basins. 2 in the crushed stone part and 1 in the black top (the front is black top). Mr. Del Vecchio asked if Mr. Wright had reviewed the Town Planner's recommendations. Mr. Wright answered yes, noting the erosion and sediment control will be in place and iron pins set at a later date. As built site plan to Al Savarese. Will post bond after permit issued. Dumpster to the rear of the building. They don't need it because all they have is office space, but if required by the Town, they will provide. Mr. Crocco questioned the warehouse itself, above the office - you're not asking for storage on top? Mr. Wright answered, not right now. Mr. Crocco also asked Mr. O'Brien for clarification on the placing of corner pins & bond releases.

Mr. Sims motions to approve 01-1308 with the recommendations of the Town Planner:

- Parking location and handicapped parking to be approved by Town Planner
- Dumpster location to be approved by Town Planner
- Submit slope stabilization plan to Town Planner & Town Engineer
- Erosion sediment controls installed prior to beginning of construction
- RWA recommendations of letter dated 9/17/01 to be incorporated
- Iron pins to be set
- No outdoor storage
- Post bond prior to zoning permit

Mr. Cesare seconds. Unanimous. **APPROVED.**

B. Informational

Mr. Del Vecchio noted Item B is Informational. There is actually no action being taken on either of these 2 items. These are administrative bond releases. This Commission has voted and given the Town Planner the authority to release up to $15,000.00. Both released per Roger O'Brien.

1. Site Plan 00-1263
   890 Evergreen Ave./Rockwood Farms
   Administrative Bond Release $15,000.00
   Requested by Crown Castle

2. Site Plan 01-1307
   88 Mulberry Hill Rd.
   Single Family Lot
   Bond Release $2,200.00
   Requested by Joan Wagner

C. Approval of Minutes

1. Approve Minutes of June 26, 2001 Regular Meeting. (Mr. Sims, Mr. Crocco & Mr. Del Vecchio were present at that meeting and can vote). Mr. Crocco motions to approve as written. Mr. Sims seconds. **APPROVED.**

2. Approve Minutes of July 24, 2001 Regular Meeting. Mr. Sims motions to approve as written. Mr. Crocco seconds. **APPROVED.**

Ms. Woodward motions to adjourn. Mr. Cesare seconds. Closed at 7:30 p.m.

Submitted by: D. Gaiolini
Deborah Gaiolini, Clerk

Exhibit B

Property Card

Town of Hamden, CT

Property Listing Report

Map Block Lot	Account

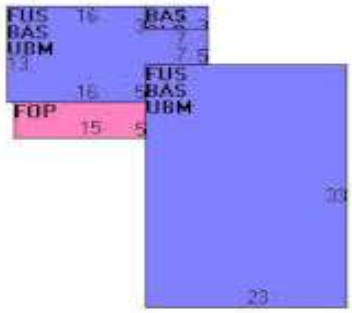
Property Information

Property Location	
Owner	
Co-Owner	
Mailing Address	
Land Use	
Land Class	
Zoning Code	
Census Tract	
Sub Lot	
Neighborhood	
Acreage	
Lot Setting/Desc	
Survey Map	
Utilities	
Additional Info	

Photo

2930-081-00-0000 04/23/2015

Sketch



Primary Construction Details

Year Built	
Stories	
Building Style	
Building Use	
Building Condition	
Floors	
Total Rooms	

Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	
Roof Cover	

Exterior Walls	
Interior Walls	
Heating Type	
Heating Fuel	
AC Type	
Gross Bldg Area	
Total Living Area	

Report Created On

Town of Hamden, CT

Property Listing Report | **Map Block Lot** | **Account**

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings		
Extras		
Outbuildings		
Land		
Total		

Outbuilding and Extra Items

Type	Description

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area		

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price

Report Created On

nformation Viewer

Map | Help | Select | View Legend | Base Maps / Air Photos

890 EVERGREEN AVE

MBL : 2930-081-00-0000
Owner : CONN AGRICULTURAL EXPT STATION
Acres : 53.04
Zoning : R4

Parcel Details | Quick Map | Property Card | BirdsEye Photo

Generate Abutters: 100 Ft: Submit

Next Extent | Pan | **Parcel Information** | Simple Measure | Path Measure | Area Measure

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOHVN00153A

DISH Wireless L.L.C. SITE ADDRESS:

890 EVERGREEN AVENUE
HAMDEN, CT 06518

CONNECTICUT CODE OF COMPLIANCE

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

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

SHEET INDEX

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 PIPE MOUNTS
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE
- REMOVE EXISTING ANTENNAS AT 65'-0" AGL

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- 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)
- DISH Wireless, L.L.C. TO UTILIZE EXISTING METER SOCKET #016037389 AND DISCONNECT

SITE PHOTO

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

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

GENERAL NOTES

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

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

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

SITE INFORMATION

PROPERTY OWNER:	CONN AGRICULTURAL EXPT STATION
ADDRESS:	890 EVERGREEN AVE HAMDEN, CT 06518
TOWER TYPE:	SELF SUPPORT
CROWN CASTLE SITE ID:	800529
CROWN CASTLE APP NUMBER:	552718
COUNTY:	NEW HAVEN
LATITUDE (NAD 83):	41° 24' 23.90" N 41.406639° N
LONGITUDE (NAD 83):	72° 54' 16.32" W 72.904533° W
ZONING JURISDICTION:	R4
ZONING DISTRICT:	CONNECTICUT SITING COUNCIL
PARCEL NUMBER:	001144290
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	UNITED ILLUMINATING CO
TELEPHONE COMPANY:	LIGHTOWER

PROJECT DIRECTORY

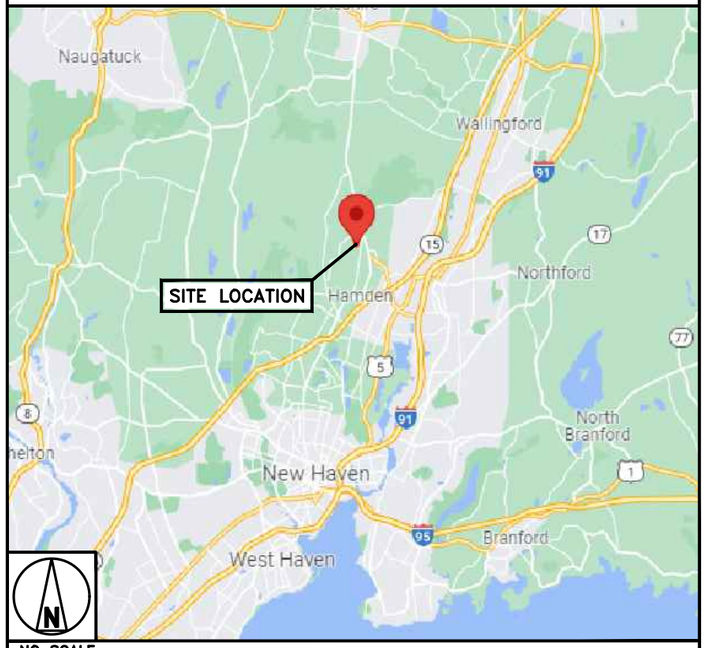
APPLICANT:	DISH WIRELESS, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	KIMLEY-HORN & ASSOCIATES 3875 EMBASSY PKWY, SUITE 280 AKRON, OH 44333 (216) 505-7771 COA #: PEC.0000738
SITE ACQUISITION:	VICTOR NUNEZ VICTOR.NUNEZ@CROWNCASTLE.COM
CONSTRUCTION MANAGER:	JAVIER SOTO JAVIER.SOTO@DISH.COM
RF ENGINEER:	SYED ZAIDI SYED.ZAIDI@DISH.COM

03/01/22
Exp. 01/31/23

DIRECTIONS

DIRECTIONS FROM WATERBURY-OXFORD AIRPORT:
- GET ON I-84 E IN MIDDLEBURY FROM AIRPORT ROAD AND CT-188 N
- FOLLOW I-84 E TO CT-70 E IN CHESHIRE. TAKE EXIT 26 FROM I-84 E
- TURN RIGHT ONTO CT-70 E
- TURN RIGHT ONTO MAIN ST
- FOLLOW CT-10 S TO EVERGREEN AVE IN HAMDEN

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN K. BREWER
29510
LICENSED
PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
DJM	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/16/2021	ISSUED FOR REVIEW
0	03/01/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16238

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

SHEET TITLE

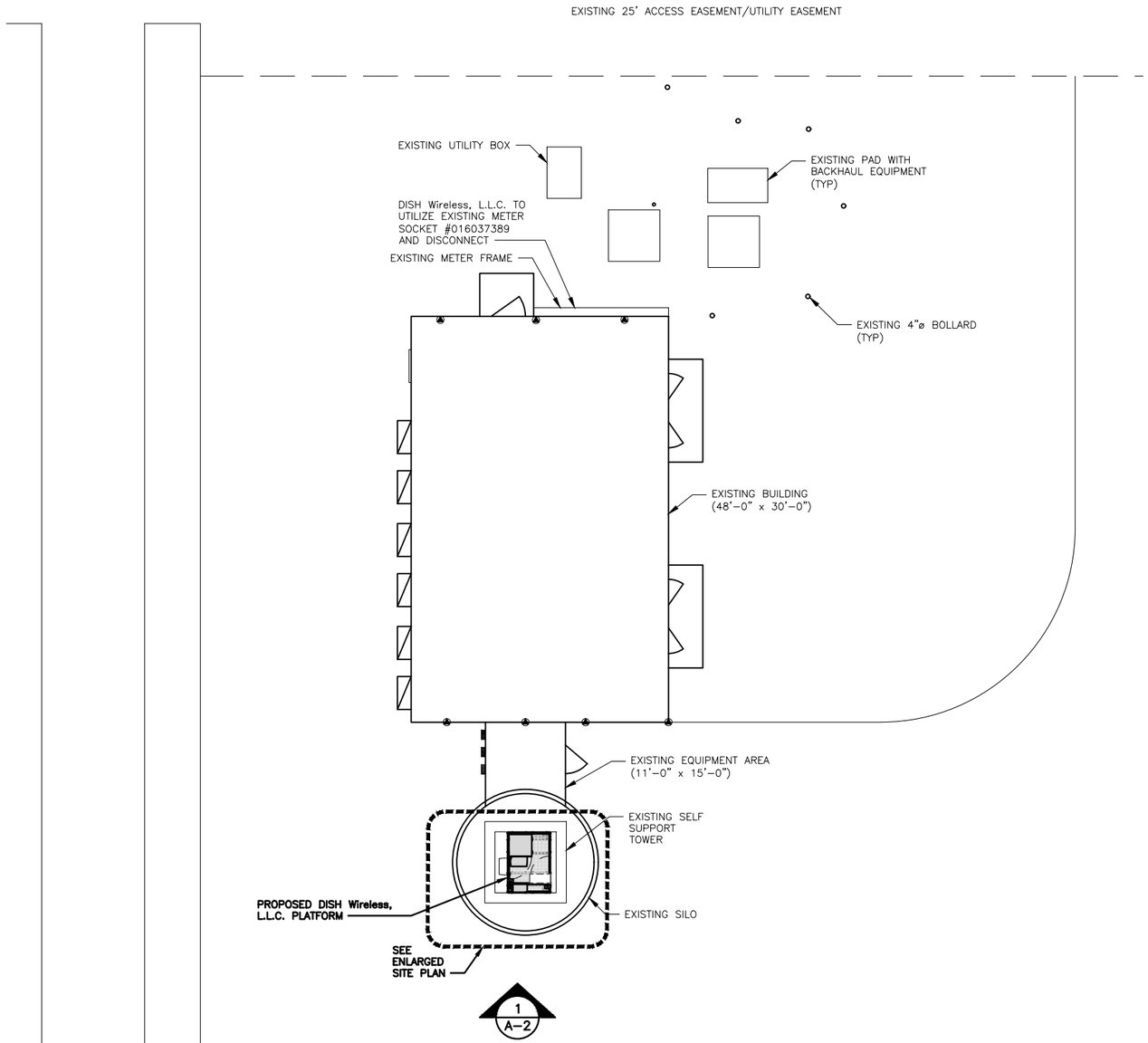
TITLE SHEET

SHEET NUMBER

T-1

NOTES

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



N

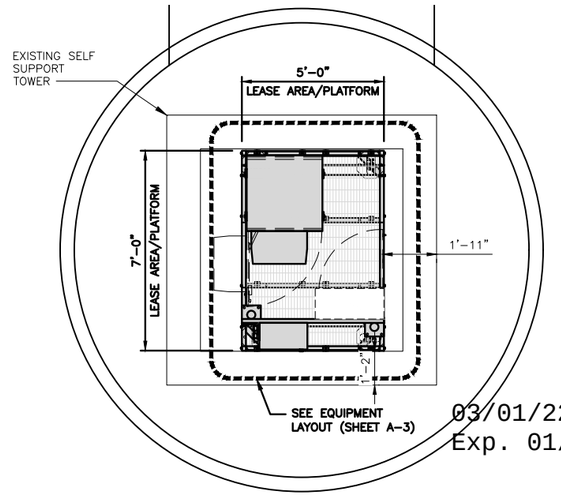
OVERALL SITE PLAN

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

1

NOTES

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



03/01/22
Exp. 01/31/23

N

ENLARGED SITE PLAN

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

2

OVERALL UTILITY ROUTE PLAN

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN K. BREWER
29510
LICENSED
PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
DJM	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/16/2021	ISSUED FOR REVIEW
0	03/01/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16238

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

SHEET TITLE

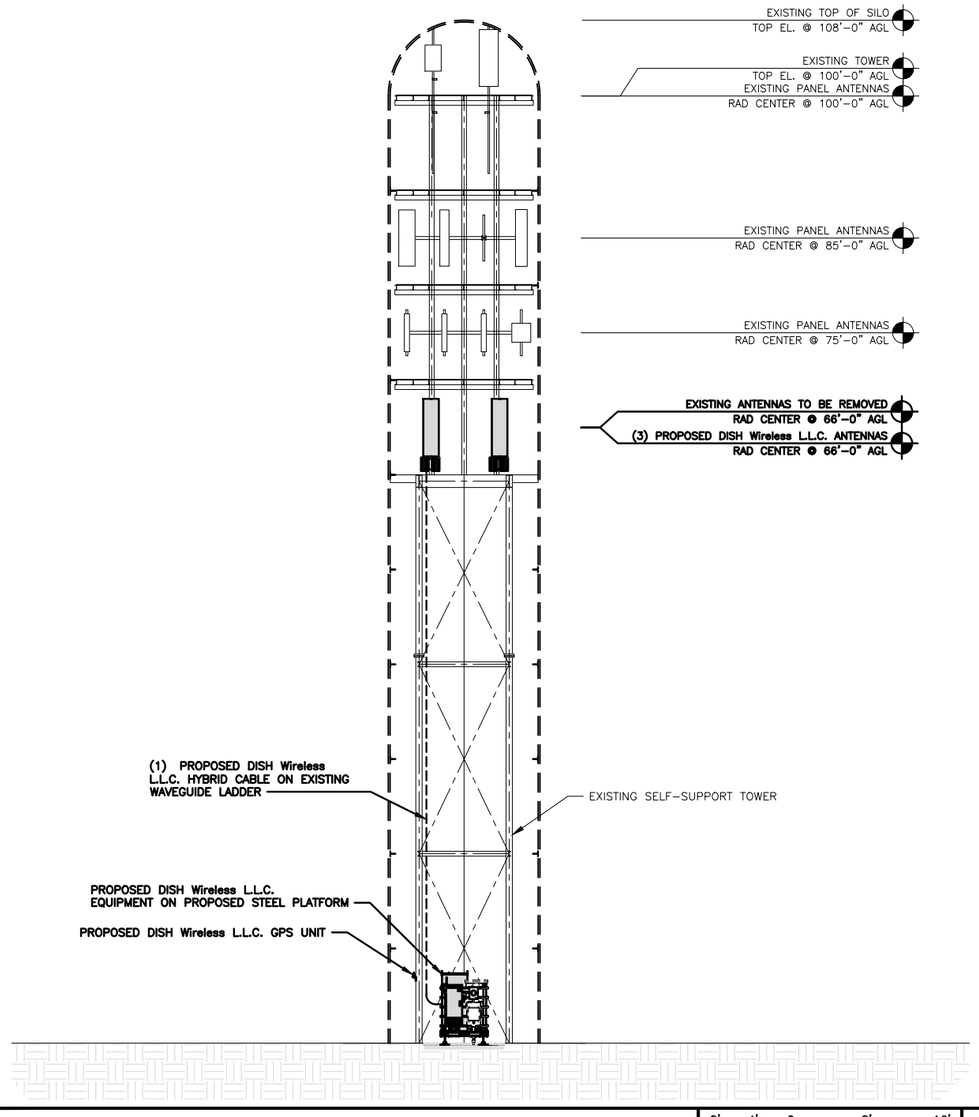
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

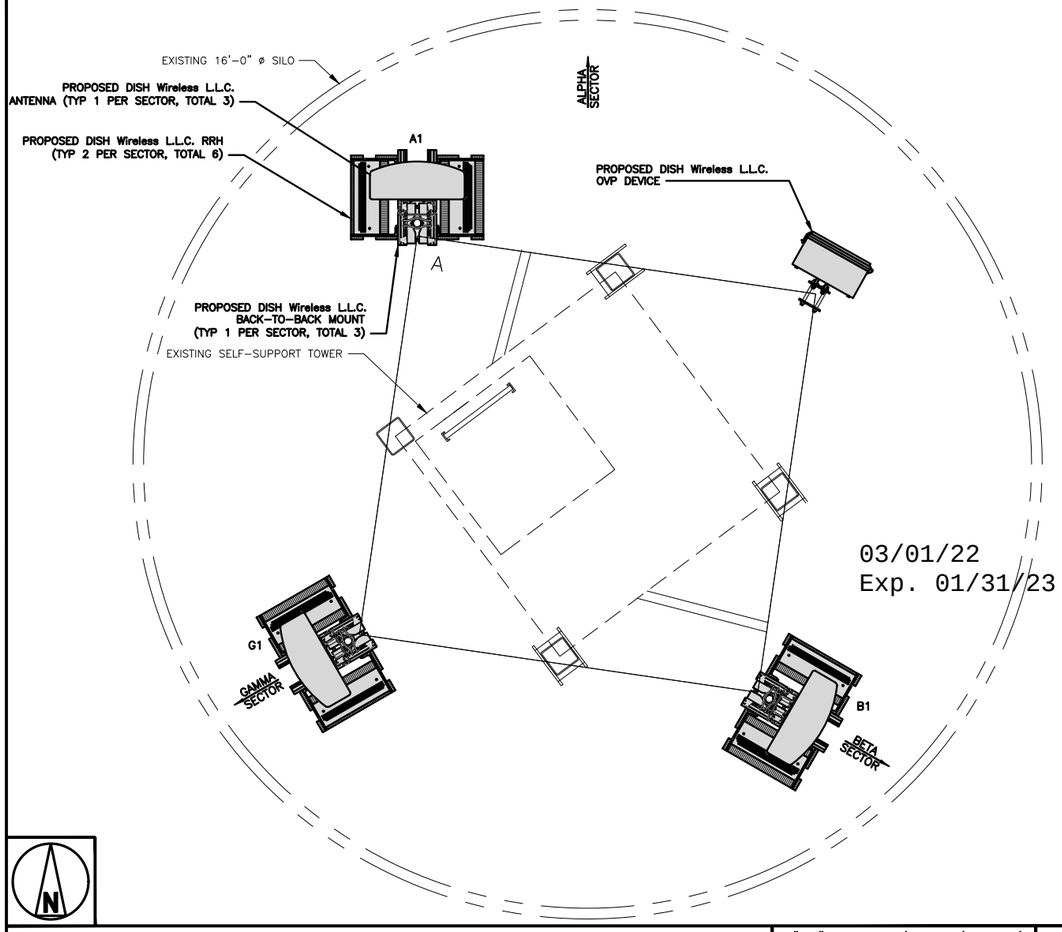
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED SOUTH ELEVATION

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

1



ANTENNA LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	0°	66'-0"	(1) HIGH-CAPACITY HYBRID CABLE (90'-0" LONG)
BETA	B1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	120°	66'-0"	
GAMMA	G1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	240°	66'-0"	

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

NOTES

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

ANTENNA SCHEDULE

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN BREWER
29510
LICENSED
PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
DJM	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/16/2021	ISSUED FOR REVIEW
0	03/01/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16238

DISH Wireless L.L.C.
PROJECT INFORMATION

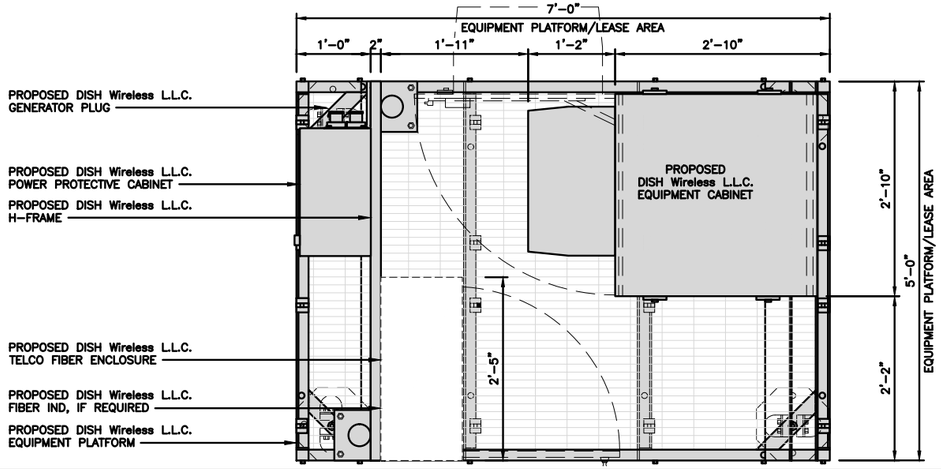
BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



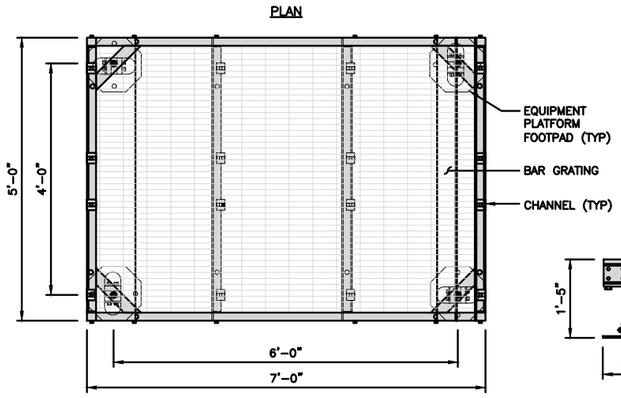
PLATFORM EQUIPMENT PLAN

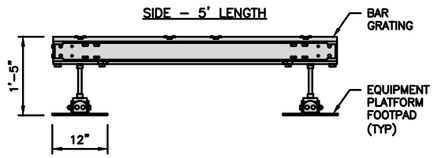
12" 9" 6" 3" 0 1' 2'
1"=1'-0"

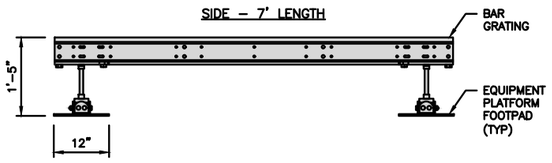
1

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

NOTE:
1. GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"
2. PLATFORM TO BE LEVEL WITHIN 1"

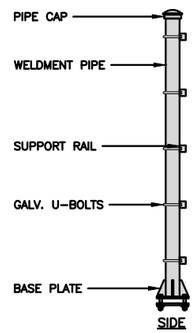






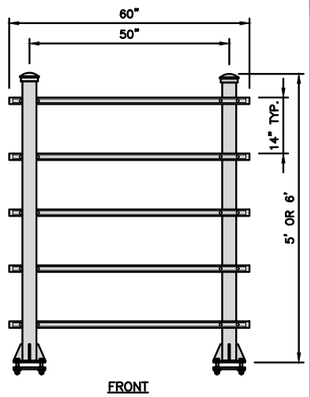
PLATFORM DETAIL | NO SCALE | 2

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



SIDE

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



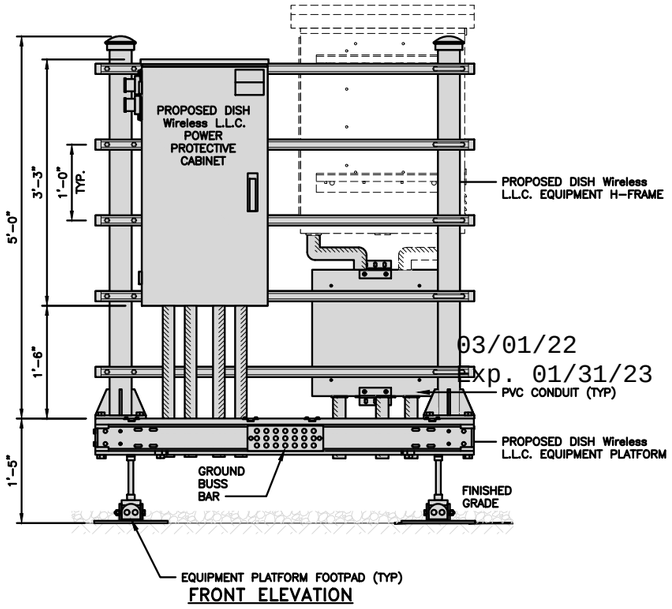
FRONT

H-FRAME DETAIL | NO SCALE | 3

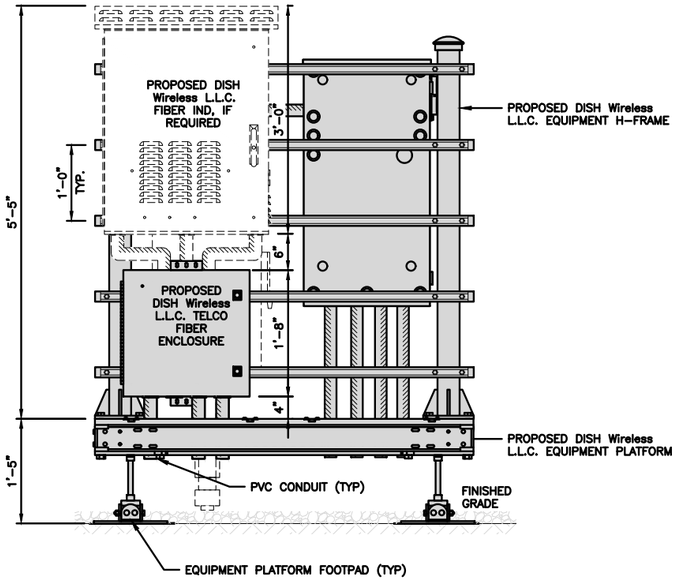
NOT USED | NO SCALE | 4

NOTES

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



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION | 12" 9" 6" 3" 0 1' 2' 1"=1'-0" | 5

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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn
COA #: PEC.0000738
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RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN K. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

03/01/22
Exp. 01/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
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890 EVERGREEN AVENUE
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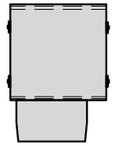
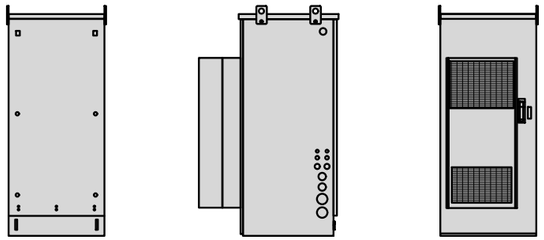
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

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



PLAN

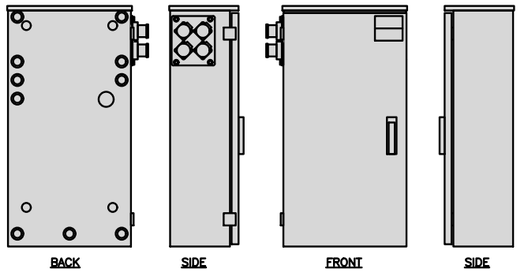


BACK SIDE FRONT

CABINET DETAIL | NO SCALE | 1

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

TOP



BACK SIDE FRONT SIDE

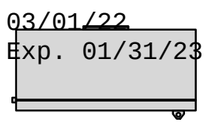
POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

NOT USED | NO SCALE | 3

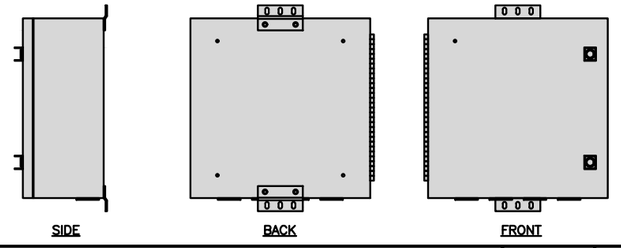
NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

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



FRONT

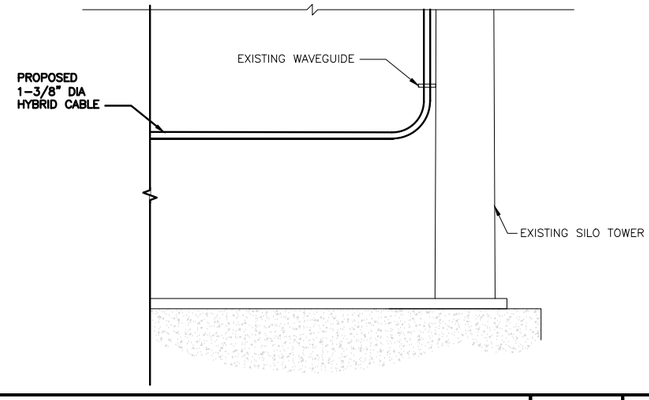


SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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LITTLETON, CO 80120

Kimley»Horn
COA #: PEC.0000738
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RALEIGH, NC 27601

STATE OF CONNECTICUT BRIAN J. BREWER 29510 LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
DJM	MCK	---

RFDS REV #: ---

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

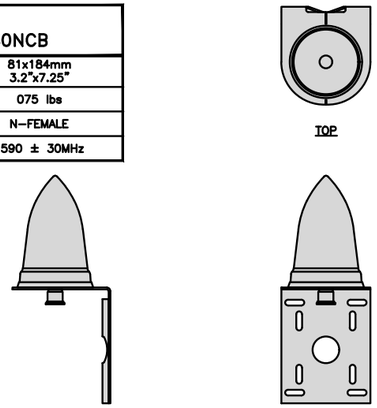
SHEET TITLE

EQUIPMENT DETAILS

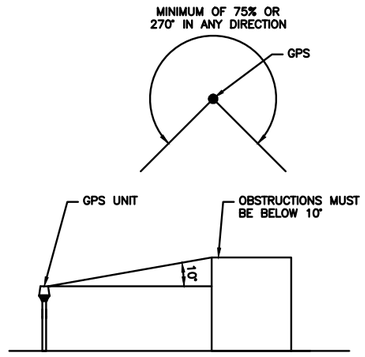
SHEET NUMBER

A-4

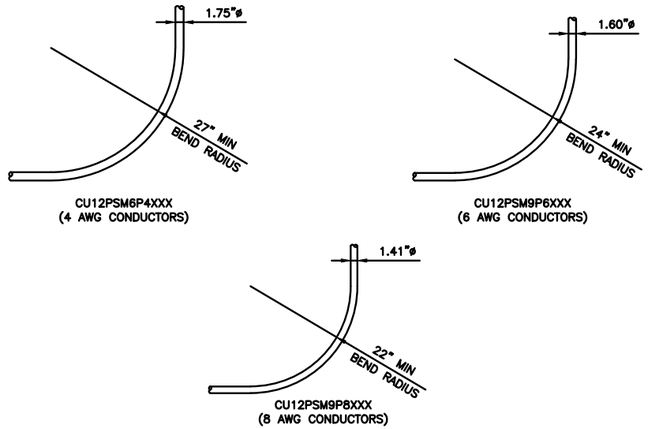
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



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

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

03/01/22
Exp. 01/31/23

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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn
COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
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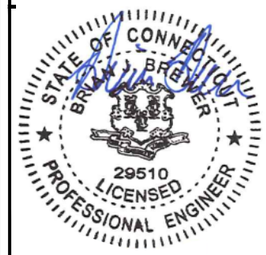

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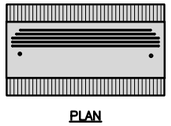
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

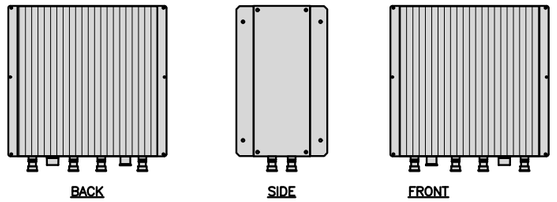
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

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



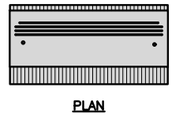
PLAN



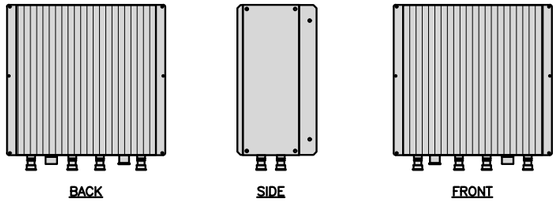
BACK SIDE FRONT

RRH DETAIL | NO SCALE | 1

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



PLAN

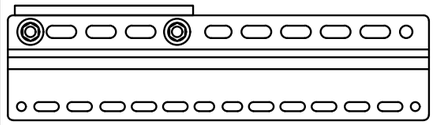


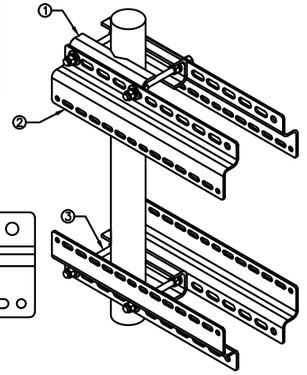
BACK SIDE FRONT

RRH DETAIL | NO SCALE | 2

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

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



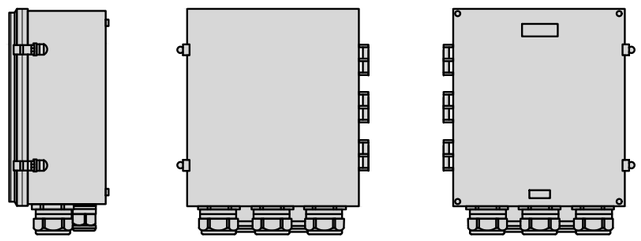


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

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

PLAN

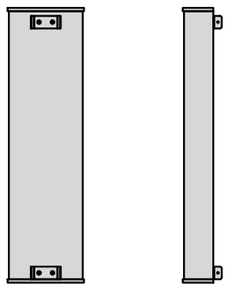


SIDE BACK FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 4

JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	82.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE

PLAN



BACK SIDE FRONT

ANTENNA DETAIL | NO SCALE | 5

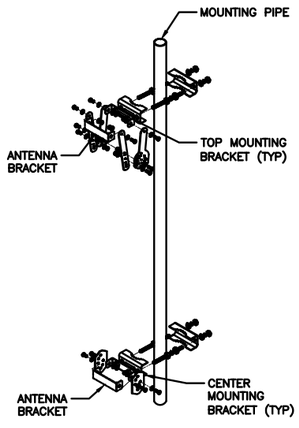
03/01/22
Exp. 01/31/23

NOT USED | NO SCALE | 6

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

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

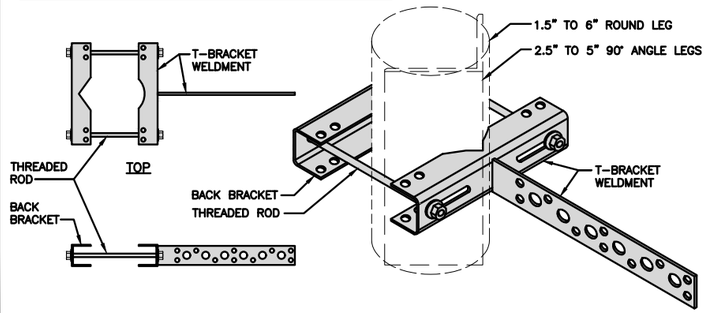
ANTENNA BRACKET NOT PART OF KIT



ANTENNA BRACKET DETAIL | NO SCALE | 7

NOT USED | 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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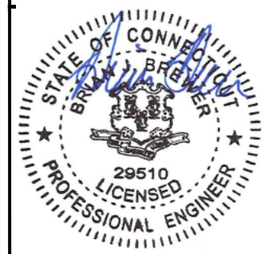

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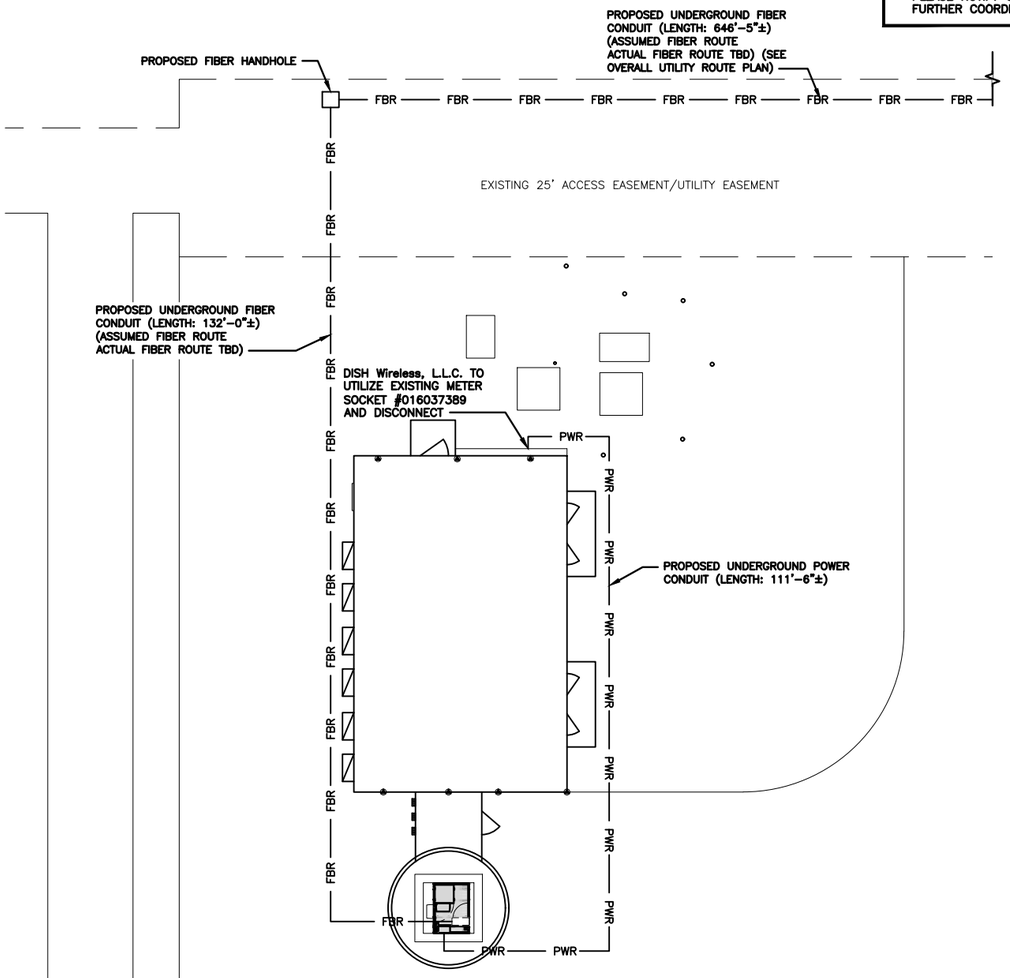
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. DUE TO UTILITY EASEMENT RIGHTS SPECIFIED IN THE GROUND LEASE, CUSTOMER MAY INSTALL EQUIPMENT WITHIN SPECIFIED UTILITY EASEMENT AREA. "PWR" AND "FBR" PATH DEPICTED ON A–1 AND E–1 REPRESENT PLANNED ROUTING BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO A SURVEY, EXHIBITS, METES AND BOUNDS OF THE UTILITY EASEMENT, FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS MATERIALLY INCONSISTENT WITH THE "PWR" AND "FBR" PATH DEPICTED ON A–1 AND E–1 AND SAID VARIANCE IS NOT NOTED ON CDS, PLEASE NOTIFY CROWN CASTLE REAL ESTATE AS FURTHER COORDINATION MAY BE NEEDED.



UTILITY ROUTE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'–0"

1

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

08/31/22
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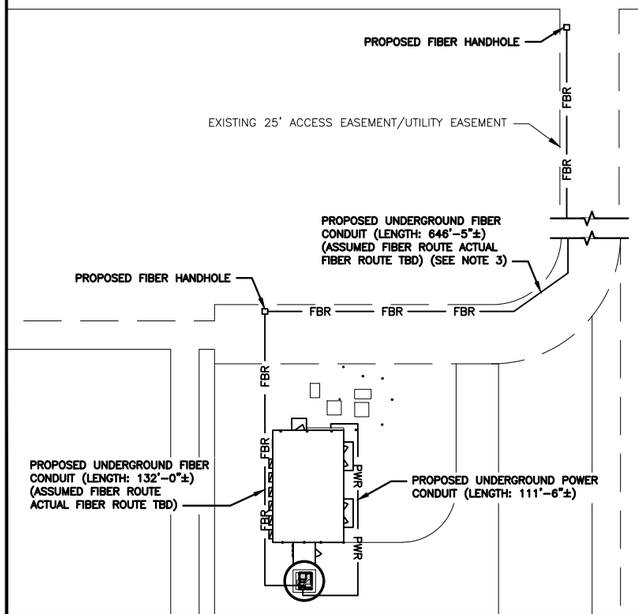
ELECTRICAL NOTES

NO SCALE

2

KENWOOD AVENUE



OVERALL UTILITY ROUTE PLAN

32' 24'16' 8' 0 32' 64'
1/32"=1'–0"

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN K. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
DJM	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/16/2021	ISSUED FOR REVIEW
0	03/01/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE–16238

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

SHEET TITLE

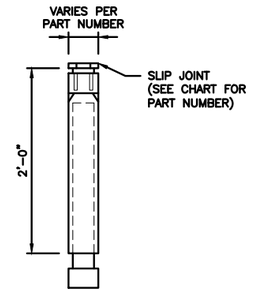
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

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"

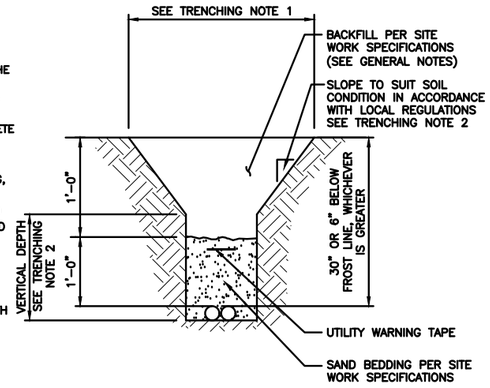


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

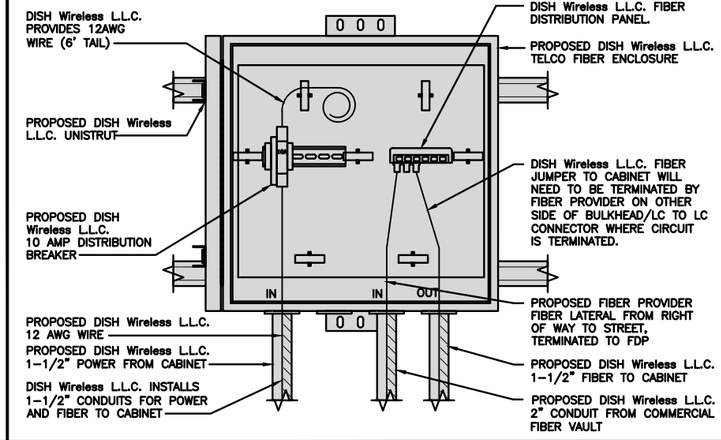
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

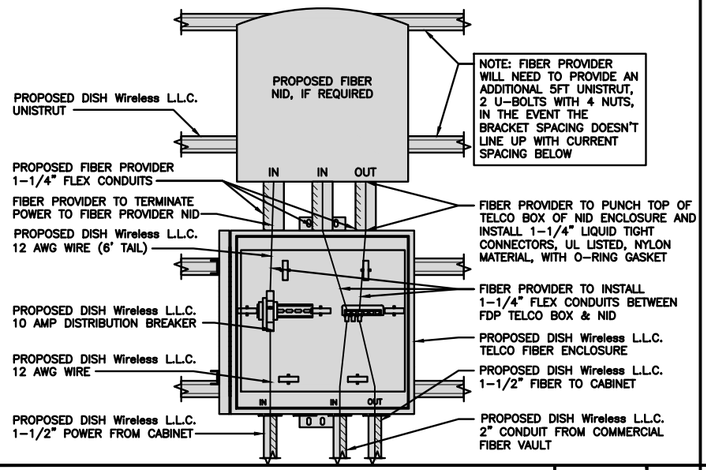
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



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



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

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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Exp. 01/31/23

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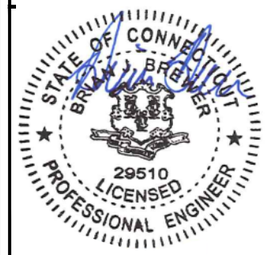
RALEIGH, NC 27601



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DJM	MCK	---

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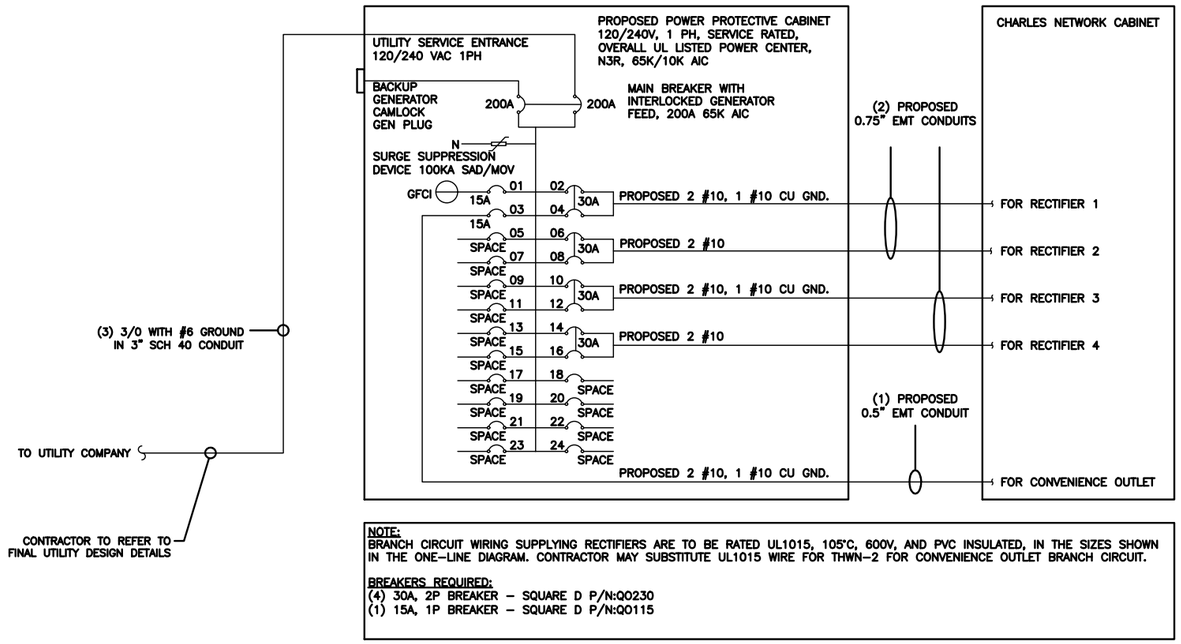
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



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

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

NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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PPC ONE–LINE DIAGRAM — NO SCALE — 1

PROPOSED CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
–SPACE–				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
–SPACE–				7	B	8			2880	
–SPACE–				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
–SPACE–				11	B	12			2880	
–SPACE–				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
–SPACE–				15	B	16			2880	
–SPACE–				17	A	18				–SPACE–
–SPACE–				19	B	20				–SPACE–
–SPACE–				21	A	22				–SPACE–
–SPACE–				23	B	24				–SPACE–
VOLTAGE AMPS	180	180						11520	11520	
200A MCB, 1Φ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			11700		11700		VOLTAGE AMPS			
			98		98		AMPS			
			98				MAX AMPS			
			123				MAX 125%			

PANEL SCHEDULE — NO SCALE — 2

NOT USED — NO SCALE — 3

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STATE OF CONNECTICUT — BRIAN D. BREWER — 29510 — LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
DJM	MCK	---

RFDS REV #: ---

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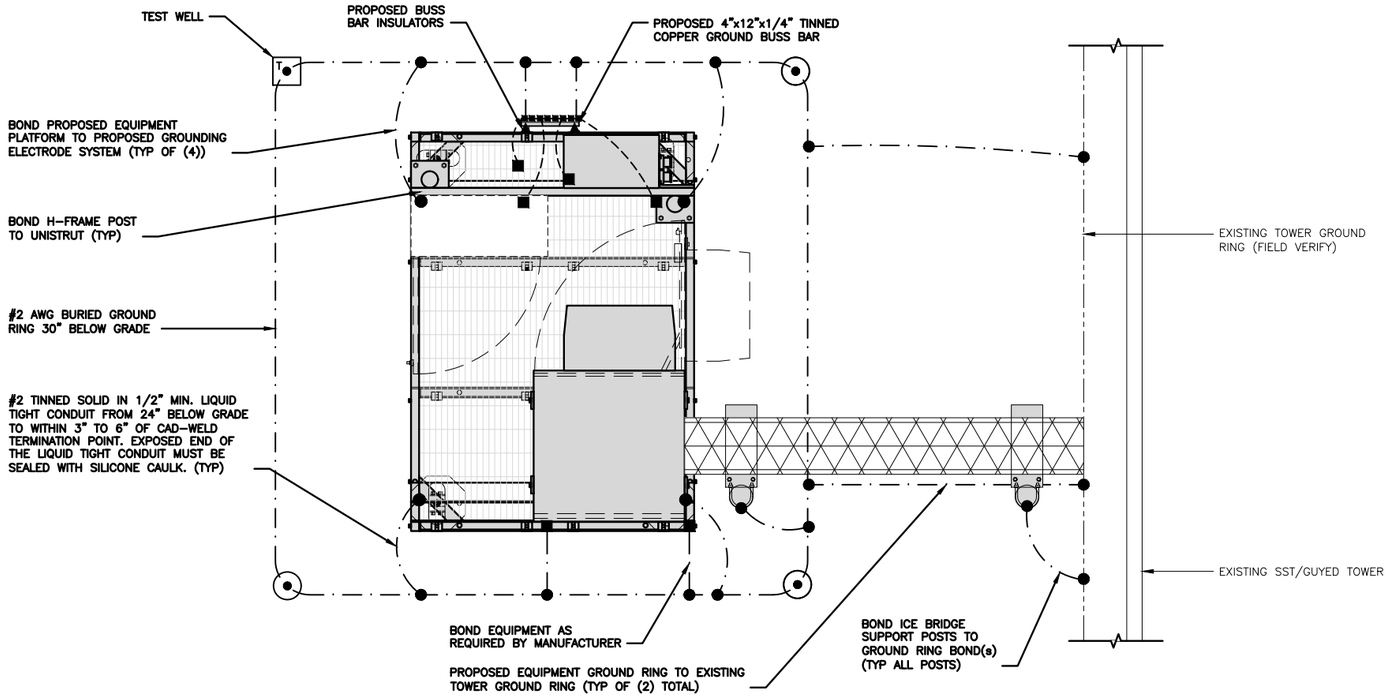
A&E PROJECT NUMBER
KHCLE–16238

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

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

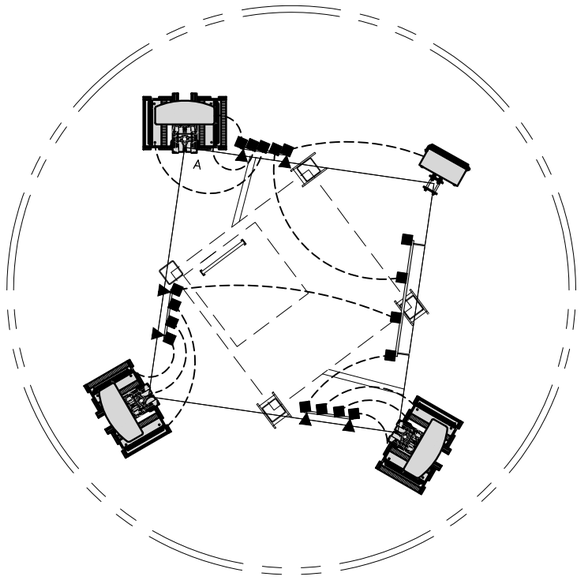
SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GROUNDING KEY NOTES | NO SCALE | 3

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STATE OF CONNECTICUT · BRIAN BREWER · 29510 · LICENSED PROFESSIONAL ENGINEER
10/31/22
Exp. 01/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
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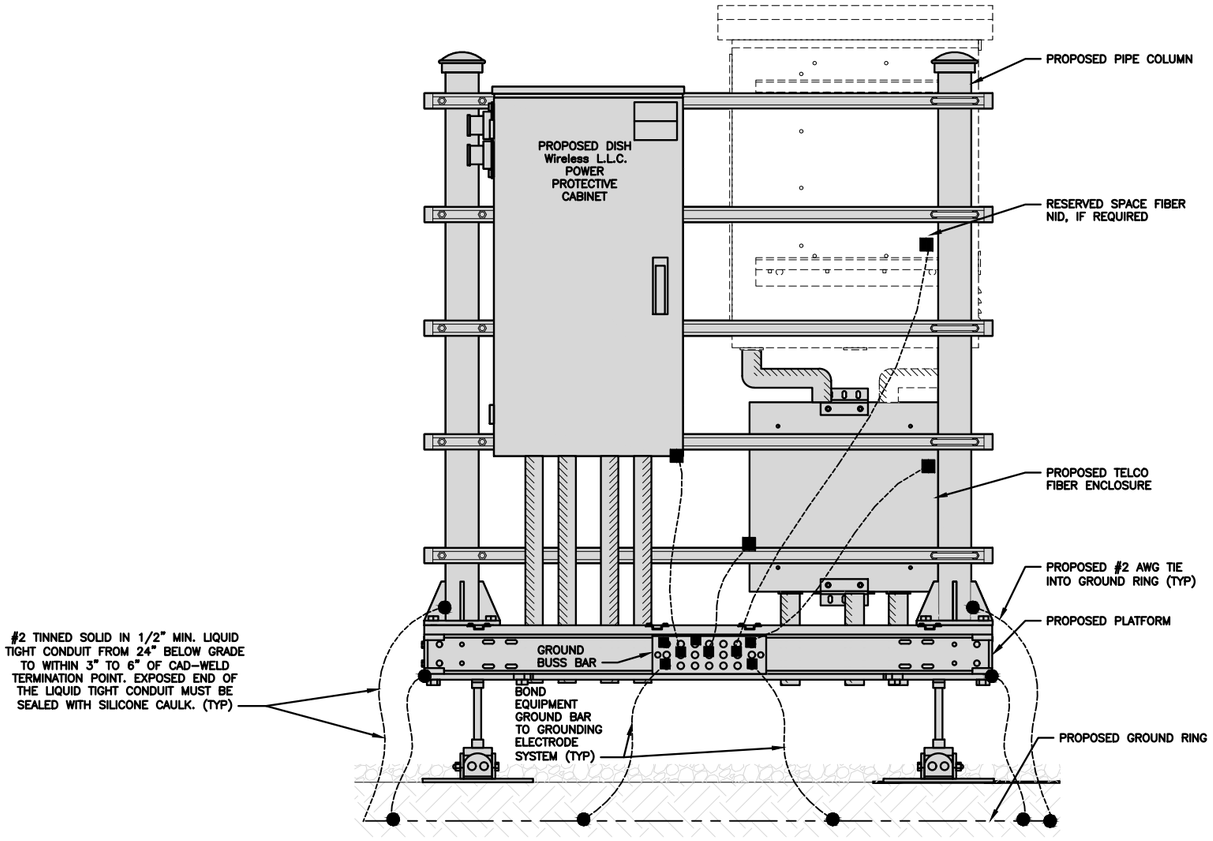
PROJECT INFORMATION
BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

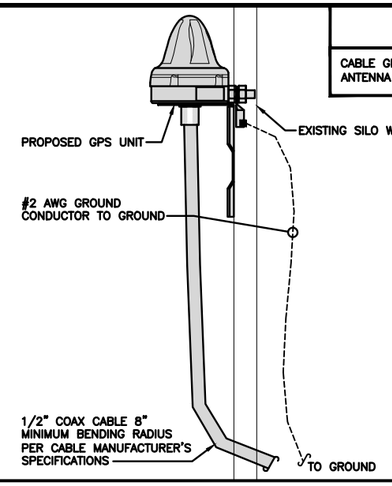
EQUIPMENT CABINET OMITTED FOR CLARITY



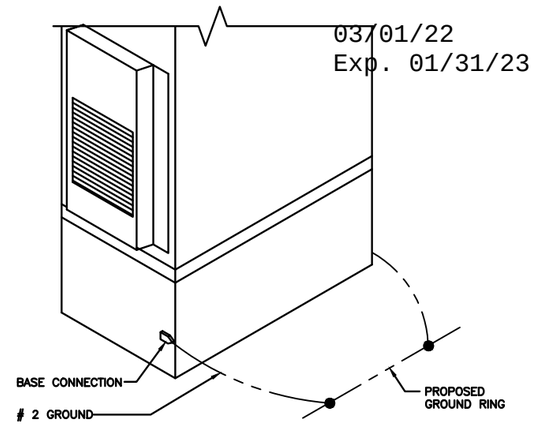
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

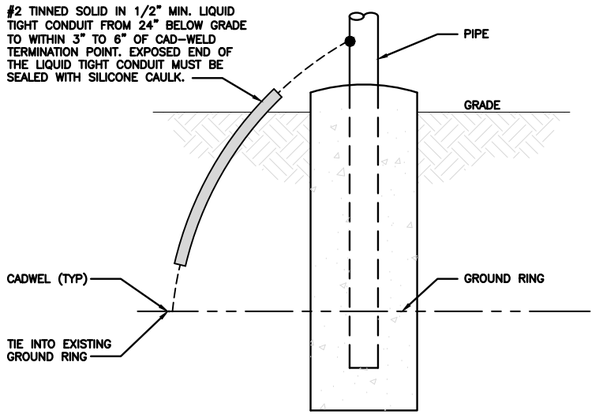
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



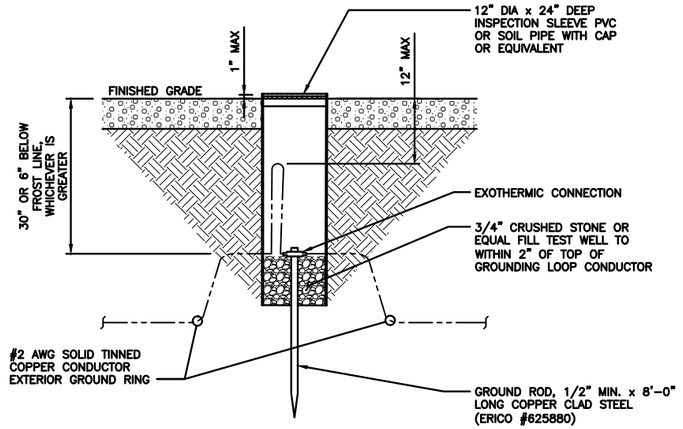
GPS UNIT GROUNDING | NO SCALE | 2



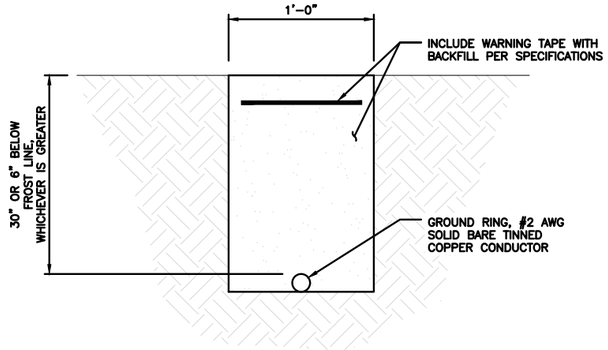
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT · BRIAN BREWER · 29510 · LICENSED PROFESSIONAL ENGINEER

03/01/22
Exp. 01/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
DJM	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/16/2021	ISSUED FOR REVIEW
0	03/01/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16238

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

SHEET TITLE

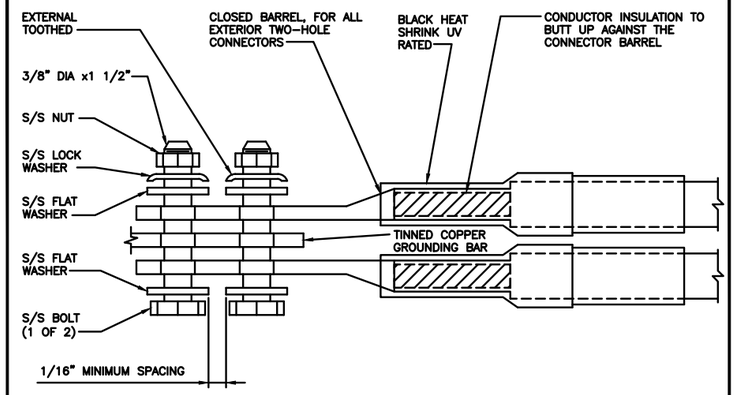
GROUNDING DETAILS

SHEET NUMBER

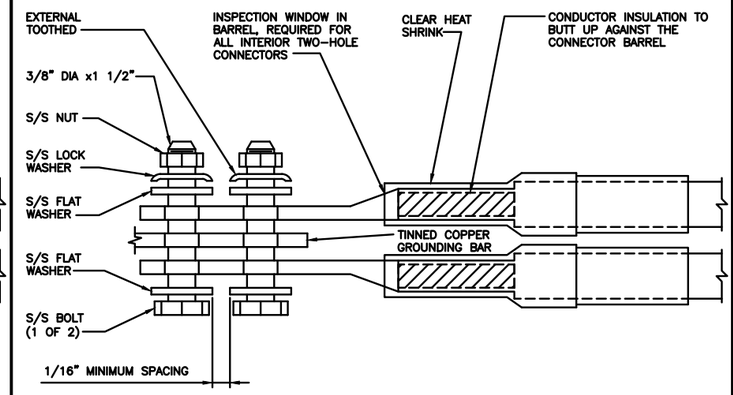
G-2

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).

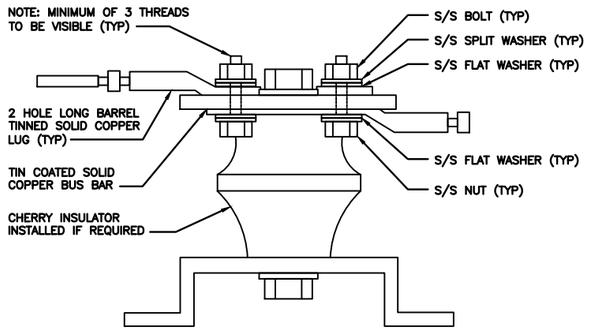
TYPICAL GROUNDING NOTES | NO SCALE | 1



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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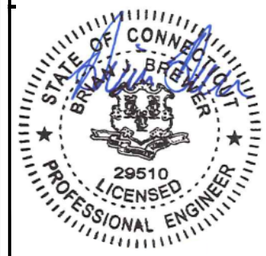

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HAMDEN, CT 06518

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

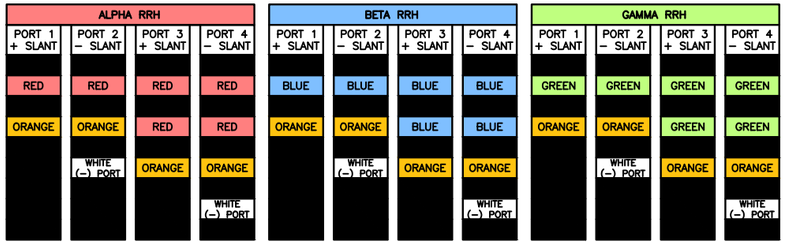
G-3

RF JUMPER COLOR CODING

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

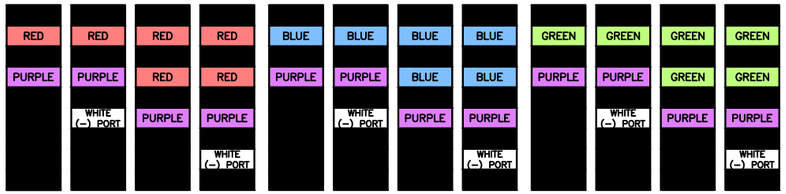
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

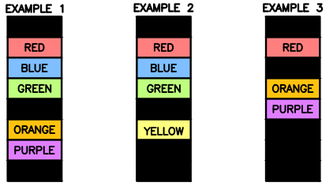


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

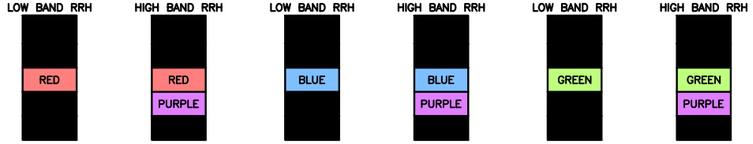
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



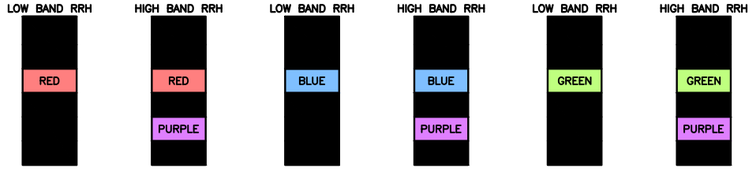
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

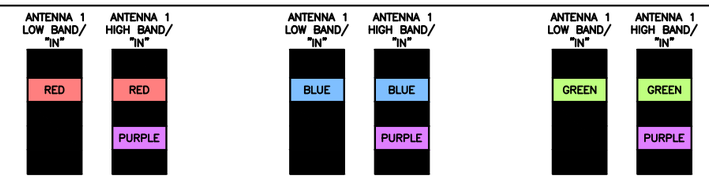


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



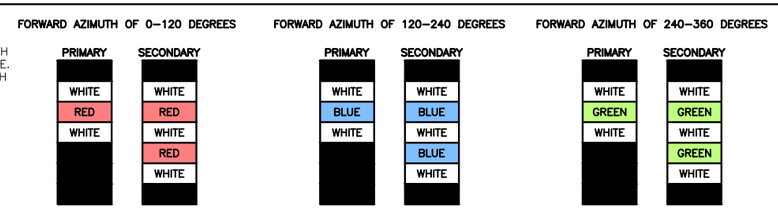
RET MOTORS AT ANTENNAS



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



LOW BANDS (N71+N26)
OPTIONAL – (N29)
ORANGE

AWS
(N66+N70+H-BLOCK)
PURPLE

CBRS TECH
(3 GHz)
YELLOW

NEGATIVE SLANT PORT
ON ANT/RRH
WHITE

ALPHA SECTOR
RED

BETA SECTOR
BLUE

GAMMA SECTOR
GREEN

COLOR IDENTIFIER	NO SCALE	2

03/01/22
Exp. 01/31/23

NOT USED	NO SCALE	3

RF CABLE COLOR CODES	NO SCALE	1

NOT USED	NO SCALE	4

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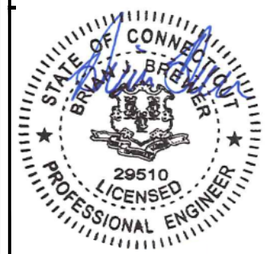

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DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER
RF-1

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH — $

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

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

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE — X X X X

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W W W W W

UNDERGROUND POWER — UGP UGP UGP UGP UGP

UNDERGROUND TELCO — UGT UGT UGT UGT UGT

OVERHEAD POWER — OHP OHP OHP OHP

OVERHEAD TELCO — OHT OHT OHT OHT

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

ABOVE GROUND POWER — AGP AGP AGP AGP AGP

ABOVE GROUND TELCO — AGT AGT AGT AGT AGT

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

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

ABBREVIATIONS

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

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HAMDEN, CT 06518

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.

dish wireless.

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BRIAN C. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

03/01/22
Exp. 01/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
DJM	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

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0	03/01/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE–16238

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

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.

03/01/22
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STATE OF CONNECTICUT
BRIAN K. BREWER
29510
LICENSED
PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
DJM	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/16/2021	ISSUED FOR REVIEW
0	03/01/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16238

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

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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PROJECT INFORMATION

BOHVN00153A
890 EVERGREEN AVENUE
HAMDEN, CT 06518

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Date: **September 13, 2021**

GPD Engineering and Architecture
Professional Corporation

520 South Main Street Suite 2531
Akron, Ohio 44311
(216) 927-8663

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Dish Wireless* Co-Locate**	
	Site Number:	BOHVN00153A
	Site Name:	CT-CCI-T-800529
Crown Castle Designation:	**BU Number:**	800529
	Site Name:	CT HAMDEN NORTH CAC
	JDE Job Number:	644583
	Work Order Number:	1967614
	Order Number:	552718 Rev. 3
Engineering Firm Designation:	**GPD Project Number:**	2021777.800529.12
Site Data:	**890 Evergreen Avenue, Hamden, New Haven County, CT 06518**	
	Latitude *41° 24' 23.9"*, Longitude *-72° 54' 16.32"*	
	100 Foot – Stealth Self Support Tower	

We are pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

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

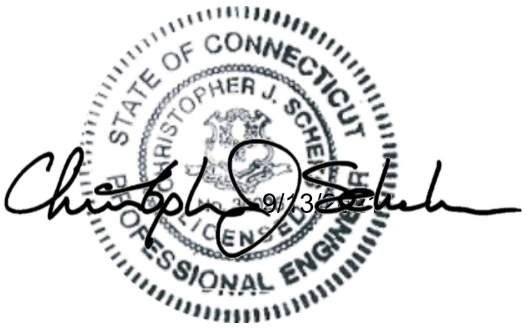
LC7: Proposed Equipment Configuration **Sufficient Capacity – 49.5%**

This analysis utilizes an ultimate 3-second gust wind speed of 119 mph as required by the 2012/2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Krisli Mocka

Respectfully submitted by:

Christopher J. Scheks, P.E.
Connecticut # 0030026



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1) INTRODUCTION

This tower is a 100 ft Self Support tower designed by Stealth Network Technologies Inc. in December of 2000.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	119 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
65.0	67.0	1	Raycap	RDIDC-9181-PF-48	1	1-3/8
	66.0	3	JMA Wireless	MX08FRO665-21		
		3	Fujitsu	TA08025-B605		
	64.0	3	Fujitsu	TA08025-B604		

Table 2 – Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
100.0	104.0	3	RFS/Celwave	APXVAA4L18_43-U-NA20_TMO	6	1-5/8
		3	Ericsson	AIR6449 B41_T-MOBILE		
		3	Ericsson	RADIO 4415 B66A_CCIV3		
		6	Ericsson	RADIO 2212 B2		
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE		
	100.0	3	Site Pro 1	USF-2U Standoff Frame		
		3	Site Pro 1	P360 Horizontal Pipe		
		6	Site Pro 1	P272 Mount Pipe		
95.0	98.0	3	Samsung Telecommunications	RFV01U-D2A	6 2	1-5/8 1-1/4
	95.0	3	Antel	BXA-80080/4CF		
		6	Commscope	JAHH-65B-R3B		
		3	VZW	Sub6 Antenna - VZS01		
		3	Commscope	CBC78TDS-43-2X		
		2	RFS Celwave	DB-T1-6Z-8AB-0Z		
		3	Samsung Telecommunications	RFV01U-D1A		
		3	Samsung Telecommunications	RFV01U-D2A		
85.0	85.0	3	CCI Antennas	HPA-65R-BUU-H6	6 2 5	7/8 3/8 3/4
		3	CCI Antennas	DMP65R-BU6D		
		3	CCI Antennas	OPA65R-BU6BA-K		
		1	Raycap	DC6-48-60-18-8F		
		1	Raycap	DC9-48-60-24-8C-EV		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RADIO 4415 B30		
		3	Ericsson	RRUS 4426 B66		
		3	Ericsson	RRUS 4449 B5/B12		
75.0	75.0	2	CSA Wireless	A-18A24N-U	11	1-1/4
		10	Decibel	DB844H90E-XY		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Geotechnical Reports	6400183	CCISITES
Tower Foundation Drawings/Design/Specs	671923	CCISITES
Tower Manufacturer Drawings	605026	CCISITES
Tower Structural Analysis Letter	6316916	CCISITES
Tower Structural Analysis	9669177	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0) and RISA 3D (Version 17.0.2), commercially available analysis software packages, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

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

This analysis may be affected if any assumptions or items in Table 3 are not valid or have been made in error. GPD should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	% Capacity	Pass / Fail
L1	100 - 90	Leg	HSS6x6x1/4	5.8	Pass
		Diagonal	2L2x2x3/16x1/2	7.0	Pass
		Top Girt	C6x10.5	5.0	Pass
L2	90 - 80	Leg	HSS6x6x1/4	7.3	Pass
		Diagonal	2L2x2x3/16x1/2	14.9	Pass
		Top Girt	C6x10.5	5.8	Pass
L3	80 - 70	Leg	HSS6x6x1/4	12.5	Pass
		Diagonal	2L2x2x3/16x1/2	22.5	Pass
		Top Girt	C6x10.5	5.9	Pass
L4	70 - 60	Leg	HSS6x6x1/4	27.4	Pass
		Diagonal	2L2x2x3/16x1/2	30.8	Pass
		Top Girt	C6x10.5	6.1	Pass
L5	60 - 40	Leg	HSS8x8x1/4	14.4	Pass
		Diagonal	2L4x4x3/8x1/2	14.0	Pass
		Top Girt	W16x45	46.7	Pass
		Inner Bracing	W10x33	49.5	Pass
L6	40 - 20	Leg	HSS8x8x1/4	28.4	Pass
		Diagonal	2L4x4x3/8x1/2	20.9	Pass
		Top Girt	W6x12		Pass
L7	20 - 0	Leg	HSS8x8x1/4	37.8	Pass
		Diagonal	2L4x4x3/8x1/2	29.6	Pass
		Top Girt	W6x12		Pass
				Summary	
			Leg	37.8	Pass
			Diagonal	308	Pass
			Top Girt	46.7	Pass
			Inner Bracing	49.5	Pass
			Bolt Checks	49.0	Pass
			Rating =	49.5	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	0.0	30.1	Pass
1,2	Base Foundation Reinforcement	0.0	11.2	Pass
1,2	Base Foundation Soil Interaction	0.0	32.0	Pass

Structure Rating (max from all components) =	49.5%

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

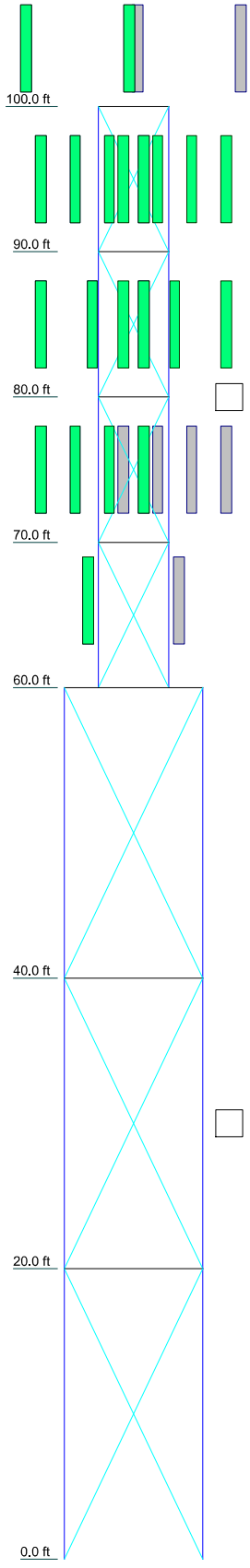
4.1) Recommendations

The tower has sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

PROGRAM OUTPUT

Section	Legs	Leg Grade	Diagonals	Diagonal Grade	Top Girts	Face Width (ft)	# Panels @ (ft)	Weight (lb)
T3								5841.2
T2	HSS8x8x1/4		2L4x4x3/8x1/2		W6x12	9.52083	3 @ 20	5841.2
T1		A500-46		A36	W16x45			7104.7
L4	HSS6x6x1/4		2L2x2x3/16x1/2		C6x10.5	4.83333	4 @ 10	1349.8
L3								1349.8
L2								1346.8
L1								1346.8



TOWER DESIGN NOTES

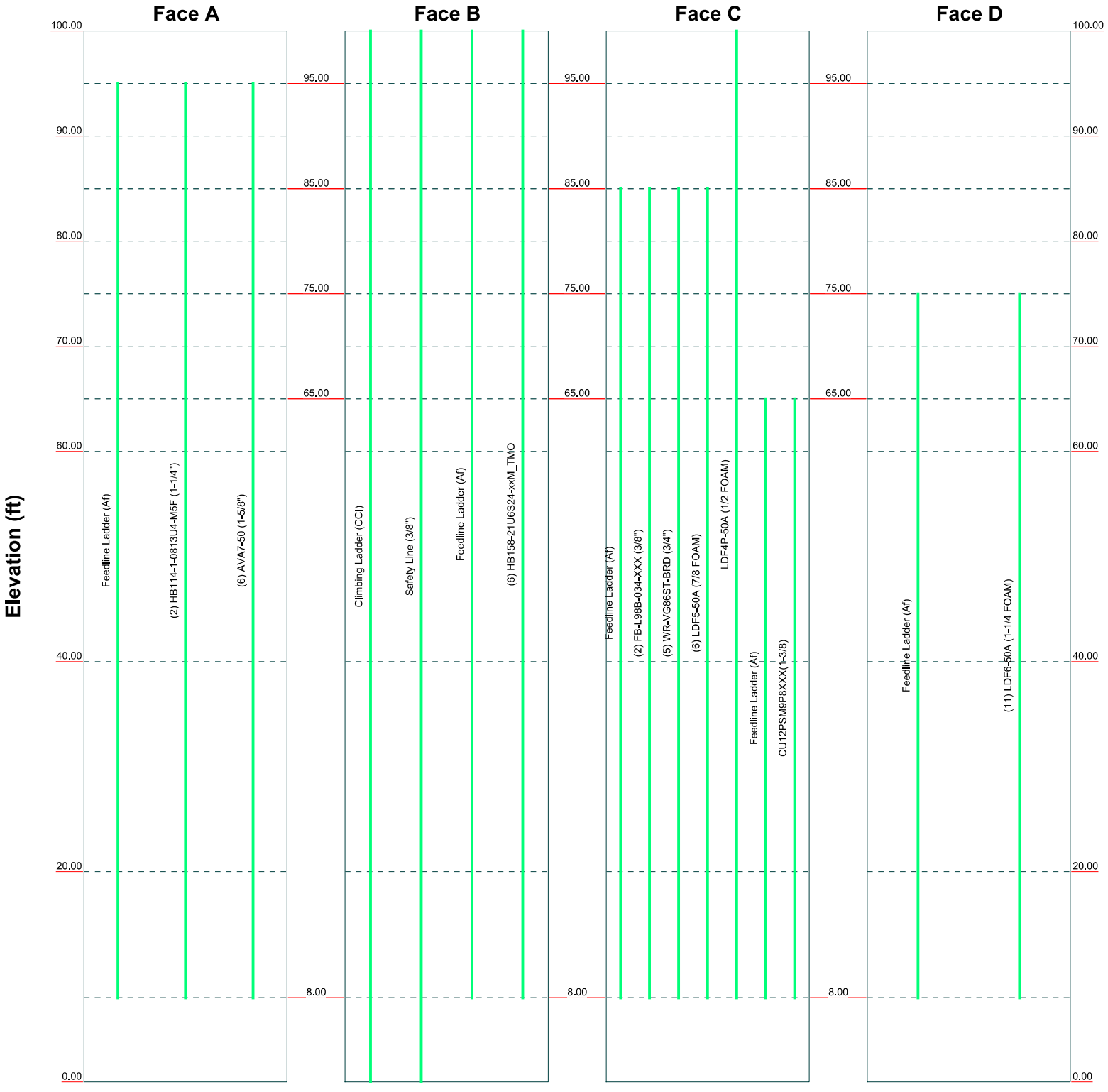
1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in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

GPD
520 South Main Street Suite 2531
Akron, Ohio 44311
Phone: (330) 572-2100
FAX: (330) 572-2101

Job:	**BU #: 800529, CT HAMDEN NORTH CAC**		
Project:	**2021777.800529.12**		
Client: Crown Castle	Drawn by: kmocka	App'd:	
Code: TIA-222-H	Date: 09/09/21	Scale: NTS	
Path: T:\Crown\800529\12\5_Structural\00_Structure\00_Rev 0\03_Modeling\tnxTower\800529.eri		Dwg No. E-1	

Feed Line Distribution Chart
0' - 100'

Round | Flat | App In Face | App Out Face | Truss Leg



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520 South Main Street Suite 2531
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Job: **BU #: 800529, CT HAMDEN NORTH CAC**			
Project: ***2021777.800529.12***			
Client: Crown Castle	Drawn by: kmocka	App'd:	
Code: TIA-222-H	Date: 09/09/21	Scale: NTS	
Path: T:\Crown\800529\12\5_Structural\00_Structure\00_Rev 0\03_Modeling\tnxTower\800529.eri		Dwg No. E-7	

Tower Input Data

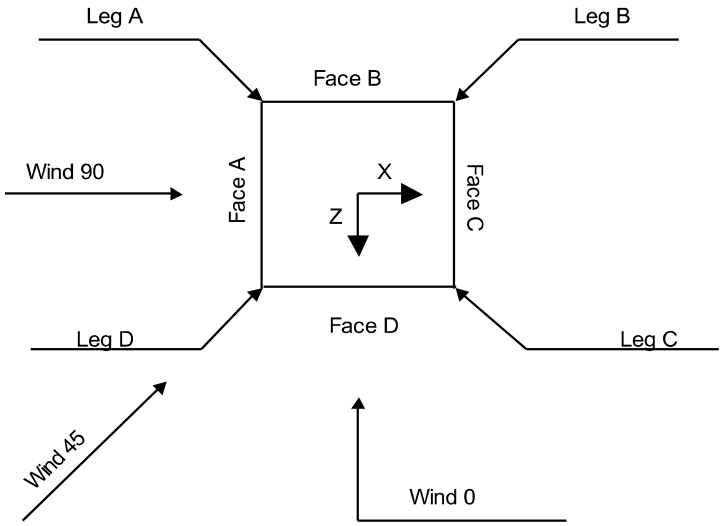
The main tower is a 4x free standing tower with an overall height of 100.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 9.52 ft at the top and 9.52 ft at the base.
An index plate is provided at the 4 sided -tower connection.
There is a 4 sided latticed pole with a face width of 4.83 ft.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 199.00 ft.
Basic wind speed of 119 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in latticed pole member design is 1.
Stress ratio used in tower member design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Known



Square Tower

4 Sided Latticed Pole Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
L1	100.00-90.00			4.83	1	10.00
L2	90.00-80.00			4.83	1	10.00
L3	80.00-70.00			4.83	1	10.00
L4	70.00-60.00			4.83	1	10.00

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Section	*Tower Elevation*	*Diagonal Spacing*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset*	*Bottom Girt Offset*
	ft	*ft*				*in*	*in*
L1	100.00-90.00	10.00	X Brace	No	Yes	0.0000	0.0000
L2	90.00-80.00	10.00	X Brace	No	Yes	0.0000	0.0000
L3	80.00-70.00	10.00	X Brace	No	Yes	0.0000	0.0000
L4	70.00-60.00	10.00	X Brace	No	Yes	0.0000	0.0000

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
L1 100.00-90.00	Tube	HSS6x6x1/4	A500-46 (46 ksi)	Double Equal Angle	2L2x2x3/16x1/2	A36 (36 ksi)
L2 90.00-80.00	Tube	HSS6x6x1/4	A500-46 (46 ksi)	Double Equal Angle	2L2x2x3/16x1/2	A36 (36 ksi)
L3 80.00-70.00	Tube	HSS6x6x1/4	A500-46 (46 ksi)	Double Equal Angle	2L2x2x3/16x1/2	A36 (36 ksi)
L4 70.00-60.00	Tube	HSS6x6x1/4	A500-46 (46 ksi)	Double Equal Angle	2L2x2x3/16x1/2	A36 (36 ksi)

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
L1 100.00-90.00	Channel	C6x10.5	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
L2 90.00-80.00	Channel	C6x10.5	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
L3 80.00-70.00	Channel	C6x10.5	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
L4 70.00-60.00	Channel	C6x10.5	A36 (36 ksi)	Flat Bar		A36 (36 ksi)

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 100.00-90.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000
L2 90.00-80.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000
L3 80.00-70.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000
L4 70.00-60.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
L1	Yes	No	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Single Diags X	K Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
100.00-90.00				1	1	1	1	1	1	1	1	1	1	1	1
L2	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
90.00-80.00				1	1	1	1	1	1	1	1	1	1	1	1
L3	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
80.00-70.00				1	1	1	1	1	1	1	1	1	1	1	1
L4	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
70.00-60.00				1	1	1	1	1	1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
L1 100.00-90.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
L2 90.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
L3 80.00-70.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
L4 70.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal Net Width Deduct in	Redundant Horizontal U	Redundant Diagonal Net Width Deduct in	Redundant Diagonal U	Redundant Sub-Diagonal Net Width Deduct in	Redundant Sub-Diagonal U	Redundant Sub-Horizontal Net Width Deduct in	Redundant Sub-Horizontal U	Redundant Vertical Net Width Deduct in	Redundant Vertical U	Redundant Hip Net Width Deduct in	Redundant Hip U	Redundant Hip Diagonal Net Width Deduct in	Redundant Hip Diagonal U
L1 100.00-90.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
L2 90.00-80.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
L3 80.00-70.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
L4 70.00-60.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

4 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
L1 100.00-90.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
L2 90.00-80.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
L3 80.00-70.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
L4 70.00-60.00	Flange	0.8750 A325N	4	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	60.00-40.00			9.52	1	20.00
T2	40.00-20.00			9.52	1	20.00
T3	20.00-0.00			9.52	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	60.00-40.00	20.00	X Brace	No	Yes	0.0000	0.0000
T2	40.00-20.00	20.00	X Brace	No	Yes	0.0000	0.0000
T3	20.00-0.00	20.00	X Brace	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 60.00-40.00	Tube	HSS8x8x1/4	A500-46 (46 ksi)	Double Equal Angle	2L4x4x3/8x1/2	A36 (36 ksi)
T2 40.00-20.00	Tube	HSS8x8x1/4	A500-46 (46 ksi)	Double Equal Angle	2L4x4x3/8x1/2	A36 (36 ksi)
T3 20.00-0.00	Tube	HSS8x8x1/4	A500-46 (46 ksi)	Double Equal Angle	2L4x4x3/8x1/2	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 60.00-40.00	Wide Flange	W16x45	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
T2 40.00-20.00	Wide Flange	W6x12	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
T3 20.00-0.00	Wide Flange	W6x12	A36 (36 ksi)	Flat Bar		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 60.00-40.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000
T2 40.00-20.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000
T3 20.00-0.00	0.00	0.0000	A36 (36 ksi)	0	0	1	Mid-Pt	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	No	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T2	Yes	No	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T3 20.00-0.00	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 60.00-40.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 40.00-20.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 20.00-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 60.00-40.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 40.00-20.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 20.00-0.00	Flange	0.7500 A325N	0	0.8750 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
Climbing Ladder (CCI)	B	No	No	CaAa (Out Of Face)	100.00 - 0.00	0.0000	0.45	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	4.81 6.97 9.48
Safety Line (3/8")	B	No	No	CaAa (Out Of Face)	100.00 - 0.00	0.0000	0.45	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.22 0.75 1.28
Feedline	B	No	No	CaAa (Out	100.00 - 8.00	0.0000	0	1	No	0.00	8.40

Description	*Face or Leg*	*Allow Shield*	*Exclude From Torque Calculation*	*Component Type*	*Placement* *ft*	*Face Offset* *in*	*Lateral Offset (Frac FW)*	*#*		C_AA_A *ft²/ft*	*Weight* *plf*
Ladder (Af)				Of Face)					Ice	0.00	13.50
									1/2" Ice	0.00	18.60
									1" Ice		
HB158-21U6S24-xxM_TMO	B	No	No	CaAa (Out Of Face)	100.00 - 8.00	0.0000	0	6	No Ice	0.00	1.90
									1/2" Ice	0.00	3.42
									1" Ice	0.00	5.55
Feedline Ladder (Af)	A	No	No	CaAa (Out Of Face)	95.00 - 8.00	0.0000	0	1	No Ice	0.00	8.40
									1/2" Ice	0.00	13.50
									1" Ice	0.00	18.60
HB114-1-0813U4-M5F (1-1/4")	A	No	No	CaAa (Out Of Face)	95.00 - 8.00	0.0000	0	2	No Ice	0.00	1.20
									1/2" Ice	0.00	2.45
									1" Ice	0.00	4.30
AVA7-50 (1-5/8")	A	No	No	CaAa (Out Of Face)	95.00 - 8.00	0.0000	0	6	No Ice	0.00	0.70
									1/2" Ice	0.00	2.23
									1" Ice	0.00	4.38
Feedline Ladder (Af)	C	No	No	CaAa (Out Of Face)	85.00 - 8.00	0.0000	0	1	No Ice	0.00	8.40
									1/2" Ice	0.00	13.50
									1" Ice	0.00	18.60
FB-L98B-034-XXX (3/8")	C	No	No	CaAa (Out Of Face)	85.00 - 8.00	0.0000	0	2	No Ice	0.00	0.06
									1/2" Ice	0.00	0.60
									1" Ice	0.00	1.76
WR-VG86ST-BRD (3/4")	C	No	No	CaAa (Out Of Face)	85.00 - 8.00	0.0000	0	5	No Ice	0.00	0.60
									1/2" Ice	0.00	1.39
									1" Ice	0.00	2.79
LDF5-50A (7/8 FOAM)	C	No	No	CaAa (Out Of Face)	85.00 - 8.00	0.0000	0	6	No Ice	0.00	0.33
									1/2" Ice	0.00	1.30
									1" Ice	0.00	2.88
LDF4P-50A (1/2 FOAM)	C	No	No	CaAa (Out Of Face)	100.00 - 8.00	0.0000	0.3	1	No Ice	0.00	0.15
									1/2" Ice	0.00	0.84
									1" Ice	0.00	2.14
Feedline Ladder (Af)	C	No	No	CaAa (Out Of Face)	65.00 - 8.00	0.0000	0.45	1	No Ice	0.00	8.40
									1/2" Ice	0.00	13.50
									1" Ice	0.00	18.60
CU12PSM9P8XXX(1-3/8)	C	No	No	CaAa (Out Of Face)	65.00 - 8.00	0.0000	0.45	1	No Ice	0.00	1.66
									1/2" Ice	0.00	2.83
									1" Ice	0.00	4.61
Feedline	D	No	No	CaAa (Out	75.00 - 8.00	0.0000	0	1	No	0.00	8.40

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
Ladder (Af)				Of Face)					Ice	0.00	13.50
									1/2" Ice	0.00	18.60
									1" Ice		
LDF6-50A (1-1/4 FOAM)	D	No	No	CaAa (Out Of Face)	75.00 - 8.00	0.0000	0	11	No Ice	0.00	0.66
									1/2" Ice	0.00	1.91
									1" Ice	0.00	3.78

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
APXVAA4L18_43-U-NA20_ TMO w/ Mount Pipe	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	156.85
			0.00			1/2" Ice	0.00	0.00	261.21
			4.00			1" Ice	0.00	0.00	374.41
APXVAA4L18_43-U-NA20_ TMO w/ Mount Pipe	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	156.85
			0.00			1/2" Ice	0.00	0.00	261.21
			4.00			1" Ice	0.00	0.00	374.41
APXVAA4L18_43-U-NA20_ TMO w/ Mount Pipe	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	156.85
			0.00			1/2" Ice	0.00	0.00	261.21
			4.00			1" Ice	0.00	0.00	374.41
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	136.53
			0.00			1/2" Ice	0.00	0.00	191.31
			4.00			1" Ice	0.00	0.00	251.99
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	136.53
			0.00			1/2" Ice	0.00	0.00	191.31
			4.00			1" Ice	0.00	0.00	251.99
AIR6449 B41_T-MOBILE w/ Mount Pipe	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	136.53
			0.00			1/2" Ice	0.00	0.00	191.31
			4.00			1" Ice	0.00	0.00	251.99
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	73.21
			0.00			1/2" Ice	0.00	0.00	92.97
			4.00			1" Ice	0.00	0.00	115.64
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	73.21
			0.00			1/2" Ice	0.00	0.00	92.97
			4.00			1" Ice	0.00	0.00	115.64
RADIO 4449 B71 B85A_T-MOBILE	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	73.21
			0.00			1/2" Ice	0.00	0.00	92.97
			4.00			1" Ice	0.00	0.00	115.64
RADIO 4415 B66A_CCIV3	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	46.30
			0.00			1/2" Ice	0.00	0.00	58.71
			4.00			1" Ice	0.00	0.00	73.48
RADIO 4415 B66A_CCIV3	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	46.30
			0.00			1/2" Ice	0.00	0.00	58.71
			4.00			1" Ice	0.00	0.00	73.48
RADIO 4415 B66A_CCIV3	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	46.30
			0.00			1/2" Ice	0.00	0.00	58.71
			4.00			1" Ice	0.00	0.00	73.48
(2) RADIO 2212 B2	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	40.80
			0.00			1/2" Ice	0.00	0.00	55.35

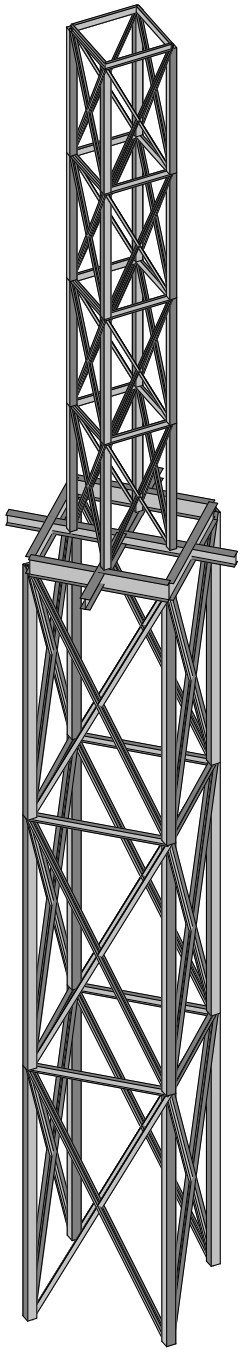
Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			4.00			1" Ice	0.00	0.00	72.44
(2) RADIO 2212 B2	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	40.80
			0.00			1/2" Ice	0.00	0.00	55.35
			4.00			1" Ice	0.00	0.00	72.44
(2) RADIO 2212 B2	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	40.80
			0.00			1/2" Ice	0.00	0.00	55.35
			4.00			1" Ice	0.00	0.00	72.44
Site Pro 1 P360 Horizontal	A	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	38.00
			0.00			1/2" Ice	0.00	0.00	47.60
			4.00			1" Ice	0.00	0.00	62.00
Site Pro 1 P360 Horizontal	B	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	38.00
			0.00			1/2" Ice	0.00	0.00	47.60
			4.00			1" Ice	0.00	0.00	62.00
Site Pro 1 P360 Horizontal	D	From Leg	2.00	0.0000	100.00	No Ice	0.00	0.00	38.00
			0.00			1/2" Ice	0.00	0.00	47.60
			4.00			1" Ice	0.00	0.00	62.00
Site Pro 1 USF-2U Standoff Frame	A	From Leg	1.00	0.0000	100.00	No Ice	0.00	0.00	128.25
			0.00			1/2" Ice	0.00	0.00	160.30
			4.00			1" Ice	0.00	0.00	192.35
Site Pro 1 USF-2U Standoff Frame	B	From Leg	1.00	0.0000	100.00	No Ice	0.00	0.00	128.25
			0.00			1/2" Ice	0.00	0.00	160.30
			4.00			1" Ice	0.00	0.00	192.35
Site Pro 1 USF-2U Standoff Frame	D	From Leg	1.00	0.0000	100.00	No Ice	0.00	0.00	128.25
			0.00			1/2" Ice	0.00	0.00	160.30
			4.00			1" Ice	0.00	0.00	192.35
BXA-80080/4CF w/ Mount Pipe	A	From Centroid-Leg	4.00	0.0000	95.00	No Ice	0.00	0.00	39.85
			0.00			1/2" Ice	0.00	0.00	89.34
			0.00			1" Ice	0.00	0.00	145.14
BXA-80080/4CF w/ Mount Pipe	C	From Centroid-Leg	4.00	0.0000	95.00	No Ice	0.00	0.00	39.85
			0.00			1/2" Ice	0.00	0.00	89.34
			0.00			1" Ice	0.00	0.00	145.14
BXA-80080/4CF w/ Mount Pipe	D	From Centroid-Leg	4.00	0.0000	95.00	No Ice	0.00	0.00	39.85
			0.00			1/2" Ice	0.00	0.00	89.34
			0.00			1" Ice	0.00	0.00	145.14
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Centroid-Leg	4.00	0.0000	95.00	No Ice	0.00	0.00	86.15
			0.00			1/2" Ice	0.00	0.00	162.72
			0.00			1" Ice	0.00	0.00	247.46
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Centroid-Leg	4.00	0.0000	95.00	No Ice	0.00	0.00	86.15
			0.00			1/2" Ice	0.00	0.00	162.72
			0.00			1" Ice	0.00	0.00	247.46
(2) JAHH-65B-R3B w/ Mount Pipe	D	From Centroid-Leg	4.00	0.0000	95.00	No Ice	0.00	0.00	86.15
			0.00			1/2" Ice	0.00	0.00	162.72
			0.00			1" Ice	0.00	0.00	247.46
Sub6 Antenna - VZS01 w/ Mount Pipe	A	From Centroid-Leg	4.00	0.0000	95.00	No Ice	0.00	0.00	87.10
			0.00			1/2" Ice	0.00	0.00	108.88
			0.00			1" Ice	0.00	0.00	130.65
Sub6 Antenna - VZS01 w/ Mount Pipe	C	From Centroid-Leg	4.00	0.0000	95.00	No Ice	0.00	0.00	87.10
			0.00			1/2" Ice	0.00	0.00	108.88
			0.00			1" Ice	0.00	0.00	130.65
Sub6 Antenna - VZS01 w/ Mount Pipe	D	From Centroid-Leg	4.00	0.0000	95.00	No Ice	0.00	0.00	87.10
			0.00			1/2" Ice	0.00	0.00	108.88
			0.00			1" Ice	0.00	0.00	130.65
CBC78T-DS-43-2X	A	From Centroid-Leg	4.00	0.0000	95.00	No Ice	0.00	0.00	20.70
			0.00			1/2" Ice	0.00	0.00	25.88
			0.00			1" Ice	0.00	0.00	31.05
CBC78T-DS-43-2X	C	From Centroid-Leg	4.00	0.0000	95.00	No Ice	0.00	0.00	20.70
			0.00			1/2" Ice	0.00	0.00	25.88

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
		g	0.00				1" Ice	0.00	0.00	31.05
CBC78T-DS-43-2X	D	From	4.00		0.0000	95.00	No Ice	0.00	0.00	20.70
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	25.88
		g	0.00				1" Ice	0.00	0.00	31.05
RFV01U-D1A	A	From	4.00		0.0000	95.00	No Ice	0.00	0.00	84.40
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	105.50
		g	0.00				1" Ice	0.00	0.00	126.60
RFV01U-D1A	C	From	4.00		0.0000	95.00	No Ice	0.00	0.00	84.40
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	105.50
		g	0.00				1" Ice	0.00	0.00	126.60
RFV01U-D1A	D	From	4.00		0.0000	95.00	No Ice	0.00	0.00	84.40
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	105.50
		g	0.00				1" Ice	0.00	0.00	126.60
RFV01U-D2A	A	From	4.00		0.0000	95.00	No Ice	0.00	0.00	70.30
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	87.88
		g	0.00				1" Ice	0.00	0.00	105.45
RFV01U-D2A	C	From	4.00		0.0000	95.00	No Ice	0.00	0.00	70.30
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	87.88
		g	0.00				1" Ice	0.00	0.00	105.45
RFV01U-D2A	D	From	4.00		0.0000	95.00	No Ice	0.00	0.00	70.30
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	87.88
		g	0.00				1" Ice	0.00	0.00	105.45
RFV01U-D2A	A	From	4.00		0.0000	95.00	No Ice	0.00	0.00	73.00
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	89.43
		g	3.00				1" Ice	0.00	0.00	108.53
RFV01U-D2A	C	From	4.00		0.0000	95.00	No Ice	0.00	0.00	73.00
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	89.43
		g	3.00				1" Ice	0.00	0.00	108.53
RFV01U-D2A	D	From	4.00		0.0000	95.00	No Ice	0.00	0.00	73.00
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	89.43
		g	3.00				1" Ice	0.00	0.00	108.53
DB-T1-6Z-8AB-0Z	A	From	4.00		0.0000	95.00	No Ice	0.00	0.00	44.00
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	80.13
		g	0.00				1" Ice	0.00	0.00	120.22
DB-T1-6Z-8AB-0Z	C	From	4.00		0.0000	95.00	No Ice	0.00	0.00	44.00
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	80.13
		g	0.00				1" Ice	0.00	0.00	120.22
HPA-65R-BUU-H6 w/ Mount Pipe	A	From	4.00		0.0000	85.00	No Ice	0.00	0.00	76.55
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	158.03
		g	0.00				1" Ice	0.00	0.00	247.79
HPA-65R-BUU-H6 w/ Mount Pipe	C	From	4.00		0.0000	85.00	No Ice	0.00	0.00	76.55
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	158.03
		g	0.00				1" Ice	0.00	0.00	247.79
HPA-65R-BUU-H6 w/ Mount Pipe	D	From	4.00		0.0000	85.00	No Ice	0.00	0.00	76.55
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	158.03
		g	0.00				1" Ice	0.00	0.00	247.79
OPA65R-BU6BA-K w/ Mount Pipe	A	From	4.00		0.0000	85.00	No Ice	0.00	0.00	55.00
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	107.49
		g	0.00				1" Ice	0.00	0.00	166.08
OPA65R-BU6BA-K w/ Mount Pipe	C	From	4.00		0.0000	85.00	No Ice	0.00	0.00	55.00
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	107.49
		g	0.00				1" Ice	0.00	0.00	166.08
OPA65R-BU6BA-K w/ Mount Pipe	D	From	4.00		0.0000	85.00	No Ice	0.00	0.00	55.00
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	107.49
		g	0.00				1" Ice	0.00	0.00	166.08
DMP65R-BU6D w/ Mount Pipe	A	From	4.00		0.0000	85.00	No Ice	0.00	0.00	104.71
		Centroid-Le	0.00				1/2" Ice	0.00	0.00	196.98

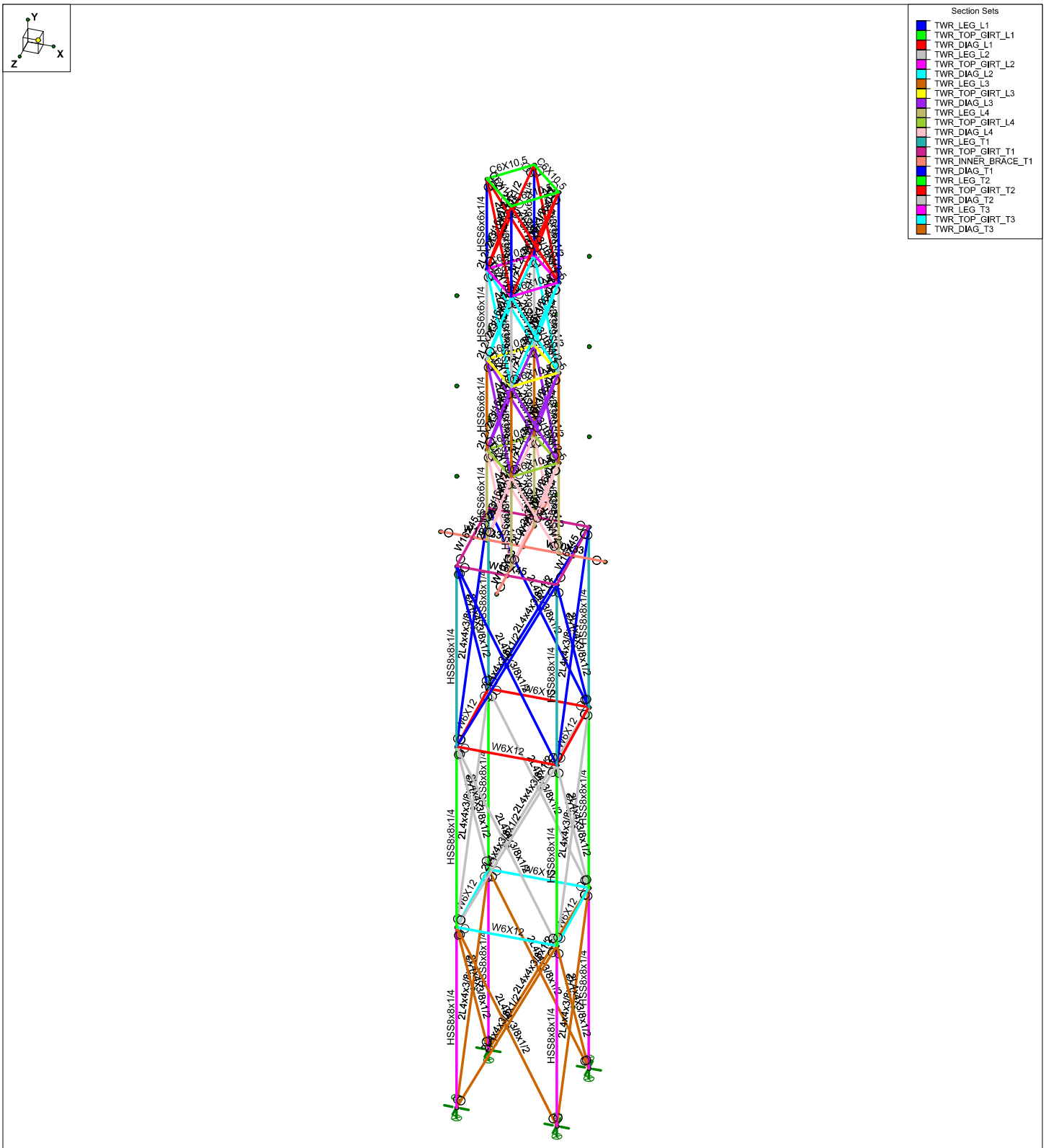
Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
		g	0.00			1" Ice	0.00	0.00	297.77
DMP65R-BU6D w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	104.71 196.98 297.77
DMP65R-BU6D w/ Mount Pipe	D	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	104.71 196.98 297.77
RRUS 32 B2	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	52.90 73.96 98.21
RRUS 32 B2	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	52.90 73.96 98.21
RRUS 32 B2	D	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	52.90 73.96 98.21
RADIO 4415 B30	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	42.90 54.99 69.43
RADIO 4415 B30	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	42.90 54.99 69.43
RADIO 4415 B30	D	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	42.90 54.99 69.43
RRUS 4449 B5/B12	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	71.00 89.51 110.84
RRUS 4449 B5/B12	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	71.00 89.51 110.84
RRUS 4449 B5/B12	D	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	71.00 89.51 110.84
RRUS 4426 B66	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	48.40 61.22 76.43
RRUS 4426 B66	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	48.40 61.22 76.43
RRUS 4426 B66	D	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	48.40 61.22 76.43
DC6-48-60-18-8F Surge Suppression Unit	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	18.90 36.62 56.82
DC9-48-60-24-8C-EV	D	From Centroid-Le g	4.00 0.00 0.00	0.0000	85.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	26.20 63.27 104.42
A-18A24N-U w/ Mount pipe	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	43.55 88.76 139.53
A-18A24N-U w/ Mount pipe	D	From Centroid-Le g	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	43.55 88.76 139.53
(3) DB844H90E-XY w/ Mount Pipe	A	From Centroid-Le	4.00 0.00	0.0000	75.00	No Ice 1/2" Ice	0.00 0.00	0.00 0.00	43.20 90.60

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
		g	0.00			1" Ice	0.00	0.00	144.32
(4) DB844H90E-XY w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	43.20 90.60 144.32
(3) DB844H90E-XY w/ Mount Pipe	D	From Centroid-Le g	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	43.20 90.60 144.32
MX08FRO665-21 w/ Mount Pipe	A	From Leg	1.00 0.00 1.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	86.40 176.08 274.11
MX08FRO665-21 w/ Mount Pipe	B	From Leg	1.00 0.00 1.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	86.40 176.08 274.11
MX08FRO665-21 w/ Mount Pipe	D	From Leg	1.00 0.00 1.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	86.40 176.08 274.11
TA08025-B604	A	From Leg	1.00 0.00 -1.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	63.90 80.65 100.10
TA08025-B604	B	From Leg	1.00 0.00 -1.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	63.90 80.65 100.10
TA08025-B604	D	From Leg	1.00 0.00 -1.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	63.90 80.65 100.10
TA08025-B605	A	From Leg	1.00 0.00 1.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	75.00 92.97 113.72
TA08025-B605	B	From Leg	1.00 0.00 1.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	75.00 92.97 113.72
TA08025-B605	D	From Leg	1.00 0.00 1.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	75.00 92.97 113.72
RDIDC-9181-PF-48	A	From Leg	1.00 0.00 2.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	21.85 42.90 66.97
Top Cap	C	None		0.0000	103.40	No Ice 1/2" Ice 1" Ice	50.27 50.27 50.27	50.27 50.27 50.27	116.00 145.00 174.00
Tower Silo 90' - 100'	C	None		0.0000	95.00	No Ice 1/2" Ice 1" Ice	80.00 80.00 80.00	80.00 80.00 80.00	146.70 183.38 220.06
Tower Silo 80' - 90'	C	None		0.0000	85.00	No Ice 1/2" Ice 1" Ice	80.00 80.00 80.00	80.00 80.00 80.00	146.70 183.38 220.06
Tower Silo 70' - 80'	C	None		0.0000	75.00	No Ice 1/2" Ice 1" Ice	80.00 80.00 80.00	80.00 80.00 80.00	146.70 183.38 220.06
Tower Silo 60' - 70'	C	None		0.0000	65.00	No Ice 1/2" Ice 1" Ice	80.00 80.00 80.00	80.00 80.00 80.00	146.70 183.38 220.06
Tower Silo 40' - 60'	C	None		0.0000	50.00	No Ice 1/2" Ice 1" Ice	160.00 160.00 160.00	160.00 160.00 160.00	293.40 366.75 440.10
Tower Silo 20' - 40'	C	None		0.0000	30.00	No Ice 1/2" Ice	160.00 160.00	160.00 160.00	293.40 366.75

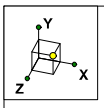
Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral ft Vert ft ft*	*Azimuth Adjustment °*	*Placement ft*		C_AA_A *Front* ft^2	C_AA_A *Side* ft^2	*Weight lb*
Tower Silo 0' - 20'	C	None		0.0000	10.00	1" Ice	160.00	160.00	440.10
						No Ice	160.00	160.00	293.40
						1/2" Ice	160.00	160.00	366.75
						1" Ice	160.00	160.00	440.10

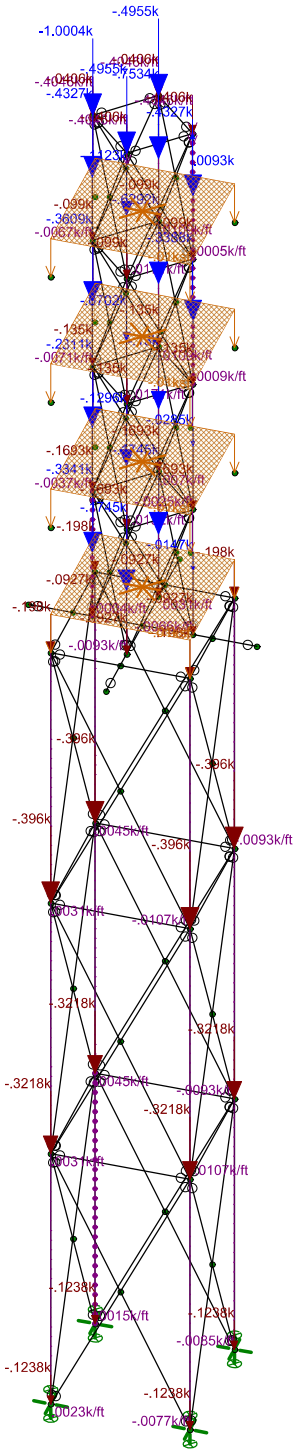


GPD	BU #: 800529, CT HAMDEN NORTH CAC	SK - 1
KM		Sept 9, 2021 at 1:13 PM
2021777.800529.12	3D Rendering	800529.12.rt3



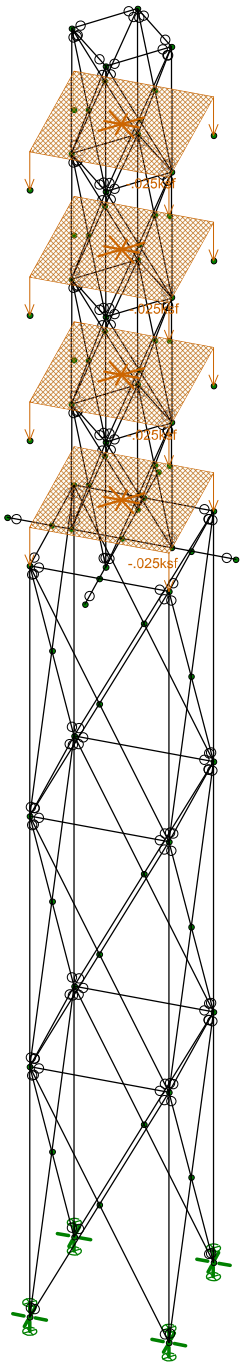
GPD	BU #: 800529, CT HAMDEN NORTH CAC	SK - 2
KM		Sept 9, 2021 at 1:14 PM
2021777.800529.12	Section Sets	800529.12.rt3





Loads: BLC 1, Dead

GPD	BU #: 800529, CT HAMDEN NORTH CAC	SK - 3
KM		Sept 9, 2021 at 1:14 PM
2021777.800529.12	Dead Load	800529.12.rt3



Loads: BLC 19, Live

GPD	BU #: 800529, CT HAMDEN NORTH CAC	SK - 4
KM		Sept 9, 2021 at 1:14 PM
2021777.800529.12	Platform Live Load	800529.12.rt3

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	No
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Standard Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	ACI 530-13: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A500-46	29000	11200	.2946	.65	.49	46	1.2	58	1.1
2	A36	29000	11200	.2946	.65	.49	36	1.5	58	1.2
3	A992-50	29000	11200	.295	.65	.49	50	1.5	65	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru..	A [in2]	Iyy [i...	Izz [i...	J [in4]
1	TWR_LEG_L1	HSS6x6x1/4	Column	None	A500-46	Typical	5.24	28.6	28.6	45.6
2	TWR_TOP_GIRT_L1	C6X10.5	Beam	None	A36	Typical	3.07	.86	15.1	.128
3	TWR_DIAG_L1	2L2x2x3/16x1/2	Column	None	A36	Typical	1.4297	1.5042	.5448	.0168
4	TWR_LEG_L2	HSS6x6x1/4	Column	None	A500-46	Typical	5.24	28.6	28.6	45.6
5	TWR_TOP_GIRT_L2	C6X10.5	Beam	None	A36	Typical	3.07	.86	15.1	.128
6	TWR_DIAG_L2	2L2x2x3/16x1/2	Column	None	A36	Typical	1.4297	1.5042	.5448	.0168
7	TWR_LEG_L3	HSS6x6x1/4	Column	None	A500-46	Typical	5.24	28.6	28.6	45.6
8	TWR_TOP_GIRT_L3	C6X10.5	Beam	None	A36	Typical	3.07	.86	15.1	.128
9	TWR_DIAG_L3	2L2x2x3/16x1/2	Column	None	A36	Typical	1.4297	1.5042	.5448	.0168
10	TWR_LEG_L4	HSS6x6x1/4	Column	None	A500-46	Typical	5.24	28.6	28.6	45.6
11	TWR_TOP_GIRT_L4	C6X10.5	Beam	None	A36	Typical	3.07	.86	15.1	.128
12	TWR_DIAG_L4	2L2x2x3/16x1/2	Column	None	A36	Typical	1.4297	1.5042	.5448	.0168
13	TWR_LEG_T1	HSS8x8x1/4	Column	None	A500-46	Typical	7.1	70.7	70.7	111
14	TWR_TOP_GIRT_T1	W16X45	Beam	None	A992-50	Typical	13.3	32.8	586	1.11
15	TWR_INNER_BRACE_T1	W10X33	Beam	None	A992-50	Typical	9.71	36.6	171	.583
16	TWR_DIAG_T1	2L4x4x3/8x1/2	Column	None	A36	Typical	5.7188	19.7...	8.7172	.2681
17	TWR_LEG_T2	HSS8x8x1/4	Column	None	A500-46	Typical	7.1	70.7	70.7	111
18	TWR_TOP_GIRT_T2	W6X12	Beam	None	A992-50	Typical	3.55	2.99	22.1	.0903

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Ru..	A [in2]	Iyy [i...	Izz [i...	J [in4]
19	TWR DIAG T2	2L4x4x3/8x1/2	Column	None	A36	Typical	5.7188	19.7...	8.7172	.2681
20	TWR LEG T3	HSS8x8x1/4	Column	None	A500-46	Typical	7.1	70.7	70.7	111
21	TWR TOP GIRT T3	W6X12	Beam	None	A992-50	Typical	3.55	2.99	22.1	.0903
22	TWR_DIAG_T3	2L4x4x3/8x1/2	Column	None	A36	Typical	5.7188	19.7...	8.7172	.2681

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
1	M9	N2	N3			TWR_DIAG_L1	Column	None	A36	Typical
2	M10	N4	N1			TWR_DIAG_L1	Column	None	A36	Typical
3	M11	N4	N5			TWR_DIAG_L1	Column	None	A36	Typical
4	M12	N6	N3			TWR_DIAG_L1	Column	None	A36	Typical
5	M13	N6	N7			TWR_DIAG_L1	Column	None	A36	Typical
6	M14	N8	N5			TWR_DIAG_L1	Column	None	A36	Typical
7	M15	N8	N1			TWR_DIAG_L1	Column	None	A36	Typical
8	M16	N2	N7			TWR_DIAG_L1	Column	None	A36	Typical
9	M25	N13	N4			TWR_DIAG_L2	Column	None	A36	Typical
10	M26	N14	N2			TWR_DIAG_L2	Column	None	A36	Typical
11	M27	N14	N6			TWR_DIAG_L2	Column	None	A36	Typical
12	M28	N15	N4			TWR_DIAG_L2	Column	None	A36	Typical
13	M29	N15	N8			TWR_DIAG_L2	Column	None	A36	Typical
14	M30	N16	N6			TWR_DIAG_L2	Column	None	A36	Typical
15	M31	N16	N2			TWR_DIAG_L2	Column	None	A36	Typical
16	M32	N13	N8			TWR_DIAG_L2	Column	None	A36	Typical
17	M41	N21	N14			TWR_DIAG_L3	Column	None	A36	Typical
18	M42	N22	N13			TWR_DIAG_L3	Column	None	A36	Typical
19	M43	N22	N15			TWR_DIAG_L3	Column	None	A36	Typical
20	M44	N23	N14			TWR_DIAG_L3	Column	None	A36	Typical
21	M45	N23	N16			TWR_DIAG_L3	Column	None	A36	Typical
22	M46	N24	N15			TWR_DIAG_L3	Column	None	A36	Typical
23	M47	N24	N13			TWR_DIAG_L3	Column	None	A36	Typical
24	M48	N21	N16			TWR_DIAG_L3	Column	None	A36	Typical
25	M57	N29	N22			TWR_DIAG_L4	Column	None	A36	Typical
26	M58	N30	N21			TWR_DIAG_L4	Column	None	A36	Typical
27	M59	N30	N23			TWR_DIAG_L4	Column	None	A36	Typical
28	M60	N31	N22			TWR_DIAG_L4	Column	None	A36	Typical
29	M61	N31	N24			TWR_DIAG_L4	Column	None	A36	Typical
30	M62	N32	N23			TWR_DIAG_L4	Column	None	A36	Typical
31	M63	N32	N21			TWR_DIAG_L4	Column	None	A36	Typical
32	M64	N29	N24			TWR_DIAG_L4	Column	None	A36	Typical
33	M73	N38	N39			TWR_DIAG_T1	Column	None	A36	Typical
34	M74	N40	N37			TWR_DIAG_T1	Column	None	A36	Typical
35	M75	N40	N41			TWR_DIAG_T1	Column	None	A36	Typical
36	M76	N42	N39			TWR_DIAG_T1	Column	None	A36	Typical
37	M77	N42	N43			TWR_DIAG_T1	Column	None	A36	Typical
38	M78	N44	N41			TWR_DIAG_T1	Column	None	A36	Typical
39	M79	N44	N37			TWR_DIAG_T1	Column	None	A36	Typical
40	M80	N38	N43			TWR_DIAG_T1	Column	None	A36	Typical
41	M89	N49	N40			TWR_DIAG_T2	Column	None	A36	Typical
42	M90	N50	N38		360	TWR_DIAG_T2	Column	None	A36	Typical
43	M91	N50	N42			TWR_DIAG_T2	Column	None	A36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
44	M92	N51	N40		360	TWR_DIAG_T2	Column	None	A36	Typical
45	M93	N51	N44			TWR_DIAG_T2	Column	None	A36	Typical
46	M94	N52	N42		360	TWR_DIAG_T2	Column	None	A36	Typical
47	M95	N52	N38			TWR_DIAG_T2	Column	None	A36	Typical
48	M96	N49	N44		360	TWR_DIAG_T2	Column	None	A36	Typical
49	M105	N57	N50			TWR_DIAG_T3	Column	None	A36	Typical
50	M106	N58	N49			TWR_DIAG_T3	Column	None	A36	Typical
51	M107	N58	N51			TWR_DIAG_T3	Column	None	A36	Typical
52	M108	N59	N50			TWR_DIAG_T3	Column	None	A36	Typical
53	M109	N59	N52			TWR_DIAG_T3	Column	None	A36	Typical
54	M110	N60	N51			TWR_DIAG_T3	Column	None	A36	Typical
55	M111	N60	N49			TWR_DIAG_T3	Column	None	A36	Typical
56	M112	N57	N52			TWR_DIAG_T3	Column	None	A36	Typical
57	M1	N2	N1		45	TWR_LEG_L1	Column	None	A500-46	Typical
58	M2	N4	N3		135	TWR_LEG_L1	Column	None	A500-46	Typical
59	M3	N6	N5		225	TWR_LEG_L1	Column	None	A500-46	Typical
60	M4	N8	N7		315	TWR_LEG_L1	Column	None	A500-46	Typical
61	M17	N13	N2		45	TWR_LEG_L2	Column	None	A500-46	Typical
62	M18	N14	N4		135	TWR_LEG_L2	Column	None	A500-46	Typical
63	M19	N15	N6		225	TWR_LEG_L2	Column	None	A500-46	Typical
64	M20	N16	N8		315	TWR_LEG_L2	Column	None	A500-46	Typical
65	M33	N21	N13		45	TWR_LEG_L3	Column	None	A500-46	Typical
66	M34	N22	N14		135	TWR_LEG_L3	Column	None	A500-46	Typical
67	M35	N23	N15		225	TWR_LEG_L3	Column	None	A500-46	Typical
68	M36	N24	N16		315	TWR_LEG_L3	Column	None	A500-46	Typical
69	M49	N29	N21		45	TWR_LEG_L4	Column	None	A500-46	Typical
70	M50	N30	N22		135	TWR_LEG_L4	Column	None	A500-46	Typical
71	M51	N31	N23		225	TWR_LEG_L4	Column	None	A500-46	Typical
72	M52	N32	N24		315	TWR_LEG_L4	Column	None	A500-46	Typical
73	M65	N38	N37		45	TWR_LEG_T1	Column	None	A500-46	Typical
74	M66	N40	N39		135	TWR_LEG_T1	Column	None	A500-46	Typical
75	M67	N42	N41		225	TWR_LEG_T1	Column	None	A500-46	Typical
76	M68	N44	N43		315	TWR_LEG_T1	Column	None	A500-46	Typical
77	M81	N49	N38		45	TWR_LEG_T2	Column	None	A500-46	Typical
78	M82	N50	N40		135	TWR_LEG_T2	Column	None	A500-46	Typical
79	M83	N51	N42		225	TWR_LEG_T2	Column	None	A500-46	Typical
80	M84	N52	N44		315	TWR_LEG_T2	Column	None	A500-46	Typical
81	M97	N57	N49		45	TWR_LEG_T3	Column	None	A500-46	Typical
82	M98	N58	N50		135	TWR_LEG_T3	Column	None	A500-46	Typical
83	M99	N59	N51		225	TWR_LEG_T3	Column	None	A500-46	Typical
84	M100	N60	N52		315	TWR_LEG_T3	Column	None	A500-46	Typical
85	M5	N1	N3		180	TWR_TOP_GIR...	Beam	None	A36	Typical
86	M6	N3	N5		180	TWR_TOP_GIR...	Beam	None	A36	Typical
87	M7	N5	N7		180	TWR_TOP_GIR...	Beam	None	A36	Typical
88	M8	N7	N1		180	TWR_TOP_GIR...	Beam	None	A36	Typical
89	M21	N2	N4		180	TWR_TOP_GIR...	Beam	None	A36	Typical
90	M22	N4	N6		180	TWR_TOP_GIR...	Beam	None	A36	Typical
91	M23	N6	N8		180	TWR_TOP_GIR...	Beam	None	A36	Typical
92	M24	N8	N2		180	TWR_TOP_GIR...	Beam	None	A36	Typical
93	M37	N13	N14		180	TWR_TOP_GIR...	Beam	None	A36	Typical
94	M38	N14	N15		180	TWR_TOP_GIR...	Beam	None	A36	Typical
95	M39	N15	N16		180	TWR_TOP_GIR...	Beam	None	A36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
96	M40	N16	N13		180	TWR_TOP_GIR...	Beam	None	A36	Typical
97	M53	N21	N22		180	TWR_TOP_GIR...	Beam	None	A36	Typical
98	M54	N22	N23		180	TWR_TOP_GIR...	Beam	None	A36	Typical
99	M55	N23	N24		180	TWR_TOP_GIR...	Beam	None	A36	Typical
100	M56	N24	N21		180	TWR_TOP_GIR...	Beam	None	A36	Typical
101	M69	N37	N39			TWR_TOP_GIR...	Beam	None	A992-50	Typical
102	M70	N39	N41			TWR_TOP_GIR...	Beam	None	A992-50	Typical
103	M71	N41	N43			TWR_TOP_GIR...	Beam	None	A992-50	Typical
104	M72	N43	N37			TWR_TOP_GIR...	Beam	None	A992-50	Typical
105	M85	N38	N40		359.99...	TWR_TOP_GIR...	Beam	None	A992-50	Typical
106	M86	N40	N42		359.99...	TWR_TOP_GIR...	Beam	None	A992-50	Typical
107	M87	N42	N44		359.99...	TWR_TOP_GIR...	Beam	None	A992-50	Typical
108	M88	N44	N38		359.99...	TWR_TOP_GIR...	Beam	None	A992-50	Typical
109	M101	N49	N50			TWR_TOP_GIR...	Beam	None	A992-50	Typical
110	M102	N50	N51			TWR_TOP_GIR...	Beam	None	A992-50	Typical
111	M103	N51	N52			TWR_TOP_GIR...	Beam	None	A992-50	Typical
112	M104	N52	N49			TWR_TOP_GIR...	Beam	None	A992-50	Typical
113	M113	N67	N65			TWR_INNER_B...	Beam	None	A992-50	Typical
114	M114	N65	N69			TWR_INNER_B...	Beam	None	A992-50	Typical
115	M115	N66	N65			TWR_INNER_B...	Beam	None	A992-50	Typical
116	M116	N65	N68			TWR_INNER_B...	Beam	None	A992-50	Typical

Member Advanced Data

	Label	I Releas	J Relea...	I Offset...	J Offse...	T/C Only	Physical	Defl Ratio O...	Analysis Offs...	Inactive	Seismic Design Rul...
1	M9	BenP IN	BenP IN				Yes	** NA **			None
2	M10	BenP IN	BenP IN				Yes	** NA **			None
3	M11	BenP IN	BenP IN				Yes	** NA **			None
4	M12	BenP IN	BenP IN				Yes	** NA **			None
5	M13	BenP IN	BenP IN				Yes	** NA **			None
6	M14	BenP IN	BenP IN				Yes	** NA **			None
7	M15	BenP IN	BenP IN				Yes	** NA **			None
8	M16	BenP IN	BenP IN				Yes	** NA **			None
9	M25	BenP IN	BenP IN				Yes	** NA **			None
10	M26	BenP IN	BenP IN				Yes	** NA **			None
11	M27	BenP IN	BenP IN				Yes	** NA **			None
12	M28	BenP IN	BenP IN				Yes	** NA **			None
13	M29	BenP IN	BenP IN				Yes	** NA **			None
14	M30	BenP IN	BenP IN				Yes	** NA **			None
15	M31	BenP IN	BenP IN				Yes	** NA **			None
16	M32	BenP IN	BenP IN				Yes	** NA **			None
17	M41	BenP IN	BenP IN				Yes	** NA **			None
18	M42	BenP IN	BenP IN				Yes	** NA **			None
19	M43	BenP IN	BenP IN				Yes	** NA **			None
20	M44	BenP IN	BenP IN				Yes	** NA **			None
21	M45	BenP IN	BenP IN				Yes	** NA **			None
22	M46	BenP IN	BenP IN				Yes	** NA **			None
23	M47	BenP IN	BenP IN				Yes	** NA **			None
24	M48	BenP IN	BenP IN				Yes	** NA **			None
25	M57	BenP IN	BenP IN				Yes	** NA **			None
26	M58	BenP IN	BenP IN				Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Relea...	I Offset...	J Offse...	T/C Only	Physical	Defl Ratio O...	Analysis Offs...	Inactive	Seismic Design Rul...
27	M59	BenP IN	BenP IN				Yes	** NA **			None
28	M60	BenP IN	BenP IN				Yes	** NA **			None
29	M61	BenP IN	BenP IN				Yes	** NA **			None
30	M62	BenP IN	BenP IN				Yes	** NA **			None
31	M63	BenP IN	BenP IN				Yes	** NA **			None
32	M64	BenP IN	BenP IN				Yes	** NA **			None
33	M73	BenP IN	BenP IN				Yes	** NA **			None
34	M74	BenP IN	BenP IN				Yes	** NA **			None
35	M75	BenP IN	BenP IN				Yes	** NA **			None
36	M76	BenP IN	BenP IN				Yes	** NA **			None
37	M77	BenP IN	BenP IN				Yes	** NA **			None
38	M78	BenP IN	BenP IN				Yes	** NA **			None
39	M79	BenP IN	BenP IN				Yes	** NA **			None
40	M80	BenP IN	BenP IN				Yes	** NA **			None
41	M89	BenP IN	BenP IN				Yes	** NA **			None
42	M90	BenP IN	BenP IN				Yes	** NA **			None
43	M91	BenP IN	BenP IN				Yes	** NA **			None
44	M92	BenP IN	BenP IN				Yes	** NA **			None
45	M93	BenP IN	BenP IN				Yes	** NA **			None
46	M94	BenP IN	BenP IN				Yes	** NA **			None
47	M95	BenP IN	BenP IN				Yes	** NA **			None
48	M96	BenP IN	BenP IN				Yes	** NA **			None
49	M105	BenP IN	BenP IN				Yes	** NA **			None
50	M106	BenP IN	BenP IN				Yes	** NA **			None
51	M107	BenP IN	BenP IN				Yes	** NA **			None
52	M108	BenP IN	BenP IN				Yes	** NA **			None
53	M109	BenP IN	BenP IN				Yes	** NA **			None
54	M110	BenP IN	BenP IN				Yes	** NA **			None
55	M111	BenP IN	BenP IN				Yes	** NA **			None
56	M112	BenP IN	BenP IN				Yes	** NA **			None
57	M1						Yes	** NA **			None
58	M2						Yes	** NA **			None
59	M3						Yes	** NA **			None
60	M4						Yes	** NA **			None
61	M17						Yes	** NA **			None
62	M18						Yes	** NA **			None
63	M19						Yes	** NA **			None
64	M20						Yes	** NA **			None
65	M33						Yes	** NA **			None
66	M34						Yes	** NA **			None
67	M35						Yes	** NA **			None
68	M36						Yes	** NA **			None
69	M49	BenP IN					Yes	** NA **			None
70	M50	BenP IN					Yes	** NA **			None
71	M51	BenP IN					Yes	** NA **			None
72	M52	BenP IN					Yes	** NA **			None
73	M65						Yes	** NA **			None
74	M66						Yes	** NA **			None
75	M67						Yes	** NA **			None
76	M68						Yes	** NA **			None
77	M81						Yes	** NA **			None
78	M82						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Relea...	I Offset...	J Offse...	T/C Only	Physical	Defl Ratio O...	Analysis Offs...	Inactive	Seismic Design Rul...
79	M83						Yes	** NA **			None
80	M84						Yes	** NA **			None
81	M97						Yes	** NA **			None
82	M98						Yes	** NA **			None
83	M99						Yes	** NA **			None
84	M100						Yes	** NA **			None
85	M5	BenP IN	BenP IN				Yes				None
86	M6	BenP IN	BenP IN				Yes				None
87	M7	BenP IN	BenP IN				Yes				None
88	M8	BenP IN	BenP IN				Yes				None
89	M21	BenP IN	BenP IN				Yes				None
90	M22	BenP IN	BenP IN				Yes				None
91	M23	BenP IN	BenP IN				Yes				None
92	M24	BenP IN	BenP IN				Yes				None
93	M37	BenP IN	BenP IN				Yes				None
94	M38	BenP IN	BenP IN				Yes				None
95	M39	BenP IN	BenP IN				Yes				None
96	M40	BenP IN	BenP IN				Yes				None
97	M53	BenP IN	BenP IN				Yes				None
98	M54	BenP IN	BenP IN				Yes				None
99	M55	BenP IN	BenP IN				Yes				None
100	M56	BenP IN	BenP IN				Yes				None
101	M69	BenP IN	BenP IN				Yes				None
102	M70	BenP IN	BenP IN				Yes				None
103	M71	BenP IN	BenP IN				Yes				None
104	M72	BenP IN	BenP IN				Yes				None
105	M85	BenP IN	BenP IN				Yes				None
106	M86	BenP IN	BenP IN				Yes				None
107	M87	BenP IN	BenP IN				Yes				None
108	M88	BenP IN	BenP IN				Yes				None
109	M101	BenP IN	BenP IN				Yes				None
110	M102	BenP IN	BenP IN				Yes				None
111	M103	BenP IN	BenP IN				Yes				None
112	M104	BenP IN	BenP IN				Yes				None
113	M113	BenP IN					Yes				None
114	M114		BenP IN				Yes				None
115	M115	BenP IN					Yes				None
116	M116		BenP IN				Yes				None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torque...	Kyy	Kzz	Cb	Fu...
1	M9	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
2	M10	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
3	M11	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
4	M12	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
5	M13	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
6	M14	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
7	M15	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
8	M16	TWR_DIAG_L1	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
9	M25	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torque...	Kyy	Kzz	Cb	Fu...
10	M26	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
11	M27	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
12	M28	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
13	M29	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
14	M30	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
15	M31	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
16	M32	TWR_DIAG_L2	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
17	M41	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
18	M42	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
19	M43	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
20	M44	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
21	M45	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
22	M46	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
23	M47	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
24	M48	TWR_DIAG_L3	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
25	M57	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
26	M58	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
27	M59	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
28	M60	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
29	M61	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
30	M62	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
31	M63	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
32	M64	TWR_DIAG_L4	11.1068	4.7	4.7	4.7	4.7	4.7	1.3	1		Lat...
33	M73	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
34	M74	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
35	M75	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
36	M76	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
37	M77	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
38	M78	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
39	M79	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
40	M80	TWR_DIAG_T1	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
41	M89	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
42	M90	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
43	M91	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
44	M92	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
45	M93	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
46	M94	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
47	M95	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
48	M96	TWR_DIAG_T2	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
49	M105	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
50	M106	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
51	M107	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
52	M108	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
53	M109	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
54	M110	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
55	M111	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
56	M112	TWR_DIAG_T3	22.1505	10.02	10.02	10.02	10.02	10.02	1.25	1		Lat...
57	M1	TWR_LEG_L1	10	10	10	10	10	10	1	1		Lat...
58	M2	TWR_LEG_L1	10	10	10	10	10	10	1	1		Lat...
59	M3	TWR_LEG_L1	10	10	10	10	10	10	1	1		Lat...
60	M4	TWR_LEG_L1	10	10	10	10	10	10	1	1		Lat...
61	M17	TWR_LEG_L2	10	10	10	10	10	10	1	1		Lat...

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torque...	Kyy	Kzz	Cb	Fu...
62	M18	TWR_LEG_L2	10	10	10	10	10	10	1	1		Lat...
63	M19	TWR_LEG_L2	10	10	10	10	10	10	1	1		Lat...
64	M20	TWR_LEG_L2	10	10	10	10	10	10	1	1		Lat...
65	M33	TWR_LEG_L3	10	10	10	10	10	10	1	1		Lat...
66	M34	TWR_LEG_L3	10	10	10	10	10	10	1	1		Lat...
67	M35	TWR_LEG_L3	10	10	10	10	10	10	1	1		Lat...
68	M36	TWR_LEG_L3	10	10	10	10	10	10	1	1		Lat...
69	M49	TWR_LEG_L4	10	10	10	10	10	10	1	1		Lat...
70	M50	TWR_LEG_L4	10	10	10	10	10	10	1	1		Lat...
71	M51	TWR_LEG_L4	10	10	10	10	10	10	1	1		Lat...
72	M52	TWR_LEG_L4	10	10	10	10	10	10	1	1		Lat...
73	M65	TWR_LEG_T1	20	20	20	20	20	20	1	1		Lat...
74	M66	TWR_LEG_T1	20	20	20	20	20	20	1	1		Lat...
75	M67	TWR_LEG_T1	20	20	20	20	20	20	1	1		Lat...
76	M68	TWR_LEG_T1	20	20	20	20	20	20	1	1		Lat...
77	M81	TWR_LEG_T2	20	20	20	20	20	20	1	1		Lat...
78	M82	TWR_LEG_T2	20	20	20	20	20	20	1	1		Lat...
79	M83	TWR_LEG_T2	20	20	20	20	20	20	1	1		Lat...
80	M84	TWR_LEG_T2	20	20	20	20	20	20	1	1		Lat...
81	M97	TWR_LEG_T3	20	20	20	20	20	20	1	1		Lat...
82	M98	TWR_LEG_T3	20	20	20	20	20	20	1	1		Lat...
83	M99	TWR_LEG_T3	20	20	20	20	20	20	1	1		Lat...
84	M100	TWR_LEG_T3	20	20	20	20	20	20	1	1		Lat...
85	M5	TWR_TOP_GIRT_L1	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
86	M6	TWR_TOP_GIRT_L1	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
87	M7	TWR_TOP_GIRT_L1	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
88	M8	TWR_TOP_GIRT_L1	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
89	M21	TWR_TOP_GIRT_L2	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
90	M22	TWR_TOP_GIRT_L2	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
91	M23	TWR_TOP_GIRT_L2	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
92	M24	TWR_TOP_GIRT_L2	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
93	M37	TWR_TOP_GIRT_L3	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
94	M38	TWR_TOP_GIRT_L3	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
95	M39	TWR_TOP_GIRT_L3	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
96	M40	TWR_TOP_GIRT_L3	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
97	M53	TWR_TOP_GIRT_L4	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
98	M54	TWR_TOP_GIRT_L4	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
99	M55	TWR_TOP_GIRT_L4	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
100	M56	TWR_TOP_GIRT_L4	4.8333	4.33	4.33	4.33	4.33	4.33	1	1		Lat...
101	M69	TWR_TOP_GIRT_...	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
102	M70	TWR_TOP_GIRT_...	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
103	M71	TWR_TOP_GIRT_...	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
104	M72	TWR_TOP_GIRT_...	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
105	M85	TWR_TOP_GIRT_...	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
106	M86	TWR_TOP_GIRT_...	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
107	M87	TWR_TOP_GIRT_...	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
108	M88	TWR_TOP_GIRT_...	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
109	M101	TWR_TOP_GIRT_...	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
110	M102	TWR_TOP_GIRT_...	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
111	M103	TWR_TOP_GIRT_...	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
112	M104	TWR_TOP_GIRT_...	9.5208	8.85	8.85	8.85	8.85	8.85	1	1		Lat...
113	M113	TWR_INNER_BRA...	7.8125	7.813	7.813	7.813	7.813	7.813	2.1	2.1		Lat...

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torque...	Kyy	Kzz	Cb	Fu...
114	M114	TWR_INNER_BRA...	7.8125	7.813	7.813	7.813	7.813	7.813	2.1	2.1		Lat...
115	M115	TWR_INNER_BRA...	7.8125	7.813	7.813	7.813	7.813	7.813	2.1	2.1		Lat...
116	M116	TWR_INNER_BRA...	7.8125	7.813	7.813	7.813	7.813	7.813	2.1	2.1		Lat...

Basic Load Cases

	BLC Description	Category	X G...	Y Gra...	Z Gr...	Joint	Point	Distributed	Area (Member)	Surface(Plate/W ...
1	Dead	DL		-1		56	360	28	4	
2	No Ice Wind 0°	None					36			
3	No Ice Wind 45°	None					66			
4	No Ice Wind 90°	None					36			
5	No Ice Wind 135°	None					66			
6	No Ice Wind 180°	None					36			
7	No Ice Wind 225°	None					66			
8	No Ice Wind 270°	None					36			
9	No Ice Wind 315°	None					66			
10	Ice Weight	IL				56	360	140		
11	Ice Wind 0°	None					36			
12	Ice Wind 45°	None					66			
13	Ice Wind 90°	None					66			
14	Ice Wind 135°	None					66			
15	Ice Wind 180°	None					36			
16	Ice Wind 225°	None					66			
17	Ice Wind 270°	None					36			
18	Ice Wind 315°	None					66			
19	Live	LL							4	
20	Roof Live	RLL								
21	Snow	SL								
22	BLC 1 Transient Area Loa...	None						96		
23	BLC 19 Transient Area Lo...	None						96		

Load Combinations

	Description	Solve	PD...	S...	B...	Fact...	BLC	Fa...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	F...	BLC	F...	F...	F...	F...	F...
1	1.4 D	Yes	Y		DL	1.4																
2	1.2 D + 1.6 L + 0.5 Lr	Yes	Y		DL	1.2	LL	1.6	RLL	.5												
3	1.2 D + 0.2 Di + 1.6 L +...	Yes	Y		DL	1.2	LL	1.6	SL	.5			IL	.2								
4	1.2 D + 1 L + 1.6 Lr	Yes	Y		DL	1.2	LL	1	RLL	1.6												
5	1.2 D + 1 L + 1.6 S	Yes	Y		DL	1.2	LL	1	SL	1.6												
6	1.2 D + 1.6 Lr + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	2	.5										
7	1.2 D + 1.6 S + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	2	.5										
8	1.2 D + 1 L + 0.5 Lr + 1...	Yes	Y		DL	1.2	LL	1	RLL	.5	2	1										
9	1.2 D + 1 L + 0.5 S + 1 ...	Yes	Y		DL	1.2	LL	1	SL	.5	2	1										
10	0.9 D + 1 W @ 0°	Yes	Y		DL	.9					2	1										
11	1.2 D + 1.6 Lr + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	3	.5										
12	1.2 D + 1.6 S + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	3	.5										
13	1.2 D + 1 L + 0.5 Lr + 1...	Yes	Y		DL	1.2	LL	1	RLL	.5	3	1										
14	1.2 D + 1 L + 0.5 S + 1 ...	Yes	Y		DL	1.2	LL	1	SL	.5	3	1										
15	0.9 D + 1 W @ 45°	Yes	Y		DL	.9					3	1										
16	1.2 D + 1.6 Lr + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	4	.5										
17	1.2 D + 1.6 S + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	4	.5										

Load Combinations (Continued)

	Description	Solve	PD...	S...	B...	Fact...	BLC	Fa...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	F...	BLC	F.....	F.....	F.....	F.....	F...
18	1.2 D + 1 L + 0.5 Lr + 1...	Yes	Y		DL	1.2	LL	1	RLL	.5	4	1										
19	1.2 D + 1 L + 0.5 S + 1 ...	Yes	Y		DL	1.2	LL	1	SL	.5	4	1										
20	0.9 D + 1 W @ 90°	Yes	Y		DL	.9					4	1										
21	1.2 D + 1.6 Lr + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	5	.5										
22	1.2 D + 1.6 S + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	5	.5										
23	1.2 D + 1 L + 0.5 Lr + 1...	Yes	Y		DL	1.2	LL	1	RLL	.5	5	1										
24	1.2 D + 1 L + 0.5 S + 1 ...	Yes	Y		DL	1.2	LL	1	SL	.5	5	1										
25	0.9 D + 1 W @ 135°	Yes	Y		DL	.9					5	1										
26	1.2 D + 1.6 Lr + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	6	.5										
27	1.2 D + 1.6 S + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	6	.5										
28	1.2 D + 1 L + 0.5 Lr + 1...	Yes	Y		DL	1.2	LL	1	RLL	.5	6	1										
29	1.2 D + 1 L + 0.5 S + 1 ...	Yes	Y		DL	1.2	LL	1	SL	.5	6	1										
30	0.9 D + 1 W @ 180°	Yes	Y		DL	.9					6	1										
31	1.2 D + 1.6 Lr + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	7	.5										
32	1.2 D + 1.6 S + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	7	.5										
33	1.2 D + 1 L + 0.5 Lr + 1...	Yes	Y		DL	1.2	LL	1	RLL	.5	7	1										
34	1.2 D + 1 L + 0.5 S + 1 ...	Yes	Y		DL	1.2	LL	1	SL	.5	7	1										
35	0.9 D + 1 W @ 225°	Yes	Y		DL	.9					7	1										
36	1.2 D + 1.6 Lr + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	8	.5										
37	1.2 D + 1.6 S + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	8	.5										
38	1.2 D + 1 L + 0.5 Lr + 1...	Yes	Y		DL	1.2	LL	1	RLL	.5	8	1										
39	1.2 D + 1 L + 0.5 S + 1 ...	Yes	Y		DL	1.2	LL	1	SL	.5	8	1										
40	0.9 D + 1 W @ 270°	Yes	Y		DL	.9					8	1										
41	1.2 D + 1.6 Lr + 0.5 W ...	Yes	Y		DL	1.2			RLL	1.6	9	.5										
42	1.2 D + 1.6 S + 0.5 W ...	Yes	Y		DL	1.2			SL	1.6	9	.5										
43	1.2 D + 1 L + 0.5 Lr + 1...	Yes	Y		DL	1.2	LL	1	RLL	.5	9	1										
44	1.2 D + 1 L + 0.5 S + 1 ...	Yes	Y		DL	1.2	LL	1	SL	.5	9	1										
45	0.9 D + 1 W @ 315°	Yes	Y		DL	.9					9	1										
46	1.2 D + 1 Di + 1 L + 0.5...	Yes	Y		DL	1.2	LL	1	SL	.5	11	1	IL	1		1						
47	0.9 D + 1 Di + 1 Wi @ ...	Yes	Y		DL	.9					11	1	IL	1		1						
48	1.2 D + 1 Di + 1 L + 0.5...	Yes	Y		DL	1.2	LL	1	SL	.5	12	1	IL	1		1						
49	0.9 D + 1 Di + 1 Wi @ ...	Yes	Y		DL	.9					12	1	IL	1		1						
50	1.2 D + 1 Di + 1 L + 0.5...	Yes	Y		DL	1.2	LL	1	SL	.5	13	1	IL	1		1						
51	0.9 D + 1 Di + 1 Wi @ ...	Yes	Y		DL	.9					13	1	IL	1		1						
52	1.2 D + 1 Di + 1 L + 0.5...	Yes	Y		DL	1.2	LL	1	SL	.5	14	1	IL	1		1						
53	0.9 D + 1 Di + 1 Wi @ ...	Yes	Y		DL	.9					14	1	IL	1		1						
54	1.2 D + 1 Di + 1 L + 0.5...	Yes	Y		DL	1.2	LL	1	SL	.5	15	1	IL	1		1						
55	0.9 D + 1 Di + 1 Wi @ ...	Yes	Y		DL	.9					15	1	IL	1		1						
56	1.2 D + 1 Di + 1 L + 0.5...	Yes	Y		DL	1.2	LL	1	SL	.5	16	1	IL	1		1						
57	0.9 D + 1 Di + 1 Wi @ ...	Yes	Y		DL	.9					16	1	IL	1		1						
58	1.2 D + 1 Di + 1 L + 0.5...	Yes	Y		DL	1.2	LL	1	SL	.5	17	1	IL	1		1						
59	0.9 D + 1 Di + 1 Wi @ ...	Yes	Y		DL	.9					17	1	IL	1		1						
60	1.2 D + 1 Di + 1 L + 0.5...	Yes	Y		DL	1.2	LL	1	SL	.5	18	1	IL	1		1						
61	0.9 D + 1 Di + 1 Wi @ ...	Yes	Y		DL	.9					18	1	IL	1		1						

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N57	max	14.413	34	131.138	34	11.673	15	0	61	.002	25	0	61
2		min	-11.613	15	-106.627	15	-14.475	33	0	1	-.002	45	0	1
3	N58	max	11.676	45	132.03	24	11.726	45	0	61	.002	15	0	61

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
4		min	-14.474	23	-107.239	45	-14.54	23	0	1	-.002	35	0	1
5	N59	max	11.607	35	131.322	14	14.481	14	0	61	.002	45	0	61
6		min	-14.417	13	-106.445	35	-11.664	35	0	1	-.002	25	0	1
7	N60	max	14.475	44	131.898	44	14.534	44	0	61	.002	35	0	61
8		min	-11.668	25	-107.317	25	-11.735	25	0	1	-.002	15	0	1
9	Totals:	max	25.946	40	92.866	60	25.946	10						
10		min	-25.946	18	38.747	10	-25.946	28						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check Actual	Code Check Allowable	Ratio (Act./Allow.)	Loc[in]	LC	Shear Check	Shear Check Allowable	Ratio (Act./Allow.)	Loc[in]	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	M9	2L2x2x3/16x1/2	0.064	1.05	0.061*	0	44	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
2	M10	2L2x2x3/16x1/2	0.07	1.05	0.067*	0	24	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
3	M11	2L2x2x3/16x1/2	0.07	1.05	0.067*	0	14	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
4	M12	2L2x2x3/16x1/2	0.063	1.05	0.06*	0	34	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
5	M13	2L2x2x3/16x1/2	0.067	1.05	0.064*	0	24	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
6	M14	2L2x2x3/16x1/2	0.073	1.05	0.07*	0	44	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
7	M15	2L2x2x3/16x1/2	0.074	1.05	0.07*	0	34	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
8	M16	2L2x2x3/16x1/2	0.068	1.05	0.065*	0	14	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
9	M25	2L2x2x3/16x1/2	0.147	1.05	0.14*	0	44	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
10	M26	2L2x2x3/16x1/2	0.154	1.05	0.147*	0	24	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
11	M27	2L2x2x3/16x1/2	0.152	1.05	0.145*	0	14	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
12	M28	2L2x2x3/16x1/2	0.146	1.05	0.139*	0	34	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
13	M29	2L2x2x3/16x1/2	0.15	1.05	0.143*	0	24	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
14	M30	2L2x2x3/16x1/2	0.156	1.05	0.149*	0	44	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
15	M31	2L2x2x3/16x1/2	0.158	1.05	0.15*	0	34	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
16	M32	2L2x2x3/16x1/2	0.152	1.05	0.145*	0	14	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1b*
17	M41	2L2x2x3/16x1/2	0.222	1.05	0.211*	2.661	9	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1a
18	M42	2L2x2x3/16x1/2	0.227	1.05	0.216*	2.661	19	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1a
19	M43	2L2x2x3/16x1/2	0.229	1.05	0.218*	2.661	19	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1a
20	M44	2L2x2x3/16x1/2	0.225	1.05	0.214*	2.661	29	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1a
21	M45	2L2x2x3/16x1/2	0.225	1.05	0.214*	2.661	29	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1a
22	M46	2L2x2x3/16x1/2	0.23	1.05	0.219*	2.777	39	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1a
23	M47	2L2x2x3/16x1/2	0.236	1.05	0.225*	2.777	39	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1a
24	M48	2L2x2x3/16x1/2	0.231	1.05	0.22*	2.661	9	0.003	1.05	0.003*	5.553	29.85	46.322	2.888	1.645	1	H1-1a
25	M57	2L2x2x3/16x1/2	0.313	1.05	0.298*	5.553	44	0.005	1.05	0.005*	0	29.85	46.322	2.888	1.645	1	H1-1a
26	M58	2L2x2x3/16x1/2	0.318	1.05	0.303*	5.553	24	0.005	1.05	0.005*	0	29.85	46.322	2.888	1.645	1	H1-1a
27	M59	2L2x2x3/16x1/2	0.316	1.05	0.301*	4.975	14	0.005	1.05	0.005*	0	29.85	46.322	2.888	1.645	1	H1-1a
28	M60	2L2x2x3/16x1/2	0.311	1.05	0.296*	5.553	34	0.005	1.05	0.005*	0	29.85	46.322	2.888	1.645	1	H1-1a
29	M61	2L2x2x3/16x1/2	0.316	1.05	0.301*	5.553	24	0.005	1.05	0.005*	0	29.85	46.322	2.888	1.645	1	H1-1a
30	M62	2L2x2x3/16x1/2	0.323	1.05	0.308*	5.553	44	0.005	1.05	0.005*	0	29.85	46.322	2.888	1.645	1	H1-1a
31	M63	2L2x2x3/16x1/2	0.323	1.05	0.308*	5.553	34	0.005	1.05	0.005*	0	29.85	46.322	2.888	1.645	1	H1-1a
32	M64	2L2x2x3/16x1/2	0.317	1.05	0.302*	4.859	14	0.005	1.05	0.005*	0	29.85	46.322	2.888	1.645	1	H1-1a
33	M73	2L4x4x3/8x1/2	0.144	1.05	0.137*	0	34	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1b*
34	M74	2L4x4x3/8x1/2	0.145	1.05	0.138*	0	24	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1b*
35	M75	2L4x4x3/8x1/2	0.145	1.05	0.138*	0	24	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1b*
36	M76	2L4x4x3/8x1/2	0.144	1.05	0.137*	0	14	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1b*
37	M77	2L4x4x3/8x1/2	0.144	1.05	0.137*	0	14	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1b*
38	M78	2L4x4x3/8x1/2	0.145	1.05	0.138*	0	44	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1b*
39	M79	2L4x4x3/8x1/2	0.147	1.05	0.14*	0	44	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1b*
40	M80	2L4x4x3/8x1/2	0.146	1.05	0.139*	0	34	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1b*
41	M89	2L4x4x3/8x1/2	0.216	1.05	0.206*	5.307	34	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
42	M90	2L4x4x3/8x1/2	0.217	1.05	0.207*	5.307	24	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
43	M91	2L4x4x3/8x1/2	0.218	1.05	0.208*	5.307	24	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
44	M92	2L4x4x3/8x1/2	0.217	1.05	0.207*	5.307	14	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
45	M93	2L4x4x3/8x1/2	0.216	1.05	0.206*	5.307	14	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
46	M94	2L4x4x3/8x1/2	0.217	1.05	0.207*	5.307	44	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
47	M95	2L4x4x3/8x1/2	0.219	1.05	0.209*	5.307	44	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
48	M96	2L4x4x3/8x1/2	0.217	1.05	0.207*	5.307	34	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
49	M105	2L4x4x3/8x1/2	0.308	1.05	0.293*	5.768	34	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
50	M106	2L4x4x3/8x1/2	0.309	1.05	0.294*	5.768	24	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
51	M107	2L4x4x3/8x1/2	0.311	1.05	0.296*	5.768	24	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
52	M108	2L4x4x3/8x1/2	0.309	1.05	0.294*	5.768	14	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
53	M109	2L4x4x3/8x1/2	0.308	1.05	0.293*	5.768	14	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
54	M110	2L4x4x3/8x1/2	0.309	1.05	0.294*	5.768	44	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
55	M111	2L4x4x3/8x1/2	0.31	1.05	0.295*	5.768	44	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
56	M112	2L4x4x3/8x1/2	0.309	1.05	0.294*	5.768	34	0.002	1.05	0.002*	11.08	112.46	185.287	20.065	13.16	1	H1-1a
57	M1	HSS6x6x1/4	0.057	1.05	0.054*	4.896	9	0.009	1.05	0.009*	0	181.658	216.936	38.64	38.64	1	H1-1b
58	M2	HSS6x6x1/4	0.058	1.05	0.055*	5	19	0.009	1.05	0.009*	0	181.658	216.936	38.64	38.64	1	H1-1b
59	M3	HSS6x6x1/4	0.057	1.05	0.054*	5	29	0.009	1.05	0.009*	0	181.658	216.936	38.64	38.64	1	H1-1b
60	M4	HSS6x6x1/4	0.061	1.05	0.058*	5	39	0.009	1.05	0.009*	0	181.658	216.936	38.64	38.64	1	H1-1b
61	M17	HSS6x6x1/4	0.072	1.05	0.069*	10	9	0.007	1.05	0.007*	5	181.658	216.936	38.64	38.64	1	H1-1b
62	M18	HSS6x6x1/4	0.073	1.05	0.07*	10	19	0.007	1.05	0.007*	5	181.658	216.936	38.64	38.64	1	H1-1b
63	M19	HSS6x6x1/4	0.071	1.05	0.068*	10	29	0.007	1.05	0.007*	5	181.658	216.936	38.64	38.64	1	H1-1b
64	M20	HSS6x6x1/4	0.077	1.05	0.073*	10	39	0.007	1.05	0.007*	5	181.658	216.936	38.64	38.64	1	H1-1b
65	M33	HSS6x6x1/4	0.122	1.05	0.116*	0	9	0.007	1.05	0.007*	0	181.658	216.936	38.64	38.64	1	H1-1b
66	M34	HSS6x6x1/4	0.123	1.05	0.117*	0	19	0.007	1.05	0.007*	0	181.658	216.936	38.64	38.64	1	H1-1b
67	M35	HSS6x6x1/4	0.121	1.05	0.115*	0	29	0.007	1.05	0.007*	0	181.658	216.936	38.64	38.64	1	H1-1b
68	M36	HSS6x6x1/4	0.131	1.05	0.125*	0	39	0.007	1.05	0.007*	0	181.658	216.936	38.64	38.64	1	H1-1b*
69	M49	HSS6x6x1/4	0.276	1.05	0.263*	10	9	0.009	1.05	0.009*	5	181.658	216.936	38.64	38.64	1	H1-1a
70	M50	HSS6x6x1/4	0.278	1.05	0.265*	10	19	0.009	1.05	0.009*	5	181.658	216.936	38.64	38.64	1	H1-1a
71	M51	HSS6x6x1/4	0.274	1.05	0.261*	10	29	0.009	1.05	0.009*	5	181.658	216.936	38.64	38.64	1	H1-1a
72	M52	HSS6x6x1/4	0.288	1.05	0.274*	10	39	0.009	1.05	0.009*	5	181.658	216.936	38.64	38.64	1	H1-1a
73	M65	HSS8x8x1/4	0.148	1.05	0.141*	0	34	0.008	1.05	0.008*	0	199.192	293.94	66.288	66.288	1	H1-1b*
74	M66	HSS8x8x1/4	0.15	1.05	0.143*	0	24	0.008	1.05	0.008*	0	199.192	293.94	66.288	66.288	1	H1-1b*
75	M67	HSS8x8x1/4	0.147	1.05	0.14*	0	14	0.008	1.05	0.008*	0	199.192	293.94	66.288	66.288	1	H1-1b*
76	M68	HSS8x8x1/4	0.151	1.05	0.144*	0	44	0.008	1.05	0.008*	0	199.192	293.94	66.288	66.288	1	H1-1b*
77	M81	HSS8x8x1/4	0.296	1.05	0.282*	20	34	0.006	1.05	0.006*	10	199.192	293.94	66.288	66.288	1	H1-1a
78	M82	HSS8x8x1/4	0.297	1.05	0.283*	0	24	0.006	1.05	0.006*	10	199.192	293.94	66.288	66.288	1	H1-1a
79	M83	HSS8x8x1/4	0.294	1.05	0.28*	0	14	0.006	1.05	0.006*	10	199.192	293.94	66.288	66.288	1	H1-1a
80	M84	HSS8x8x1/4	0.298	1.05	0.284*	20	44	0.006	1.05	0.006*	10	199.192	293.94	66.288	66.288	1	H1-1a
81	M97	HSS8x8x1/4	0.395	1.05	0.376*	20	34	0.007	1.05	0.007*	10	199.192	293.94	66.288	66.288	1	H1-1a
82	M98	HSS8x8x1/4	0.397	1.05	0.378*	20	24	0.007	1.05	0.007*	10	199.192	293.94	66.288	66.288	1	H1-1a
83	M99	HSS8x8x1/4	0.394	1.05	0.375*	20	14	0.007	1.05	0.007*	10	199.192	293.94	66.288	66.288	1	H1-1a
84	M100	HSS8x8x1/4	0.397	1.05	0.378*	20	44	0.007	1.05	0.007*	10	199.192	293.94	66.288	66.288	1	H1-1a
85	M5	C6X10.5	0.004	1.05	0.004*	2.417	50	0.001	1.05	0.001*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
86	M6	C6X10.5	0.004	1.05	0.004*	2.417	52	0.001	1.05	0.001*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
87	M7	C6X10.5	0.005	1.05	0.005*	2.417	58	0.001	1.05	0.001*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
88	M8	C6X10.5	0.005	1.05	0.005*	2.417	60	0.001	1.05	0.001*	0	59.887	99.468	2.428	15.224	1	H1-1b

*Rating per TIA-222-H, Section 15.5

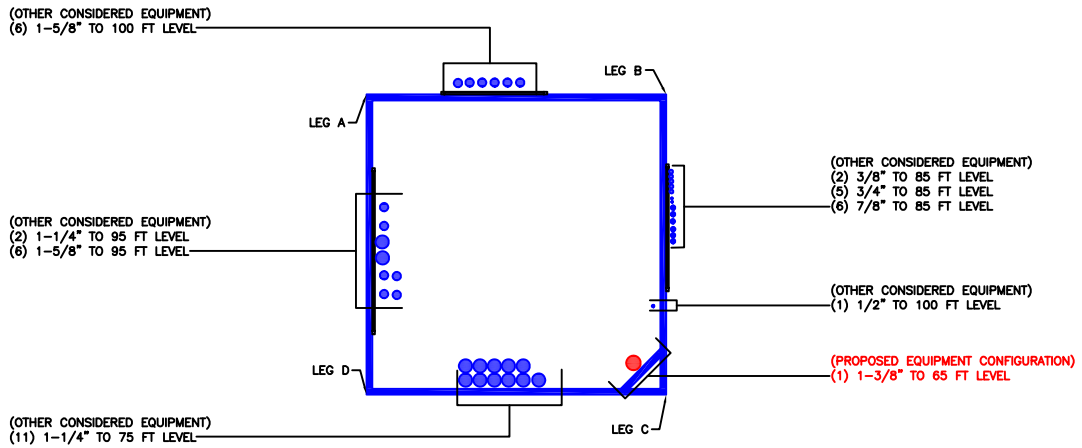
Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check Actual	Code Check Allowable	Ratio (Act./Allow.)	Loc[in]	LC	Shear Check	Shear Check Allowable	Ratio (Act./Allow.)	Loc[in]	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
89	M21	C6X10.5	0.053	1.05	0.05*	2.417	3	0.017	1.05	0.016*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
90	M22	C6X10.5	0.056	1.05	0.053*	2.417	3	0.017	1.05	0.016*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
91	M23	C6X10.5	0.061	1.05	0.058*	2.417	3	0.019	1.05	0.018*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
92	M24	C6X10.5	0.056	1.05	0.053*	2.467	3	0.017	1.05	0.016*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
93	M37	C6X10.5	0.054	1.05	0.051*	2.417	3	0.017	1.05	0.016*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
94	M38	C6X10.5	0.057	1.05	0.054*	2.417	3	0.017	1.05	0.016*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
95	M39	C6X10.5	0.062	1.05	0.059*	2.417	3	0.019	1.05	0.018*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
96	M40	C6X10.5	0.058	1.05	0.055*	2.467	3	0.017	1.05	0.016*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
97	M53	C6X10.5	0.056	1.05	0.053*	2.417	3	0.017	1.05	0.016*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
98	M54	C6X10.5	0.059	1.05	0.056*	2.417	3	0.017	1.05	0.016*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
99	M55	C6X10.5	0.064	1.05	0.061*	2.417	3	0.019	1.05	0.018*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
100	M56	C6X10.5	0.059	1.05	0.056*	2.467	3	0.017	1.05	0.016*	4.833	59.887	99.468	2.428	15.224	1	H1-1b
101	M69	W16X45	0.471	1.05	0.449*	4.76	29	0.133	1.05	0.127*	0	426.018	598.5	54.375	273.12	1	H1-1b
102	M70	W16X45	0.475	1.05	0.452*	4.76	19	0.134	1.05	0.128*	9.521	426.018	598.5	54.375	273.12	1	H1-1b
103	M71	W16X45	0.473	1.05	0.45*	4.76	9	0.133	1.05	0.127*	9.521	426.018	598.5	54.375	273.12	1	H1-1b
104	M72	W16X45	0.49	1.05	0.467*	4.76	39	0.138	1.05	0.131*	9.521	426.018	598.5	54.375	273.12	1	H1-1b
105	M85	W6X12	0.156	1.05	0.149*	0	10	0.003	1.05	0.003*	9.521	59.891	159.75	8.7	22.79	1	H1-1b*
106	M86	W6X12	0.16	1.05	0.152*	0	40	0.003	1.05	0.003*	9.521	59.891	159.75	8.7	22.79	1	H1-1b*
107	M87	W6X12	0.156	1.05	0.149*	0	30	0.003	1.05	0.003*	9.521	59.891	159.75	8.7	22.79	1	H1-1b*
108	M88	W6X12	0.158	1.05	0.15*	0	20	0.003	1.05	0.003*	9.521	59.891	159.75	8.7	22.79	1	H1-1b*
109	M101	W6X12	0.277	1.05	0.264*	4.76	10	0.003	1.05	0.003*	9.521	59.891	159.75	8.7	22.79	1	H1-1a
110	M102	W6X12	0.28	1.05	0.267*	4.76	40	0.003	1.05	0.003*	9.521	59.891	159.75	8.7	22.79	1	H1-1a
111	M103	W6X12	0.277	1.05	0.264*	4.76	30	0.003	1.05	0.003*	9.521	59.891	159.75	8.7	22.79	1	H1-1a
112	M104	W6X12	0.279	1.05	0.266*	4.76	20	0.003	1.05	0.003*	9.521	59.891	159.75	8.7	22.79	1	H1-1a
113	M113	W10X33	0.399	1.05	0.38*	4.395	29	0.497	1.05	0.473*	3.092	205.996	436.95	52.5	142.087	1	H1-1b
114	M114	W10X33	0.404	1.05	0.385*	3.418	9	0.5	1.05	0.476*	4.72	205.996	436.95	52.5	142.087	1	H1-1b
115	M115	W10X33	0.403	1.05	0.384*	4.395	19	0.502	1.05	0.478*	3.092	205.996	436.95	52.5	142.087	1	H1-1b
116	M116	W10X33	0.42	1.05	0.4*	3.418	39	0.52	1.05	0.495*	4.72	205.996	436.95	52.5	142.087	1	H1-1b

*Rating per TIA-222-H, Section 15.5

APPENDIX B

BASE LEVEL DRAWING



CROWN REGION ADDRESS

USA

25/09/19	UPDATED PER WORK ORDER 1794884	WJT	
27/02/20	UPDATED PER WORK ORDER 1832795	NK	
29/05/20	UPDATED PER WORK ORDER 1866525	LR	
27/06/20	UPDATED PER WORK ORDER 1881217	SAB	
31/08/20	UPDATED PER WORK ORDER 1882464	RS	
18/11/20	UPDATED PER WORK ORDER 1886333	RS	
19/02/21	UPDATED PER WORK ORDER 1926875	MM	
15/03/21	UPDATED PER WORK ORDER 1939507	cl	
12/05/21	UPDATED PER WORK ORDER 1972173	CC	

DRAWN BY: AAM
CHECKED BY:
DRAWING DATE: 19/05/06

SITE NUMBER:
SITE NAME:

SITE NAME

CT HAMDEN NORTH CAC

BUSINESS UNIT NUMBER

800529

SITE ADDRESS

890 EVERGREEN AVENUE
HAMDEN, CT 06518
NEW HAVEN COUNTY
USA

SHEET TITLE

BASE LEVEL DRAWING

SHEET NUMBER

N.T.S.

A1-0

PLOT DATE: 7/26/2016
f U:\AutoCAD\Border\BASELEVEL_BORDER.dwg

FILE NAME: 800529_BASELEVEL.dwg

APPENDIX C

ADDITIONAL CALCULATIONS

Project #: 2021777.800529.12

Bolt Checks

Date: 9/13/2021

Section #	Elevation	Component Type	Bolt Grade	Bolt Size (in)	# of Bolts	Maximum Load (k)	Maximum Load per Bolt (k)	Allowable Load per Bolt (k)	Ratio	Allowable Ratio	% Capacity	Criteria
L1	100	Diagonal	A325N	0.875	2	2.214	1.107	15.588	0.071	1.050	6.8%	1
L2	90	Diagonal	A325N	0.875	2	4.719	2.36	15.588	0.151	1.050	14.4%	1
L3	80	Diagonal	A325N	0.875	2	6.897	3.448	15.588	0.221	1.050	21.1%	1
L4	70	Leg	A325N	0.875	4	42.793	21.396	41.556	0.515	1.050	49.0%	1
		Diagonal	A325N	0.875	2	9.136	4.568	15.588	0.293	1.050	27.9%	1
T1	60	Diagonal	A325N	0.875	2	16.581	8.29	41.372	0.200	1.050	19.1%	1
T2	40	Top Girt	A325N	0.875	2	13.656	6.828	24.354	0.280	1.050	26.7%	1
		Diagonal	A325N	0.875	2	23.462	11.731	41.372	0.284	1.050	27.0%	1
T3	20	Top Girt	A325N	0.875	2	21.591	10.796	24.354	0.443	1.050	42.2%	1
		Diagonal	A325N	0.875	2	33.675	16.838	41.372	0.407	1.050	38.8%	1
										Maximum Capacity	49.0%	

Self Support Anchor Rod Capacity

Site Info	
BU #	800529
Site Name	T HAMDEN NORTH CA
Order #	552718 Rev. 3

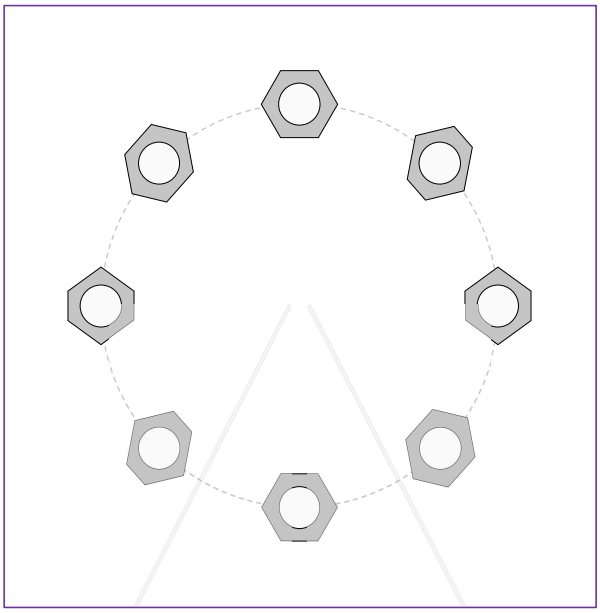
Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	Yes
l_{ar} (in)	0

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	131.32	106.45
Shear Force (kips)	20.43	15.55

**TIA-222-H Section 15.5 Applied*

Considered Eccentricity	
Leg Mod Eccentricity (in)	0.000
Anchor Rod N.A Shift (in)	0.000
Total Eccentricity (in)	0.000

**Anchor Rod Eccentricity Applied*



Connection Properties

Anchor Rod Data

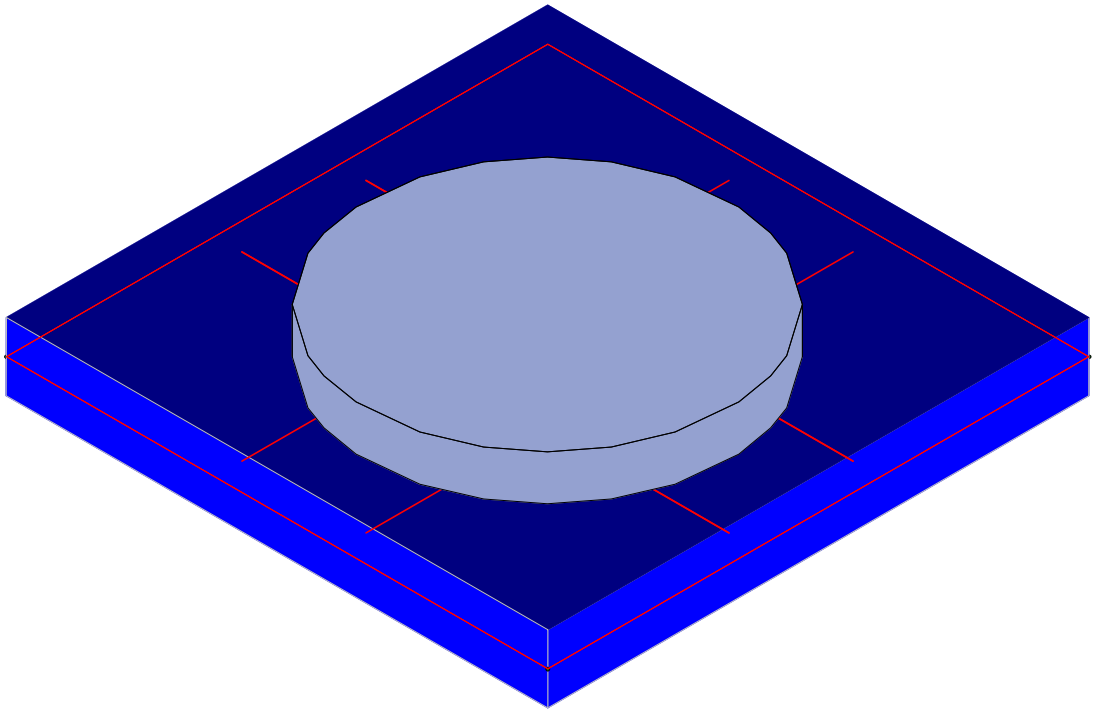
(8) 1-1/4" ø bolts (A36 N; Fy=36 ksi, Fu=58 ksi)

l_{ar} (in): 0

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 13.31	ϕPn_t = 42.15	**Stress Rating**
Vu = 1.94	ϕVn = 26.69	**30.1%**
Mu = n/a	ϕMn = n/a	**Pass**



Loads: DL - Dead Load
Results for LC 1, 1.4 DL

GPD		SK - 1
KM	CT HAMDEN NORTH CAC	Mar 18, 2021 at 2:41 PM
2021777.800529.12	3D Rendering - Foundation	800529.fnd

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	100
Mesh Size (in)	24
Max Iterations	10
Merge Tolerance (in)	.12
Solver	Sparse Accelerated
Coefficient of Friction	.3
No. of Shear Regions	4
Shear Region Spacing Increment (in)	4
Min 1 Bar Dia Spacing for Beams?	No
Optimize footings for OTM / Sliding?	No
Parme Beta Factor	.65
Pile Safety Factor	3
Concrete Stress Block	Rectangular
Concrete Rebar Set	ASTM A615
Concrete Code	ACI 318-14
HR Steel Pile Code	AISC 14th(360-10): ASD
Wood Pile Code	AWC NDS-18: ASD

Concrete Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/ft^3]	f'c[ksi]	Lambda	Flex Steel...	Shear Ste...
1	Conc3000NW	3156	1372	.15	.6	.145	3	1	60	60
2	Conc3500NW	3409	1482	.15	.6	.145	3.5	1	60	60
3	Conc4000NW	3644	1584	.15	.6	.145	4	1	60	60
4	Conc3000LW	2085	907	.15	.6	.11	3	.75	60	60
5	Conc3500LW	2252	979	.15	.6	.11	3.5	.75	60	60
6	Conc4000LW	2408	1047	.15	.6	.11	4	.75	60	60

Slab Rebar Parameters

	Label	Top ...	Bottom Bar	Max Top Ba...	Min Top Bar Spacing...	Max Bot B...	Min Bot Ba...	Spacing Incre...	Rebar Options
1	Circular	#6	#3	9	9	999	999	2	Force Top and B...
2	Square	#5	#8	9	9	9	9	2	Force Top and B...

Soil Definitions

	Label	Subgrade Modulus [k/ft^3]	Allowable Bearing[ksf]	Depth Properties	Default?
1	Default	259.2	4.5	None	Yes

Slabs

	Label	Thickness [in]	Material	Local Axis Angle...	Analysis Offset [i...	Passive Pressur...	Soil Overburden [ksf]
1	S2	36	Conc3000NW	0	0	0	0

Pedestal Properties

	Label	Type	Shape	Height[in]	e/BL	ex[in]	ez[in]	BLx[ft]	BLz[ft]
1	Footing 1	Pedestal	CRECT12X12	24	Use ex,ez	0	0	0	0

Load Combinations

	Label	S...	S...	A...	SF	C...	Fact...	C...	Fa...	C...	Fa...	Categ...	Fa...	C...	Fa...	C...	Fa...	C...	Fa...	C...	Fa...	C...	Fa...	C...	Fa...	C...	Fa...
1	1.4 D	Y...				DL	1.4	O...	1																		
2	1.2 D + 1.6 L + 0.5 Lr	Y...				DL	1.2	O...	1																		
3	1.2 D + 0.2 Di + 1.6 L + 0.5 S	Y...				DL	1.2	O...	1																		
4	1.2 D + 1 L + 1.6 Lr	Y...				DL	1.2	O...	1																		
5	1.2 D + 1 L + 1.6 S	Y...				DL	1.2	O...	1																		
6	1.2 D + 1.6 Lr + 0.5 W @ 0°	Y...				DL	1.2	O...	1																		
7	1.2 D + 1.6 S + 0.5 W @ 0°	Y...				DL	1.2	O...	1																		
8	1.2 D + 1 L + 0.5 Lr + 1 W @ 0°	Y...				DL	1.2	O...	1																		
9	1.2 D + 1 L + 0.5 S + 1 W @ 0°	Y...				DL	1.2	O...	1																		
10	0.9 D + 1 W @ 0°	Y...				DL	.9	O...	1																		
11	1.2 D + 1.6 Lr + 0.5 W @ 45°	Y...				DL	1.2	E...	1																		
12	1.2 D + 1.6 S + 0.5 W @ 45°	Y...				DL	1.2	E...	1																		
13	1.2 D + 1 L + 0.5 Lr + 1 W @ 4...	Y...				DL	1.2	ELZ	1																		
14	1.2 D + 1 L + 0.5 S + 1 W @ 45°	Y...				DL	1.2	W...	1																		
15	0.9 D + 1 W @ 45°	Y...				DL	.9	W...	1																		
16	1.2 D + 1 Di + 1 L + 0.5 S + 1 ...	Y...				DL	1.2	W...	1																		
17	0.9 D + 1 Di + 1 Wi @ 0° + Te...	Y...				DL	.9	W...	1																		
18	1.2 D + 1 Di + 1 L + 0.5 S + 1 ...	Y...				DL	1.2	W...	1																		
19	0.9 D + 1 Di + 1 Wi @ 45° + Te...	Y...				DL	.9	W...	1																		
20	1.4 D	Y...	Y...			DL	1.4	O...	1																		
21	1.2 D + 1.6 L + 0.5 Lr	Y...	Y...			DL	1.2	O...	1																		
22	1.2 D + 0.2 Di + 1.6 L + 0.5 S	Y...	Y...			DL	1.2	O...	1																		
23	1.2 D + 1 L + 1.6 Lr	Y...	Y...			DL	1.2	O...	1																		
24	1.2 D + 1 L + 1.6 S	Y...	Y...			DL	1.2	O...	1																		
25	1.2 D + 1.6 Lr + 0.5 W @ 0°	Y...	Y...			DL	1.2	O...	1																		
26	1.2 D + 1.6 S + 0.5 W @ 0°	Y...	Y...			DL	1.2	O...	1																		
27	1.2 D + 1 L + 0.5 Lr + 1 W @ 0°	Y...	Y...			DL	1.2	O...	1																		
28	1.2 D + 1 L + 0.5 S + 1 W @ 0°	Y...	Y...			DL	1.2	O...	1																		
29	0.9 D + 1 W @ 0°	Y...	Y...			DL	.9	O...	1																		
30	1.2 D + 1.6 Lr + 0.5 W @ 45°	Y...	Y...			DL	1.2	E...	1																		
31	1.2 D + 1.6 S + 0.5 W @ 45°	Y...	Y...			DL	1.2	E...	1																		
32	1.2 D + 1 L + 0.5 Lr + 1 W @ 4...	Y...	Y...			DL	1.2	ELZ	1																		
33	1.2 D + 1 L + 0.5 S + 1 W @ 45°	Y...	Y...			DL	1.2	W...	1																		
34	0.9 D + 1 W @ 45°	Y...	Y...			DL	.9	W...	1																		
35	1.2 D + 1 Di + 1 L + 0.5 S + 1 ...	Y...	Y...			DL	1.2	W...	1																		
36	0.9 D + 1 Di + 1 Wi @ 0° + Te...	Y...	Y...			DL	.9	W...	1																		
37	1.2 D + 1 Di + 1 L + 0.5 S + 1 ...	Y...	Y...			DL	1.2	W...	1																		
38	0.9 D + 1 Di + 1 Wi @ 45° + Te...	Y...	Y...			DL	.9	W...	1																		

Design Strips

	Label	Rebar Angle from Pl...	No. of Design Cuts	Design Rule
1	DS4	90	50	Square
2	DS2	0	50	Square
3	DS3	90	50	Square

Envelope Slab Soil Pressures (By Combination)

	Label	UC	LC	Soil Pressure [ksf]	Allowable Bearing [ksf]	Point
1	S2	.336	32	1.513	4.5	N33

Slab Overturning Safety Factors (By Combination)

	LC	Slab	Angle[deg]	Mo-xx[k-ft]	Ms-xx[k-ft]	Mo-zz[k-ft]	Ms-zz[k-ft]	Ms-xx/Mo-xx	Ms-zz/Mo-zz
1	20	S2	0	0	5914.21	0	5911.493	9.999+	9.999+
2	21	S2	0	0	5243.011	0	5241.672	9.999+	9.999+
3	22	S2	0	0	5319.891	0	5319.558	9.999+	9.999+
4	23	S2	0	0	5177.881	0	5176.161	9.999+	9.999+
5	24	S2	0	0	5177.881	0	5176.161	9.999+	9.999+
6	25	S2	0	0	5105.771	160.778	4447.699	9.999+	9.999+
7	26	S2	0	0	5105.771	160.778	4447.699	9.999+	9.999+
8	27	S2	0	0	5250.741	833.48	4447.699	9.999+	5.336
9	28	S2	0	0	5250.741	833.48	4447.699	9.999+	5.336
10	29	S2	0	0	3874.887	1094.008	3335.774	9.999+	3.049
11	30	S2	0	0	5650.231	0	4544.63	9.999+	9.999+
12	31	S2	0	0	5650.231	0	4544.63	9.999+	9.999+
13	32	S2	0	435.811	4447.699	317.499	4447.699	9.999+	9.999+
14	33	S2	0	435.811	4447.699	317.499	4447.699	9.999+	9.999+
15	34	S2	0	696.911	3335.774	579.055	3335.774	4.787	5.761
16	35	S2	0	0	5575.083	0	5289.004	9.999+	9.999+
17	36	S2	0	0	4391.848	0	4004.907	9.999+	9.999+
18	37	S2	0	0	5768.138	0	5380.392	9.999+	9.999+
19	38	S2	0	0	4686.659	0	4708.59	9.999+	9.999+

Slab Sliding Safety Factors (By Combination)

	LC	Slab	Angle[deg]	Va-xx[k]	Vr-xx[k]	Va-zz[k]	Vr-zz[k]	SR-xx	SR-zz
1	20	S2	0	0	147.806	0	147.806	9.999+	9.999+
2	21	S2	0	0	131.042	0	131.042	9.999+	9.999+
3	22	S2	0	0	132.971	0	132.971	9.999+	9.999+
4	23	S2	0	0	129.411	0	129.411	9.999+	9.999+
5	24	S2	0	0	129.411	0	129.411	9.999+	9.999+
6	25	S2	0	0	126.691	0	113.718	9.999+	9.999+
7	26	S2	0	0	126.691	0	113.718	9.999+	9.999+
8	27	S2	0	0	129.411	7.728	111.192	9.999+	9.999+
9	28	S2	0	0	129.411	7.728	111.192	9.999+	9.999+
10	29	S2	0	0	95.018	14.322	83.394	9.999+	5.823
11	30	S2	0	0	117.517	0	117.517	9.999+	9.999+
12	31	S2	0	0	117.517	0	117.517	9.999+	9.999+
13	32	S2	0	.129	111.192	.13	111.192	9.999+	9.999+
14	33	S2	0	.129	111.192	.13	111.192	9.999+	9.999+
15	34	S2	0	6.723	83.394	6.724	83.394	9.999+	9.999+
16	35	S2	0	0	139.052	0	134.471	9.999+	9.999+
17	36	S2	0	0	101.421	0	101.422	9.999+	9.999+
18	37	S2	0	0	135.813	0	135.812	9.999+	9.999+
19	38	S2	0	0	111.496	0	111.496	9.999+	9.999+

Strip Reinforcing (Envelope)

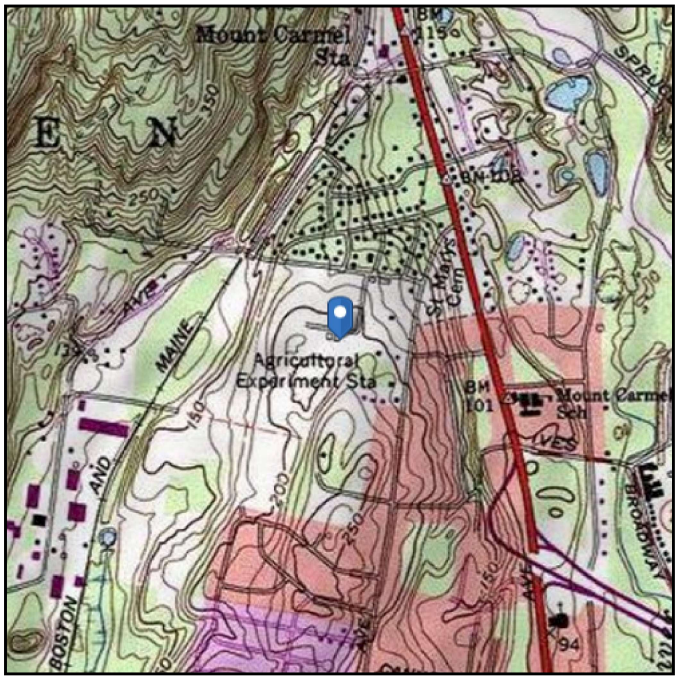
	Label	UC Top	LC	Top Bars	Governin...	UC Bot	LC	Bot Bars/Mid	..Governin...	UC Shear	LC	Governin...
1	DS4	.108	10	#5@ 9in	DS4-X17	.104	8	#8@ 9in	DS4-X34	.118	8	DS4-X25
2	DS2	.063	15	#5@ 9in	DS2-X14	.084	13	#8@ 9in	DS2-X34	.094	13	DS2-X25
3	DS3	.108	10	#5@ 9in	DS3-X17	.104	8	#8@ 9in	DS3-X34	.118	8	DS3-X25

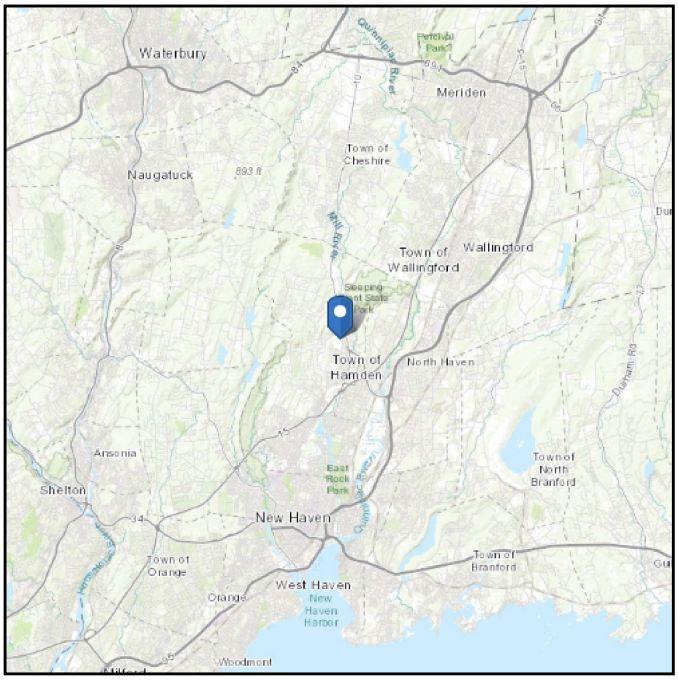
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 205.84 ft (NAVD 88)
Latitude: 41.406639
Longitude: -72.904533





Wind

Results:

Wind Speed:	119 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Fri Sep 10 2021

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

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

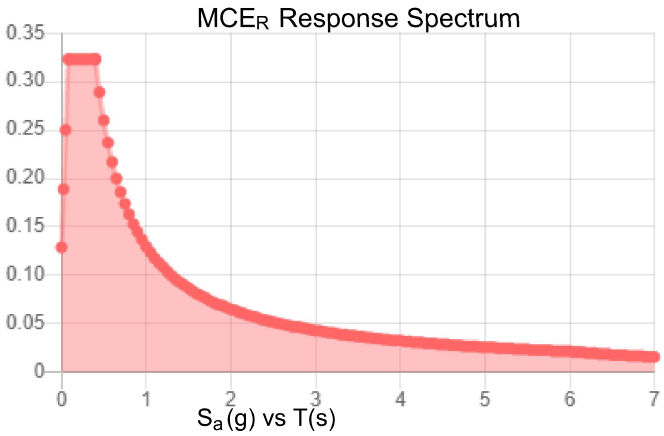
Seismic

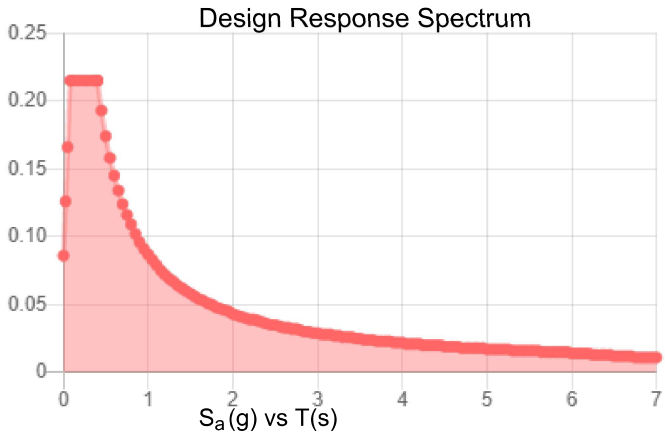
Site Soil Class: D - Default (see Section 11.4.3)

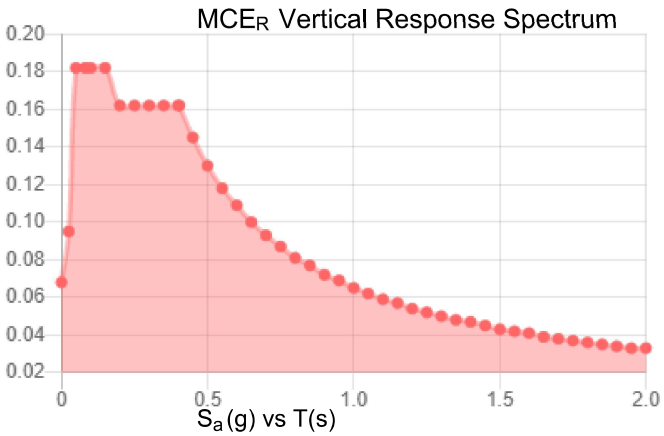
Results:

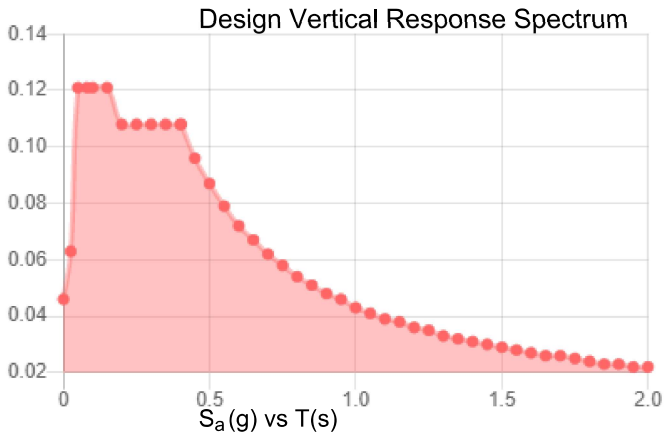
S_S :	0.202	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.113
F_v :	2.4	PGA_M :	0.178
S_{MS} :	0.323	F_{PGA} :	1.575
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.215	C_v :	0.704

Seismic Design Category B









Data Accessed: Fri Sep 10 2021

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri Sep 10 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit E

Mount Analysis

Date: September 9, 2021

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

Subject:	**Mount Analysis Report**	
Carrier Designation:	**DISH Network Equipment Co-Locate**	
	Carrier Site Number:	BOHVN00153A
	Carrier Site Name:	CT-CCI-T-800529
Crown Castle Designation:	**BU Number:**	800529
	Site Name:	CT Hamden North CAC
	JDE Job Number:	644583
	Order Number:	552718, Rev. 3
Engineering Firm Designation:	**B+T Group Report Designation:**	141946.002.01
Site Data:	**890 Evergreen Avenue, Hamden, CT, New Haven County, 06518** **Latitude 41° 24' 23.90" Longitude -72° 54' 16.32"**	
Structure Information:	**Tower Height & Type:**	**100 ft. Stealth Self Support Tower**
	Mount Elevation:	**65 ft.**
	Mount Type:	**8 ft. Sector Mount**

B+T Group is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of DISH Network's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

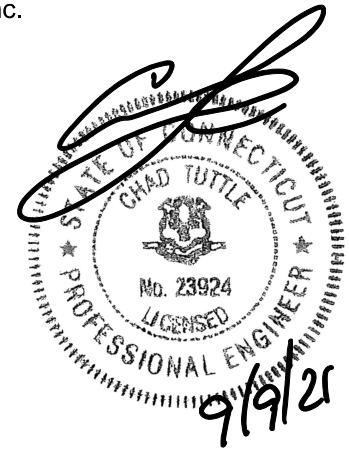
The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level to be:

Sector (typical) **Sufficient**

This analysis utilizes an ultimate 3-second gust wind speed of 119 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Anne Delice

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



Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This is a proposed 3 – sector 8' Sector Mount, designed by Commscope, (Part# MTC3975083).

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	119 mph
Exposure Category:	C
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.202
Seismic S_1:	0.054
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Qty.	Manufacturer	Model / Type	Mount / Modification Details
65	67	1	Raycap	RDIDC-9181-PF-48	8 ft. Sector Mount
	66	3	JMA	MX08FRO665-21	
		3	Fujitsu	TA08025-B605	
	64	3	Fujitsu	TA08025-B604	

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Proposed Loading and Existing Loading	Date: 04/30/2021	Crown Castle

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 antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by B+T Group, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B "Software Input Calculations".

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision D).

Manufactures drawing were used to create the model

3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
5. 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.
6. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
7. The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
8. 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 (Sector Mount)

Notes	Component	Centerline (ft)	Critical Member	% Capacity	Pass / Fail
1,2	Face Horizontals	65	1	9.6	Pass
	Support Horizontals	65	16	18.0	Pass
	Diagonals	65	25	25.0	Pass
	Connection Plates	65	7	20.2	Pass
	Verticals	65	24	39.8	Pass
	Connection Plates	65	9	6.7	Pass
	Tiebacks	65	41	2.0	Pass
	Mount Pipes	65	35	10.4	Pass
3	Connection Bolts	65	-	14.5	Pass

Structure Rating (max from all components) =	39.8%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) All sectors are typical
3) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity reported.

Table 4 - Tieback Connection Data Table

Tower Connection Node No.	Existing / Proposed	Resultant End Reaction (lb)	Connected Member Type	Connected Member Size	Member Compressive Capacity[3] (lb)	Notes
64	Existing	145.7978052	Leg	HSS6x6x1/4	-	-

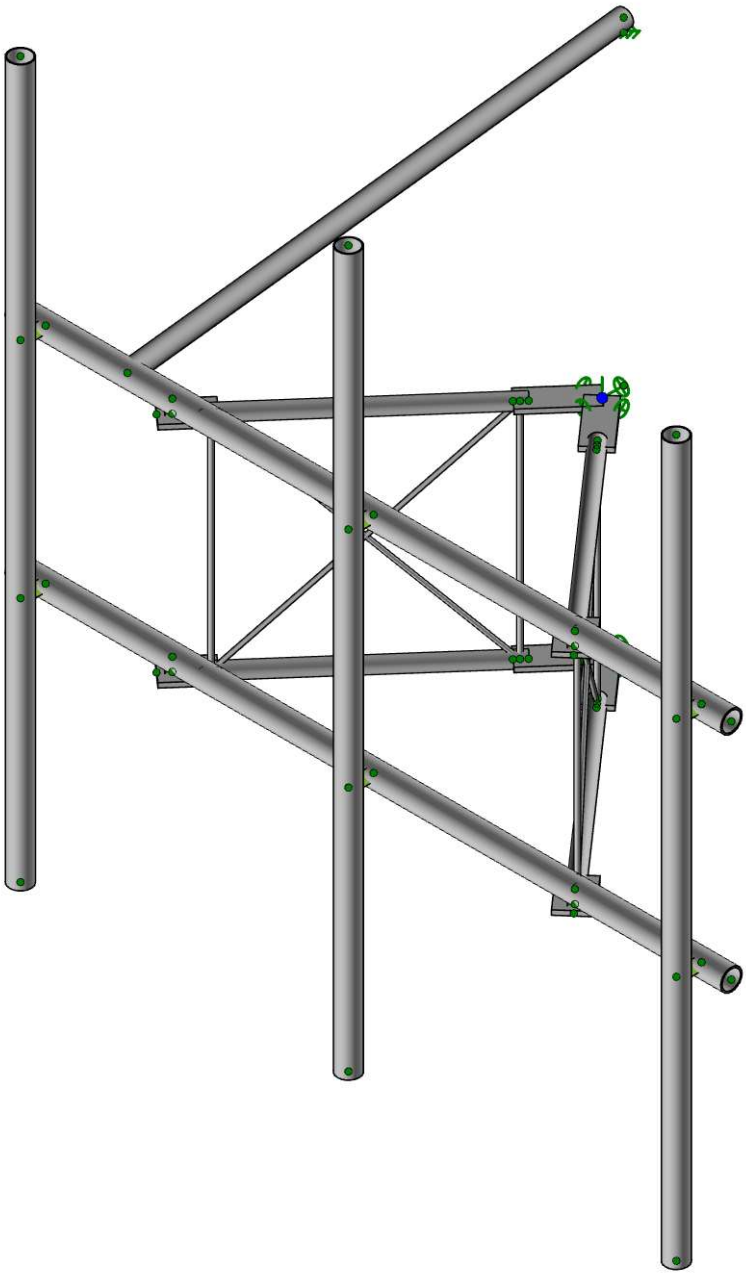
Notes:
1) Tieback connection point is within 25% of either end of the connected tower member
2) Tieback connection point is NOT within 25% of either end of the connected tower member
3) Reduced member compressive capacity according to CED-STD-10294 *Standard for Installation of Mounts and Appurtenances*

4.1) RECOMMENDATIONS

The Commscope, (Part# MTC3975083) mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

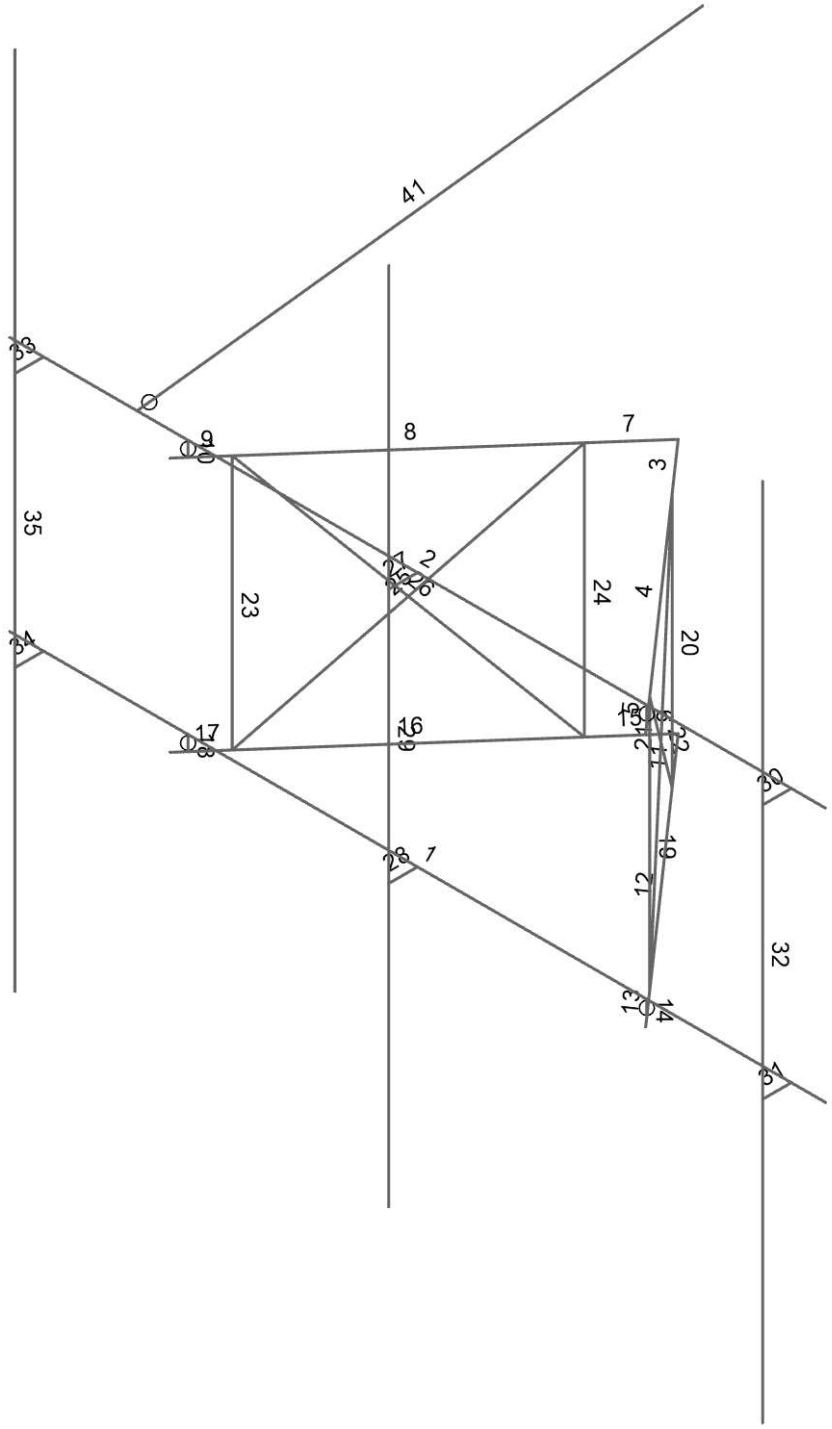
APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

B+T Group	800529 - CT Hamden North CAC	SK-1
SV		Sep 09, 2021
141946.002.01		141946_002_01_CT Hamden Nort…



Envelope Only Solution

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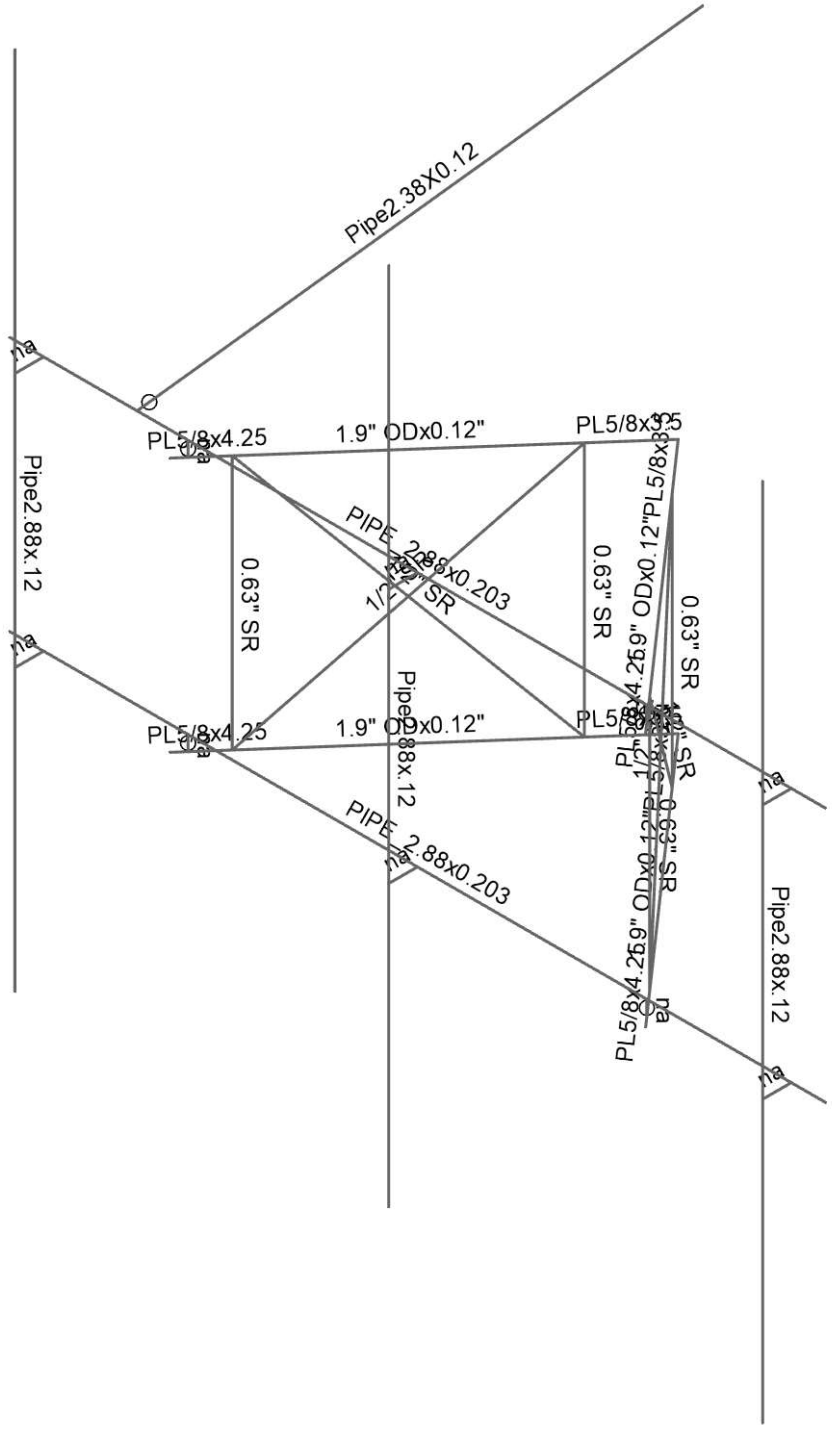

Envelope Only Solution

B+T Group	800529 - CT Hamden North CAC	SK-3
SV		Sep 09, 2021
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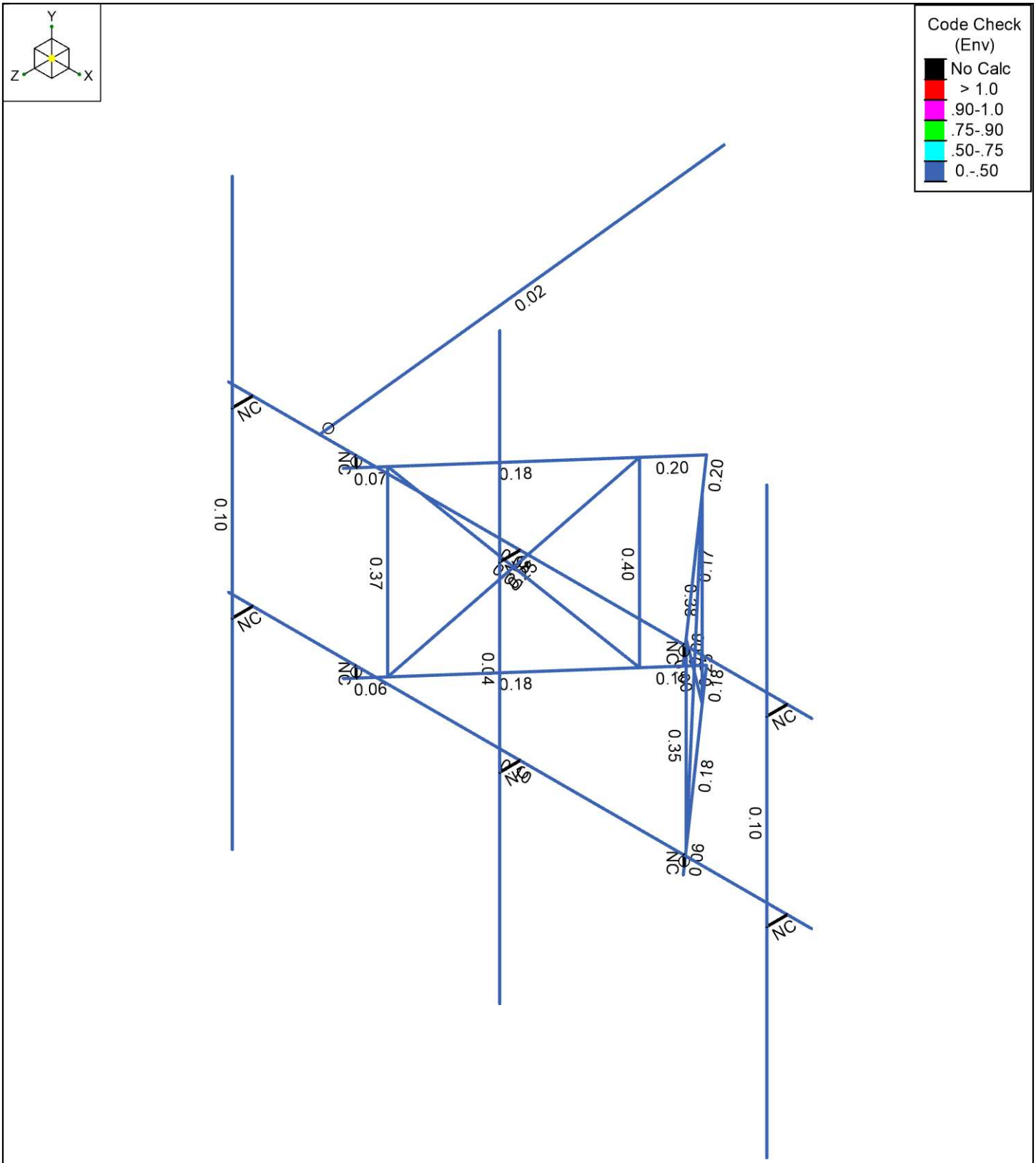
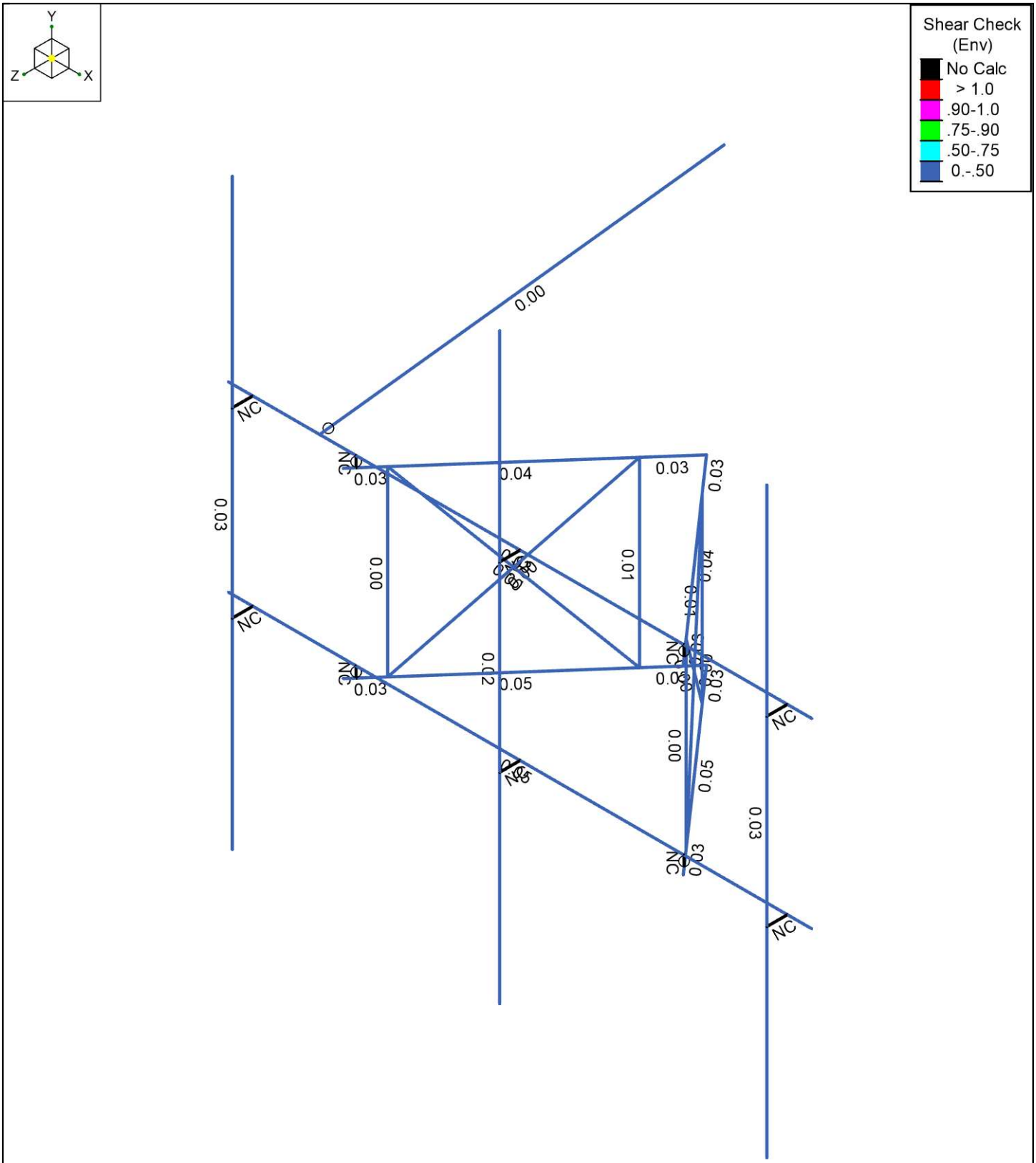


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	800529 - CT Hamden North CAC	SK-4
SV		Sep 09, 2021
141946.002.01		141946_002_01_CT Hamden Nort…



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	800529 - CT Hamden North CAC	SK-5
SV		Sep 09, 2021
141946.002.01		141946_002_01_CT Hamden Nort…

APPENDIX B

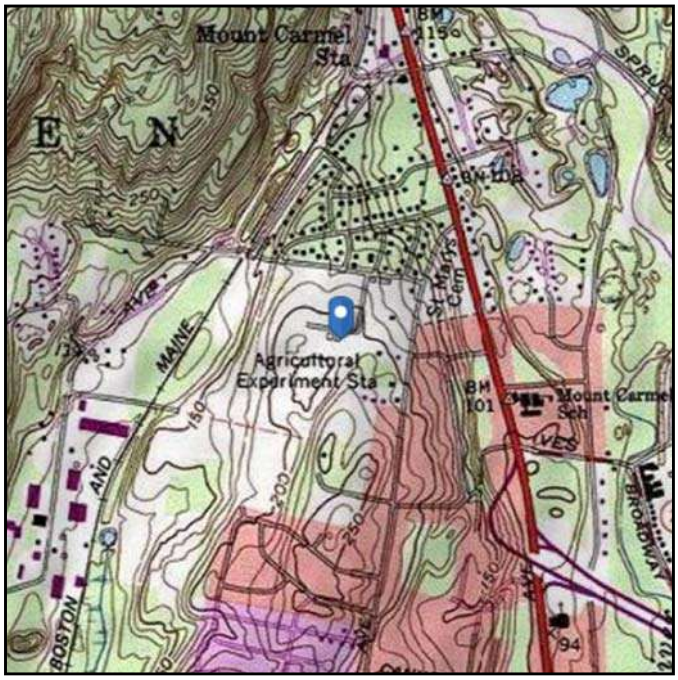
SOFTWARE INPUT CALCULATIONS

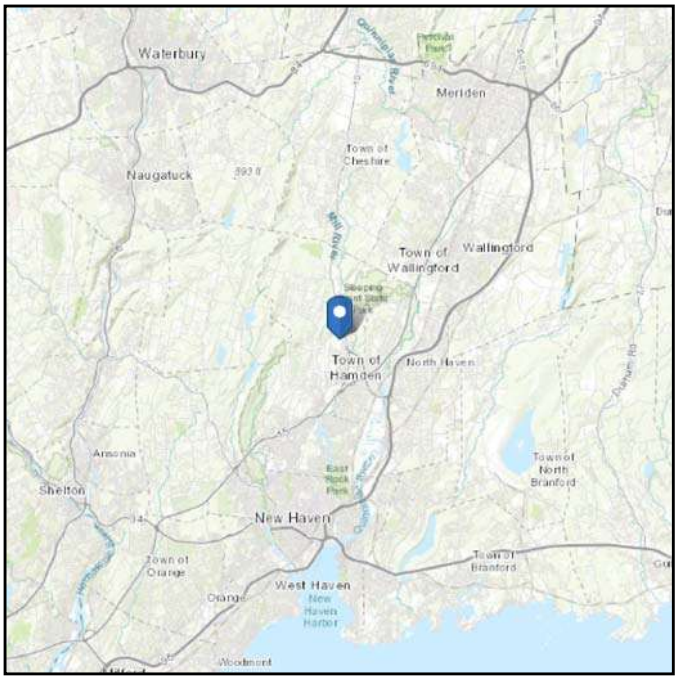
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 205.84 ft (NAVD 88)
Latitude: 41.406639
Longitude: -72.904533





Wind

Results:

Wind Speed:	119 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Wed Sep 08 2021

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

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

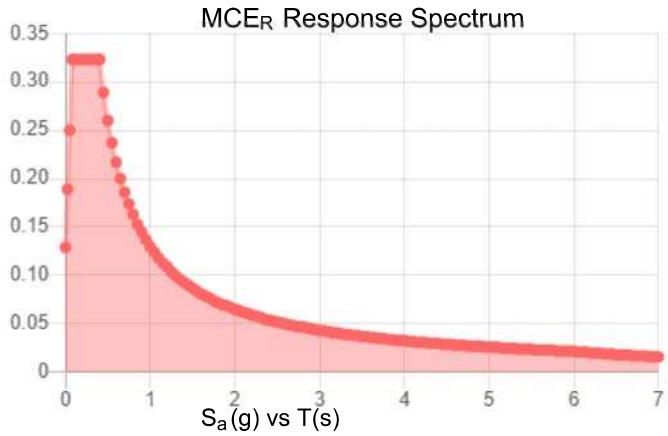
Seismic

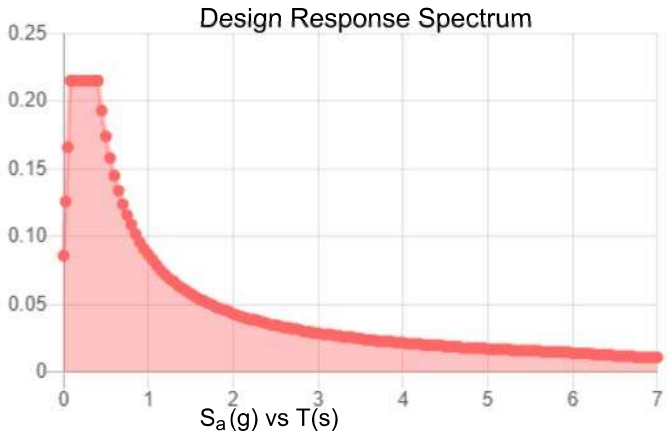
Site Soil Class: D - Default (see Section 11.4.3)

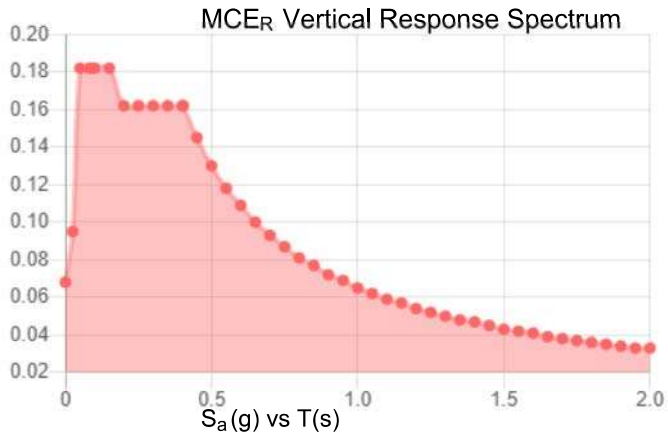
Results:

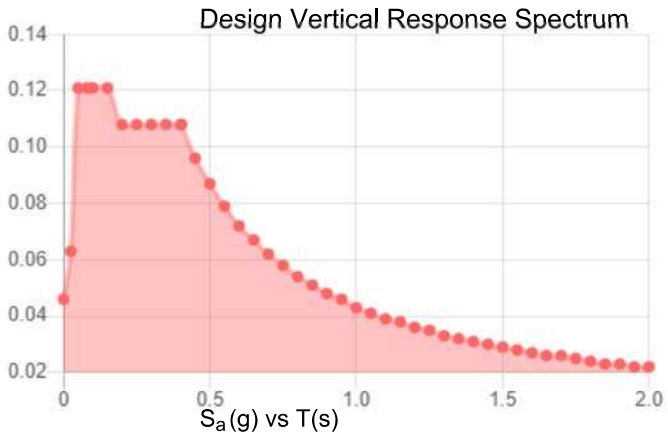
S_S :	0.202	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.113
F_v :	2.4	PGA_M :	0.178
S_{MS} :	0.323	F_{PGA} :	1.575
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.215	C_v :	0.704

Seismic Design Category B









Data Accessed: Wed Sep 08 2021

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed Sep 08 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

PROJECT	**141946.002.01 - CT Hamden**		**KSC**
SUBJECT	**Sector Mount Analysis**		
DATE	**09/08/21**	PAGE	OF

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

Tower Type		:	SST		
Ground Elevation	z_s	:	206	ft	[ASCE7 Hazard Tool]
Tower Height		:	100.00	ft	
Mount Elevation		:	65.00	ft	
Antenna Elevation		:	66.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	119	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.20		
	S_1	:	0.05		
	S_{DS}	:	0.22		
	S_{D1}	:	0.09		

Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.16		[Sec. 2.6.5.2]
Topography Factor	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.99		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.07	in	[Sec. 2.6.10]

Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.108		[Sec. 2.7.7.1]
Amplification	A_s	:	1.6		[Sec. 16.7]

	q_z	:	39.51	psf

PROJECT	**141946.002.01 - CT Hamden**		**KSC**
SUBJECT	**Sector Mount Analysis**		
DATE	**09/08/21**	PAGE	OF

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

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
JMA WIRELESS	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.16	0.06	0.03	0.01
JMA WIRELESS	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.16	0.06	0.03	0.01
FUJITSU	TA08025-B604	1	0.95	1.20	1.64	0.82	2.12	1.19	0.07	0.04	0.01	0.01
FUJITSU	TA08025-B605	1	0.95	1.20	1.64	0.94	2.12	1.33	0.07	0.04	0.01	0.01
RAYCAP	RDIDC-9181-PF-48	1	1.14	1.20	1.68	0.97	2.17	1.38	0.07	0.04	0.01	0.01

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	MF-H1	PIPE_2.88x0.203	Beam	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
2	MF- SA1	1.9" ODx0.12"	Beam	Pipe	A500 Gr.B RND	Typical	0.671	0.267	0.267	0.534
3	MF-D1	1/2" SR	VBrace	BAR	A529 Gr.50	Typical	0.196	0.003	0.003	0.006
4	MF-CP1	PL5/8x3.5	Beam	RECT	A572 Gr.50	Typical	2.205	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	Pipe2.88x.12	Column	Pipe	A500 Gr.C	Typical	1.04	0.993	0.993	1.985

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	CF1	8CU1.25X057	Beam	None	A653 SS Gr33	Typical	0.581	0.057	4.41	0.00063

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	Pipe	A500 Gr.C	Typical
2	2	3	4		MF-H1	Beam	Pipe	A500 Gr.C	Typical
3	3	12	5	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
4	4	6	7		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
5	5	8	9	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
6	6	10	11	90	RIGID	None	None	RIGID	Typical
7	7	12	13	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
8	8	14	15		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
9	9	16	17	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
10	10	18	19	90	RIGID	None	None	RIGID	Typical
11	11	27	20	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
12	12	21	22		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
13	13	23	24	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
14	14	25	26	90	RIGID	None	None	RIGID	Typical
15	15	27	28	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
16	16	29	30		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
17	17	31	32	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
18	18	33	34	90	RIGID	None	None	RIGID	Typical
19	19	37	36		MF-V1	Column	BAR	A529 Gr.50	Typical
20	20	35	38		MF-V1	Column	BAR	A529 Gr.50	Typical
21	21	35	36		MF-D1	VBrace	BAR	A529 Gr.50	Typical
22	22	37	38		MF-D1	VBrace	BAR	A529 Gr.50	Typical
23	23	41	40		MF-V1	Column	BAR	A529 Gr.50	Typical
24	24	39	42		MF-V1	Column	BAR	A529 Gr.50	Typical
25	25	39	40		MF-D1	VBrace	BAR	A529 Gr.50	Typical
26	26	41	42		MF-D1	VBrace	BAR	A529 Gr.50	Typical
27	27	43	44	90	RIGID	None	None	RIGID	Typical
28	28	45	46	90	RIGID	None	None	RIGID	Typical
29	29	47	48		MF-P1	Column	Pipe	A500 Gr.C	Typical
30	30	49	50	90	RIGID	None	None	RIGID	Typical
31	31	51	52	90	RIGID	None	None	RIGID	Typical
32	32	53	54		MF-P1	Column	Pipe	A500 Gr.C	Typical
33	33	55	56	90	RIGID	None	None	RIGID	Typical
34	34	57	58	90	RIGID	None	None	RIGID	Typical
35	35	59	60		MF-P1	Column	Pipe	A500 Gr.C	Typical
36	41	63	64		Tieback	Beam	Pipe	A500 Gr.C	Typical

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	12	Reaction	Reaction	Reaction	Reaction	Reaction
2	27	Reaction	Reaction	Reaction	Reaction	Reaction
3	64	Reaction	Reaction	Reaction		

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Y	-0.041	%15
2	29	Y	-0.041	%85
3	29	Y	-0.064	%15
4	29	Y	-0.075	%50
5	29	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 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Y	-0.118	%15
2	29	Y	-0.118	%85
3	29	Y	-0.031	%15
4	29	Y	-0.031	%50
5	29	Y	0	0
6	8	Y	-0.032	%50
7	8	Y	0	0
8	8	Y	0	0
9	8	Y	0	0
10	8	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Z	-0.014	%15
2	29	Z	-0.014	%85
3	29	Z	-0.011	%15
4	29	Z	-0.013	%50
5	29	Z	0	0
6	8	Z	-0.004	%50
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	X	-0.014	%15
2	29	X	-0.014	%85
3	29	X	-0.011	%15
4	29	X	-0.013	%50
5	29	X	0	0
6	8	X	-0.004	%50
7	8	X	0	0

Member Point Loads (BLC 10 : 90 Seismic) (Continued)

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

Member Point Loads (BLC 15 : Maint LL 1)

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

Member Point Loads (BLC 16 : Maint LL 2)

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

Member Point Loads (BLC 17 : Maint LL 3)

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

Member Point Loads (BLC 18 : Maint LL 4)

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

Member Point Loads (BLC 19 : Maint LL 5)

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

Member Point Loads (BLC 20 : Maint LL 6)

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

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	-0.005	-0.005	0	%100
2	2	Y	-0.005	-0.005	0	%100
3	3	Y	-0.006	-0.006	0	%100
4	4	Y	-0.004	-0.004	0	%100
5	5	Y	-0.013	-0.013	0	%100
6	7	Y	-0.006	-0.006	0	%100
7	8	Y	-0.004	-0.004	0	%100
8	9	Y	-0.013	-0.013	0	%100
9	11	Y	-0.006	-0.006	0	%100
10	12	Y	-0.004	-0.004	0	%100
11	13	Y	-0.013	-0.013	0	%100
12	15	Y	-0.006	-0.006	0	%100
13	16	Y	-0.004	-0.004	0	%100
14	17	Y	-0.013	-0.013	0	%100
15	19	Y	-0.002	-0.002	0	%100
16	20	Y	-0.002	-0.002	0	%100
17	21	Y	-0.002	-0.002	0	%100
18	22	Y	-0.002	-0.002	0	%100
19	23	Y	-0.002	-0.002	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, %)]
20	24	Y	-0.002	-0.002	0	%100
21	25	Y	-0.002	-0.002	0	%100
22	26	Y	-0.002	-0.002	0	%100
23	29	Y	-0.005	-0.005	0	%100
24	32	Y	-0.005	-0.005	0	%100
25	35	Y	-0.005	-0.005	0	%100
26	41	Y	-0.005	-0.005	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	2	Z	-0.002	-0.002	0	%100
3	3	Z	-0.003	-0.003	0	%100
4	4	Z	-0.001	-0.001	0	%100
5	5	Z	-0.003	-0.003	0	%100
6	7	Z	-0.003	-0.003	0	%100
7	8	Z	-0.001	-0.001	0	%100
8	9	Z	-0.003	-0.003	0	%100
9	11	Z	-0.003	-0.003	0	%100
10	12	Z	-0.001	-0.001	0	%100
11	13	Z	-0.003	-0.003	0	%100
12	15	Z	-0.003	-0.003	0	%100
13	16	Z	-0.001	-0.001	0	%100
14	17	Z	-0.003	-0.003	0	%100
15	19	Z	-0.002	-0.002	0	%100
16	20	Z	-0.002	-0.002	0	%100
17	21	Z	-0.002	-0.002	0	%100
18	22	Z	-0.002	-0.002	0	%100
19	23	Z	-0.002	-0.002	0	%100
20	24	Z	-0.002	-0.002	0	%100
21	25	Z	-0.002	-0.002	0	%100
22	26	Z	-0.002	-0.002	0	%100
23	29	Z	-0.002	-0.002	0	%100
24	32	Z	-0.002	-0.002	0	%100
25	35	Z	-0.002	-0.002	0	%100
26	41	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	2	X	-0.002	-0.002	0	%100
3	3	X	-0.003	-0.003	0	%100
4	4	X	-0.001	-0.001	0	%100
5	5	X	-0.003	-0.003	0	%100
6	7	X	-0.003	-0.003	0	%100
7	8	X	-0.001	-0.001	0	%100
8	9	X	-0.003	-0.003	0	%100
9	11	X	-0.003	-0.003	0	%100
10	12	X	-0.001	-0.001	0	%100
11	13	X	-0.003	-0.003	0	%100
12	15	X	-0.003	-0.003	0	%100
13	16	X	-0.001	-0.001	0	%100
14	17	X	-0.003	-0.003	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

Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
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	-0.002	-0.002	0	%100
24	32	X	-0.002	-0.002	0	%100
25	35	X	-0.002	-0.002	0	%100
26	41	X	-0.002	-0.002	0	%100

Member Area Loads

No Data to Print...

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Dead	DL	-1		10	
2	0 Wind - No Ice	WLZ				
3	90 Wind - No Ice	WLX				
4	0 Wind - Ice	WLZ				
5	90 Wind - Ice	WLX				
6	0 Wind - Service	WLZ				
7	90 Wind - Service	WLX				
8	Ice	OL1			10	26
9	0 Seismic	ELZ			10	26
10	90 Seismic	ELX			10	26
11	Live Load a	LL		1		
12	Live Load b	LL		1		
13	Live Load c	LL		1		
14	Live Load d	LL				
15	Maint LL 1	LL			1	
16	Maint LL 2	LL			1	
17	Maint LL 3	LL			1	
18	Maint LL 4	LL			1	
19	Maint LL 5	LL			1	
20	Maint LL 6	LL			1	
21	Maint LL 7	LL				
22	Maint LL 8	LL				
23	Maint LL 9	LL				
24	Maint LL 10	LL				
25	Maint LL 11	LL				
26	Maint LL 12	LL				
27	Maint LL 13	LL				
28	Maint LL 14	LL				
29	Maint LL 15	LL				

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5

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	0.992	49	0.715	61	-0.351	36	-0.078	30	0	91	0.166	73
2		min	-0.951	62	0.301	26	-1.233	62	-0.199	50	0	1	-0.175	38
3	27	max	0.951	73	0.654	73	1.233	73	-0.083	31	0	91	0.143	73
4		min	-0.992	38	0.306	34	0.472	32	-0.175	14	0	1	-0.155	38
5	64	max	0.02	29	0.026	25	0.144	29	0	91	0	91	0	91
6		min	-0.02	35	0.011	29	-0.144	35	0	1	0	1	0	1
7	Totals:	max	0.2	29	1.378	49	0.2	26						
8		min	-0.2	35	0.628	26	-0.2	32						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	PIPE_2.88x0.203	0.096	4	61	0.05	1.75		49	35.519	70.68	5.029	5.029	1.558	H1-1b
2	2	PIPE_2.88x0.203	0.083	4	61	0.032	1.75		49	35.519	70.68	5.029	5.029	1.635	H1-1b
3	3	PL5/8x3.5	0.196	0	73	0.03	0	z	73	84.578	99.225	1.302	7.235	1.124	H1-1b
4	4	1.9" ODx0.12"	0.168	1.292	89	0.043	2.449		73	21.867	25.364	1.2	1.2	1.41	H1-1b
5	5	PL5/8x4.25	0.065	0.127	73	0.03	0.362	y	73	110.629	119.531	1.556	10.583	1.641	H1-1b
6	7	PL5/8x3.5	0.202	0	49	0.03	0	z	49	84.578	99.225	1.302	7.235	1.124	H1-1b
7	8	1.9" ODx0.12"	0.179	1.292	87	0.044	2.449		49	21.867	25.364	1.2	1.2	1.412	H1-1b
8	9	PL5/8x4.25	0.067	0.127	49	0.029	0.362	y	49	110.629	119.531	1.556	10.583	1.647	H1-1b
9	11	PL5/8x3.5	0.175	0	73	0.034	0.583	y	73	84.578	99.225	1.302	7.235	1.329	H1-1b
10	12	1.9" ODx0.12"	0.177	1.292	88	0.046	2.449		73	21.867	25.364	1.2	1.2	1.42	H1-1b
11	13	PL5/8x4.25	0.058	0.127	73	0.034	0.362	y	73	110.629	119.531	1.556	10.583	1.381	H1-1b
12	15	PL5/8x3.5	0.183	0	49	0.034	0.583	y	49	84.578	99.225	1.302	7.235	1.332	H1-1b
13	16	1.9" ODx0.12"	0.18	1.292	86	0.046	2.449		49	21.867	25.364	1.2	1.2	1.411	H1-1b
14	17	PL5/8x4.25	0.057	0.127	49	0.034	0.362	y	49	110.629	119.531	1.556	10.583	1.383	H1-1b
15	19	0.63" SR	0.354	2.5	73	0.004	2.5		73	1.941	14.028	0.147	0.147	2.262	H1-1a
16	20	0.63" SR	0.381	0	73	0.006	2.5		73	1.941	14.028	0.147	0.147	2.269	H1-1a
17	21	1/2" SR	0.245	3.499	73	0.002	3.499		73	0.393	8.836	0.074	0.074	2.242	H1-1a
18	22	1/2" SR	0	3.499	91	0.001	3.499		30	0.393	8.836	0.074	0.074	1	H1-1a

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
19	23	0.63" SR	0.366	2.5	49	0.004	2.5		49	1.941	14.028	0.147	0.147	2.259	H1-1a
20	24	0.63" SR	0.398	0	49	0.006	2.5		49	1.941	14.028	0.147	0.147	2.268	H1-1a
21	25	1/2" SR	0.25	3.499	49	0.002	3.499		49	0.393	8.836	0.074	0.074	2.199	H1-1a
22	26	1/2" SR	0	3.499	91	0.002	0		29	0.393	8.836	0.074	0.074	2.263	H1-1a
23	29	Pipe2.88x.12	0.037	2.75	61	0.022	5.25		49	22.492	43.076	3.156	3.156	3	H1-1b
24	32	Pipe2.88x.12	0.103	5.25	73	0.028	5.25		73	22.492	43.076	3.156	3.156	3	H1-1b
25	35	Pipe2.88x.12	0.104	5.25	49	0.029	5.25		49	22.492	43.076	3.156	3.156	3	H1-1b
26	41	Pipe2.38X0.12	0.02	3.125	25	0.003	6.25		25	19.522	35.273	2.115	2.115	1.136	H1-1b

Envelope NONE Member Cold Formed Steel Code Checks

No Data to Print...

APPENDIX D

ADDITIONAL CALCUATIONS

PROJECT	**141946.002.01 - CT Hamden North CA(AD**				
SUBJECT	**Sector Mount Analysis**				
DATE	**09/09/21**	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	:	1.233	k
Vertical Shear	:	0.654	k
Horizontal Shear	:	0.951	k
Torsion	:	0.143	k.ft
Moment from Horizontal Forces	:	0	k.ft
Moment from Vertical Forces	:	-0.083	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	:	1.15	k
Force from Horz. Moment	:	0.00	k
Force from Vert. Moment	:	-0.15	k
Shear Load / Bolt	:	0.29	k
Tension Load / Bolt	:	0.31	k
Resultant from Moments / Bolt	:	0.08	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	:	**3.70%**		**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	:	**10.80%**		**OKAY**
Unity Check, Combined	:	**14.50%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**0.83%**		**OKAY**

APPENDIX E

SUPPLEMENTAL DRAWINGS

NOTES:

1.0 GENERAL
- 1.1 ALL METRIC DIMENSIONS ARE IN BRACKETS
- 1.2 FOR PATENT INFO :https://www.cs-pat.com

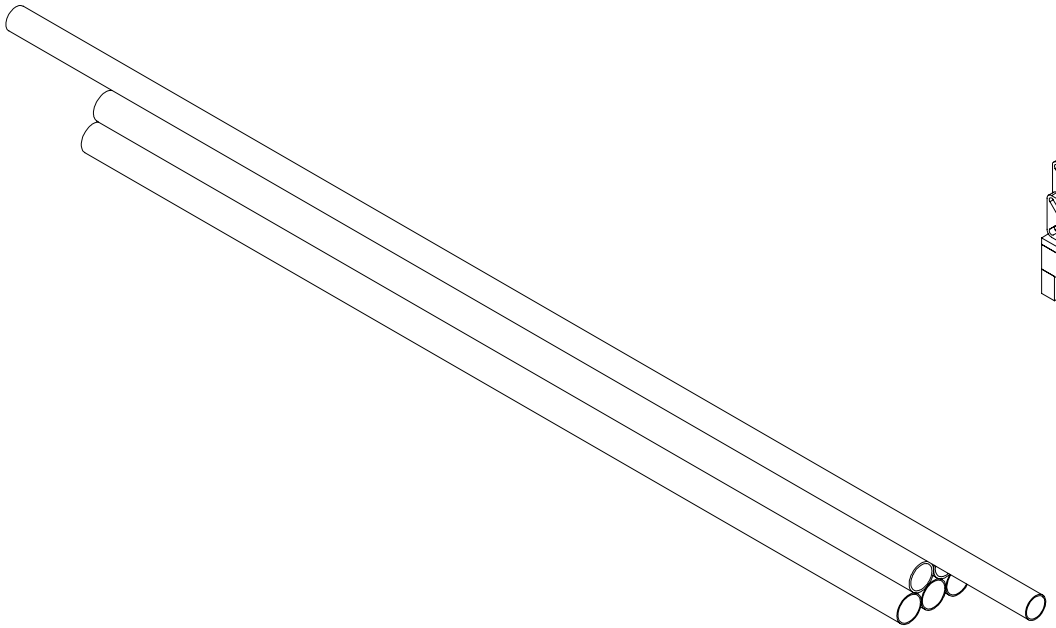
2.0 DESIGN NOTES
- 2.1 DESIGN SURVIAL WIND SPEED: 150 MPH, 3 SEC GUST WITH EQUIPMENT MOUNTED AS SHOWN

3.0 MANUFACTURING/SPECIAL REQUIREMENTS
- 3.1 TORQUE HARDWARE ACCORDING TO SIZE AS NOTED BELOW:
  ALL HARDWARE 1/4" DIAMETER: TORQUE 7 FT-LBS
  ALL HARDWARE 3/8" DIAMETER: TORQUE 12 FT-LBS
  ALL HARDWARE 1/2" DIAMETER OR LARGER SHALL BE TIGHTENED SNUG TIGHT, DEFINED AS THE CONDITION OBTAINED WITH A FEW IMPACTS OA AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.

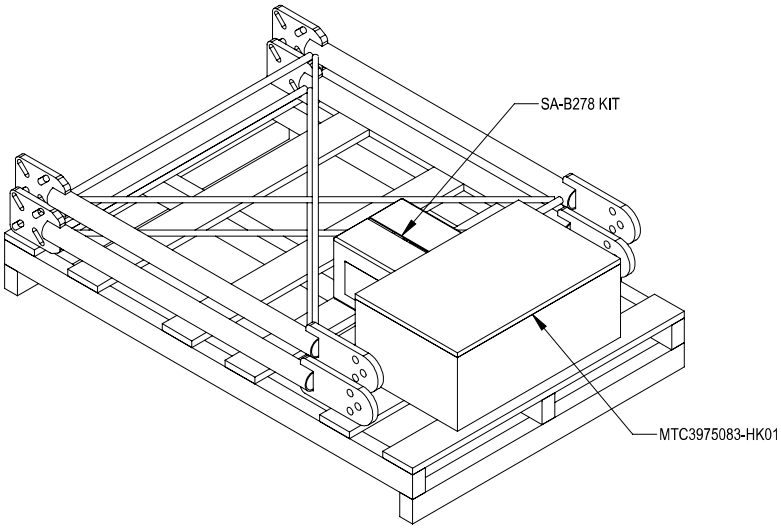
4.0 TEST

5.0 PACKAGING
- 5.1 PACKAGING SHALL MEET COMMSCOPE REQUIREMENTS PER DOCUMENT IS-PL-3005
- 5.2 PRINTED DOCUMENT TO BE PLACED INSIDE POLYBAG AND THEN IN SHIPPING CONTAINER
- 5.3 EXTRA HARDWARE MAY BE SUPPLIED, BAGGED AND SHIPPED.

REVISIONS				
REV.	IPS	DESCRIPTION	BY	DATE
A	10191PC	NEW RELEASED.	RJC	3/17/2021



PB01TEA0308B0208K



MTC3975083-PK01

ITEM	PART NO.	DESCRIPTION	QTY
1	MTC3975083-PK01	PACK KIT, MTC3975083, 1 SCTR, 3 ANT PIPE	1
2	PB01TEA0308B0208K	PIPE BUNDLE	1

DENSITY		lbs/in³
MASS	352.136	lbs
VOLUME	2431.173	in³
SURFACE AREA	19715.555	in²
HEIGHT		
LENGTH		
WIDTH		

COMMSCOPE, INC. OF NORTH CAROLINA

TOLERANCES
0 PLACE X ± .25 | 2 PLACE .XX ± 0.06
1 PLACE .X ± 0.12 | ANGLES ± 2°

SAP MATERIAL MASTER: MTC3975083

FINISH: GALV A123

MATERIAL: SEE BOM

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES INTERPRET PER ANSI Y-14.5M-1994

	NAME	DATE
CE	XZ1054	03/02/2021
RW	BCAMPBELLCON	03/17/2021
AD	MC1107	03/17/2021
RE	BCROSS	03/17/2021

ECN 10191PC

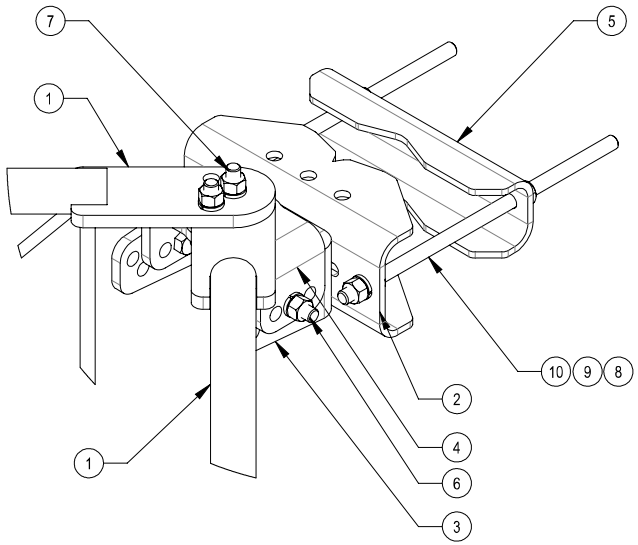
TITLE: SECTOR FRAME, TW, SFG21, 8FT, 3 ANT PIPE

SCALE: 1:8

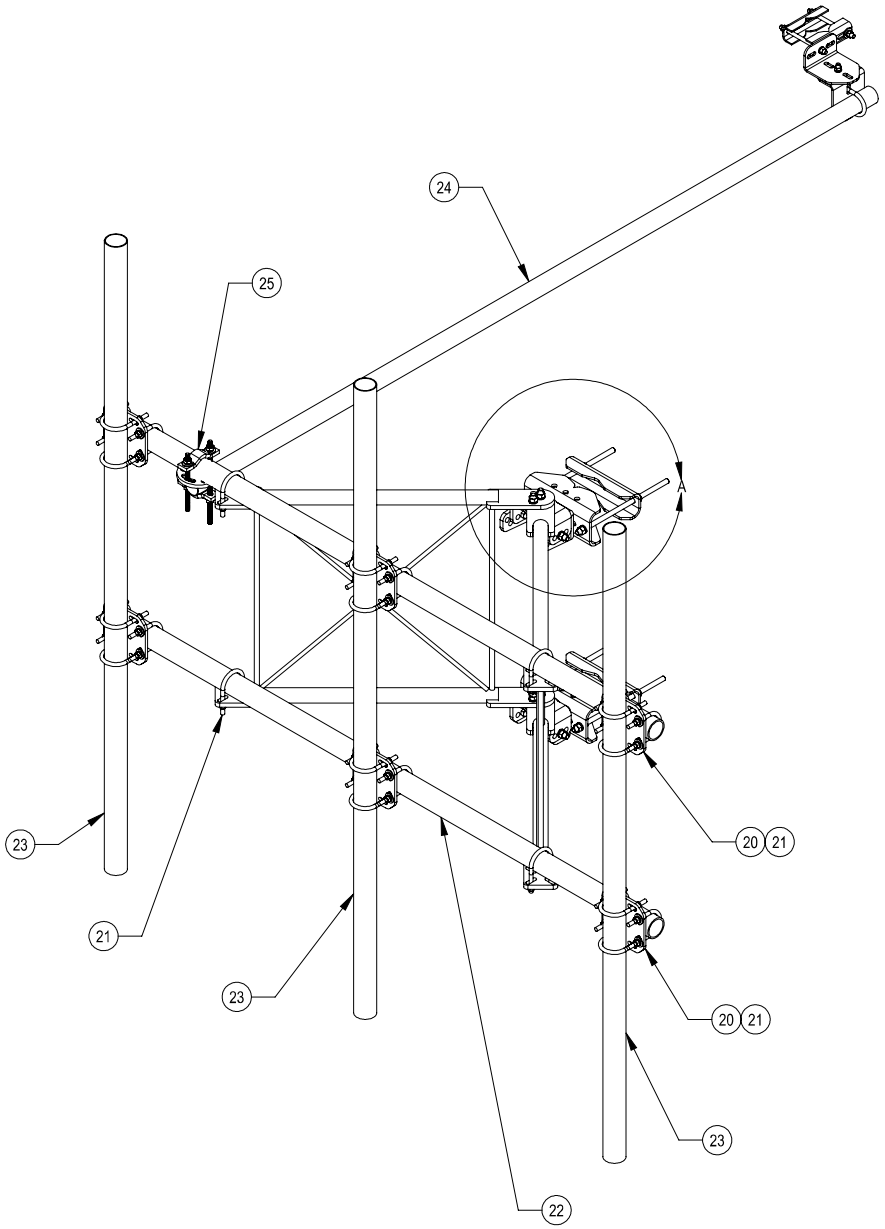
DOCUMENT NO.: MTC3975083

SIZE	Auth Group	MODEL			DRAWING			SHEET
	INSL	VERSION	STATUS	REVISION	VERSION	STATUS	REVISION	
C		00	RE	A	00	RE	A	1 OF 7

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	Ø2.875" O.D. X 96 PIPE	2	
23	MT54696120	Ø2.88" 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

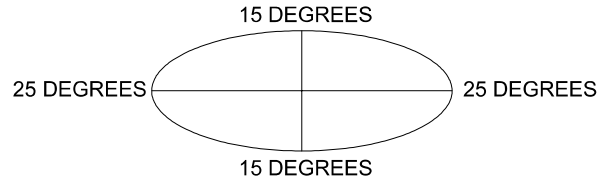
TITLE
SECTOR FRAME, TW, SFG21, 8FT, 3 ANT PIPE

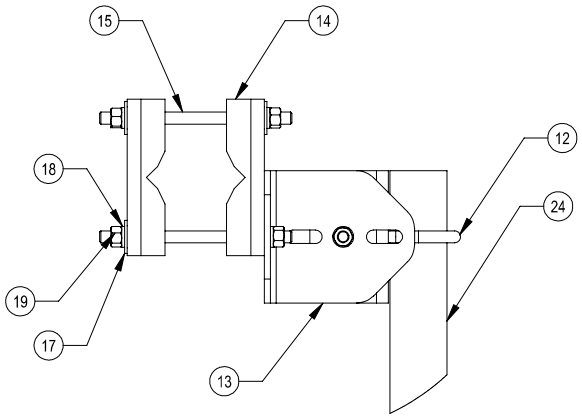
SIZE	SCALE	DOCUMENT NO.			
C	1:12	MTC3975083			
		DRAWING			SHEET
		VERSION	STATUS	REVISION	
		00	RE	A	2 OF 7

NOTES:

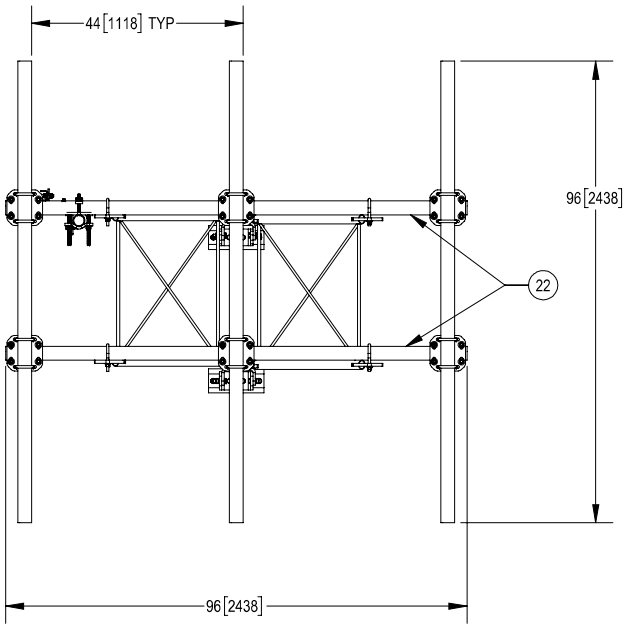
ALLOWABLE TIEBACK ANGLE

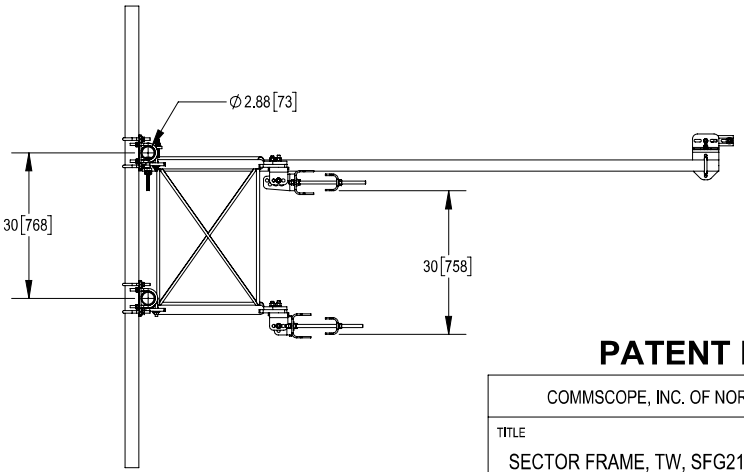
±15 DEGREES VERTICAL
±25 DEGREES HORIZONTAL





DETAIL B
SCALE 1 : 4



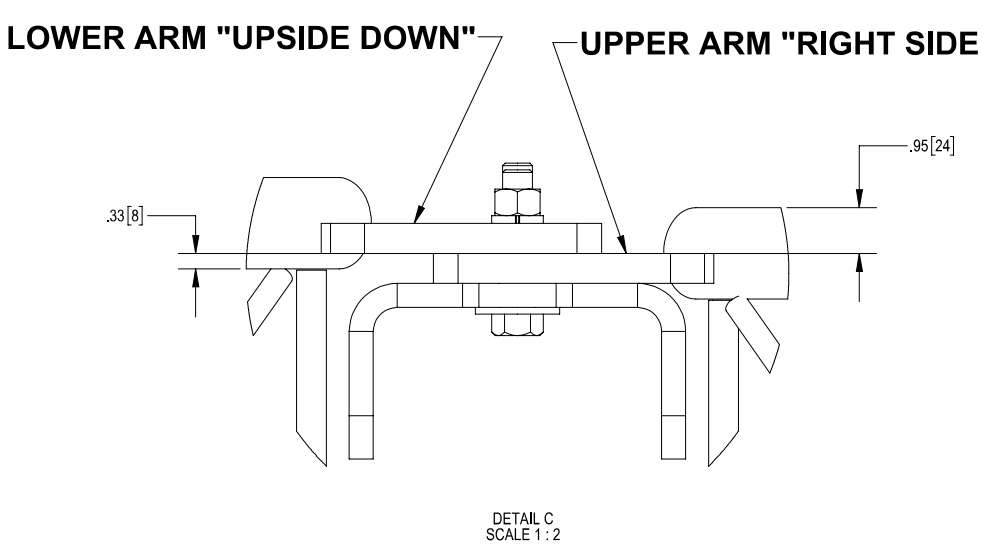


PATENT PENDING

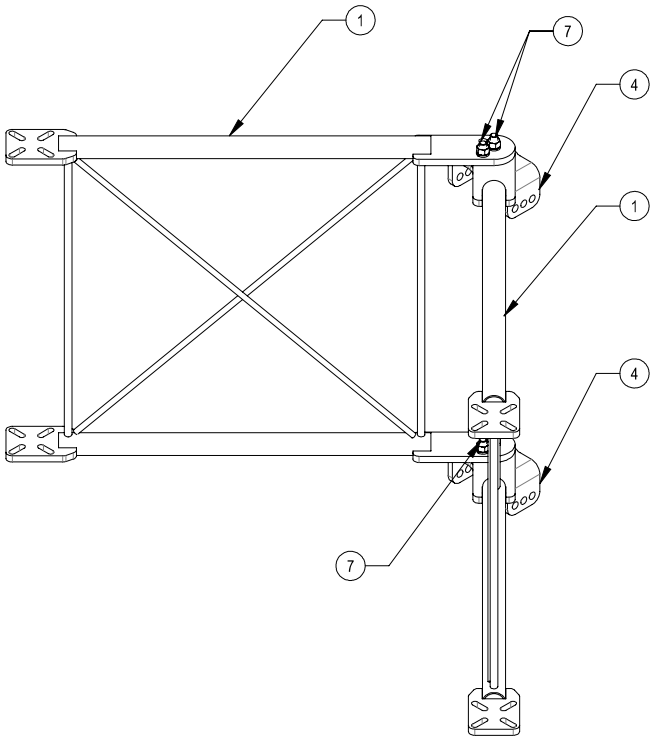
COMMSCOPE, INC. OF NORTH CAROLINA			
TITLE: SECTOR FRAME, TW, SFG21, 8FT, 3 ANT PIPE			
SIZE: C	SCALE: 1:20	DOCUMENT NO.: MTC3975083	
		DRAWING: VERSION 00 / STATUS RE / REVISION A	SHEET: 3 OF 7

NOTES:

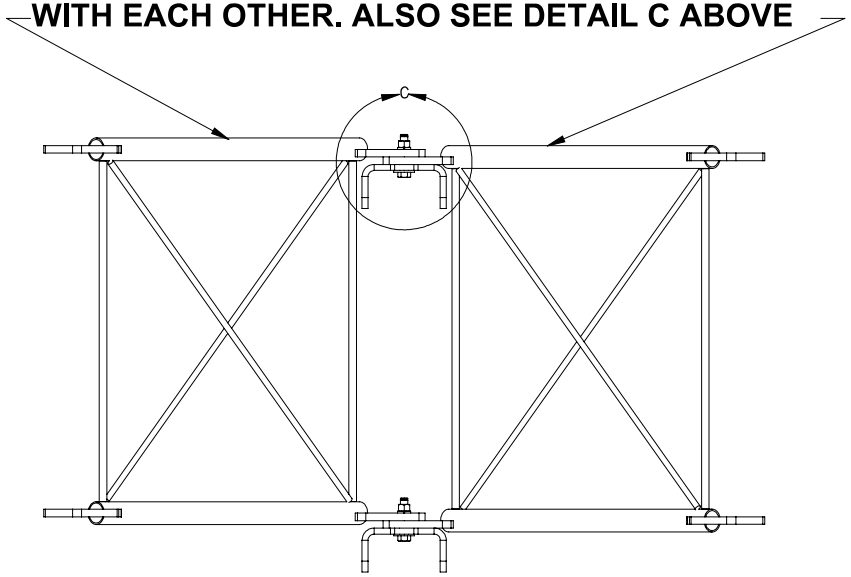
STEP1: ATTACH STANDOFF ARMS (SFV01) TO AZIMUTH BRACKETS (SFV02) USING BOLT KITS (GB-05305)

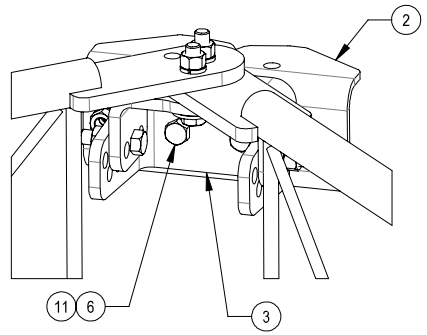


DETAIL C
SCALE 1 : 2



STANDOFF ARM ORIENTATION IS CRITICAL!
WHEN ASSEMBLED, ARMS SHOULD BE LEVEL WITH EACH OTHER. ALSO SEE DETAIL C ABOVE





ISO ROTATED VIEW

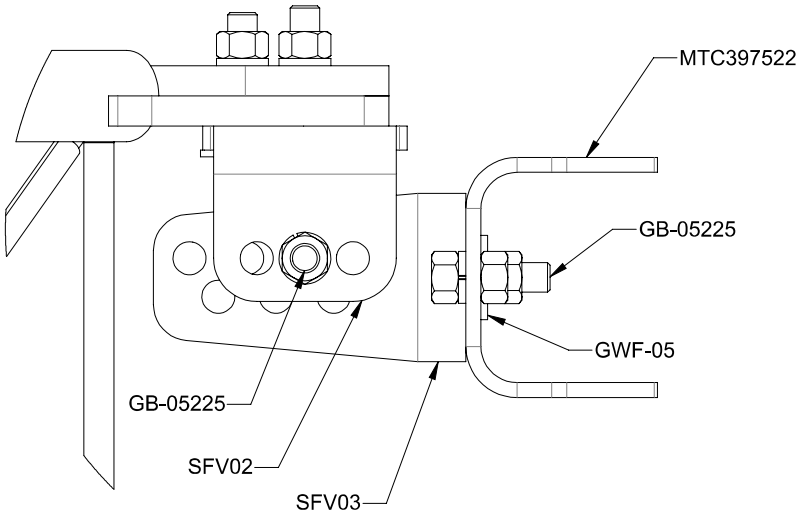
PATENT PENDING

COMMSCOPE, INC. OF NORTH CAROLINA			
TITLE: SECTOR FRAME, TW, SFG21, 8FT, 3 ANT PIPE			
SIZE: C	SCALE: 1:8	DOCUMENT NO.: MTC3975083	
		DRAWING VERSION: 00	STATUS: RE
		REVISION: A	SHEET: 4 OF 7

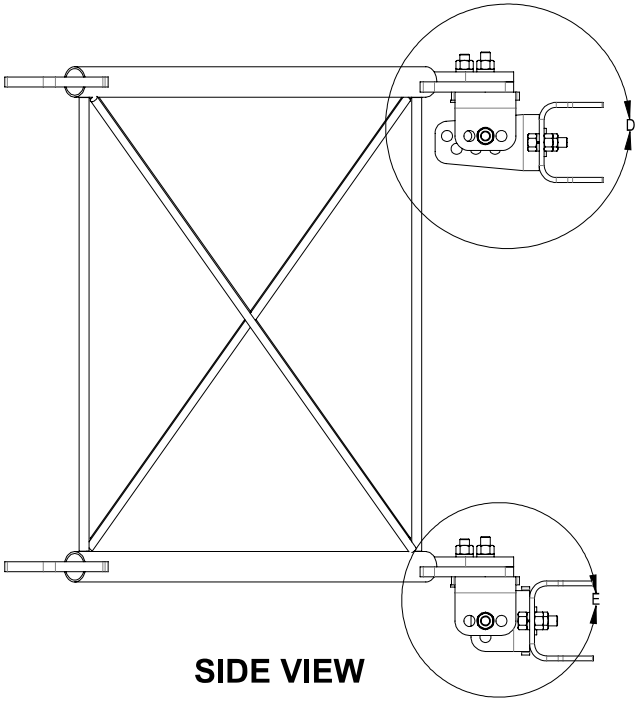
NOTES:

STEP 2A: ON TOP, ATTACH TAPER BRACKET (SFV03) TO AZIMUTH BRACKET (SFV02) USING BOLT KITS (GB-05225). SEE ISO ROTATED VIEW. ATTACH TAPER BRACKET (SFV03) TO CLAMP, FRONT MTG (MTC397522) USING BOLT KITS (GB-05225).

STEP 2B: ON BOTTOM, ATTACH AZIMUTH BRACKET (SFV02) TO AZIMUTH BRACKET (SFV02) USING BOLT KITS (GB-05225). ATTACH AZIMUTH BRACKET (SFV02) TO CLAMP, FRONT MTG (MTC397522) USING BOLT KITS(GB-05225).

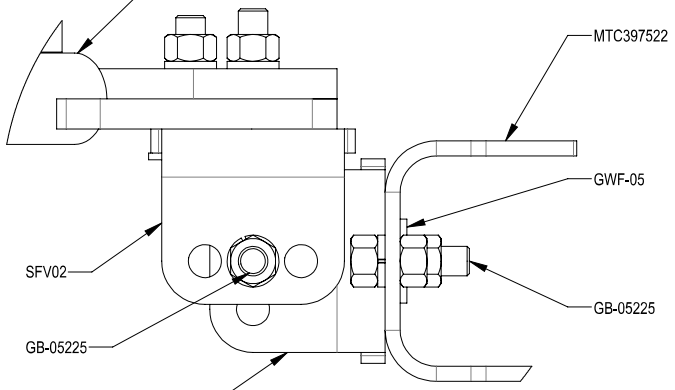


DETAIL D
SCALE 1 : 2

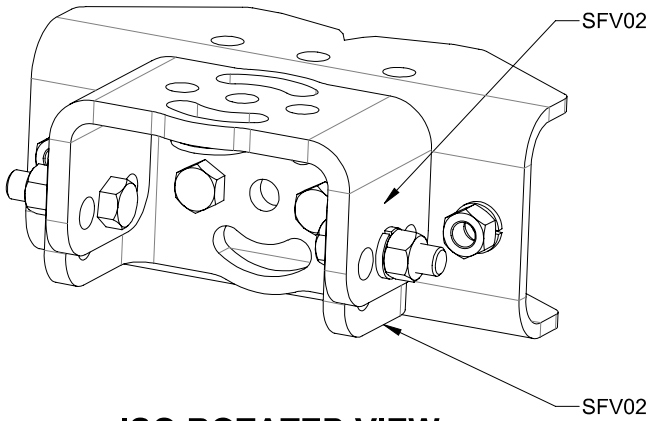


SIDE VIEW

STANDOFF ARM ORIENTATION IS CRITICAL! WHEN ASSEMBLED, PIPES SHOULD BE LEVEL



DETAIL E
SCALE 1 : 2



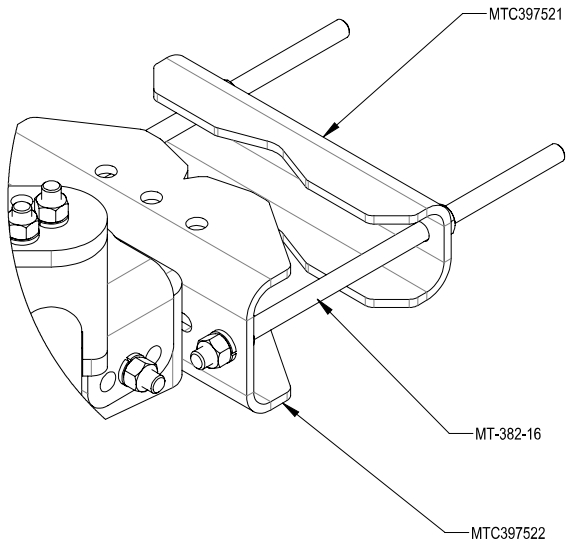
ISO ROTATED VIEW

PATENT PENDING

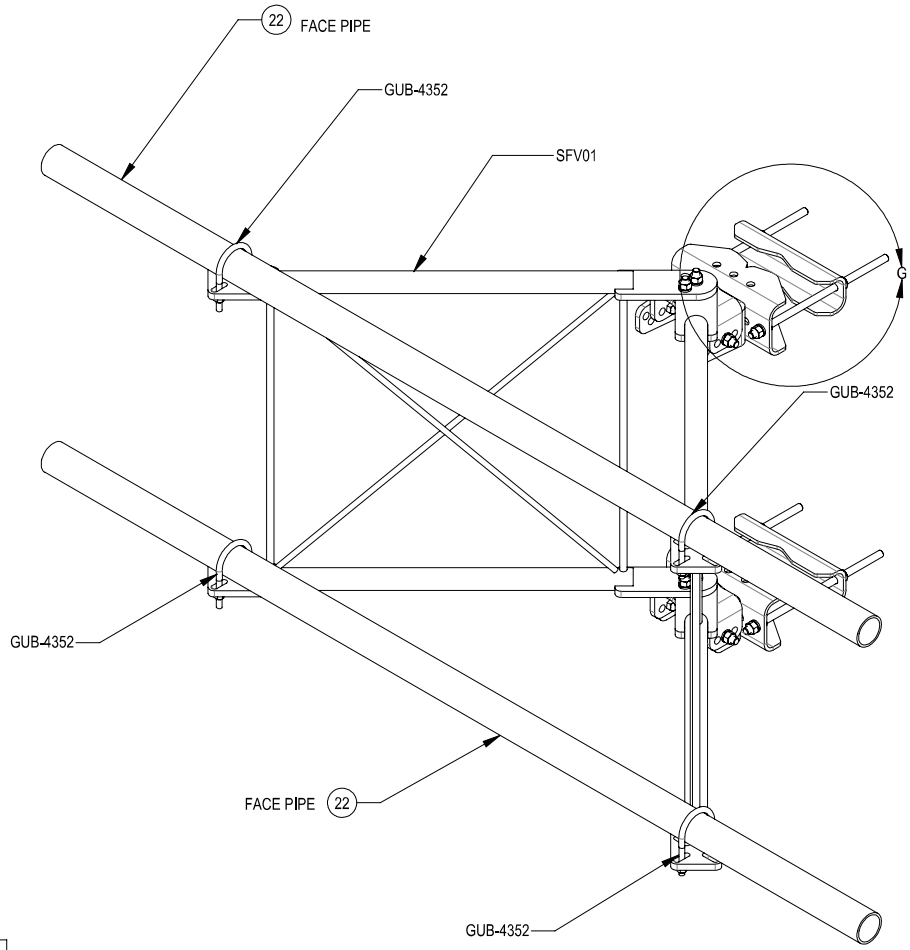
COMMSCOPE, INC. OF NORTH CAROLINA			
TITLE: SECTOR FRAME, TW, SFG21, 8FT, 3 ANT PIPE			
SIZE: C	SCALE: 1:4	DOCUMENT NO.: MTC3975083	
		DRAWING: VERSION 00 / STATUS RE / REVISION A	SHEET: 5 OF 7

NOTES:

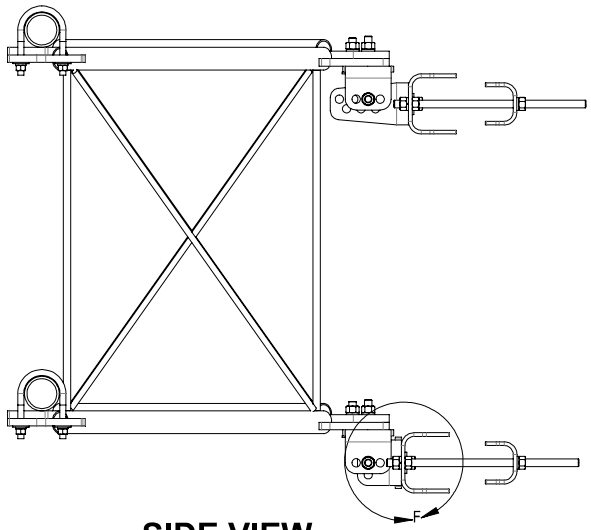
STEP 3: ATTACH FACE PIPES TO STANDOFF ARMS (SFV01) USING U-BOLTS (GUB-4240).



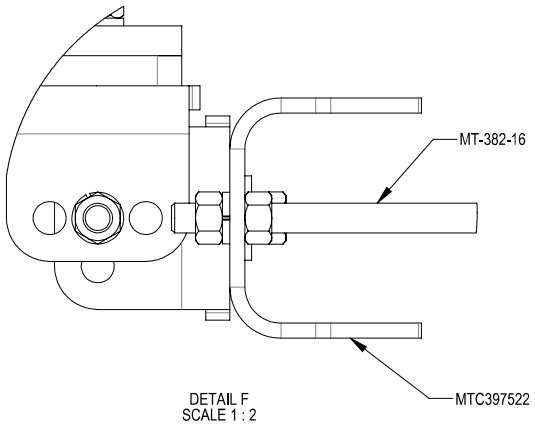
DETAIL G
SCALE 1 : 3



ISO VIEW



SIDE VIEW



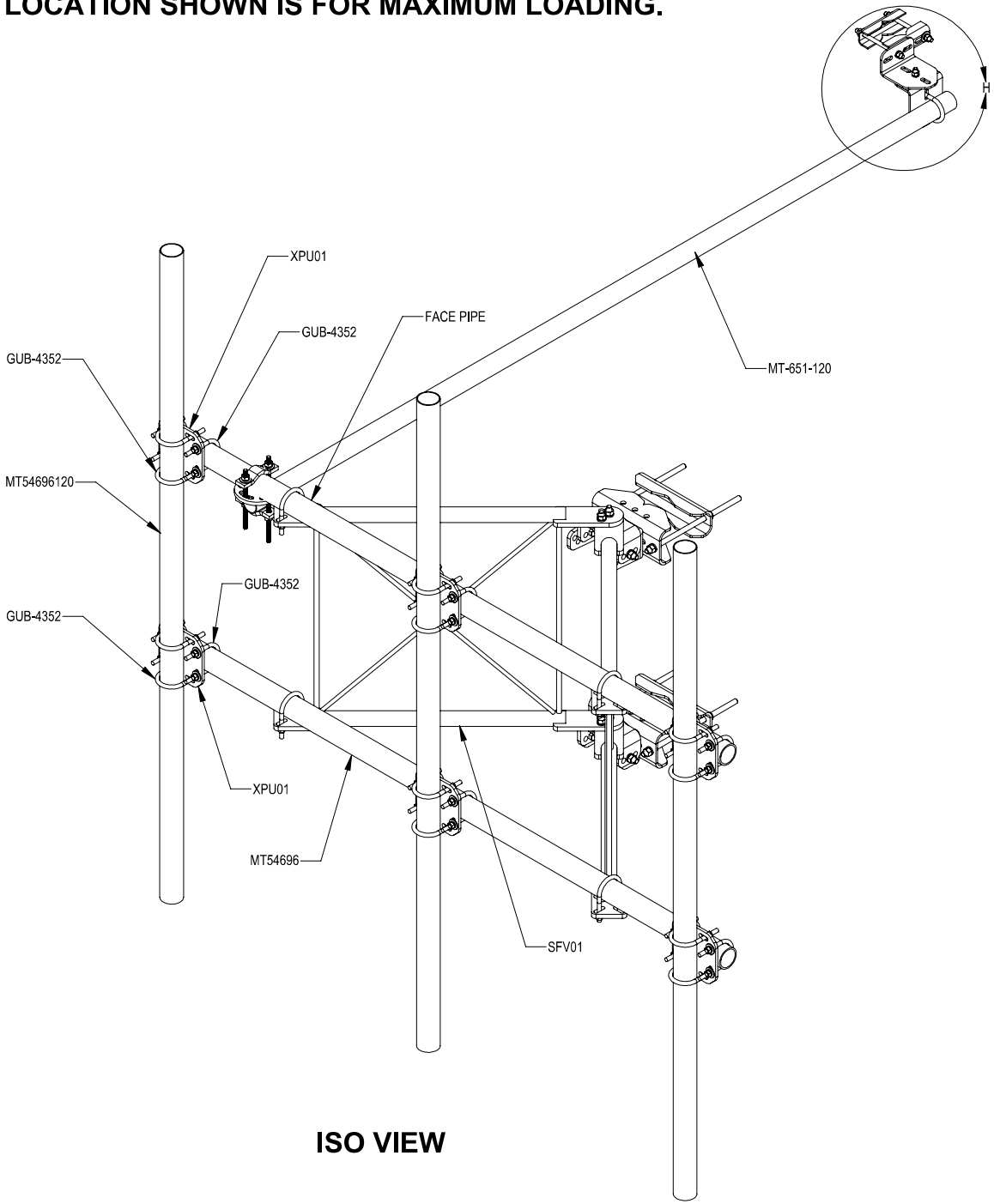
DETAIL F
SCALE 1 : 2

PATENT PENDING

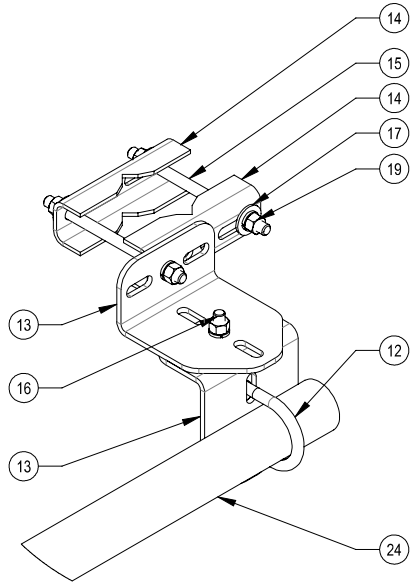
COMMSCOPE, INC. OF NORTH CAROLINA			
TITLE: SECTOR FRAME, TW, SFG21, 8FT, 3 ANT PIPE			
SIZE: C	SCALE: 1:8	DOCUMENT NO.: MTC3975083	
		DRAWING: VERSION 00 / STATUS RE / REVISION A	SHEET: 6 OF 7

NOTES:

STEP 4: ATTACH ANTENNA PIPES & TIE BACK PIPE (MT-651-120) TO FACE PIPES USING CROSSOVER BRACKETS (XAU01) AND U-BOLTS (GUB-4240). LOCATION SHOWN IS FOR MAXIMUM LOADING.



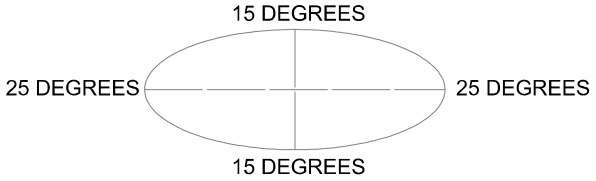
ISO VIEW



DETAIL H
SCALE 1 : 4

ALLOWABLE TIEBACK ANGLE

±15 DEGREES VERTICAL
±25 DEGREES HORIZONTAL



PATENT PENDING

COMMSCOPE, INC. OF NORTH CAROLINA			
TITLE: SECTOR FRAME, TW, SFG21, 8FT, 3 ANT PIPE			
SIZE: C	SCALE: 1:10	DOCUMENT NO.: MTC3975083	
		DRAWING: VERSION 00 / STATUS RE / REVISION A	SHEET: 7 OF 7

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: BOHVN00153A

800529
890 Evergreen Avenue
Hamden, Connecticut 06518

November 18, 2021

EBI Project Number: 6221007190

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**79.58%**

November 18, 2021

Dish Wireless

Emissions Analysis for Site: BOHVN00153A - 800529

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **890 Evergreen Avenue** in **Hamden, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 890 Evergreen Avenue in Hamden, 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 66 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):	66 feet	Height (AGL):	66 feet	Height (AGL):	66 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna A1 MPE %:	**6.57%**	Antenna B1 MPE %:	**6.57%**	Antenna C1 MPE %:	**6.57%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	6.57%
AT&T	13.74%
Metro PCS	3.49%
Clearwire	0.4%
Sprint	5.89%
Verizon	36.12%
T-Mobile	13.37%
Site Total MPE % :	79.58%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	6.57%
Dish Wireless Sector B Total:	6.57%
Dish Wireless Sector C Total:	6.57%
Site Total MPE % :	79.58%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	66.0	8.94	600 MHz n71	400	2.23%
Dish Wireless 1900 MHz n70	4	542.70	66.0	21.68	1900 MHz n70	1000	2.17%
Dish Wireless 2190 MHz n66	4	542.70	66.0	21.68	2190 MHz n66	1000	2.17%
						Total:	**6.57%**

• 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:	6.57%
Sector B:	6.57%
Sector C:	6.57%
Dish Wireless Maximum MPE % (Sector A):	6.57%
Site Total:	79.58%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **79.58%** 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 G

Letter of Authorization

4545 E River Rd, Suite 320
West Henrietta, NY 14586

Phone: (585) 445-5896
Fax: (724) 416-4461
www.crowncastle.com

Crown Castle Letter of Authorization

CT - CONNECTICUT SITING COUNCIL
Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Tower Share Application
Crown Castle telecommunications site at:
890 EVERGREEN AVENUE, HAMDEN, CT 06518

CROWN ATLANTIC COMPANY LLC ("Crown Castle") hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CT - CONNECTICUT SITING COUNCIL for the existing wireless communications site described below:

Crown Site ID/Name:	**800529/CT HAMDEN NORTH CAC**
Customer Site ID:	**BOHVN00153A/CT-CCI-T-800529**
Site Address:	**890 EVERGREEN AVENUE, Hamden, CT 06518**

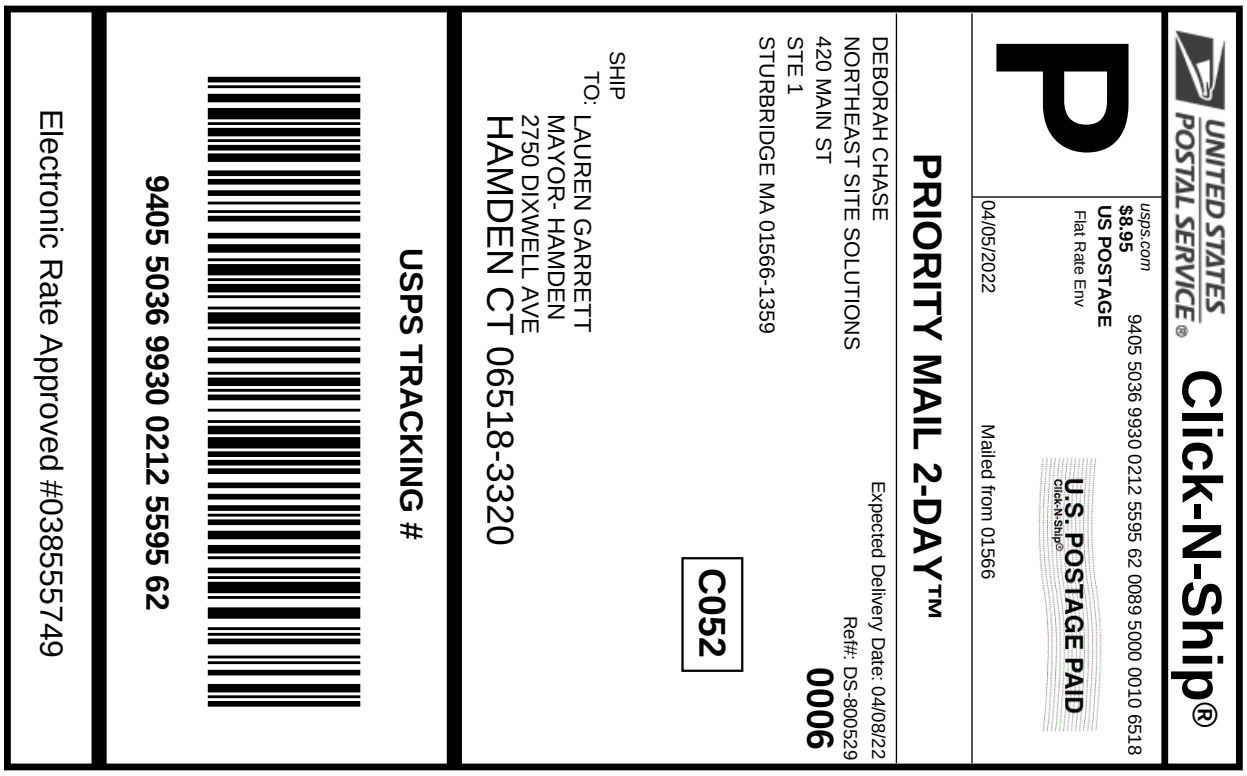
Crown Castle

By: _____ Date: 3/29/2022

Richard Zajac
Site Acquisition Specialist

Exhibit H

Recipient Mailings



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0212 5595 62

Trans. #:	560463364
Print Date:	04/05/2022
Ship Date:	04/05/2022
Expected Delivery Date:	04/08/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

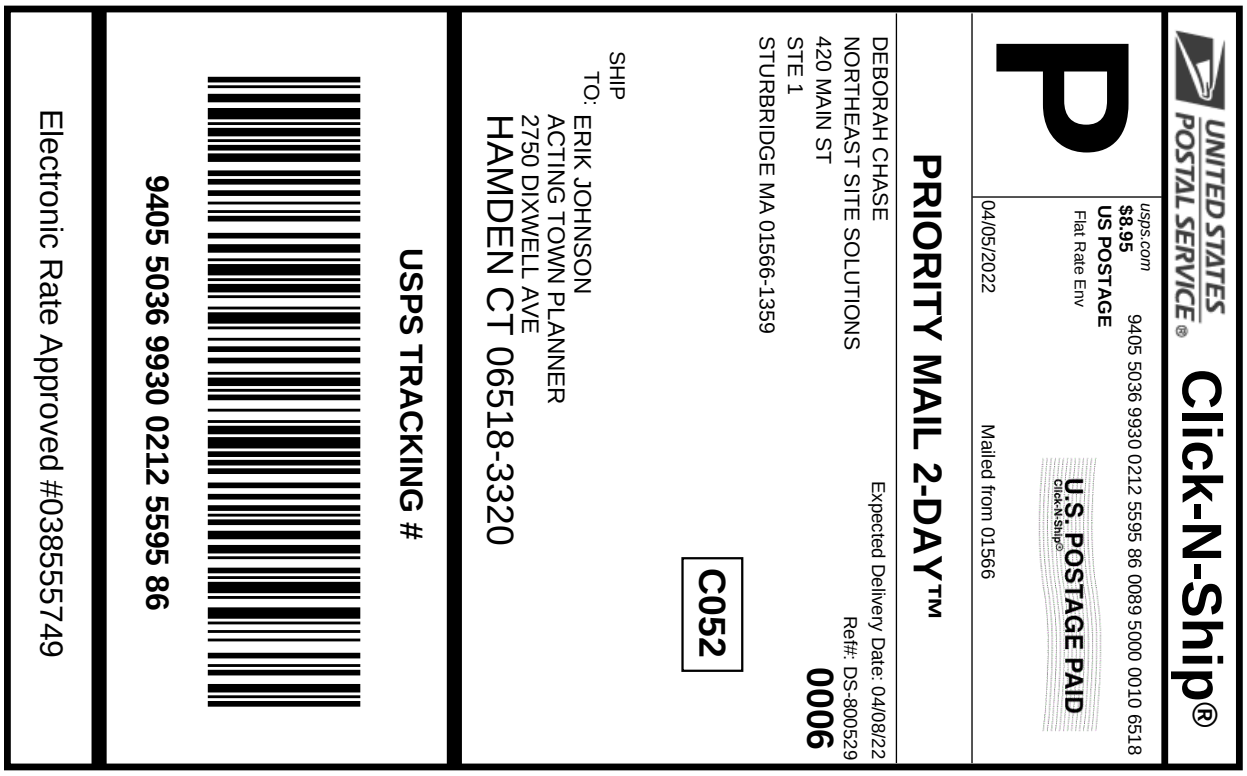
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-800529

To: LAUREN GARRETT
MAYOR- HAMDEN
2750 DIXWELL AVE
HAMDEN CT 06518-3320

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0212 5595 86

Trans. #:	560463364
Print Date:	04/05/2022
Ship Date:	04/05/2022
Expected Delivery Date:	04/08/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-800529

To: ERIK JOHNSON
ACTING TOWN PLANNER
2750 DIXWELL AVE
HAMDEN CT 06518-3320

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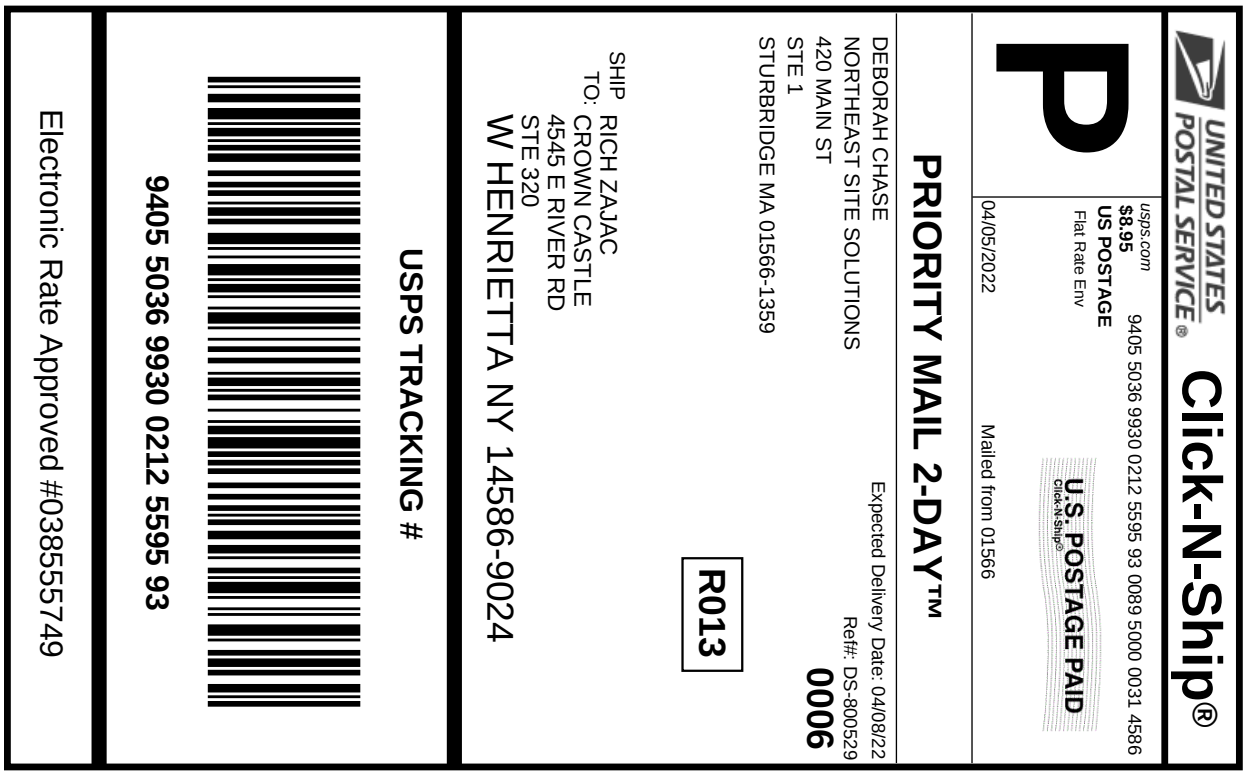

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0212 5595 93

Trans. #:	560463364
Print Date:	04/05/2022
Ship Date:	04/05/2022
Expected Delivery Date:	04/08/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

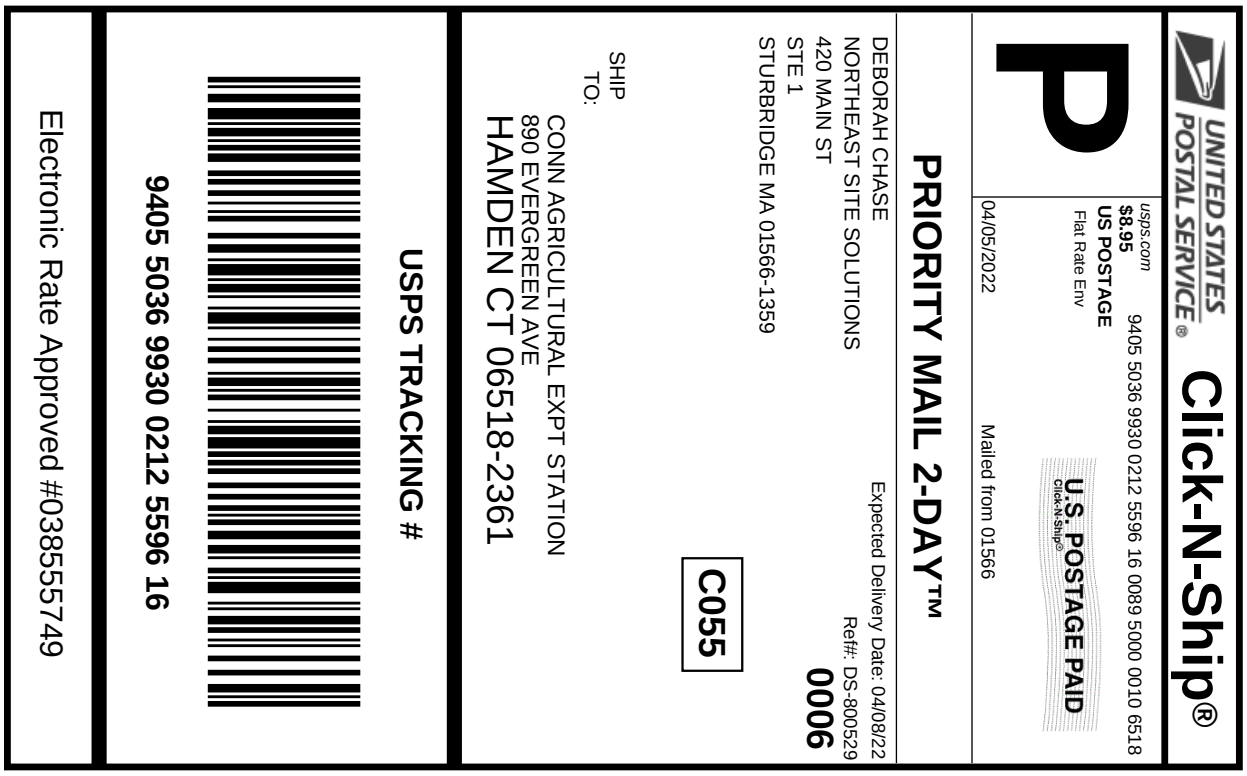
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-800529

To: RICH ZAJAC
CROWN CASTLE
4545 E RIVER RD
STE 320
W HENRIETTA NY 14586-9024

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0212 5596 16

Trans. #:	560463364
Print Date:	04/05/2022
Ship Date:	04/05/2022
Expected Delivery Date:	04/08/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-800529

To: CONN AGRICULTURAL EXPT STATION
890 EVERGREEN AVE
HAMDEN CT 06518-2361

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

800529 Crown Dish

UNITED STATES POSTAL SERVICE.

FARMINGTON
210 MAIN ST
FARMINGTON, CT 06032-9998
(800)275-8777

04/05/2022 03:19 PM

Product	Qty	Unit Price	Price
Prepaid Mail Hamden, CT 06518 Weight: 0 lb 10.70 oz Acceptance Date: Tue 04/05/2022 Tracking #: 9405 5036 9930 0212 5595 86	1		$0.00
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 1.90 oz Acceptance Date: Tue 04/05/2022 Tracking #: 9405 5036 9930 0212 5595 93	1		$0.00
Prepaid Mail Hamden, CT 06518 Weight: 0 lb 10.70 oz Acceptance Date: Tue 04/05/2022 Tracking #: 9405 5036 9930 0212 5596 16	1		$0.00
Prepaid Mail Hamden, CT 06518 Weight: 0 lb 10.60 oz Acceptance Date: Tue 04/05/2022 Tracking #: 9405 5036 9930 0212 5595 62	1		$0.00