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

December 27, 2021

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
465 Hills St, East Hartford CT 06118
Latitude: 41.740700
Longitude: -72.584100
Dish Wireless Site# BOBDL00131A

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 465 Hills St, East Hartford, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 MHz antennas and six (6) RRUs, at the 80-foot level of the existing 109-foot camoulflage monopole tower, one (1) Fiber cables will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7' x 5' lease area. Included are plans by B+T Group, dated Dec. 13, 2021 Exhibit 10. Also included is a structural analysis prepared by TES, dated September 2, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment attached as Exhibit 8. This facility was approved by the Town of East Hartford on July 25, 2017 and by the Connecticut Siting Council under Docket No. 436 July 25, 2013. Please see attached Exhibit 6.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Michael Walsh, Mayor for the Town of East Hartford, Jeffrey Cormier, Town Planner, as well as the property owner, LW Realty, LLC. Separate notice is not being sent to the tower owner as it belongs to SBA.

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the tower is 109-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 80-feet.

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

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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 20.14% as evidenced by Exhibit 7.

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

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

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

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 80-foot level of the existing 109-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit 7, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

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

Sincerely,

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

Attachments:

cc: Michael Walsh, Mayor / with attachments
Town of East Hartford 740 Main St., East Hartford, CT 06108
Jeffrey Cormier, Town Planner / with attachments
Town of East Hartford 740 Main St., East Hartford, CT 06108
LW Realty, LLC / with attachments
6 Andrews St., Bristol, CT 06010 (SBA Address on file)

EXHIBIT LIST

Exhibit 1	Copy of Check	X
Exhibit 2	Letter of Intent to Allow Shared Use of the Existing SBA Telecommunications Site	X
Exhibit 3	Notification Receipts	x
Exhibit 4	Property Card	x
Exhibit 5	Property Map	x
Exhibit 6	Original Zoning Approval	Town Of East Hartford (7/25/13), CSC Docket No. 436 (7/25/13)
Exhibit 7	EME Report	EBI Consulting 12/20/21
Exhibit 8	Structural Analysis	TES 9/2/21
Exhibit 9	Mount Analysis	B+T Group 9/3/21
Exhibit 10	Construction Drawings	B + T Group 12/13/21

EXHIBIT 1

Copy of check

EXHIBIT 2
Letter of Intent

December 27, 2021

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

RE: **Notice of Intent to Allow Shared Use of the Existing SBA Telecommunications Site**
Location: **465 Hills St., East Hartford, CT**
Dish Wireless Site No: BOBDL00131A
Site No: CT22077-A

Dear Ms. Bachman:

Please let the following serve as Evidence of Intent to allow Dish Wireless' shared use of the existing SBA telecommunications site at **465 Hills St., East Hartford, CT**.

SBA Towers IX, LLC ("Owner") and Dish Wireless ("Tenant") are entering into a Site Lease Agreement. Tenant will be provided ground space within the existing site compound for its base station equipment and space at the height of 80' for antennas and associated equipment.

Thank you,

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

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

EXHIBIT 3

Fedex Labels

Shipping Tracking Printing Services Locations Support

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

FedEx

TRACK ANOTHER SHIPMENT

775605492887

ADD NICKNAME

ON TIME

Scheduled delivery:
Tuesday, 12/28/2021 before 11:30 am

PICKED UP
WESTBOROUGH, MA

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods

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

TO
Melanie A. Bachman Exec. Dir
Connecticut Siting Council

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

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
Local Scan Time

Monday, December 27, 2021

3:58 PM	WESTBOROUGH, MA	Picked up Tendered at FedEx Office
12:46 PM		Shipment information sent to FedEx

Shipment Facts

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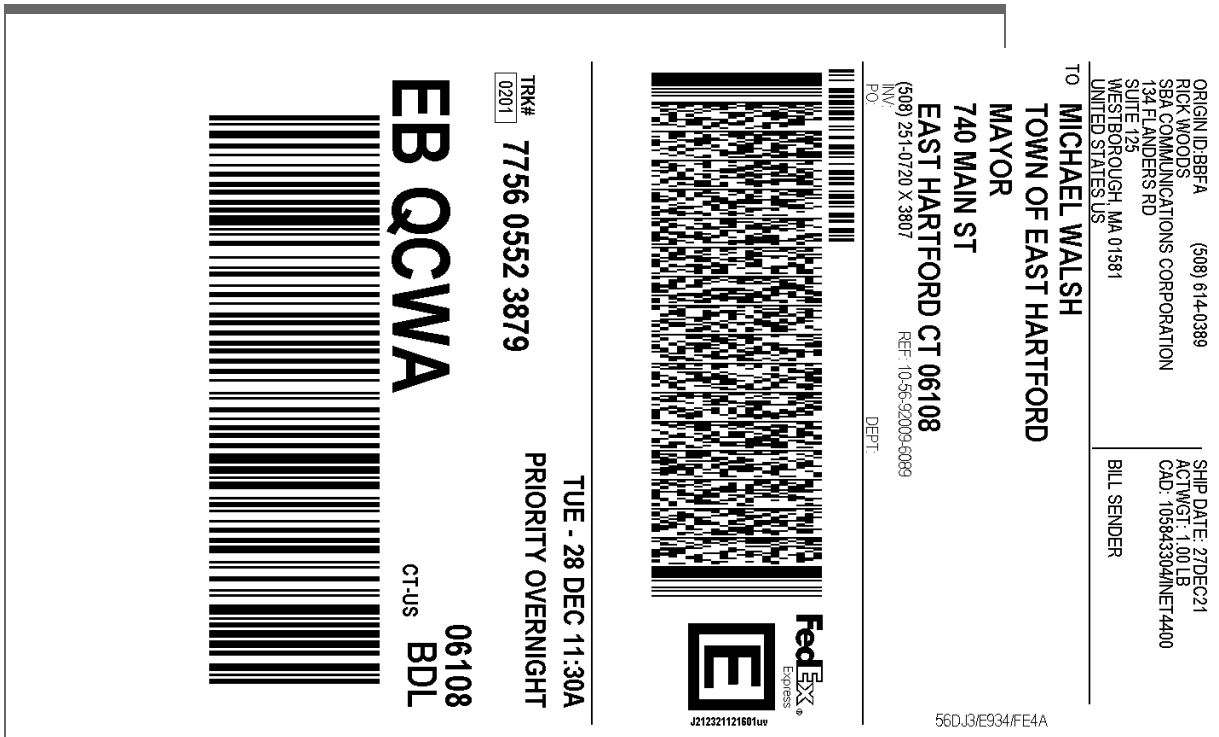
TOTAL PIECES	**TOTAL SHIPMENT WEIGHT**	**TERMS**
1	2 lbs / 0.91 kgs	Shipper

Shipping Tracking Printing Services Locations Support



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

TO
Michael Walsh
Town of East Hartford
Mayor
740 Main St
EAST HARTFORD, CT US 06108
508-251-0720

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
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Monday, December 27, 2021

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1	1 lbs / 0.45 kgs	Shipper

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

TO
Jeffrey Cormier
Town of East Hartford
Town Planner
740 Main St
EAST HARTFORD, CT US 06108
508-251-0720

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
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Monday, December 27, 2021

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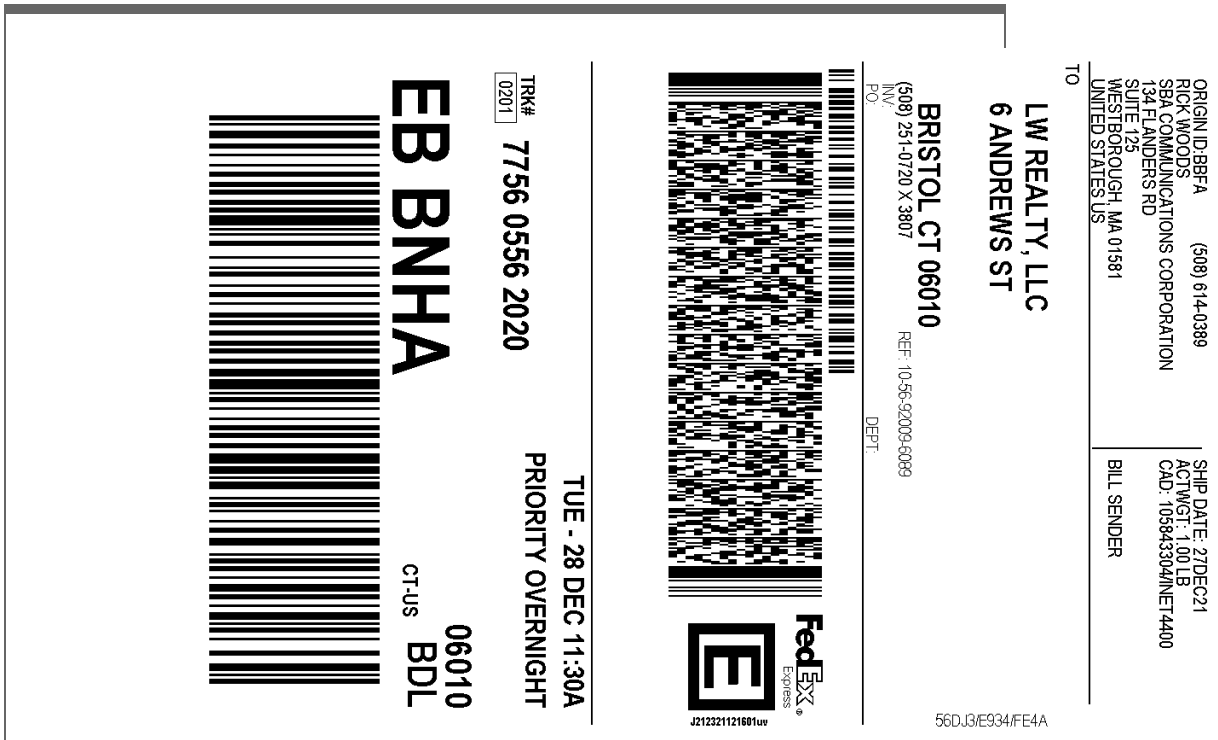
Shipping Tracking Printing Services Locations Support



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775605562020

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Scheduled delivery:
Tuesday, 12/28/2021 before 11:30 am

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WESTBOROUGH, MA

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

TO
LW Realty, LLC
6 Andrews St
BRISTOL, CT US 06010
508-251-0720

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
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Monday, December 27, 2021

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TOTAL PIECES	**TOTAL SHIPMENT WEIGHT**	**TERMS**
1	1 lbs / 0.45 kgs	Shipper

EXHIBIT 4

Property Card

Town of East Hartford Property Summary Report

465 HILLS ST

MAP LOT:	63-348	**CAMA PID:**	6670
LOCATION:	465 HILLS ST		
OWNER NAME:	LW REALTY LLC		

OWNER OF RECORD
LW REALTY LLC 6 ANDREWS ST BRISTOL, CT 06010

LIVING AREA:	2643	**ZONING:**	R2	**ACREAGE:**	11.94

SALES HISTORY

OWNER	BOOK / PAGE	SALE DATE	SALE PRICE
LW REALTY LLC	4013/324	17-Jul-2021	$400,000.00
GENESIS EAST HARTFORD CT LLC	3939/289	04-Nov-2020	$625,000.00
HENRY J KRAUSE REVOCABLE TRUST C/O HEIDI K MCNAMAR	3226/0014	24-Jan-2011	$0.00
KRAUSE HENRY J MC NAMAR HEIDI K TRUSTEE	3110/0056	14-Jul-2009	$0.00
KRAUSE HENRY & EST OF ELSIE C/O HEIDI K MC NAMAR	3007/0136	23-Apr-2008	$0.00

CURRENT PARCEL ASSESSMENT

TOTAL:	$422,930.00	**IMPROVEMENTS:**	$267,200.00	**LAND:**	$155,730.00

ASSESSING HISTORY

FISCAL YEAR	TOTAL VALUE	IMPROVEMENT VALUE	LAND VALUE
2019	$427,630.00	$271,900.00	$155,730.00
2018	$427,630.00	$271,900.00	$155,730.00
2017	$427,630.00	$271,900.00	$155,730.00
2016	$427,630.00	$271,900.00	$155,730.00
2015	$417,180.00	$261,450.00	$155,730.00

Town of East Hartford Property Summary Report

465 HILLS ST

MAP LOT:	63-348	**CAMA PID:**	6670
LOCATION:	465 HILLS ST		
OWNER NAME:	LW REALTY LLC		

BUILDING # 1

YEAR BUILT	1850	**EXT WALL 1**	Clapboard
STYLE	Colonial	**INT WALLS 1**	Plaster
MODEL	Residential	**HEAT FUEL**	Gas
STORIES	2.0	**HEAT TYPE**	Hot Water
OCCUPANCY	One Family	**AC TYPE**	None
ROOF	Gable	**BEDROOMS**	3
ROOF COVER	Asphalt	**FULL BATHS**	1
FLOOR COVER 1	Hardwood	**HALF BATHS**	1
% BSMT	100	**TOTAL ROOMS**	8
% FIN BSMT	0	**% REC RM**	0
% SEMI FIN	0	**% ATTIC FINISH**	0
BSMT GARAGE		**FIREPLACES**	1

EXTRA FEATURES

DESCRIPTION	CODE	UNITS
Garage	FGR1	1x1152 (1152.00 S.F.)
1 Story Barn	BRN1	1x540 (540.00 SF)
1 Story Barn	BRN1	1x340 (340.00 SF)
Gazebo	GAZ	1x120 (120.00 S.F.)
Garage	FGR1	1x252 (252.00 S.F.)
1 Story Barn	BRN1	1x828 (828.00 SF)

Town of East Hartford Property Summary Report

465 HILLS ST

MAP LOT:	63-348	**CAMA PID:**	6670
LOCATION:	465 HILLS ST		
OWNER NAME:	LW REALTY LLC		

BUILDING # 2

YEAR BUILT	1940	**EXT WALL 1**	Concr/Cinder
STYLE	Retail - Single	**INT WALLS 1**	Metal
MODEL	Comm/Ind	**HEAT FUEL**	Oil
STORIES	01	**HEAT TYPE**	Steam
OCCUPANCY	Commercial	**AC TYPE**	None
ROOF	Gable	**BEDROOMS**	
ROOF COVER	Vinyl - 50 yr	**FULL BATHS**	
FLOOR COVER 1	Asphalt Tile	**HALF BATHS**	
% BSMT	null	**TOTAL ROOMS**	
% FIN BSMT	null	**% REC RM**	null
% SEMI FIN		**% ATTIC FINISH**	null
BSMT GARAGE	null	**FIREPLACES**	null

EXTRA FEATURES

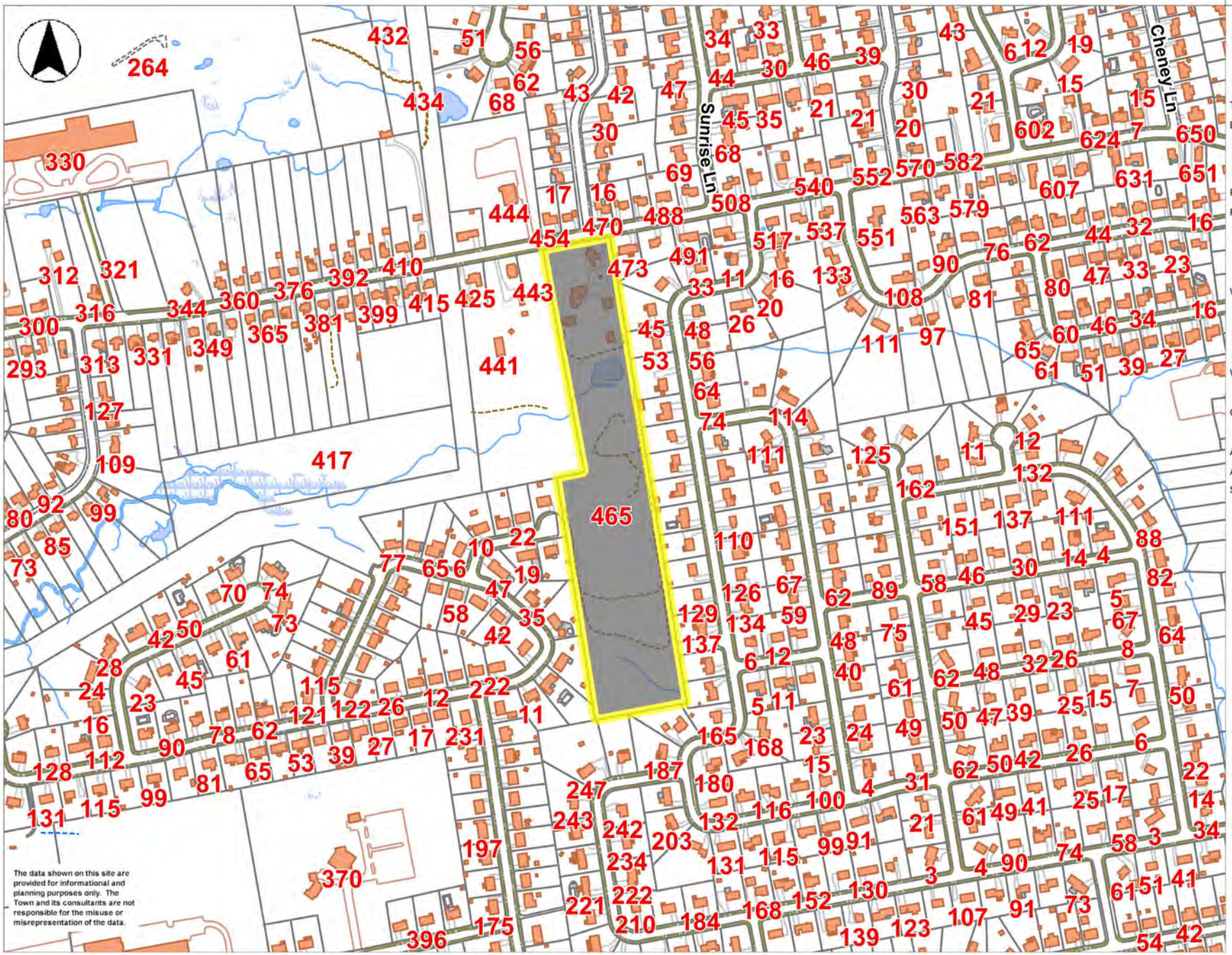
DESCRIPTION	CODE	UNITS
Semifin Area	SFA	2292.00 S.F.

EXTRA FEATURES

DESCRIPTION	CODE	UNITS
Concrete Slab-Reinforced	PAV3	12x24 (288.00 S.F.)

EXHIBIT 5

Property Map

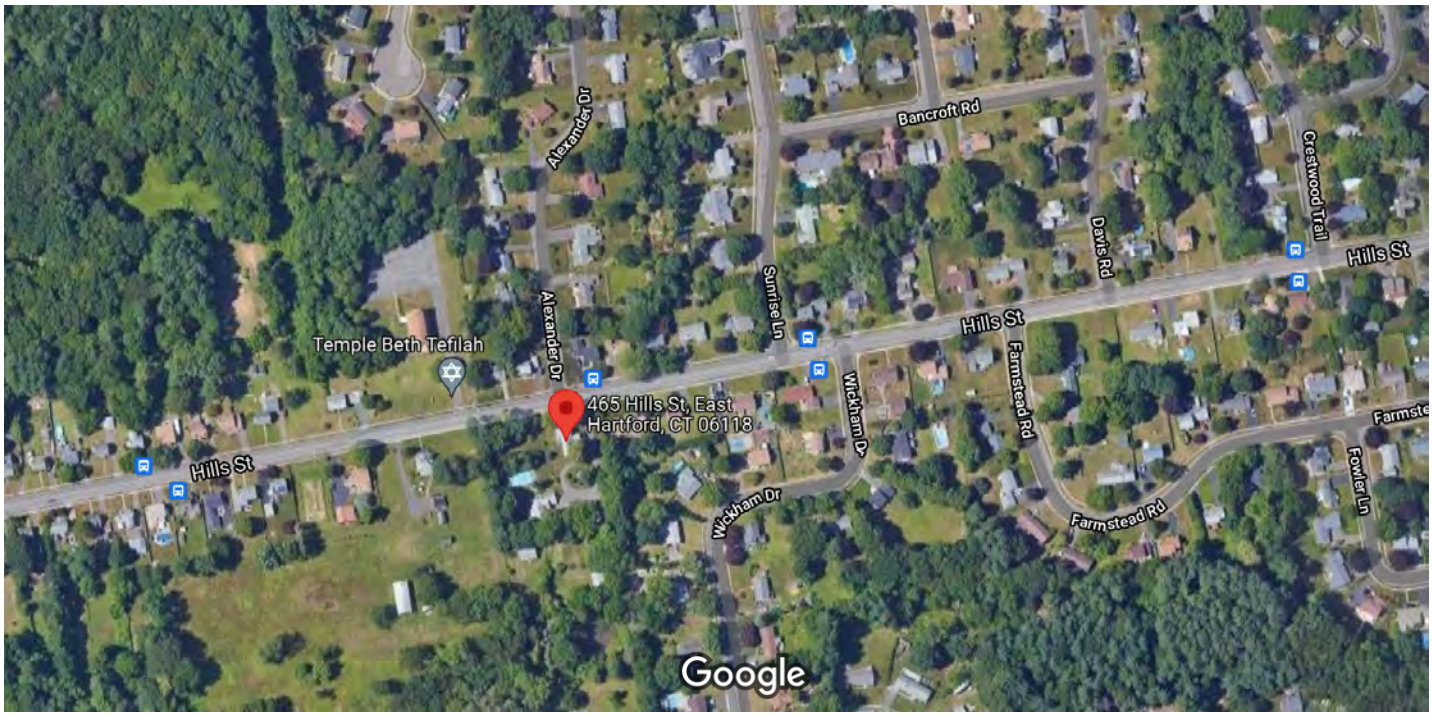


0 640 1280 ft

Printed on 11/11/2021 at 11:30 AM

East Hartford MapsOnline

Google Maps 465 Hills St



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

EXHIBIT 6

Zoning Approval

SITE NAME: East Hartford (465 Hill St) SITE ID: CT22077-A

Transaction: Message Center Management, Inc. (MCM) Jihan/Sam Toth

ZONING/PERMITTING COMPLETION FORM

CT-499

Address: 465 Hills Street, East Hartford, CT 6118

Jurisdiction: Connecticut Siting Council - Zoning Zoning District:
Town of East Hartford - Permitting

Zoning Approval Type: Certificate of Environmental Compatibility & Public Need Case #: Docket 436

Approval Date: 7/25/2013 Approved Height: 110
Monopine

Conditions of Approval:

	Yes
Removal Bond	☐
Site Plan Submittal	☐
Fall Zone	☐
Periodic Inspections	☐
Periodic Reporting	☐
Approval Renewal	☐
Additional Conditions	☒

Tower shall be constructed as a stealth tree monopole (monopine), no taller than necessary to provide the proposed services to accommodate AT&T antennas & other entities. Monopole not to exceed 1100 ft. AGL & the tree top shall not exceed 117 ft. AGL. Tower designed with a yield point to ensure that the setback radius remains within the subject property boundaries. Any nonfunctioning antenna & equipment shall be removed within 60 days of cessation of use. If facility ceases to provide wireless services for a period of one year then the tower & equipment shall be removed.
If Certificate Holder is sold/transferred to another corporation or entity, the Council shall be notified & provided any change in contact information within 30 days of sale/transfer. Both the Certificate holder/transferer and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges that may be associated with this facility.

JURISDICTION POC/DEPT.

Planning/Zoning:

Phone: Email:

Bldg./Code Enforcement:

Phone: Email:

Submitted by: Batches Estes Date: 3/21/2017
Zoning Compliance

TO BE COMPLETED BY CORPORATE

	Yes	No	N/A	
Zoning Approval Attached (required)	☒	☐	☐	
Building Permit Attached (required)	☒	☐	☐	Date Recd
B-13-889				12/10/2013
Certificate of Occupancy or Compliance (CO) attached (required)	☒	☐	☐	11/20/2014

Zoning Manager Approval: Ashley Masuda Date 3/22/2017
Ashley Masuda

DOCKET NO. 436 – Message Center Management, Inc. and New Cingular Wireless PCS, LLC Application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at one of two sites: 465 Hills Street or 56 Hills Street, East Hartford, Connecticut.	Connecticut Siting Council July 25, 2013

Decision and Order

Pursuant to Connecticut General Statutes §16-50p and the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, 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 Message Center Management, Inc., hereinafter referred to as the Certificate Holder, for a telecommunications facility at Site A, located at 465 Hills Street, East Hartford, Connecticut. The Council denies certification of Site B, located at 56 Hills Street, East Hartford, Connecticut.

Unless otherwise approved by the Council, 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 a stealth tree monopole (i.e. monopine), no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of (AT&T) and other entities, both public and private, but such monopole shall not exceed a height of 110 feet above ground level. The height at the top of the "tree top" shall not exceed 117 feet above ground level.

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 served on the Town of East Hartford for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, emergency backup generator, and landscaping; and
    b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

3. The Eastern Box Turtle Protection Program shall be implemented to mitigate any possible impacts to Eastern Box Turtles in the event any are found in the vicinity of the site.

4. The tower shall be designed with a yield point to ensure that the setback radius remains within the subject property boundaries.

5. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

6. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

7. 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.

8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), 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. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

9. Any request for extension of the time period referred to in Condition 8 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of East Hartford. Any proposed modifications to this Decision and Order shall likewise be so served.

10. If the facility ceases to provide wireless services for a period of one year, 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.

11. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.

12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

13. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

14. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

15. The Certificate Holder shall maintain the facility and associated equipment, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, emergency backup generator, and landscaping in a reasonable physical and operational condition that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.

16. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the Certificate Holder within 30 days of the sale and/or transfer.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed in the Service List, dated February 20, 2013, and notice of issuance published in The Journal Inquirer.

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.

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

July 31, 2013

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

RE: **DOCKET NO. 436** – Message Center Management, Inc. and New Cingular Wireless PCS, LLC Application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at one of two sites: 465 Hills Street or 56 Hills Street, East Hartford, Connecticut.

Dear Attorneys Laub and Fisher:

By its Decision and Order dated July 25, 2013, the Connecticut Siting Council (Council) granted a Certificate of Environmental Compatibility and Public Need (Certificate) for the construction, maintenance, and operation of a telecommunications facility located at 465 Hills Street, East Hartford, Connecticut.

Enclosed are the Council's Certificate, Findings of Fact, Opinion, and Decision and Order.

Very truly yours,

Melanie Bachman
Acting Executive Director

MB/cm

Enclosures (4)

c: Parties and Intervenors (without Certificate enclosure)
State Documents Librarian (without Certificate enclosure)

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CSC
CONNECTICUT SITING COUNCIL

STATE OF CONNECTICUT)

ss. New Britain, Connecticut :

COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the Findings of Fact, Opinion, and Decision and Order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

Melanie Bachman
Acting Executive Director
Connecticut Siting Council

I certify that a copy of the Findings of Fact, Opinion, and Decision and Order in Docket No. 436 has been forwarded by Certified First Class Return Receipt Requested mail, on July 31, 2013, to all parties and intervenors of record as listed on the attached service list, dated February 20, 2013.

ATTEST:

Carriann Mulcahy
Secretary II
Connecticut Siting Council

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Applicant	Message Center Management New Cingular Wireless PCS, LLC	Daniel Laub, Esq. Christopher Fisher, Esq. Cuddy & Feder LLP 445 Hamilton Avenue, 14th Floor White Plains, NY 10601 (914) 761-1300 (914) 761-5372 fax cfisher@cuddyfeder.com dlaub@cuddyfeder.com Michele Briggs AT&T 500 Enterprise Drive Rocky Hill, CT 06067-3900 michele.g.briggs@cingular.com Virginia King Message Center Management 40 Woodland Street Hartford, CT 06105 vking@mcmgmt.com

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

CERTIFICATE

OF

ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

DOCKET NO. 436

Pursuant to General Statutes § 16-50k, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need to Message Center Management, Inc. for the construction, maintenance, and operation of a telecommunications facility located at 465 Hills Street, East Hartford, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on July 25, 2013

By order of the Council,

Robert Stein, Chairman

July 25, 2013

State of Connecticut

TOWN OF EAST HARTFORD

740 Main Street East Hartford, CT 06108 (860) 291-7340

PERMIT TO BUILD

Permit No. **B-13-889**

No. of Units: **0**

FEE PAID: **$6,465.00**

DATE ISSUED: **12/10/2013**

This may certify that **MCPHEE ELECTRIC LTD LLC**

has permission to erect, alter, or demolish a building on: **465 HILLS ST**

as follows: **INSTALLATION OF A CELL MONOPOLE DISGUISED AS A PINE TREE (MONOPINE) AND ASSOCIATED COMPOUND AND UTILITIES AS APPROVED BY THE CONNECTICUT SITING COUNCIL IN DOCKET 436.**

provided that the person accepting this permit shall in every respect conform to the terms of the application therefore on file in this office, and to the provisions of ordinances relating to the Inspection, Alteration and Construction of Buildings in the Town of East Hartford. All permits approved are subject to inspections performed by a representative of this office. All permit costs and/or fees are subject to audit. Requests for inspections must be made at least 24 hours in advance.

Contractor Name: **MCPHEE ELECTRIC LTD LLC** Phone:

Address: **505 MAIN ST** **FARMINGTON** **CT**

ELECTRICAL

SERVICE
ROUGH
FINAL
FIRE DEPARTMENT
MECHANICAL/HVAC

NOTE: The recipient of this permit accepts this permit on the condition that, as owner or as agent of the owner, he/she agrees to comply with all Building & Zoning Regulations of the Town of East Hartford & the State Statutes of the State of Connecticut regarding the use, occupancy & type of building to be constructed, added to, demolished, or altered. The recipient also agrees that this building is to be located the proper distance from all street lines, side yard lines & required distances from all other zones & is located in a zone in which the building & its use is allowed. Additional conditions listed below:

Comments: **W/C PROVIDED**

Restrictions:

Milton Gregory Green **12/10/2013**

Building Inspector Date

All permit costs and/or fees are subject to audit.

PLUMBING

U.G.
ROUGH
FINAL

BUILDING

ROUGH
INSULATION
FINAL

FOUNDATION

FOOTING
FOUNDATION

This Card Must Be Displayed in a Conspicuous Place on the Premises and Not Torn Down or Removed

Call (860) 291-7340 For Inspection

EXHIBIT 7

EME Report

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: BOBDL00131A

BOBDL00131A
465 Hills Street
East Hartford, Connecticut 06118

December 20, 2021

EBI Project Number: 6221007649

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**20.14%**

December 20, 2021

Dish Wireless

Emissions Analysis for Site: BOBDL00131A - BOBDL00131A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **465 Hills Street** in **East Hartford, 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 465 Hills Street in East Hartford, 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 80 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):	80 feet	Height (AGL):	80 feet	Height (AGL):	80 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 %:	**4.32%**	Antenna B1 MPE %:	**4.32%**	Antenna C1 MPE %:	**4.32%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	4.32%
AT&T	15.16%
E. Hartford FD	0.66%
Site Total MPE % :	20.14%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	4.32%
Dish Wireless Sector B Total:	4.32%
Dish Wireless Sector C Total:	4.32%
Site Total MPE % :	20.14%

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	80.0	5.87	600 MHz n71	400	1.47%
Dish Wireless 1900 MHz n70	4	542.70	80.0	14.25	1900 MHz n70	1000	1.43%
Dish Wireless 2190 MHz n66	4	542.70	80.0	14.25	2190 MHz n66	1000	1.43%
						Total:	**4.32%**

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

Summary

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

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

Dish Wireless Sector	Power Density Value (%)
Sector A:	4.32%
Sector B:	4.32%
Sector C:	4.32%
Dish Wireless Maximum MPE % (Sector A):	4.32%
Site Total:	20.14%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **20.14%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

EXHIBIT 8

Structural Analysis

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

Structural Analysis Report

Existing 109 ft Larson Camouflage Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT22077-A
Customer Site Name: East Hartford (465 Hill St)
Carrier Name: Dish Wireless (App#: 167829, V1)
Carrier Site ID / Name: BOBDL00131A / 0
Site Location: 465 Hills Street
East Hartford, Connecticut
HARTFORD County
Latitude: 41.740700
Longitude: -72.584100

Exp.10/31/2021

09/02/2021

Analysis Result:

Max Structural Usage: 40.3% [Pass]
Max Foundation Usage: 61.0% [Pass]
Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By : Dipika Dhungana

Introduction

The purpose of this report is to summarize the analysis results on the 109 ft Larson Camouflage Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Vector Engineers, #U1223-277-131. dated 04/04/2014. Larso. #641200. dated 04/08/2014.
Foundation Drawing	Vector Engineers, #U1223-277-131. dated 04/04/2014. Larso. #641200. dated 04/08/2014.
Geotechnical Report	Terracon, #J2135182. dated 08/16/2013.
Modification Drawings	N/A
Mount Analysis	N/A

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed Vult = 125.0mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 97.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.18, S_1 = 0.064

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	109.0	1	RFS - BA6312-1 - Whip	Pipe	(2) 7/8"	East Hartford Fire D
2		1	CommScope - HPD2-4.7 - Dish			
3	100.0	12	CCI - HPA-65R-BUU-H8 - Panel	(3) T-Arms	(2) 3/8" Fiber (3) 3/8" RET (8) DC FIber	AT&T
4		6	RRUS-32			
5		6	RRUS-E2			
6		6	RRUS-A2			
7		9	RRUS-11			
8		6	RRUS-12			
9		5	Raycap DC2-48-60-18-8F			
10	90.0	3	CommScope - NHH-65B-R2B - Panel	Sitepro ULPD12 at 88'	(2) 1 5/8" Hybrid	Verizon
11		3	CommScope - NHHSS-65B-R2B - Panel			
12		3	Samsung B2/B66A RRH-BR049 (RFV01U-D1A)			
13		3	Samsung B5/B13 RRH-BR04C (RFV01U-D2A)			
14		3	Samsung CBRS RRH - RT4401- 48A			
15	87.0	1	Raycap RVZDC-6627-PF-48			

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
16	80.0	3	JMA Wireless MX08FRO665-21	(3) T-Arms MC-K6M-6-96	(1) 1.411" Hybrid	Dish Wireless
17		3	Fujitsu TA08025-B605			
18		3	Fujitsu TA08025-B604			
19		1	Raycap RDIDC-9181-PF-48			

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

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**40.3%**	**37.7%**	**33.0%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Analysis Reactions	4280.9	51.8

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.2899 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

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

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

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

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

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

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

Usage Diagram - Max Ratio 40.26% at 62.3ft

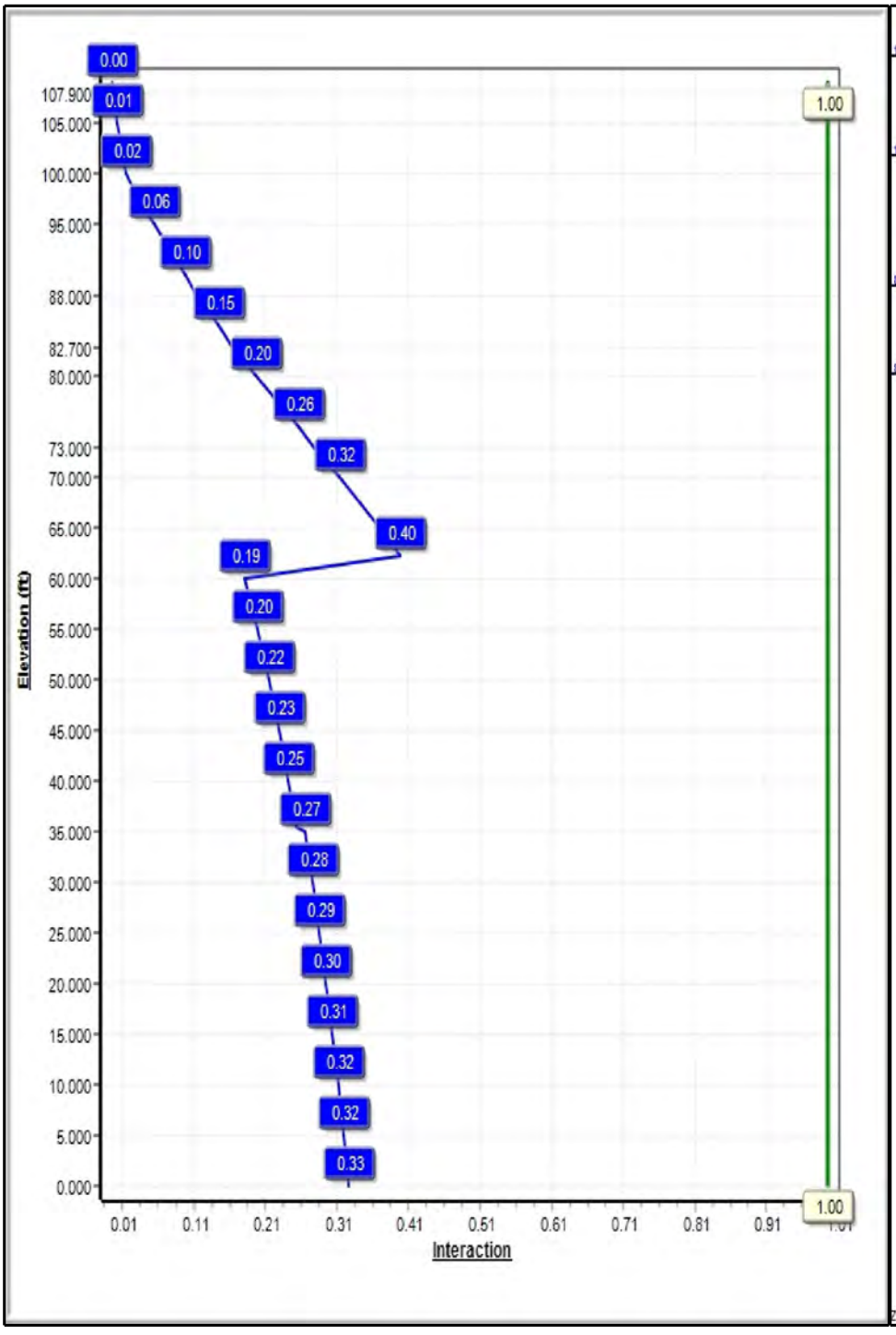
Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C	
Height:	109.00 (ft)	**Gh:**	1.1	
Base Elev:	1.000 (ft)			Page: 1

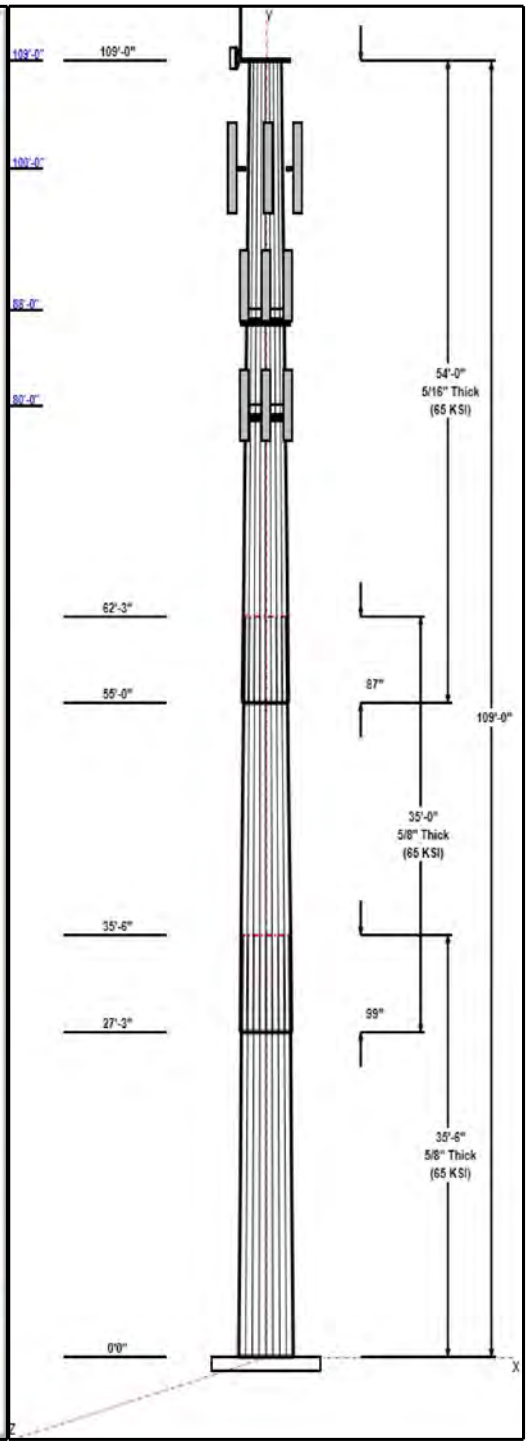
Tower Engineering Solutions

Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 97 mph Wind

Iterations: 15





Structure: CT22077-A-SBA

Type: Tapered
Site Name: East Hartford (465 Hill St)
Height: 109.00 (ft)
Base Elev: 1.00 (ft)

Base Shape: 18 Sided
Taper: 0.30000

9/2/2021

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	35.50	56.68	67.33	0.625		0.30000	65
2	35.00	49.90	60.40	0.625	Slip	0.30000	65
3	54.00	36.50	52.70	0.313	Slip	0.30000	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
109.00	111.20	1	BA6312-1	East Hartford Fire
109.00	110.00	1	HPD2-4.7	East Hartford Fire
109.00	109.00	1	Pipe	East Hartford Fire
109.00	109.00	1	Top Hat	-
107.90	107.90	1	6 FT Branches	-
100.00	100.00	12	HPA-65R-BUU-H8	AT&T
100.00	100.00	6	RRUS-32	AT&T
100.00	100.00	6	RRUS-E2	AT&T
100.00	100.00	6	RRUS-A2	AT&T
100.00	100.00	9	RRUS-11	AT&T
100.00	100.00	6	RRUS-12	AT&T
100.00	100.00	5	Raycap DC2-48-60-18-8F	AT&T
100.00	100.00	3	T-Arms	AT&T
97.20	97.20	1	8 FT Branches	-
88.00	90.00	3	NHH-65B-R2B	Verizon
88.00	90.00	3	NHHSS-65B-R2B	Verizon
88.00	90.00	3	B2/B66A RRH-BR049	Verizon
88.00	90.00	3	B5/B13 RRH-BR04C	Verizon
88.00	90.00	3	Samsung CBRS RRH -	Verizon
88.00	87.00	1	Raycap	Verizon
88.00	88.00	1	ULPD12	Verizon
82.70	82.70	1	10 FT Branches	-
80.00	80.00	3	MX08FRO665-21	Dish Wireless
80.00	80.00	3	TA08025-B604	Dish Wireless
80.00	80.00	3	TA08025-B605	Dish Wireless
80.00	80.00	1	RDIDC-9181-OF-48	Dish Wireless
80.00	80.00	1	MC-K6M-6-96 (3 Sectors)	Dish Wireless
73.00	73.00	1	12 FT Branches	-

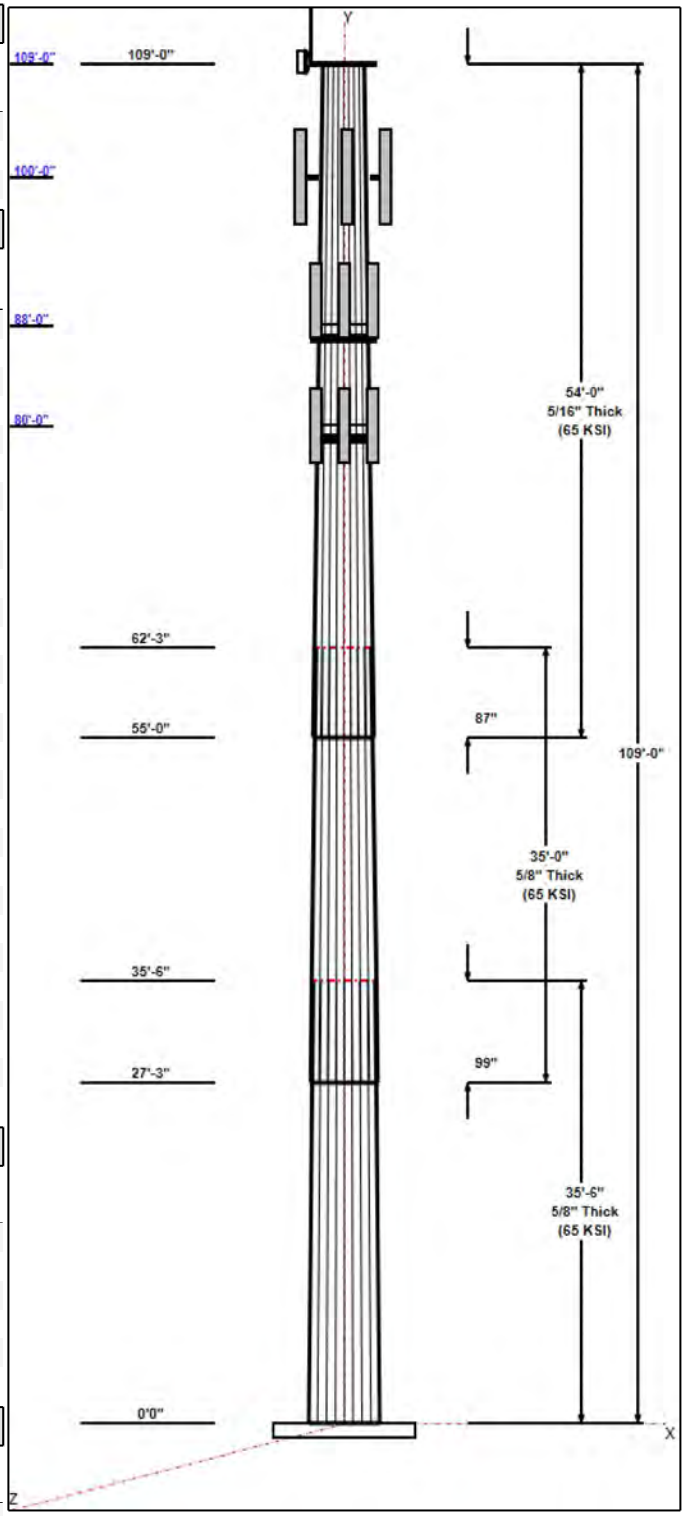
Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	109.00	Inside	7/8" Coax	East Hartford Fire
0.00	100.00	Inside	3/8" Fiber	AT&T
0.00	100.00	Inside	3/8" RET	AT&T
0.00	100.00	Inside	DC FIber	AT&T
0.00	90.00	Inside	1 5/8" Hybrid	Verizon
0.00	80.00	Inside	1.411" Hybrid	Dish Wireless

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
30	2.25" 18J	75.0	Radial

Base Plate



Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.0000	81.5	50.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 97 mph Wind	4281.0	51.8	63.1
0.9D + 1.6W 97 mph Wind	4271.7	51.7	47.3
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1290.9	15.6	115.3
1.2D + 1.0E	207.0	2.5	63.1
0.9D + 1.0E	206.5	2.5	47.4
1.0D + 1.0W 60 mph Wind	1022.3	12.4	52.6

Structure: CT22077-A-SBA - Coax Line Placement

Type: Monopine
Site Name: East Hartford (465 Hill St)
Height: 109.00 (ft)

9/2/2021

Tower Engineering Solutions

Shaft Properties

Structure:	CT22077-A-SBA		**Code:**	EIA/TIA-222-G	9/2/2021
Site Name:	East Hartford (465 Hill St)		**Exposure:**	C	
Height:	109.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	35.500	0.6250	65		0.00	14,707
2	18	35.000	0.6250	65	Slip	99.00	12,882
3	18	54.000	0.3125	65	Slip	87.00	8,071
					Total Shaft Weight:		**35,660**

	Bottom						Top						
Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	67.33	0.00	132.3	74370.70	17.58	107.72	56.68	35.50	111.1	44131.7	14.58	90.68	0.300000
2	60.40	27.25	118.5	53528.26	15.63	96.64	49.90	62.25	97.75	29985.0	12.67	79.84	0.300000
3	52.70	55.00	51.96	18016.79	28.33	168.64	36.50	109.00	35.89	5938.41	19.18	116.8	0.300000

Load Summary

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	109.00	BA6312-1	1	2.00	0.44	1.00	56.71	1.921	1.00	0.00	2.20
2	109.00	HPD2-4.7	1	27.00	3.96	1.00	134.66	5.479	1.00	0.00	1.00
3	109.00	Pipe	1	137.25	5.00	1.00	310.64	13.121	1.00	0.00	0.00
4	109.00	Top Hat	1	160.00	20.00	1.00	448.75	38.047	1.00	0.00	0.00
5	107.90	6 FT Branches	1	720.00	45.00	1.00	2018.09	85.565	1.00	0.00	0.00
6	100.00	HPA-65R-BUU-H8	12	68.00	12.98	0.79	458.48	15.086	0.79	0.00	0.00
7	100.00	RRUS-32	6	53.00	2.74	0.67	173.52	3.695	0.67	0.00	0.00
8	100.00	RRUS-E2	6	59.40	3.15	0.67	189.40	4.088	0.67	0.00	0.00
9	100.00	RRUS-A2	6	21.20	1.86	0.67	67.48	3.108	0.67	0.00	0.00
10	100.00	RRUS-11	9	50.70	2.52	0.67	172.42	3.376	0.67	0.00	0.00
11	100.00	RRUS-12	6	60.00	2.70	0.67	145.89	3.546	0.67	0.00	0.00
12	100.00	Raycap DC2-48-60-18-8F	5	31.80	0.92	1.00	111.04	1.481	1.00	0.00	0.00
13	100.00	T-Arms	3	400.00	10.00	0.75	757.87	21.184	0.75	0.00	0.00
14	97.20	8 FT Branches	1	2350.00	150.50	1.00	6543.22	84.772	1.00	0.00	0.00
15	88.00	NHH-65B-R2B	3	43.70	8.08	0.83	311.96	9.745	0.83	0.00	2.00
16	88.00	NHHSS-65B-R2B	3	40.60	8.08	0.83	308.86	9.745	0.83	0.00	2.00
17	88.00	B2/B66A RRH-BR049	3	84.50	1.88	0.67	149.37	2.578	0.67	0.00	2.00
18	88.00	B5/B13 RRH-BR04C (RFV01U-D2A)	3	84.50	1.88	0.67	149.37	2.578	0.67	0.00	2.00
19	88.00	Samsung CBRS RRH - RT4401- 48A	3	6.60	1.19	0.67	37.28	2.186	0.67	0.00	2.00
20	88.00	Raycap RVZDC-6627-PF-48	1	32.00	3.79	1.00	200.22	4.834	1.00	0.00	-1.00
21	88.00	ULPD12	1	2419.26	41.68	1.00	6693.81	07.959	1.00	0.00	0.00
22	82.70	10 FT Branches	1	2706.00	160.00	1.00	7457.92	00.485	1.00	0.00	0.00
23	80.00	MX08FRO665-21	3	64.50	12.49	0.74	429.15	14.326	0.74	0.00	0.00
24	80.00	TA08025-B604	3	63.90	1.96	0.67	127.37	2.663	0.67	0.00	0.00
25	80.00	TA08025-B605	3	75.00	1.96	0.67	140.57	2.663	0.67	0.00	0.00
26	80.00	RDIDC-9181-OF-48	1	21.90	2.01	0.67	88.66	2.722	0.67	0.00	0.00
27	80.00	MC-K6M-6-96 (3 Sectors)	1	860.00	20.95	0.75	1913.69	53.952	0.75	0.00	0.00
28	73.00	12 FT Branches	1	1386.00	82.60	1.00	3790.11	54.238	1.00	0.00	0.00
		Totals:	**89**	**16,004.21**			**47,958.35**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	109.00	(2) 7/8" Coax	0.00	Inside
0.00	100.00	(2) 3/8" Fiber	0.00	Inside
0.00	100.00	(3) 3/8" RET	0.00	Inside
0.00	100.00	(8) DC FIber	0.00	Inside
0.00	90.00	(2) 1 5/8" Hybrid	0.00	Inside
0.00	80.00	(1) 1.411" Hybrid	0.00	Inside

Shaft Section Properties

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.6250	67.325	132.311	74370.7	17.58	107.72	80.7	2175.	0.0
5.00		0.6250	65.825	129.336	69465.2	17.16	105.32	81.2	2078.	2225.8
10.00		0.6250	64.325	126.360	64780.3	16.74	102.92	81.7	1983.	2175.2
15.00		0.6250	62.825	123.385	60310.9	16.31	100.52	82.2	1890.	2124.6
20.00		0.6250	61.325	120.409	56051.9	15.89	98.12	82.6	1800.	2073.9
25.00		0.6250	59.825	117.434	51998.3	15.47	95.72	82.6	1711.	2023.3
27.25	Bot - Section 2	0.6250	59.150	116.095	50239.9	15.28	94.64	82.6	1672.	894.0
30.00		0.6250	58.325	114.458	48145.1	15.04	93.32	82.6	1625.	2180.6
35.00		0.6250	56.825	111.483	44487.0	14.62	90.92	82.6	1542.	3886.3
35.50	Top - Section 1	0.6250	57.925	113.665	47150.7	14.93	92.68	0.0	0.0	383.1
40.00		0.6250	56.575	110.987	43896.0	14.55	90.52	82.6	1528.	1720.0
45.00		0.6250	55.075	108.011	40459.3	14.13	88.12	82.6	1446.	1863.0
50.00		0.6250	53.575	105.036	37206.8	13.70	85.72	82.6	1367.	1812.4
55.00	Bot - Section 3	0.6250	52.075	102.060	34133.5	13.28	83.32	82.6	1291.	1761.8
60.00		0.6250	50.575	99.085	31234.2	12.86	80.92	82.6	1216.	2582.5
62.25	Top - Section 2	0.3125	50.525	49.803	15864.6	27.10	161.68	0.0	0.0	1137.4
65.00		0.3125	49.700	48.984	15095.4	26.63	159.04	70.1	598.2	462.2
70.00		0.3125	48.200	47.497	13761.3	25.79	154.24	71.1	562.3	820.8
73.00		0.3125	47.300	46.604	12999.9	25.28	151.36	71.7	541.3	480.3
75.00		0.3125	46.700	46.009	12508.3	24.94	149.44	72.1	527.5	315.1
80.00		0.3125	45.200	44.521	11333.7	24.09	144.64	73.1	493.9	770.1
82.70		0.3125	44.390	43.718	10731.1	23.64	142.05	73.6	476.1	405.3
85.00		0.3125	43.700	43.033	10235.0	23.25	139.84	74.1	461.3	339.5
88.00		0.3125	42.800	42.141	9611.2	22.74	136.96	74.7	442.3	434.7
90.00		0.3125	42.200	41.546	9209.7	22.40	135.04	75.1	429.8	284.8
95.00		0.3125	40.700	40.058	8255.3	21.55	130.24	76.0	399.5	694.2
97.20		0.3125	40.040	39.403	7857.2	21.18	128.13	76.5	386.5	297.4
100.00		0.3125	39.200	38.570	7369.3	20.71	125.44	77.0	370.3	371.5
105.00		0.3125	37.700	37.082	6549.0	19.86	120.64	78.0	342.1	643.6
107.90		0.3125	36.830	36.219	6102.4	19.37	117.86	78.6	326.3	361.7
109.00		0.3125	36.500	35.892	5938.4	19.18	116.80	78.8	320.4	135.0
										35660.0

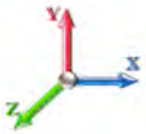
Wind Loading - Shaft

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 15

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	19.450	21.40	509.48	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	498.13	0.650	0.000	5.00	28.168	18.31	626.8	0.0	2671.0
10.00		1.00	0.85	19.450	21.40	486.78	0.650	0.000	5.00	27.533	17.90	612.6	0.0	2610.2
15.00		1.00	0.86	19.690	21.66	478.35	0.650	0.000	5.00	26.898	17.48	605.9	0.0	2549.5
20.00		1.00	0.91	20.851	22.94	480.49	0.650	0.000	5.00	26.264	17.07	626.5	0.0	2488.7
25.00		1.00	0.95	21.810	23.99	479.39	0.650	0.000	5.00	25.629	16.66	639.4	0.0	2428.0
27.25	Bot - Section 2	1.00	0.97	22.194	24.41	478.14	0.650	0.000	2.25	11.326	7.36	287.6	0.0	1072.8
30.00		1.00	0.99	22.632	24.90	476.11	0.650	0.000	2.75	13.959	9.07	361.4	0.0	2616.8
35.00		1.00	1.02	23.356	25.69	471.22	0.650	0.000	5.00	24.889	16.18	665.0	0.0	4663.6
35.50	Top - Section 1	1.00	1.02	23.424	25.77	470.66	0.650	0.000	0.50	2.454	1.60	65.8	0.0	459.7
40.00		1.00	1.05	24.004	26.40	475.61	0.650	0.000	4.50	21.800	14.17	598.6	0.0	2064.0
45.00		1.00	1.07	24.593	27.05	468.65	0.650	0.000	5.00	23.619	15.35	664.5	0.0	2235.6
50.00		1.00	1.10	25.133	27.65	460.86	0.650	0.000	5.00	22.985	14.94	660.9	0.0	2174.9
55.00	Bot - Section 3	1.00	1.12	25.633	28.20	452.39	0.650	0.000	5.00	22.350	14.53	655.4	0.0	2114.1
60.00		1.00	1.14	26.099	28.71	443.33	0.650	0.000	5.00	21.980	14.29	656.2	0.0	3099.0
62.25	Top - Section 2	1.00	1.15	26.298	28.93	439.09	0.650	0.000	2.25	9.684	6.29	291.3	0.0	1364.8
65.00		1.00	1.16	26.535	29.19	439.29	0.650	0.000	2.75	11.661	7.58	354.0	0.0	554.6
70.00		1.00	1.18	26.946	29.64	429.32	0.650	0.000	5.00	20.710	13.46	638.4	0.0	984.9
73.00	Appurtenance(s)	1.00	1.19	27.182	29.90	423.14	0.650	0.000	3.00	12.122	7.88	376.9	0.0	576.4
75.00		1.00	1.19	27.335	30.07	418.95	0.650	0.000	2.00	7.954	5.17	248.7	0.0	378.2
80.00	Appurtenance(s)	1.00	1.21	27.704	30.47	408.22	0.650	0.000	5.00	19.441	12.64	616.2	0.0	924.2
82.70	Appurtenance(s)	1.00	1.22	27.896	30.69	402.29	0.650	0.000	2.70	10.234	6.65	326.6	0.0	486.4
85.00		1.00	1.23	28.056	30.86	397.17	0.650	0.000	2.30	8.572	5.57	275.1	0.0	407.4
88.00	Appurtenance(s)	1.00	1.23	28.259	31.08	390.40	0.650	0.000	3.00	10.979	7.14	354.9	0.0	521.7
90.00		1.00	1.24	28.391	31.23	385.83	0.650	0.000	2.00	7.193	4.68	233.6	0.0	341.7
95.00		1.00	1.25	28.713	31.58	374.21	0.650	0.000	5.00	17.537	11.40	576.1	0.0	833.0
97.20	Appurtenance(s)	1.00	1.26	28.850	31.74	369.02	0.650	0.000	2.20	7.515	4.88	248.0	0.0	356.9
100.00	Appurtenance(s)	1.00	1.27	29.021	31.92	362.35	0.650	0.000	2.80	9.387	6.10	311.7	0.0	445.7
105.00		1.00	1.28	29.318	32.25	350.26	0.650	0.000	5.00	16.268	10.57	545.6	0.0	772.3
107.90	Appurtenance(s)	1.00	1.29	29.485	32.43	343.15	0.650	0.000	2.90	9.145	5.94	308.5	0.0	434.0
109.00	Appurtenance(s)	1.00	1.29	29.548	32.50	340.44	0.650	0.000	1.10	3.413	2.22	115.4	0.0	162.0
								Totals:	**109.00**			**13,547.7**		**42,792.0**

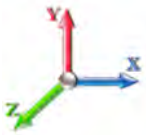
Discrete Appurtenance Forces

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 15

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	109.00	Pipe	1	29.548	32.503	1.00	1.00	5.00	164.70	0.000	0.000	260.02	0.00	0.00
2	109.00	HPD2-4.7	1	29.604	32.564	1.00	1.00	3.96	32.40	0.000	1.000	206.33	0.00	206.33
3	109.00	BA6312-1	1	29.671	32.638	1.00	1.00	0.44	2.40	0.000	2.200	22.98	0.00	50.55
4	109.00	Top Hat	1	29.548	32.503	1.00	1.00	20.00	192.00	0.000	0.000	1040.08	0.00	0.00
5	107.90	6 FT Branches	1	29.485	32.434	1.00	1.00	45.00	864.00	0.000	0.000	2335.23	0.00	0.00
6	100.00	RRUS-A2	6	29.021	31.924	0.54	0.80	5.98	152.64	0.000	0.000	305.54	0.00	0.00
7	100.00	HPA-65R-BUU-H8	12	29.021	31.924	0.63	0.80	98.44	979.20	0.000	0.000	5028.12	0.00	0.00
8	100.00	RRUS-32	6	29.021	31.924	0.54	0.80	8.81	381.60	0.000	0.000	450.09	0.00	0.00
9	100.00	RRUS-E2	6	29.021	31.924	0.54	0.80	10.13	427.68	0.000	0.000	517.44	0.00	0.00
10	100.00	Raycap DC2-48-60-18-8F	5	29.021	31.924	0.80	0.80	3.68	190.80	0.000	0.000	187.97	0.00	0.00
11	100.00	RRUS-11	9	29.021	31.924	0.54	0.80	12.16	547.56	0.000	0.000	620.93	0.00	0.00
12	100.00	RRUS-12	6	29.021	31.924	0.54	0.80	8.68	432.00	0.000	0.000	443.52	0.00	0.00
13	100.00	T-Arms	3	29.021	31.924	0.56	0.75	16.88	1440.00	0.000	0.000	861.94	0.00	0.00
14	97.20	8 FT Branches	1	28.850	31.735	1.00	1.00	150.50	2820.00	0.000	0.000	7641.85	0.00	0.00
15	88.00	ULPD12	1	28.259	31.085	1.00	1.00	41.68	2903.11	0.000	0.000	2072.98	0.00	0.00
16	88.00	Raycap	1	28.192	31.011	0.80	0.80	3.03	38.40	0.000	-1.000	150.44	0.00	-150.44
17	88.00	Samsung CBRS RRH -	3	28.391	31.231	0.54	0.80	1.91	23.76	0.000	2.000	95.62	0.00	191.23
18	88.00	B5/B13 RRH-BR04C	3	28.391	31.231	0.54	0.80	3.02	304.20	0.000	2.000	151.06	0.00	302.12
19	88.00	B2/B66A RRH-BR049	3	28.391	31.231	0.54	0.80	3.02	304.20	0.000	2.000	151.06	0.00	302.12
20	88.00	NHHSS-65B-R2B	3	28.391	31.231	0.66	0.80	16.10	146.16	0.000	2.000	804.27	0.00	1608.53
21	88.00	NHH-65B-R2B	3	28.391	31.231	0.66	0.80	16.10	157.32	0.000	2.000	804.27	0.00	1608.53
22	82.70	10 FT Branches	1	27.896	30.686	1.00	1.00	160.00	3247.20	0.000	0.000	7855.51	0.00	0.00
23	80.00	MC-K6M-6-96 (3 Sectors)	1	27.704	30.474	0.75	1.00	15.71	1032.00	0.000	0.000	766.13	0.00	0.00
24	80.00	RDIDC-9181-OF-48	1	27.704	30.474	0.54	0.80	1.08	26.28	0.000	0.000	52.53	0.00	0.00
25	80.00	TA08025-B605	3	27.704	30.474	0.54	0.80	3.15	270.00	0.000	0.000	153.67	0.00	0.00
26	80.00	TA08025-B604	3	27.704	30.474	0.54	0.80	3.15	230.04	0.000	0.000	153.67	0.00	0.00
27	80.00	MX08FRO665-21	3	27.704	30.474	0.59	0.80	22.18	232.20	0.000	0.000	1081.59	0.00	0.00
28	73.00	12 FT Branches	1	27.182	29.900	1.00	1.00	82.60	1663.20	0.000	0.000	3951.60	0.00	0.00
							Totals:		**19,205.05**			**38,166.41**		

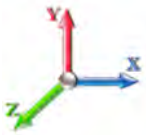
Total Applied Force Summary

Structure:	CT22077-A-SBA		**Code:**	EIA/TIA-222-G	9/2/2021
Site Name:	East Hartford (465 Hill St)		**Exposure:**	C	
Height:	109.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 10

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 15

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		626.76	2730.26	0.00	0.00
10.00		612.64	2669.51	0.00	0.00
15.00		605.91	2608.76	0.00	0.00
20.00		626.47	2548.01	0.00	0.00
25.00		639.44	2487.26	0.00	0.00
27.25		287.57	1099.45	0.00	0.00
30.00		361.42	2649.37	0.00	0.00
35.00		665.01	4722.87	0.00	0.00
35.50		65.76	465.60	0.00	0.00
40.00		598.65	2117.34	0.00	0.00
45.00		664.51	2294.89	0.00	0.00
50.00		660.86	2234.14	0.00	0.00
55.00		655.39	2173.39	0.00	0.00
60.00		656.24	3158.30	0.00	0.00
62.25		291.34	1391.50	0.00	0.00
65.00		353.99	587.25	0.00	0.00
70.00		638.43	1044.19	0.00	0.00
73.00	(1) attachments	4328.53	2275.14	0.00	0.00
75.00		248.74	401.88	0.00	0.00
80.00	(11) attachments	2823.75	2773.96	0.00	0.00
82.70	(1) attachments	8182.12	3761.93	0.00	0.00
85.00		275.13	431.49	0.00	0.00
88.00	(17) attachments	4584.63	4430.31	0.00	3862.09
90.00		233.61	362.70	0.00	0.00
95.00		576.06	872.28	0.00	0.00
97.20	(1) attachments	7889.89	3194.18	0.00	0.00
100.00	(53) attachments	8727.19	5019.20	0.00	0.00
105.00		545.63	778.53	0.00	0.00
107.90	(1) attachments	2643.69	1301.63	0.00	0.00
109.00	(4) attachments	1644.77	554.82	0.00	256.88
	Totals:	**51,714.12**	**63,140.13**	**0.00**	**4,118.97**

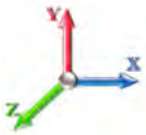
Calculated Forces

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 15

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-63.10	-51.76	0.00	-4280.9	0.00	4280.97	9612.09	4806.04	26304.5	13171.8	0.00	0.000	0.000	0.332
5.00	-60.30	-51.21	0.00	-4022.1	0.00	4022.17	9453.86	4726.93	25284.3	12660.9	0.04	-0.079	0.000	0.324
10.00	-57.56	-50.68	0.00	-3766.1	0.00	3766.10	9292.97	4646.48	24276.8	12156.4	0.17	-0.159	0.000	0.316
15.00	-54.89	-50.14	0.00	-3512.7	0.00	3512.72	9129.41	4564.70	23282.4	11658.5	0.38	-0.239	0.000	0.307
20.00	-52.27	-49.57	0.00	-3262.0	0.00	3262.03	8945.81	4472.90	22258.5	11145.8	0.68	-0.319	0.000	0.299
25.00	-49.74	-48.97	0.00	-3014.1	0.00	3014.18	8724.74	4362.37	21166.6	10599.0	1.05	-0.399	0.000	0.290
27.25	-48.61	-48.71	0.00	-2904.0	0.00	2904.00	8625.26	4312.63	20684.1	10357.4	1.25	-0.435	0.000	0.286
30.00	-45.91	-48.37	0.00	-2770.0	0.00	2770.06	8503.68	4251.84	20102.1	10066.0	1.52	-0.479	0.000	0.281
35.00	-41.16	-47.70	0.00	-2528.2	0.00	2528.20	8282.61	4141.30	19065.0	9546.71	2.06	-0.557	0.000	0.270
35.50	-40.66	-47.65	0.00	-2504.3	0.00	2504.35	8444.72	4222.36	19822.8	9926.18	2.12	-0.566	0.000	0.257
40.00	-38.49	-47.08	0.00	-2289.9	0.00	2289.92	8245.77	4122.88	18894.9	9461.50	2.69	-0.635	0.000	0.247
45.00	-36.15	-46.43	0.00	-2054.5	0.00	2054.53	8024.70	4012.35	17889.9	8958.25	3.39	-0.705	0.000	0.234
50.00	-33.87	-45.78	0.00	-1822.3	0.00	1822.37	7803.63	3901.82	16912.3	8468.76	4.17	-0.774	0.000	0.220
55.00	-31.66	-45.13	0.00	-1593.4	0.00	1593.46	7582.57	3791.28	15962.3	7993.02	5.02	-0.839	0.000	0.204
60.00	-28.47	-44.45	0.00	-1367.8	0.00	1367.81	7361.50	3680.75	15039.7	7531.04	5.93	-0.901	0.000	0.186
62.25	-27.06	-44.15	0.00	-1267.8	0.00	1267.81	3116.45	1558.23	6440.45	3225.01	6.36	-0.928	0.000	0.403
65.00	-26.43	-43.82	0.00	-1146.4	0.00	1146.40	3089.39	1544.69	6278.97	3144.15	6.90	-0.959	0.000	0.374
70.00	-25.34	-43.19	0.00	-927.32	0.00	927.32	3038.11	1519.05	5986.03	2997.46	7.97	-1.057	0.000	0.319
73.00	-23.12	-38.84	0.00	-797.75	0.00	797.75	3006.06	1503.03	5810.85	2909.74	8.65	-1.110	0.000	0.283
75.00	-22.69	-38.60	0.00	-720.07	0.00	720.07	2984.16	1492.08	5694.37	2851.42	9.12	-1.144	0.000	0.261
80.00	-19.94	-35.74	0.00	-527.06	0.00	527.06	2927.55	1463.78	5404.50	2706.27	10.36	-1.214	0.000	0.202
82.70	-16.34	-27.49	0.00	-430.56	0.00	430.56	2895.88	1447.94	5248.88	2628.34	11.06	-1.247	0.000	0.170
85.00	-15.91	-27.21	0.00	-367.34	0.00	367.34	2868.28	1434.14	5116.91	2562.26	11.67	-1.271	0.000	0.149
88.00	-11.57	-22.53	0.00	-281.85	0.00	281.85	2831.43	1415.72	4945.65	2476.50	12.48	-1.298	0.000	0.118
90.00	-11.21	-22.29	0.00	-236.79	0.00	236.79	2806.34	1403.17	4832.08	2419.63	13.03	-1.314	0.000	0.102
95.00	-10.34	-21.70	0.00	-125.32	0.00	125.32	2741.73	1370.87	4550.54	2278.65	14.42	-1.342	0.000	0.059
97.20	-7.33	-13.74	0.00	-77.58	0.00	77.58	2712.46	1356.23	4427.82	2217.20	15.04	-1.349	0.000	0.038
100.00	-2.52	-4.90	0.00	-39.12	0.00	39.12	2674.46	1337.23	4272.75	2139.55	15.83	-1.355	0.000	0.019
105.00	-1.75	-4.33	0.00	-14.64	0.00	14.64	2604.52	1302.26	3999.24	2002.59	17.26	-1.361	0.000	0.008
107.90	-0.52	-1.66	0.00	-2.08	0.00	2.08	2562.73	1281.37	3842.75	1924.23	18.08	-1.362	0.000	0.001
109.00	0.00	-1.64	0.00	-0.26	0.00	0.26	2546.65	1273.32	3783.83	1894.73	18.40	-1.362	0.000	0.000

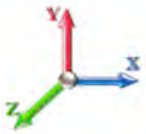
Wind Loading - Shaft

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 15

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	19.450	21.40	509.48	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	498.13	0.650	0.000	5.00	28.168	18.31	626.8	0.0	2003.2
10.00		1.00	0.85	19.450	21.40	486.78	0.650	0.000	5.00	27.533	17.90	612.6	0.0	1957.7
15.00		1.00	0.86	19.690	21.66	478.35	0.650	0.000	5.00	26.898	17.48	605.9	0.0	1912.1
20.00		1.00	0.91	20.851	22.94	480.49	0.650	0.000	5.00	26.264	17.07	626.5	0.0	1866.5
25.00		1.00	0.95	21.810	23.99	479.39	0.650	0.000	5.00	25.629	16.66	639.4	0.0	1821.0
27.25	Bot - Section 2	1.00	0.97	22.194	24.41	478.14	0.650	0.000	2.25	11.326	7.36	287.6	0.0	804.6
30.00		1.00	0.99	22.632	24.90	476.11	0.650	0.000	2.75	13.959	9.07	361.4	0.0	1962.6
35.00		1.00	1.02	23.356	25.69	471.22	0.650	0.000	5.00	24.889	16.18	665.0	0.0	3497.7
35.50	Top - Section 1	1.00	1.02	23.424	25.77	470.66	0.650	0.000	0.50	2.454	1.60	65.8	0.0	344.8
40.00		1.00	1.05	24.004	26.40	475.61	0.650	0.000	4.50	21.800	14.17	598.6	0.0	1548.0
45.00		1.00	1.07	24.593	27.05	468.65	0.650	0.000	5.00	23.619	15.35	664.5	0.0	1676.7
50.00		1.00	1.10	25.133	27.65	460.86	0.650	0.000	5.00	22.985	14.94	660.9	0.0	1631.1
55.00	Bot - Section 3	1.00	1.12	25.633	28.20	452.39	0.650	0.000	5.00	22.350	14.53	655.4	0.0	1585.6
60.00		1.00	1.14	26.099	28.71	443.33	0.650	0.000	5.00	21.980	14.29	656.2	0.0	2324.3
62.25	Top - Section 2	1.00	1.15	26.298	28.93	439.09	0.650	0.000	2.25	9.684	6.29	291.3	0.0	1023.6
65.00		1.00	1.16	26.535	29.19	439.29	0.650	0.000	2.75	11.661	7.58	354.0	0.0	416.0
70.00		1.00	1.18	26.946	29.64	429.32	0.650	0.000	5.00	20.710	13.46	638.4	0.0	738.7
73.00	Appurtenance(s)	1.00	1.19	27.182	29.90	423.14	0.650	0.000	3.00	12.122	7.88	376.9	0.0	432.3
75.00		1.00	1.19	27.335	30.07	418.95	0.650	0.000	2.00	7.954	5.17	248.7	0.0	283.6
80.00	Appurtenance(s)	1.00	1.21	27.704	30.47	408.22	0.650	0.000	5.00	19.441	12.64	616.2	0.0	693.1
82.70	Appurtenance(s)	1.00	1.22	27.896	30.69	402.29	0.650	0.000	2.70	10.234	6.65	326.6	0.0	364.8
85.00		1.00	1.23	28.056	30.86	397.17	0.650	0.000	2.30	8.572	5.57	275.1	0.0	305.5
88.00	Appurtenance(s)	1.00	1.23	28.259	31.08	390.40	0.650	0.000	3.00	10.979	7.14	354.9	0.0	391.3
90.00		1.00	1.24	28.391	31.23	385.83	0.650	0.000	2.00	7.193	4.68	233.6	0.0	256.3
95.00		1.00	1.25	28.713	31.58	374.21	0.650	0.000	5.00	17.537	11.40	576.1	0.0	624.8
97.20	Appurtenance(s)	1.00	1.26	28.850	31.74	369.02	0.650	0.000	2.20	7.515	4.88	248.0	0.0	267.7
100.00	Appurtenance(s)	1.00	1.27	29.021	31.92	362.35	0.650	0.000	2.80	9.387	6.10	311.7	0.0	334.3
105.00		1.00	1.28	29.318	32.25	350.26	0.650	0.000	5.00	16.268	10.57	545.6	0.0	579.2
107.90	Appurtenance(s)	1.00	1.29	29.485	32.43	343.15	0.650	0.000	2.90	9.145	5.94	308.5	0.0	325.5
109.00	Appurtenance(s)	1.00	1.29	29.548	32.50	340.44	0.650	0.000	1.10	3.413	2.22	115.4	0.0	121.5
								Totals:	**109.00**			**13,547.7**		**32,094.0**

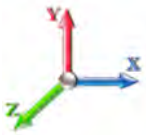
Discrete Appurtenance Forces

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 15

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	109.00	Pipe	1	29.548	32.503	1.00	1.00	5.00	123.53	0.000	0.000	260.02	0.00	0.00
2	109.00	HPD2-4.7	1	29.604	32.564	1.00	1.00	3.96	24.30	0.000	1.000	206.33	0.00	206.33
3	109.00	BA6312-1	1	29.671	32.638	1.00	1.00	0.44	1.80	0.000	2.200	22.98	0.00	50.55
4	109.00	Top Hat	1	29.548	32.503	1.00	1.00	20.00	144.00	0.000	0.000	1040.08	0.00	0.00
5	107.90	6 FT Branches	1	29.485	32.434	1.00	1.00	45.00	648.00	0.000	0.000	2335.23	0.00	0.00
6	100.00	RRUS-A2	6	29.021	31.924	0.54	0.80	5.98	114.48	0.000	0.000	305.54	0.00	0.00
7	100.00	HPA-65R-BUU-H8	12	29.021	31.924	0.63	0.80	98.44	734.40	0.000	0.000	5028.12	0.00	0.00
8	100.00	RRUS-32	6	29.021	31.924	0.54	0.80	8.81	286.20	0.000	0.000	450.09	0.00	0.00
9	100.00	RRUS-E2	6	29.021	31.924	0.54	0.80	10.13	320.76	0.000	0.000	517.44	0.00	0.00
10	100.00	Raycap DC2-48-60-18-8F	5	29.021	31.924	0.80	0.80	3.68	143.10	0.000	0.000	187.97	0.00	0.00
11	100.00	RRUS-11	9	29.021	31.924	0.54	0.80	12.16	410.67	0.000	0.000	620.93	0.00	0.00
12	100.00	RRUS-12	6	29.021	31.924	0.54	0.80	8.68	324.00	0.000	0.000	443.52	0.00	0.00
13	100.00	T-Arms	3	29.021	31.924	0.56	0.75	16.88	1080.00	0.000	0.000	861.94	0.00	0.00
14	97.20	8 FT Branches	1	28.850	31.735	1.00	1.00	150.50	2115.00	0.000	0.000	7641.85	0.00	0.00
15	88.00	ULPD12	1	28.259	31.085	1.00	1.00	41.68	2177.33	0.000	0.000	2072.98	0.00	0.00
16	88.00	Raycap	1	28.192	31.011	0.80	0.80	3.03	28.80	0.000	-1.000	150.44	0.00	-150.44
17	88.00	Samsung CBRS RRH -	3	28.391	31.231	0.54	0.80	1.91	17.82	0.000	2.000	95.62	0.00	191.23
18	88.00	B5/B13 RRH-BR04C	3	28.391	31.231	0.54	0.80	3.02	228.15	0.000	2.000	151.06	0.00	302.12
19	88.00	B2/B66A RRH-BR049	3	28.391	31.231	0.54	0.80	3.02	228.15	0.000	2.000	151.06	0.00	302.12
20	88.00	NHHSS-65B-R2B	3	28.391	31.231	0.66	0.80	16.10	109.62	0.000	2.000	804.27	0.00	1608.53
21	88.00	NHH-65B-R2B	3	28.391	31.231	0.66	0.80	16.10	117.99	0.000	2.000	804.27	0.00	1608.53
22	82.70	10 FT Branches	1	27.896	30.686	1.00	1.00	160.00	2435.40	0.000	0.000	7855.51	0.00	0.00
23	80.00	MC-K6M-6-96 (3 Sectors)	1	27.704	30.474	0.75	1.00	15.71	774.00	0.000	0.000	766.13	0.00	0.00
24	80.00	RDIDC-9181-OF-48	1	27.704	30.474	0.54	0.80	1.08	19.71	0.000	0.000	52.53	0.00	0.00
25	80.00	TA08025-B605	3	27.704	30.474	0.54	0.80	3.15	202.50	0.000	0.000	153.67	0.00	0.00
26	80.00	TA08025-B604	3	27.704	30.474	0.54	0.80	3.15	172.53	0.000	0.000	153.67	0.00	0.00
27	80.00	MX08FRO665-21	3	27.704	30.474	0.59	0.80	22.18	174.15	0.000	0.000	1081.59	0.00	0.00
28	73.00	12 FT Branches	1	27.182	29.900	1.00	1.00	82.60	1247.40	0.000	0.000	3951.60	0.00	0.00
							Totals:		**14,403.79**			**38,166.41**		

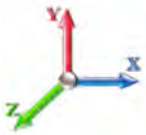
Total Applied Force Summary

Structure:	CT22077-A-SBA		**Code:**	EIA/TIA-222-G	9/2/2021
Site Name:	East Hartford (465 Hill St)		**Exposure:**	C	
Height:	109.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 14

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 15

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		626.76	2047.70	0.00	0.00
10.00		612.64	2002.13	0.00	0.00
15.00		605.91	1956.57	0.00	0.00
20.00		626.47	1911.01	0.00	0.00
25.00		639.44	1865.45	0.00	0.00
27.25		287.57	824.59	0.00	0.00
30.00		361.42	1987.02	0.00	0.00
35.00		665.01	3542.15	0.00	0.00
35.50		65.76	349.20	0.00	0.00
40.00		598.65	1588.00	0.00	0.00
45.00		664.51	1721.16	0.00	0.00
50.00		660.86	1675.60	0.00	0.00
55.00		655.39	1630.04	0.00	0.00
60.00		656.24	2368.72	0.00	0.00
62.25		291.34	1043.63	0.00	0.00
65.00		353.99	440.44	0.00	0.00
70.00		638.43	783.14	0.00	0.00
73.00	(1) attachments	4328.53	1706.35	0.00	0.00
75.00		248.74	301.41	0.00	0.00
80.00	(11) attachments	2823.75	2080.47	0.00	0.00
82.70	(1) attachments	8182.12	2821.45	0.00	0.00
85.00		275.13	323.62	0.00	0.00
88.00	(17) attachments	4584.63	3322.73	0.00	3862.09
90.00		233.61	272.02	0.00	0.00
95.00		576.06	654.21	0.00	0.00
97.20	(1) attachments	7889.89	2395.63	0.00	0.00
100.00	(53) attachments	8727.19	3764.40	0.00	0.00
105.00		545.63	583.89	0.00	0.00
107.90	(1) attachments	2643.69	976.22	0.00	0.00
109.00	(4) attachments	1644.77	416.12	0.00	256.88
	Totals:	**51,714.12**	**47,355.10**	**0.00**	**4,118.97**

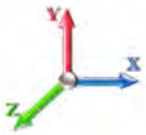
Calculated Forces

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 15

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-47.32	-51.75	0.00	-4271.7	0.00	4271.71	9612.09	4806.04	26304.5	13171.8	0.00	0.000	0.000	0.329
5.00	-45.20	-51.18	0.00	-4012.9	0.00	4012.97	9453.86	4726.93	25284.3	12660.9	0.04	-0.079	0.000	0.322
10.00	-43.13	-50.63	0.00	-3757.0	0.00	3757.06	9292.97	4646.48	24276.8	12156.4	0.17	-0.159	0.000	0.314
15.00	-41.10	-50.07	0.00	-3503.9	0.00	3503.94	9129.41	4564.70	23282.4	11658.5	0.38	-0.239	0.000	0.305
20.00	-39.13	-49.49	0.00	-3253.5	0.00	3253.59	8945.81	4472.90	22258.5	11145.8	0.67	-0.318	0.000	0.296
25.00	-37.22	-48.88	0.00	-3006.1	0.00	3006.15	8724.74	4362.37	21166.6	10599.0	1.05	-0.398	0.000	0.288
27.25	-36.36	-48.61	0.00	-2896.1	0.00	2896.18	8625.26	4312.63	20684.1	10357.4	1.25	-0.434	0.000	0.284
30.00	-34.32	-48.27	0.00	-2762.5	0.00	2762.51	8503.68	4251.84	20102.1	10066.0	1.51	-0.478	0.000	0.279
35.00	-30.75	-47.59	0.00	-2521.1	0.00	2521.18	8282.61	4141.30	19065.0	9546.71	2.06	-0.556	0.000	0.268
35.50	-30.37	-47.54	0.00	-2497.3	0.00	2497.38	8444.72	4222.36	19822.8	9926.18	2.11	-0.564	0.000	0.255
40.00	-28.73	-46.96	0.00	-2283.4	0.00	2283.44	8245.77	4122.88	18894.9	9461.50	2.68	-0.633	0.000	0.245
45.00	-26.96	-46.31	0.00	-2048.6	0.00	2048.62	8024.70	4012.35	17889.9	8958.25	3.38	-0.704	0.000	0.232
50.00	-25.24	-45.66	0.00	-1817.0	0.00	1817.06	7803.63	3901.82	16912.3	8468.76	4.16	-0.772	0.000	0.218
55.00	-23.57	-45.01	0.00	-1588.7	0.00	1588.77	7582.57	3791.28	15962.3	7993.02	5.00	-0.837	0.000	0.202
60.00	-21.18	-44.33	0.00	-1363.7	0.00	1363.74	7361.50	3680.75	15039.7	7531.04	5.91	-0.898	0.000	0.184
62.25	-20.12	-44.03	0.00	-1264.0	0.00	1264.00	3116.45	1558.23	6440.45	3225.01	6.34	-0.925	0.000	0.399
65.00	-19.63	-43.69	0.00	-1142.9	0.00	1142.91	3089.39	1544.69	6278.97	3144.15	6.89	-0.957	0.000	0.371
70.00	-18.81	-43.07	0.00	-924.44	0.00	924.44	3038.11	1519.05	5986.03	2997.46	7.95	-1.054	0.000	0.315
73.00	-17.15	-38.72	0.00	-795.24	0.00	795.24	3006.06	1503.03	5810.85	2909.74	8.63	-1.107	0.000	0.280
75.00	-16.82	-38.48	0.00	-717.80	0.00	717.80	2984.16	1492.08	5694.37	2851.42	9.10	-1.140	0.000	0.258
80.00	-14.77	-35.63	0.00	-525.39	0.00	525.39	2927.55	1463.78	5404.50	2706.27	10.34	-1.211	0.000	0.200
82.70	-12.11	-27.39	0.00	-429.20	0.00	429.20	2895.88	1447.94	5248.88	2628.34	11.03	-1.243	0.000	0.168
85.00	-11.78	-27.12	0.00	-366.20	0.00	366.20	2868.28	1434.14	5116.91	2562.26	11.64	-1.268	0.000	0.147
88.00	-8.55	-22.46	0.00	-280.99	0.00	280.99	2831.43	1415.72	4945.65	2476.50	12.44	-1.295	0.000	0.117
90.00	-8.28	-22.22	0.00	-236.06	0.00	236.06	2806.34	1403.17	4832.08	2419.63	12.99	-1.310	0.000	0.101
95.00	-7.63	-21.64	0.00	-124.94	0.00	124.94	2741.73	1370.87	4550.54	2278.65	14.38	-1.338	0.000	0.058
97.20	-5.42	-13.69	0.00	-77.34	0.00	77.34	2712.46	1356.23	4427.82	2217.20	15.00	-1.346	0.000	0.037
100.00	-1.86	-4.88	0.00	-39.00	0.00	39.00	2674.46	1337.23	4272.75	2139.55	15.79	-1.352	0.000	0.019
105.00	-1.29	-4.32	0.00	-14.61	0.00	14.61	2604.52	1302.26	3999.24	2002.59	17.21	-1.357	0.000	0.008
107.90	-0.38	-1.65	0.00	-2.08	0.00	2.08	2562.73	1281.37	3842.75	1924.23	18.04	-1.358	0.000	0.001
109.00	0.00	-1.64	0.00	-0.26	0.00	0.26	2546.65	1273.32	3783.83	1894.73	18.35	-1.358	0.000	0.000

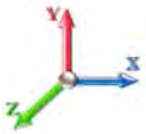
Wind Loading - Shaft

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 14

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	1.410	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.687	5.00	29.573	35.49	201.7	713.3	3384.2
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.792	5.00	29.026	34.83	198.0	742.1	3352.4
15.00		1.00	0.86	5.232	5.76	0.00	1.200	1.860	5.00	28.449	34.14	196.5	753.8	3303.3
20.00		1.00	0.91	5.540	6.09	0.00	1.200	1.912	5.00	27.857	33.43	203.7	757.2	3245.9
25.00		1.00	0.95	5.795	6.37	0.00	1.200	1.953	5.00	27.256	32.71	208.5	755.7	3183.7
27.25	Bot - Section 2	1.00	0.97	5.897	6.49	0.00	1.200	1.969	2.25	12.064	14.48	93.9	339.2	1412.0
30.00		1.00	0.99	6.013	6.61	0.00	1.200	1.988	2.75	14.870	17.84	118.0	421.5	3038.3
35.00		1.00	1.02	6.206	6.83	0.00	1.200	2.017	5.00	26.570	31.88	217.6	759.4	5422.9
35.50	Top - Section 1	1.00	1.02	6.224	6.85	0.00	1.200	2.020	0.50	2.622	3.15	21.5	75.9	535.5
40.00		1.00	1.05	6.378	7.02	0.00	1.200	2.044	4.50	23.333	28.00	196.4	675.4	2739.4
45.00		1.00	1.07	6.534	7.19	0.00	1.200	2.068	5.00	25.342	30.41	218.6	740.0	2975.6
50.00		1.00	1.10	6.678	7.35	0.00	1.200	2.089	5.00	24.725	29.67	218.0	728.3	2903.1
55.00	Bot - Section 3	1.00	1.12	6.811	7.49	0.00	1.200	2.109	5.00	24.107	28.93	216.7	715.6	2829.7
60.00		1.00	1.14	6.934	7.63	0.00	1.200	2.127	5.00	23.752	28.50	217.4	710.3	3809.3
62.25	Top - Section 2	1.00	1.15	6.988	7.69	0.00	1.200	2.134	2.25	10.484	12.58	96.7	316.8	1681.6
65.00		1.00	1.16	7.050	7.76	0.00	1.200	2.144	2.75	12.644	15.17	117.7	382.8	937.4
70.00		1.00	1.18	7.160	7.88	0.00	1.200	2.159	5.00	22.510	27.01	212.7	681.0	1665.9
73.00	Appurtenance(s)	1.00	1.19	7.222	7.94	0.00	1.200	2.168	3.00	13.206	15.85	125.9	403.0	979.4
75.00		1.00	1.19	7.263	7.99	0.00	1.200	2.174	2.00	8.679	10.41	83.2	266.2	644.3
80.00	Appurtenance(s)	1.00	1.21	7.361	8.10	0.00	1.200	2.188	5.00	21.264	25.52	206.6	649.3	1573.4
82.70	Appurtenance(s)	1.00	1.22	7.412	8.15	0.00	1.200	2.195	2.70	11.222	13.47	109.8	345.8	832.2
85.00		1.00	1.23	7.454	8.20	0.00	1.200	2.201	2.30	9.416	11.30	92.7	291.0	698.4
88.00	Appurtenance(s)	1.00	1.23	7.508	8.26	0.00	1.200	2.209	3.00	12.084	14.50	119.8	373.5	895.2
90.00		1.00	1.24	7.544	8.30	0.00	1.200	2.214	2.00	7.930	9.52	79.0	246.2	588.0
95.00		1.00	1.25	7.629	8.39	0.00	1.200	2.225	5.00	19.392	23.27	195.3	598.2	1431.2
97.20	Appurtenance(s)	1.00	1.26	7.666	8.43	0.00	1.200	2.230	2.20	8.333	10.00	84.3	259.8	616.7
100.00	Appurtenance(s)	1.00	1.27	7.711	8.48	0.00	1.200	2.237	2.80	10.431	12.52	106.2	325.0	770.7
105.00		1.00	1.28	7.790	8.57	0.00	1.200	2.248	5.00	18.141	21.77	186.5	562.2	1334.5
107.90	Appurtenance(s)	1.00	1.29	7.834	8.62	0.00	1.200	2.254	2.90	10.234	12.28	105.8	319.9	753.9
109.00	Appurtenance(s)	1.00	1.29	7.851	8.64	0.00	1.200	2.256	1.10	3.826	4.59	39.7	120.4	282.4
								Totals:	**109.00**			**4,488.5**		**57,820.3**

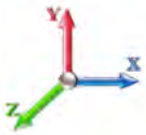
Discrete Appurtenance Forces

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 14

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	109.00	Pipe	1	7.851	8.636	1.00	1.00	13.12	295.34	0.000	0.000	113.31	0.00	0.00
2	109.00	HPD2-4.7	1	7.866	8.652	1.00	1.00	5.48	116.26	0.000	1.000	47.40	0.00	47.40
3	109.00	BA6312-1	1	7.884	8.672	1.00	1.00	1.92	57.11	0.000	2.200	16.66	0.00	36.64
4	109.00	Top Hat	1	7.851	8.636	1.00	1.00	38.05	640.75	0.000	0.000	328.58	0.00	0.00
5	107.90	6 FT Branches	1	7.834	8.618	1.00	1.00	85.57	2882.09	0.000	0.000	737.38	0.00	0.00
6	100.00	RRUS-A2	6	7.711	8.482	0.54	0.80	10.00	369.12	0.000	0.000	84.78	0.00	0.00
7	100.00	HPA-65R-BUU-H8	12	7.711	8.482	0.63	0.80	114.41	5664.94	0.000	0.000	970.43	0.00	0.00
8	100.00	RRUS-32	6	7.711	8.482	0.54	0.80	11.88	1104.74	0.000	0.000	100.78	0.00	0.00
9	100.00	RRUS-E2	6	7.711	8.482	0.54	0.80	13.15	1207.68	0.000	0.000	111.52	0.00	0.00
10	100.00	Raycap DC2-48-60-18-8F	5	7.711	8.482	0.80	0.80	5.93	498.48	0.000	0.000	50.26	0.00	0.00
11	100.00	RRUS-11	9	7.711	8.482	0.54	0.80	16.28	1643.03	0.000	0.000	138.13	0.00	0.00
12	100.00	RRUS-12	6	7.711	8.482	0.54	0.80	11.40	853.14	0.000	0.000	96.72	0.00	0.00
13	100.00	T-Arms	3	7.711	8.482	0.56	0.75	35.75	2273.62	0.000	0.000	303.22	0.00	0.00
14	97.20	8 FT Branches	1	7.666	8.432	1.00	1.00	284.77	9363.22	0.000	0.000	2401.24	0.00	0.00
15	88.00	ULPD12	1	7.508	8.259	1.00	1.00	107.96	6096.92	0.000	0.000	891.67	0.00	0.00
16	88.00	Raycap	1	7.491	8.240	0.80	0.80	3.87	206.62	0.000	-1.000	31.86	0.00	-31.86
17	88.00	Samsung CBRS RRH -	3	7.544	8.298	0.54	0.80	3.51	95.09	0.000	2.000	29.16	0.00	58.33
18	88.00	B5/B13 RRH-BR04C	3	7.544	8.298	0.54	0.80	4.14	461.31	0.000	2.000	34.39	0.00	68.79
19	88.00	B2/B66A RRH-BR049	3	7.544	8.298	0.54	0.80	4.14	461.31	0.000	2.000	34.39	0.00	68.79
20	88.00	NHHSS-65B-R2B	3	7.544	8.298	0.66	0.80	19.41	950.94	0.000	2.000	161.09	0.00	322.17
21	88.00	NHH-65B-R2B	3	7.544	8.298	0.66	0.80	19.41	962.10	0.000	2.000	161.09	0.00	322.17
22	82.70	10 FT Branches	1	7.412	8.153	1.00	1.00	300.49	10705.12	0.000	0.000	2449.93	0.00	0.00
23	80.00	MC-K6M-6-96 (3 Sectors)	1	7.361	8.097	0.75	1.00	40.46	1945.69	0.000	0.000	327.65	0.00	0.00
24	80.00	RDIDC-9181-OF-48	1	7.361	8.097	0.54	0.80	1.46	80.34	0.000	0.000	11.82	0.00	0.00
25	80.00	TA08025-B605	3	7.361	8.097	0.54	0.80	4.28	428.91	0.000	0.000	34.68	0.00	0.00
26	80.00	TA08025-B604	3	7.361	8.097	0.54	0.80	4.28	384.16	0.000	0.000	34.68	0.00	0.00
27	80.00	MX08FRO665-21	3	7.361	8.097	0.59	0.80	25.44	1124.56	0.000	0.000	206.02	0.00	0.00
28	73.00	12 FT Branches	1	7.222	7.945	1.00	1.00	154.24	5453.31	0.000	0.000	1225.35	0.00	0.00
							Totals:		**56,325.91**			**11,134.18**		

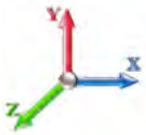
Total Applied Force Summary

Structure:	CT22077-A-SBA		**Code:**	EIA/TIA-222-G	9/2/2021
Site Name:	East Hartford (465 Hill St)		**Exposure:**	C	
Height:	109.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 18

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 14

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		201.74	3443.51	0.00	0.00
10.00		198.01	3411.65	0.00	0.00
15.00		196.47	3362.54	0.00	0.00
20.00		203.71	3305.20	0.00	0.00
25.00		208.49	3242.94	0.00	0.00
27.25		93.91	1438.68	0.00	0.00
30.00		118.04	3070.88	0.00	0.00
35.00		217.65	5482.22	0.00	0.00
35.50		21.54	541.46	0.00	0.00
40.00		196.44	2792.71	0.00	0.00
45.00		218.59	3034.85	0.00	0.00
50.00		217.95	2962.41	0.00	0.00
55.00		216.73	2888.94	0.00	0.00
60.00		217.41	3868.58	0.00	0.00
62.25		96.70	1708.27	0.00	0.00
65.00		117.67	970.04	0.00	0.00
70.00		212.74	1725.17	0.00	0.00
73.00	(1) attachments	1351.25	6468.27	0.00	0.00
75.00		83.21	668.04	0.00	0.00
80.00	(11) attachments	821.45	5596.37	0.00	0.00
82.70	(1) attachments	2559.73	11565.65	0.00	0.00
85.00		92.65	722.51	0.00	0.00
88.00	(17) attachments	1463.41	10160.93	0.00	808.38
90.00		78.97	608.94	0.00	0.00
95.00		195.28	1470.43	0.00	0.00
97.20	(1) attachments	2485.56	9997.15	0.00	0.00
100.00	(53) attachments	1962.02	14407.46	0.00	0.00
105.00		186.54	1340.69	0.00	0.00
107.90	(1) attachments	843.21	3639.57	0.00	0.00
109.00	(4) attachments	545.60	1393.22	0.00	84.05
	Totals:	**15,622.67**	**115,289.29**	**0.00**	**892.42**

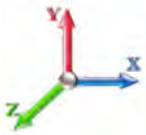
Calculated Forces

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 14

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-115.2	-15.65	0.00	-1290.8	0.00	1290.85	9612.09	4806.04	26304.5	13171.8	0.00	0.000	0.000	0.110
5.00	-111.8	-15.49	0.00	-1212.6	0.00	1212.62	9453.86	4726.93	25284.3	12660.9	0.01	-0.024	0.000	0.108
10.00	-108.4	-15.34	0.00	-1135.1	0.00	1135.17	9292.97	4646.48	24276.8	12156.4	0.05	-0.048	0.000	0.105
15.00	-105.0	-15.18	0.00	-1058.4	0.00	1058.48	9129.41	4564.70	23282.4	11658.5	0.11	-0.072	0.000	0.102
20.00	-101.7	-15.02	0.00	-982.58	0.00	982.58	8945.81	4472.90	22258.5	11145.8	0.20	-0.096	0.000	0.100
25.00	-98.49	-14.83	0.00	-907.51	0.00	907.51	8724.74	4362.37	21166.6	10599.0	0.32	-0.120	0.000	0.097
27.25	-97.05	-14.75	0.00	-874.14	0.00	874.14	8625.26	4312.63	20684.1	10357.4	0.38	-0.131	0.000	0.096
30.00	-93.97	-14.66	0.00	-833.57	0.00	833.57	8503.68	4251.84	20102.1	10066.0	0.46	-0.144	0.000	0.094
35.00	-88.49	-14.45	0.00	-760.28	0.00	760.28	8282.61	4141.30	19065.0	9546.71	0.62	-0.168	0.000	0.090
35.50	-87.94	-14.44	0.00	-753.05	0.00	753.05	8444.72	4222.36	19822.8	9926.18	0.64	-0.170	0.000	0.086
40.00	-85.15	-14.27	0.00	-688.07	0.00	688.07	8245.77	4122.88	18894.9	9461.50	0.81	-0.191	0.000	0.083
45.00	-82.11	-14.07	0.00	-616.74	0.00	616.74	8024.70	4012.35	17889.9	8958.25	1.02	-0.212	0.000	0.079
50.00	-79.14	-13.87	0.00	-546.40	0.00	546.40	7803.63	3901.82	16912.3	8468.76	1.26	-0.233	0.000	0.075
55.00	-76.25	-13.66	0.00	-477.07	0.00	477.07	7582.57	3791.28	15962.3	7993.02	1.51	-0.252	0.000	0.070
60.00	-72.38	-13.44	0.00	-408.77	0.00	408.77	7361.50	3680.75	15039.7	7531.04	1.79	-0.271	0.000	0.064
62.25	-70.67	-13.35	0.00	-378.52	0.00	378.52	3116.45	1558.23	6440.45	3225.01	1.92	-0.279	0.000	0.140
65.00	-69.69	-13.25	0.00	-341.81	0.00	341.81	3089.39	1544.69	6278.97	3144.15	2.08	-0.288	0.000	0.131
70.00	-67.97	-13.06	0.00	-275.55	0.00	275.55	3038.11	1519.05	5986.03	2997.46	2.40	-0.317	0.000	0.114
73.00	-61.50	-11.68	0.00	-236.39	0.00	236.39	3006.06	1503.03	5810.85	2909.74	2.60	-0.333	0.000	0.102
75.00	-60.83	-11.61	0.00	-213.03	0.00	213.03	2984.16	1492.08	5694.37	2851.42	2.74	-0.343	0.000	0.095
80.00	-55.24	-10.77	0.00	-154.97	0.00	154.97	2927.55	1463.78	5404.50	2706.27	3.12	-0.364	0.000	0.076
82.70	-43.69	-8.14	0.00	-125.90	0.00	125.90	2895.88	1447.94	5248.88	2628.34	3.33	-0.374	0.000	0.063
85.00	-42.97	-8.05	0.00	-107.17	0.00	107.17	2868.28	1434.14	5116.91	2562.26	3.51	-0.381	0.000	0.057
88.00	-32.81	-6.52	0.00	-82.22	0.00	82.22	2831.43	1415.72	4945.65	2476.50	3.75	-0.389	0.000	0.045
90.00	-32.20	-6.44	0.00	-69.18	0.00	69.18	2806.34	1403.17	4832.08	2419.63	3.91	-0.393	0.000	0.040
95.00	-30.73	-6.24	0.00	-36.97	0.00	36.97	2741.73	1370.87	4550.54	2278.65	4.33	-0.401	0.000	0.027
97.20	-20.76	-3.68	0.00	-23.24	0.00	23.24	2712.46	1356.23	4427.82	2217.20	4.52	-0.404	0.000	0.018
100.00	-6.36	-1.62	0.00	-12.93	0.00	12.93	2674.46	1337.23	4272.75	2139.55	4.75	-0.405	0.000	0.008
105.00	-5.02	-1.42	0.00	-4.83	0.00	4.83	2604.52	1302.26	3999.24	2002.59	5.18	-0.407	0.000	0.004
107.90	-1.39	-0.56	0.00	-0.70	0.00	0.70	2562.73	1281.37	3842.75	1924.23	5.43	-0.407	0.000	0.001
109.00	0.00	-0.55	0.00	-0.08	0.00	0.08	2546.65	1273.32	3783.83	1894.73	5.52	-0.407	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	13
Gust Response Factor	1.10				**Sds**	0.19		**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00		**Sd1**	0.10		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.79		**SA**	0.08	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.01	0.01	0.00	
5.00		2225.8	0.01	0.05	0.03	29.91	
10.00		2175.1	0.02	0.06	0.04	40.15	
15.00		2124.5	0.04	0.07	0.04	44.92	
20.00		2073.9	0.07	0.07	0.04	47.73	
25.00		2023.3	0.11	0.07	0.04	50.13	
27.25	Bot - Section 2	893.98	0.12	0.07	0.03	22.87	
30.00		2180.6	0.15	0.07	0.03	57.94	
35.00		3886.3	0.20	0.06	0.02	109.39	
35.50	Top - Section 1	383.06	0.21	0.06	0.02	10.83	
40.00		1719.9	0.26	0.05	0.02	49.89	
45.00		1863.0	0.33	0.04	0.01	53.19	
50.00		1812.3	0.41	0.02	0.01	47.68	
55.00	Bot - Section 3	1761.7	0.49	-0.01	0.01	39.05	
60.00		2582.5	0.58	-0.05	0.01	43.08	
62.25	Top - Section 2	1137.3	0.62	-0.06	0.02	16.06	
65.00		462.21	0.68	-0.08	0.03	5.20	
70.00		820.76	0.79	-0.11	0.05	6.57	
73.00	Appurtenance(s)	1866.3	0.86	-0.12	0.07	15.18	
75.00		315.14	0.90	-0.12	0.09	2.96	
80.00	Appurtenance(s)	2262.2	1.02	-0.10	0.14	40.07	
82.70	Appurtenance(s)	3111.3	1.09	-0.07	0.18	79.93	
85.00		339.47	1.16	-0.03	0.22	11.75	
88.00	Appurtenance(s)	3665.7	1.24	0.04	0.28	180.87	
90.00		284.77	1.29	0.11	0.33	17.42	
95.00		694.20	1.44	0.36	0.47	68.03	
97.20	Appurtenance(s)	2647.4	1.51	0.52	0.55	311.18	
100.00	Appurtenance(s)	4164.3	1.59	0.76	0.66	605.57	
105.00		643.57	1.76	1.34	0.90	131.06	
107.90	Appurtenance(s)	1081.6	1.85	1.79	1.07	262.25	
109.00	Appurtenance(s)	461.21	1.89	1.98	1.14	119.06	
	Totals:	**51,664.2**				**2,519.9**	**Total Wind:** **51,714.1**

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT22077-A-SBA		**Code:**	EIA/TIA-222-G	9/2/2021
Site Name:	East Hartford (465 Hill St)		**Exposure:**	C	
Height:	109.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 21

Load Case:	1.2D + 1.0E							**Iterations**	13
Gust Response Factor	1.10				**Sds**	0.19		**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00		**Sd1**	0.10		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.79		**SA**	0.08	**Seismic Importance Factor**		1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-63.14	-2.52	0.00	-207.00	0.00	207.00	9612.09	4806.04	26304.5	13171.8		0.00	0.00	0.022
5.00	-60.41	-2.50	0.00	-194.39	0.00	194.39	9453.86	4726.93	25284.3	12660.9		0.00	0.00	0.022
10.00	-57.74	-2.46	0.00	-181.91	0.00	181.91	9292.97	4646.48	24276.8	12156.4		0.01	-0.01	0.021
15.00	-55.13	-2.42	0.00	-169.62	0.00	169.62	9129.41	4564.70	23282.4	11658.5		0.02	-0.01	0.021
20.00	-52.58	-2.37	0.00	-157.53	0.00	157.53	8945.81	4472.90	22258.5	11145.8		0.03	-0.02	0.020
25.00	-50.10	-2.32	0.00	-145.67	0.00	145.67	8724.74	4362.37	21166.6	10599.0		0.05	-0.02	0.019
27.25	-49.00	-2.30	0.00	-140.44	0.00	140.44	8625.26	4312.63	20684.1	10357.4		0.06	-0.02	0.019
30.00	-46.35	-2.25	0.00	-134.11	0.00	134.11	8503.68	4251.84	20102.1	10066.0		0.07	-0.02	0.019
35.00	-41.62	-2.14	0.00	-122.88	0.00	122.88	8282.61	4141.30	19065.0	9546.71		0.10	-0.03	0.018
35.50	-41.16	-2.13	0.00	-121.81	0.00	121.81	8444.72	4222.36	19822.8	9926.18		0.10	-0.03	0.017
40.00	-39.04	-2.08	0.00	-112.25	0.00	112.25	8245.77	4122.88	18894.9	9461.50		0.13	-0.03	0.017
45.00	-36.75	-2.03	0.00	-101.86	0.00	101.86	8024.70	4012.35	17889.9	8958.25		0.16	-0.03	0.016
50.00	-34.51	-1.98	0.00	-91.73	0.00	91.73	7803.63	3901.82	16912.3	8468.76		0.20	-0.04	0.015
55.00	-32.34	-1.94	0.00	-81.84	0.00	81.84	7582.57	3791.28	15962.3	7993.02		0.24	-0.04	0.015
60.00	-29.18	-1.90	0.00	-72.14	0.00	72.14	7361.50	3680.75	15039.7	7531.04		0.29	-0.04	0.014
62.25	-27.79	-1.88	0.00	-67.88	0.00	67.88	3116.45	1558.23	6440.45	3225.01		0.31	-0.05	0.030
65.00	-27.20	-1.88	0.00	-62.71	0.00	62.71	3089.39	1544.69	6278.97	3144.15		0.34	-0.05	0.029
70.00	-26.16	-1.87	0.00	-53.34	0.00	53.34	3038.11	1519.05	5986.03	2997.46		0.39	-0.05	0.026
73.00	-23.88	-1.85	0.00	-47.73	0.00	47.73	3006.06	1503.03	5810.85	2909.74		0.42	-0.06	0.024
75.00	-23.48	-1.85	0.00	-44.02	0.00	44.02	2984.16	1492.08	5694.37	2851.42		0.45	-0.06	0.023
80.00	-20.71	-1.81	0.00	-34.76	0.00	34.76	2927.55	1463.78	5404.50	2706.27		0.51	-0.06	0.020
82.70	-16.94	-1.73	0.00	-29.88	0.00	29.88	2895.88	1447.94	5248.88	2628.34		0.55	-0.06	0.017
85.00	-16.51	-1.71	0.00	-25.91	0.00	25.91	2868.28	1434.14	5116.91	2562.26		0.58	-0.07	0.016
88.00	-12.08	-1.53	0.00	-20.77	0.00	20.77	2831.43	1415.72	4945.65	2476.50		0.62	-0.07	0.013
90.00	-11.72	-1.51	0.00	-17.71	0.00	17.71	2806.34	1403.17	4832.08	2419.63		0.65	-0.07	0.011
95.00	-10.85	-1.44	0.00	-10.15	0.00	10.15	2741.73	1370.87	4550.54	2278.65		0.72	-0.07	0.008
97.20	-7.65	-1.13	0.00	-6.98	0.00	6.98	2712.46	1356.23	4427.82	2217.20		0.76	-0.07	0.006
100.00	-2.63	-0.52	0.00	-3.82	0.00	3.82	2674.46	1337.23	4272.75	2139.55		0.80	-0.07	0.003
105.00	-1.86	-0.38	0.00	-1.24	0.00	1.24	2604.52	1302.26	3999.24	2002.59		0.87	-0.07	0.001
107.90	-0.55	-0.12	0.00	-0.13	0.00	0.13	2562.73	1281.37	3842.75	1924.23		0.92	-0.07	0.000
109.00	0.00	-0.12	0.00	0.00	0.00	0.00	2546.65	1273.32	3783.83	1894.73		0.94	-0.07	0.000

Seismic Segment Forces (Factored)

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Load Case:	0.9D + 1.0E							**Iterations**	13
Gust Response Factor	1.10				**Sds**	0.19		**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00		**Sd1**	0.10		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.79		**SA**	0.08	**Seismic Importance Factor**		1.00

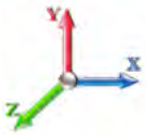
Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.01	0.01	0.00	
5.00		2225.8	0.01	0.05	0.03	29.91	
10.00		2175.1	0.02	0.06	0.04	40.15	
15.00		2124.5	0.04	0.07	0.04	44.92	
20.00		2073.9	0.07	0.07	0.04	47.73	
25.00		2023.3	0.11	0.07	0.04	50.13	
27.25	Bot - Section 2	893.98	0.12	0.07	0.03	22.87	
30.00		2180.6	0.15	0.07	0.03	57.94	
35.00		3886.3	0.20	0.06	0.02	109.39	
35.50	Top - Section 1	383.06	0.21	0.06	0.02	10.83	
40.00		1719.9	0.26	0.05	0.02	49.89	
45.00		1863.0	0.33	0.04	0.01	53.19	
50.00		1812.3	0.41	0.02	0.01	47.68	
55.00	Bot - Section 3	1761.7	0.49	-0.01	0.01	39.05	
60.00		2582.5	0.58	-0.05	0.01	43.08	
62.25	Top - Section 2	1137.3	0.62	-0.06	0.02	16.06	
65.00		462.21	0.68	-0.08	0.03	5.20	
70.00		820.76	0.79	-0.11	0.05	6.57	
73.00	Appurtenance(s)	1866.3	0.86	-0.12	0.07	15.18	
75.00		315.14	0.90	-0.12	0.09	2.96	
80.00	Appurtenance(s)	2262.2	1.02	-0.10	0.14	40.07	
82.70	Appurtenance(s)	3111.3	1.09	-0.07	0.18	79.93	
85.00		339.47	1.16	-0.03	0.22	11.75	
88.00	Appurtenance(s)	3665.7	1.24	0.04	0.28	180.87	
90.00		284.77	1.29	0.11	0.33	17.42	
95.00		694.20	1.44	0.36	0.47	68.03	
97.20	Appurtenance(s)	2647.4	1.51	0.52	0.55	311.18	
100.00	Appurtenance(s)	4164.3	1.59	0.76	0.66	605.57	
105.00		643.57	1.76	1.34	0.90	131.06	
107.90	Appurtenance(s)	1081.6	1.85	1.79	1.07	262.25	
109.00	Appurtenance(s)	461.21	1.89	1.98	1.14	119.06	
	Totals:	**51,664.2**				**2,519.9**	**Total Wind:** **51,714.1**

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT22077-A-SBA		**Code:**	EIA/TIA-222-G	9/2/2021
Site Name:	East Hartford (465 Hill St)		**Exposure:**	C	
Height:	109.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 23

Load Case:	0.9D + 1.0E							**Iterations**	13
Gust Response Factor	1.10				**Sds**	0.19		**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00		**Sd1**	0.10		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.79		**SA**	0.08	**Seismic Importance Factor**		1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-47.35	-2.52	0.00	-206.54	0.00	206.54	9612.09	4806.04	26304.5	13171.8		0.00	0.00	0.021
5.00	-45.31	-2.49	0.00	-193.93	0.00	193.93	9453.86	4726.93	25284.3	12660.9		0.00	0.00	0.020
10.00	-43.30	-2.46	0.00	-181.46	0.00	181.46	9292.97	4646.48	24276.8	12156.4		0.01	-0.01	0.020
15.00	-41.35	-2.41	0.00	-169.18	0.00	169.18	9129.41	4564.70	23282.4	11658.5		0.02	-0.01	0.019
20.00	-39.44	-2.37	0.00	-157.11	0.00	157.11	8945.81	4472.90	22258.5	11145.8		0.03	-0.02	0.019
25.00	-37.57	-2.32	0.00	-145.27	0.00	145.27	8724.74	4362.37	21166.6	10599.0		0.05	-0.02	0.018
27.25	-36.75	-2.30	0.00	-140.05	0.00	140.05	8625.26	4312.63	20684.1	10357.4		0.06	-0.02	0.018
30.00	-34.76	-2.24	0.00	-133.73	0.00	133.73	8503.68	4251.84	20102.1	10066.0		0.07	-0.02	0.017
35.00	-31.22	-2.13	0.00	-122.53	0.00	122.53	8282.61	4141.30	19065.0	9546.71		0.10	-0.03	0.017
35.50	-30.87	-2.12	0.00	-121.47	0.00	121.47	8444.72	4222.36	19822.8	9926.18		0.10	-0.03	0.016
40.00	-29.28	-2.07	0.00	-111.92	0.00	111.92	8245.77	4122.88	18894.9	9461.50		0.13	-0.03	0.015
45.00	-27.56	-2.02	0.00	-101.56	0.00	101.56	8024.70	4012.35	17889.9	8958.25		0.16	-0.03	0.015
50.00	-25.88	-1.97	0.00	-91.46	0.00	91.46	7803.63	3901.82	16912.3	8468.76		0.20	-0.04	0.014
55.00	-24.25	-1.93	0.00	-81.60	0.00	81.60	7582.57	3791.28	15962.3	7993.02		0.24	-0.04	0.013
60.00	-21.88	-1.89	0.00	-71.93	0.00	71.93	7361.50	3680.75	15039.7	7531.04		0.29	-0.04	0.013
62.25	-20.84	-1.87	0.00	-67.68	0.00	67.68	3116.45	1558.23	6440.45	3225.01		0.31	-0.05	0.028
65.00	-20.40	-1.87	0.00	-62.53	0.00	62.53	3089.39	1544.69	6278.97	3144.15		0.33	-0.05	0.026
70.00	-19.62	-1.86	0.00	-53.19	0.00	53.19	3038.11	1519.05	5986.03	2997.46		0.39	-0.05	0.024
73.00	-17.91	-1.85	0.00	-47.60	0.00	47.60	3006.06	1503.03	5810.85	2909.74		0.42	-0.06	0.022
75.00	-17.61	-1.85	0.00	-43.90	0.00	43.90	2984.16	1492.08	5694.37	2851.42		0.45	-0.06	0.021
80.00	-15.53	-1.80	0.00	-34.68	0.00	34.68	2927.55	1463.78	5404.50	2706.27		0.51	-0.06	0.018
82.70	-12.71	-1.72	0.00	-29.81	0.00	29.81	2895.88	1447.94	5248.88	2628.34		0.54	-0.06	0.016
85.00	-12.38	-1.71	0.00	-25.85	0.00	25.85	2868.28	1434.14	5116.91	2562.26		0.58	-0.07	0.014
88.00	-9.06	-1.53	0.00	-20.72	0.00	20.72	2831.43	1415.72	4945.65	2476.50		0.62	-0.07	0.012
90.00	-8.79	-1.51	0.00	-17.67	0.00	17.67	2806.34	1403.17	4832.08	2419.63		0.65	-0.07	0.010
95.00	-8.13	-1.44	0.00	-10.13	0.00	10.13	2741.73	1370.87	4550.54	2278.65		0.72	-0.07	0.007
97.20	-5.74	-1.12	0.00	-6.97	0.00	6.97	2712.46	1356.23	4427.82	2217.20		0.75	-0.07	0.005
100.00	-1.98	-0.51	0.00	-3.82	0.00	3.82	2674.46	1337.23	4272.75	2139.55		0.80	-0.07	0.003
105.00	-1.39	-0.38	0.00	-1.24	0.00	1.24	2604.52	1302.26	3999.24	2002.59		0.87	-0.07	0.001
107.90	-0.42	-0.12	0.00	-0.13	0.00	0.13	2562.73	1281.37	3842.75	1924.23		0.92	-0.07	0.000
109.00	0.00	-0.12	0.00	0.00	0.00	0.00	2546.65	1273.32	3783.83	1894.73		0.93	-0.07	0.000

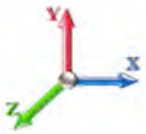
Wind Loading - Shaft

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 14

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	315.14	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	308.12	0.650	0.000	5.00	28.168	18.31	149.9	0.0	2225.8
10.00		1.00	0.85	7.442	8.19	301.10	0.650	0.000	5.00	27.533	17.90	146.5	0.0	2175.2
15.00		1.00	0.86	7.534	8.29	295.89	0.650	0.000	5.00	26.898	17.48	144.9	0.0	2124.6
20.00		1.00	0.91	7.978	8.78	297.21	0.650	0.000	5.00	26.264	17.07	149.8	0.0	2073.9
25.00		1.00	0.95	8.345	9.18	296.53	0.650	0.000	5.00	25.629	16.66	152.9	0.0	2023.3
27.25	Bot - Section 2	1.00	0.97	8.492	9.34	295.76	0.650	0.000	2.25	11.326	7.36	68.8	0.0	894.0
30.00		1.00	0.99	8.659	9.53	294.50	0.650	0.000	2.75	13.959	9.07	86.4	0.0	2180.6
35.00		1.00	1.02	8.936	9.83	291.48	0.650	0.000	5.00	24.889	16.18	159.0	0.0	3886.3
35.50	Top - Section 1	1.00	1.02	8.962	9.86	291.13	0.650	0.000	0.50	2.454	1.60	15.7	0.0	383.1
40.00		1.00	1.05	9.184	10.10	294.19	0.650	0.000	4.50	21.800	14.17	143.2	0.0	1720.0
45.00		1.00	1.07	9.410	10.35	289.88	0.650	0.000	5.00	23.619	15.35	158.9	0.0	1863.0
50.00		1.00	1.10	9.616	10.58	285.07	0.650	0.000	5.00	22.985	14.94	158.0	0.0	1812.4
55.00	Bot - Section 3	1.00	1.12	9.807	10.79	279.83	0.650	0.000	5.00	22.350	14.53	156.7	0.0	1761.8
60.00		1.00	1.14	9.986	10.98	274.23	0.650	0.000	5.00	21.980	14.29	156.9	0.0	2582.5
62.25	Top - Section 2	1.00	1.15	10.062	11.07	271.60	0.650	0.000	2.25	9.684	6.29	69.7	0.0	1137.4
65.00		1.00	1.16	10.153	11.17	271.73	0.650	0.000	2.75	11.661	7.58	84.7	0.0	462.2
70.00		1.00	1.18	10.310	11.34	265.56	0.650	0.000	5.00	20.710	13.46	152.7	0.0	820.8
73.00	Appurtenance(s)	1.00	1.19	10.400	11.44	261.74	0.650	0.000	3.00	12.122	7.88	90.1	0.0	480.3
75.00		1.00	1.19	10.459	11.50	259.14	0.650	0.000	2.00	7.954	5.17	59.5	0.0	315.1
80.00	Appurtenance(s)	1.00	1.21	10.600	11.66	252.51	0.650	0.000	5.00	19.441	12.64	147.3	0.0	770.1
82.70	Appurtenance(s)	1.00	1.22	10.673	11.74	248.84	0.650	0.000	2.70	10.234	6.65	78.1	0.0	405.3
85.00		1.00	1.23	10.734	11.81	245.67	0.650	0.000	2.30	8.572	5.57	65.8	0.0	339.5
88.00	Appurtenance(s)	1.00	1.23	10.812	11.89	241.48	0.650	0.000	3.00	10.979	7.14	84.9	0.0	434.7
90.00		1.00	1.24	10.863	11.95	238.66	0.650	0.000	2.00	7.193	4.68	55.9	0.0	284.8
95.00		1.00	1.25	10.986	12.08	231.47	0.650	0.000	5.00	17.537	11.40	137.8	0.0	694.2
97.20	Appurtenance(s)	1.00	1.26	11.038	12.14	228.26	0.650	0.000	2.20	7.515	4.88	59.3	0.0	297.4
100.00	Appurtenance(s)	1.00	1.27	11.104	12.21	224.14	0.650	0.000	2.80	9.387	6.10	74.5	0.0	371.5
105.00		1.00	1.28	11.218	12.34	216.66	0.650	0.000	5.00	16.268	10.57	130.5	0.0	643.6
107.90	Appurtenance(s)	1.00	1.29	11.281	12.41	212.26	0.650	0.000	2.90	9.145	5.94	73.8	0.0	361.7
109.00	Appurtenance(s)	1.00	1.29	11.305	12.44	210.58	0.650	0.000	1.10	3.413	2.22	27.6	0.0	135.0
								Totals:	**109.00**			**3,239.7**		**35,660.0**

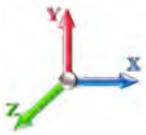
Discrete Appurtenance Forces

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 14

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	109.00	Pipe	1	11.305	12.436	1.00	1.00	5.00	137.25	0.000	0.000	62.18	0.00	0.00
2	109.00	HPD2-4.7	1	11.327	12.460	1.00	1.00	3.96	27.00	0.000	1.000	49.34	0.00	49.34
3	109.00	BA6312-1	1	11.353	12.488	1.00	1.00	0.44	2.00	0.000	2.200	5.49	0.00	12.09
4	109.00	Top Hat	1	11.305	12.436	1.00	1.00	20.00	160.00	0.000	0.000	248.72	0.00	0.00
5	107.90	6 FT Branches	1	11.281	12.410	1.00	1.00	45.00	720.00	0.000	0.000	558.43	0.00	0.00
6	100.00	RRUS-A2	6	11.104	12.214	0.54	0.80	5.98	127.20	0.000	0.000	73.06	0.00	0.00
7	100.00	HPA-65R-BUU-H8	12	11.104	12.214	0.63	0.80	98.44	816.00	0.000	0.000	1202.39	0.00	0.00
8	100.00	RRUS-32	6	11.104	12.214	0.54	0.80	8.81	318.00	0.000	0.000	107.63	0.00	0.00
9	100.00	RRUS-E2	6	11.104	12.214	0.54	0.80	10.13	356.40	0.000	0.000	123.74	0.00	0.00
10	100.00	Raycap DC2-48-60-18-8F	5	11.104	12.214	0.80	0.80	3.68	159.00	0.000	0.000	44.95	0.00	0.00
11	100.00	RRUS-11	9	11.104	12.214	0.54	0.80	12.16	456.30	0.000	0.000	148.48	0.00	0.00
12	100.00	RRUS-12	6	11.104	12.214	0.54	0.80	8.68	360.00	0.000	0.000	106.06	0.00	0.00
13	100.00	T-Arms	3	11.104	12.214	0.56	0.75	16.88	1200.00	0.000	0.000	206.12	0.00	0.00
14	97.20	8 FT Branches	1	11.038	12.142	1.00	1.00	150.50	2350.00	0.000	0.000	1827.42	0.00	0.00
15	88.00	ULPD12	1	10.812	11.893	1.00	1.00	41.68	2419.26	0.000	0.000	495.72	0.00	0.00
16	88.00	Raycap	1	10.787	11.865	0.80	0.80	3.03	32.00	0.000	-1.000	35.98	0.00	-35.98
17	88.00	Samsung CBRS RRH -	3	10.863	11.949	0.54	0.80	1.91	19.80	0.000	2.000	22.87	0.00	45.73
18	88.00	B5/B13 RRH-BR04C	3	10.863	11.949	0.54	0.80	3.02	253.50	0.000	2.000	36.12	0.00	72.25
19	88.00	B2/B66A RRH-BR049	3	10.863	11.949	0.54	0.80	3.02	253.50	0.000	2.000	36.12	0.00	72.25
20	88.00	NHHSS-65B-R2B	3	10.863	11.949	0.66	0.80	16.10	121.80	0.000	2.000	192.33	0.00	384.65
21	88.00	NHH-65B-R2B	3	10.863	11.949	0.66	0.80	16.10	131.10	0.000	2.000	192.33	0.00	384.65
22	82.70	10 FT Branches	1	10.673	11.741	1.00	1.00	160.00	2706.00	0.000	0.000	1878.51	0.00	0.00
23	80.00	MC-K6M-6-96 (3 Sectors)	1	10.600	11.660	0.75	1.00	15.71	860.00	0.000	0.000	183.21	0.00	0.00
24	80.00	RDIDC-9181-OF-48	1	10.600	11.660	0.54	0.80	1.08	21.90	0.000	0.000	12.56	0.00	0.00
25	80.00	TA08025-B605	3	10.600	11.660	0.54	0.80	3.15	225.00	0.000	0.000	36.75	0.00	0.00
26	80.00	TA08025-B604	3	10.600	11.660	0.54	0.80	3.15	191.70	0.000	0.000	36.75	0.00	0.00
27	80.00	MX08FRO665-21	3	10.600	11.660	0.59	0.80	22.18	193.50	0.000	0.000	258.64	0.00	0.00
28	73.00	12 FT Branches	1	10.400	11.440	1.00	1.00	82.60	1386.00	0.000	0.000	944.96	0.00	0.00
							Totals:		**16,004.21**			**9,126.84**		

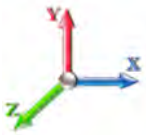
Total Applied Force Summary

Structure:	CT22077-A-SBA		**Code:**	EIA/TIA-222-G	9/2/2021
Site Name:	East Hartford (465 Hill St)		**Exposure:**	C	
Height:	109.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 26

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 14

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		149.88	2275.22	0.00	0.00
10.00		146.50	2224.59	0.00	0.00
15.00		144.89	2173.97	0.00	0.00
20.00		149.81	2123.34	0.00	0.00
25.00		152.91	2072.72	0.00	0.00
27.25		68.77	916.21	0.00	0.00
30.00		86.43	2207.81	0.00	0.00
35.00		159.02	3935.72	0.00	0.00
35.50		15.73	388.00	0.00	0.00
40.00		143.16	1764.45	0.00	0.00
45.00		158.91	1912.40	0.00	0.00
50.00		158.03	1861.78	0.00	0.00
55.00		156.73	1811.15	0.00	0.00
60.00		156.93	2631.91	0.00	0.00
62.25		69.67	1159.59	0.00	0.00
65.00		84.65	489.38	0.00	0.00
70.00		152.67	870.16	0.00	0.00
73.00	(1) attachments	1035.09	1895.95	0.00	0.00
75.00		59.48	334.90	0.00	0.00
80.00	(11) attachments	675.25	2311.63	0.00	0.00
82.70	(1) attachments	1956.61	3134.95	0.00	0.00
85.00		65.79	359.58	0.00	0.00
88.00	(17) attachments	1096.34	3691.92	0.00	923.55
90.00		55.86	302.25	0.00	0.00
95.00		137.75	726.90	0.00	0.00
97.20	(1) attachments	1886.73	2661.82	0.00	0.00
100.00	(53) attachments	2086.96	4182.67	0.00	0.00
105.00		130.48	648.77	0.00	0.00
107.90	(1) attachments	632.19	1084.69	0.00	0.00
109.00	(4) attachments	393.32	462.35	0.00	61.43
	Totals:	**12,366.54**	**52,616.77**	**0.00**	**984.98**

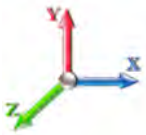
Calculated Forces

Structure:	CT22077-A-SBA	**Code:**	EIA/TIA-222-G	9/2/2021	
Site Name:	East Hartford (465 Hill St)	**Exposure:**	C		
Height:	109.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 14

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-52.61	-12.38	0.00	-1022.2	0.00	1022.29	9612.09	4806.04	26304.5	13171.8	0.00	0.000	0.000	0.083
5.00	-50.34	-12.24	0.00	-960.41	0.00	960.41	9453.86	4726.93	25284.3	12660.9	0.01	-0.019	0.000	0.081
10.00	-48.11	-12.11	0.00	-899.21	0.00	899.21	9292.97	4646.48	24276.8	12156.4	0.04	-0.038	0.000	0.079
15.00	-45.93	-11.98	0.00	-838.66	0.00	838.66	9129.41	4564.70	23282.4	11658.5	0.09	-0.057	0.000	0.077
20.00	-43.80	-11.84	0.00	-778.77	0.00	778.77	8945.81	4472.90	22258.5	11145.8	0.16	-0.076	0.000	0.075
25.00	-41.73	-11.69	0.00	-719.56	0.00	719.56	8724.74	4362.37	21166.6	10599.0	0.25	-0.095	0.000	0.073
27.25	-40.81	-11.63	0.00	-693.25	0.00	693.25	8625.26	4312.63	20684.1	10357.4	0.30	-0.104	0.000	0.072
30.00	-38.60	-11.55	0.00	-661.27	0.00	661.27	8503.68	4251.84	20102.1	10066.0	0.36	-0.114	0.000	0.070
35.00	-34.66	-11.39	0.00	-603.51	0.00	603.51	8282.61	4141.30	19065.0	9546.71	0.49	-0.133	0.000	0.067
35.50	-34.27	-11.38	0.00	-597.82	0.00	597.82	8444.72	4222.36	19822.8	9926.18	0.51	-0.135	0.000	0.064
40.00	-32.50	-11.24	0.00	-546.62	0.00	546.62	8245.77	4122.88	18894.9	9461.50	0.64	-0.152	0.000	0.062
45.00	-30.59	-11.08	0.00	-490.42	0.00	490.42	8024.70	4012.35	17889.9	8958.25	0.81	-0.168	0.000	0.059
50.00	-28.72	-10.93	0.00	-435.00	0.00	435.00	7803.63	3901.82	16912.3	8468.76	1.00	-0.185	0.000	0.055
55.00	-26.91	-10.77	0.00	-380.35	0.00	380.35	7582.57	3791.28	15962.3	7993.02	1.20	-0.200	0.000	0.051
60.00	-24.28	-10.61	0.00	-326.49	0.00	326.49	7361.50	3680.75	15039.7	7531.04	1.42	-0.215	0.000	0.047
62.25	-23.12	-10.54	0.00	-302.61	0.00	302.61	3116.45	1558.23	6440.45	3225.01	1.52	-0.221	0.000	0.101
65.00	-22.62	-10.46	0.00	-273.63	0.00	273.63	3089.39	1544.69	6278.97	3144.15	1.65	-0.229	0.000	0.094
70.00	-21.75	-10.31	0.00	-221.33	0.00	221.33	3038.11	1519.05	5986.03	2997.46	1.90	-0.252	0.000	0.081
73.00	-19.86	-9.27	0.00	-190.40	0.00	190.40	3006.06	1503.03	5810.85	2909.74	2.07	-0.265	0.000	0.072
75.00	-19.52	-9.21	0.00	-171.86	0.00	171.86	2984.16	1492.08	5694.37	2851.42	2.18	-0.273	0.000	0.067
80.00	-17.21	-8.53	0.00	-125.80	0.00	125.80	2927.55	1463.78	5404.50	2706.27	2.47	-0.290	0.000	0.052
82.70	-14.09	-6.56	0.00	-102.76	0.00	102.76	2895.88	1447.94	5248.88	2628.34	2.64	-0.298	0.000	0.044
85.00	-13.73	-6.49	0.00	-87.68	0.00	87.68	2868.28	1434.14	5116.91	2562.26	2.79	-0.303	0.000	0.039
88.00	-10.04	-5.38	0.00	-67.28	0.00	67.28	2831.43	1415.72	4945.65	2476.50	2.98	-0.310	0.000	0.031
90.00	-9.74	-5.32	0.00	-56.52	0.00	56.52	2806.34	1403.17	4832.08	2419.63	3.11	-0.314	0.000	0.027
95.00	-9.01	-5.18	0.00	-29.91	0.00	29.91	2741.73	1370.87	4550.54	2278.65	3.44	-0.320	0.000	0.016
97.20	-6.36	-3.28	0.00	-18.52	0.00	18.52	2712.46	1356.23	4427.82	2217.20	3.59	-0.322	0.000	0.011
100.00	-2.19	-1.17	0.00	-9.34	0.00	9.34	2674.46	1337.23	4272.75	2139.55	3.78	-0.324	0.000	0.005
105.00	-1.54	-1.03	0.00	-3.50	0.00	3.50	2604.52	1302.26	3999.24	2002.59	4.12	-0.325	0.000	0.002
107.90	-0.46	-0.40	0.00	-0.50	0.00	0.50	2562.73	1281.37	3842.75	1924.23	4.32	-0.325	0.000	0.000
109.00	0.00	-0.39	0.00	-0.06	0.00	0.06	2546.65	1273.32	3783.83	1894.73	4.39	-0.325	0.000	0.000

Final Analysis Summary

Structure:	CT22077-A-SBA		**Code:**	EIA/TIA-222-G	9/2/2021
Site Name:	East Hartford (465 Hill St)		**Exposure:**	C	
Height:	109.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 28

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 97 mph Wind	51.8	0.00	63.10	0.00	0.00	4280.97
0.9D + 1.6W 97 mph Wind	51.7	0.00	47.32	0.00	0.00	4271.71
1.2D + 1.0Di + 1.0Wi 50 mph Wind	15.6	0.00	115.29	0.00	0.00	1290.85
1.2D + 1.0E	2.5	0.00	63.14	0.00	0.00	207.00
0.9D + 1.0E	2.5	0.00	47.35	0.00	0.00	206.54
1.0D + 1.0W 60 mph Wind	12.4	0.00	52.61	0.00	0.00	1022.29

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 97 mph Wind	-27.06	-44.15	0.00	-1267.8	0.00	-1267.8	3116.45	1558.2	6440.45	3225.01	62.25	0.403
0.9D + 1.6W 97 mph Wind	-20.12	-44.03	0.00	-1264.0	0.00	-1264.0	3116.45	1558.2	6440.45	3225.01	62.25	0.399
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-70.67	-13.35	0.00	-378.52	0.00	-378.52	3116.45	1558.2	6440.45	3225.01	62.25	0.140
1.2D + 1.0E	-27.79	-1.88	0.00	-67.88	0.00	-67.88	3116.45	1558.2	6440.45	3225.01	62.25	0.030
0.9D + 1.0E	-20.84	-1.87	0.00	-67.68	0.00	-67.68	3116.45	1558.2	6440.45	3225.01	62.25	0.028
1.0D + 1.0W 60 mph Wind	-23.12	-10.54	0.00	-302.61	0.00	-302.61	3116.45	1558.2	6440.45	3225.01	62.25	0.101

Base Plate Summary

Structure:	CT22077-A-SB		**Code:**	EIA/TIA-222-G	9/2/2021
Site Name:	East Hartford (465 Hill St)		**Exposure:**	C	
Height:	109.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 29

Reactions	
Original Design	
Moment (kip-ft):	6146.00
Axial (kip):	108.40
Shear (kip):	64.60
Analysis (1.2D + 1.6W)	
Moment (kip-ft):	4280.97
Axial (kip):	63.10
Shear (kip):	51.76

Base Plate	
Yield (ksi):	50.00
Width (in):	81.50
Style:	Round
Polygon Sides:	0.00
Clip Length (in):	0.00
Effective Len (in):	11.56
Moment (kip-in):	386.54
Allow Stress (ksi):	67.50
Applied Stress (ksi):	22.28
Stress Ratio:	0.33

Anchor Bolts	
Bolt Circle:	75.50
Number Bolts:	30.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00
Compression	
Force (kip):	94.57
Allowable (kip):	260.00
Ratio:	0.38
Tension	
Force (kip):	86.88
Allowable (kip):	260.00
Ratio:	0.35

Monopole Mat Foundation Design

			Date: 9/2/2021
Customer Name:	Dish Wireless	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	109
Site Number:	CT22077-A-SBA	**Engineer Name:**	J. Chen
Engr. Number:	114577	**Engineer Login ID:**	

Foundation Info Obtained from: Mapping Operation

Structure Type: Monopole

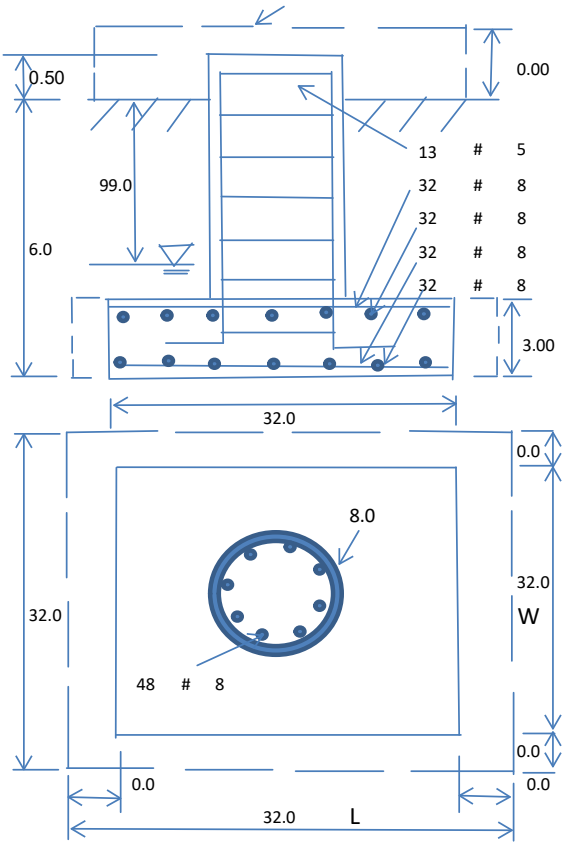
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	63.0	Shear Force (Kips):	51.8
Uplift Force (Kips):	0.0	Moment (Kips-ft):	4280.9
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	6.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	3.00
Length of Pad (ft.):	32	Width of Pad (ft.):	32
Final Length of pad (ft)	32.0	Final width of pad (ft):	32.0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	48	Tie Spacing (in):	6.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	32	Qty. of Rebar in Pad (W):	32	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	32	Qty. of Rebar in Pad (W):	32	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	8000	Ultimate Skin Friction:	425	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	Yes		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:			1.00	

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	2921.20	Total Dry Soil Weight (Kips):	350.54
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	350.54	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	3247.93	Total Dry Concrete Weight (Kips):	487.19
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	487.19	Total Vertical Load on Base (Kips):	900.73

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	1322	<	Allowable Factored Soil Bearing (psf):	6000	0.22	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	13071.4	>	Design Factored Momont (kips-ft):	4430	0.34	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.95	OK!				

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90		Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65		Wind Load Factor on Concrete Design:	1.00		
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	0.79		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	7324.9	>	Design Factored Moment (Mu, Kips-F	4462.2	0.61	OK!
Calculated Shear Capacity (Kips):	1162.8	>	Design Factored Shear (Kips):	51.8	0.04	OK!
Calculated Tension Capacity (Tn, Kips):	2047.7	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	12730.1	>	Design Factored Axial Load (Pu Kips):	63.0	0.00	OK!
Moment & Axial Strength Combination:	0.61	OK!	Check Tie Spacing (Design/Required):		0.5	OK!
Pier Reinforcement Ratio:	0.005		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	1184.0	>	One-Way Factored Shear (L-D. Kips):	276.7	0.23	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1184.0	>	One-Way Factored Shear (W-D., Kips)	276.7	0.23	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1178.0	>	One-Way Factored Shear (C-C, Kips):	269.6	0.23	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0020	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0020		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	3631.1	>	Moment at Bottom (L-Dir. K-Ft):	1928.7	0.53	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	3631.1	>	Moment at Bottom (W-Dir. K-Ft):	1928.7	0.53	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	5115.1	>	Moment at Bottom (C-C Dir. K-Ft):	2727.5	0.53	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0020	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0020		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	3631.1	>	Moment at the top (L-Dir K-Ft):	759.0	0.21	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	3631.1	>	Moment at the top (W-Dir K-Ft):	759.0	0.21	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	5115.1	>	Moment at the top (C-C Dir. K-Ft):	709.7	0.14	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	1712.4	k-ft.	Max. factored shear stress v_{u_CD}:		2.3	Psi
Max. factored shear stress v_{u_AB}:	10.0	Psi	Factored shear Strength ϕv_n:		189.7	Psi
Max. factored shear stress v_u:	10.0	Psi	Check Usage of Punching Shear Capacity:		0.05	OK!

EXHIBIT 9

Antenna Mount Analysis

September 3, 2021

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

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

Subject:	**Appurtenance Mount Analysis Report**	
Carrier Designation:	***Dish Wireless* Co-Locate**	
	Site Number:	BOBDL00131A
	Site Name:	N/A
***SBA Network Services Designation*:**	**Site Number:**	CT22077-A
	Site Name:	East Hartford (465 Hill St)
	Application Number:	167829, v1
Engineering Firm Designation:	**B+T Group Project Number:**	149479.003.01
Site Data:	**465 Hills Street, East Hartford, CT, 06118, Hartford County**	
	Latitude *41.74072*°, Longitude *-72.58411*°	
	Monopole	
	7' T-Arm Mount	

Dear Ms. Knapik,

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

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

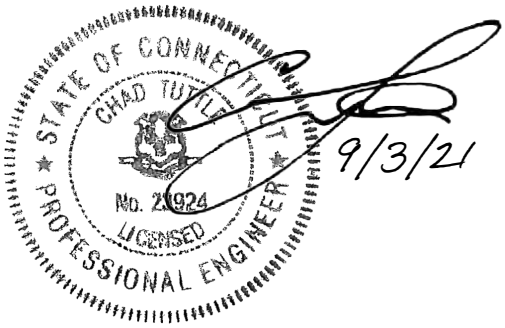
Proposed Equipment Note: See Table 1 for the final loading configuration	**Sufficient Capacity** **(Passing at 49.5%)**

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

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

Mount structural analysis prepared by: Krista Loyd, E.I.T.

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



Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

The mount consists of Commscope T-Arm mount (Part #MC-K6M-9-96) at 80 ft., attached to monopole at 465 Hills Street, East Hartford, CT, 06118, Hartford County. The proposed antenna loading information was obtained from SBA Network Services, LLC. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

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

Table 1 – Proposed Equipment Information

Loading	RAD Center Elev. (ft.)	Position	Qty.	Description	Note
Proposed	80	1	3	JMA Wireless MX08FRO665-21	1
			3	Fujitsu TA08025-B605	2
			3	Fujitsu TA08025-B604	
		--	1	Raycap RDIDC-9181-PF-48	3

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

Table 2 - Documents Provided

Documents	Remarks	Reference	Source
Collo App	Proposed Loading	Date: 08/02/2021	SBA Network Services, LLC.
RFDS		Date: 07/23/2021	

3) ANALYSIS PROCEDURE

3.1) Analysis Method

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

Manufacturers drawing were used to create the model.

3.2) Assumptions

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

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

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

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

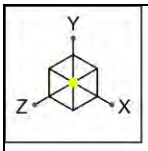
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Mount Pipes	80	49.5	Pass
-	Face Horizontal	80	49.1	Pass
-	Support Arm	80	36.7	Pass
-	Connection Bolts	80	23.5	Pass

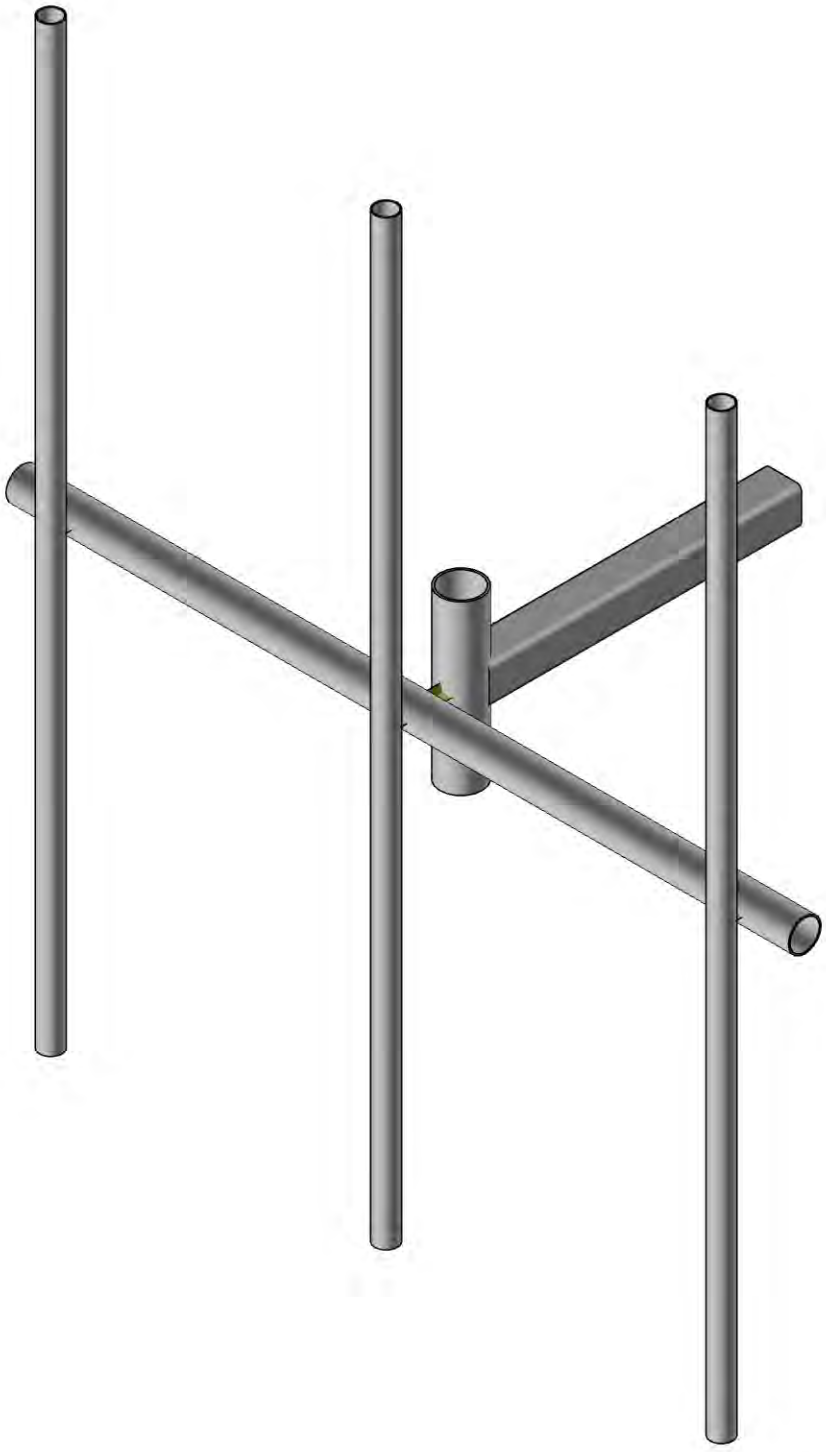
5) RECOMMENDATIONS

The Commscope T-Arm mount, Part #MC-K6M-9-96 has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-G standard for the proposed loading. (Refer to the RISA output for the specific members).

APPENDIX A

(RISA-3D Output)





Envelope Only Solution

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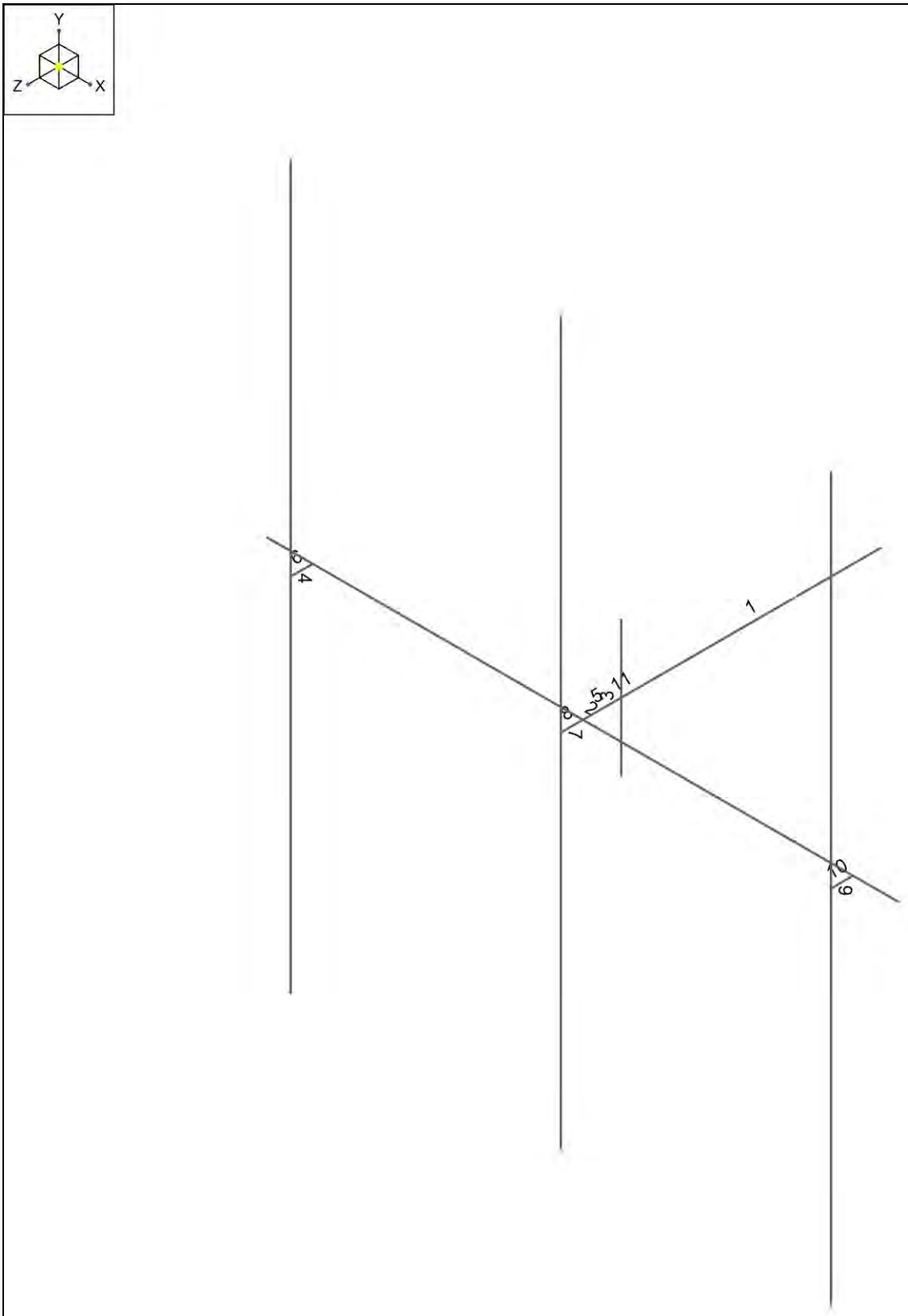

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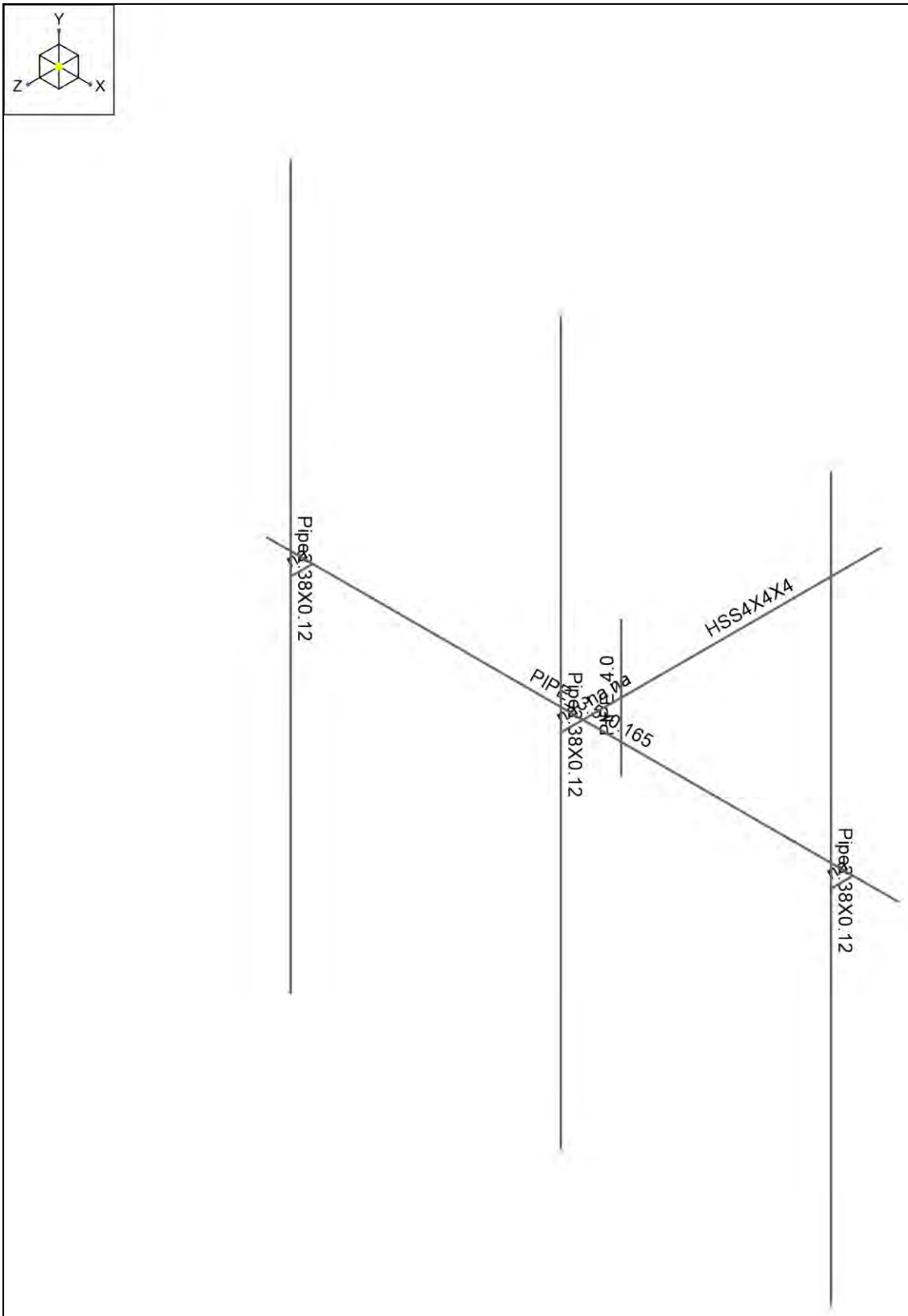

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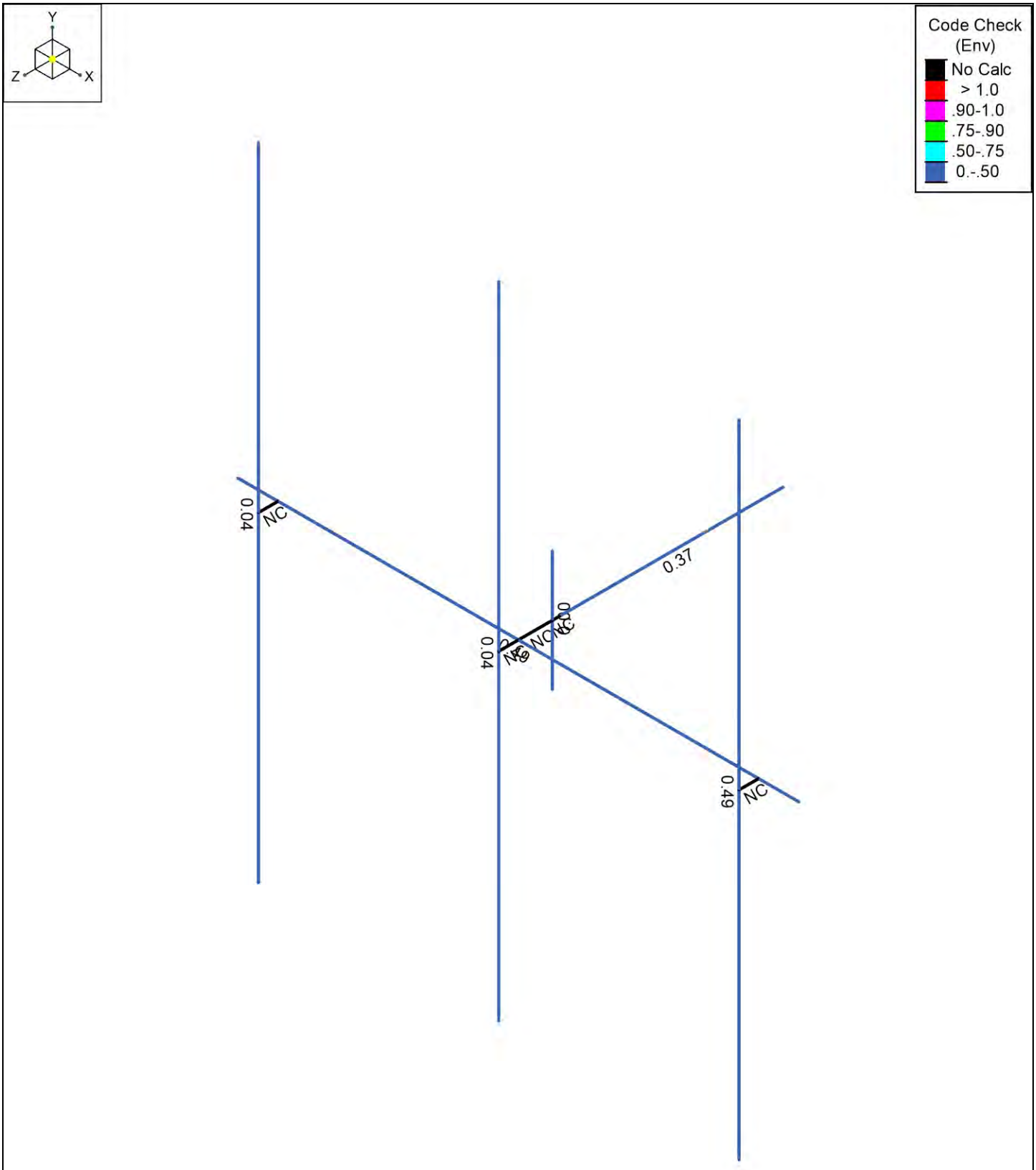

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Envelope Only Solution

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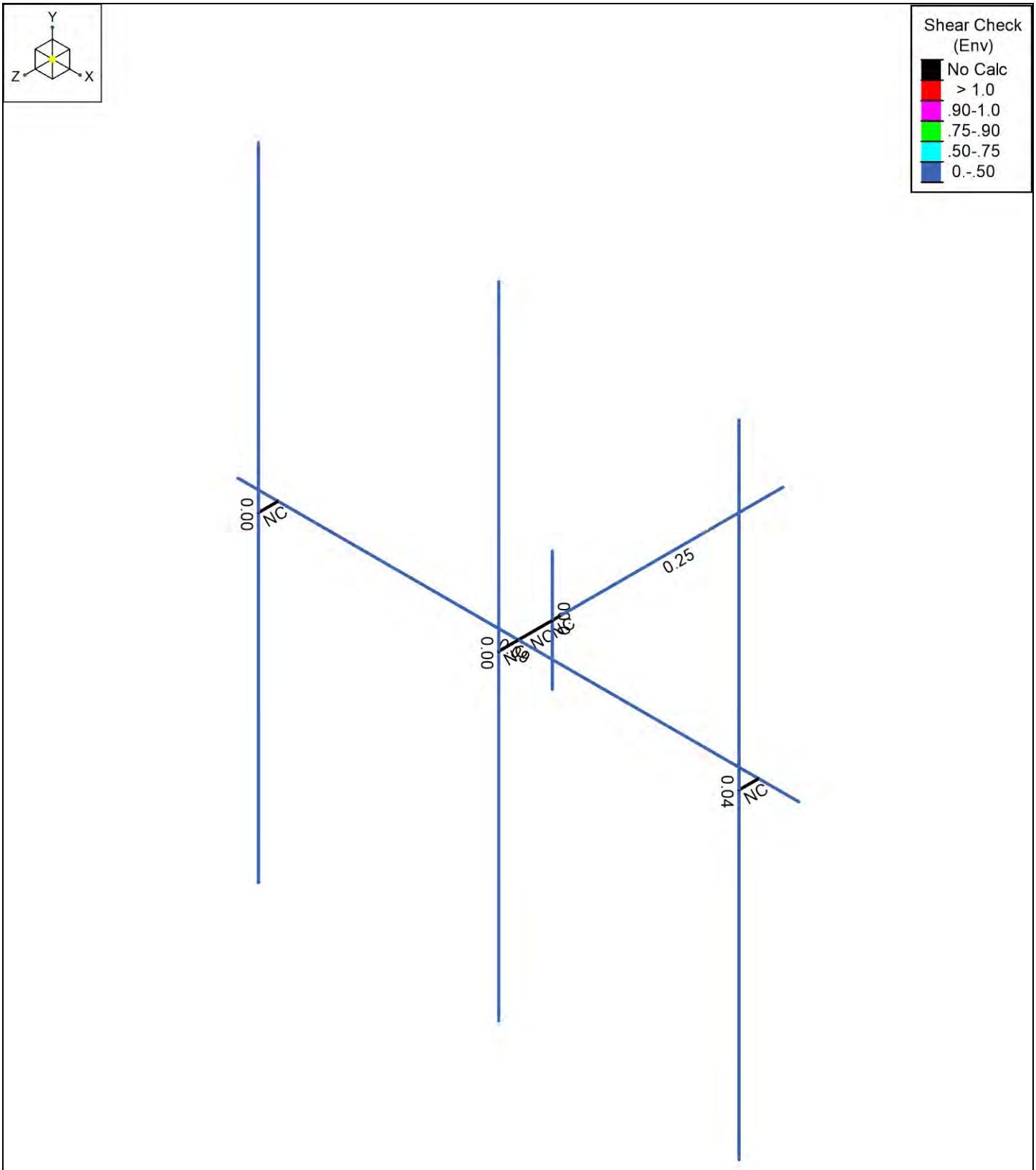

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0	0	2.44167	
2	2	-3.5	0	5.745866	
3	3	3.5	0	5.745866	
4	4	0	-0.75	5.320833	
5	5	0	0.75	5.320833	
6	6	-3	-4	5.990866	
7	7	-3	4	5.990866	
8	8	0	0	5.320833	
9	10	-3	0	5.745866	
10	11	-3	0	5.990866	
11	12	0	-4	5.990866	
12	13	0	4	5.990866	
13	14	0	0	5.745866	
14	15	0	0	5.990866	
15	16	3	-4	5.990866	
16	17	3	4	5.990866	
17	18	3	0	5.745866	
18	19	3	0	5.990866	
19	20	0	0	5.235003	
20	21	0	0	0	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	21						

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	MF-P1	Pipe2.38X0.12	Column	Pipe	A500 Gr.C	Typical	0.852	0.545	0.545	1.091
2	MF-H1	PIPE_3.5x0.165	Beam	Pipe	A500 Gr.C	Typical	1.729	2.409	2.409	4.819
3	MV-1	PIPE_4.0	Column	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
4	F1-ST1	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8

Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	20	F1-ST1	Beam	Tube	A500 Gr.B Rect	Typical
2	2	2	3	MF-H1	Beam	Pipe	A500 Gr.C	Typical
3	3	4	5	MV-1	Column	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
4	4	7	6	MF-P1	Column	Pipe	A500 Gr.C	Typical
5	5	8	14	RIGID	None	None	RIGID	Typical
6	6	10	11	RIGID	None	None	RIGID	Typical
7	7	13	12	MF-P1	Column	Pipe	A500 Gr.C	Typical
8	8	14	15	RIGID	None	None	RIGID	Typical
9	9	17	16	MF-P1	Column	Pipe	A500 Gr.C	Typical
10	10	18	19	RIGID	None	None	RIGID	Typical
11	11	8	20	RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	Physical	Deflection Ratio Options	Seismic DR
1	1	Yes	N/A	None
2	2	Yes	N/A	None
3	3	Yes	** NA **	None
4	4	Yes	** NA **	None
5	5	Yes	** NA **	None
6	6	Yes	** NA **	None
7	7	Yes	** NA **	None
8	8	Yes	** NA **	None
9	9	Yes	** NA **	None
10	10	Yes	** NA **	None
11	11	Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	F1-ST1	2.793	Lbyy	Lateral
2	2	MF-H1	7	Lbyy	Lateral
3	3	MV-1	1.5	Lbyy	Lateral
4	4	MF-P1	8	Lbyy	Lateral
5	7	MF-P1	8	Lbyy	Lateral
6	9	MF-P1	8	Lbyy	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	9	Y	-0.032	%15
2	9	Y	-0.032	%85
3	9	Y	-0.075	%25
4	9	Y	-0.064	%65
5	9	Y	0	0
6	1	Y	-0.022	%50
7	1	Y	0	0
8	1	Y	0	0
9	1	Y	0	0
10	1	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	9	Z	-0.173	%15
2	9	Z	-0.173	%85
3	9	Z	-0.054	%25

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
4	9	Z	-0.054	%65
5	9	Z	0	0
6	1	Z	-0.056	%50
7	1	Z	0	0
8	1	Z	0	0
9	1	Z	0	0
10	1	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	9	X	-0.069	%15
2	9	X	-0.069	%85
3	9	X	-0.033	%25
4	9	X	-0.029	%65
5	9	X	0	0
6	1	X	-0.031	%50
7	1	X	0	0
8	1	X	0	0
9	1	X	0	0
10	1	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	9	Z	-0.059	%15
2	9	Z	-0.059	%85
3	9	Z	-0.024	%25
4	9	Z	-0.024	%65
5	9	Z	0	0
6	1	Z	-0.024	%50
7	1	Z	0	0
8	1	Z	0	0
9	1	Z	0	0
10	1	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	9	X	-0.03	%15
2	9	X	-0.03	%85
3	9	X	-0.017	%25
4	9	X	-0.015	%65
5	9	X	0	0
6	1	X	-0.016	%50
7	1	X	0	0
8	1	X	0	0
9	1	X	0	0
10	1	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	9	Z	-0.016	%15
2	9	Z	-0.016	%85
3	9	Z	-0.005	%25
4	9	Z	-0.005	%65
5	9	Z	0	0
6	1	Z	-0.005	%50
7	1	Z	0	0
8	1	Z	0	0
9	1	Z	0	0
10	1	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	9	X	-0.007	%15
2	9	X	-0.007	%85
3	9	X	-0.003	%25
4	9	X	-0.003	%65
5	9	X	0	0
6	1	X	-0.003	%50
7	1	X	0	0
8	1	X	0	0
9	1	X	0	0
10	1	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	9	Y	-0.19	%15
2	9	Y	-0.19	%85
3	9	Y	-0.069	%25
4	9	Y	-0.067	%65
5	9	Y	0	0
6	1	Y	-0.07	%50
7	1	Y	0	0
8	1	Y	0	0
9	1	Y	0	0
10	1	Y	0	0

Member Point Loads (BLC 13 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	2	Y	-0.25	%5

Member Point Loads (BLC 14 : Maint LL 2)

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

Member Point Loads (BLC 15 : Maint LL 3)

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

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.013	-0.013	0	%100
2	2	Z	-0.01	-0.01	0	%100
3	3	Z	-0.007	-0.007	0	%100
4	4	Z	-0.007	-0.007	0	%100
5	7	Z	-0.007	-0.007	0	%100
6	9	Z	-0.007	-0.007	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.013	-0.013	0	%100
2	2	X	-0.01	-0.01	0	%100
3	3	X	-0.007	-0.007	0	%100
4	4	X	-0.007	-0.007	0	%100
5	7	X	-0.007	-0.007	0	%100
6	9	X	-0.007	-0.007	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.008	-0.008	0	%100
2	2	Z	-0.003	-0.003	0	%100
3	3	Z	-0.003	-0.003	0	%100
4	4	Z	-0.003	-0.003	0	%100
5	7	Z	-0.003	-0.003	0	%100
6	9	Z	-0.003	-0.003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.008	-0.008	0	%100
2	2	X	-0.003	-0.003	0	%100
3	3	X	-0.003	-0.003	0	%100
4	4	X	-0.003	-0.003	0	%100
5	7	X	-0.003	-0.003	0	%100
6	9	X	-0.003	-0.003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0	%100
2	2	Z	-0.0005	-0.0005	0	%100
3	3	Z	-0.0005	-0.0005	0	%100
4	4	Z	-0.0003	-0.0003	0	%100
5	7	Z	-0.0003	-0.0003	0	%100
6	9	Z	-0.0003	-0.0003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.0005	-0.0005	0	%100
3	3	X	-0.0005	-0.0005	0	%100
4	4	X	-0.0003	-0.0003	0	%100
5	7	X	-0.0003	-0.0003	0	%100
6	9	X	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.021	-0.021	0	%100
2	2	Y	-0.015	-0.015	0	%100
3	3	Y	-0.018	-0.018	0	%100
4	4	Y	-0.012	-0.012	0	%100
5	7	Y	-0.012	-0.012	0	%100
6	9	Y	-0.012	-0.012	0	%100

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	10	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	14	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	18	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Dead	DL	-1		10	
2	0 Wind - No Ice	WLZ			10	6
3	90 Wind - No Ice	WLX			10	6
4	0 Wind - Ice	WLZ			10	6
5	90 Wind - Ice	WLX			10	6
6	0 Wind - Service	WLZ			10	6
7	90 Wind - Service	WLX			10	6
8	Ice	OL1			10	6
9	Live Load a	LL		1		
10	Live Load b	LL		1		
11	Live Load c	LL		1		
12	Live Load d	LL				
13	Maint LL 1	LL			1	
14	Maint LL 2	LL			1	
15	Maint LL 3	LL			1	
16	Maint LL 4	LL				
17	Maint LL 5	LL				
18	Maint LL 6	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	0.9 D + 1.6 - 0 W	Yes	Y	1	0.9	2	1.6				
3	0.9 D + 1.6 - 30 W	Yes	Y	1	0.9	2	1.386	3	0.8		
4	0.9 D + 1.6 - 60 W	Yes	Y	1	0.9	3	1.386	2	0.8		
5	0.9 D + 1.6 - 90 W	Yes	Y	1	0.9	3	1.6				
6	0.9 D + 1.6 - 120 W	Yes	Y	1	0.9	3	1.386	2	-0.8		
7	0.9 D + 1.6 - 150 W	Yes	Y	1	0.9	2	-1.386	3	0.8		
8	0.9 D + 1.6 - 180 W	Yes	Y	1	0.9	2	-1.6				
9	0.9 D + 1.6 - 210 W	Yes	Y	1	0.9	2	-1.386	3	-0.8		
10	0.9 D + 1.6 - 240 W	Yes	Y	1	0.9	3	-1.386	2	-0.8		
11	0.9 D + 1.6 - 270 W	Yes	Y	1	0.9	3	-1.6				
12	0.9 D + 1.6 - 300 W	Yes	Y	1	0.9	3	-1.386	2	0.8		
13	0.9 D + 1.6 - 330 W	Yes	Y	1	0.9	2	1.386	3	-0.8		
14	1.2 D + 1.6 - 0 W	Yes	Y	1	1.2	2	1.6				
15	1.2 D + 1.6 - 30 W	Yes	Y	1	1.2	2	1.386	3	0.8		
16	1.2 D + 1.6 - 60 W	Yes	Y	1	1.2	3	1.386	2	0.8		
17	1.2 D + 1.6 - 90 W	Yes	Y	1	1.2	3	1.6				
18	1.2 D + 1.6 - 120 W	Yes	Y	1	1.2	3	1.386	2	-0.8		
19	1.2 D + 1.6 - 150 W	Yes	Y	1	1.2	2	-1.386	3	0.8		
20	1.2 D + 1.6 - 180 W	Yes	Y	1	1.2	2	-1.6				
21	1.2 D + 1.6 - 210 W	Yes	Y	1	1.2	2	-1.386	3	-0.8		
22	1.2 D + 1.6 - 240 W	Yes	Y	1	1.2	3	-1.386	2	-0.8		
23	1.2 D + 1.6 - 270 W	Yes	Y	1	1.2	3	-1.6				
24	1.2 D + 1.6 - 300 W	Yes	Y	1	1.2	3	-1.386	2	0.8		
25	1.2 D + 1.6 - 330 W	Yes	Y	1	1.2	2	1.386	3	-0.8		
26	0.9 D + 1.6 - 0 W/Ice	Yes	Y	1	0.9	4	1.6			8	1
27	0.9 D + 1.6 - 30 W/Ice	Yes	Y	1	0.9	4	1.386	5	0.8	8	1
28	0.9 D + 1.6 - 60 W/Ice	Yes	Y	1	0.9	5	1.386	4	0.8	8	1
29	0.9 D + 1.6 - 90 W/Ice	Yes	Y	1	0.9	5	1.6			8	1
30	0.9 D + 1.6 - 120 W/Ice	Yes	Y	1	0.9	5	1.386	4	-0.8	8	1
31	0.9 D + 1.6 - 150 W/Ice	Yes	Y	1	0.9	4	-1.386	5	0.8	8	1
32	0.9 D + 1.6 - 180 W/Ice	Yes	Y	1	0.9	4	-1.6			8	1
33	0.9 D + 1.6 - 210 W/Ice	Yes	Y	1	0.9	4	-1.386	5	-0.8	8	1
34	0.9 D + 1.6 - 240 W/Ice	Yes	Y	1	0.9	5	-1.386	4	-0.8	8	1
35	0.9 D + 1.6 - 270 W/Ice	Yes	Y	1	0.9	5	-1.6			8	1
36	0.9 D + 1.6 - 300 W/Ice	Yes	Y	1	0.9	5	-1.386	4	0.8	8	1
37	0.9 D + 1.6 - 330 W/Ice	Yes	Y	1	0.9	4	1.386	5	-0.8	8	1
38	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
39	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
40	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
41	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
42	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
43	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
44	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
45	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
46	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
47	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
48	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
49	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
50	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			9	1.5
51	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	9	1.5
52	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	9	1.5
53	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			9	1.5
54	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	9	1.5
55	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	9	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
56	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			9	1.5
57	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	9	1.5
58	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	9	1.5
59	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			9	1.5
60	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	9	1.5
61	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	9	1.5
62	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			10	1.5
63	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	10	1.5
64	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	10	1.5
65	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			10	1.5
66	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	10	1.5
67	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	10	1.5
68	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			10	1.5
69	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	10	1.5
70	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	10	1.5
71	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			10	1.5
72	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	10	1.5
73	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	10	1.5
74	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
75	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
76	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
77	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
78	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
79	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
80	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
81	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
82	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
83	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
84	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
85	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
86	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
87	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
88	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
89	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
90	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
91	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
92	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
93	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
94	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
95	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
96	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
97	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
98	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					13	1.5
99	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					14	1.5
100	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					15	1.5
101	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					16	1.5
102	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					17	1.5
103	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					18	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	1	max	0.803	17	1.527	44	1.249	14	-1.034	2	3.326	18	2.985	83
2		min	-0.803	11	0.347	2	-1.249	8	-4.949	44	-3.324	24	-1.521	53
3	Totals:	max	0.803	17	1.527	44	1.249	14						
4		min	-0.803	11	0.347	2	-1.249	8						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	HSS4X4X4	0.367	0	30	0.25	0	y	83	135.036	139.518	16.181	16.181	1.503	H1-1b
2	2	PIPE_3.5x0.165	0.491	3.5	85	0.088	3.5		44	50.912	71.57	6.336	6.336	1.605	H1-1b
3	3	PIPE_4.0	0	0.75	47	0	0.75		22	92.571	93.24	10.631	10.631	1.547	H1-1b*
4	4	Pipe2.38X0.12	0.041	4	21	0.004	4		21	13.36	35.273	2.115	2.115	1.562	H1-1b
5	7	Pipe2.38X0.12	0.041	4	22	0.004	4		22	13.36	35.273	2.115	2.115	1.562	H1-1b
6	9	Pipe2.38X0.12	0.495	4	20	0.038	4		20	13.36	35.273	2.115	2.115	1.337	H1-1b

APPENDIX B

(Additional Calculations)

PROJECT					KSC
SUBJECT	**Platform Mount Analysis**				
DATE	**09/03/21**	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	:	1.249	k
Vertical Shear	:	1.527	k
Horizontal Shear	:	0.803	k
Torsion	:	2.985	k.ft
Moment from Horizontal Forces	:	3.326	k.ft
Moment from Vertical Forces	:	-1.034	k.ft

Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	1.73	k
Force from Horz. Moment	:	6.02	k
Force from Vert. Moment	:	-1.87	k
Shear Load / Bolt	:	0.43	k
Tension Load / Bolt	:	0.31	k
Resultant from Moments / Bolt	:	3.15	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**16.73%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**6.73%**		**OKAY**
Unity Check, Combined	:	**23.46%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**1.24%**		**OKAY**

EXHIBIT 10

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOBDL00131A

DISH Wireless L.L.C. SITE ADDRESS:

465 HILLS STREET
EAST HARTFORD, CT 06118

SBA APPROVED

By Stephen Roth at 5:27:33 AM, 12/14/2021

SCOPE OF WORK

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

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (3) PROPOSED ANTENNA T-ARM MOUNT
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

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

SITE INFORMATION

PROPERTY OWNER:	OUELLETTE ROBERT V & ALICE L
ADDRESS:	61 BRADFORD DRIVE WINDSOR, CT 06095
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	CT22077-A
TOWER APP NUMBER:	167829
COUNTY:	HARTFORD
LATITUDE (NAD 83):	41° 44' 26.6" N 41.74072189 N
LONGITUDE (NAD 83):	72° 35' 2.8" W 72.58411078 W
ZONING JURISDICTION:	HARTFORD COUNTY
ZONING DISTRICT:	AA
PARCEL NUMBER:	6670
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	T.B.D.

PROJECT DIRECTORY

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

CONNECTICUT CODE OF COMPLIANCE

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

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

SITE PHOTO

DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:

CONTINUE TO BRADLEY INTERNATIONAL AIRPORT CON, HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT, SLIGHT LEFT ONTO BRADLEY INTERNATIONAL AIRPORT, SLIGHT LEFT, TAKE CT-20 E, I-91 S AND CT-2 E TO MAPLE ST IN EAST HARTFORD. TAKE EXIT 5 C FROM CT-2 E, CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON, CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON, USE THE RIGHT 2 LANES TO MERGE WITH I-91 S TOWARD HARTFORD, USE THE LEFT LANE TO TAKE EXIT 30 TO MERGE WITH I-84 E, TAKE EXIT 55 FOR CT-2 E TOWARD NORWICH/NEW LONDON/I-84 E, CONTINUE ONTO CT-2 E, TAKE EXIT 5 C FOR MAPLE STREET, CONTINUE ON MAPLE ST. TAKE O CONNELL DR TO EAGLE CT, TURN LEFT ONTO MAPLE ST, TURN RIGHT ONTO FORBES ST, TURN LEFT ONTO O CONNELL DR, TURN LEFT ONTO WESTERLY TERRACE, TURN RIGHT ONTO HERON RD, TURN RIGHT ONTO EAGLE CT, DRIVE ONTO ACCESS RD AND ARRIVE AT BOBDL00131A.

SHEET INDEX

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

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

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

GENERAL NOTES

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

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

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

VICINITY MAP

NO SCALE

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CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
12/13/21

PEC.0001564
Expires 2/10/22

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

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

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A&E PROJECT NUMBER

149479.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

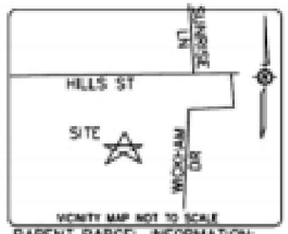
BOBDL00131A
465 HILLS STREET
EAST HARTFORD, CT 06118

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1



PARENT PARCEL INFORMATION:
OWNER: GENESIS EAST HARTFORD CT, LLC

465 HILLS ST
EAST HARTFORD CT 06118
TAX ID 6670
BOOK 3939 PAGE 289

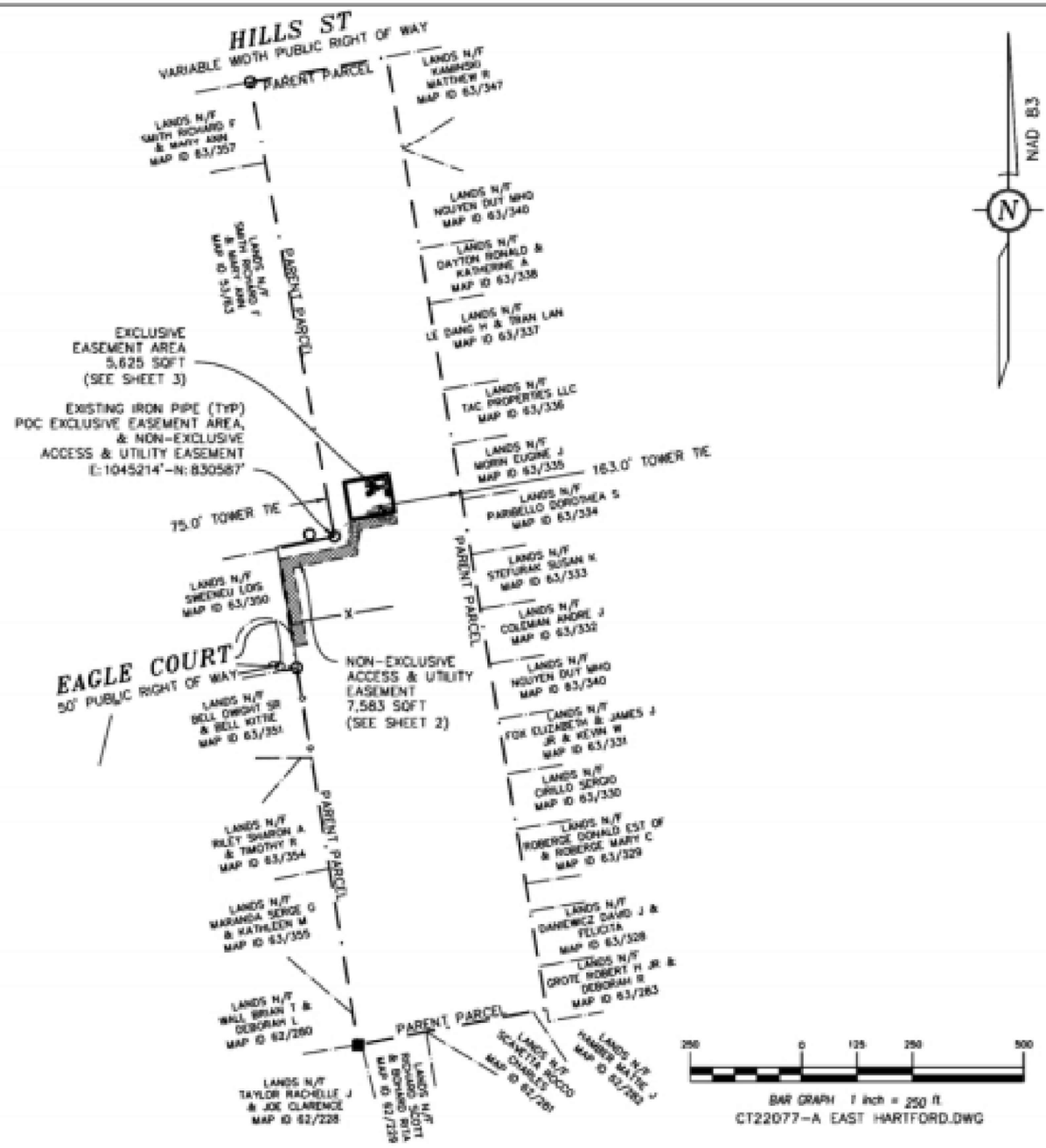
ZONING: R-2 (RESIDENTIAL)

THIS PARCEL OF LAND LIES WITHIN FLOOD ZONE X WHICH IS NOT A SPECIAL FLOOD HAZARD AREA AS PER F.I.R.M. PANEL NUMBER: 09003C0527F EFFECTIVE DATE: 09/26/2008

LEGEND:

- ● : SET 5/8" REBAR, OR AS NOTED
- ○ : FOUND 1/2" REBAR, OR AS NOTED
- ■ : FOUND MONUMENT, OR AS NOTED
- (___) : RECORD DESCRIPTION DATA
- P.O.T. : POINT OF TERMINUS
- P.O.B. : POINT OF BEGINNING
- P.O.C. : POINT OF COMMENCEMENT
- —o— : FENCE AS NOTED
- —oh— : OVER HEAD UTILITY LINES
- : WOOD UTILITY POLE
- : ELECTRIC TRANSFORMER
- T : TELCO PEDESTAL
- : HAND HOLE
- N/A : NOT AVAILABLE
- N/F : LANDS NOW/FORMERLY
- : FLOOD LIGHT
- : UNDERGROUND FIBER MARKER

AREA	SQUARE FEET	ACRE
PARENT PARCEL	512,816	11.77
EXCLUSIVE EASEMENT AREA	5,625	0.13
TOWER COMPOUND	4,812	0.11
NON-EXCLUSIVE ACCESS & UTILITY EASEMENT	7,583	0.18



SHEET 1 OF 4

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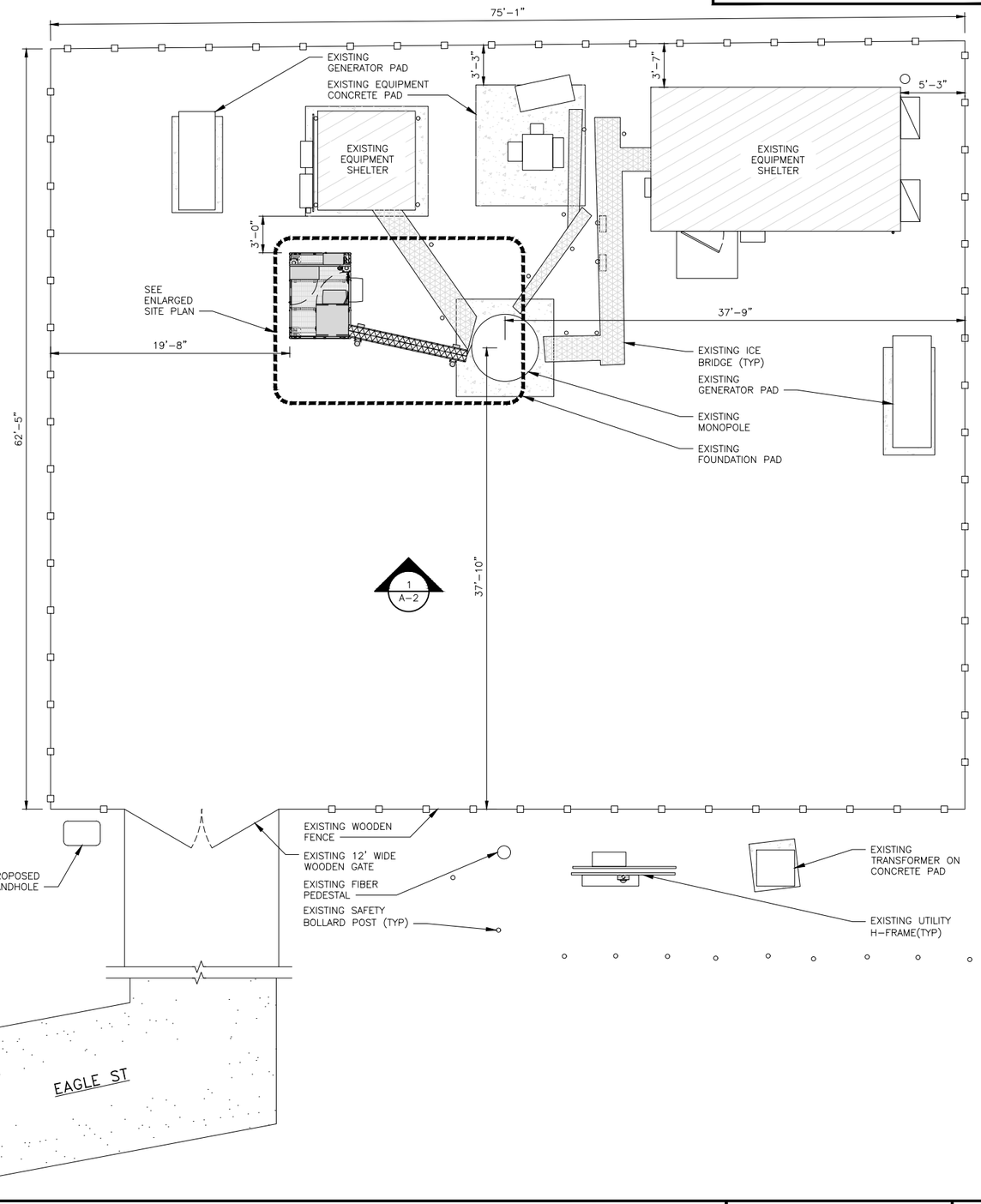
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00131A
465 HILLS STREET
EAST HARTFORD, CT 06118

SHEET TITLE
SITE SURVEY

SHEET NUMBER
LS-1

NOTES

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



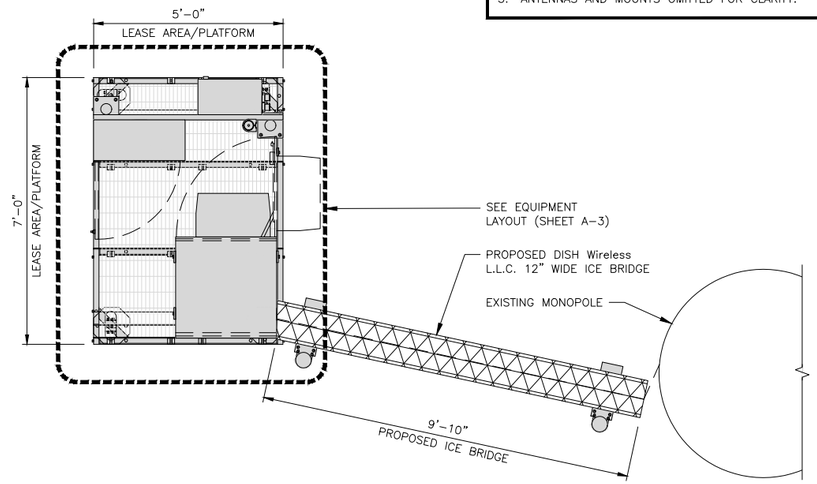
OVERALL SITE PLAN

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



ENLARGED SITE PLAN

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

2

NOT USED

3

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EAST HARTFORD, CT 06118

SHEET TITLE

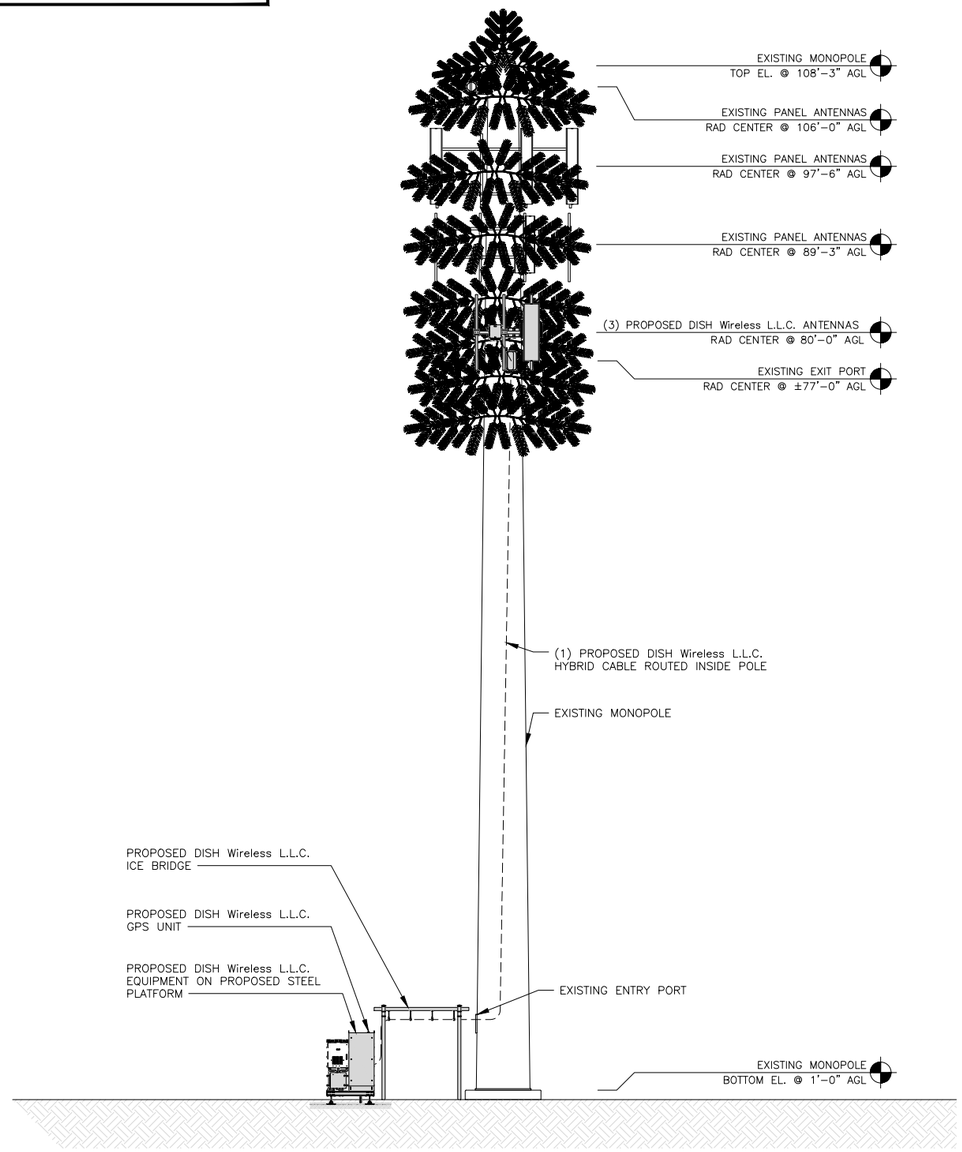
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

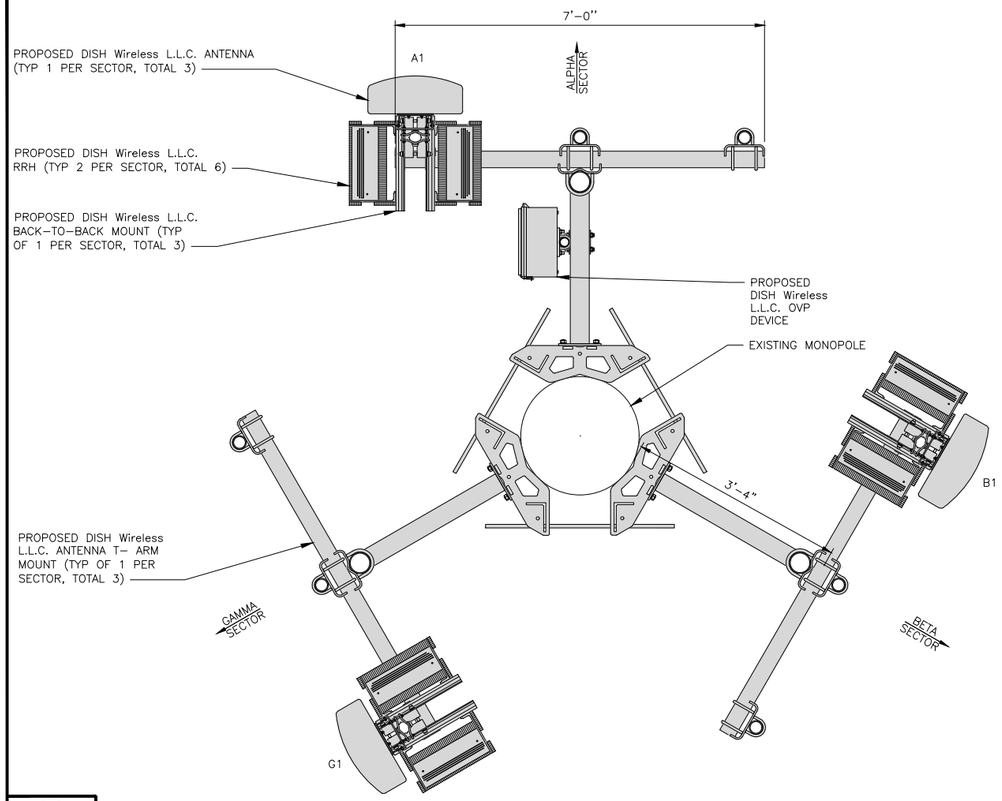
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



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" x 20"	0°	80'-0"	(1) HIGH-CAPACITY HYBRID CABLE (115' LONG)
BETA	B1	PROPOSED	JMA – MX08FRO665-21	5G	72" x 20"	120°	80'-0"	
GAMMA	G1	PROPOSED	JMA – MX08FRO665-21	5G	72" x 20"	240°	80'-0"	

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

NOTES

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

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

ANTENNA SCHEDULE

NO SCALE

3

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PROJECT INFORMATION

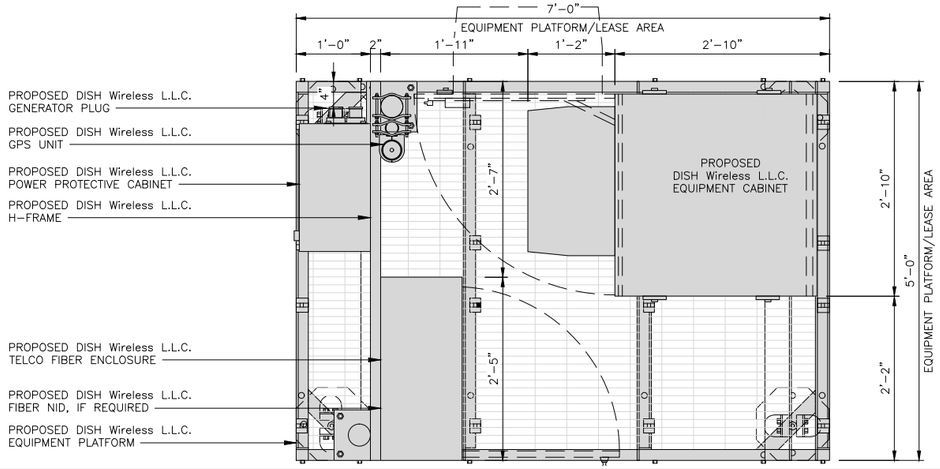
BOBDL00131A
465 HILLS STREET
EAST HARTFORD, CT 06118

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



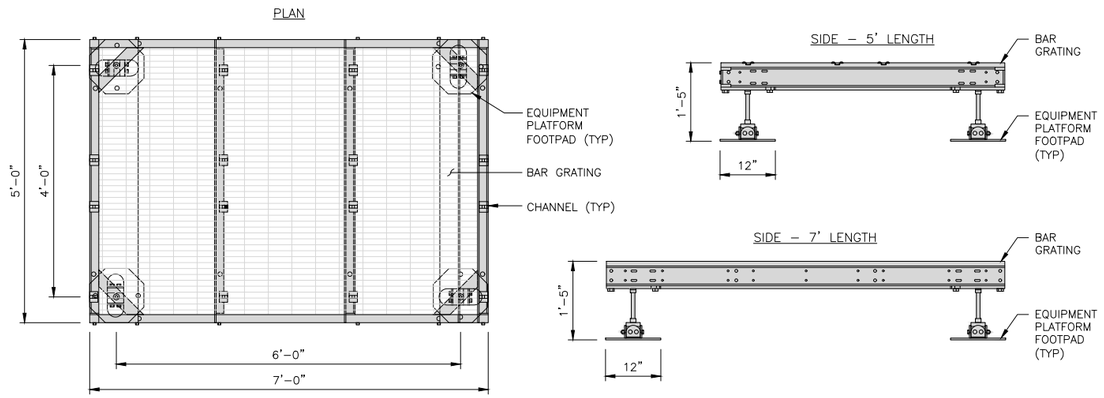
PLATFORM EQUIPMENT PLAN

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

1

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

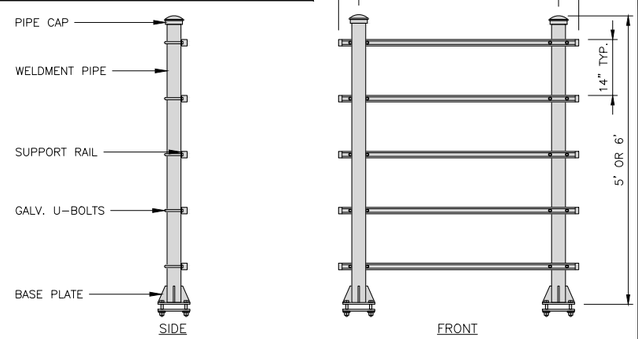
NOTE:
GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"



PLATFORM DETAIL

NO SCALE

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



H-FRAME DETAIL

NO SCALE

3

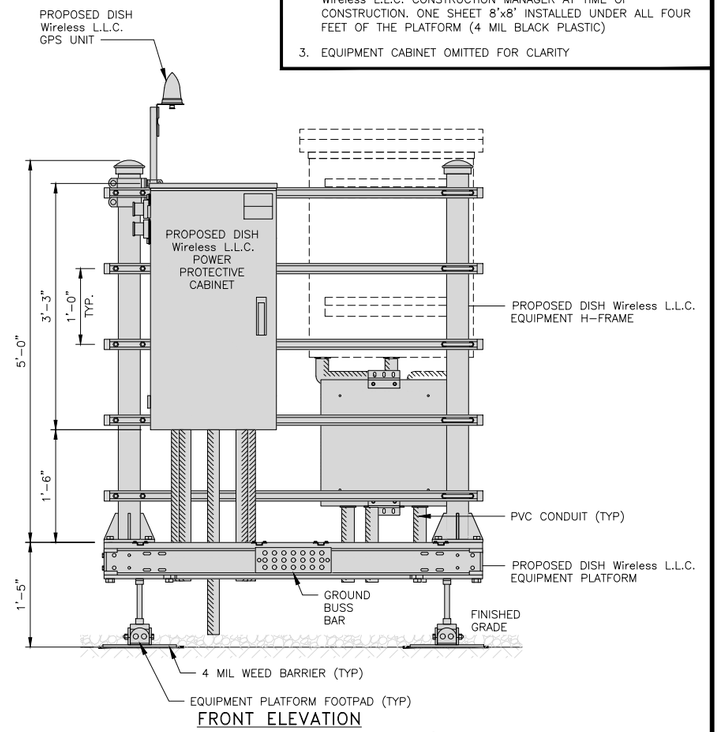
NOT USED

NO SCALE

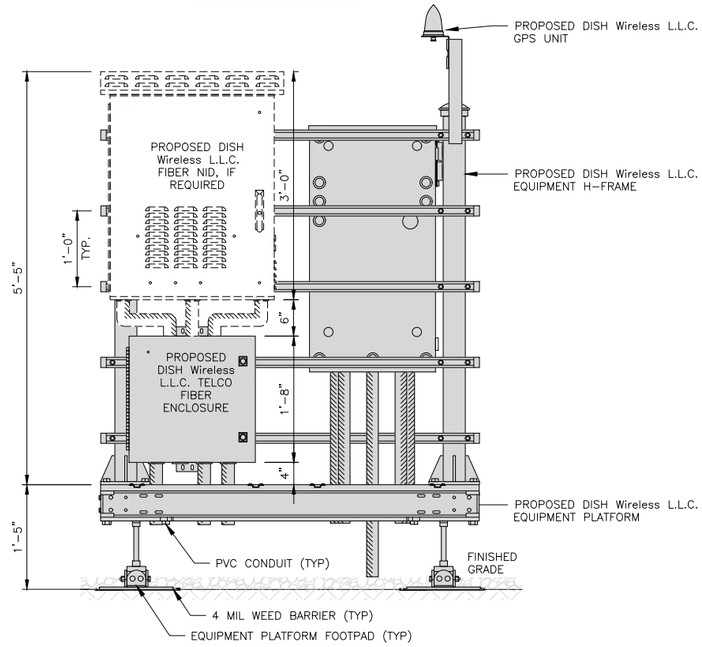
4

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

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

5

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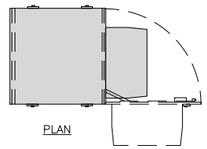
PROJECT INFORMATION
BOBDL00131A
465 HILLS STREET
EAST HARTFORD, CT 06118

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

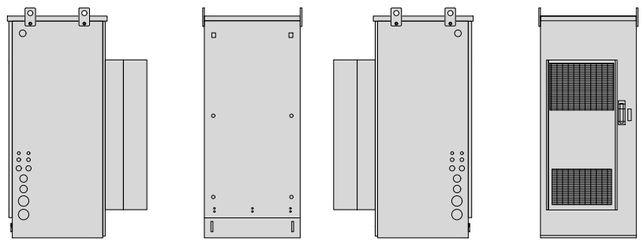
SHEET NUMBER
A-3

CHARLES INDUSTRY HEX CUBE–PM639155N4

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



PLAN



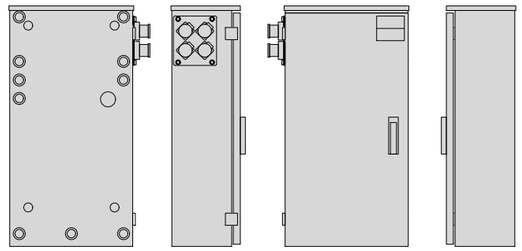
SIDE BACK SIDE FRONT

CABINET DETAIL | NO SCALE | 1

RAYCAP PPC RDIAC–2465–P–240–MTS

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

TOP



BACK SIDE FRONT SIDE

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

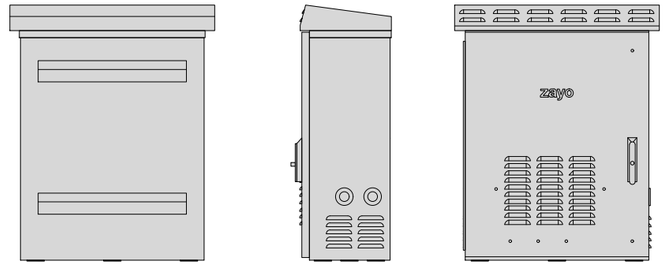
NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE

DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs

BOTTOM

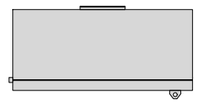


BACK SIDE FRONT

FIBER NID ENCLOSURE DETAIL | NO SCALE | 5

CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE

ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



FRONT

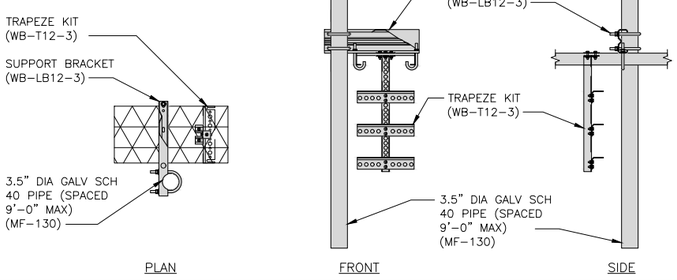
SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

COMMSCOPE WB–K110–B WAVEGUIDE BRIDGE KIT

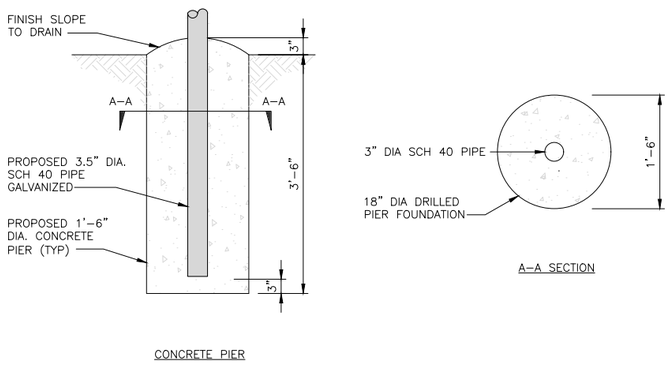
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

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



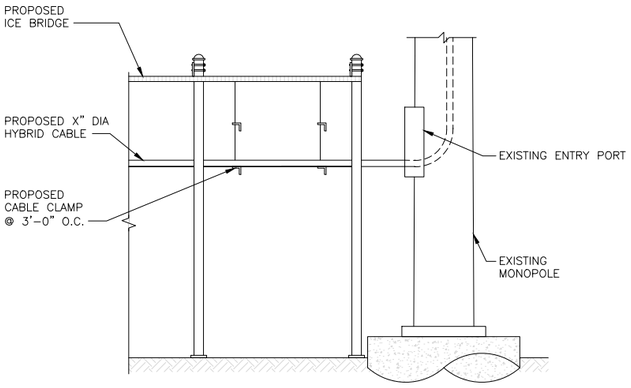
PLAN FRONT SIDE

ICE BRIDGE DETAIL | NO SCALE | 7



CONCRETE PIER A–A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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465 HILLS STREET
EAST HARTFORD, CT 06118

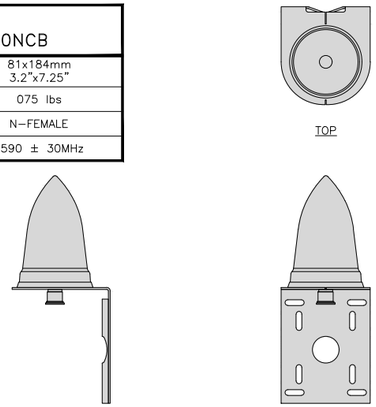
SHEET TITLE

EQUIPMENT DETAILS

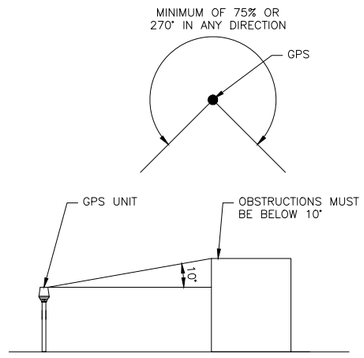
SHEET NUMBER

A-4

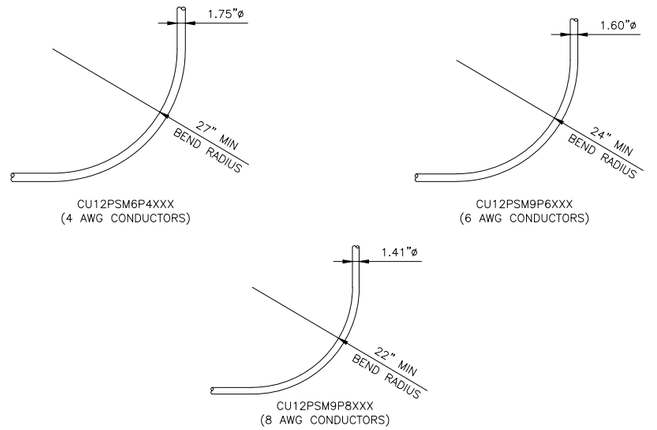
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



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

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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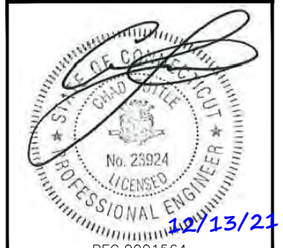

PEC.0001564
Expires 2/10/22

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CDD	CDD	CDD

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	9/15/21	ISSUED FOR REVIEW
0	12/13/21	ISSUED FOR CONSTRUCTION

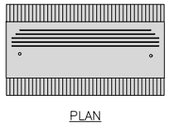
A&E PROJECT NUMBER
149479.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00131A
465 HILLS STREET
EAST HARTFORD, CT 06118

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



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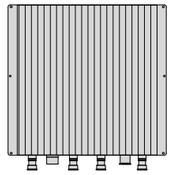

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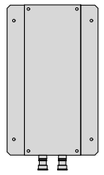

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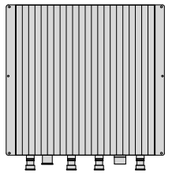
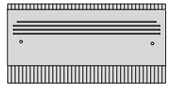


FRONT

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



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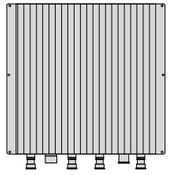

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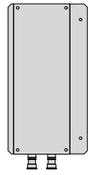

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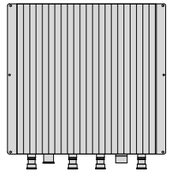
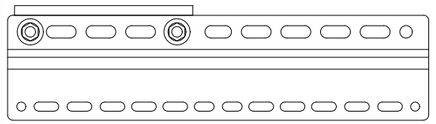


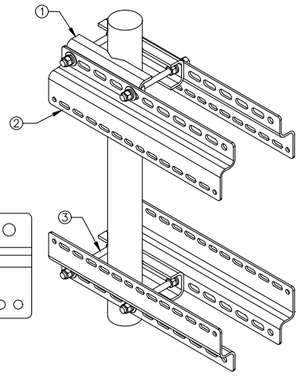
FRONT

RRH DETAIL | NO SCALE | 2

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

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



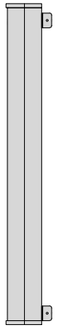


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

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

PLAN



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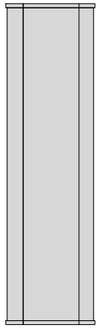


FRONT

ANTENNA DETAIL | NO SCALE | 4

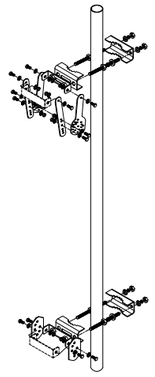
NOT USED | NO SCALE | 5

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

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

ANTENNA BRACKET NOT PART OF KIT

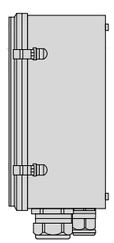
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



ANTENNA BRACKET DETAIL | NO SCALE | 6

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

PLAN



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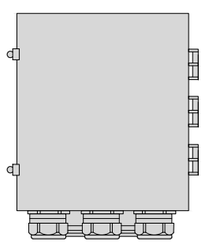

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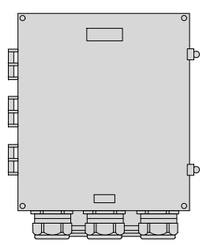
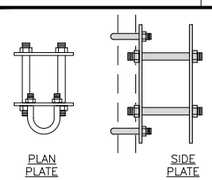


FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

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

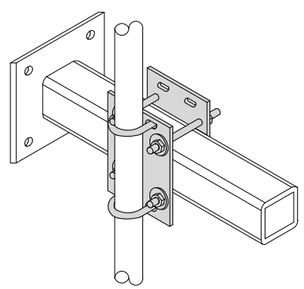


PLAN PLATE

SIDE PLATE

PLAN U-BOLT

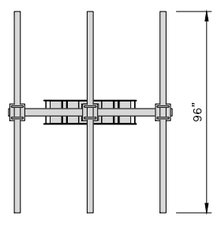
SIDE U-BOLT

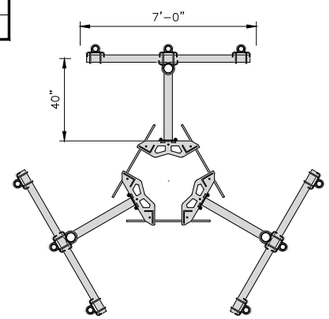


RRH/OVP MOUNT DETAIL | NO SCALE | 8

COMMSCOPE MC-K6MHDX-9-96	
FACE WIDTH	7'-0"
WEIGHT	1203.31 lbs
NOTE: 15" TO 50" O.D.	

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





T-ARM MOUNT DETAIL | NO SCALE | 9

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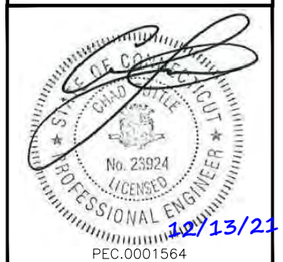

12/13/21

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CDD	CDD	CDD

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

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A&E PROJECT NUMBER

149479.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00131A
465 HILLS STREET
EAST HARTFORD, CT 06118

SHEET TITLE

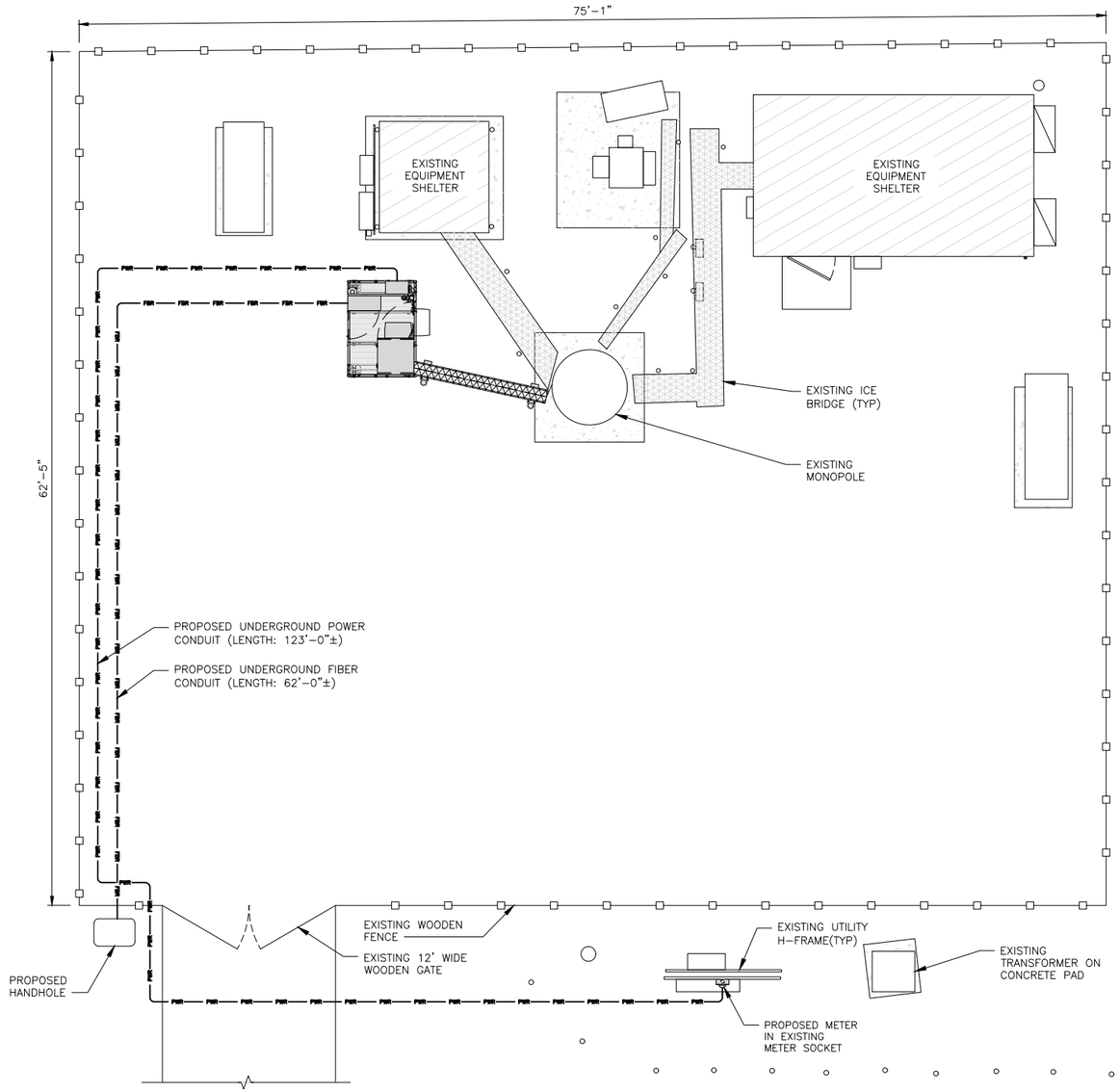
EQUIPMENT DETAILS

SHEET NUMBER

A-6

NOTES

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



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

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

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STATE OF CONNECTICUT
CHAD D. DUTTE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
12/13/21

PEC.0001564
Expires 2/10/22

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00131A
465 HILLS STREET
EAST HARTFORD, CT 06118

SHEET TITLE

ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

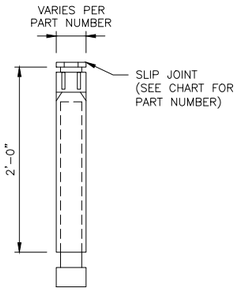
E-1

N

UTILITY ROUTE PLAN | 6' 4' 2' 0 5' 10' 3/16"=1'-0" | 1 | ELECTRICAL NOTES | NO SCALE | 2

CARLON EXPANSION FITTINGS

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

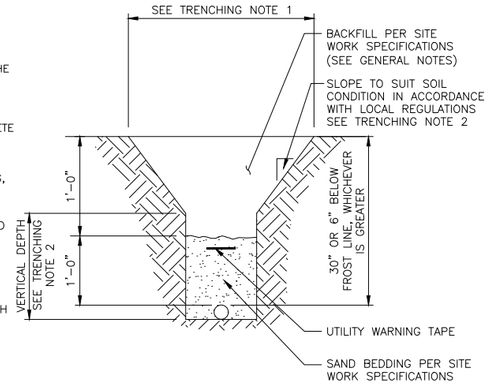


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

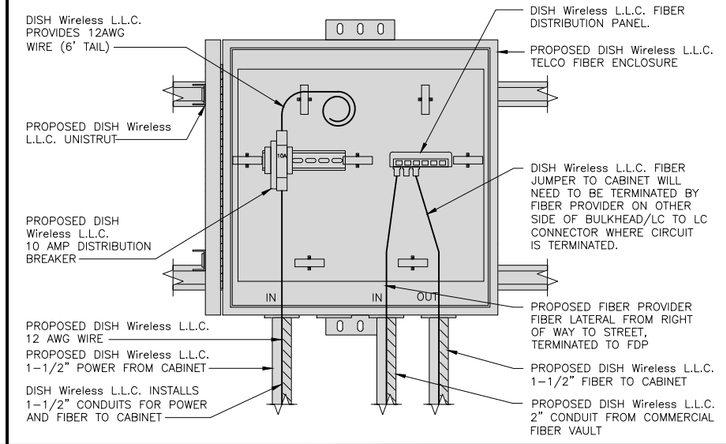
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

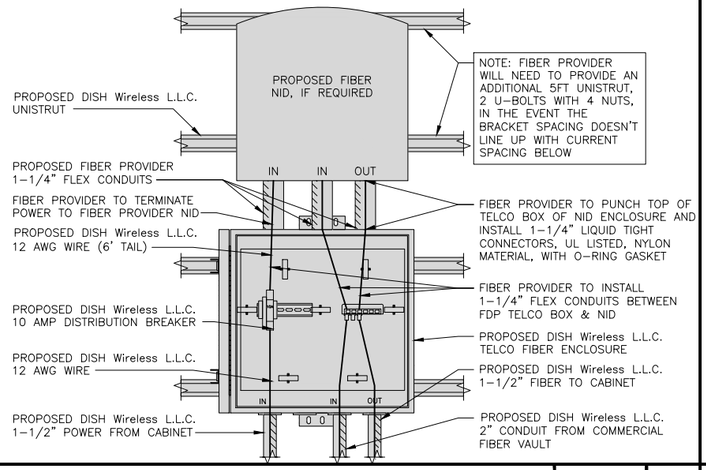
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



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



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

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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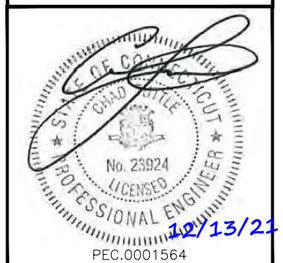

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PROJECT INFORMATION

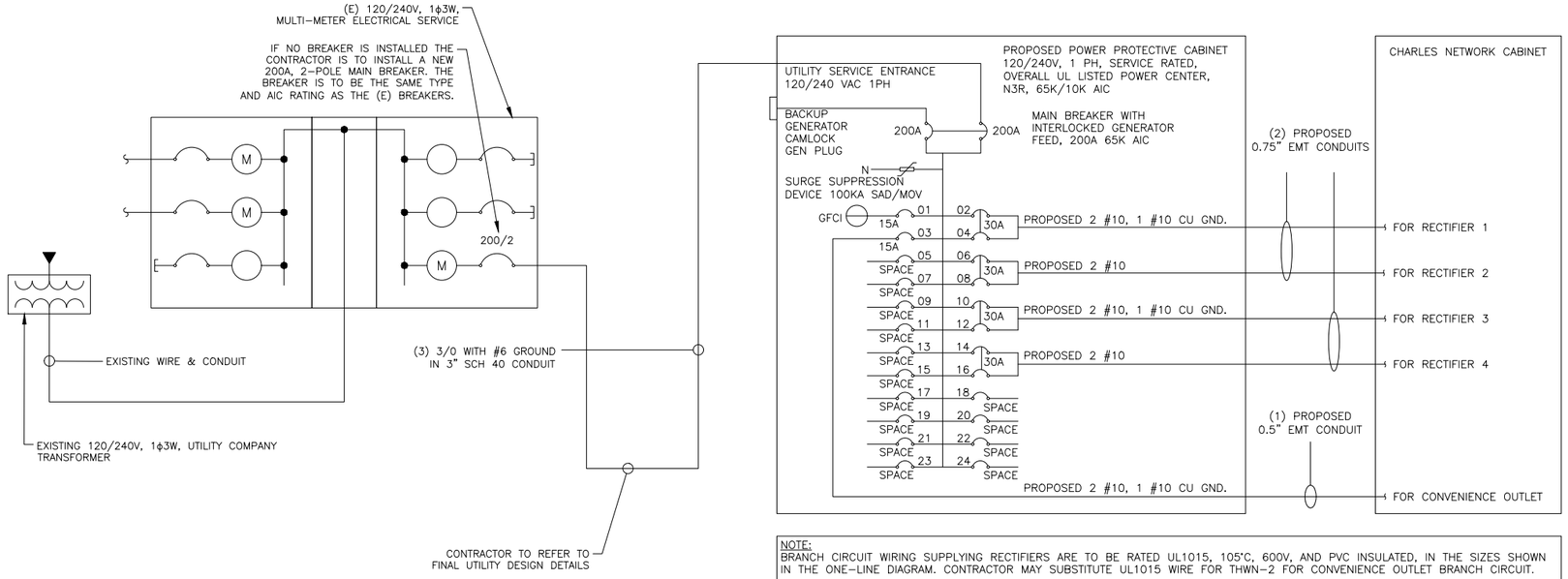
BOBDL00131A
465 HILLS STREET
EAST HARTFORD, CT 06118

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

PPC ONE-LINE DIAGRAM — NO SCALE — 1

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.

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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CHAD D. DUTTIE
No. 23924
LICENSED PROFESSIONAL ENGINEER
12/13/21

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Expires 2/10/22

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CDD	CDD	CDD

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CONSTRUCTION DOCUMENTS

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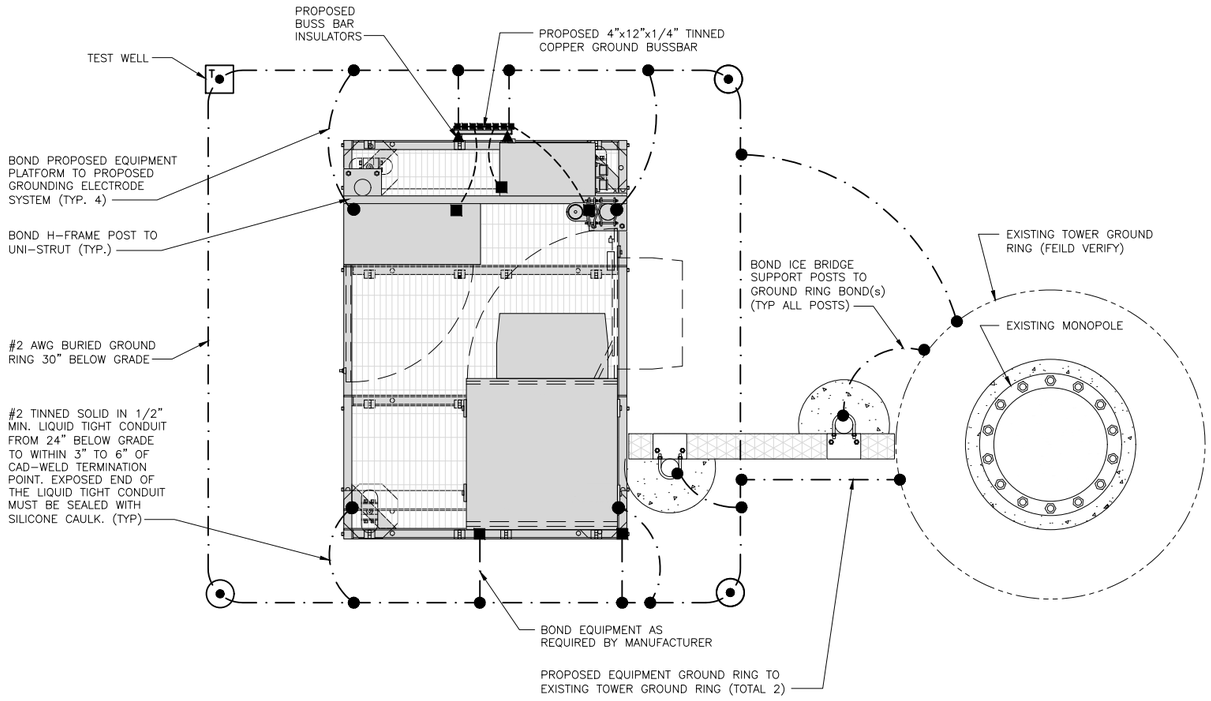
A&E PROJECT NUMBER
149479.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00131A
465 HILLS STREET
EAST HARTFORD, CT 06118

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

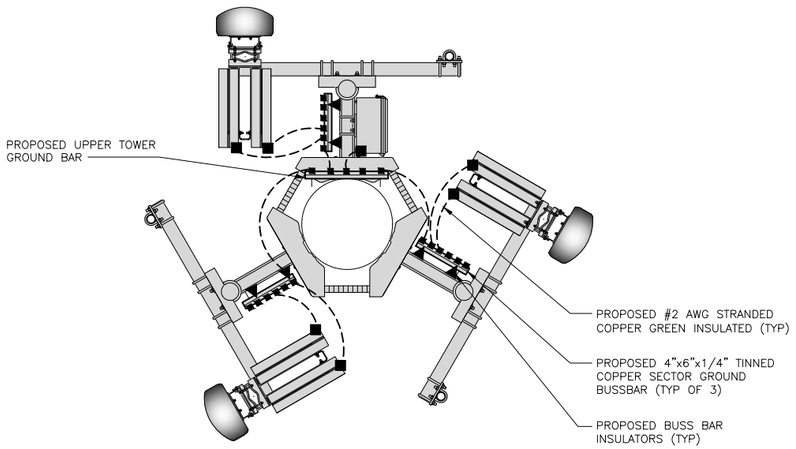
SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR.

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

GROUNDING KEY NOTES | NO SCALE | 3

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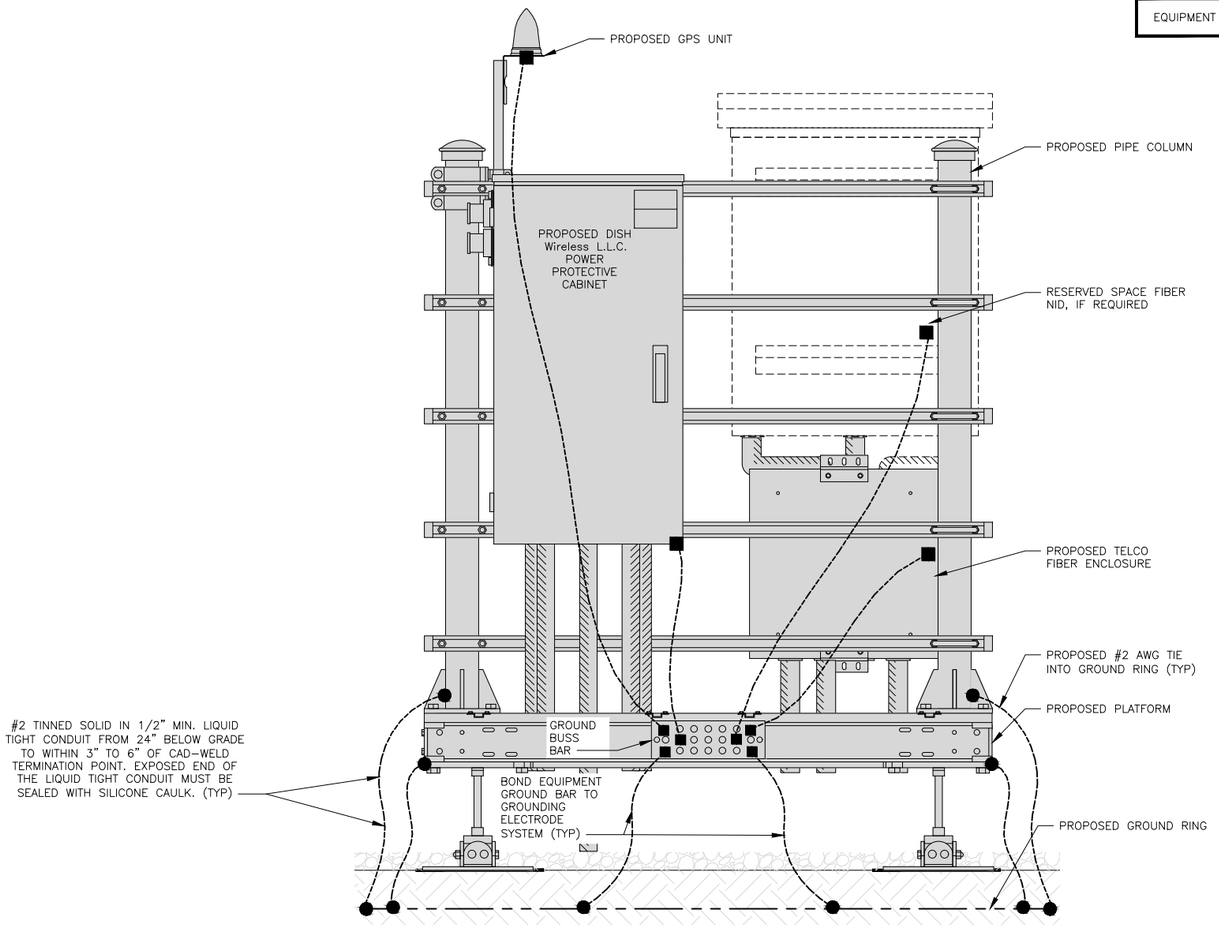
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00131A
465 HILLS STREET
EAST HARTFORD, CT 06118

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

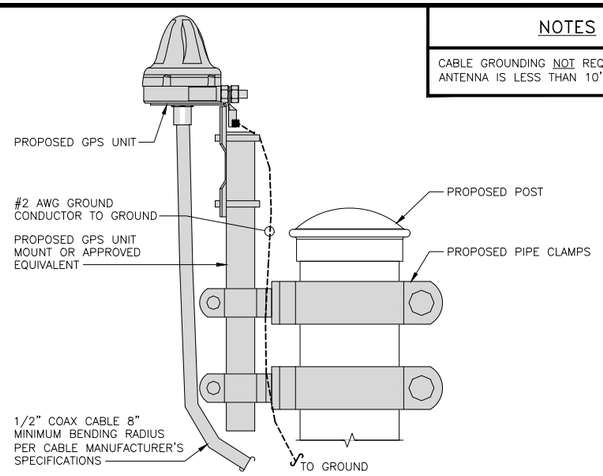
EQUIPMENT CABINET OMITTED FOR CLARITY



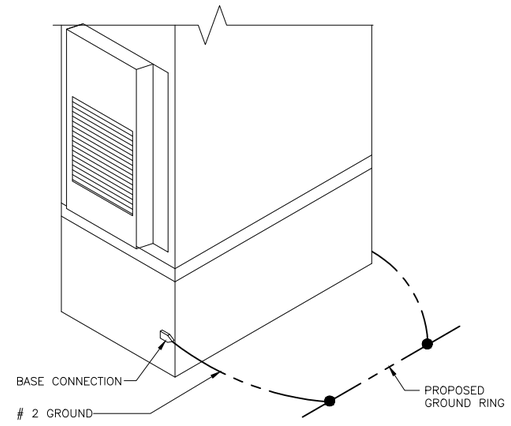
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

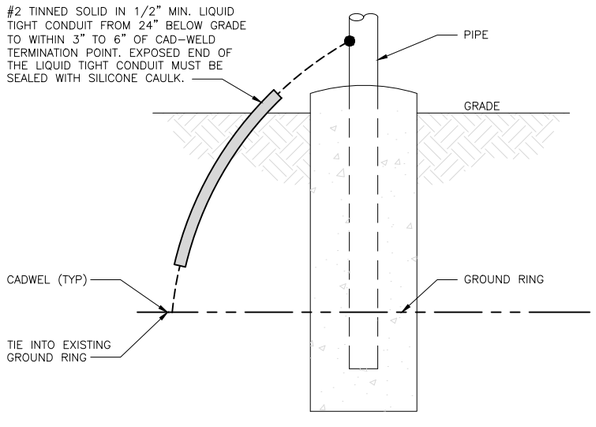
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



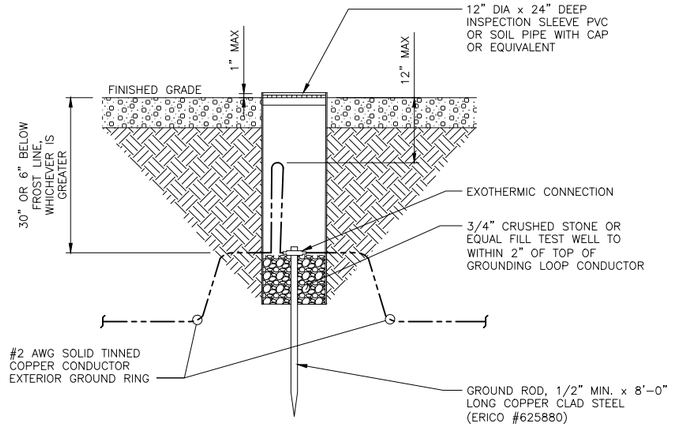
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



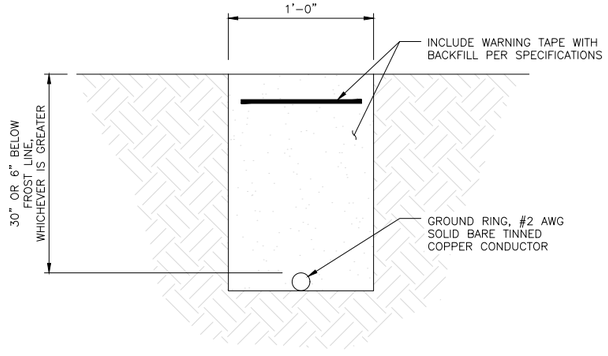
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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EAST HARTFORD, CT 06118

SHEET TITLE

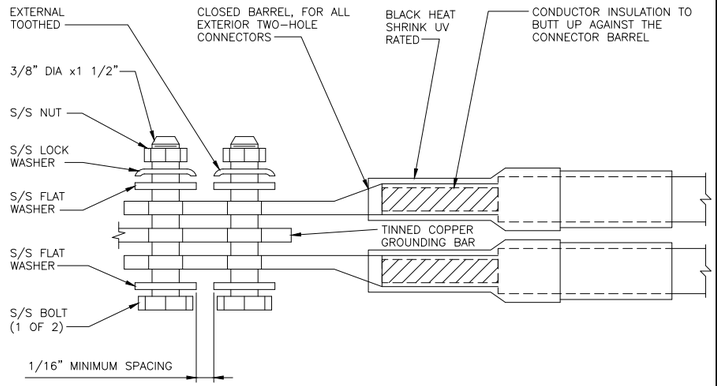
GROUNDING DETAILS

SHEET NUMBER

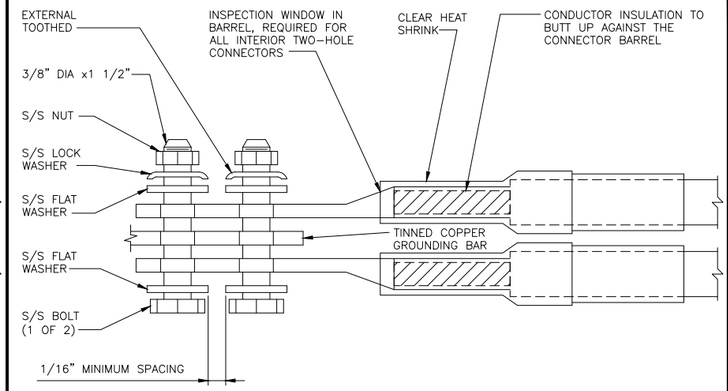
G-2

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).

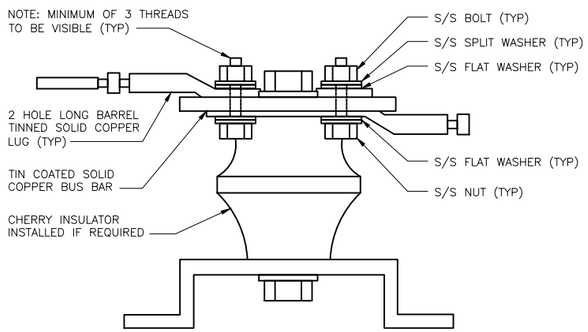
TYPICAL GROUNDING NOTES | NO SCALE | 1



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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EAST HARTFORD, CT 06118

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

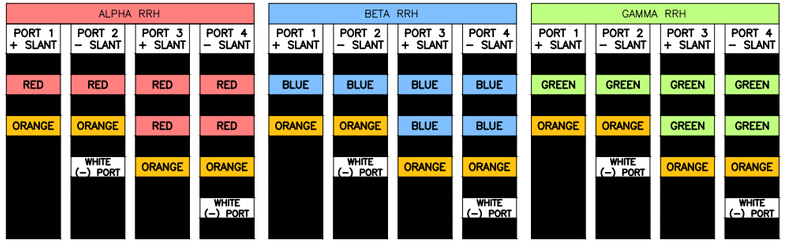
G-3

RF JUMPER COLOR CODING

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

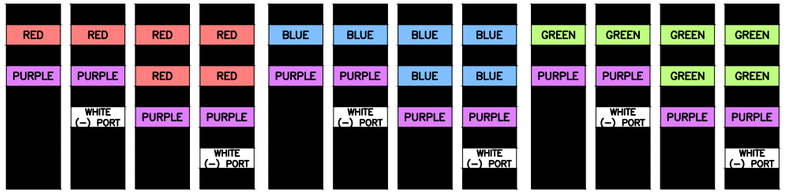
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

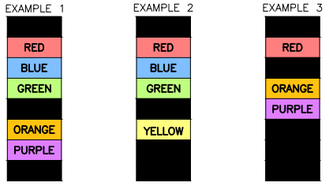


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

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

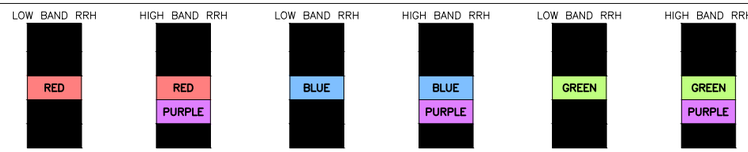
EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS
CBRS ONLY, ALL SECTORS



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

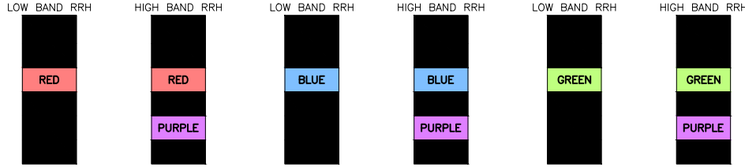
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

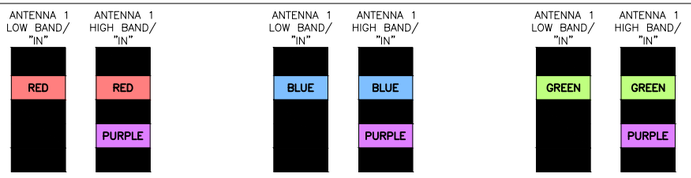


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



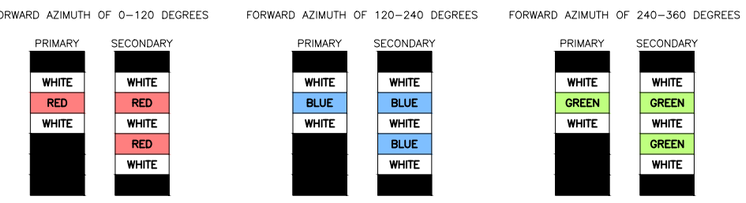
RET MOTORS AT ANTENNAS



MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES	NO SCALE	1

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

NOT USED	NO SCALE	3

NOT USED	NO SCALE	4

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465 HILLS STREET
EAST HARTFORD, CT 06118

SHEET TITLE

RF
CABLE COLOR CODES

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

dish wireless.

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STATE OF CONNECTICUT — CHAD D. TUTTLE — No. 23924 — LICENSED PROFESSIONAL ENGINEER — 12/13/21

PEC.0001564
Expires 2/10/22

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

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	9/15/21	ISSUED FOR REVIEW
0	12/13/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149479.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00131A
465 HILLS STREET
EAST HARTFORD, CT 06118

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

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

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

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

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

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

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

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

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

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

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

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

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

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

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

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

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

17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.

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

19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

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

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

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

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

12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER

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

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

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CHAD D. TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER

12/13/21

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CDD	CDD	CDD

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CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	9/15/21	ISSUED FOR REVIEW
0	12/13/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149479.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00131A
465 HILLS STREET
EAST HARTFORD, CT 06118

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.

dish wireless.

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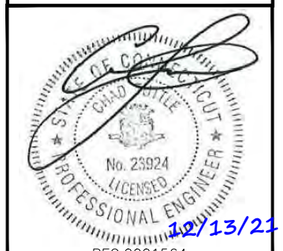

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CDD	CDD	CDD

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	9/15/21	ISSUED FOR REVIEW
0	12/13/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149479.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00131A
465 HILLS STREET
EAST HARTFORD, CT 06118

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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