



September 26, 2022

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

Re: Tower Share Application – Dish Wireless Site # 14112747
Dish Wireless Telecommunications Facility @ 1000 Northrop Rd., Wallingford, CT 06492
AKA 922 Northrop Road

Dear Ms. Bachman,

Dish Wireless requests Tower Share approval for a new wireless telecommunications facility on an existing tower at 1000 Northrop Rd., Wallingford, CT 06492. Enclosed please find a Check in the amount of Six Hundred and Twenty Five Dollars (\$625.00); an original and two (2) copies of the following documents: the CSC Tower Share Request letter; a Letter of Authorization from the tower owner; the GIS map of the property; the original tower approval dated June 13, 1994, a set of Construction Drawings; a Structural Analysis Report; an Antenna Mount Analysis Report; an EME Study Report; and four (4) Notice Confirmations.

I will email a .pdf copy of these documents to the Council.

If you have any questions, please feel free to contact me; I can be reached at 443-677-0144 or via email at jmandrews@clinellc.com. Thank you for your kind cooperation in this matter.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to be 'JA', is written over the printed name 'Jack Andrews'.

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144



August 30, 2022

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

Re: Tower Share Application – Dish Wireless Site # 14112747
Dish Wireless Telecommunications Facility @ 1000 Northrop Rd., Wallingford, CT 06492
AKA 922 Northrop Road

Dear Ms. Bachman,

Dish Wireless (“Dish”) is proposing a wireless telecommunications facility on an existing one hundred fifty (150) foot tall tower at 1000 Northrop Rd., Wallingford, CT (Latitude: 41.48937115, Longitude: -72.76828251) and within the existing fenced compound on the above referenced property. The monopole tower is owned and operated by American Tower Corporation. The subject property is owned by OMEGA WALLINGFORD LLC. The tower was approved by the Wallingford Planning and Zoning Commission on June 14, 1994 (copy enclosed).

Dish proposes to install a five (5) foot by seven (7) foot metal platform within the existing fenced compound to accommodate two (2) cabinets and related equipment, and to install three (3) antennas, a single antenna mount, six (6) RRUs, and cables on the existing tower at one hundred fifteen (115) feet as more particularly detailed and described on the enclosed Construction Drawings. No tower height increase, or compound expansion are proposed.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish's intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A §16-50j-73, a copy of this letter is being sent to the following individuals: American Tower Corporation as Tower Operator/Owner; OMEGA WALLINGFORD LLC as Property Owner; the Honorable William W. Dickinson, Jr., the Mayor of Wallingford, and Kevin Pagni, Wallingford Town Planner.

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

1. The proposed modifications will NOT result in an increase in the height of the existing structure.
2. The proposed modifications will NOT require an extension of the site boundary.



3. The proposed modifications will NOT increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will NOT increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. Please see the RF emissions calculation for Dish's facility enclosed herewith.
5. The proposed modifications will NOT cause an ineligible change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading. Please see the structural analysis enclosed herewith.

Connecticut General Statute 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 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's proposed loading (see attached Structural Analysis).
- 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. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish to obtain a building permit for the proposed installation. Further, a Letter of Authorization is attached, authorizing Dish to file this application.
- C. **Environmental Feasibility.** The proposed use of this facility would have a minimal environmental impact. The installation of Dish equipment at the 83-foot level of the existing 110-foot tower would have an insignificant visual impact on the area around the tower. Dish ground equipment would be installed within the existing facility compound. The Dish proposal would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by the attached EME study, 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 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 with this tower sharing application.
- E. **Public Safety Concerns.** As discussed above, the tower is structurally capable of supporting the proposed loading. Dish is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish's 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 the area.



For the foregoing reasons, Dish respectfully requests that the Council approve this request for the shared use of this tower located at 1000 Northrop Rd., Wallingford, CT 06492 (AKA 922 Northrop Road).

If you have any questions, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Jack Andrews', is written over the typed name.

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

Enclosures: Exhibit 1 – Letter of Authorization from tower owner
Exhibit 2 – GIS Map
Exhibit 3 – Construction Drawings
Exhibit 4 – Structural Analysis Report
Exhibit 5 – EME Study Report
Exhibit 6 – Original Tower Approval
Exhibit 7 – (4) Notice Confirmations

cc: American Tower Corporation - Tower Operator/Owner
OMEGA WALLINGFORD LLC - Property Owner
William W. Dickinson, Jr. - Mayor of the Town of Wallingford
Kevin Pagine – Wallingford Town Planner



AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION FOR PERMITTING

ATC SITE#/NAME/PROJECT: 302538 / PARSONAGE HILL AKA WALLIN / 14112747
SITE ADDRESS: 1000 NORTHROP RD, WALLINGFORD, CT 06492
APN: WALL M:054 L:010
LICENSEE: DISH WIRELESS L.L.C. dba DISH WIRELESS L.L.C.
SITE ACQUISITION VENDOR: CENTERLINE COMMUNICATIONS LLC

I, Margaret Robinson, Vice President, UST Legal for American Tower*, owner/operator of the tower facility located at the address identified above (the “Tower Facility”), do hereby authorize **DISH WIRELESS L.L.C. dba DISH WIRELESS L.L.C.** their successors and assigns, and/or their agent, (collectively, the “Licensee”) to act as American Tower’s non-exclusive agent for the sole purpose of filing and consummating any land-use, building, or electrical permit application(s) as may be required by the applicable permitting authorities for Licensee’s telecommunications’ installation on the Tower Facility.

American Tower understands that this application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by Licensee only of conditions related to Licensee’s installation and any such conditions of approval or modifications will be Licensee’s sole responsibility.

Signature:

Print Name: Margaret Robinson
Vice President, UST Legal
American Tower*

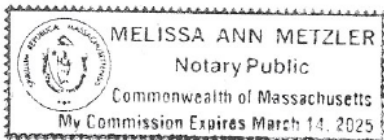
NOTARY BLOCK

Commonwealth of MASSACHUSETTS
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Vice President, UST Legal for American Tower*, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same.

WITNESS my hand and official seal, this 10th day of August, 2022

NOTARY SEAL



Notary Public
My Commission Expires: March 14, 2025

* American Tower is defined as American Tower Corporation and any of its affiliates or subsidiaries.



1000 NORTHROP RD X Q

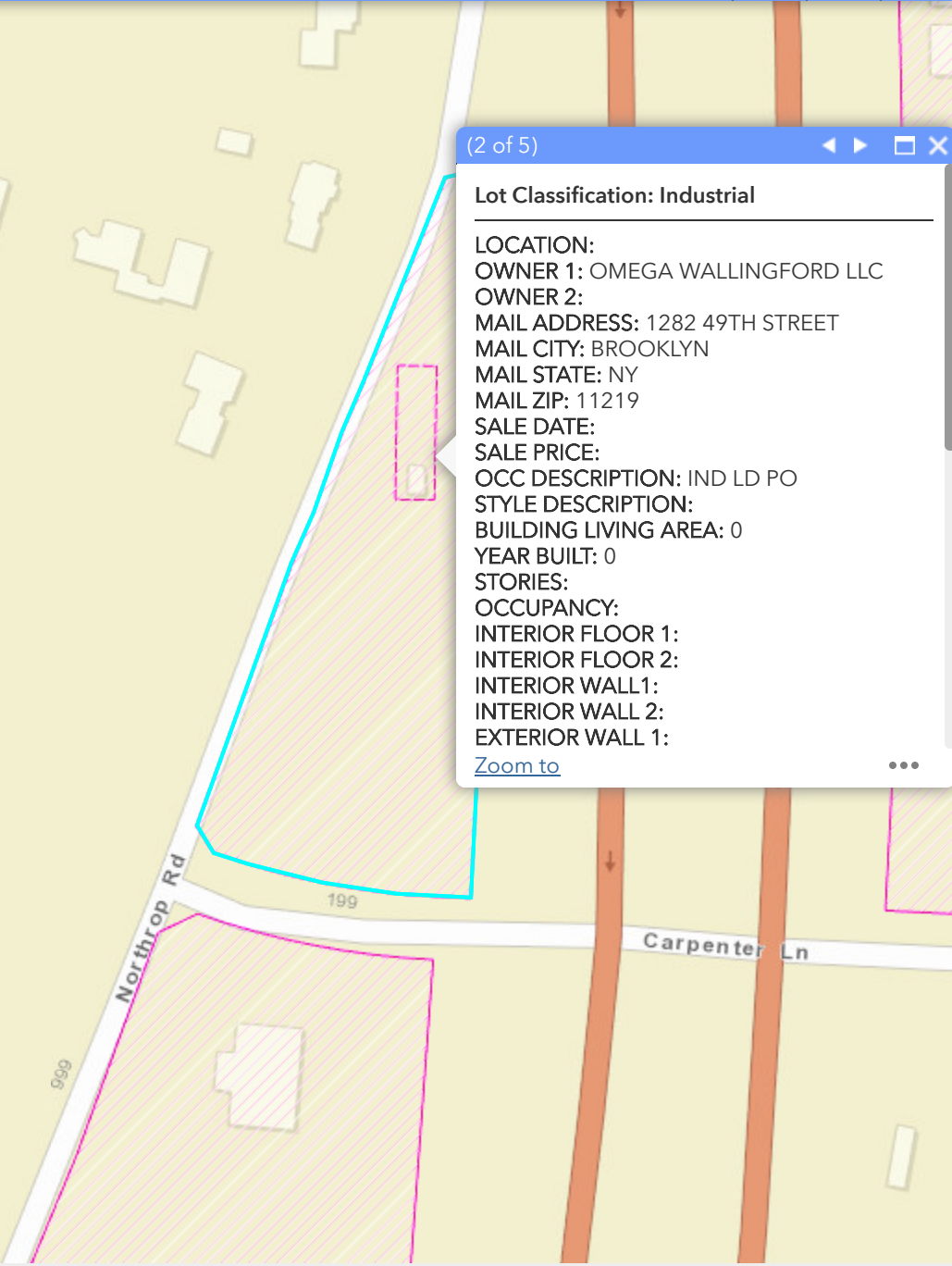
Show search results for 1000 NORTH...

(2 of 5) ◀ ▶ □ ×

Lot Classification: Industrial

LOCATION:
 OWNER 1: OMEGA WALLINGFORD LLC
 OWNER 2:
 MAIL ADDRESS: 1282 49TH STREET
 MAIL CITY: BROOKLYN
 MAIL STATE: NY
 MAIL ZIP: 11219
 SALE DATE:
 SALE PRICE:
 OCC DESCRIPTION: IND LD PO
 STYLE DESCRIPTION:
 BUILDING LIVING AREA: 0
 YEAR BUILT: 0
 STORIES:
 OCCUPANCY:
 INTERIOR FLOOR 1:
 INTERIOR FLOOR 2:
 INTERIOR WALL 1:
 INTERIOR WALL 2:
 EXTERIOR WALL 1:

[Zoom to](#) ...



200ft
-72.770 41.489 Degrees





Town of Wallingford, Connecticut

JAMES C. FITZSIMMONS
CHAIRMAN - PLANNING & ZONING COMMISSION

LINDA A. BUSH
TOWN PLANNER

THOMAS M. TALBOT
ASSISTANT TOWN PLANNER

WALLINGFORD TOWN HALL
45 SOUTH MAIN STREET
WALLINGFORD, CT 06492
TELEPHONE (203) 294-2090

LEGAL NOTICE

The Wallingford Planning and Zoning Commission at a meeting held on June 13, 1994 voted to take the following actions. They voted to approve:

1. The application of SMART SMR for a Special Permit for mobile radio transmission facilities of 1,650 sq. ft. with a tower of 163 feet in height on 1.68 acres at 990 Northrup Road. Zoned IX. #407-94
2. The application of the Wallingford Board of Education for a Special Permit for two 900 sq. ft. modular classroom buildings, one to be located at Cook Hill School and one to be located at E.C. Stevens School. Zoned RU-40 (Cook Hill) and R-18 (E.C. Stevens). #409-94
3. The application of FIP for a Special Permit for a handicapped parking area at 5 Research Parkway. Zoned IX. #410-94
4. The application of Vecchitto for a 596 sq. ft. accessory apartment at 11 New Place Street. Zoned R-18. #208-94
5. The application of Verna for a 1,000 sq. ft. Change of Use from retail to restaurant at 101 N. Plains Industrial Road. Zoned I-40. #306-94
6. The application of Kenny Rogers Roasters for site plan approval for a 380 sq. ft. outdoor seating area at 1248 S. Broad St. Zoned CB-40. #209-94
7. The application of Legace for a 600 sq. ft. accessory apartment at 449 N. Branford Road. Zoned RU-120. #210-94

Several of the above were approved with stipulations.

WALLINGFORD PLANING & ZONING COMMISSION

BY: A.J. Namnoum 
A.J. NAMNOUM, SECRETARY

DATED AT WALLINGFORD:
June 14, 1994

PUBLICATION DATE:
June 18, 1994

printed on 100% recycled paper



Town of Wallingford, Connecticut

CONDITIONAL CERTIFICATE OF ZONING COMPLIANCE

DATE ISSUED 7-30-94 EXPIRATION DATE 3-30-95

ISSUED TO Smart SMR of New York

ISSUED FOR PREMISES AT 1000 Northrop Road

Mobile Radio Transmission Bldg

BUILDING PERMIT NUMBER 6577

DATE PLANS APPROVED BY WALLINGFORD PZC 7-21-94

THIS IS TO CERTIFY THAT THE NEW BUILDING OR STRUCTURE
 ADDITION
 CHANGE OF USE
 OTHER

IS IN COMPLIANCE WITH THE PROVISIONS OF THE WALLINGFORD ZONING REGULATIONS, CONDITIONAL ON ONE OR MORE OF THE FOLLOWING ITEMS BEING COMPLETED.

- LANDSCAPING, INCLUDING LAWN
- PAVED DRIVEWAY APRON
- GRAVELED TURNAROUND
- SCREENED OUTDOOR STORAGE
- LINED PARKING SPACES
- INSPECTION BY TOWN ENGINEER
- OTHER REQUIREMENTS OF THE ZONING REGULATIONS

ALL UNFINISHED ITEMS MUST BE COMPLETED WITHIN SIX MONTHS.

THIS CERTIFICATE IS ONLY VALID FOR SIX MONTHS. APPLICATION FOR A CERTIFICATE OF ZONING COMPLIANCE MUST BE MADE IN WRITING TO THE PLANNING DEPARTMENT PRIOR TO THE EXPIRATION OF THIS CERTIFICATE.

ISSUED BY *J. Busk*
 TITLE *Town Planner*



Radio Frequency Emissions Analysis Report



Site ID: BOHVN00174B

ATC Parsonage Hill
922 Northrop Road
Wallingford, CT 06492

August 11, 2022

Fox Hill Telecom Project Number: 221579

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	26.70 %

August 11, 2022

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOHVN00174B – ATC Parsonage Hill**

Fox Hill Telecom, Inc (“Fox Hill”) was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **922 Northrop Road, Wallingford, CT**, for the purpose of determining whether the emissions from the Proposed Dish radio and antenna installation located on this property are within specified federal limits.

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

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz & 700 MHz bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS / AWS-4) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed radio system installation for **Dish** on the subject site located at **922 Northrop Road, Wallingford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since **Dish** 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 manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
5G	n71 (600 MHz)	4	61.5
5G	n70 (AWS-4 / 1995-2020)	4	40
5G	n66 (AWS-4 / 2180-2200)	4	40

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz (n71) frequency band, and the 2100 MHz (AWS 4) frequency bands at 1995-2020 MHz (n70) and 2180-2200 MHz (n66). This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	JMA MX08FRO665-21	115
B	1	JMA MX08FRO665-21	115
C	1	JMA MX08FRO665-21	115

Table 2: Antenna Data

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



RESULTS

Per the calculations completed for the proposed **Dish** configurations *Table 3* shows resulting emissions power levels and percentages of the FCC’s allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	6.84
Sector A Composite MPE%							6.84
Antenna B1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200) / Frequency Band / Frequency Band / Frequency Band	11.45 / 16.15 / 16.65 / 0 / 0 / 0	12	566	17,426.72	6.84
Sector B Composite MPE%							6.84
Antenna C1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200) / Frequency Band / Frequency Band /	11.45 / 16.15 / 16.65 / 0 / 0 / 0	12	566	17,426.72	6.84
Sector C Composite MPE%							6.84

Table 3: Dish Emissions Levels



The Following table (*Table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum **Dish** MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each **Dish** Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	MPE%
Dish – Max Per Sector Value	6.84 %
AT&T	3.97 %
MetroPCS	1.24 %
Sprint	3.43 %
Clearwire	0.11 %
T-Mobile	11.11 %
Site Total MPE %:	26.70 %

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	6.84 %
Dish Sector B Total:	6.84 %
Dish Sector C Total:	6.84 %
Site Total:	26.70 %

Table 5: Site MPE Summary



FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated **Dish** sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

Dish _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Dish n71 (600 MHz) 5G	4	858.77	115	10.39	n71 (600 MHz)	400	2.60%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,648.39	115	19.95	n70 (AWS-4 / 1995-2020)	1000	2.00%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,849.52	115	22.39	n66 (AWS-4 / 2180-2200)	1000	2.24%
						Total:	6.84%

Table 6: Dish Maximum Sector MPE Power Values



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 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 Sector	Power Density Value (%)
Sector A:	6.84 %
Sector B:	6.84 %
Sector C:	6.84 %
Dish Maximum Total (per sector):	6.84 %
Site Total:	26.70 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **26.70 %** 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.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Holden, MA 01520
(978)660-3998

**MOUNT STRUCTURAL ANALYSIS REPORT
MONOPOLE TOWER**

FORESITE LLC

•Architects •Engineers •Surveyors
Complete A&E services for wireless telecommunications industry

Prepared for:

dish
WIRELESS® 5701 South Santa Fe Drive
Littleton, CO 80120



Site ID: BOHVN00174B

Address:

**922 Northrop Road
Wallingford, CT 06492**

Date: 07/18/2022

Submitted by:

Foresite LLC.

462 Walnut Street, Suite 1

Newton, MA 02460

Phone: (617) 527-3031



Date: 7/15/2022

To: Dish Wireless LLC
5701 South Santa Fe Drive
Littleton, CO 80120

Subject: Mount Structural Analysis Report

Dish Wireless LLC Designation: Site ID: BOHVN00174B

EFI Designation: Project Number: 049.03531 - 2275025

**Site Data: 922 Northrop Road, Wallingford, CT 06492
Latitude 41.48934722°, Longitude -72.76825278°**

EFI Global, Inc. is pleased to submit this “Mount Structural Analysis Report” to determine the structural capacity of the antenna mounts utilized by Dish Wireless LLC at the above referenced site.

The purpose of the analysis is to determine acceptability of the mount stress level for the changes proposed by Dish Wireless LLC under the following load case we have determined the mounts to have:

Existing + Proposed Equipment **Adequate Capacity (46.2%)**
Note: See Analysis Criteria for loading configuration

The analysis has been performed in accordance with TIA-222-G Standard and the 2018 Connecticut State Building Code (2015 IBC).

We at EFI Global, Inc. appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects, please give us a call.

Sincerely,
EFI Global, Inc.
License No: PEC0001245

7/15/2022

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057



1) ANALYSIS CRITERIA

The analysis was performed for the existing and proposed appurtenances as specified in the loading information referenced below, and per the following loading criteria of Table 1.

Table 1 – Loading and Analysis Criteria

Rad Center	115'
Structure Type	Monopole
Exposure Category	C
Basic Wind Speed	125 * $\sqrt{0.6}$ = 96.8 mph (ASD)
Ice Loading	1.0" with 50 mph Wind
Risk Category	II
Topographic Factor	Kzt = 1.0

Table 1.1 – Proposed and Final Appurtenance Configuration

Qty	Model
3	JMA MX08FRO665-21 – Antennas
3	Fujitsu TA08025-B605 – RRUs*
3	Fujitsu TA08025-B604 – RRUs*
1	Raycap RDIDC-9181-PF-48 – Junction Box

*To be mounted behind antennas.

Table 1.2 – Assumed Material Properties

Member Type	ASTM Material Designation	Fy (ksi)	Fu (ksi)
Pipes	A53 Gr. B	35	60
Angles/Channels	A36	36	58
Rectangular HSS	A500 Gr. B - 46	46	58
Round HSS	A500 Gr. B - 42	42	58
Others (UNO)	A572 Gr. 50	50	65

2) ANALYSIS PROCEDURE

The analysis is based on the following information:

Table 2 – Documents

Document	Provided By	Date
Email	ForeSite LLC	07/06/2022
RFDS	Dish Wireless	06/07/2022
Structural Analysis Report	American Tower Corporation	06/27/2022

2.1) Analysis Method

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

2.2) Analysis Conditions and Assumptions

- 1) The mount was built and installed in accordance with the manufacturer's specifications.
- 2) The mount has been maintained and will be maintained in accordance with the manufacturer's specifications. All structural members and connections of the mount are in good condition and can achieve theoretical strength.
- 3) The configuration of antennas is as specified in "1) Analysis Criteria".
- 4) The analysis was performed for the subject mount only. It does not include an evaluation of the other mounts or the tower, which should be analyzed by others.
- 5) The evaluation does not include any antenna rigging loads. The equipment should not be rigged using the subject antenna mount as the support.
- 6) The analysis includes a minimum 250 lbf maintenance point load at the worst-case location on the mount, as well as a minimum 250 lbf maintenance point load at each antenna location in conjunction with a 30 mph wind load.
- 7) Any steel grating represented in this model is for loading purposes only and it is not considered to provide any structural restraint or support.
- 8) Member sizes per available mount specifications and assumed based on our experience with similar structures. Please refer to calculation output in the appendix of this report for sizes and lengths assumed.
- 9) 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.

EFI Global, Inc. (EFI), must be notified immediately if any of these assumptions are discovered to be incorrect. The results of this analysis may be affected if any of the assumptions are not valid or have been made in error.

3) ANALYSIS RESULTS AND CONCLUSION

The analysis results are shown on the table below.

Table 3.1 – Mount Component Stresses vs. Capacity

Component	% Capacity	Pass / Fail
Platform Base Face Pipes	<20.0	Pass
Platform Base Tubes	42.5	Pass
Platform Base Angles	43.9	Pass
Support Rail	<20.0	Pass
Mount Pipes	46.2	Pass

Platform Mount: The proposed platform mount has **adequate** capacity for the proposed changes by Dish Wireless LLC. For the code specified load combinations and as a maximum, the mount members are stressed to **46.2%** of their structural capacities.

EFI Global, Inc. has assumed that Valmont/Site Pro 1 8' Snub Nose Platform with Handrail (P/N: SNP8HR-396, Specs attached) will be installed at this site prior to the equipment installation proposed in this analysis. The analysis also assumes the following:

- The RAD Center is at the base of the platform.
- The Support Rail is installed 36" above the base of the platform.
- (3) 96" long 2.0 STD mount pipes are equally spaced along the face at each sector.
- (1) 48" long 2.0 STD OVP Box mount pipe should be installed at platform base tube to attach OVP Box. The pipe should be connected to platform base tube using Valmont/Site Pro 1 Crossover Plate Kit with Square U-Bolts (P/N: SQCX4-K).

APPENDIX

**INPUT LOADS
ANALYSIS OUTPUT
MOUNT SPECS**

CLIENT: **Foresite LLC**

PROJECT: **BOHVN00174B**

SUBJECT: **Antenna Loads - G Code with Sections 16 Revisions**

Tower Height **150.00** ft Type of Mount Platform ▾

Basic Wind Speed, V **96.8** mph (=Ultimate Speed* $\sqrt{0.6}$)

Basic Wind Speed with Ice, V_i **50** mph

Maintenance Load Factor, L_{FM} **0.0960** Load Factor for Maint. Load Cases (Basic Wind Speed=30 mph)

Design Ice Thickness, t_i **1** inches

Table 2-3 Importance Factors

Structure Classification	Wind Load Without Ice	Wind Load With Ice	Ice Thickness	Earthquake
II ▾	1	1	1	1

Table 2-4 Exposure Category Coefficients

Exposure Category	Z_g	α	K_{zmin}	K_e	m
C ▾	900	9.5	0.85	1	0.6

Table 2-5 Topographic Categories

K_{zt} 1.000

Table 2-2 Wind Directionality Factor, K_d

Structure Type	K_d
Monopole ▾	0.95

DOES NOT CHANGE

Gust Effect Factor G_h

Structure Type	G_h
Monopole ▾	1.00

DOES NOT CHANGE

Shielding Factor, K_a

Structure Type	K_a
Monopole ▾	0.90

DOES NOT CHANGE

CLIENT: Foresite LLC
 PROJECT: BOHVN00174B
 SUBJECT: Antenna Loads - G Code with Sections 16 Revisions

Rad Center 115.00 ft

Antenna AND Mount Without Ice

Mounting Pole	Height (ft)	Model Number	#	Weight (lbs)	H (in)	*W (in)	D (in)	Ka	**A _N (ft ²)	***A _T (ft ²)	Aspect (FRONT)	Aspect (SIDE)	Ca (FRONT)	Ca (SIDE)	K _z	q _z (psf)	Pounds						
																	Wind Load (Front)	Wind Load (Side)	Dead Load	Total Wind Load (Front)	Total Wind Load (Side)	Total Dead Load	
Pos. 1	115.00	JMA MX08FRO665-21	1	64.5	72.0	20.0	8.0	0.90	10.00	4.00	3.60	9.00	1.25	1.47	1.303	29.7	333.8	156.8	64.5	334	213	203	
	115.00	Fujitsu TA08025-B605	1	75.0	15.0	N/A	9.1	0.90	-	0.94	-	1.65	-	1.20	1.303	29.7	0.0	30.2	74.95				
	115.00	Fujitsu TA08025-B604	1	63.9	15.0	N/A	7.9	0.90	-	0.82	-	1.90	-	1.20	1.303	29.7	0.0	26.2	63.93				
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	-	0.0	0.0	0			
Standoff	115.00	Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	-	0.0	0.0	0	167	107	102
		Raycap RDIDC-9181-PF-48	1	21.9	19.0	16.2	9.6	0.90	2.13	1.27	1.17	1.97	1.20	1.20	1.303	29.7	68.5	40.7	21.85	68	41	22	
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	-	0.0	0.0	0	35	21	11

* Enter N/A in the W column for front shielded apertures.

** A_N is the product of H and W

*** A_T is the product of H and D

DL 225

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	*** Ca	K _z	q _z (psf)	Wind Load (PLF)
	115.00	3.0 STD Pipe	12.00	3.50	0.00	1.20	1.303	26.7	9.4
	115.00	2.5 STD Pipe	12.00	2.88	0.00	1.20	1.303	26.7	7.7
	115.00	2.0 STD Pipe	12.00	2.38	0.00	1.20	1.303	26.7	6.3
	115.00	0.75 SR	0.00	0.75	0.00	-	-	-	-
	115.00	0.625 SR	0.00	0.63	0.00	-	-	-	-
	115.00	L(4X4)	12.00	4.00	4.00	2.00	1.303	26.7	17.8
	115.00	L(2.5X2.5)	12.00	2.50	2.50	2.00	1.303	26.7	11.1
	115.00	L(1.5X1.5)	0.00	1.50	1.50	-	-	-	-
	115.00	HSS 4.5X4.5	12.00	4.50	4.50	2.00	1.303	26.7	20.0
	115.00	HSS 4X4	12.00	4.00	4.00	2.00	1.303	26.7	17.8
	115.00	PL0.5X4	0.00	0.50	4.00	-	-	-	-
	115.00	PL0.375X0.875	0.00	0.38	0.88	-	-	-	-
	115.00	PL0.875X0.375	0.00	0.88	0.38	-	-	-	-
	115.00	Double Angle (LL3x3x4x0)	0.00	3.00	3.00	-	-	-	-
	115.00	Channel (2.5X1.4)	0.00	5.60	2.60	-	-	-	-
	115.00	Channel (5.6X3.1)	0.00	5.60	3.10	-	-	-	-

* The dimension L is the longest dimension of the member

** The dimension W is the height or width of the member that resists wind load

*** Ca will equal 1.2 for round members and 2.0 for flat members

CLIENT: Foresite LLC
 PROJECT: BOHVN00174B
 SUBJECT: Antenna Loads - G Code with Sections 16 Revisions

ti (in) 2.26594 Kiz 1.1329699 reduction 0.2668

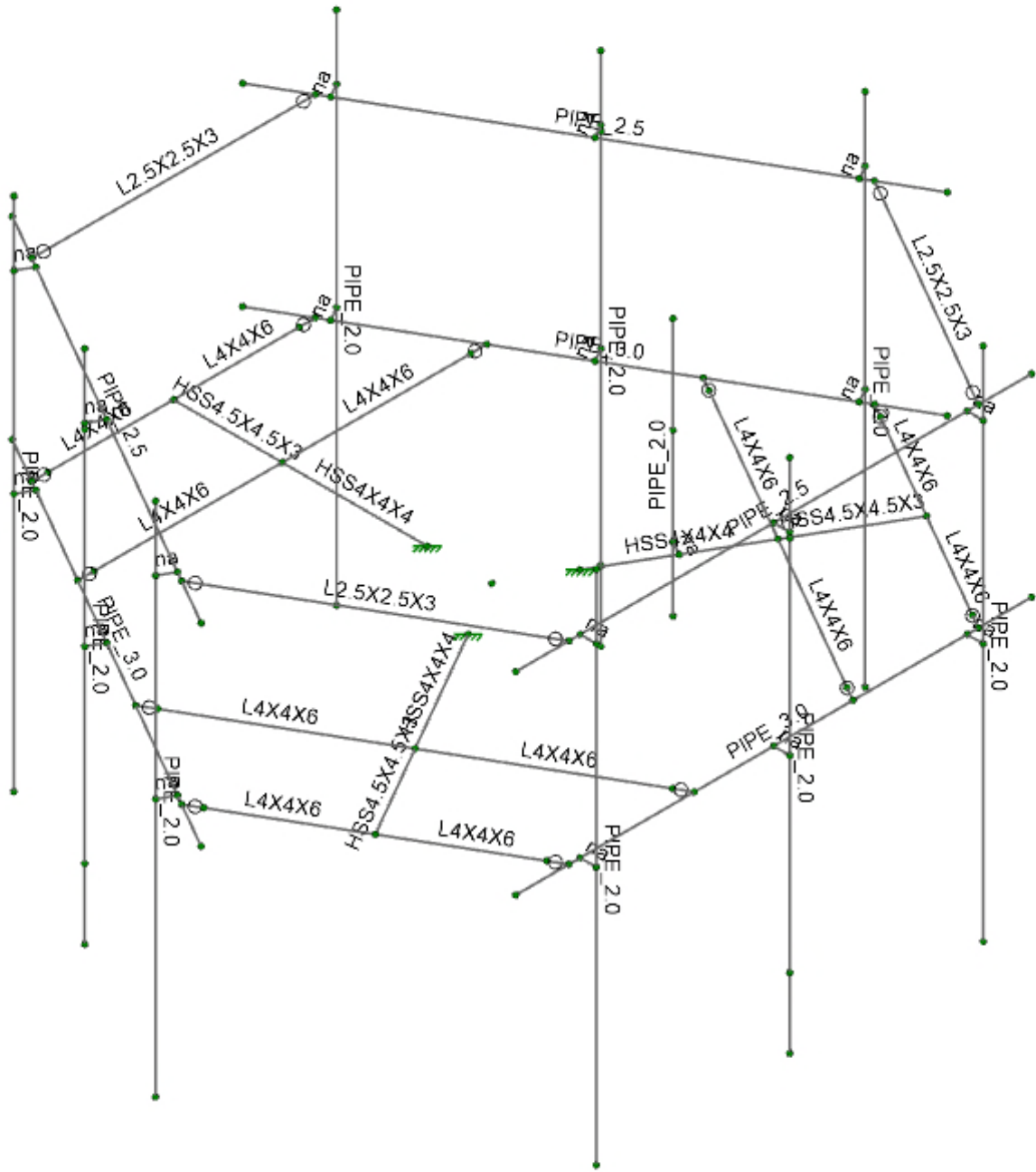
Antenna AND Mount With Ice

Mounting Pole	Height (ft)	Model Number	#	H (in)	W (in)	D (in)	Ka	*A _N (ft ²)	*A _T (ft ²)	*Volume Ice (ft ³)	*Weight Ice (lbs)	**Ca (FRONT)	**Ca (SIDE)	Kz	q _z (psf)	Pounds							
																Ice Wind Load (Front)	Ice Wind Load (Side)	Combined Wind Load (Front)	Combined Wind Load (Side)	Ice Dead Load	**Total Wind Load (Front)	**Total Wind Load (Side)	Total Ice Load
Pos. 1	115.00	JMA MX08FRO665-21	1	72.0	20.0	8.0	0.90	3.04	2.66	6.95	389.16	0.70	0.70	1.303	7.9	15.2	13.3	104.2	55.1	389	104	79	593
	115.00	Fujitsu TA08025-B605	1	15.0	15.8	9.1	0.90	-	0.90	1.87	104.95	0.70	0.70	1.303	7.9	0.0	4.5	0.0	12.5	105			
	115.00	Fujitsu TA08025-B604	1	15.0	15.8	7.9	0.90	-	0.86	1.76	98.79	0.70	0.70	1.303	7.9	0.0	4.3	0.0	11.3	99			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
Standoff	115.00	Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0	25	16	128
		Raycap RDIDC-9181-PF-48	1	19.0	16.2	9.6	0.90	1.25	1.04	2.28	127.77	0.70	0.70	1.303	7.9	6.2	5.2	24.5	16.1	128			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0	13	9	64

* A_N, A_T, Volume Ice and Weight Ice are calculated per unit
 ** Ca will equal 1.2 for all ice load calculations

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	***A _N (ft ²)	Volume Ice (ft ³)	Weight Ice (lbs)	****Ca (FRONT)	Kz	q _z (psf)	PLF		
												Ice Wind Load (Front)	Combined Wind Load (Front)	Ice Dead Load
	115.00	3.0 STD Pipe	12.00	3.50	0.00	0.63	0.29	15.96	1.20	1.303	7.1	5.4	7.9	16.0
	115.00	2.5 STD Pipe	12.00	2.88	0.00	0.61	0.25	14.23	1.20	1.303	7.1	5.2	7.3	14.2
	115.00	2.0 STD Pipe	12.00	2.38	0.00	0.60	0.23	12.85	1.20	1.303	7.1	5.1	6.8	12.8
	115.00	0.75 SR	0.00	0.75	0.00	-	-	-	-	-	-	-	-	-
	115.00	0.625 SR	0.00	0.63	0.00	-	-	-	-	-	-	-	-	-
	115.00	L(4X4)	12.00	4.00	4.00	0.65	0.25	14.10	1.20	1.303	7.1	5.5	10.3	14.1
	115.00	L(2.5X2.5)	12.00	2.50	2.50	0.60	0.16	8.81	1.20	1.303	7.1	5.1	8.1	8.8
	115.00	L(1.5X1.5)	0.00	1.50	1.50	-	-	-	-	-	-	-	-	-
	115.00	HSS 4.5X4.5	12.00	4.50	4.50	0.66	0.64	35.83	1.20	1.303	7.1	5.7	11.0	35.8
	115.00	HSS 4X4	12.00	4.00	4.00	0.65	0.59	32.78	1.20	1.303	7.1	5.5	10.3	32.8
	115.00	PL0.5X4	0.00	0.50	4.00	-	-	-	-	-	-	-	-	-
	115.00	PL0.375X0.875	0.00	0.38	0.88	-	-	-	-	-	-	-	-	-
	115.00	PL0.875X0.375	0.00	0.88	0.38	-	-	-	-	-	-	-	-	-
	115.00	Double Angle (LL3x3x4x0)	0.00	3.00	3.00	-	-	-	-	-	-	-	-	-
	115.00	Channel (2.5X1.4)	0.00	5.60	2.60	-	-	-	-	-	-	-	-	-
	115.00	Channel (5.6X3.1)	0.00	5.60	3.10	-	-	-	-	-	-	-	-	-

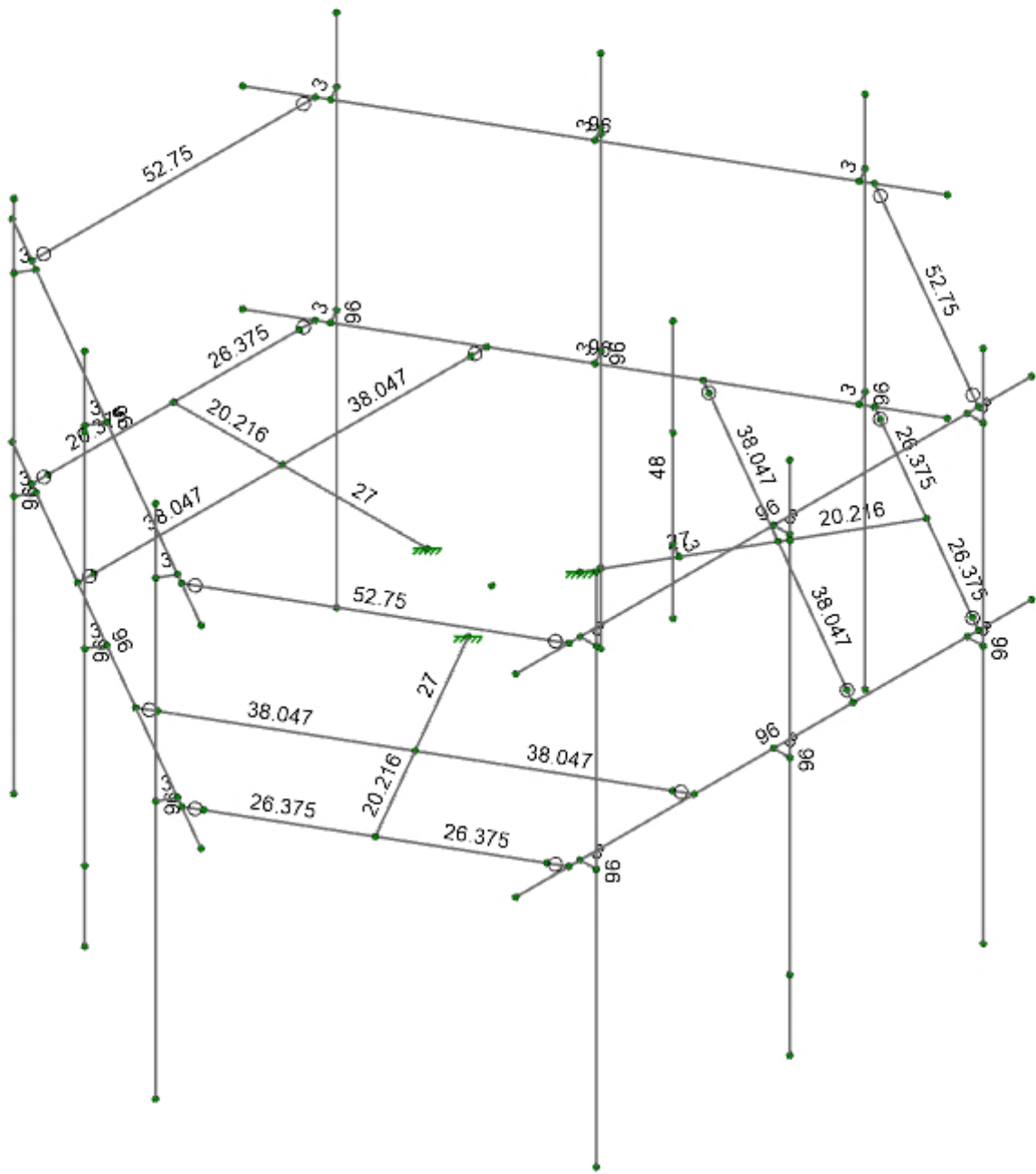
* The dimension L is the longest dimension of the member
 ** The dimension W is the height or width of the member that resists wind load
 *** A_N is the area of ice built up on the LW plane
 **** Ca will equal 1.2 for all ice load calculations



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SK-1
Jul 08, 2022
BOHVN00174B - SNP8HR-396.r3d

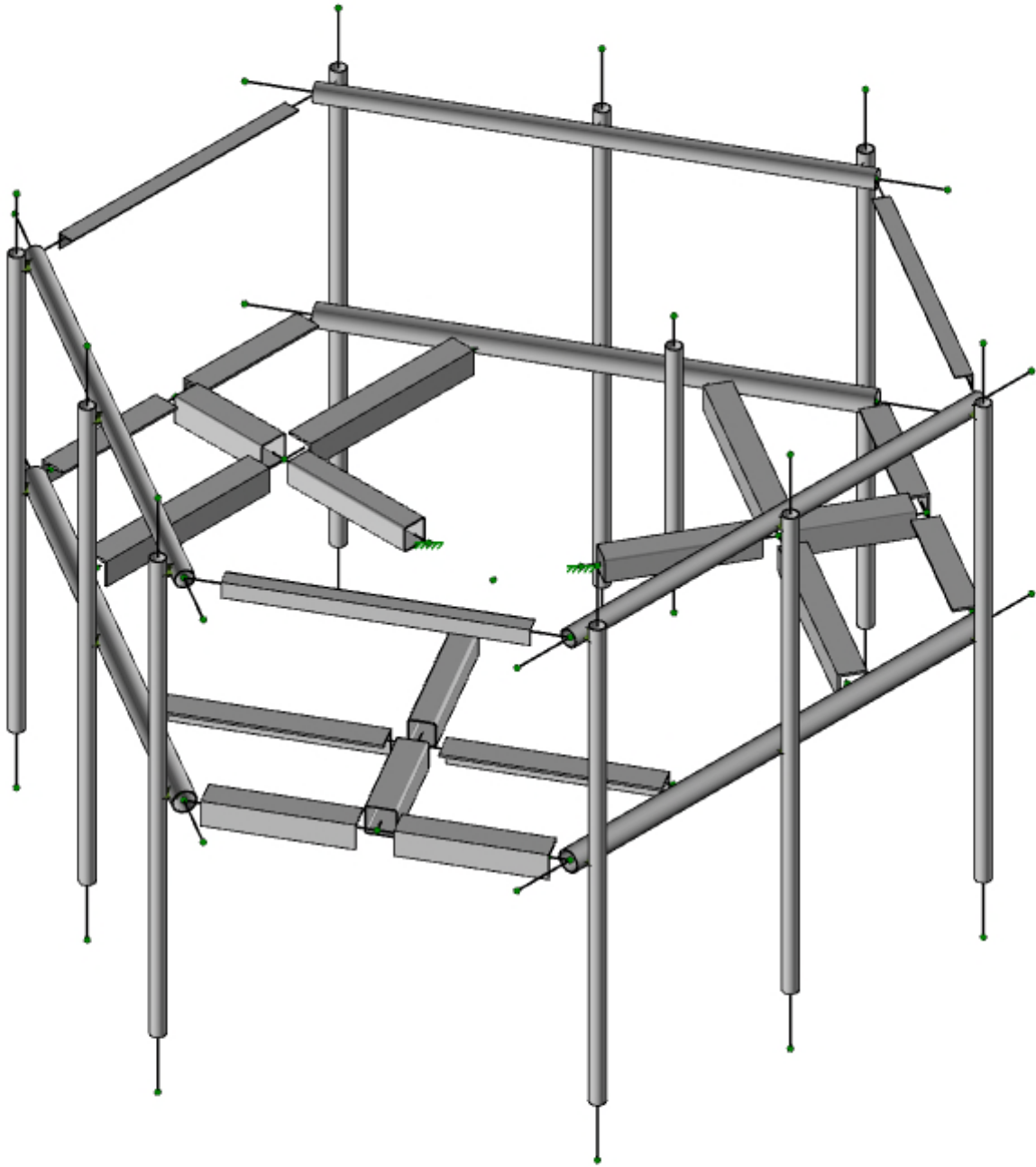


Member Length (in) Displayed

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BOHVN00174B

SK-3
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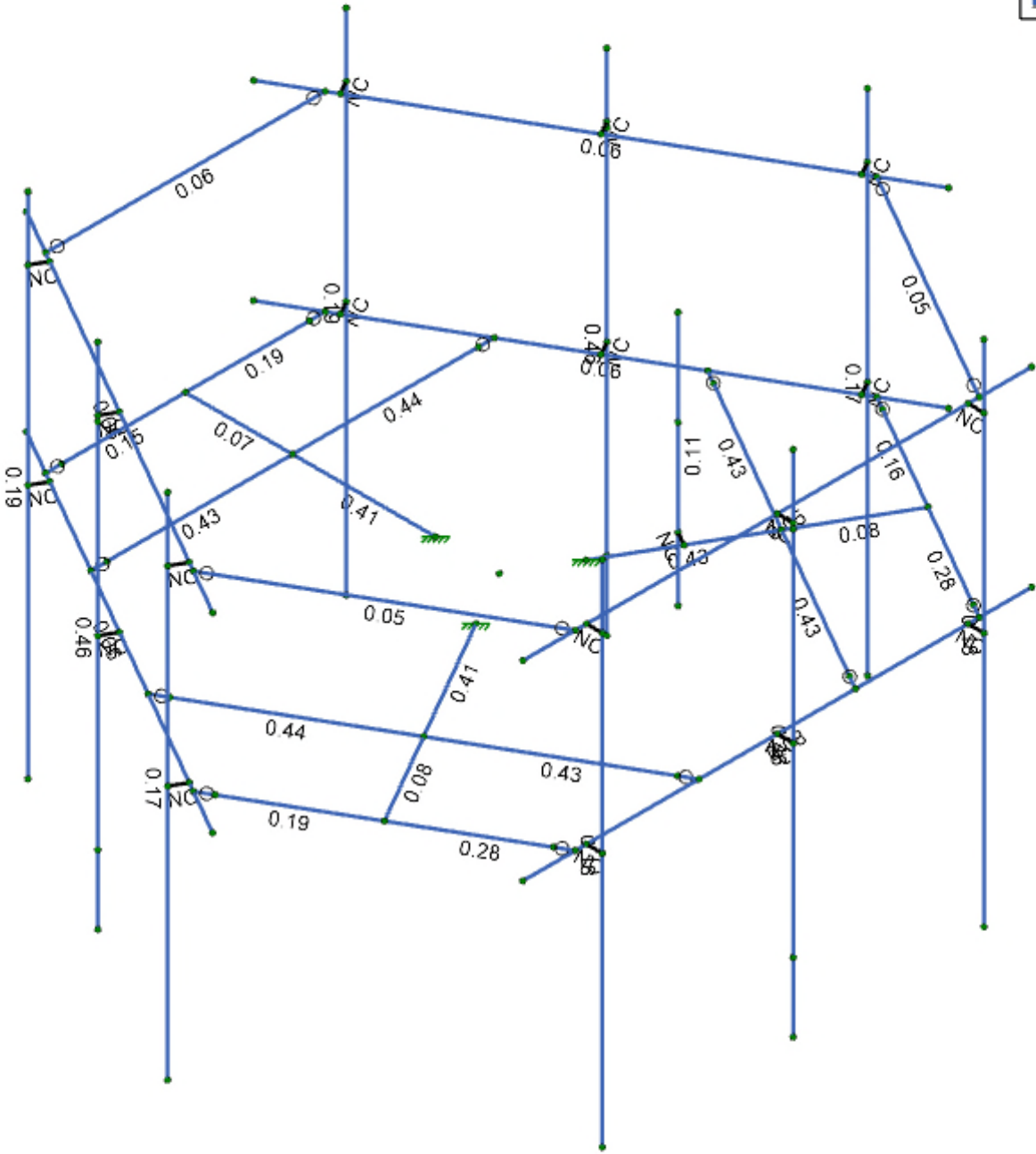
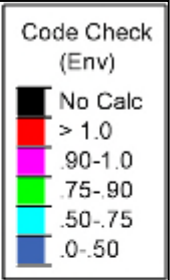


Member Length (in) Displayed

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BOHVN00174B

SK-4
Jul 08, 2022
BOHVN00174B - SNP8HR-396.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

ForeSite/EFI
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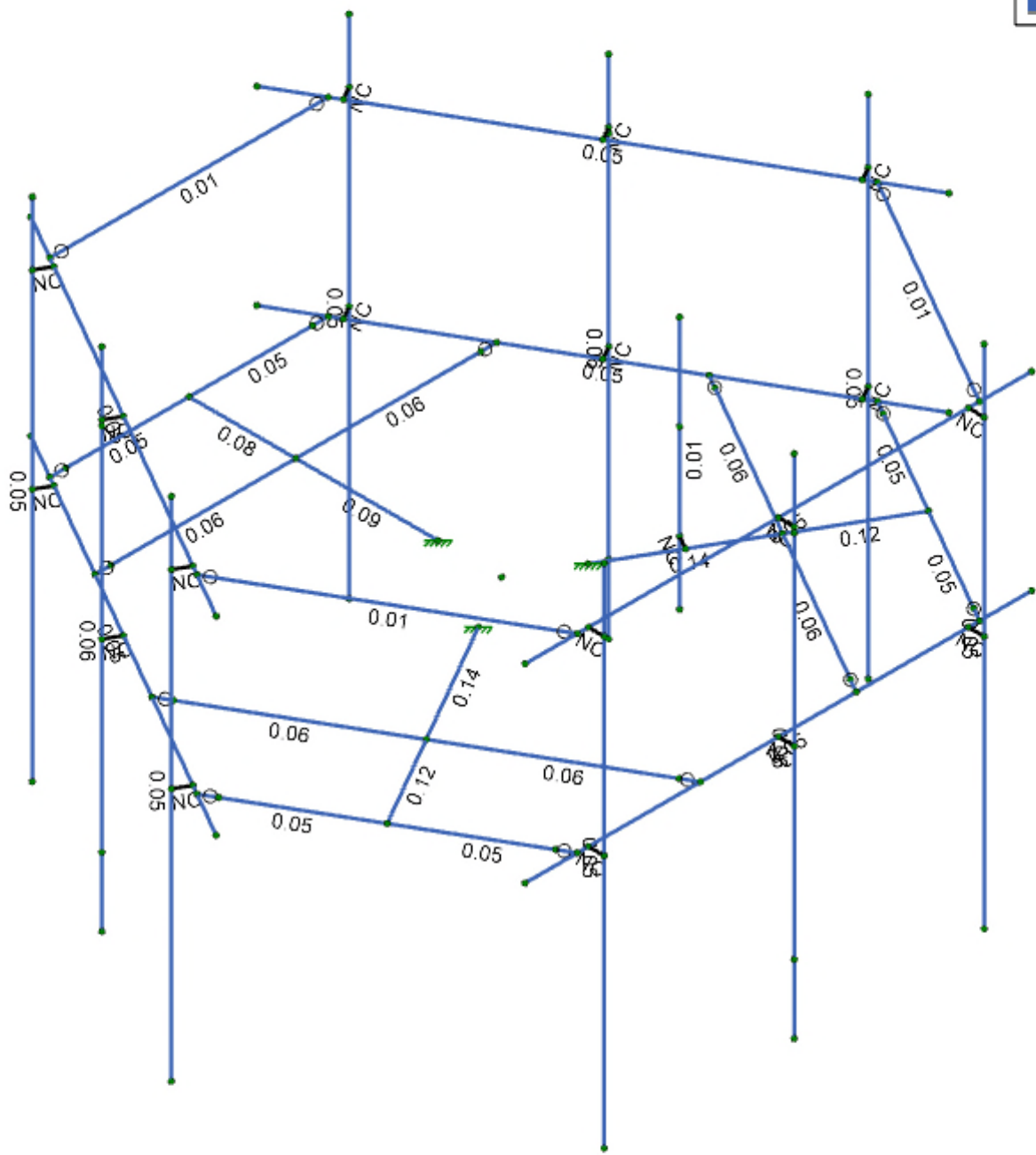
BOHVN00174B

SK-7
Jul 08, 2022
BOHVN00174B - SNP8HR-396.r3d



Shear Check (Env)

- No Calc
- > 1.0
- .90-1.0
- .75-.90
- .50-.75
- .0-.50

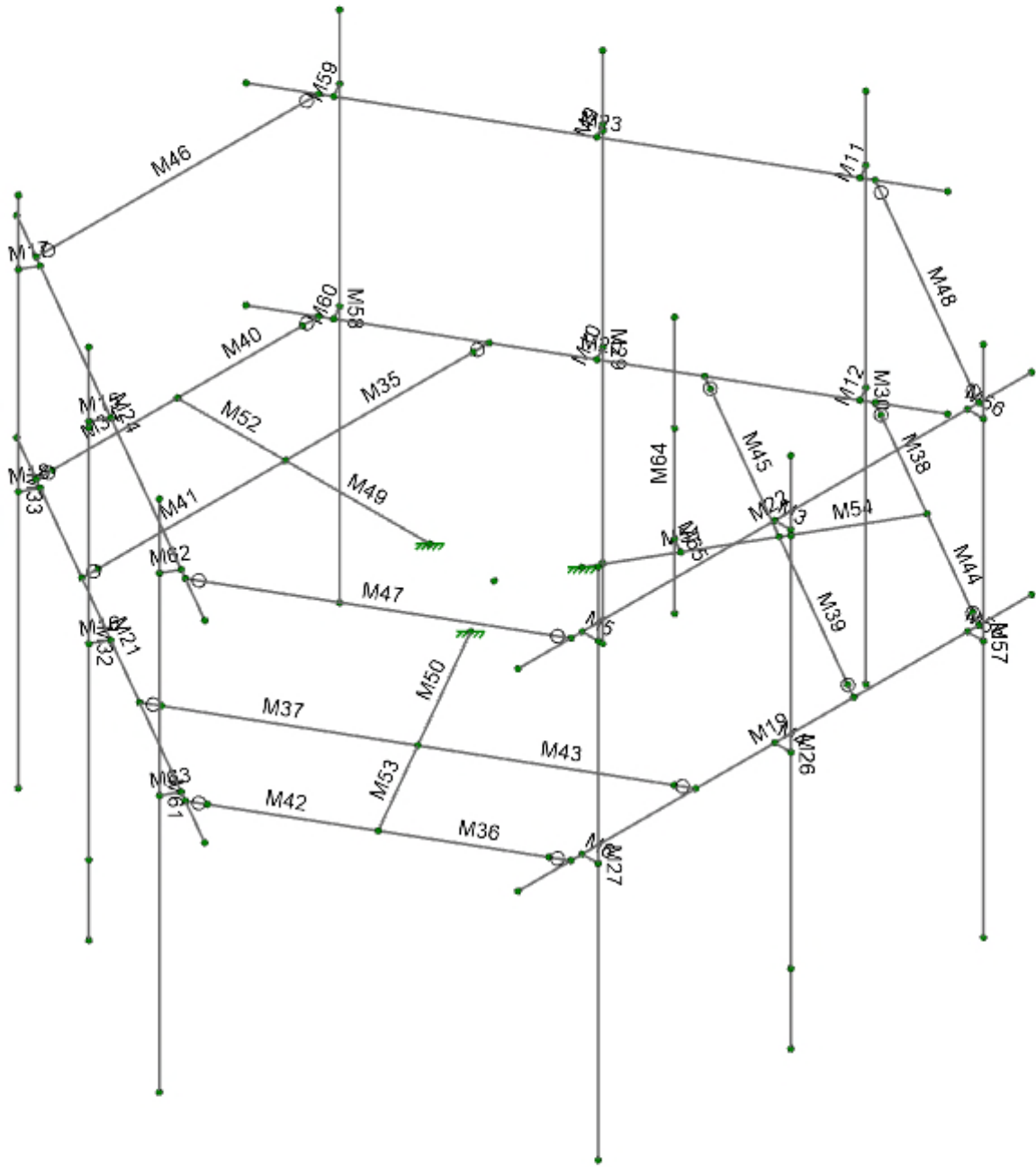


Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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DA
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BOHVN00174B

SK-8
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BOHVN00174B - SNP8HR-396.r3d



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BOHVN00174B

SK-9
Jul 08, 2022
BOHVN00174B - SNP8HR-396.r3d

Model Settings

Number of Reported Sections	5
Number of Internal Sections	97
Member Area Load Mesh Size (in ²)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes

Approximate Mesh Size (in)	12
Transfer Forces Between Intersecting Wood Walls	No
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	Yes
Maximum Number of Iterations	3

Single	No
Multiple (Optimum)	Yes
Maximum	No

Global Axis corresponding to vertical direction	Z
Convert Existing Data	Yes

Default Global Plane for z-axis	XY
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Plate Local Axis Orientation	Nodal
------------------------------	-------

Hot Rolled Steel	AISC 14th (360-10): LRFD
Stiffness Adjustment	Yes (iterative)
Notional Annex	None
Connections	AISC 14th (360-10): ASD
Cold Formed Steel	AISI NAS-01: LRFD
Stiffness Adjustment	Yes (iterative)
Wood	AF&PA NDS-05/08: ASD
Temperature	< 100F
Concrete	ACI 318-05
Masonry	ACI 530-05: ASD
Aluminum	AA ADM1-05: ASD
Structure Type	Building
Stiffness Adjustment	Yes (iterative)
Stainless	AISC 14th (360-10): ASD
Stiffness Adjustment	Yes (iterative)

Analysis Methodology	Exact Integration Method
Paralle Beta Factor	0.65
Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	No
List forces which were ignored for design in the Detail Report	Yes

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No
Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Code	ASCE 7-05
------	-----------

Model Settings (Continued)

Risk Category	I
Drift Cat	Other
Base Elevation (ft)	-999999
Include the weight of the structure in base shear calcs	Yes

$S_x(g)$	1
$SD_x(g)$	1
$SD_y(g)$	1
$T_x(sec)$	-1

T (sec)	
T (sec)	
C_1	0.035
C_2	0.035
C_{Exp}	0.75
C_{Exp}	0.75
R	8.5
R	8.5
Ω_x	1
Ω_y	1
C_{d1}	4
C_{d2}	4
ρ	1
ρ	1

Line Project Grid

No Data to Print...

Hot Rolled Steel Properties

	Label	E [ksj]	G [ksj]	Nu	Therm. C...	Density [k...	Yield [ksj]	Ry	Fu [ksj]	Rt
1	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.2
3	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.2
4	A500 Gr.42	29000	11154	0.3	0.65	0.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	0.3	0.65	0.49	46	1.2	58	1.1
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.5	60	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁸]
1	2.5" STD...	PIPE_2.5	Beam	Wide Flan...	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
2	2" STD Pipe	PIPE_2.0	Beam	Wide Flan...	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
3	1.25" STD...	PIPE_1.25	Beam	Wide Flan...	A53 Gr.B	Typical	0.625	0.184	0.184	0.368
4	1" STD Pipe	PIPE_1.0	Beam	Wide Flan...	A53 Gr.B	Typical	0.469	0.083	0.083	0.166
5	1" Solid Rod	1.0"SR	Beam	Wide Flan...	A36 Gr.36	Typical	0.785	0.049	0.049	0.098
6	0.75" Soli...	0.75" SR	Beam	Wide Flan...	A36 Gr.36	Typical	0.442	0.016	0.016	0.031
7	1 5/8 Unis...	L1.75x1.7...	Beam	Wide Flan...	A36 Gr.36	Typical	0.422	0.126	0.126	0.002

Primary Member Properties

	Label	I Node	J Node	K Node	Rotate(deg)	Section/S...	Type	Design List	Material	Design Rule
1	M3	N11	N17			RIGID	None	None	LINK	Typical
2	M4	N10	N16			RIGID	None	None	LINK	Typical
3	M9	N44	N50			RIGID	None	None	LINK	Typical
4	M10	N43	N49			RIGID	None	None	LINK	Typical
5	M5	N7	N13			RIGID	None	None	LINK	Typical
6	M6	N6	N12			RIGID	None	None	LINK	Typical
7	M15	N64	N70			RIGID	None	None	LINK	Typical
8	M12	N39	N45			RIGID	None	None	LINK	Typical
9	M63	N135	N136			RIGID	None	None	LINK	Typical
10	M11	N40	N46			RIGID	None	None	LINK	Typical
11	M17	N60	N66			RIGID	None	None	LINK	Typical
12	M18	N59	N65			RIGID	None	None	LINK	Typical
13	M62	N133	N134			RIGID	None	None	LINK	Typical
14	M55	N119	N120			RIGID	None	None	LINK	Typical
15	M56	N121	N122			RIGID	None	None	LINK	Typical
16	M59	N127	N128			RIGID	None	None	LINK	Typical
17	M60	N129	N130			RIGID	None	None	LINK	Typical
18	M16	N63	N69			RIGID	None	None	LINK	Typical
19	M19	N31	N32			PIPE_3.0	Beam	Pipe	A500 Gr.42	Typical
20	M20	N33	N34			PIPE_3.0	Beam	Pipe	A500 Gr.42	Typical
21	M21	N35	N36			PIPE_3.0	Beam	Pipe	A500 Gr.42	Typical
22	M22	N4	N5			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
23	M23	N37	N38			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
24	M24	N57	N58			PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
25	M30	N51	N54			PIPE_2.0	Beam	HSS Pipe	A53 Gr.B	Typical
26	M27	N18	N21			PIPE_2.0	Beam	HSS Pipe	A53 Gr.B	Typical
27	M58	N125	N126			PIPE_2.0	Beam	HSS Pipe	A53 Gr.B	Typical
28	M57	N123	N124			PIPE_2.0	Beam	HSS Pipe	A53 Gr.B	Typical
29	M33	N71	N74			PIPE_2.0	Beam	HSS Pipe	A53 Gr.B	Typical
30	M32	N73	N76			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
31	M29	N53	N56			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
32	M26	N20	N23			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
33	M61	N131	N132			PIPE_2.0	Beam	HSS Pipe	A53 Gr.B	Typical
34	M36	N84	N85		90	L4X4X6	Beam	Single Angle	A36 Gr.36	Typical
35	M44	N82	N80		90	L4X4X6	Beam	Single Angle	A36 Gr.36	Typical

Primary Member Properties (Continued)

	Label	I Node	J Node	K Node	Rotate(deg)	Section/S...	Type	Design List	Material	Design Rule
36	M42	N85	N83		90	L4X4X6	Beam	Single Angle	A36 Gr.36	Typical
37	M40	N79	N77		90	L4X4X6	Beam	Single Angle	A36 Gr.36	Typical
38	M39	N28	N30		90	L4X4X6	Beam	Single Angle	A36 Gr.36	Typical
39	M38	N81	N82		90	L4X4X6	Beam	Single Angle	A36 Gr.36	Typical
40	M37	N25	N27		90	L4X4X6	Beam	Single Angle	A36 Gr.36	Typical
41	M34	N78	N79		90	L4X4X6	Beam	Single Angle	A36 Gr.36	Typical
42	M43	N27	N26		90	L4X4X6	Beam	Single Angle	A36 Gr.36	Typical
43	M41	N3	N2		90	L4X4X6	Beam	Single Angle	A36 Gr.36	Typical
44	M45	N30	N29		90	L4X4X6	Beam	Single Angle	A36 Gr.36	Typical
45	M35	N1	N3		90	L4X4X6	Beam	Single Angle	A36 Gr.36	Typical
46	M48	N89	N88		90	L2.5X2.5X3	Beam	Single Angle	A36 Gr.36	Typical
47	M47	N91	N90		90	L2.5X2.5X3	Beam	Single Angle	A36 Gr.36	Typical
48	M46	N87	N86		90	L2.5X2.5X3	Beam	Single Angle	A36 Gr.36	Typical
49	M51	N92	N30			HSS4X4X4	Beam	Tube	A500 Gr.46	Typical
50	M50	N94	N27			HSS4X4X4	Beam	Tube	A500 Gr.46	Typical
51	M49	N93	N3			HSS4X4X4	Beam	Tube	A500 Gr.46	Typical
52	M53	N27	N85			HSS4.5X...	Beam	Tube	A500 Gr.46	Typical
53	M52	N3	N79			HSS4.5X...	Beam	Tube	A500 Gr.46	Typical
54	M54	N30	N82			HSS4.5X...	Beam	Tube	A500 Gr.46	Typical
55	M64	N118	N137			PIPE 2.0	Beam	HSS Pipe	A53 Gr.B	Typical
56	M65	N116	N117			RIGID	None	None	LINK	Typical

Advanced Member Properties

	Label	I Release	J Release	I Offset [in]	J Offset [in]	T/C Only	Physical	Deflectio...	Analysis...	Activation	Seismic...
1	M3						Yes	** NA **			None
2	M4						Yes	** NA **			None
3	M9						Yes	** NA **			None
4	M10						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M15						Yes	** NA **			None
8	M12						Yes	** NA **			None
9	M63						Yes	** NA **			None
10	M11						Yes	** NA **			None
11	M17						Yes	** NA **			None
12	M18						Yes	** NA **			None
13	M62						Yes	** NA **			None
14	M55						Yes	** NA **			None
15	M56						Yes	** NA **			None
16	M59						Yes	** NA **			None
17	M60						Yes	** NA **			None
18	M16						Yes	** NA **			None
19	M19						Yes				None
20	M20						Yes				None
21	M21						Yes				None
22	M22						Yes				None
23	M23						Yes				None
24	M24						Yes				None
25	M30						Yes	Default			None
26	M27						Yes	Default			None
27	M58						Yes	Default			None
28	M57						Yes	Default			None
29	M33						Yes	Default			None
30	M32						Yes	Default			None
31	M29						Yes	Default			None
32	M26						Yes	Default			None
33	M61						Yes	Default			None
34	M36	BenPIN					Yes				None

Advanced Member Properties (Continued)

	Label	I Release	J Release	I Offset [in]	J Offset [in]	T/C Only	Physical	Deflectio...	Analysis...	Activation	Seismic...
35	M44		BenPIN				Yes				None
36	M42		BenPIN				Yes				None
37	M40		BenPIN				Yes				None
38	M39	BenPIN					Yes				None
39	M38	BenPIN					Yes				None
40	M37	BenPIN					Yes				None
41	M34	BenPIN					Yes				None
42	M43		BenPIN				Yes				None
43	M41		BenPIN				Yes				None
44	M45		BenPIN				Yes				None
45	M35	BenPIN					Yes				None
46	M48	BenPIN	BenPIN				Yes				None
47	M47	BenPIN	BenPIN				Yes				None
48	M46	BenPIN	BenPIN				Yes				None
49	M51						Yes				None
50	M50						Yes				None
51	M49						Yes				None
52	M53						Yes				None
53	M52						Yes				None
54	M54						Yes				None
55	M64						Yes	Default			None
56	M65						Yes	** NA **			None

Hot Rolled Member Properties

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp t...	Lcomp...	L-Torqu...	K y-y	K z-z	Cb	Function
1	M19	PIPE_3.0	96			Lbyy						Lateral
2	M20	PIPE_3.0	96			Lbyy						Lateral
3	M21	PIPE_3.0	96			Lbyy						Lateral
4	M22	PIPE_2.5	96			Lbyy						Lateral
5	M23	PIPE_2.5	96			Lbyy						Lateral
6	M24	PIPE_2.5	96			Lbyy						Lateral
7	M30	PIPE_2.0	96			Lbyy						Lateral
8	M27	PIPE_2.0	96			Lbyy						Lateral
9	M58	PIPE_2.0	96			Lbyy						Lateral
10	M57	PIPE_2.0	96			Lbyy						Lateral
11	M33	PIPE_2.0	96			Lbyy						Lateral
12	M32	PIPE_2.0	96			Lbyy						Lateral
13	M29	PIPE_2.0	96			Lbyy						Lateral
14	M26	PIPE_2.0	96			Lbyy						Lateral
15	M61	PIPE_2.0	96			Lbyy						Lateral
16	M36	L4X4X6	26.375			Lbyy						Lateral
17	M44	L4X4X6	26.375			Lbyy						Lateral
18	M42	L4X4X6	26.375			Lbyy						Lateral
19	M40	L4X4X6	26.375			Lbyy						Lateral
20	M39	L4X4X6	38.047			Lbyy						Lateral
21	M38	L4X4X6	26.375			Lbyy						Lateral
22	M37	L4X4X6	38.047			Lbyy						Lateral
23	M34	L4X4X6	26.375			Lbyy						Lateral
24	M43	L4X4X6	38.047			Lbyy						Lateral
25	M41	L4X4X6	38.047			Lbyy						Lateral
26	M45	L4X4X6	38.047			Lbyy						Lateral
27	M35	L4X4X6	38.047			Lbyy						Lateral
28	M48	L2.5X2....	52.75			Lbyy						Lateral
29	M47	L2.5X2....	52.75			Lbyy						Lateral
30	M46	L2.5X2....	52.75			Lbyy						Lateral
31	M51	HSS4X...	27			Lbyy						Lateral
32	M50	HSS4X...	27			Lbyy						Lateral
33	M49	HSS4X...	27			Lbyy						Lateral

Hot Rolled Member Properties (Continued)

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp t...	Lcomp...	L-Torqu...	K y-y	K z-z	Cb	Function
34	M53	HSS4.5...	20.216			Lbyy						Lateral
35	M52	HSS4.5...	20.216			Lbyy						Lateral
36	M54	HSS4.5...	20.216			Lbyy						Lateral
37	M64	PIPE_2.0	48			Lbyy						Lateral

Nodes

	Label	X [in]	Y [in]	Z [in]	Temp [deg F]	Detach From Dia...
1	N1	-38.046958	-39.000041	0		
2	N2	38.046958	-39.000041	0		
3	N3	0	-39.000041	0		
4	N4	48	52.4497	36		
5	N5	-48	52.4497	36		
6	N6	36	52.449653	0		
7	N7	36	52.4497	36		
8	N10	0	52.449653	0		
9	N11	0	52.4497	36		
10	N12	36	55.4497	0		
11	N13	36	55.4497	36		
12	N16	0	55.4497	0		
13	N17	0	55.4497	36		
14	N18	36	55.4497	48		
15	N20	0	55.4497	48		
16	N21	36	55.4497	-48		
17	N23	0	55.4497	-48		
18	N24	0	0	0		
19	N25	52.798505	-13.449612	0		
20	N26	14.751547	52.449653	0		
21	N27	33.775026	19.500021	0		
22	N28	-14.751547	52.449653	0		
23	N29	-52.798505	-13.449612	0		
24	N30	-33.775026	19.500021	0		
25	N31	-48	52.449653	0		
26	N32	48	52.449653	0		
27	N33	-21.422732	-67.794046	0		
28	N34	-69.422732	15.344393	0		
29	N35	69.422732	15.344393	0		
30	N36	21.422732	-67.794046	0		
31	N37	-69.422773	15.344369	36		
32	N38	-21.422773	-67.794069	36		
33	N39	-63.422732	4.952088	0		
34	N40	-63.422773	4.952065	36		
35	N43	-45.422732	-26.224827	0		
36	N44	-45.422773	-26.22485	36		
37	N45	-66.020848	3.452065	0		
38	N46	-66.020848	3.452065	36		
39	N49	-48.020849	-27.72485	0		
40	N50	-48.020849	-27.72485	36		
41	N51	-66.020849	3.452065	48		
42	N53	-48.020849	-27.72485	48		
43	N54	-66.020849	3.452065	-48		
44	N56	-48.020849	-27.72485	-48		
45	N57	21.422773	-67.794069	36		
46	N58	69.422773	15.344369	36		
47	N59	27.422732	-57.401741	0		
48	N60	27.422773	-57.401765	36		
49	N63	45.422732	-26.224827	0		
50	N64	45.422773	-26.22485	36		
51	N65	30.02085	-58.901765	0		

Nodes (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [deg F]	Detach From Dia...
52	N66	30.02085	-58.901765	36		
53	N69	48.020849	-27.72485	0		
54	N70	48.020849	-27.72485	36		
55	N71	30.020849	-58.901765	48		
56	N73	48.020849	-27.72485	48		
57	N74	30.020849	-58.901765	-48		
58	N76	48.020849	-27.72485	-48		
59	N77	-26.374982	-59.216497	0		
60	N78	26.374982	-59.216497	0		
61	N79	-0.	-59.216497	0		
62	N80	-38.0955	52.449653	0		
63	N81	-64.470482	6.766844	0		
64	N82	-51.282991	29.608249	0		
65	N83	64.470482	6.766844	0		
66	N84	38.0955	52.449653	0		
67	N85	51.282991	29.608249	0		
68	N86	-26.375036	-59.216497	36		
69	N87	26.375036	-59.216497	36		
70	N88	-38.095473	52.4497	36		
71	N89	-64.470509	6.766797	36		
72	N90	64.470509	6.766797	36		
73	N91	38.095473	52.4497	36		
74	N92	-10.392305	6	0		
75	N93	0	-12	0		
76	N94	10.392305	6	0		
77	N95	-62.970482	9.36492	0		
78	N96	-16.251547	49.851577	0		
79	N97	-35.046958	-39.000041	0		
80	N98	23.374982	-59.216497	0		
81	N99	51.298505	-10.851536	0		
82	N100	39.5955	49.851577	0		
83	N101	62.970491	9.364905	0		
84	N102	-39.595491	49.851592	0		
85	N103	-23.375	-59.216497	0		
86	N104	35.047	-39.000041	0		
87	N105	16.251526	49.851613	0		
88	N106	-51.298526	-10.851572	0		
89	N119	-36	52.449653	0		
90	N120	-36	55.4497	0		
91	N121	-36	52.4497	36		
92	N122	-36	55.4497	36		
93	N123	-36	55.4497	48		
94	N124	-36	55.4497	-48		
95	N125	-30.020849	-58.901765	48		
96	N126	-30.020849	-58.901765	-48		
97	N127	-27.422773	-57.401765	36		
98	N128	-30.020849	-58.901765	36		
99	N129	-27.422732	-57.401741	0		
100	N130	-30.020849	-58.901765	0		
101	N131	66.020849	3.452065	48		
102	N132	66.020849	3.452065	-48		
103	N133	63.422773	4.952065	36		
104	N134	66.020849	3.452065	36		
105	N135	63.422732	4.952088	0		
106	N136	66.020849	3.452065	0		
107	N110	0	55.4497	35		
108	N111	48.020849	-27.72485	35		
109	N112	-48.020849	-27.72485	35		

Nodes (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [deg F]	Detach From Dia...
110	N113	0	55.4497	-35		
111	N114	48.020849	-27.72485	-35		
112	N115	-48.020849	-27.72485	-35		
113	N116	-22.083648	12.75	0		
114	N117	-23.583648	10.151924	0		
115	N118	-23.583648	10.151924	-12		
116	N137	-23.583648	10.151924	36		
117	N138	-23.583648	10.151924	18		

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	N92	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N93	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N94	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Basic Load Cases

	BLC Desc...	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Me...	Surface(P...
1	DEAD LO...	None			-1	7			3	
2	DEAD LO...	None				7		37	3	
3	WIND LO...	None				7		37		
4	WIND LO...	None				7		37		
5	WIND LO...	None				7		37		
6	WIND LO...	None				7		37		
7	LIVE LOA...	None				1				
8	LIVE LOA...	None				1				
9	LIVE LOA...	None				1				
10	MAINTEN...	None				1				
11	MAINTEN...	None				1				
12	MAINTEN...	None				1				
13	MAINTEN...	None				1				
14	BLC 1 Tra...	None						18		
15	BLC 2 Tra...	None						18		

Node Loads and Enforced Displacements (BLC 1 : DEAD LOAD)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N110	L	Z	-102	Active
2	N113	L	Z	-102	Active
3	N111	L	Z	-102	Active
4	N112	L	Z	-102	Active
5	N114	L	Z	-102	Active
6	N115	L	Z	-102	Active
7	N138	L	Z	-22	Active

Node Loads and Enforced Displacements (BLC 2 : DEAD LOAD ICE)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N110	L	Z	-297	Active
2	N113	L	Z	-297	Active
3	N111	L	Z	-297	Active
4	N112	L	Z	-297	Active
5	N114	L	Z	-297	Active
6	N115	L	Z	-297	Active
7	N138	L	Z	-128	Active

Node Loads and Enforced Displacements (BLC 3 : WIND LOAD (NO ICE) FRONT)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N110	L	Y	-166	Active
2	N113	L	Y	-166	Active
3	N111	L	Y	-106	Active
4	N112	L	Y	-106	Active
5	N114	L	Y	-106	Active
6	N115	L	Y	-106	Active
7	N138	L	Y	-68	Active

Node Loads and Enforced Displacements (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N110	L	X	-106	Active
2	N113	L	X	-106	Active
3	N111	L	X	-166	Active
4	N112	L	X	-166	Active
5	N114	L	X	-166	Active
6	N115	L	X	-166	Active
7	N138	L	X	-40	Active

Node Loads and Enforced Displacements (BLC 5 : WIND LOAD (ICE) FRONT)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N110	L	Y	-53	Active
2	N113	L	Y	-53	Active
3	N111	L	Y	-40	Active
4	N112	L	Y	-40	Active
5	N114	L	Y	-40	Active
6	N115	L	Y	-40	Active
7	N138	L	Y	-25	Active

Node Loads and Enforced Displacements (BLC 6 : WIND LOAD (ICE) SIDE)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N110	L	X	-40	Active
2	N113	L	X	-40	Active
3	N111	L	X	-53	Active
4	N112	L	X	-53	Active
5	N114	L	X	-53	Active
6	N115	L	X	-53	Active
7	N138	L	X	-16	Active

Node Loads and Enforced Displacements (BLC 7 : LIVE LOAD1)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N31	L	Z	-250	Active

Node Loads and Enforced Displacements (BLC 8 : LIVE LOAD2)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N33	L	Z	-250	Active

Node Loads and Enforced Displacements (BLC 9 : LIVE LOAD3)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N35	L	Z	-250	Active

Node Loads and Enforced Displacements (BLC 10 : MAINTENANCE LOAD1)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N124	L	Z	-500	Active

Node Loads and Enforced Displacements (BLC 11 : MAINTENANCE LOAD2)

1	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N23	L	Z	-500	Active

Node Loads and Enforced Displacements (BLC 12 : MAINTENANCE LOAD3)

1	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N21	L	Z	-500	Active

Member Distributed Loads (BLC 2 : DEAD LOAD ICE)

1	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
1	M19	Z	-16	-16	0	%100	Active
2	M20	Z	-16	-16	0	%100	Active
3	M21	Z	-16	-16	0	%100	Active
4	M22	Z	-14.2	-14.2	0	%100	Active
5	M23	Z	-14.2	-14.2	0	%100	Active
6	M24	Z	-14.2	-14.2	0	%100	Active
7	M30	Z	-12.8	-12.8	0	%100	Active
8	M27	Z	-12.8	-12.8	0	%100	Active
9	M58	Z	-12.8	-12.8	0	%100	Active
10	M57	Z	-12.8	-12.8	0	%100	Active
11	M33	Z	-12.8	-12.8	0	%100	Active
12	M32	Z	-12.8	-12.8	0	%100	Active
13	M29	Z	-12.8	-12.8	0	%100	Active
14	M26	Z	-12.8	-12.8	0	%100	Active
15	M61	Z	-12.8	-12.8	0	%100	Active
16	M36	Z	-14.1	-14.1	0	%100	Active
17	M44	Z	-14.1	-14.1	0	%100	Active
18	M42	Z	-14.1	-14.1	0	%100	Active
19	M40	Z	-14.1	-14.1	0	%100	Active
20	M39	Z	-14.1	-14.1	0	%100	Active
21	M38	Z	-14.1	-14.1	0	%100	Active
22	M37	Z	-14.1	-14.1	0	%100	Active
23	M34	Z	-14.1	-14.1	0	%100	Active
24	M43	Z	-14.1	-14.1	0	%100	Active
25	M41	Z	-14.1	-14.1	0	%100	Active
26	M45	Z	-14.1	-14.1	0	%100	Active
27	M35	Z	-14.1	-14.1	0	%100	Active
28	M48	Z	-8.8	-8.8	0	%100	Active
29	M47	Z	-8.8	-8.8	0	%100	Active
30	M46	Z	-8.8	-8.8	0	%100	Active
31	M51	Z	-32.8	-32.8	0	%100	Active
32	M50	Z	-32.8	-32.8	0	%100	Active
33	M49	Z	-32.8	-32.8	0	%100	Active
34	M53	Z	-35.8	-35.8	0	%100	Active
35	M52	Z	-35.8	-35.8	0	%100	Active
36	M54	Z	-35.8	-35.8	0	%100	Active
37	M64	Z	-12.8	-12.8	0	%100	Active

Member Distributed Loads (BLC 3 : WIND LOAD (NO ICE) FRONT)

1	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
1	M19	PY	-9.4	-9.4	0	%100	Active
2	M20	PY	-9.4	-9.4	0	%100	Active
3	M21	PY	-9.4	-9.4	0	%100	Active
4	M22	PY	-7.7	-7.7	0	%100	Active
5	M23	PY	-7.7	-7.7	0	%100	Active
6	M24	PY	-7.7	-7.7	0	%100	Active
7	M30	PY	-6.3	-6.3	0	%100	Active
8	M27	PY	-6.3	-6.3	0	%100	Active
9	M58	PY	-6.3	-6.3	0	%100	Active

Member Distributed Loads (BLC 3 : WIND LOAD (NO ICE) FRONT) (Continued)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
10	M57	PY	-6.3	-6.3	0	%100	Active
11	M33	PY	-6.3	-6.3	0	%100	Active
12	M32	PY	-6.3	-6.3	0	%100	Active
13	M29	PY	-6.3	-6.3	0	%100	Active
14	M26	PY	-6.3	-6.3	0	%100	Active
15	M61	PY	-6.3	-6.3	0	%100	Active
16	M36	PY	-17.8	-17.8	0	%100	Active
17	M44	PY	-17.8	-17.8	0	%100	Active
18	M42	PY	-17.8	-17.8	0	%100	Active
19	M40	PY	-17.8	-17.8	0	%100	Active
20	M39	PY	-17.8	-17.8	0	%100	Active
21	M38	PY	-17.8	-17.8	0	%100	Active
22	M37	PY	-17.8	-17.8	0	%100	Active
23	M34	PY	-17.8	-17.8	0	%100	Active
24	M43	PY	-17.8	-17.8	0	%100	Active
25	M41	PY	-17.8	-17.8	0	%100	Active
26	M45	PY	-17.8	-17.8	0	%100	Active
27	M35	PY	-17.8	-17.8	0	%100	Active
28	M48	PY	-11.1	-11.1	0	%100	Active
29	M47	PY	-11.1	-11.1	0	%100	Active
30	M46	PY	-11.1	-11.1	0	%100	Active
31	M51	PY	-17.8	-17.8	0	%100	Active
32	M50	PY	-17.8	-17.8	0	%100	Active
33	M49	PY	-17.8	-17.8	0	%100	Active
34	M53	PY	-20	-20	0	%100	Active
35	M52	PY	-20	-20	0	%100	Active
36	M54	PY	-20	-20	0	%100	Active
37	M64	PY	-6.3	-6.3	0	%100	Active

Member Distributed Loads (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
1	M19	PX	-9.4	-9.4	0	%100	Active
2	M20	PX	-9.4	-9.4	0	%100	Active
3	M21	PX	-9.4	-9.4	0	%100	Active
4	M22	PX	-7.7	-7.7	0	%100	Active
5	M23	PX	-7.7	-7.7	0	%100	Active
6	M24	PX	-7.7	-7.7	0	%100	Active
7	M30	PX	-6.3	-6.3	0	%100	Active
8	M27	PX	-6.3	-6.3	0	%100	Active
9	M58	PX	-6.3	-6.3	0	%100	Active
10	M57	PX	-6.3	-6.3	0	%100	Active
11	M33	PX	-6.3	-6.3	0	%100	Active
12	M32	PX	-6.3	-6.3	0	%100	Active
13	M29	PX	-6.3	-6.3	0	%100	Active
14	M26	PX	-6.3	-6.3	0	%100	Active
15	M61	PX	-6.3	-6.3	0	%100	Active
16	M36	PX	-17.7	-17.7	0	%100	Active
17	M44	PX	-17.7	-17.7	0	%100	Active
18	M42	PX	-17.7	-17.7	0	%100	Active
19	M40	PX	-17.8	-17.8	0	%100	Active
20	M39	PX	-17.8	-17.8	0	%100	Active
21	M38	PX	-17.8	-17.8	0	%100	Active
22	M37	PX	-17.8	-17.8	0	%100	Active
23	M34	PX	-17.8	-17.8	0	%100	Active
24	M43	PX	-17.8	-17.8	0	%100	Active
25	M41	PX	-17.8	-17.8	0	%100	Active
26	M45	PX	-17.8	-17.8	0	%100	Active
27	M35	PX	-17.8	-17.8	0	%100	Active

Member Distributed Loads (BLC 4 : WIND LOAD (NO ICE) SIDE) (Continued)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
28	M48	PX	-11.1	-11.1	0	%100	Active
29	M47	PX	-11.1	-11.1	0	%100	Active
30	M46	PX	-10.7	-10.7	0	%100	Active
31	M51	PX	-17.8	-17.8	0	%100	Active
32	M50	PX	-17.8	-17.8	0	%100	Active
33	M49	PX	-17.8	-17.8	0	%100	Active
34	M53	PX	-20	-20	0	%100	Active
35	M52	PX	-20	-20	0	%100	Active
36	M54	PX	-20	-20	0	%100	Active
37	M64	PX	-6.3	-6.3	0	%100	Active

Member Distributed Loads (BLC 5 : WIND LOAD (ICE) FRONT)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
1	M19	PY	-7.9	-7.9	0	%100	Active
2	M20	PY	-7.9	-7.9	0	%100	Active
3	M21	PY	-7.9	-7.9	0	%100	Active
4	M22	PY	-7.3	-7.3	0	%100	Active
5	M23	PY	-7.3	-7.3	0	%100	Active
6	M24	PY	-7.3	-7.3	0	%100	Active
7	M30	PY	-6.8	-6.8	0	%100	Active
8	M27	PY	-6.8	-6.8	0	%100	Active
9	M58	PY	-6.8	-6.8	0	%100	Active
10	M57	PY	-6.8	-6.8	0	%100	Active
11	M33	PY	-6.8	-6.8	0	%100	Active
12	M32	PY	-6.8	-6.8	0	%100	Active
13	M29	PY	-6.8	-6.8	0	%100	Active
14	M26	PY	-6.8	-6.8	0	%100	Active
15	M61	PY	-6.8	-6.8	0	%100	Active
16	M36	PY	-10.3	-10.3	0	%100	Active
17	M44	PY	-10.3	-10.3	0	%100	Active
18	M42	PY	-10.3	-10.3	0	%100	Active
19	M40	PY	-10.3	-10.3	0	%100	Active
20	M39	PY	-10.3	-10.3	0	%100	Active
21	M38	PY	-10.3	-10.3	0	%100	Active
22	M37	PY	-10.3	-10.3	0	%100	Active
23	M34	PY	-10.3	-10.3	0	%100	Active
24	M43	PY	-10.3	-10.3	0	%100	Active
25	M41	PY	-10.3	-10.3	0	%100	Active
26	M45	PY	-10.3	-10.3	0	%100	Active
27	M35	PY	-10.3	-10.3	0	%100	Active
28	M48	PY	-8.1	-8.1	0	%100	Active
29	M47	PY	-8.1	-8.1	0	%100	Active
30	M46	PY	-8.1	-8.1	0	%100	Active
31	M51	PY	-10.3	-10.3	0	%100	Active
32	M50	PY	-10.3	-10.3	0	%100	Active
33	M49	PY	-10.3	-10.3	0	%100	Active
34	M53	PY	-11	-11	0	%100	Active
35	M52	PY	-11	-11	0	%100	Active
36	M54	PY	-11	-11	0	%100	Active
37	M64	PY	-6.7	-6.7	0	%100	Active

Member Distributed Loads (BLC 6 : WIND LOAD (ICE) SIDE)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
1	M19	PX	-7.9	-7.9	0	%100	Active
2	M20	PX	-7.9	-7.9	0	%100	Active
3	M21	PX	-7.9	-7.9	0	%100	Active
4	M22	PX	-7.3	-7.3	0	%100	Active

Member Distributed Loads (BLC 6 : WIND LOAD (ICE) SIDE) (Continued)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
5	M23	PX	-7.3	-7.3	0	%100	Active
6	M24	PX	-7.3	-7.3	0	%100	Active
7	M30	PX	-6.8	-6.8	0	%100	Active
8	M27	PX	-6.8	-6.8	0	%100	Active
9	M58	PX	-6.8	-6.8	0	%100	Active
10	M57	PX	-6.8	-6.8	0	%100	Active
11	M33	PX	-6.8	-6.8	0	%100	Active
12	M32	PX	-6.8	-6.8	0	%100	Active
13	M29	PX	-6.8	-6.8	0	%100	Active
14	M26	PX	-6.8	-6.8	0	%100	Active
15	M61	PX	-6.8	-6.8	0	%100	Active
16	M36	PX	-10.3	-10.3	0	%100	Active
17	M44	PX	-10.3	-10.3	0	%100	Active
18	M42	PX	-10.3	-10.3	0	%100	Active
19	M40	PX	-10.3	-10.3	0	%100	Active
20	M39	PX	-10.3	-10.3	0	%100	Active
21	M38	PX	-10.3	-10.3	0	%100	Active
22	M37	PX	-10.3	-10.3	0	%100	Active
23	M34	PX	-10.3	-10.3	0	%100	Active
24	M43	PX	-10.3	-10.3	0	%100	Active
25	M41	PX	-10.3	-10.3	0	%100	Active
26	M45	PX	-10.3	-10.3	0	%100	Active
27	M35	PX	-10.3	-10.3	0	%100	Active
28	M48	PX	-8.1	-8.1	0	%100	Active
29	M47	PX	-8.1	-8.1	0	%100	Active
30	M46	PX	-8.1	-8.1	0	%100	Active
31	M51	PX	-10.3	-10.3	0	%100	Active
32	M50	PX	-10.3	-10.3	0	%100	Active
33	M49	PX	-10.3	-10.3	0	%100	Active
34	M53	PX	-11	-11	0	%100	Active
35	M52	PX	-11	-11	0	%100	Active
36	M54	PX	-11	-11	0	%100	Active
37	M64	PX	-6.7	-6.7	0	%100	Active

Member Distributed Loads (BLC 14 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
1	M21	Z	-2.492	-2.492	73.629	85.629	Active
2	M40	Z	-6.015	-6.015	10.85	24.723	Active
3	M34	Z	-4.477	-4.477	5.158	26.238	Active
4	M41	Z	-0.383	-4.477	3.805	38.047	Active
5	M35	Z	-0.769	-4.477	3.805	34.242	Active
6	M52	Z	-7.527	-4.477	0	20.216	Active
7	M20	Z	-2.492	-2.492	73.629	85.629	Active
8	M44	Z	-6.015	-6.015	10.85	24.723	Active
9	M39	Z	-2.623	-2.623	3.805	34.242	Active
10	M38	Z	-4.477	-4.477	5.158	26.238	Active
11	M45	Z	-0.383	-4.477	3.805	38.047	Active
12	M54	Z	-7.527	-4.477	0	20.216	Active
13	M19	Z	-2.492	-2.492	73.629	85.629	Active
14	M36	Z	-4.477	-4.477	5.158	26.238	Active
15	M42	Z	-6.015	-6.015	10.85	24.723	Active
16	M37	Z	-2.623	-2.623	3.805	34.242	Active
17	M43	Z	-2.237	-2.623	3.805	38.047	Active
18	M53	Z	-9.38	-2.623	0	20.216	Active

Member Distributed Loads (BLC 15 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
1	M21	Z	-5.246	-5.246	73.629	85.629	Active
2	M40	Z	-12.665	-12.665	10.85	24.723	Active
3	M34	Z	-9.426	-9.426	5.158	26.238	Active
4	M41	Z	-0.806	-9.426	3.805	38.047	Active
5	M35	Z	-1.62	-9.426	3.805	34.242	Active
6	M52	Z	-15.846	-9.426	0	20.216	Active
7	M20	Z	-5.246	-5.246	73.629	85.629	Active
8	M44	Z	-12.665	-12.665	10.85	24.723	Active
9	M39	Z	-5.523	-5.523	3.805	34.242	Active
10	M38	Z	-9.426	-9.426	5.158	26.238	Active
11	M45	Z	-0.806	-9.426	3.805	38.047	Active
12	M54	Z	-15.846	-9.426	0	20.216	Active
13	M19	Z	-5.246	-5.246	73.629	85.629	Active
14	M36	Z	-9.426	-9.426	5.158	26.238	Active
15	M42	Z	-12.665	-12.665	10.85	24.723	Active
16	M37	Z	-5.523	-5.523	3.805	34.242	Active
17	M43	Z	-4.709	-5.523	3.805	38.047	Active
18	M53	Z	-19.75	-5.523	0	20.216	Active

Member Area Loads (BLC 1 : DEAD LOAD)

	Node A	Node B	Node C	Node D	Direction	Load Direction Magnitude [psf]	Inactive [(lb,...	
1	N103	N98	N104	N97	Z	Two Way	-5	Active
2	N102	N95	N106	N96	Z	Two Way	-5	Active
3	N101	N100	N105	N99	Z	Two Way	-5	Active

Member Area Loads (BLC 2 : DEAD LOAD ICE)

	Node A	Node B	Node C	Node D	Direction	Load Direction Magnitude [psf]	Inactive [(lb,...	
1	N103	N98	N104	N97	Z	Two Way	-10.527	Active
2	N102	N95	N106	N96	Z	Two Way	-10.527	Active
3	N101	N100	N105	N99	Z	Two Way	-10.527	Active

Load Combinations

	De...	So...	PD...	SR...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...
1	DL...	Yes	Y		1	1.2		3	1.6						
2	DL...	Yes	Y		1	1.2		3	1.3...	4	0.8				
3	DL...	Yes	Y		1	1.2		3	0.8	4	1.3...				
4	DL...	Yes	Y		1	1.2				4	1.6				
5	DL...	Yes	Y		1	1.2		3	-0.8	4	1.3...				
6	DL...	Yes	Y		1	1.2		3	-1....	4	0.8				
7	DL...	Yes	Y		1	1.2		3	-1.6						
8	DL...	Yes	Y		1	1.2		3	-1....	4	-0.8				
9	DL...	Yes	Y		1	1.2		3	-0.8	4	-1....				
10	DL...	Yes	Y		1	1.2				4	-1.6				
11	DL...	Yes	Y		1	1.2		3	0.8	4	-1....				
12	DL...	Yes	Y		1	1.2		3	1.3...	4	-0.8				
13	DL...	Yes	Y		1	1.2	2	1	5	1					
14	DL...	Yes	Y		1	1.2	2	1	5	0.8...	6	0.5			
15	DL...	Yes	Y		1	1.2	2	1	5	0.5	6	0.8...			
16	DL...	Yes	Y		1	1.2	2	1		6	1				
17	DL...	Yes	Y		1	1.2	2	1	5	-0.5	6	0.8...			
18	DL...	Yes	Y		1	1.2	2	1	5	-0....	6	0.5			
19	DL...	Yes	Y		1	1.2	2	1	5	-1					
20	DL...	Yes	Y		1	1.2	2	1	5	-0....	6	-0.5			
21	DL...	Yes	Y		1	1.2	2	1	5	-0.5	6	-0....			
22	DL...	Yes	Y		1	1.2	2	1		6	-1				
23	DL...	Yes	Y		1	1.2	2	1	5	0.5	6	-0....			
24	DL...	Yes	Y		1	1.2	2	1	5	0.8...	6	-0.5			

Load Combinations (Continued)

De...	So...	PD...	SR...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...
25	DE...	Yes	Y	1	1.2				7	1.5				
26	DE...	Yes	Y	1	1.2				8	1.5				
27	DE...	Yes	Y	1	1.2				9	1.5				
28	DL...	Yes	Y	1	1.2	10	1.5	3	0.0...					
29	DL...	Yes	Y	1	1.2	11	1.5	3	0.0...					
30	DL...	Yes	Y	1	1.2	12	1.5	3	0.0...					
31	DL...	Yes	Y	1	1.2	13	1.5	3	0.0...					
32	DL...	Yes	Y	1	1.2	10	1.5	4	0.0...					
33	DL...	Yes	Y	1	1.2	11	1.5	4	0.0...					
34	DL...	Yes	Y	1	1.2	12	1.5	4	0.0...					
35	DL...	Yes	Y	1	1.2	13	1.5	4	0.0...					
36	DL...	Yes	Y	1	1.2	10	1.5	3	-0....					
37	DL...	Yes	Y	1	1.2	11	1.5	3	-0....					
38	DL...	Yes	Y	1	1.2	12	1.5	3	-0....					
39	DL...	Yes	Y	1	1.2	13	1.5	3	-0....					
40	DL...	Yes	Y	1	1.2	10	1.5	4	-0....					
41	DL...	Yes	Y	1	1.2	11	1.5	4	-0....					
42	DL...	Yes	Y	1	1.2	12	1.5	4	-0....					
43	DL...	Yes	Y	1	1.2	13	1.5	4	-0....					

Node Reactions

Node...		X [lbs]	LC	Y [lbs]	LC	Z [lbs]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
1	N92	max	1026.4...	4	1375.9...	1	2546.2...	17	3.391	32	5.598	17	1.703	8
2		min	-1371....	10	-1175....	7	645.505	11	0.494	11	0.883	11	-1.703	2
3	N93	max	1209.7...	4	892.158	1	2340.9...	13	-1.018	7	0.77	26	1.75	4
4		min	-1210....	10	-1291.61	7	557.857	37	-6.181	13	-0.151	4	-1.75	10
5	N94	max	1274.5...	4	1226.2...	1	2328.2...	21	3.378	42	-0.944	3	1.57	12
6		min	-928.966	10	-1026....	7	598.981	3	0.548	4	-5.316	21	-1.57	6
7	Totals:	max	3510.7...	4	3494.3...	1	7002.87	13						
8		min	-3510....	10	-3494....	7	2163.66	7						

Member Section Deflections Service

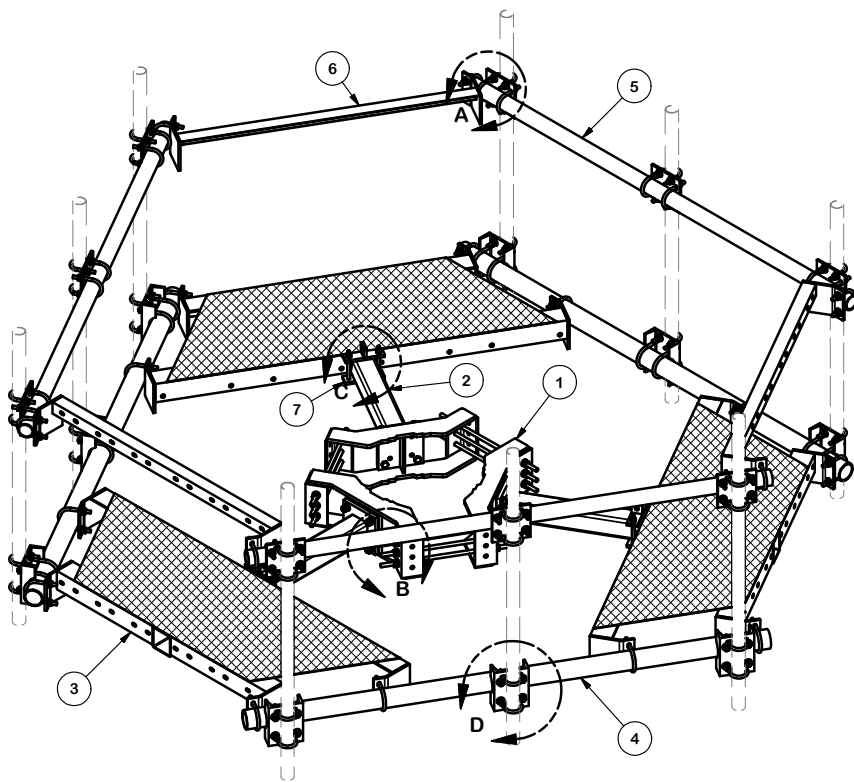
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LRFD

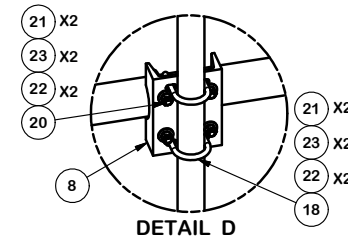
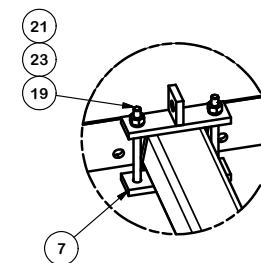
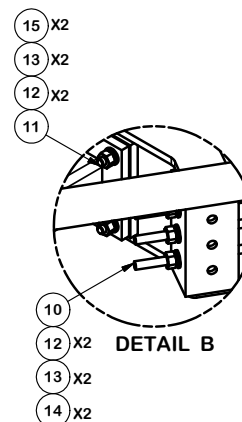
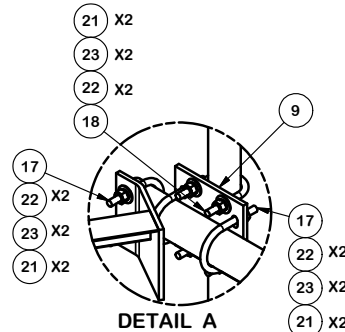
Member	Shape	Code...	Loc [in]	LC	Shear...	Loc [in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*M...	Cb	Eqn	
1	M19	PIPE...	0.076	48	41	0.051	34		2	51869...	78246	6.899	6.899	1.775	H1-1b
2	M20	PIPE...	0.064	48	17	0.050	34		10	51869...	78246	6.899	6.899	1.54	H1-1b
3	M21	PIPE...	0.064	48	21	0.050	62		4	51869...	78246	6.899	6.899	1.543	H1-1b
4	M22	PIPE...	0.053	12	10	0.047	12		9	30038...	50715	3.596	3.596	1.606	H1-1b
5	M23	PIPE...	0.061	84	12	0.046	12		5	30038...	50715	3.596	3.596	1.585	H1-1b
6	M24	PIPE...	0.061	84	8	0.046	84		9	30038...	50715	3.596	3.596	1.596	H1-1b
7	M30	PIPE...	0.172	48	8	0.047	48		5	14916...	32130	1.872	1.872	1.784	H1-1b
8	M27	PIPE...	0.180	48	12	0.050	48		9	14916...	32130	1.872	1.872	1.648	H1-1b
9	M58	PIPE...	0.187	48	11	0.046	48		1	14916...	32130	1.872	1.872	2.105	H1-1b
10	M57	PIPE...	0.180	48	2	0.050	48		5	14916...	32130	1.872	1.872	1.648	H1-1b
11	M33	PIPE...	0.187	48	3	0.047	48		1	14916...	32130	1.872	1.872	2.099	H1-1b
12	M32	PIPE...	0.462	48	4	0.059	48		2	14916...	32130	1.872	1.872	1.76	H1-1b
13	M29	PIPE...	0.462	48	10	0.060	48		12	14916...	32130	1.872	1.872	1.763	H1-1b
14	M26	PIPE...	0.461	48	1	0.057	48		10	14916...	32130	1.872	1.872	1.598	H1-1b
15	M61	PIPE...	0.172	48	6	0.047	48		9	14916...	32130	1.872	1.872	1.785	H1-1b
16	M36	L4X4X6	0.281	26.375	30	0.050	26.375	z	23	87237...	92664	4.398	9.886	1.5	H2-1
17	M44	L4X4X6	0.280	0	28	0.050	0	z	14	87237...	92664	4.398	9.886	1.5	H2-1
18	M42	L4X4X6	0.188	0	27	0.050	0	z	18	87237...	92664	4.398	9.886	1.5	H2-1
19	M40	L4X4X6	0.188	0	26	0.049	0	z	23	87237...	92664	4.398	9.886	1.5	H2-1
20	M39	L4X4X6	0.434	38.047	22	0.056	38.047	z	13	81728...	92664	4.398	9.886	1.5	H2-1
21	M38	L4X4X6	0.158	26.375	4	0.050	26.375	z	19	87237...	92664	4.398	9.886	1.5	H2-1

LRFD (Continued)

Member	Shape	Code...	Loc [in]	LC	Shear...	Loc [in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*M...	Cb	Eqn	
22	M37	L4X4X6	0.435	38.047	14	0.056	38.047	z	17	81728...	92664	4.398	9.886	1.5	H2-1
23	M34	L4X4X6	0.148	26.375	12	0.049	26.375	z	15	87237...	92664	4.398	9.886	1.5	H2-1
24	M43	L4X4X6	0.434	0	17	0.055	0	z	13	81728...	92664	4.398	9.886	1.5	H2-1
25	M41	L4X4X6	0.435	0	21	0.055	0	z	18	81728...	92664	4.398	9.886	1.5	H2-1
26	M45	L4X4X6	0.433	0	24	0.055	0	z	21	81728...	92664	4.398	9.886	1.5	H2-1
27	M35	L4X4X6	0.439	38.047	17	0.055	38.047	z	20	81728...	92664	4.398	9.886	1.5	H2-1
28	M48	L2.5X...	0.052	26.375	11	0.011	52.75	y	3	15445...	29192.4	0.873	1.716	1.136	H2-1
29	M47	L2.5X...	0.052	26.375	3	0.011	52.75	y	5	15445...	29192.4	0.873	1.716	1.136	H2-1
30	M46	L2.5X...	0.064	26.375	7	0.010	52.75	y	11	15445...	29192.4	0.873	1.716	1.136	H2-1
31	M51	HSS4...	0.425	0	19	0.139	13.5	y	28	13659...	139518	16.181	16.181	1.551	H1-1b
32	M50	HSS4...	0.405	0	19	0.138	0	y	30	13659...	139518	16.181	16.181	1.521	H1-1b
33	M49	HSS4...	0.406	0	23	0.086	0	y	26	13659...	139518	16.181	16.181	1.521	H1-1b
34	M53	HSS4...	0.082	0	38	0.122	0	y	42	12022...	121302	16.25	16.25	1.702	H1-1b
35	M52	HSS4...	0.069	0	24	0.079	0	y	26	12022...	121302	16.25	16.25	1.773	H1-1b
36	M54	HSS4...	0.082	0	36	0.122	0	y	32	12022...	121302	16.25	16.25	1.702	H1-1b
37	M64	PIPE...	0.112	12	7	0.014	12		7	26521...	32130	1.872	1.872	1.785	H1-1b



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	3	X-SNP-ST8	PLATFORM STANDOFF ARM WELDMENT, 43-3/4" LONG		60.39	181.16
3	3	X-SNPC	CORNER GRATING WELDMENT		194.33	582.99
4	3	P396	3" SCH. 40 PIPE (3.5" O.D. x 0.216" WALL) A500	96.000 in	60.75	182.25
5	3	P3096	2-7/8" OD X 96" SCH 40 GALVANIZED PIPE	96	49.24	147.72
6	3	X-SNP-HRA	CORNER BRACKET FOR SNPX PLATFORMS		25.95	77.86
7	3	X-SNPP1G	CLAMP PLATE	7.250 in	2.03	6.10
8	9	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	77.50
9	9	SCX2	CROSSOVER PLATE	7.000 in	4.80	43.17
10	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.40	3.59
10	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.40	3.59
11	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2.75	0.36	4.27
12	30	A58FW	5/8" HDG A325 FLATWASHER		0.03	1.02
13	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
14	18	A58NUT	5/8" HDG A325 HEX NUT		0.13	2.34
15	12	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	1.56
16	12	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" U-BOLT (HDG.)		0.26	3.08
17	24	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.26	6.17
18	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.26	9.25
19	6	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	7-1/2	0.41	2.46
20	18	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.26	4.63
21	186	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	13.32
22	180	G12FW	1/2" HDG USS FLATWASHER	0.095	0.03	6.13
23	186	G12LW	1/2" HDG LOCKWASHER	.125	0.01	2.59
24	9	A	2" SCH. 40 PIPE (2.375" O.D. x 0.154" WALL) A500	B	C	D



2-3/8" O.D. VERTICAL MOUNTING PIPES					
ASSEMBLY NO.	PART NO. "A"	LENGTH "B"	UNIT WEIGHT "C"	NET WEIGHT "D"	TOTAL WEIGHT
SNP8HR-372	P272	6'-0"	23.07	207.63	1717.07
SNP8HR-384	P284	7'-0"	26.91	242.19	1751.63
SNP8HR-396	P296	8'-0"	30.76	276.84	1786.28
SNP8HR-3126	P2126	10'-6"	40.75	366.75	1876.19

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

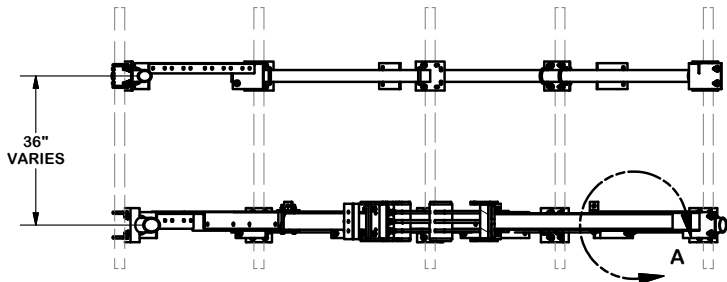
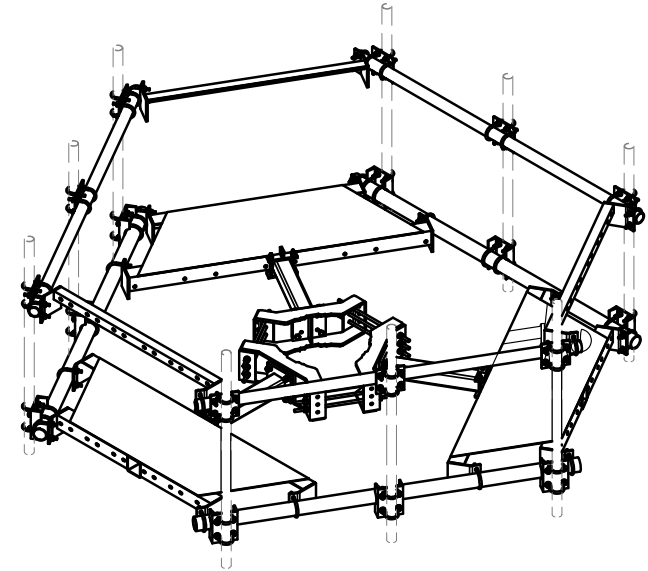
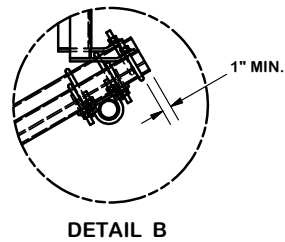
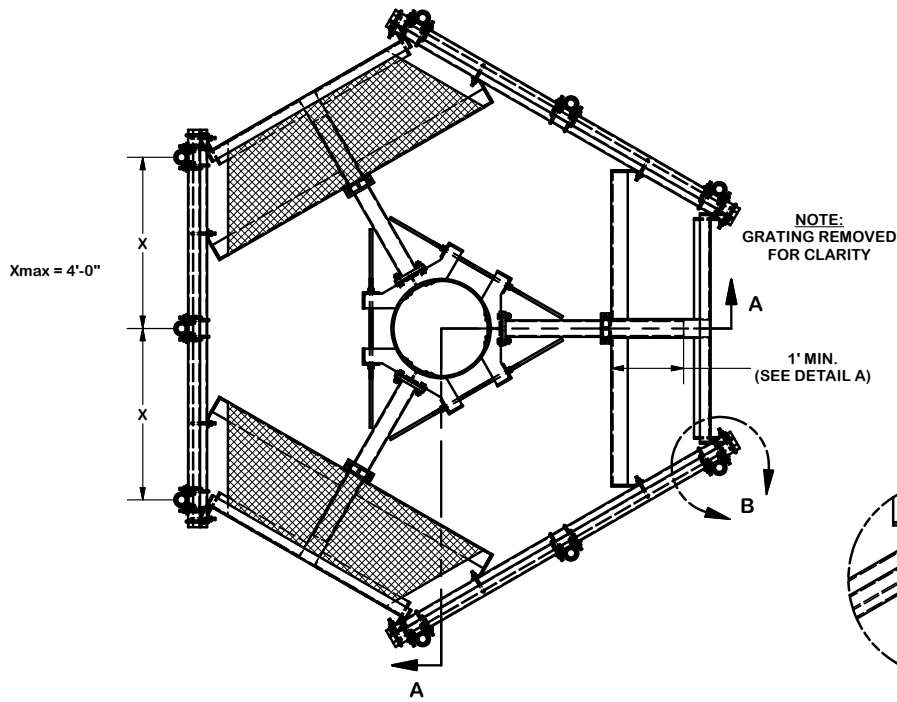
DESCRIPTION
**8' SNUB NOSE
 PLATFORM WITH
 HANDRAIL**

SITE PRO 1
 Engineering Support Team:
 1-888-753-7446

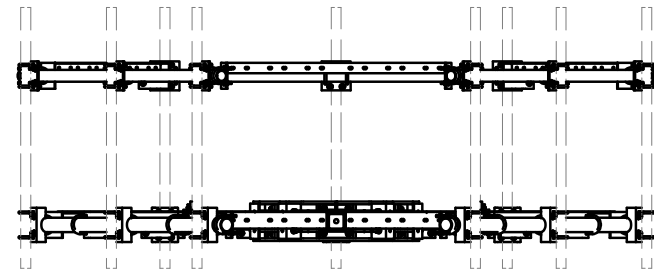
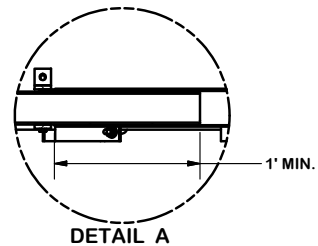
Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL
	CEK 11/19/2014	
CLASS	DRAWING USAGE	CHECKED BY
81	CUSTOMER	BMC 11/21/2014

PART NO.	SEE ASSEMBLY NO.	PAGE
DWG. NO.	SNP8HR-3XX	1 OF 2



SECTION A-A



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
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DESCRIPTION

8" SNUB NOSE
 PLATFORM WITH
 HANDRAIL

CPD NO.	DRAWN BY CEK 11/19/2014	ENG. APPROVAL
CLASS 81	SUB 02	DRAWING USAGE CUSTOMER
	CHECKED BY BMC 11/21/2014	



Engineering
 Support Team:
 1-888-753-7446

Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

PART NO.	SEE ASSEMBLY NO.
DWG. NO.	SNP8HR-3XX



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 150 ft Monopole
ATC Site Name : Parsonage Hill Aka Wallin, CT
ATC Site Number : 302538
Engineering Number : 14112747_C3_02
Proposed Carrier : DISH WIRELESS L.L.C.
Carrier Site Name : BOHVN00174B
Carrier Site Number : BOHVN00174B
Site Location : 922 Northrop Road
Wallingford, CT 06492-1910
41.4894, -72.7683
County : New Haven
Date : June 27, 2022
Max Usage : 98%
Result : Pass

Prepared By:

Ryan Ciamillo
Structural Engineer

Reviewed By:



COA : PEC.0001553



Table of Contents

Introduction	3
Supporting Documents	3
Analysis	3
Conclusion	3
Existing and Reserved Equipment	4
Equipment to be Removed	4
Proposed Equipment	4
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Deflection and Sway*	5
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Calculations	Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft Monopole to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower Drawings	Valmont Drawing #DC1776A, dated June 29, 1994
Foundation Drawing	SAC Engineering, Valmont Order #11715-94, dated July 21, 1994
Geotechnical Report	AET Project #91294, dated July 8, 1994

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	119 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	$S_s = 0.21, S_i = 0.06$
Site Class:	D - Stiff Soil - Default

****Wind load and Ice thickness have been reduced by applicable existing structure load modification factors in accordance with TIA-222-H, Annex S.**

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
152.3	3	Alcatel-Lucent RRH2x50-08	Triangular Platform with Handrails	(4) 1 1/4" Hybriflex Cable (2) 1/2" Coax (2) 2" conduit	CLEARWIRE CORPORATION
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
152.0	3	RFS APXVTM14-ALU-I20			
151.5	3	Commscope NNVV-65B-R4			
150.0	2	DragonWave Horizon Compact			
141.0	3	Ericsson Radio 4449 B71 B85A	Triangular Platform with Handrails	(5) 1 1/4" Hybriflex Cable (6) 1 5/8" Coax	T-MOBILE
	3	Ericsson RRUS 4415 B25			
	3	Ericsson Air6449 B41			
	3	Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)			
	3	Ericsson AIR32 B66Aa/B2a			
	3	Ericsson KRY 112 144/1			
134.5	3	Argus LLPX310R	Side Arms	(2) 1/2" Coax	CLEARWIRE CORPORATION
134.3	2	DragonWave A-ANT-11G-2-C			
134.0	2	DragonWave Horizon Compact			
132.5	3	NextNet BTS-2500			
132.1	3	Ericsson RRUS 32 B30	Triangular Platform with Handrails	(2) 3" conduit (1) 0.39" (10mm) Fiber Trunk (2) 0.40" (10.3mm) Fiber (2) 0.78" (19.7mm) 8 AWG 6 (4) 0.82" (20.8mm) 8 AWG 6 (1) 0.92" (23.4mm) Cable (4) 2" conduit (6) 7/8" Coax	AT&T MOBILITY
129.0	3	Ericsson AIR 6419 B77G			
127.0	3	Ericsson RRUS 4449 B5, B12			
	3	Ericsson RRUS 32 B66A			
	3	Ericsson RRUS 32 B2			
	2	Raycap DC6-48-60-18-8F ("Squid")			
	3	CCI DMP65R-BU6E			
	3	Kathrein Scala 80010965			
	3	Ericsson RRUS 4478 B14 (15")			
1	Raycap DC9-48-60-24-8C-EV				
125.0	3	Ericsson Air 6449 B77D			

Equipment to be Removed

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
111.0	-	-	Empty Triangular Platform with Handrails	-	OTHER

Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
115.0	1	Raycap RDIDC-9181-PF-48	Triangular Platform with Handrails	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B604			
	3	Fujitsu TA08025-B605			
	3	JMA Wireless MX08FRO665-21			

¹ Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	72%	Pass
Shaft	87%	Pass
Base Plate	26%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3980.3	14%
Axial (Kips)	58.6	52%
Shear (Kips)	35.9	98%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
134.3	DragonWave A-ANT-11G-2-C	CLEARWIRE CORPORATION	1.979	1.560
115.0	JMA Wireless MX08FRO665-21	DISH WIRELESS L.L.C.	1.471	1.440
	Fujitsu TA08025-B605			
	Raycap RDIDC-9181-PF-48			
	Fujitsu TA08025-B604			

*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H

Standard Conditions

All engineering services performed by A.T. Engineering Services LLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Services LLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Services LLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively “American Tower”) are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

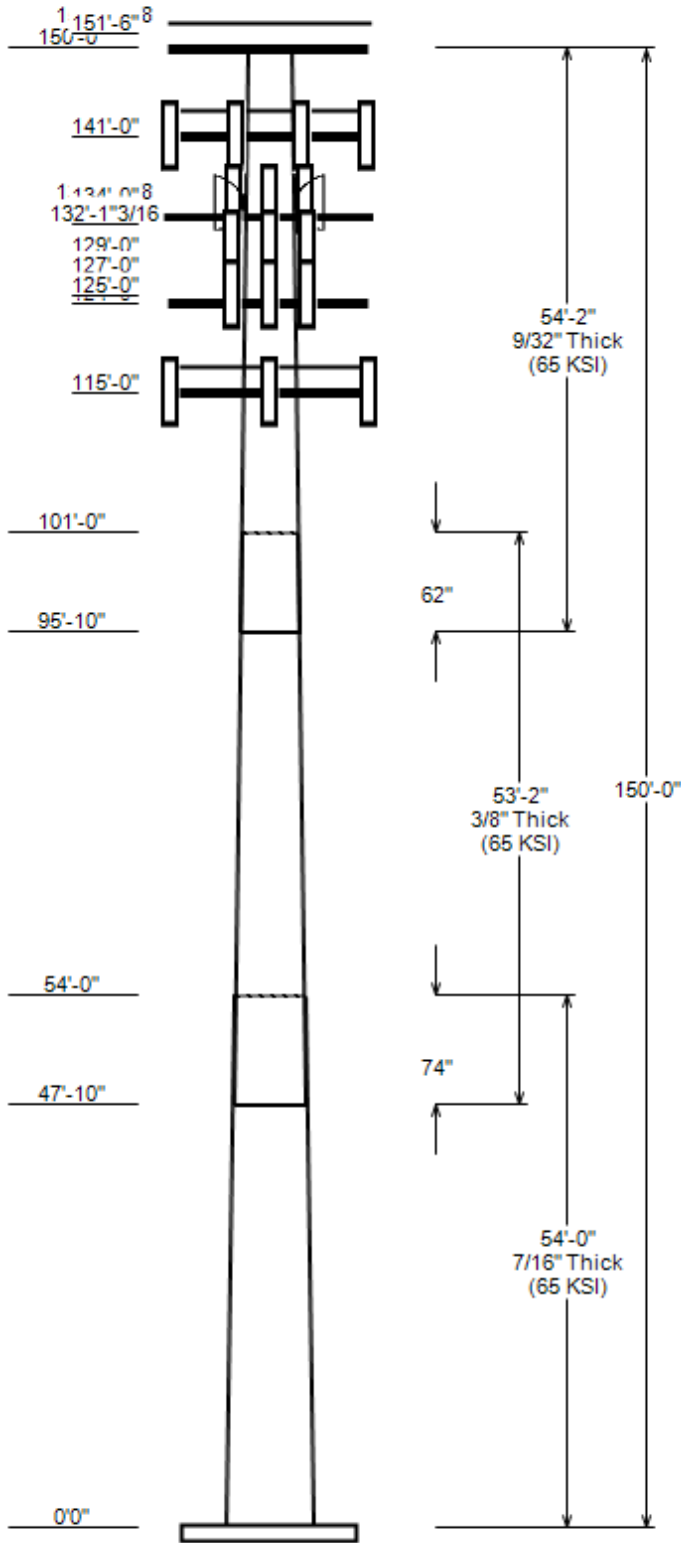
Unless explicitly agreed by both the client and A.T. Engineering Services LLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

JOB INFORMATION

Asset : 302538, Parsonage Hill Aka Wallin
 Client : DISH WIRELESS L.L.C.
 Code : ANSI/TIA-222-H

Height : 150 ft
 Base Width : 49.6
 Shape : 12 Sides



SITE PARAMETERS

Nominal Wind: 115.99 mph wind with no ic **Topo Category:** 1
Ice Wind: 48.73 mph wind with 0.850" **Topo Method:** Method 1
Base Elev (ft): 0.00 **Taper :** 0.18200(ln/ft) **Topo Feature:**
Structure Class: II **Exposure :** C **S_s :** 0.207 **S₁ :** 0.055

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Overlap Length (in)	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom			
1	54.000	39.77	49.60	0.438	0.000	12 Sides 65
2	53.167	31.97	41.64	0.375	74.000	12 Sides 65
3	54.167	23.61	33.47	0.281	62.000	12 Sides 65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
152.3	152.3	3	Alcatel-Lucent RRH2x50-08
152.3	152.3	3	Alcatel-Lucent 1900 MHz 4X45 R
152.3	152.3	3	Alcatel-Lucent TD-RRH8x20-25 w
152.0	152.0	3	RFS APXVTM14-ALU-I20
151.5	151.5	3	Commscope NNVV-65B-R4
150.0	150.0	2	DragonWave Horizon Compact
150.0	150.0	1	Site Pro 1 RMQP-496-HK
141.0	140.0	3	Ericsson KRY 112 144/1
141.0	141.0	3	Ericsson Radio 4449 B71 B85A
141.0	141.0	3	Ericsson RRUS 4415 B25
141.0	141.0	3	Ericsson Air6449 B41
141.0	141.0	3	Ericsson AIR 21, 1.3M, B2A B4P
141.0	141.0	3	Ericsson AIR32 B66Aa/B2a
141.0	141.0	3	RFS APXVAARR24_43-U-NA20
141.0	141.0	1	Generic Flat Platform with Han
134.5	134.5	3	Argus LLPX310R
134.3	134.3	2	DragonWave A-ANT-11G-2-C
134.0	134.0	2	DragonWave Horizon Compact
133.0	133.0	3	Generic Round Side Arm
132.5	132.5	3	NextNet BTS-2500
132.1	135.1	3	Ericsson RRUS 32 B30
129.0	129.0	3	Ericsson AIR 6419 B77G
127.0	127.0	2	Raycap DC6-48-60-18-8F ("Squid
127.0	130.0	3	Ericsson RRUS 4478 B14 (15")
127.0	127.0	3	Ericsson RRUS 4449 B5, B12
127.0	130.0	3	Ericsson RRUS 32 B66A
127.0	127.0	3	Ericsson RRUS 32 B2
127.0	127.0	1	Raycap DC9-48-60-24-8C-EV
127.0	127.0	3	CCI DMP65R-BU6E
127.0	130.0	3	Kathrein Scala 80010965
125.0	125.0	3	Ericsson Air 6449 B77D
124.0	124.0	1	Flat Platform w/Handrails Site
115.0	115.0	1	Raycap RDIDC-9181-PF-48
115.0	115.0	3	Fujitsu TA08025-B605
115.0	115.0	3	Fujitsu TA08025-B604
115.0	115.0	3	JMA Wireless MX08FRO665-21
115.0	115.0	1	Generic Flat Platform with Han

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	152.0	1 1/4" Hybriflex Cable	No
0.0	150.0	2" conduit	No

JOB INFORMATION

Asset : 302538, Parsonage Hill Aka Wallin
 Client : DISH WIRELESS L.L.C.
 Code : ANSI/TIA-222-H

Height : 150 ft
 Base Width : 49.6
 Shape : 12 Sides

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	150.0	1/2" Coax	No
0.0	141.0	1 5/8" Coax	No
0.0	141.0	1 1/4" Hybriflex Cable	Yes
0.0	141.0	1 1/4" Hybriflex Cable	No
0.0	134.0	1/2" Coax	No
0.0	131.0	3" conduit	No
0.0	127.0	7/8" Coax	No
0.0	127.0	2" conduit	No
0.0	127.0	0.92" (23.4mm) Cable	No
0.0	127.0	0.82" (20.8mm) 8 AWG 6	No
0.0	127.0	0.78" (19.7mm) 8 AWG 6	No
0.0	127.0	0.40" (10.3mm) Fiber	No
0.0	127.0	0.39" (10mm) Fiber Trunk	No
0.0	115.0	1.60" (40.6mm) Hybrid	No

LOAD CASES

1.2D + 1.0W Normal	115.99 mph wind with no ice
0.9D + 1.0W Normal	115.99 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Nor	48.73 mph wind with 0.850" radial
1.2D + 1.0Ev + 1.0Eh Nor	Seismic
0.9D - 1.0Ev + 1.0Eh Nor	Seismic (Reduced DL)
1.0D + 1.0W Service Norm	60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W Normal	3980.31	35.91	58.63
0.9D + 1.0W Normal	3909.16	35.87	43.96
1.2D + 1.0Di + 1.0Wi Normal	915.36	8.12	73.04
1.2D + 1.0Ev + 1.0Eh Normal	192.72	1.47	59.05
0.9D - 1.0Ev + 1.0Eh Normal	188.09	1.47	40.62
1.0D + 1.0W Service Normal	943.42	8.59	48.93

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W Service Normal	134.30	23.751	1.561

ASSET: 302538, Parsonage Hill Aka Wallin
CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H
ENG NO: 14112747_C3_02

ANALYSIS PARAMETERS

Location:	New Haven County,CT	Height:	150 ft
Type and Shape:	Taper, 12 Sides	Base Diameter:	49.60 in
Manufacturer:	Valmont	Top Diameter:	23.61 in
K_d (non-service):	0.95	Taper:	0.1820 in/ft
K_e:	0.99	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	C	Design Wind Speed w/o Ice:	116 mph
Risk Category:	II	Design Wind Speed w/Ice:	49 mph
Topo Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	0.85 in
Crest Height:	0 ft	HMSL:	383.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	2.93
T_L (sec):	6	P:	1
S_s:	0.207	S₁:	0.055
F_a:	1.600	F_v:	2.400
S_{ds}:	0.221	S_{dt}:	0.088
		C_s:	0.030
		C_s Max:	0.030
		C_s Min:	0.030

LOAD CASES

1.2D + 1.0W Normal	115.99 mph wind with no ice
0.9D + 1.0W Normal	115.99 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	48.73 mph wind with 0.850" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-12	54.00	0.4375	65		0.00	11,454	49.60	0.000	69.26	21,365.9	27.70	113.37	39.77	54.00	55.41	10,943.1	21.68	90.91	0.1820
2-12	53.17	0.3750	65	Slip	74.00	7,958	41.64	47.833	49.83	10,833.2	27.08	111.05	31.97	101.00	38.15	4,860.1	20.16	85.25	0.1820
3-12	54.17	0.2813	65	Slip	62.00	4,717	33.47	95.833	30.06	4,226.9	29.20	118.99	23.61	150.00	21.13	1,468.3	19.81	83.94	0.1820
Shaft Weight						24,129													

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice			Ice		
					Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor
152.30	Alcatel-Lucent 1900 MHz 4X45 R	3	0.75	0.000	60.00	2.322	0.50	105.68	2.935	0.50
152.30	Alcatel-Lucent TD-RRH8x20-25 w	3	0.75	0.000	70.00	4.046	0.50	123.57	4.799	0.50
152.30	Alcatel-Lucent RRH2x50-08	3	0.75	0.000	52.90	1.701	0.50	86.49	2.190	0.50
152.00	RFS APXVTM14-ALU-I20	3	0.75	0.000	56.20	6.342	0.66	134.26	7.577	0.66
151.50	Commscope NNVV-65B-R4	3	0.75	0.000	77.40	12.271	0.64	219.84	13.860	0.64
150.00	DragonWave Horizon Compact	2	0.75	0.000	10.60	0.720	0.50	23.35	1.042	0.50
150.00	Site Pro 1 RMQP-496-HK	1	1.00	0.000	2448.70	27.200	1.00	3348.04	41.057	1.00
141.00	Ericsson KRY 112 144/1	3	0.75	-1.000	11.00	0.351	0.50	17.07	0.580	0.50
141.00	Ericsson Radio 4449 B71 B85A	3	0.75	0.000	75.00	1.650	0.50	108.93	2.129	0.50
141.00	Ericsson RRUS 4415 B25	3	0.75	0.000	46.00	1.842	0.50	73.66	2.348	0.50
141.00	Ericsson Air6449 B41	3	0.75	0.000	104.00	5.682	0.63	180.88	6.577	0.63
141.00	Ericsson AIR 21, 1.3M, B2A B4P	3	0.75	0.000	91.50	6.037	0.70	173.63	7.247	0.70
141.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.243	0.63	349.37	22.335	0.63
141.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3502.16	54.231	1.00
141.00	Ericsson AIR32 B66Aa/B2a	3	0.75	0.000	132.20	6.510	0.71	222.24	7.746	0.71
134.50	Argus LLPX310R	3	0.80	0.000	28.60	4.292	0.63	79.21	5.221	0.63
134.30	DragonWave A-ANT-11G-2-C	2	1.00	0.000	27.00	4.688	1.00	81.72	5.403	1.00
134.00	DragonWave Horizon Compact	2	0.80	0.000	10.60	0.721	0.50	23.22	1.040	0.50
133.00	Generic Round Side Arm	3	1.00	0.000	187.50	5.200	0.67	238.79	6.724	0.67
132.50	NextNet BTS-2500	3	0.80	0.000	35.00	1.817	0.50	61.01	2.331	0.50
132.10	Ericsson RRUS 32 B30	3	0.75	3.000	60.00	2.743	0.50	101.21	3.398	0.50
129.00	Ericsson AIR 6419 B77G	3	0.75	0.000	66.10	3.797	0.65	120.33	4.533	0.65
127.00	Ericsson RRUS 32 B2	3	0.75	0.000	53.00	2.743	0.50	94.04	3.396	0.50
127.00	Ericsson RRUS 32 B66A	3	0.75	3.000	50.70	2.720	0.50	91.60	3.369	0.50
127.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	106.96	2.489	0.50
127.00	Raycap DC6-48-60-18-8F ("Squid)	2	0.75	0.000	31.80	1.470	1.00	66.23	1.860	1.00
127.00	Raycap DC9-48-60-24-8C-EV	1	0.75	0.000	16.00	4.788	1.00	88.04	5.609	1.00
127.00	CCi DMP65R-BU6E	3	0.75	0.000	103.80	12.709	0.65	259.23	14.265	0.65
127.00	Kathrein Scala 80010965	3	0.75	3.000	97.60	13.814	0.62	246.37	15.516	0.62
127.00	Ericsson RRUS 4478 B14 (15")	3	0.75	3.000	59.40	1.650	0.50	87.13	2.123	0.50
125.00	Ericsson Air 6449 B77D	3	0.75	0.000	81.60	4.028	0.65	138.92	4.794	0.65
124.00	Flat Platform w/Handrails Site	1	1.00	0.000	3000.00	49.620	1.00	4185.73	63.271	1.00
115.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3480.13	53.971	1.00
115.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	206.31	14.040	0.64
115.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	109.56	2.470	0.50
115.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	96.07	2.470	0.50
115.00	Raycap RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	53.30	2.364	1.00
Totals	Num Loadings: 37				95	16,652.00		26,543.52		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : _

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	152.00	4	1 1/4" Hybriflex Cabl	1.54	1	N	0	0	0	0	0	N	CLEARWIRE COR
0.00	150.00	2	1/2" Coax	0.63	0.15	N	0	0	0	0	0	N	CLEARWIRE COR
0.00	150.00	2	2" conduit	2.38	3.65	N	0	0	0	0	0	N	CLEARWIRE COR
0.00	141.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	T-MOBILE
0.00	141.00	3	1 1/4" Hybriflex Cabl	1.54	1	N	0	0	0	0	0	N	T-MOBILE
0.00	141.00	2	1 1/4" Hybriflex Cabl	1.54	1	N	2	1	1	90	1	Y	T-MOBILE
0.00	134.00	2	1/2" Coax	0.63	0.15	N	0	0	0	0	0	N	CLEARWIRE COR
0.00	131.00	2	3" conduit	3.5	7.58	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	127.00	6	7/8" Coax	1.09	0.33	N	0	0	0	0	0	N	AT&T MOBILITY

ASSET: 302538, Parsonage Hill Aka Wallin
 CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H
 ENG NO: 14112747_C3_02

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	127.00	4	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	127.00	4	0.82" (20.8mm) 8 AWG	0.82	0.62	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	127.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	127.00	2	0.40" (10.3mm) Fiber	0.4	0.09	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	127.00	1	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	127.00	1	0.92" (23.4mm) Cable	0.92	0.89	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	115.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS

SEGMENT PROPERTIES

(Max Len: 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fy (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.4375	49.600	69.258	21,365.90	27.70	113.37	74.5	832.2	0.0	0.0
5.00		0.4375	48.690	67.976	20,201.30	27.14	111.29	75.1	801.5	0.0	1,167.4
10.00		0.4375	47.780	66.694	19,079.80	26.58	109.21	75.7	771.4	0.0	1,145.6
15.00		0.4375	46.870	65.412	18,000.60	26.03	107.13	76.3	741.9	0.0	1,123.8
20.00		0.4375	45.960	64.130	16,962.80	25.47	105.05	76.9	713.0	0.0	1,102.0
25.00		0.4375	45.050	62.848	15,965.80	24.91	102.97	77.5	684.6	0.0	1,080.2
30.00		0.4375	44.140	61.566	15,008.50	24.35	100.89	78.2	656.9	0.0	1,058.4
35.00		0.4375	43.230	60.284	14,090.40	23.80	98.81	78.8	629.7	0.0	1,036.6
40.00		0.4375	42.320	59.002	13,210.50	23.24	96.73	79.4	603.0	0.0	1,014.8
45.00		0.4375	41.410	57.720	12,367.90	22.68	94.65	80	577.0	0.0	992.9
47.83	Bot - Section 2	0.4375	40.894	56.994	11,906.80	22.37	93.47	80.3	562.5	0.0	553.0
50.00		0.4375	40.500	56.438	11,562.00	22.12	92.57	80.6	551.5	0.0	783.8
54.00	Top - Section 1	0.3750	40.522	48.478	9,973.20	26.27	108.06	76.1	475.5	0.0	1,427.0
55.00		0.3750	40.340	48.258	9,838.10	26.14	107.57	76.2	471.1	0.0	164.6
60.00		0.3750	39.430	47.159	9,181.30	25.49	105.15	76.9	449.8	0.0	811.7
65.00		0.3750	38.520	46.060	8,554.30	24.84	102.72	77.6	429.0	0.0	793.0
70.00		0.3750	37.610	44.961	7,956.60	24.19	100.29	78.3	408.7	0.0	774.3
75.00		0.3750	36.700	43.862	7,387.40	23.54	97.87	79	388.9	0.0	755.6
80.00		0.3750	35.790	42.764	6,846.00	22.89	95.44	79.7	369.5	0.0	736.9
85.00		0.3750	34.880	41.665	6,331.70	22.24	93.01	80.5	350.7	0.0	718.2
90.00		0.3750	33.970	40.566	5,843.80	21.59	90.59	81.2	332.3	0.0	699.5
95.00		0.3750	33.060	39.467	5,381.70	20.94	88.16	81.9	314.5	0.0	680.8
95.83	Bot - Section 3	0.3750	32.908	39.284	5,307.10	20.83	87.76	81.9	311.5	0.0	111.7
100.00		0.3750	32.150	38.368	4,944.60	20.29	85.73	81.9	297.1	0.0	971.8
101.00	Top - Section 2	0.2813	32.531	29.211	3,877.70	28.31	115.64	73.8	230.3	0.0	229.9
105.00		0.2813	31.803	28.552	3,621.00	27.61	113.06	74.6	220.0	0.0	393.1
110.00		0.2813	30.893	27.727	3,316.30	26.75	109.82	75.5	207.4	0.0	478.8
115.00		0.2813	29.983	26.903	3,029.30	25.88	106.59	76.5	195.2	0.0	464.7
120.00		0.2813	29.073	26.079	2,759.30	25.01	103.35	77.4	183.4	0.0	450.7
124.00		0.2813	28.345	25.419	2,555.20	24.32	100.76	78.2	174.2	0.0	350.5
125.00		0.2813	28.163	25.254	2,505.80	24.15	100.12	78.4	171.9	0.0	86.2
127.00		0.2813	27.799	24.925	2,409.00	23.80	98.82	78.8	167.4	0.0	170.7
129.00		0.2813	27.435	24.595	2,314.60	23.45	97.53	79.1	163.0	0.0	168.5
130.00		0.2813	27.253	24.430	2,268.40	23.28	96.88	79.3	160.8	0.0	83.4
132.10		0.2813	26.870	24.084	2,173.30	22.92	95.52	79.7	156.3	0.0	173.3
132.50		0.2813	26.798	24.018	2,155.50	22.85	95.26	79.8	155.4	0.0	32.7
133.00		0.2813	26.707	23.936	2,133.40	22.76	94.94	79.9	154.3	0.0	40.8
134.00		0.2813	26.525	23.771	2,089.60	22.59	94.29	80.1	152.2	0.0	81.2
134.30		0.2813	26.470	23.721	2,076.60	22.53	94.10	80.1	151.6	0.0	24.2
134.50		0.2813	26.434	23.688	2,068.00	22.50	93.97	80.2	151.1	0.0	16.1
135.00		0.2813	26.343	23.606	2,046.40	22.41	93.65	80.3	150.1	0.0	40.2
140.00		0.2813	25.433	22.782	1,839.50	21.55	90.41	81.2	139.7	0.0	394.6
141.00		0.2813	25.251	22.617	1,799.80	21.37	89.76	81.4	137.7	0.0	77.2
145.00		0.2813	24.523	21.957	1,646.90	20.68	87.18	81.9	129.7	0.0	303.4
150.00		0.2813	23.613	21.133	1,468.30	19.81	83.94	81.9	120.1	0.0	366.6

Totals: 24,130.4

Load Case: 1.2D + 1.0W Normal	115.99 mph wind with no ice	27 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 1.20		
Wind Load Factor: 1.00		

CALCULATED FORCES

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 (deg)	Ratio
0.00	-58.63	-35.91	0.00	-3,980.3	0.00	3,980.31	4,644.08	1,215.47	5,637.09	4,650.12	0	0	0.869
5.00	-56.71	-35.56	0.00	-3,800.8	0.00	3,800.76	4,595.30	1,192.97	5,430.39	4,515.36	0.14	-0.26	0.855
10.00	-54.81	-35.21	0.00	-3,623.0	0.00	3,622.95	4,545.12	1,170.48	5,227.56	4,381.07	0.55	-0.52	0.840
15.00	-52.95	-34.85	0.00	-3,446.9	0.00	3,446.90	4,493.54	1,147.98	5,028.59	4,247.34	1.24	-0.78	0.824
20.00	-51.11	-34.46	0.00	-3,272.7	0.00	3,272.66	4,440.56	1,125.48	4,833.48	4,114.23	2.2	-1.05	0.808
25.00	-49.31	-34.04	0.00	-3,100.4	0.00	3,100.38	4,386.18	1,102.98	4,642.23	3,981.83	3.44	-1.32	0.791
30.00	-47.53	-33.59	0.00	-2,930.2	0.00	2,930.21	4,330.39	1,080.48	4,454.84	3,850.22	4.96	-1.59	0.773
35.00	-45.79	-33.12	0.00	-2,762.3	0.00	2,762.28	4,273.20	1,057.98	4,271.31	3,719.48	6.77	-1.86	0.754
40.00	-44.07	-32.63	0.00	-2,596.7	0.00	2,596.70	4,214.61	1,035.48	4,091.64	3,589.68	8.86	-2.13	0.735
45.00	-42.42	-32.22	0.00	-2,433.6	0.00	2,433.55	4,154.61	1,012.99	3,915.83	3,460.90	11.23	-2.4	0.714
47.83	-41.49	-31.96	0.00	-2,342.3	0.00	2,342.26	4,119.99	1,000.24	3,817.92	3,388.41	12.7	-2.55	0.702
50.00	-40.32	-31.62	0.00	-2,273.0	0.00	2,273.02	4,093.21	990.49	3,743.89	3,333.22	13.88	-2.67	0.693
54.00	-38.26	-31.29	0.00	-2,146.5	0.00	2,146.52	3,318.40	850.78	3,222.25	2,712.21	16.21	-2.89	0.804
55.00	-37.91	-31.00	0.00	-2,115.2	0.00	2,115.23	3,309.52	846.92	3,193.11	2,692.57	16.83	-2.94	0.798
60.00	-36.46	-30.47	0.00	-1,960.2	0.00	1,960.23	3,264.26	827.64	3,049.40	2,594.71	20.07	-3.24	0.768
65.00	-35.03	-29.92	0.00	-1,807.9	0.00	1,807.91	3,217.60	808.35	2,908.99	2,497.46	23.61	-3.53	0.736
70.00	-33.63	-29.36	0.00	-1,658.3	0.00	1,658.31	3,169.54	789.07	2,771.90	2,400.90	27.46	-3.82	0.703
75.00	-32.27	-28.80	0.00	-1,511.5	0.00	1,511.50	3,120.07	769.79	2,638.11	2,305.09	31.61	-4.1	0.667
80.00	-30.94	-28.23	0.00	-1,367.5	0.00	1,367.50	3,069.20	750.50	2,507.64	2,210.12	36.06	-4.38	0.630
85.00	-29.64	-27.65	0.00	-1,226.4	0.00	1,226.37	3,016.93	731.22	2,380.47	2,116.08	40.78	-4.65	0.591
90.00	-28.37	-27.07	0.00	-1,088.1	0.00	1,088.12	2,963.26	711.93	2,256.61	2,023.03	45.79	-4.91	0.549
95.00	-27.16	-26.68	0.00	-952.8	0.00	952.78	2,909.12	692.65	2,136.06	1,931.68	51.06	-5.16	0.504
95.83	-26.93	-26.42	0.00	-930.6	0.00	930.55	2,895.62	689.43	2,116.29	1,913.69	51.96	-5.2	0.497
100.00	-25.45	-26.02	0.00	-820.5	0.00	820.49	2,828.13	673.36	2,018.82	1,825.02	56.58	-5.39	0.460
101.00	-25.08	-25.74	0.00	-794.5	0.00	794.47	1,941.28	512.65	1,559.60	1,275.31	57.71	-5.44	0.638
105.00	-24.27	-25.23	0.00	-691.5	0.00	691.51	1,916.90	501.08	1,490.00	1,230.62	62.34	-5.62	0.577
110.00	-23.30	-24.65	0.00	-565.4	0.00	565.36	1,885.15	486.61	1,405.24	1,174.99	68.35	-5.86	0.496
115.00	-18.95	-20.62	0.00	-442.1	0.00	442.11	1,852.00	472.15	1,322.96	1,119.70	74.6	-6.08	0.407
120.00	-18.07	-20.07	0.00	-339.0	0.00	339.01	1,817.44	457.68	1,243.16	1,064.83	81.05	-6.26	0.330
124.00	-14.06	-17.03	0.00	-258.7	0.00	258.72	1,788.79	446.11	1,181.11	1,021.28	86.34	-6.38	0.263
125.00	-13.63	-16.55	0.00	-241.7	0.00	241.70	1,781.49	443.22	1,165.84	1,010.45	87.68	-6.41	0.248
127.00	-11.93	-13.58	0.00	-205.2	0.00	205.16	1,766.71	437.43	1,135.61	988.86	90.38	-6.46	0.215
129.00	-11.45	-13.11	0.00	-178.0	0.00	178.00	1,751.71	431.64	1,105.78	967.36	93.09	-6.51	0.191
130.00	-11.32	-12.93	0.00	-164.9	0.00	164.89	1,744.13	428.75	1,091.01	956.65	94.45	-6.53	0.180
132.10	-10.85	-12.60	0.00	-137.3	0.00	137.29	1,728.02	422.67	1,060.32	934.25	97.33	-6.57	0.154
132.50	-10.69	-12.44	0.00	-132.2	0.00	132.25	1,724.93	421.52	1,054.52	929.99	97.88	-6.58	0.149
133.00	-10.02	-11.78	0.00	-126.0	0.00	126.03	1,721.04	420.07	1,047.30	924.68	98.56	-6.59	0.143
134.00	-9.88	-11.67	0.00	-114.2	0.00	114.25	1,713.23	417.18	1,032.93	914.08	99.94	-6.6	0.132
134.30	-9.84	-11.19	0.00	-110.8	0.00	110.75	1,710.88	416.31	1,028.63	910.90	100.36	-6.61	0.128
134.50	-9.75	-10.83	0.00	-108.5	0.00	108.51	1,709.31	415.73	1,025.78	908.79	100.63	-6.61	0.126
135.00	-9.71	-10.55	0.00	-103.1	0.00	103.10	1,705.37	414.28	1,018.65	903.50	101.32	-6.62	0.120
140.00	-9.14	-10.18	0.00	-50.4	0.00	50.35	1,665.21	399.82	948.78	851.09	108.27	-6.67	0.065
141.00	-4.55	-4.37	0.00	-40.2	0.00	40.16	1,657.01	396.93	935.11	840.70	109.66	-6.68	0.051
145.00	-4.19	-3.89	0.00	-22.7	0.00	22.68	1,618.48	385.35	881.39	796.95	115.25	-6.7	0.031
150.00	0.00	-3.37	0.00	-3.2	0.00	3.25	1,557.73	370.89	816.49	737.91	122.26	-6.71	0.004

Load Case: 0.9D + 1.0W Normal	115.99 mph wind with no ice	26 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 0.90		
Wind Load Factor: 1.00		

CALCULATED FORCES

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 (deg)	Ratio
0.00	-43.96	-35.87	0.00	-3,909.2	0.00	3,909.16	4,644.08	1,215.47	5,637.09	4,650.12	0	0	0.851
5.00	-42.48	-35.46	0.00	-3,729.8	0.00	3,729.79	4,595.30	1,192.97	5,430.39	4,515.36	0.14	-0.25	0.836
10.00	-41.02	-35.04	0.00	-3,552.5	0.00	3,552.50	4,545.12	1,170.48	5,227.56	4,381.07	0.54	-0.51	0.821
15.00	-39.58	-34.62	0.00	-3,377.3	0.00	3,377.29	4,493.54	1,147.98	5,028.59	4,247.34	1.21	-0.77	0.805
20.00	-38.17	-34.17	0.00	-3,204.2	0.00	3,204.19	4,440.56	1,125.48	4,833.48	4,114.23	2.16	-1.03	0.788
25.00	-36.79	-33.70	0.00	-3,033.3	0.00	3,033.33	4,386.18	1,102.98	4,642.23	3,981.83	3.38	-1.29	0.771
30.00	-35.43	-33.20	0.00	-2,864.8	0.00	2,864.85	4,330.39	1,080.48	4,454.84	3,850.22	4.87	-1.55	0.753
35.00	-34.09	-32.68	0.00	-2,698.8	0.00	2,698.85	4,273.20	1,057.98	4,271.31	3,719.48	6.64	-1.82	0.735
40.00	-32.78	-32.15	0.00	-2,535.4	0.00	2,535.43	4,214.61	1,035.48	4,091.64	3,589.68	8.68	-2.08	0.715
45.00	-31.52	-31.72	0.00	-2,374.7	0.00	2,374.67	4,154.61	1,012.99	3,915.83	3,460.90	11	-2.35	0.695
47.83	-30.81	-31.44	0.00	-2,284.8	0.00	2,284.80	4,119.99	1,000.24	3,817.92	3,388.41	12.44	-2.5	0.683
50.00	-29.91	-31.08	0.00	-2,216.7	0.00	2,216.68	4,093.21	990.49	3,743.89	3,333.22	13.6	-2.61	0.673
54.00	-28.35	-30.75	0.00	-2,092.4	0.00	2,092.35	3,318.40	850.78	3,222.25	2,712.21	15.88	-2.83	0.781
55.00	-28.08	-30.43	0.00	-2,061.6	0.00	2,061.60	3,309.52	846.92	3,193.11	2,692.57	16.48	-2.88	0.775
60.00	-26.96	-29.86	0.00	-1,909.4	0.00	1,909.43	3,264.26	827.64	3,049.40	2,594.71	19.65	-3.17	0.745
65.00	-25.87	-29.29	0.00	-1,760.1	0.00	1,760.11	3,217.60	808.35	2,908.99	2,497.46	23.12	-3.45	0.714
70.00	-24.80	-28.71	0.00	-1,613.7	0.00	1,613.67	3,169.54	789.07	2,771.90	2,400.90	26.88	-3.73	0.681
75.00	-23.76	-28.12	0.00	-1,470.1	0.00	1,470.13	3,120.07	769.79	2,638.11	2,305.09	30.93	-4.01	0.647
80.00	-22.75	-27.53	0.00	-1,329.5	0.00	1,329.52	3,069.20	750.50	2,507.64	2,210.12	35.27	-4.28	0.610
85.00	-21.76	-26.94	0.00	-1,191.8	0.00	1,191.85	3,016.93	731.22	2,380.47	2,116.08	39.89	-4.54	0.572
90.00	-20.79	-26.35	0.00	-1,057.1	0.00	1,057.14	2,963.26	711.93	2,256.61	2,023.03	44.78	-4.79	0.531
95.00	-19.88	-25.97	0.00	-925.4	0.00	925.39	2,909.12	692.65	2,136.06	1,931.68	49.92	-5.03	0.487
95.83	-19.71	-25.70	0.00	-903.8	0.00	903.75	2,895.62	689.43	2,116.29	1,913.69	50.8	-5.07	0.480
100.00	-18.59	-25.32	0.00	-796.7	0.00	796.69	2,828.13	673.36	2,018.82	1,825.02	55.31	-5.26	0.445
101.00	-18.31	-25.04	0.00	-771.4	0.00	771.37	1,941.28	512.65	1,559.60	1,275.31	56.41	-5.31	0.617
105.00	-17.70	-24.52	0.00	-671.2	0.00	671.23	1,916.90	501.08	1,490.00	1,230.62	60.93	-5.48	0.557
110.00	-16.96	-23.94	0.00	-548.6	0.00	548.65	1,885.15	486.61	1,405.24	1,174.99	66.79	-5.72	0.478
115.00	-13.77	-20.02	0.00	-429.0	0.00	428.96	1,852.00	472.15	1,322.96	1,119.70	72.88	-5.93	0.392
120.00	-13.11	-19.48	0.00	-328.9	0.00	328.89	1,817.44	457.68	1,243.16	1,064.83	79.18	-6.1	0.318
124.00	-10.16	-16.55	0.00	-251.0	0.00	250.97	1,788.79	446.11	1,181.11	1,021.28	84.34	-6.22	0.253
125.00	-9.85	-16.09	0.00	-234.4	0.00	234.41	1,781.49	443.22	1,165.84	1,010.45	85.64	-6.25	0.239
127.00	-8.64	-13.18	0.00	-198.8	0.00	198.80	1,766.71	437.43	1,135.61	988.86	88.26	-6.3	0.207
129.00	-8.29	-12.72	0.00	-172.4	0.00	172.44	1,751.71	431.64	1,105.78	967.36	90.91	-6.34	0.184
130.00	-8.19	-12.55	0.00	-159.7	0.00	159.72	1,744.13	428.75	1,091.01	956.65	92.24	-6.36	0.173
132.10	-7.85	-12.23	0.00	-132.9	0.00	132.93	1,728.02	422.67	1,060.32	934.25	95.04	-6.4	0.148
132.50	-7.73	-12.07	0.00	-128.0	0.00	128.04	1,724.93	421.52	1,054.52	929.99	95.58	-6.41	0.143
133.00	-7.25	-11.43	0.00	-122.0	0.00	122.01	1,721.04	420.07	1,047.30	924.68	96.25	-6.42	0.137
134.00	-7.14	-11.33	0.00	-110.6	0.00	110.57	1,713.23	417.18	1,032.93	914.08	97.59	-6.43	0.126
134.30	-7.12	-10.85	0.00	-107.2	0.00	107.17	1,710.88	416.31	1,028.63	910.90	97.99	-6.44	0.122
134.50	-7.06	-10.49	0.00	-105.0	0.00	105.00	1,709.31	415.73	1,025.78	908.79	98.26	-6.44	0.120
135.00	-7.04	-10.21	0.00	-99.8	0.00	99.76	1,705.37	414.28	1,018.65	903.50	98.94	-6.45	0.115
140.00	-6.62	-9.86	0.00	-48.7	0.00	48.68	1,665.21	399.82	948.78	851.09	105.71	-6.5	0.062
141.00	-3.32	-4.21	0.00	-38.8	0.00	38.82	1,657.01	396.93	935.11	840.70	107.07	-6.51	0.048
145.00	-3.05	-3.74	0.00	-22.0	0.00	21.97	1,618.48	385.35	881.39	796.95	112.52	-6.53	0.030
150.00	0.00	-3.37	0.00	-3.2	0.00	3.25	1,557.73	370.89	816.49	737.91	119.34	-6.54	0.004

Load Case: 1.2D + 1.0Di + 1.0Wi Normal	48.73 mph wind with 0.850" radial ice		26 Iterations
Gust Response Factor: 1.10	Ice Dead Load Factor	1.00	
Dead load Factor: 1.20			Ice Importance Factor 1.00
Wind Load Factor: 1.00			

CALCULATED FORCES

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 (deg)	Ratio
0.00	-73.04	-8.12	0.00	-915.4	0.00	915.36	4,644.08	1,215.47	5,637.09	4,650.12	0	0	0.213
5.00	-71.04	-8.05	0.00	-874.8	0.00	874.78	4,595.30	1,192.97	5,430.39	4,515.36	0.03	-0.06	0.209
10.00	-69.05	-7.98	0.00	-834.5	0.00	834.53	4,545.12	1,170.48	5,227.56	4,381.07	0.13	-0.12	0.206
15.00	-67.07	-7.92	0.00	-794.6	0.00	794.61	4,493.54	1,147.98	5,028.59	4,247.34	0.28	-0.18	0.202
20.00	-65.12	-7.84	0.00	-755.0	0.00	755.04	4,440.56	1,125.48	4,833.48	4,114.23	0.51	-0.24	0.198
25.00	-63.19	-7.76	0.00	-715.8	0.00	715.84	4,386.18	1,102.98	4,642.23	3,981.83	0.79	-0.3	0.194
30.00	-61.28	-7.67	0.00	-677.1	0.00	677.07	4,330.39	1,080.48	4,454.84	3,850.22	1.14	-0.37	0.190
35.00	-59.41	-7.57	0.00	-638.7	0.00	638.74	4,273.20	1,057.98	4,271.31	3,719.48	1.56	-0.43	0.186
40.00	-57.56	-7.47	0.00	-600.9	0.00	600.90	4,214.61	1,035.48	4,091.64	3,589.68	2.04	-0.49	0.181
45.00	-55.74	-7.38	0.00	-563.6	0.00	563.56	4,154.61	1,012.99	3,915.83	3,460.90	2.59	-0.55	0.176
47.83	-54.72	-7.33	0.00	-542.6	0.00	542.64	4,119.99	1,000.24	3,817.92	3,388.41	2.93	-0.59	0.173
50.00	-53.50	-7.26	0.00	-526.8	0.00	526.76	4,093.21	990.49	3,743.89	3,333.22	3.2	-0.62	0.171
54.00	-51.29	-7.18	0.00	-497.7	0.00	497.73	3,318.40	850.78	3,222.25	2,712.21	3.74	-0.67	0.199
55.00	-50.96	-7.13	0.00	-490.6	0.00	490.55	3,309.52	846.92	3,193.11	2,692.57	3.88	-0.68	0.198
60.00	-49.36	-7.01	0.00	-454.9	0.00	454.92	3,264.26	827.64	3,049.40	2,594.71	4.63	-0.75	0.191
65.00	-47.79	-6.90	0.00	-419.8	0.00	419.85	3,217.60	808.35	2,908.99	2,497.46	5.45	-0.82	0.183
70.00	-46.24	-6.78	0.00	-385.4	0.00	385.37	3,169.54	789.07	2,771.90	2,400.90	6.34	-0.88	0.175
75.00	-44.72	-6.66	0.00	-351.5	0.00	351.48	3,120.07	769.79	2,638.11	2,305.09	7.3	-0.95	0.167
80.00	-43.23	-6.53	0.00	-318.2	0.00	318.20	3,069.20	750.50	2,507.64	2,210.12	8.33	-1.01	0.158
85.00	-41.76	-6.40	0.00	-285.6	0.00	285.55	3,016.93	731.22	2,380.47	2,116.08	9.43	-1.08	0.149
90.00	-40.32	-6.27	0.00	-253.5	0.00	253.53	2,963.26	711.93	2,256.61	2,023.03	10.59	-1.14	0.139
95.00	-38.91	-6.19	0.00	-222.2	0.00	222.15	2,909.12	692.65	2,136.06	1,931.68	11.81	-1.19	0.128
95.83	-38.67	-6.13	0.00	-217.0	0.00	217.00	2,895.62	689.43	2,116.29	1,913.69	12.02	-1.2	0.127
100.00	-37.01	-6.04	0.00	-191.5	0.00	191.47	2,828.13	673.36	2,018.82	1,825.02	13.09	-1.25	0.118
101.00	-36.62	-5.97	0.00	-185.4	0.00	185.43	1,941.28	512.65	1,559.60	1,275.31	13.35	-1.26	0.164
105.00	-35.67	-5.86	0.00	-161.5	0.00	161.53	1,916.90	501.08	1,490.00	1,230.62	14.43	-1.3	0.150
110.00	-34.51	-5.73	0.00	-132.2	0.00	132.24	1,885.15	486.61	1,405.24	1,174.99	15.82	-1.36	0.131
115.00	-28.42	-4.80	0.00	-103.6	0.00	103.60	1,852.00	472.15	1,322.96	1,119.70	17.27	-1.41	0.108
120.00	-27.32	-4.67	0.00	-79.6	0.00	79.58	1,817.44	457.68	1,243.16	1,064.83	18.77	-1.45	0.090
124.00	-21.99	-3.95	0.00	-60.9	0.00	60.89	1,788.79	446.11	1,181.11	1,021.28	20	-1.48	0.072
125.00	-21.36	-3.84	0.00	-56.9	0.00	56.94	1,781.49	443.22	1,165.84	1,010.45	20.31	-1.49	0.068
127.00	-18.18	-3.19	0.00	-48.6	0.00	48.55	1,766.71	437.43	1,135.61	988.86	20.94	-1.5	0.059
129.00	-17.45	-3.08	0.00	-42.2	0.00	42.17	1,751.71	431.64	1,105.78	967.36	21.57	-1.51	0.054
130.00	-17.27	-3.04	0.00	-39.1	0.00	39.08	1,744.13	428.75	1,091.01	956.65	21.89	-1.52	0.051
132.10	-16.60	-2.96	0.00	-32.6	0.00	32.60	1,728.02	422.67	1,060.32	934.25	22.56	-1.53	0.045
132.50	-16.35	-2.92	0.00	-31.4	0.00	31.42	1,724.93	421.52	1,054.52	929.99	22.68	-1.53	0.043
133.00	-15.48	-2.76	0.00	-30.0	0.00	29.96	1,721.04	420.07	1,047.30	924.68	22.84	-1.53	0.041
134.00	-15.27	-2.74	0.00	-27.2	0.00	27.20	1,713.23	417.18	1,032.93	914.08	23.17	-1.53	0.039
134.30	-15.08	-2.63	0.00	-26.4	0.00	26.38	1,710.88	416.31	1,028.63	910.90	23.26	-1.53	0.038
134.50	-14.83	-2.55	0.00	-25.8	0.00	25.85	1,709.31	415.73	1,025.78	908.79	23.33	-1.53	0.037
135.00	-14.76	-2.49	0.00	-24.6	0.00	24.57	1,705.37	414.28	1,018.65	903.50	23.49	-1.54	0.036
140.00	-13.96	-2.39	0.00	-12.2	0.00	12.15	1,665.21	399.82	948.78	851.09	25.1	-1.55	0.023
141.00	-6.78	-1.08	0.00	-9.8	0.00	9.76	1,657.01	396.93	935.11	840.70	25.43	-1.55	0.016
145.00	-6.23	-0.96	0.00	-5.4	0.00	5.45	1,618.48	385.35	881.39	796.95	26.73	-1.56	0.011
150.00	0.00	-0.79	0.00	-0.7	0.00	0.68	1,557.73	370.89	816.49	737.91	28.36	-1.56	0.001

Load Case: 1.0D + 1.0W Service Normal	60 mph Wind with No Ice	25 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 1.00		
Wind Load Factor: 1.00		

CALCULATED FORCES

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 (deg)	Ratio
0.00	-48.93	-8.59	0.00	-943.4	0.00	943.42	4,644.08	1,215.47	5,637.09	4,650.12	0	0	0.213
5.00	-47.45	-8.50	0.00	-900.5	0.00	900.46	4,595.30	1,192.97	5,430.39	4,515.36	0.03	-0.06	0.210
10.00	-45.99	-8.40	0.00	-858.0	0.00	857.98	4,545.12	1,170.48	5,227.56	4,381.07	0.13	-0.12	0.206
15.00	-44.55	-8.31	0.00	-816.0	0.00	815.96	4,493.54	1,147.98	5,028.59	4,247.34	0.29	-0.19	0.202
20.00	-43.14	-8.21	0.00	-774.4	0.00	774.43	4,440.56	1,125.48	4,833.48	4,114.23	0.52	-0.25	0.198
25.00	-41.75	-8.10	0.00	-733.4	0.00	733.40	4,386.18	1,102.98	4,642.23	3,981.83	0.82	-0.31	0.194
30.00	-40.38	-7.98	0.00	-692.9	0.00	692.92	4,330.39	1,080.48	4,454.84	3,850.22	1.18	-0.38	0.189
35.00	-39.03	-7.86	0.00	-653.0	0.00	653.01	4,273.20	1,057.98	4,271.31	3,719.48	1.6	-0.44	0.185
40.00	-37.70	-7.74	0.00	-613.7	0.00	613.69	4,214.61	1,035.48	4,091.64	3,589.68	2.1	-0.5	0.180
45.00	-36.40	-7.64	0.00	-575.0	0.00	574.99	4,154.61	1,012.99	3,915.83	3,460.90	2.66	-0.57	0.175
47.83	-35.67	-7.58	0.00	-553.3	0.00	553.34	4,119.99	1,000.24	3,817.92	3,388.41	3.01	-0.6	0.172
50.00	-34.75	-7.49	0.00	-536.9	0.00	536.93	4,093.21	990.49	3,743.89	3,333.22	3.29	-0.63	0.170
54.00	-33.08	-7.41	0.00	-507.0	0.00	506.96	3,318.40	850.78	3,222.25	2,712.21	3.84	-0.68	0.197
55.00	-32.85	-7.34	0.00	-499.5	0.00	499.54	3,309.52	846.92	3,193.11	2,692.57	3.98	-0.7	0.196
60.00	-31.73	-7.21	0.00	-462.8	0.00	462.84	3,264.26	827.64	3,049.40	2,594.71	4.75	-0.77	0.188
65.00	-30.63	-7.08	0.00	-426.8	0.00	426.80	3,217.60	808.35	2,908.99	2,497.46	5.59	-0.83	0.180
70.00	-29.54	-6.94	0.00	-391.4	0.00	391.42	3,169.54	789.07	2,771.90	2,400.90	6.5	-0.9	0.172
75.00	-28.48	-6.80	0.00	-356.7	0.00	356.72	3,120.07	769.79	2,638.11	2,305.09	7.48	-0.97	0.164
80.00	-27.43	-6.67	0.00	-322.7	0.00	322.71	3,069.20	750.50	2,507.64	2,210.12	8.53	-1.04	0.155
85.00	-26.41	-6.53	0.00	-289.4	0.00	289.38	3,016.93	731.22	2,380.47	2,116.08	9.65	-1.1	0.146
90.00	-25.40	-6.39	0.00	-256.7	0.00	256.74	2,963.26	711.93	2,256.61	2,023.03	10.84	-1.16	0.136
95.00	-24.42	-6.30	0.00	-224.8	0.00	224.81	2,909.12	692.65	2,136.06	1,931.68	12.08	-1.22	0.125
95.83	-24.25	-6.23	0.00	-219.6	0.00	219.56	2,895.62	689.43	2,116.29	1,913.69	12.3	-1.23	0.123
100.00	-23.03	-6.14	0.00	-193.6	0.00	193.59	2,828.13	673.36	2,018.82	1,825.02	13.39	-1.27	0.114
101.00	-22.73	-6.07	0.00	-187.4	0.00	187.45	1,941.28	512.65	1,559.60	1,275.31	13.66	-1.29	0.159
105.00	-22.10	-5.95	0.00	-163.2	0.00	163.15	1,916.90	501.08	1,490.00	1,230.62	14.75	-1.33	0.144
110.00	-21.31	-5.82	0.00	-133.4	0.00	133.39	1,885.15	486.61	1,405.24	1,174.99	16.17	-1.39	0.125
115.00	-17.43	-4.86	0.00	-104.3	0.00	104.31	1,852.00	472.15	1,322.96	1,119.70	17.65	-1.44	0.103
120.00	-16.69	-4.74	0.00	-80.0	0.00	79.99	1,817.44	457.68	1,243.16	1,064.83	19.18	-1.48	0.084
124.00	-13.12	-4.02	0.00	-61.0	0.00	61.04	1,788.79	446.11	1,181.11	1,021.28	20.43	-1.51	0.067
125.00	-12.73	-3.91	0.00	-57.0	0.00	57.02	1,781.49	443.22	1,165.84	1,010.45	20.75	-1.51	0.064
127.00	-11.08	-3.21	0.00	-48.4	0.00	48.38	1,766.71	437.43	1,135.61	988.86	21.39	-1.53	0.055
129.00	-10.64	-3.09	0.00	-42.0	0.00	41.97	1,751.71	431.64	1,105.78	967.36	22.03	-1.54	0.050
130.00	-10.52	-3.05	0.00	-38.9	0.00	38.87	1,744.13	428.75	1,091.01	956.65	22.35	-1.54	0.047
132.10	-10.11	-2.98	0.00	-32.4	0.00	32.36	1,728.02	422.67	1,060.32	934.25	23.03	-1.55	0.041
132.50	-9.96	-2.94	0.00	-31.2	0.00	31.17	1,724.93	421.52	1,054.52	929.99	23.16	-1.55	0.039
133.00	-9.35	-2.78	0.00	-29.7	0.00	29.70	1,721.04	420.07	1,047.30	924.68	23.33	-1.56	0.038
134.00	-9.23	-2.76	0.00	-26.9	0.00	26.92	1,713.23	417.18	1,032.93	914.08	23.65	-1.56	0.035
134.30	-9.15	-2.64	0.00	-26.1	0.00	26.09	1,710.88	416.31	1,028.63	910.90	23.75	-1.56	0.034
134.50	-9.04	-2.55	0.00	-25.6	0.00	25.57	1,709.31	415.73	1,025.78	908.79	23.82	-1.56	0.033
135.00	-8.99	-2.49	0.00	-24.3	0.00	24.29	1,705.37	414.28	1,018.65	903.50	23.98	-1.56	0.032
140.00	-8.49	-2.40	0.00	-11.8	0.00	11.85	1,665.21	399.82	948.78	851.09	25.62	-1.58	0.019
141.00	-4.17	-1.03	0.00	-9.4	0.00	9.45	1,657.01	396.93	935.11	840.70	25.95	-1.58	0.014
145.00	-3.82	-0.91	0.00	-5.3	0.00	5.34	1,618.48	385.35	881.39	796.95	27.28	-1.58	0.009
150.00	0.00	-0.81	0.00	-0.8	0.00	0.78	1,557.73	370.89	816.49	737.91	28.94	-1.58	0.001

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.207
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.055
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_a):	1.000
Site Coefficient F_a :	1.600
Site Coefficient F_v :	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.221
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.088
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_s :	0.030
Lower Limit C_s :	0.030
Period based on Rayleigh Method (sec):	2.930
Redundancy Factor (ρ):	1.000
Seismic Force Distribution Exponent (k):	2.000
Total Unfactored Dead Load:	48.930 k
Seismic Base Shear (E):	1.470 k

1.2D + 1.0Ev + 1.0Eh Normal Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
44	147.5	425	9,237	0.020	29	528
43	143	350	7,152	0.015	22	435
42	140.5	99	1,950	0.004	6	123
41	137.5	502	9,495	0.020	30	625
40	134.75	51	926	0.002	3	63
39	134.4	20	369	0.001	1	25
38	134.15	31	552	0.001	2	38
37	133.5	103	1,835	0.004	6	128
36	132.75	52	911	0.002	3	64
35	132.3	41	726	0.002	2	52
34	131.05	234	4,024	0.008	13	292
33	129.5	120	2,019	0.004	6	150
32	128	242	3,973	0.008	12	302
31	126	287	4,564	0.010	14	358
30	124.5	145	2,241	0.005	7	180
29	122	584	8,690	0.018	27	726
28	117.5	742	10,251	0.022	32	924
27	112.5	768	9,722	0.021	30	956
26	107.5	782	9,039	0.019	28	973
25	103	636	6,746	0.014	21	791
24	100.5	291	2,935	0.006	9	362
23	97.9167	1,225	11,742	0.025	37	1,524
22	95.4167	162	1,477	0.003	5	202
21	92.5	984	8,422	0.018	26	1,225
20	87.5	1,003	7,679	0.016	24	1,248
19	82.5	1,022	6,954	0.015	22	1,271
18	77.5	1,040	6,249	0.013	19	1,294
17	72.5	1,059	5,567	0.012	17	1,318
16	67.5	1,078	4,911	0.010	15	1,341
15	62.5	1,096	4,283	0.009	13	1,364
14	57.5	1,115	3,687	0.008	11	1,387
13	54.5	225	669	0.001	2	280
12	52	1,670	4,515	0.010	14	2,077
11	48.9167	915	2,190	0.005	7	1,139

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
10	46.4167	725	1,562	0.003	5	902
9	42.5	1,296	2,342	0.005	7	1,613
8	37.5	1,318	1,854	0.004	6	1,640
7	32.5	1,340	1,415	0.003	4	1,667
6	27.5	1,362	1,030	0.002	3	1,694
5	22.5	1,384	700	0.002	2	1,721
4	17.5	1,405	430	0.001	1	1,749
3	12.5	1,427	223	0.000	1	1,776
2	7.5	1,449	82	0.000	0	1,803
1	2.5	1,471	9	0.000	0	1,830
Alcatel-Lucent RRH2x50-08	150	159	3,571	0.008	11	197
Alcatel-Lucent 1900 MHz 4X45 RRH	150	180	4,050	0.009	13	224
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	150	210	4,725	0.010	15	261
RFS APXVTM14-ALU-I20	150	169	3,794	0.008	12	210
Commscope NNVV-65B-R4	150	232	5,224	0.011	16	289
DragonWave Horizon Compact	150	21	477	0.001	1	26
DragonWave Horizon Compact	134	21	381	0.001	1	26
Site Pro 1 RMQP-496-HK	150	2,449	55,096	0.117	171	3,047
Ericsson KRY 112 144/1	141	33	656	0.001	2	41
Ericsson Radio 4449 B71 B85A	141	225	4,473	0.010	14	280
Ericsson RRUS 4415 B25	141	138	2,744	0.006	9	172
Ericsson Air6449 B41	141	312	6,203	0.013	19	388
Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)	141	274	5,457	0.012	17	342
Ericsson AIR32 B66Aa/B2a	141	397	7,885	0.017	25	493
RFS APXVAARR24_43-U-NA20	141	384	7,628	0.016	24	477
Generic Flat Platform with Handrails	141	2,500	49,702	0.105	155	3,110
Generic Flat Platform with Handrails	115	2,500	33,062	0.070	103	3,110
Argus LLPX310R	134.5	86	1,552	0.003	5	107
DragonWave A-ANT-11G-2-C	134.3	54	974	0.002	3	67
Generic Round Side Arm	133	562	9,950	0.021	31	700
NextNet BTS-2500	132.5	105	1,843	0.004	6	131
Ericsson RRUS 32 B30	132.1	180	3,141	0.007	10	224
Ericsson AIR 6419 B77G	129	198	3,300	0.007	10	247
Raycap DC6-48-60-18-8F ("Squid")	127	64	1,026	0.002	3	79
Ericsson RRUS 4478 B14 (15")	127	178	2,874	0.006	9	222
Ericsson RRUS 4449 B5, B12	127	213	3,435	0.007	11	265
Ericsson RRUS 32 B66A	127	152	2,453	0.005	8	189
Ericsson RRUS 32 B2	127	159	2,565	0.005	8	198
Raycap DC9-48-60-24-8C-EV	127	16	258	0.000	1	20
CCI DMP65R-BU6E	127	311	5,023	0.011	16	387
Kathrein Scala 80010965	127	293	4,723	0.010	15	364
Ericsson Air 6449 B77D	125	245	3,825	0.008	12	305
Flat Platform w/Handrails SitePro PRK-SFS and SitePro HRK-14-HD	124	3,000	46,128	0.098	143	3,732
Raycap RDIDC-9181-PF-48	115	22	290	0.001	1	27
Fujitsu TA08025-B604	115	192	2,535	0.005	8	239
Fujitsu TA08025-B605	115	225	2,976	0.006	9	280
JMA Wireless MX08FRO665-21	115	194	2,559	0.005	8	241
		48,931	471,906	1.000	1,468	60,878

0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
44	147.5	425	9,237	0.020	29	363
43	143	350	7,152	0.015	22	299
42	140.5	99	1,950	0.004	6	85
41	137.5	502	9,495	0.020	30	430
40	134.75	51	926	0.002	3	44
39	134.4	20	369	0.001	1	17
38	134.15	31	552	0.001	2	26
37	133.5	103	1,835	0.004	6	88
36	132.75	52	911	0.002	3	44

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
35	132.3	41	726	0.002	2	35
34	131.05	234	4,024	0.008	13	201
33	129.5	120	2,019	0.004	6	103
32	128	242	3,973	0.008	12	208
31	126	287	4,564	0.010	14	246
30	124.5	145	2,241	0.005	7	124
29	122	584	8,690	0.018	27	500
28	117.5	742	10,251	0.022	32	635
27	112.5	768	9,722	0.021	30	657
26	107.5	782	9,039	0.019	28	669
25	103	636	6,746	0.014	21	544
24	100.5	291	2,935	0.006	9	249
23	97.9167	1,225	11,742	0.025	37	1,048
22	95.4167	162	1,477	0.003	5	139
21	92.5	984	8,422	0.018	26	842
20	87.5	1,003	7,679	0.016	24	858
19	82.5	1,022	6,954	0.015	22	874
18	77.5	1,040	6,249	0.013	19	890
17	72.5	1,059	5,567	0.012	17	906
16	67.5	1,078	4,911	0.010	15	922
15	62.5	1,096	4,283	0.009	13	938
14	57.5	1,115	3,687	0.008	11	954
13	54.5	225	669	0.001	2	193
12	52	1,670	4,515	0.010	14	1,429
11	48.9167	915	2,190	0.005	7	783
10	46.4167	725	1,562	0.003	5	620
9	42.5	1,296	2,342	0.005	7	1,110
8	37.5	1,318	1,854	0.004	6	1,128
7	32.5	1,340	1,415	0.003	4	1,147
6	27.5	1,362	1,030	0.002	3	1,166
5	22.5	1,384	700	0.002	2	1,184
4	17.5	1,405	430	0.001	1	1,203
3	12.5	1,427	223	0.000	1	1,222
2	7.5	1,449	82	0.000	0	1,240
1	2.5	1,471	9	0.000	0	1,259
Alcatel-Lucent RRH2x50-08	150	159	3,571	0.008	11	136
Alcatel-Lucent 1900 MHz 4X45 RRH	150	180	4,050	0.009	13	154
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	150	210	4,725	0.010	15	180
RFS APXVTM14-ALU-I20	150	169	3,794	0.008	12	144
Commscope NNVV-65B-R4	150	232	5,224	0.011	16	199
DragonWave Horizon Compact	150	21	477	0.001	1	18
DragonWave Horizon Compact	134	21	381	0.001	1	18
Site Pro 1 RMQP-496-HK	150	2,449	55,096	0.117	171	2,096
Ericsson KRY 112 144/1	141	33	656	0.001	2	28
Ericsson Radio 4449 B71 B85A	141	225	4,473	0.010	14	193
Ericsson RRUS 4415 B25	141	138	2,744	0.006	9	118
Ericsson Air6449 B41	141	312	6,203	0.013	19	267
Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)	141	274	5,457	0.012	17	235
Ericsson AIR32 B66Aa/B2a	141	397	7,885	0.017	25	339
RFS APXVAARR24_43-U-NA20	141	384	7,628	0.016	24	328
Generic Flat Platform with Handrails	141	2,500	49,702	0.105	155	2,140
Generic Flat Platform with Handrails	115	2,500	33,062	0.070	103	2,140
Argus LLPX310R	134.5	86	1,552	0.003	5	73
DragonWave A-ANT-11G-2-C	134.3	54	974	0.002	3	46
Generic Round Side Arm	133	562	9,950	0.021	31	481
NextNet BTS-2500	132.5	105	1,843	0.004	6	90
Ericsson RRUS 32 B30	132.1	180	3,141	0.007	10	154
Ericsson AIR 6419 B77G	129	198	3,300	0.007	10	170
Raycap DC6-48-60-18-8F ("Squid")	127	64	1,026	0.002	3	54
Ericsson RRUS 4478 B14 (15")	127	178	2,874	0.006	9	153
Ericsson RRUS 4449 B5, B12	127	213	3,435	0.007	11	182
Ericsson RRUS 32 B66A	127	152	2,453	0.005	8	130
Ericsson RRUS 32 B2	127	159	2,565	0.005	8	136
Raycap DC9-48-60-24-8C-EV	127	16	258	0.000	1	14
CCI DMP65R-BU6E	127	311	5,023	0.011	16	267
Kathrein Scala 80010965	127	293	4,723	0.010	15	251
Ericsson Air 6449 B77D	125	245	3,825	0.008	12	210
Flat Platform w/Handrails SitePro PRK-SFS and SitePro HRK-14-HD	124	3,000	46,128	0.098	143	2,568
Raycap RDIDC-9181-PF-48	115	22	290	0.001	1	19

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
Fujitsu TA08025-B604	115	192	2,535	0.005	8	164
Fujitsu TA08025-B605	115	225	2,976	0.006	9	193
JMA Wireless MX08FRO665-21	115	194	2,559	0.005	8	166
		48,931	471,906	1.000	1,468	41,877

1.2D + 1.0Ev + 1.0Eh Normal Seismic

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-59.05	-1.47	0.00	-192.72	0.00	192.72	4,644.08	1,215.47	5,637	4,650.12	0.00	0.00	0.05
5.00	-57.24	-1.49	0.00	-185.35	0.00	185.35	4,595.30	1,192.97	5,430	4,515.36	0.01	-0.01	0.05
10.00	-55.47	-1.50	0.00	-177.92	0.00	177.92	4,545.12	1,170.48	5,228	4,381.07	0.03	-0.03	0.05
15.00	-53.72	-1.51	0.00	-170.43	0.00	170.43	4,493.54	1,147.98	5,029	4,247.34	0.06	-0.04	0.05
20.00	-52.00	-1.52	0.00	-162.90	0.00	162.90	4,440.56	1,125.48	4,833	4,114.23	0.11	-0.05	0.05
25.00	-50.30	-1.52	0.00	-155.32	0.00	155.32	4,386.18	1,102.98	4,642	3,981.83	0.17	-0.06	0.05
30.00	-48.64	-1.53	0.00	-147.71	0.00	147.71	4,330.39	1,080.48	4,455	3,850.22	0.24	-0.08	0.05
35.00	-46.99	-1.53	0.00	-140.07	0.00	140.07	4,273.20	1,057.98	4,271	3,719.48	0.33	-0.09	0.05
40.00	-45.38	-1.53	0.00	-132.41	0.00	132.41	4,214.61	1,035.48	4,092	3,589.68	0.44	-0.11	0.05
45.00	-44.48	-1.53	0.00	-124.76	0.00	124.76	4,154.61	1,012.99	3,916	3,460.90	0.56	-0.12	0.05
47.83	-43.34	-1.53	0.00	-120.41	0.00	120.41	4,119.99	1,000.24	3,818	3,388.41	0.63	-0.13	0.05
50.00	-41.26	-1.52	0.00	-117.10	0.00	117.10	4,093.21	990.49	3,744	3,333.22	0.69	-0.13	0.05
54.00	-40.98	-1.52	0.00	-111.03	0.00	111.03	3,318.40	850.78	3,222	2,712.21	0.80	-0.14	0.05
55.00	-39.59	-1.51	0.00	-109.51	0.00	109.51	3,309.52	846.92	3,193	2,692.57	0.84	-0.15	0.05
60.00	-38.23	-1.50	0.00	-101.96	0.00	101.96	3,264.26	827.64	3,049	2,594.71	1.00	-0.16	0.05
65.00	-36.89	-1.49	0.00	-94.44	0.00	94.44	3,217.60	808.35	2,909	2,497.46	1.18	-0.18	0.05
70.00	-35.57	-1.48	0.00	-86.97	0.00	86.97	3,169.54	789.07	2,772	2,400.90	1.37	-0.19	0.05
75.00	-34.28	-1.47	0.00	-79.56	0.00	79.56	3,120.07	769.79	2,638	2,305.09	1.58	-0.21	0.05
80.00	-33.00	-1.45	0.00	-72.23	0.00	72.23	3,069.20	750.50	2,508	2,210.12	1.81	-0.22	0.04
85.00	-31.76	-1.43	0.00	-64.99	0.00	64.99	3,016.93	731.22	2,380	2,116.08	2.05	-0.24	0.04
90.00	-30.53	-1.40	0.00	-57.85	0.00	57.85	2,963.26	711.93	2,257	2,023.03	2.31	-0.25	0.04
95.00	-30.33	-1.40	0.00	-50.83	0.00	50.83	2,909.12	692.65	2,136	1,931.68	2.58	-0.26	0.04
95.83	-28.81	-1.36	0.00	-49.67	0.00	49.67	2,895.62	689.43	2,116	1,913.69	2.62	-0.27	0.04
100.00	-28.44	-1.35	0.00	-43.99	0.00	43.99	2,828.13	673.36	2,019	1,825.02	2.86	-0.28	0.03
101.00	-27.65	-1.33	0.00	-42.64	0.00	42.64	1,941.28	512.65	1,560	1,275.31	2.92	-0.28	0.05
105.00	-26.68	-1.30	0.00	-37.31	0.00	37.31	1,916.90	501.08	1,490	1,230.62	3.16	-0.29	0.04
110.00	-25.72	-1.27	0.00	-30.79	0.00	30.79	1,885.15	486.61	1,405	1,174.99	3.47	-0.30	0.04
115.00	-20.90	-1.09	0.00	-24.42	0.00	24.42	1,852.00	472.15	1,323	1,119.70	3.79	-0.31	0.03
120.00	-20.18	-1.06	0.00	-18.95	0.00	18.95	1,817.44	457.68	1,243	1,064.83	4.12	-0.32	0.03
124.00	-16.27	-0.89	0.00	-14.70	0.00	14.70	1,788.79	446.11	1,181	1,021.28	4.40	-0.33	0.02
125.00	-15.60	-0.86	0.00	-13.81	0.00	13.81	1,781.49	443.22	1,166	1,010.45	4.47	-0.33	0.02
127.00	-13.58	-0.77	0.00	-12.08	0.00	12.08	1,766.71	437.43	1,136	988.86	4.61	-0.34	0.02
129.00	-13.18	-0.75	0.00	-10.54	0.00	10.54	1,751.71	431.64	1,106	967.36	4.75	-0.34	0.02
130.00	-12.89	-0.74	0.00	-9.79	0.00	9.79	1,744.13	428.75	1,091	956.65	4.82	-0.34	0.02
132.10	-12.62	-0.72	0.00	-8.24	0.00	8.24	1,728.02	422.67	1,060	934.25	4.97	-0.34	0.02
132.50	-12.42	-0.72	0.00	-7.95	0.00	7.95	1,724.93	421.52	1,055	929.99	5.00	-0.34	0.02
133.00	-11.59	-0.67	0.00	-7.59	0.00	7.59	1,721.04	420.07	1,047	924.68	5.03	-0.34	0.02
134.00	-11.53	-0.67	0.00	-6.92	0.00	6.92	1,713.23	417.18	1,033	914.08	5.11	-0.34	0.01
134.30	-11.44	-0.67	0.00	-6.72	0.00	6.72	1,710.88	416.31	1,029	910.90	5.13	-0.34	0.01
134.50	-11.27	-0.66	0.00	-6.58	0.00	6.58	1,709.31	415.73	1,026	908.79	5.14	-0.34	0.01
135.00	-10.64	-0.62	0.00	-6.25	0.00	6.25	1,705.37	414.28	1,019	903.50	5.18	-0.34	0.01
140.00	-10.52	-0.62	0.00	-3.13	0.00	3.13	1,665.21	399.82	949	851.09	5.54	-0.35	0.01
141.00	-4.78	-0.30	0.00	-2.51	0.00	2.51	1,657.01	396.93	935	840.70	5.61	-0.35	0.01
145.00	-4.25	-0.27	0.00	-1.33	0.00	1.33	1,618.48	385.35	881	796.95	5.91	-0.35	0.00
150.00	0.00	-0.24	0.00	0.00	0.00	0.00	1,557.73	370.89	816	737.91	6.27	-0.35	0.00

0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)

CALCULATED FORCES

ASSET: 302538, Parsonage Hill Aka Wallin
 CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H
 ENG NO: 14112747_C3_02

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-40.62	-1.47	0.00	-188.09	0.00	188.09	4,644.08	1,215.47	5,637	4,650.12	0.00	0.00	0.05
5.00	-39.38	-1.48	0.00	-180.73	0.00	180.73	4,595.30	1,192.97	5,430	4,515.36	0.01	-0.01	0.05
10.00	-38.16	-1.49	0.00	-173.34	0.00	173.34	4,545.12	1,170.48	5,228	4,381.07	0.03	-0.02	0.05
15.00	-36.95	-1.49	0.00	-165.91	0.00	165.91	4,493.54	1,147.98	5,029	4,247.34	0.06	-0.04	0.05
20.00	-35.77	-1.50	0.00	-158.45	0.00	158.45	4,440.56	1,125.48	4,833	4,114.23	0.10	-0.05	0.05
25.00	-34.60	-1.50	0.00	-150.96	0.00	150.96	4,386.18	1,102.98	4,642	3,981.83	0.16	-0.06	0.05
30.00	-33.45	-1.50	0.00	-143.46	0.00	143.46	4,330.39	1,080.48	4,455	3,850.22	0.24	-0.08	0.05
35.00	-32.33	-1.50	0.00	-135.94	0.00	135.94	4,273.20	1,057.98	4,271	3,719.48	0.32	-0.09	0.04
40.00	-31.22	-1.50	0.00	-128.43	0.00	128.43	4,214.61	1,035.48	4,092	3,589.68	0.43	-0.10	0.04
45.00	-30.60	-1.50	0.00	-120.92	0.00	120.92	4,154.61	1,012.99	3,916	3,460.90	0.54	-0.12	0.04
47.83	-29.81	-1.50	0.00	-116.67	0.00	116.67	4,119.99	1,000.24	3,818	3,388.41	0.61	-0.12	0.04
50.00	-28.38	-1.48	0.00	-113.43	0.00	113.43	4,093.21	990.49	3,744	3,333.22	0.67	-0.13	0.04
54.00	-28.19	-1.48	0.00	-107.50	0.00	107.50	3,318.40	850.78	3,222	2,712.21	0.78	-0.14	0.05
55.00	-27.24	-1.47	0.00	-106.02	0.00	106.02	3,309.52	846.92	3,193	2,692.57	0.81	-0.14	0.05
60.00	-26.30	-1.46	0.00	-98.65	0.00	98.65	3,264.26	827.64	3,049	2,594.71	0.97	-0.16	0.05
65.00	-25.37	-1.45	0.00	-91.32	0.00	91.32	3,217.60	808.35	2,909	2,497.46	1.15	-0.17	0.04
70.00	-24.47	-1.44	0.00	-84.06	0.00	84.06	3,169.54	789.07	2,772	2,400.90	1.33	-0.19	0.04
75.00	-23.58	-1.42	0.00	-76.86	0.00	76.86	3,120.07	769.79	2,638	2,305.09	1.54	-0.20	0.04
80.00	-22.70	-1.40	0.00	-69.74	0.00	69.74	3,069.20	750.50	2,508	2,210.12	1.76	-0.22	0.04
85.00	-21.84	-1.38	0.00	-62.73	0.00	62.73	3,016.93	731.22	2,380	2,116.08	1.99	-0.23	0.04
90.00	-21.00	-1.36	0.00	-55.82	0.00	55.82	2,963.26	711.93	2,257	2,023.03	2.24	-0.24	0.04
95.00	-20.86	-1.35	0.00	-49.03	0.00	49.03	2,909.12	692.65	2,136	1,931.68	2.50	-0.26	0.03
95.83	-19.81	-1.32	0.00	-47.91	0.00	47.91	2,895.62	689.43	2,116	1,913.69	2.55	-0.26	0.03
100.00	-19.56	-1.31	0.00	-42.43	0.00	42.43	2,828.13	673.36	2,019	1,825.02	2.78	-0.27	0.03
101.00	-19.02	-1.29	0.00	-41.12	0.00	41.12	1,941.28	512.65	1,560	1,275.31	2.83	-0.27	0.04
105.00	-18.35	-1.26	0.00	-35.98	0.00	35.98	1,916.90	501.08	1,490	1,230.62	3.06	-0.28	0.04
110.00	-17.69	-1.23	0.00	-29.69	0.00	29.69	1,885.15	486.61	1,405	1,174.99	3.36	-0.29	0.04
115.00	-14.38	-1.05	0.00	-23.55	0.00	23.55	1,852.00	472.15	1,323	1,119.70	3.68	-0.30	0.03
120.00	-13.88	-1.03	0.00	-18.29	0.00	18.29	1,817.44	457.68	1,243	1,064.83	4.00	-0.31	0.03
124.00	-11.19	-0.86	0.00	-14.19	0.00	14.19	1,788.79	446.11	1,181	1,021.28	4.27	-0.32	0.02
125.00	-10.73	-0.83	0.00	-13.33	0.00	13.33	1,781.49	443.22	1,166	1,010.45	4.33	-0.32	0.02
127.00	-9.34	-0.74	0.00	-11.66	0.00	11.66	1,766.71	437.43	1,136	988.86	4.47	-0.32	0.02
129.00	-9.07	-0.73	0.00	-10.18	0.00	10.18	1,751.71	431.64	1,106	967.36	4.61	-0.33	0.02
130.00	-8.87	-0.71	0.00	-9.45	0.00	9.45	1,744.13	428.75	1,091	956.65	4.68	-0.33	0.02
132.10	-8.68	-0.70	0.00	-7.96	0.00	7.96	1,728.02	422.67	1,060	934.25	4.82	-0.33	0.01
132.50	-8.54	-0.69	0.00	-7.68	0.00	7.68	1,724.93	421.52	1,055	929.99	4.85	-0.33	0.01
133.00	-7.97	-0.65	0.00	-7.33	0.00	7.33	1,721.04	420.07	1,047	924.68	4.88	-0.33	0.01
134.00	-7.93	-0.65	0.00	-6.68	0.00	6.68	1,713.23	417.18	1,033	914.08	4.95	-0.33	0.01
134.30	-7.87	-0.64	0.00	-6.49	0.00	6.49	1,710.88	416.31	1,029	910.90	4.97	-0.33	0.01
134.50	-7.75	-0.63	0.00	-6.36	0.00	6.36	1,709.31	415.73	1,026	908.79	4.99	-0.33	0.01
135.00	-7.32	-0.60	0.00	-6.04	0.00	6.04	1,705.37	414.28	1,019	903.50	5.02	-0.33	0.01
140.00	-7.23	-0.60	0.00	-3.03	0.00	3.03	1,665.21	399.82	949	851.09	5.37	-0.34	0.01
141.00	-3.29	-0.29	0.00	-2.43	0.00	2.43	1,657.01	396.93	935	840.70	5.44	-0.34	0.01
145.00	-2.92	-0.26	0.00	-1.28	0.00	1.28	1,618.48	385.35	881	796.95	5.73	-0.34	0.00
150.00	0.00	-0.24	0.00	0.00	0.00	0.00	1,557.73	370.89	816	737.91	6.08	-0.34	0.00

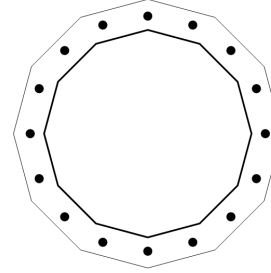
ANALYSIS SUMMARY

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W Normal	35.91	0.00	58.63	0.00	0.00	3980.31	0.00	0.87
0.9D + 1.0W Normal	35.87	0.00	43.96	0.00	0.00	3909.16	0.00	0.85
1.2D + 1.0Di + 1.0Wi Normal	8.12	0.00	73.04	0.00	0.00	915.36	0.00	0.21
1.2D + 1.0Ev + 1.0Eh Normal	1.53	0.00	59.05	0.00	0.00	192.72	0.00	0.05
0.9D - 1.0Ev + 1.0Eh Normal	1.50	0.00	40.62	0.00	0.00	188.09	0.00	0.05
1.0D + 1.0W Service Normal	8.59	0.00	48.93	0.00	0.00	943.42	0.00	0.21

BASE PLATE ANALYSIS @ 0 FT

PLATE PARAMETERS (ID# 9857)

Diameter:	63.85	in
Shape:	12	
Thickness:	2.75	in
Grade:	A633 Gr. E	
Yield Strength:	60	ksi
Tensile Strength:	80	ksi
Rod Detail Type:	c	
Clear Distance	-	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	236	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 3285]	Radial	16	2.25	57.85	A615-75	75	100	-	-

ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (16) 2.25"Ø [ID 3285]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in ⁴)	Axial Load (k)	Shear Load (k)
1	0.393	26.72	11.07	15.240	755.176	176.06	2.92
2	0.785	20.45	20.45	5.269	90.993	176.06	3.44
3	1.178	11.07	26.72	-5.505	99.262	-161.40	3.43
4	1.571	0.00	28.92	-15.441	775.139	-161.40	2.90
5	1.963	-11.07	26.72	-23.026	1722.704	-161.40	1.93
6	2.356	-20.45	20.45	-27.105	2386.887	-161.40	0.67
7	2.749	-26.72	11.07	-27.058	2378.617	-161.40	0.70
8	3.142	-28.92	0.00	-22.892	1702.740	-161.40	1.96
9	3.534	-26.72	-11.07	-15.240	755.175	-161.40	2.92
10	3.927	-20.45	-20.45	-5.269	90.993	-161.40	3.44
11	4.320	-11.07	-26.72	5.505	99.262	176.06	3.43
12	4.712	0.00	-28.92	15.441	775.139	176.06	2.90
13	5.105	11.07	-26.72	23.026	1722.704	176.06	1.93
14	5.498	20.45	-20.45	27.105	2386.887	176.06	0.67
15	5.890	26.72	-11.07	27.058	2378.618	176.06	0.70
16	6.283	28.92	0.00	22.892	1702.741	176.06	1.96

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	49.5998"Ø x 0.4375" (12 Sides)	3980.3	58.63	35.91	1.000
Bolt Group	Original (16) 2.25"Ø	3980.3	-	35.91	1.000
TOTALS		3980.31	58.63	35.91	

ASSET: 302538, Parsonage Hill Aka Wallin
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
 ENG NO: 13753549

COMPONENT PROPERTIES

Component	ID	Gross Area (in ²)	Net Area (in ²)	Individual Inertia (in ⁴)	Moment of Inertia (in ⁴)	Threads/in
Pole	49.5998"Ø x 0.4375" (12 Sides)	66.8017	-	-	20186.18	-
Bolt Group	Original (16) 2.25"Ø	3.9761	3.2477	0.8393	19823.04	4.5

EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter: 49.72 in
 Point-to-Point Diameter: 51.48 in
 Flat Width: 13.324 in
 Flat Radians: 0.524 rad

PLATE PROPERTIES

Neutral Axis: 236 °
 Bend Line Lower Limit: 5.273 rad
 Bend Line Upper Limit: 6.115 rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in ³)	Applied Moment Mu (k-in)	Moment Capacity φMn (k-in)	Ratio
Flat	35.746	0.00	67.582	956.9	3649.5	0.262
Corner	33.170	0.00	62.712	578.7	3386.5	0.171
Circumferential	37.896	0.00	71.647	807.6	3868.9	0.209

PLASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity φPn (k)	Ratio
Original	16	2.25	176.1	3.4	243.6	0.723



Pier Foundation Analysis

Analysis Parameters	
TIA Standard	TIA-222-H
Analysis Type	Rigid
Tower Type	Monopole
Pier Type	Drilled Pier

Base Reactions		
Moment	3980.3	k-ft
Shear	35.9	k
Axial	58.6	k
Uplift	-	k

Analysis Options
<input type="checkbox"/> Pier Foundation Mapped
<input type="checkbox"/> Check Servicability Limit State
<input type="checkbox"/> Check Anchor Rod Development
<input type="checkbox"/> Additional Rebar Circles
<input type="checkbox"/> Collar Modification
<input type="checkbox"/> Use ACI 318-05 Load Factors [9.2.1(b)]

Pier Geometry		
Diameter	6.5	ft
Embedment	21.0	ft
Height Above Grade	1.0	ft
Concrete Strength	3000	psi

Original Vertical Rebar (Group 1)		
Quantity	38	-
Rebar Size	#11	-
Grade	A615-60	-
Orientation Offset		°
Top Cover	3.0	in
Bottom Cover	3.5	in

Horizontal Ties		
# of Tie Spacings / Sizes	2	-
Cover	3.0	in

Horizontal Tie #1		
Size	#4	-
Grade	A615-60	-
Spacing	3.0	in
End Depth	1.0	ft

Horizontal Tie #2		
Size	#4	-
Grade	A615-60	-
Spacing	28.0	in
End Depth	22.0	ft

Soil Data		
Water Table	99.0	ft
Ratio T/C Skin Friction	0.98	-
Pullout Angle	30	deg

Soil Properties Table					
Depth at Bottom (ft)	Density (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Skin Friction (psf)	Ultimate Net Bearing Pressure (psf)
2	105	0	0	0	0
6	124	0	35	0	0
7.5	140	11,419	0	5,139	0
22	140	14,805	0	6,662	47,376

Results

Soil		
Component	Usage	Pass/Fail
Overturning Moment	14%	Pass
Axial	3%	Pass
Uplift	-	-

Structure		
Component	Usage	Pass/Fail
Flexure & Axial	52%	Pass
Shear	98%	Pass



DISH Wireless L.L.C. SITE ID:

BOHVN00174B

DISH Wireless L.L.C. SITE ADDRESS:

**1000 NORTHROP ROAD
WALLINGFORD, CT 06492**

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

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

NOTE: THE SCOPE OF THIS PROJECT DOES NOT INCLUDE MODIFICATIONS TO THE TOWER STRUCTURE OR FOUNDATION. A SEPARATE BUILDING PERMIT APPLICATION WILL BE SUBMITTED FOR ANY TOWER MODIFICATIONS.

SITE INFORMATION

PROPERTY OWNER: AT&T WIRELESS PCS INC
ADDRESS: 754 PEACHTREE ST NE
ATLANTA, GA 30308

TOWER TYPE: MONOPOLE

TOWER CO SITE ID: 302538

TOWER APP NUMBER: 14112747

COUNTY: NEW HAVEN

LATITUDE (NAD 83): 41.48937115
LONGITUDE (NAD 83): -72.76828251

ZONING JURISDICTION: TOWN OF WALLINGFORD

ZONING DISTRICT: INDUSTRIAL

PARCEL NUMBER: N/A

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: UNKNOWN

TELEPHONE COMPANY: UNKNOWN

PROJECT DIRECTORY

APPLICANT: DISH Wireless L.L.C.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120
(303) 704-5008

TOWER OWNER: AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

ENGINEER: NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

SITE ACQUISITION: DAVID GOODFELLOW
DAVID.GOODFELLOW@DISH.COM

CONSTRUCTION MANAGER: CHAD WILCOX
CHAD.WILCOX@DISH.COM

RF ENGINEER: DIPESH PARIKH
DIPESH.PARIKH@DISH.COM



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
CCC	BIW	BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	06/20/2022	ISSUED FOR REVIEW
0	08/03/2022	ISSUED FOR CONSTRUCTION

CONNECTICUT CODE COMPLIANCE

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

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

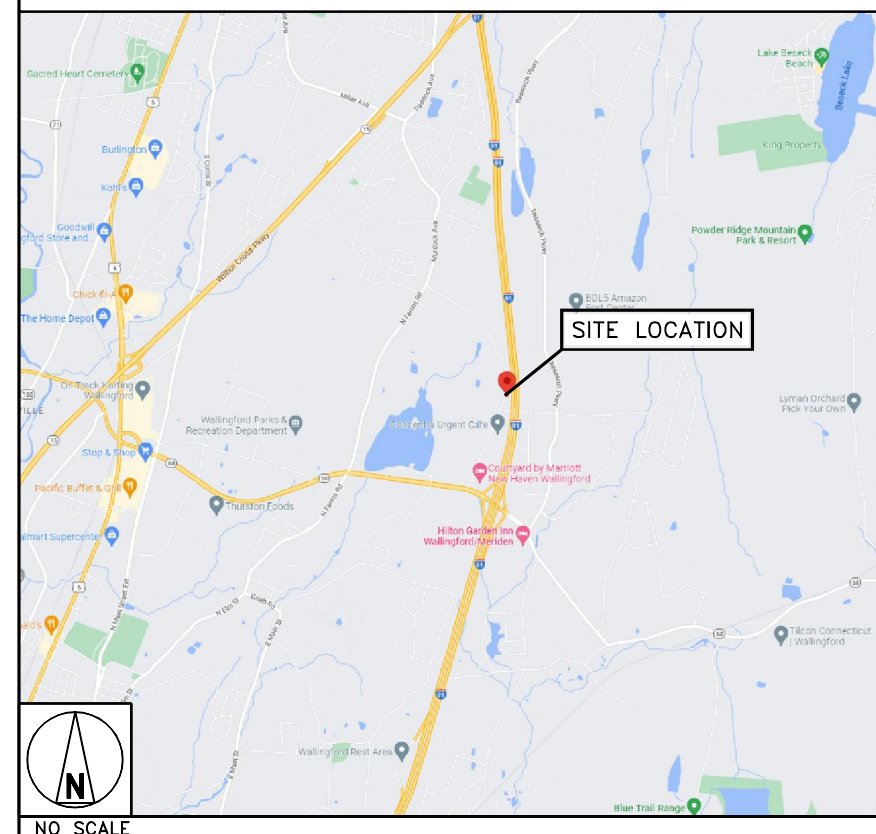
SITE PHOTO



DIRECTIONS

FROM HARTFORD I-91 SOUTH TO EXIT 15, RIGHT AT OFF RAMP AND THEN RIGHT AGAIN ONTO NORTHROP ROAD - FOLLOW TO SITE

VICINITY MAP



SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-0	EXISTING 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	RF SIGNAGE
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES
GN-5	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

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.

THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).

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.



08/03/2022

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

A&E PROJECT NUMBER
302538-14112747

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00174B
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

dish

wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C

TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, L.L.C.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY: CHECKED BY: APPROVED BY:

CCC BW BW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/20/2022	ISSUED FOR REVIEW
0	08/03/2022	ISSUED FOR CONSTRUCTION



08/03/2022

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

A&E PROJECT NUMBER
302538-14112747

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN001748
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
EXISTING SURVEY

SHEET NUMBER

A-0

SURVEYOR'S NOTES:

- THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH THE REGULATIONS OF CONNECTICUT STATE AGENCIES, SECTIONS 20-300-1 THRU 20-300-20, AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 28, 1998. THE TYPE OF SURVEY IS A PROPERTY AND A 1-2 TOPOGRAPHIC SURVEY. THE BOUNDARY DETERMINATION CATEGORY IS A RESURVEY. THE HORIZONTAL AND VERTICAL ACCURACY CONFORMS TO CLASS A-2 & V-2 ACCURACY.
- BEARINGS REFER TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83/87).
- ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
- REFERENCE IS MADE TO THE FOLLOWING MAPS:
 - TOWN OF WALLINGFORD, MAP SHOWING LAND, EASEMENTS & RIGHTS OF ACCESS ACQUIRED FROM JOHN J. WALL BY THE STATE OF CONNECTICUT, INTERSTATE ROUTE 91, SCALE 1"=40', DATED NOVEMBER 1982.
 - CONNECTICUT STATE HIGHWAY DEPARTMENT, RIGHT OF WAY MAP, TOWN OF WALLINGFORD, INTERSTATE 91 FROM ROCK HILL ROAD NORTHERLY TO THE WALLINGFORD-MERIDEN TOWN LINE, SCALE 1"=80', DATED DECEMBER 13, 1985, # 148-10, SHEET 6 OF 7.
 - EXISTING CONDITIONS SURVEY TOWER SITE NORTHROP ROAD WALLINGFORD, CONNECTICUT PREPARED FOR SNET MOBILITY, INC. BY URS GREENER, INC. AES, SCALE 1"=20', DATED AUGUST 1998.
- THE PROPERTY HAS HAD ACCESS TO I-91 ACQUIRED AND IS SUBJECT TO DRAINAGE RIGHTS ALONG CARPENTER LANE AS DESCRIBED IN VOLUME 312, PAGE 741 AND VOLUME 315, PAGE 522, BOTH OF THE WALLINGFORD LAND RECORDS.
- REFERENCE IS MADE TO A SPECIAL PERMIT FOR A TOWER AND MOBILE RADIO TRANSMISSION FACILITY RECORDED IN VOLUME 789, PAGE 341 OF THE WALLINGFORD LAND RECORDS.
- REFERENCE IS MADE TO A MEMORANDUM OF AGREEMENT BETWEEN ANTHONY AUTORINO AND SMART S&P OF NEW YORK, INC. RECORDED IN VOLUME 808, PAGE 839 OF THE WALLINGFORD LAND RECORDS.
- UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING AND OTHER DATA SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES, GOVERNMENTAL AGENCIES AND/OR OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE EXISTENCE OF WHICH ARE UNKNOWN TO URS CORPORATION AES. THE EXISTENCE, SIZE AND LOCATION OF ALL SUCH FEATURES MUST BE DETERMINED AND VERIFIED IN THE FIELD BY THE APPROPRIATE AUTHORITY PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG 1-800-852-4455.
- NOT POSSIBLE TO STAKE LEASE CORNERS AT TIME OF SURVEY.
- NO OBSERVABLE EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SLUMP OR SANITARY LANDFILL.
- THERE ARE NO PAVED PARKING SPACES LOCATED ON THE LEASE PARCEL.
- NO OBSERVABLE EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS AT THE TIME OF THE SURVEY.
- THERE ARE NO CHANGES IN THE STREET RIGHT OF WAY LINES FROM THE AVAILABLE CONTROLLING JURISDICTION AND NO OBSERVED RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS.

NOTES CORRESPONDING TO SCHEDULE B:

TITLE REPORT ISSUED BY U.S. PROPERTY & APPRAISAL SERVICES CORP., FILE #07-08764, DATED 7/22/04, CONTAINS THE FOLLOWING EXCEPTIONS WHICH ARE SURVEY MATTERS:

- REFERENCE IS MADE TO A MEMORANDUM OF AGREEMENT BETWEEN ANTHONY AUTORINO AND SMART S&P OF NEW YORK, INC. RECORDED IN VOLUME 808, PAGE 839 OF THE WALLINGFORD LAND RECORDS. AFFECTS THE PROPERTY, TOWER AREA SHOWN HEREON.

ENCROACHMENT STATEMENT:

LEASE AREA LIES WITHIN BUILDING SETBACKS.

PARENT PARCEL DESCRIPTION (As Provided):

THE LAND IS DESCRIBED AND/OR DEPICTED AS FOLLOWS: MAP 54, LOT 10 - LAND ON CARPENTER LANE, WALLINGFORD CONTAINING 1.68 ACRES MORE OR LESS BEING A PORTION OF THE FIRST PIECE AS DESCRIBED IN VOLUME 207, PAGE 104, WALLINGFORD LAND RECORDS AS FOLLOWS:
FIRST PIECE: CONTAINING FIVE (5) ACRES MORE OR LESS, LOCATED IN THE TOWN OF WALLINGFORD AND BOUNDED AND DESCRIBED AS FOLLOWS:
NORTHERLY: BY THE HIGHWAY;
EASTERLY: BY LAND NOW OR FORMERLY OF HAROLD R. BARNES;
SOUTHERLY: BY LAND NOW OR FORMERLY OF HAROLD R. BARNES;
WESTERLY: BY THE HIGHWAY.

LEASE AREA DESCRIPTION (As Surveyed):

COMMENCING AT A POINT ON THE WESTERLY SIDE OF INTERSTATE 91, SAID POINT BEING MARKED BY A CONNECTICUT HIGHWAY DEPARTMENT MONUMENT, THENCE PROCEEDING IN A GENERALLY SOUTHERLY DIRECTION ALONG THE HIGHWAY LINE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 815.11 FEET, A DISTANCE OF 338.82 FEET TO A POINT, THENCE TURNING AND RUNNING SOUTH 89°01'30" EAST, A DISTANCE OF 38.89 FEET TO LAND NOW OR FORMERLY OF ANTHONY D. AUTORINO, TO THE POINT OF BEGINNING, THENCE TURNING AND RUNNING SOUTH 00°58'30" WEST, A DISTANCE OF 106.00 FEET, THENCE NORTH 89°05'00" WEST, A DISTANCE OF 31.13 FEET, THENCE NORTH 00°58'30" EAST, A DISTANCE OF 31.13 FEET TO THE POINT OF BEGINNING, THE LAST FOUR COURSES BEING ON LAND NOW OR FORMERLY OF ANTHONY D. AUTORINO, SAID LEASE PARCEL CONTAINS 3,300 SQUARE FEET OF LAND.

ACCESS EASEMENT DESCRIPTION (As Surveyed):

COMMENCING AT A POINT WHICH MARKS THE NORTHWESTERLY CORNER OF THE LEASE PARCEL, THENCE PROCEEDING SOUTH 00°58'30" WEST, A DISTANCE OF 58.11 FEET ALONG THE LEASE PARCEL, TO A POINT WHICH MARKS THE POINT OF BEGINNING, THENCE CONTINUING SOUTH 00°58'30" WEST, A DISTANCE OF 8.42 FEET, THENCE TURNING AND RUNNING NORTH 75°40'48" WEST, A DISTANCE OF 48.00 FEET TO A POINT IN THE EASTERLY LINE OF NORTHROP ROAD, THENCE RUNNING ALONG THE EASTERLY LINE OF NORTHROP ROAD NORTH 27°00'10" EAST, A DISTANCE OF 15.11 FEET, THENCE TURNING AND RUNNING SOUTH 75°40'48" EAST, A DISTANCE OF 40.55 FEET TO THE POINT OF BEGINNING.

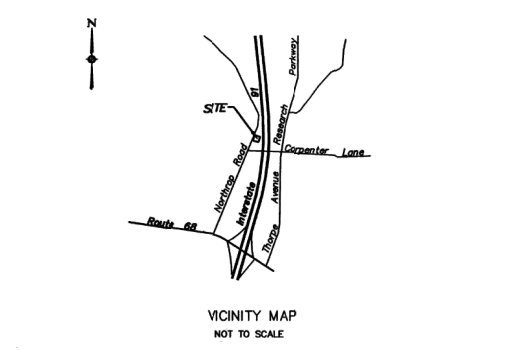
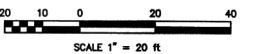
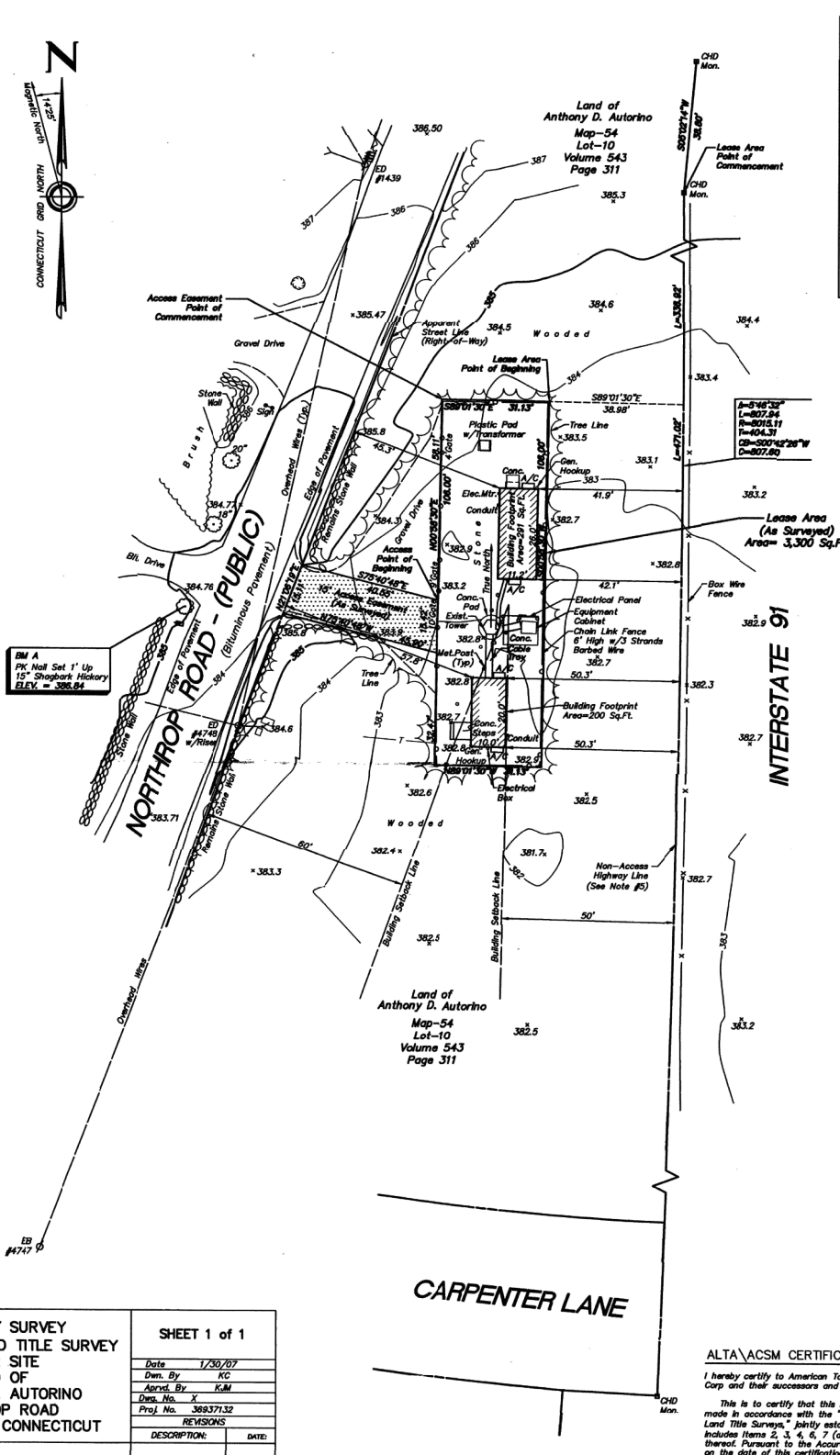
ALTA/ACSM CERTIFICATION

I hereby certify to American Tower Corporation, U.S. Property & Appraisal Services Corp and its successors and assigns:
This is to certify that this map or plot and the survey on which it is based were made in accordance with the Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys, jointly established and adopted by ALTA and NSPS in 2003, and includes items 2, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15 of Table A thereof. Pursuant to the Accuracy Standards as adopted by ALTA and NSPS and in effect on the date of this certification, undersigned further certifies that in my professional opinion, as a land surveyor licensed in the State of Connecticut, the Relative Precision/Accuracy of this survey does not exceed that which is specified therein. Title matters in this certification are as of the date of the title report.

Dated: March 6, 2007
Michael G. Wilmes
Connecticut L.S. No. 14206

LEGEND

	Bush		Mailbox
	Catch Basin		Manhole
	Coniferous Tree		Parking Meter
	Deciduous Tree		Sign
	Gas Gate		Utility Pole
	Hydrant		Meter Gate
	Light Pole		Conc. Concrete
	Mon. Monument		Bit. Bituminous
	Typ. Typical		Elec. Electrical
	CHD Connecticut Highway Department		



2C STATEMENT

THIS IS TO CERTIFY THAT THE GEOGRAPHICAL LOCATION SHOWN IS ACCURATE TO WITHIN ±50' HORIZONTALLY AND 20' VERTICALLY.

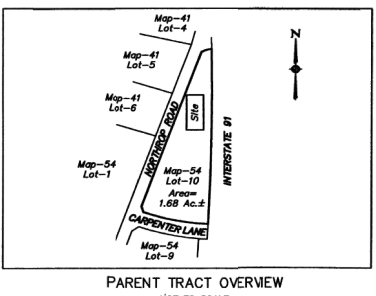
LATITUDE = 41°28'21.85 (NAD83)
LONGITUDE = 72°46'05.71 (NAD83)
GROUND ELEVATION = 352 (AMSL-NAVD/88)
TOWER HEIGHT = 157' AS
HIGH POINT = 543 (AMSL-NAVD/88)
TOWER TYPE: MONOPOLE

FLOOD STATEMENT

THE PROPERTY IS LOCATED IN ZONE X PER THE NATIONAL FLOOD INSURANCE PROGRAM MAP, COMMUNITY PANEL NUMBER 060900 0007 B. MAP REVISED JUNE 4, 1990. ZONE X IS AN AREA DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN.

ZONING DATA

ZONE: IX - INDUSTRIAL EXPANSION DISTRICT
USE: TOWER SITE
SETBACKS:
FRONT - 60 FEET
SIDE - 30 FEET
REAR - 50 FEET
HEIGHT RESTRICTIONS -
MAXIMUM BUILDING HEIGHT - 30
PARKING NOTES - NONE
ALL AS FURTHER DESCRIBED IN THE WALLINGFORD ZONING REGULATIONS.



THE UTILITIES AS SHOWN ON THIS DRAWING WERE DEVELOPED FROM THE INFORMATION AVAILABLE. THIS IS NOT IMPLIED NOR INTENDED TO BE THE COMPLETE INVENTORY OF UTILITIES IN THIS AREA. IT IS THE CLIENT'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES (WHETHER SHOWN OR NOT) AND PROTECT SAID UTILITIES FROM ANY DAMAGE.

Work Coordinated by:
ASC NATIONAL LLC
1264 MAIN STREET
WALTHAM, MA 02451
TELEPHONE: 781.951.6477 FAX: 781.642.0866

Prepared For:
American Tower Corporation
900 Circle 75 Parkway
Suite 300
Atlanta, GA. 30339

Surveying and Mapping by:
URS
URS Corporation AEB
500 Enterprise Drive, Suite 30
Rocky Hill, Connecticut 06067-4002
Tel. (860) 529-8882

Scale: 1" = 20'
Date: JANUARY 2007

Field book # 1689-6
Crew Chief S.PERRY
Project # 36937132

Search # 2318
Drawn by KC
Checked by M.G.W.
Map file # T137-47B

Project Name: **Parsonage Hill aka Wallin**
Project Location: **Wallingford, CT**
Project Address: **922 Northrop Road**
Client Number: **302538**

PROPERTY SURVEY
ALTA/ACSM LAND TITLE SURVEY
TOWER SITE
LAND OF
ANTHONY D. AUTORINO
NORTHROP ROAD
WALLINGFORD, CONNECTICUT

SHEET 1 of 1

Date	1/30/07
Drawn By	KC
App'd. By	M.G.W.
Drawn No.	X
Proj. No.	36937132
REVISIONS	
DESCRIPTION	
DATE	

EXISTING SURVEY (BY OTHERS)

NO SCALE

1

NOTES

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

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.

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY: CHECKED BY: APPROVED BY:

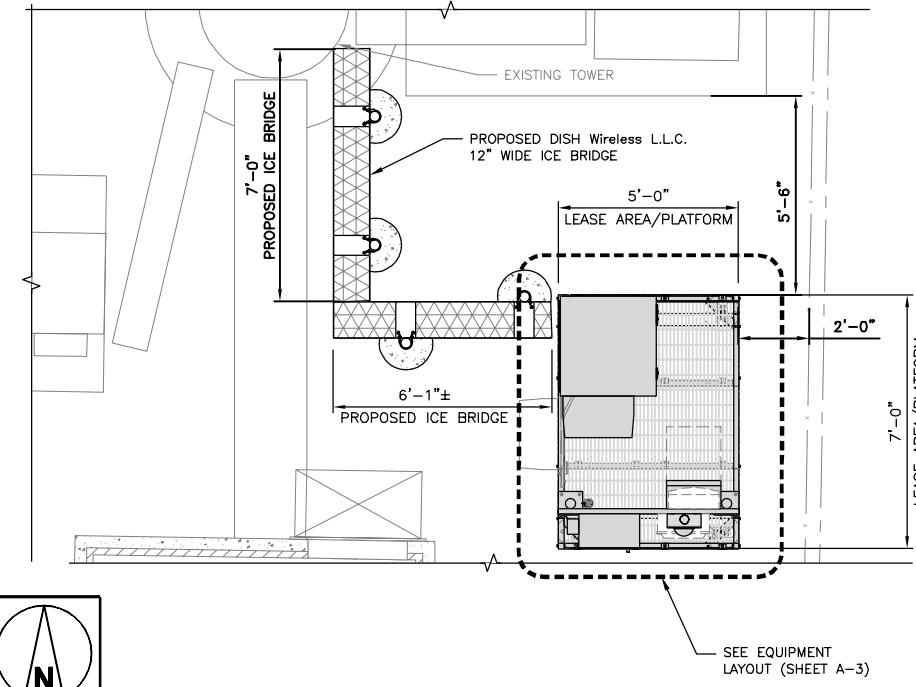
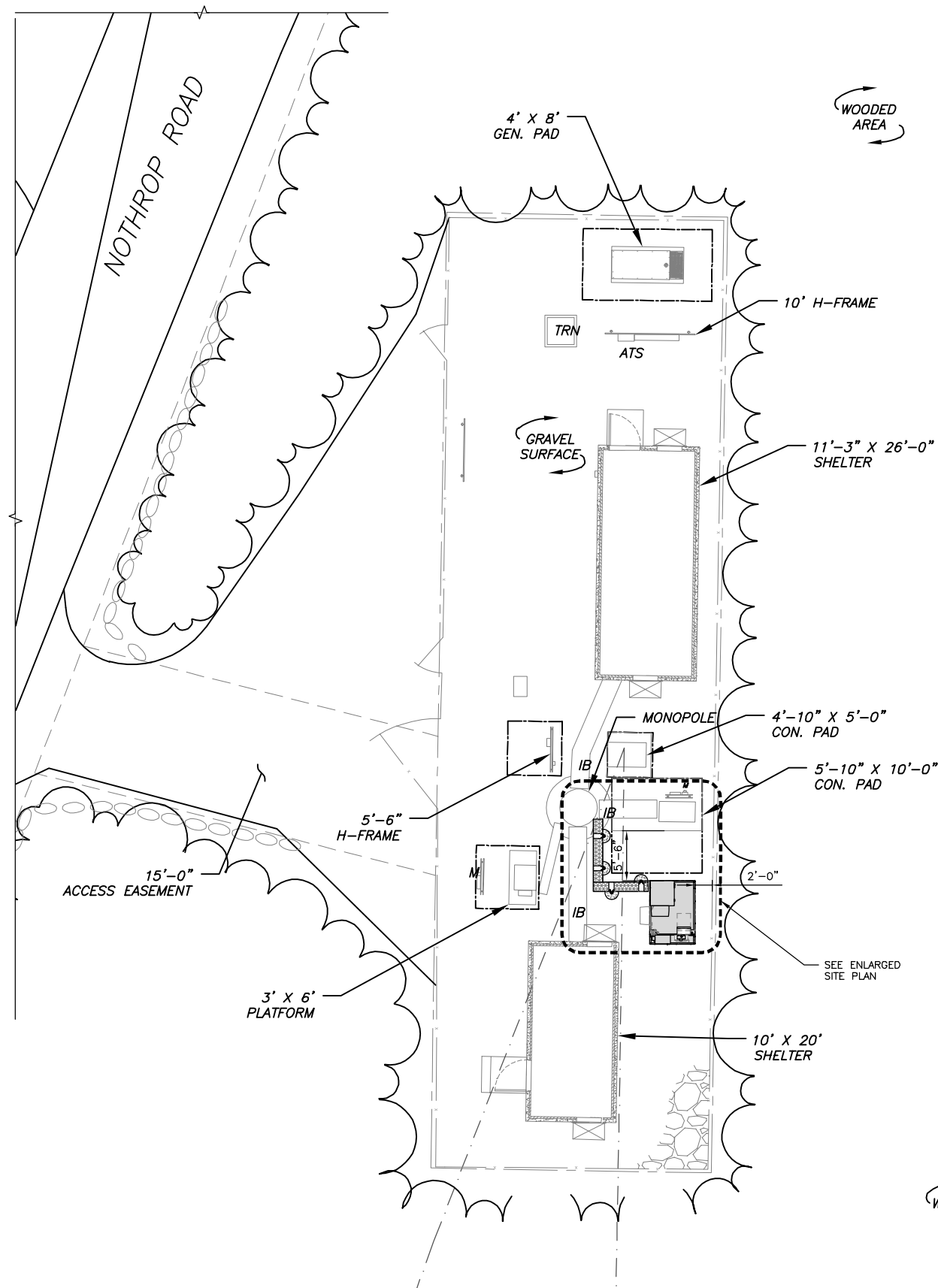
CCC BW BW

RFDS REV #: 1

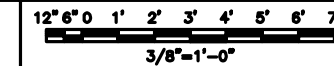
CONSTRUCTION DOCUMENTS

SUBMITTALS

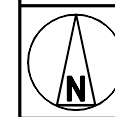
REV	DATE	DESCRIPTION
A	06/20/2022	ISSUED FOR REVIEW
0	08/03/2022	ISSUED FOR CONSTRUCTION



ENLARGED SITE PLAN



2

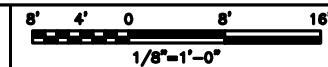


COMPOUND UTILITY PLAN

NO SCALE

3

OVERALL SITE PLAN



1

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

A&E PROJECT NUMBER
302538-14112747

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN001748
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
OVERALL AND ENLARGED
SITE PLAN

SHEET NUMBER

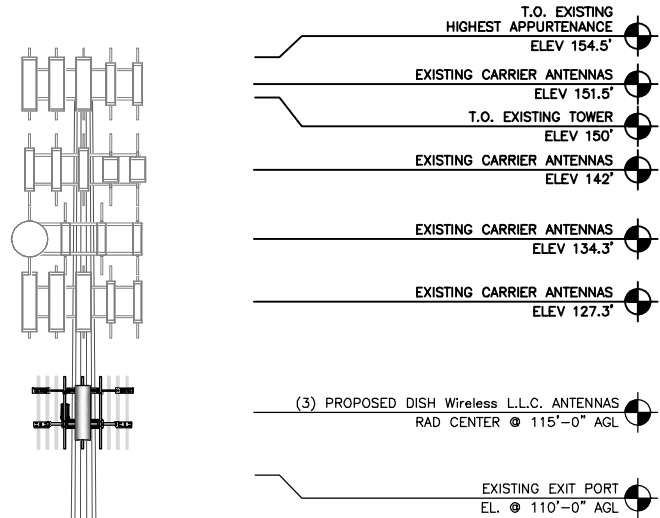
A-1



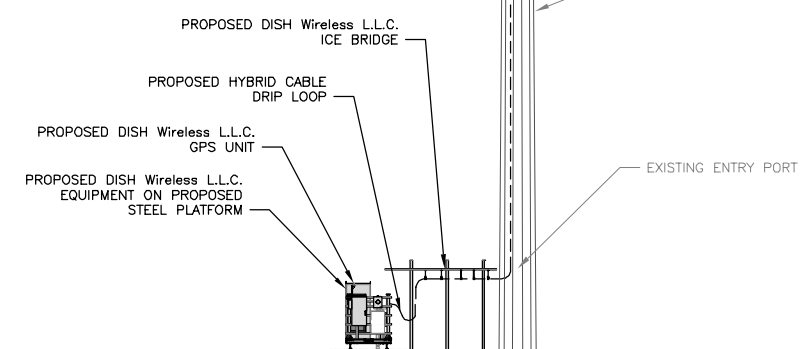
NOTES

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.

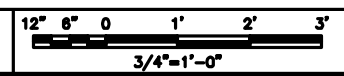
THE EXISTING LINES, ANTENNA, APPURTENANCES AND MOUNT RELATED TO THE EXISTING RAD CENTER @ 111' SHALL BE REMOVED BY THE CONTRACTOR PRIOR TO INSTALLING THE PROPOSED INSTALLATION. FAILURE TO COMPLY WITH THE FOREGOING MAY RESULT IN ADDITIONAL CHARGES OR FEES.



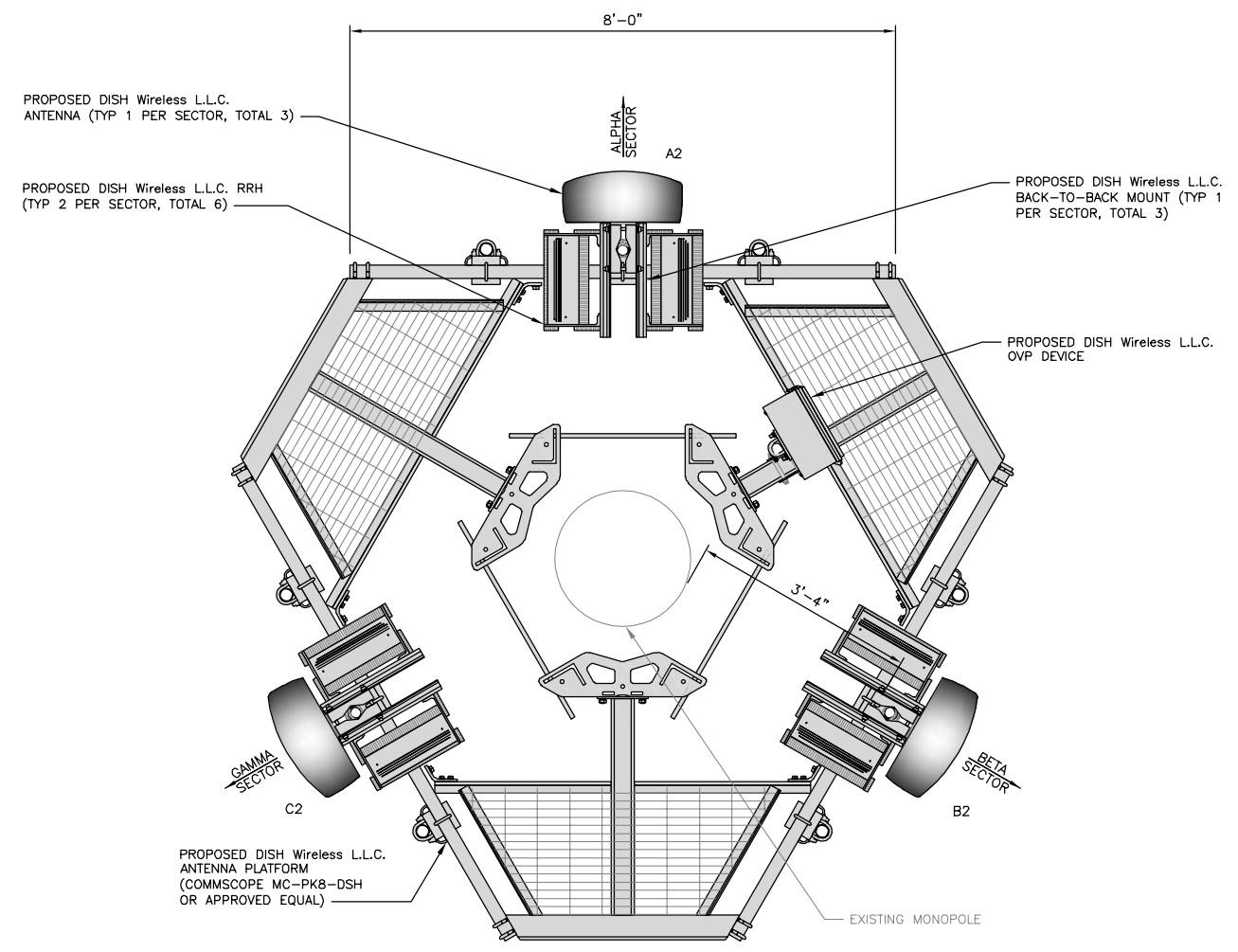
(1) PROPOSED DISH WIRELESS, L.L.C. HYBRID CABLE ROUTED INSIDE POLE SHAFT (SEE STRUCTURAL ANALYSIS)



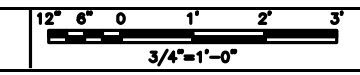
PROPOSED NORTH ELEVATION



1



ANTENNA LAYOUT



2

SECTOR POS.	ANTENNA					TRANSMISSION CABLE	RRH			OVP
	EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECH	AZIMUTH	RAD CENTER		FEED LINE TYPE AND LENGTH	MANUFACTURER - MODEL NUMBER	TECH	
A1	--	--	--	--	--	(1) HIGH-CAPACITY HYBRID CABLE (170' LONG)	FUJITSU - TA08025-B604	5G	A2	(1) RAYCAP RDIDC-9181-PF-48
A2	PROPOSED	JMA - MX08FR0665-21	5G	0°	115'-0"		FUJITSU - TA08025-B605	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU - TA08025-B604	5G	B2	SHARED W/ALPHA
B2	PROPOSED	JMA - MX08FR0665-21	5G	120°	115'-0"		FUJITSU - TA08025-B605	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU - TA08025-B604	5G	C2	SHARED W/ALPHA
C2	PROPOSED	JMA - MX08FR0665-21	5G	240°	115'-0"		FUJITSU - TA08025-B605	5G	C2	
C3	--	--	--	--	--		--	--	--	

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

ANTENNA SCHEDULE

NO SCALE

3

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C
TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
CCC	BIW	BIW
RFDS REV #:		1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	06/20/2022	ISSUED FOR REVIEW
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A&E PROJECT NUMBER
302538-14112747

DISH Wireless L.L.C. PROJECT INFORMATION
BOHVN001748
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY: CCC
CHECKED BY: BW
APPROVED BY: BW

RFDS REV #: 1

CONSTRUCTION
DOCUMENTS

SUBMITTALS

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PROJECT INFORMATION
BOHVN001748
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

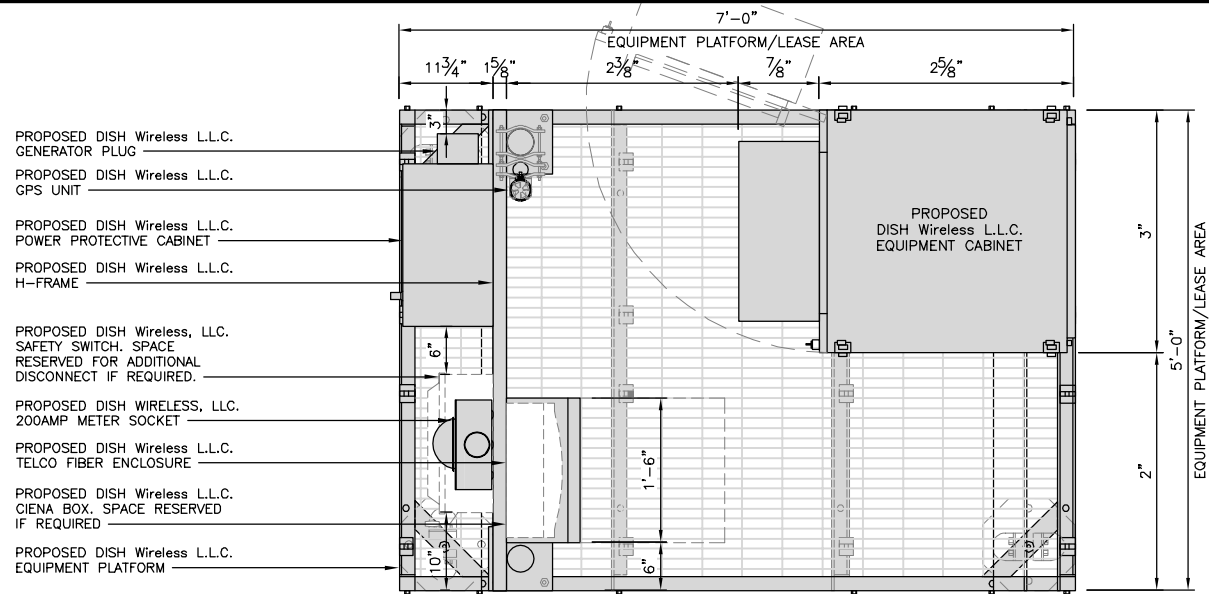
SHEET TITLE
EQUIPMENT PLATFORM
AND H-FRAME DETAILS

SHEET NUMBER

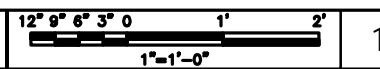
A-3

NOTES

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



PLATFORM EQUIPMENT PLAN

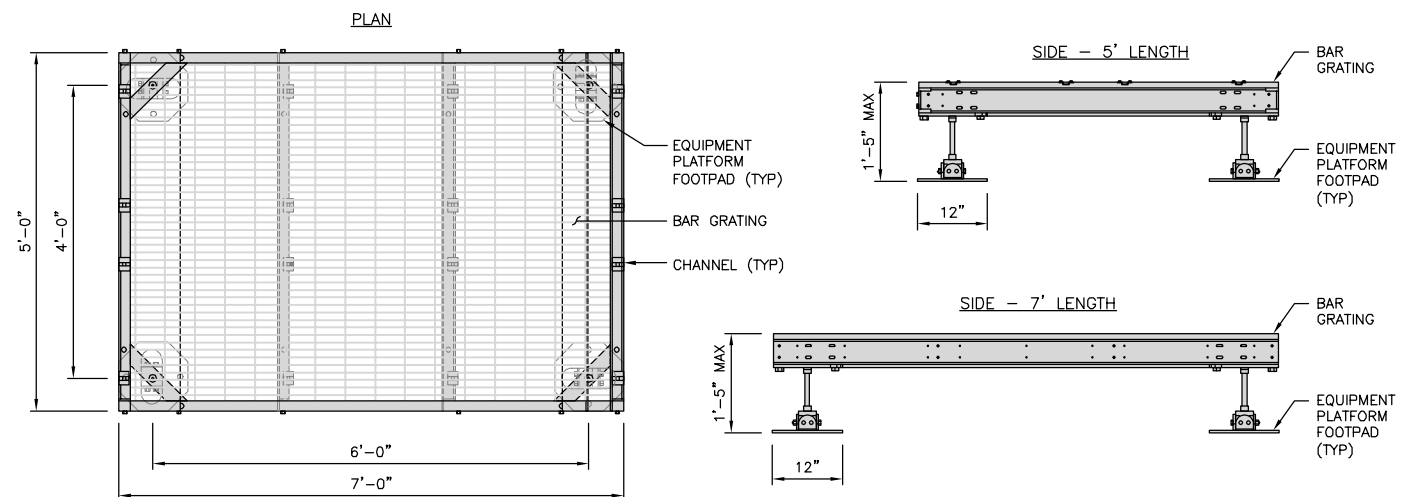


1

**COMMSCOPE MTC4045LP
5X7 PLATFORM**

DIMENSIONS (HxWxD)	16"x84"x60"
TOTAL WEIGHT	423 LBS

NOTE:
PLATFORM TO BE WITHIN 1' OF LEVEL

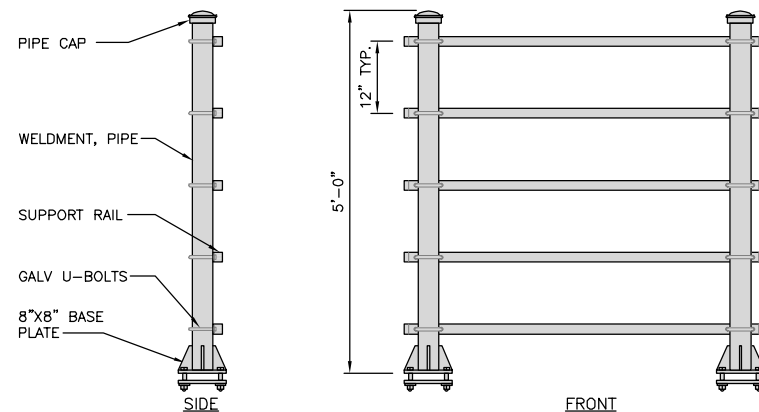


PLATFORM DETAIL

NO SCALE 2

**KENWOOD T1701KT5-5S
H-FRAME**

UNISTRUT/SUPPORT RAIL	5
WEIGHT/ VOLUME	173.6 LBS

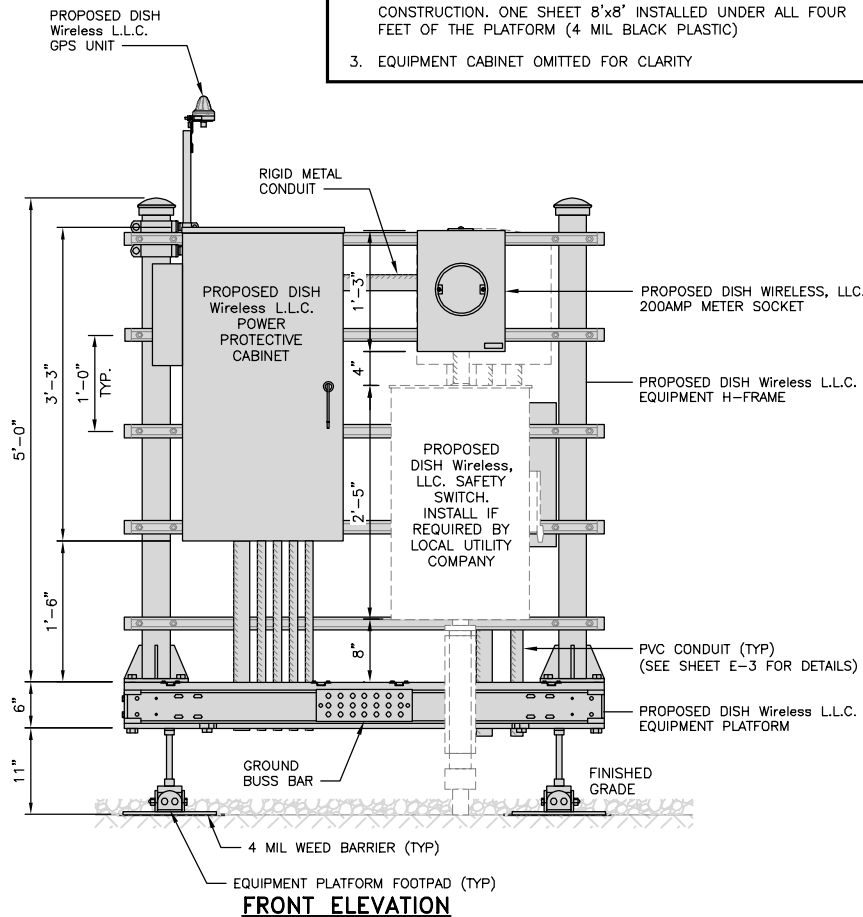


H-FRAME DETAIL

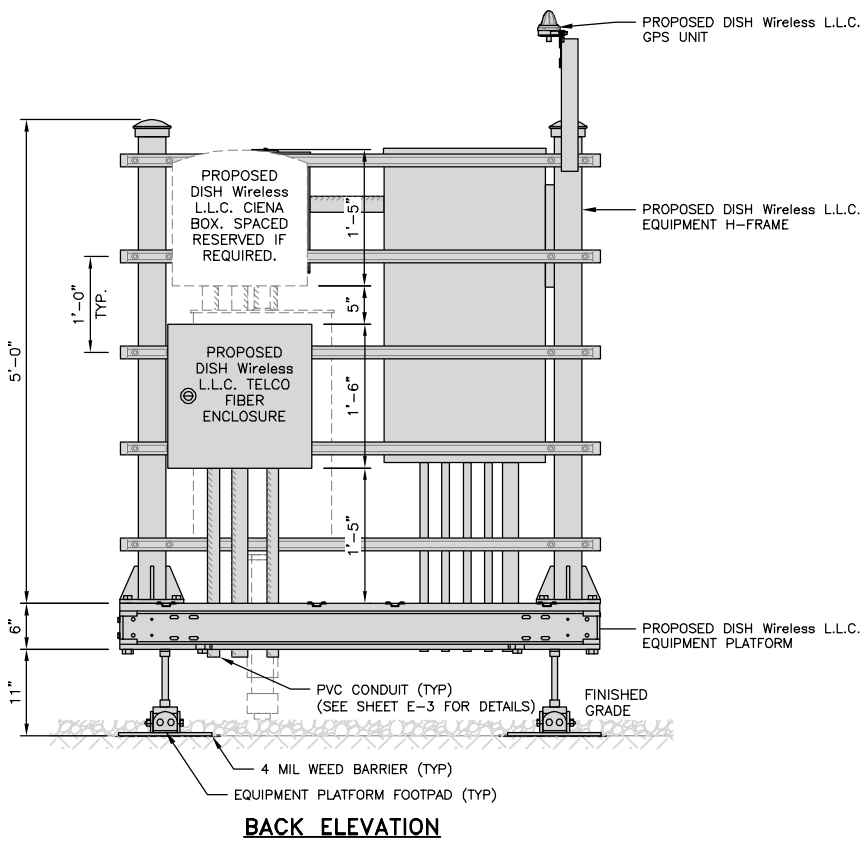
NO SCALE 3

NOT USED

NO SCALE 4

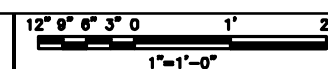


FRONT ELEVATION



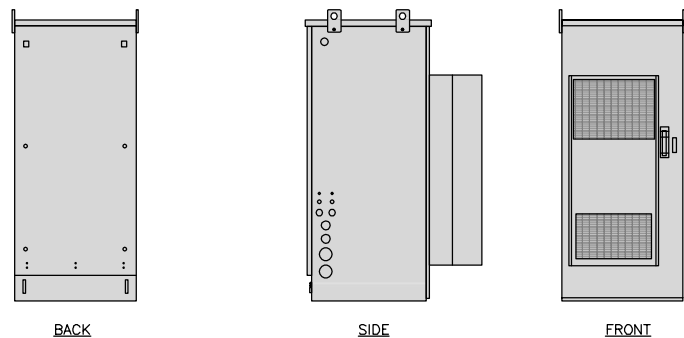
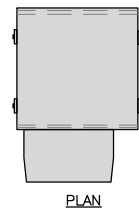
BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION



5

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

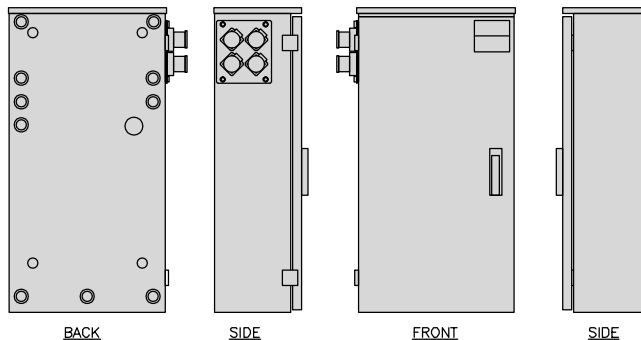
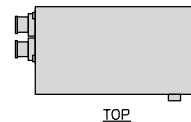


CABINET DETAIL

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

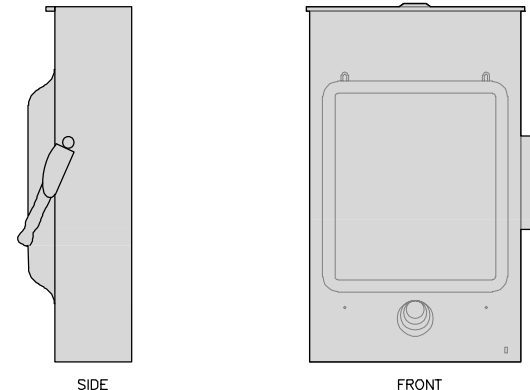
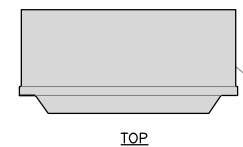


POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE

2

SQUARE D SAFETY SWITCHES D224NRB	
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E-2875

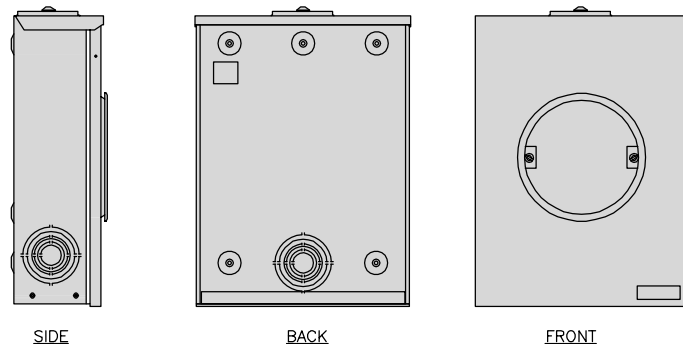
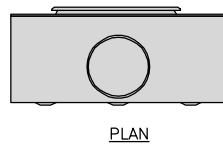


SAFETY SWITCH DETAIL

NO SCALE

3

EATON METER SOCKET UNRRS213BEUSE	
METER SOCKET TYPE	RING
ENCLOSURE DIM (HxWxD)	16"x12"x6"
MAIN AMPERE RATING	200A
WEIGHT	18 LBS

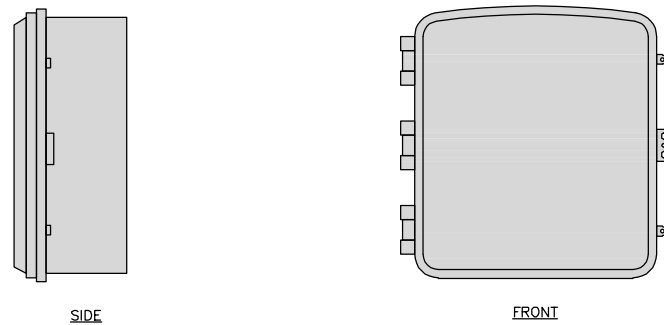
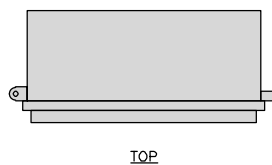


METER SOCKET DETAIL

NO SCALE

4

CIENA 3931 FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	17"x16.8"x7"
WEIGHT	28.6 lbs

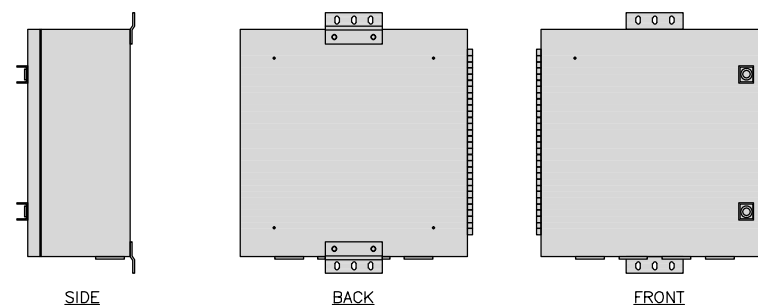
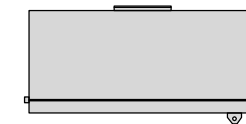


FIBER NID ENCLOSURE DETAIL

NO SCALE

5

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

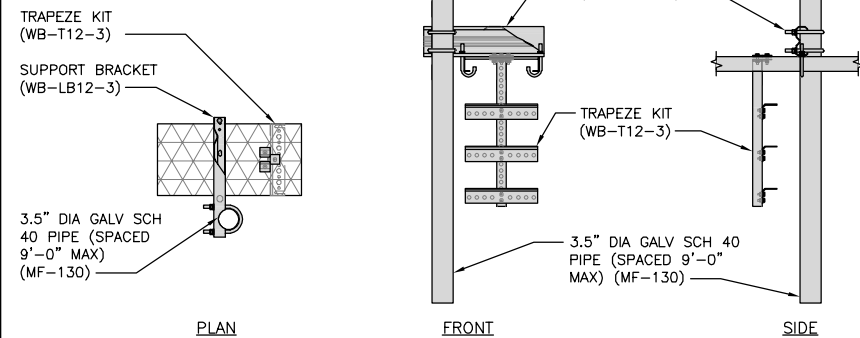


FIBER TELCO ENCLOSURE DETAIL

NO SCALE

6

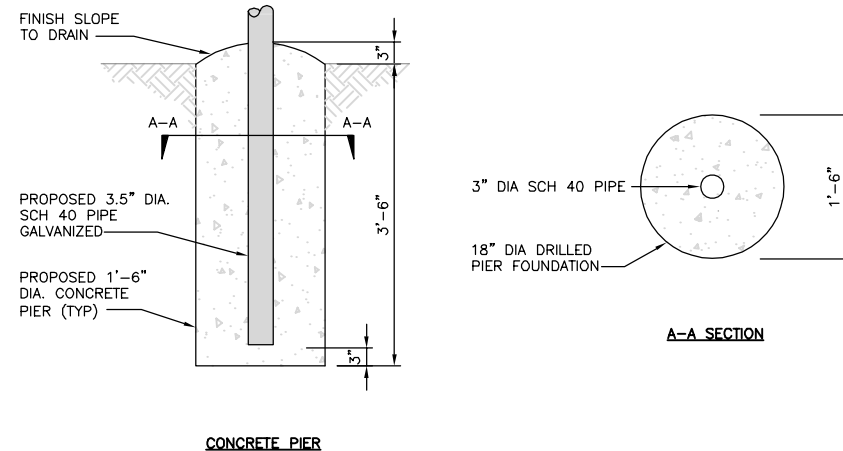
COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT		INCLUDED PRODUCTS: WB-T12-3 TRAPEZE KIT, 3 RUNGS WB-LB12-3 SUPPORT BRACKET MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"
DIMENSIONS (HxL)	160"x10'	
WEIGHT/ VOLUME	325.0 LBS	
CABLE RUN (QTY)	12	



ICE BRIDGE DETAIL

NO SCALE

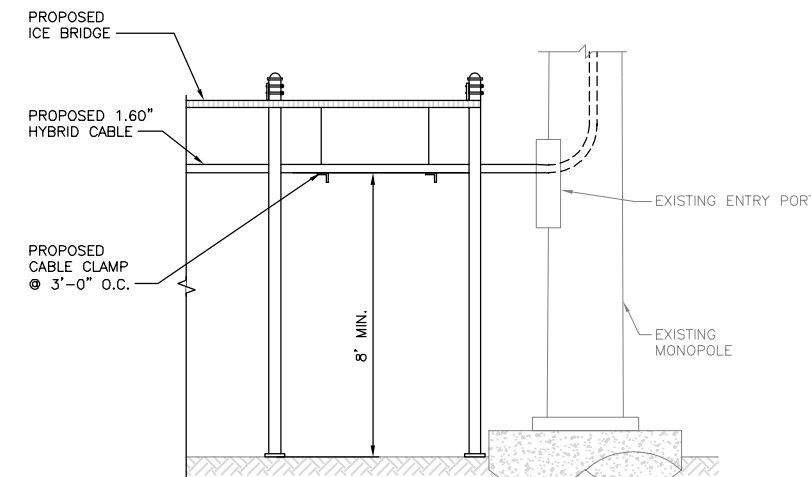
7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE

8



HYBRID CABLE RUN

NO SCALE

9

dish
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RALEIGH, NC 27615
(919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
CCC	BIW	BIW
RFDS REV #:		1

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08/03/2022

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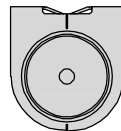
A&E PROJECT NUMBER
302538-14112747

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN001748
1000 NORTHRUP ROAD
WALLINGFORD, CT 06492

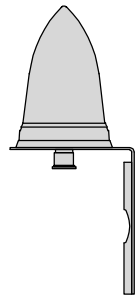
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

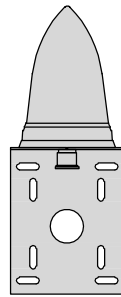
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



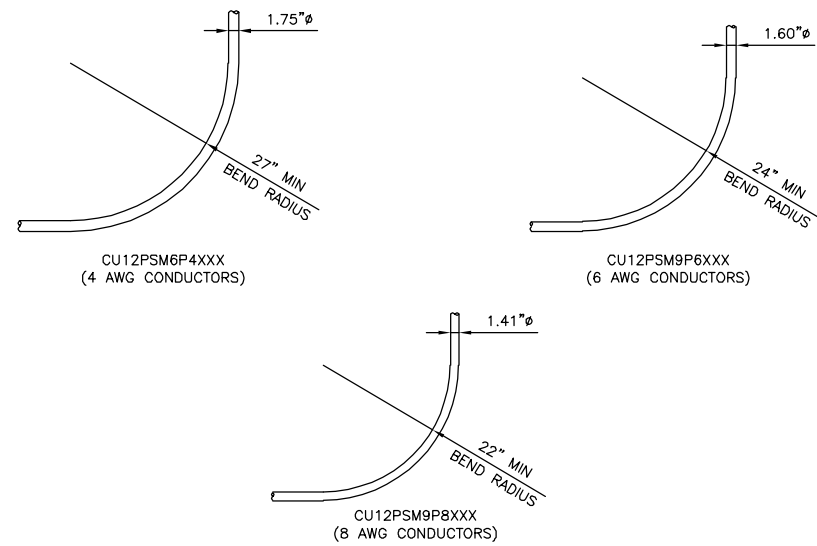
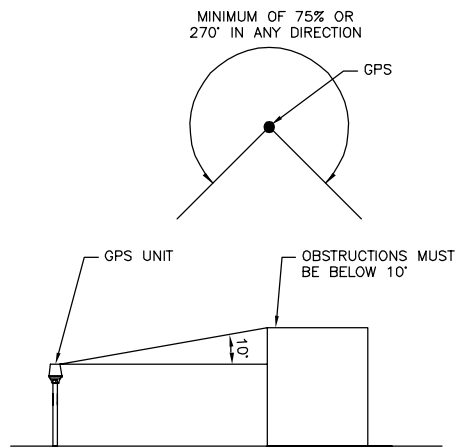
TOP



BACK



SIDE



dish
wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

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CCC	BIW	BIW

RFDS REV #: 1

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DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN001748
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

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

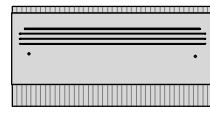
NOT USED NO SCALE 6

NOT USED NO SCALE 7

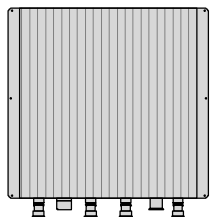
NOT USED NO SCALE 8

NOT USED NO SCALE 9

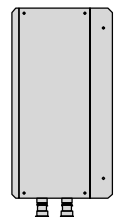
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



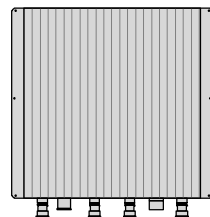
PLAN



BACK

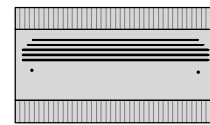


SIDE

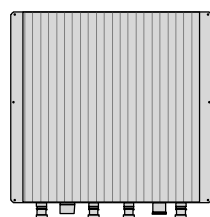


FRONT

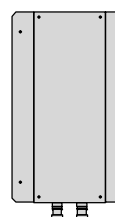
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



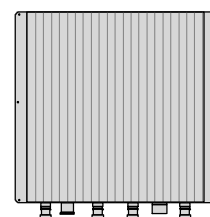
PLAN



BACK



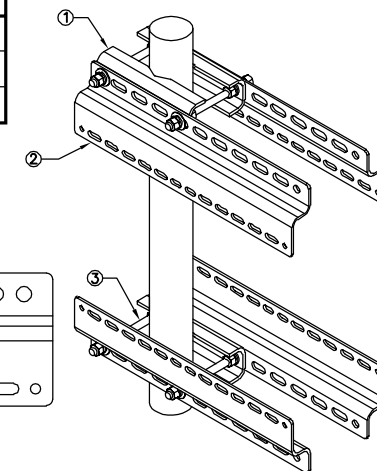
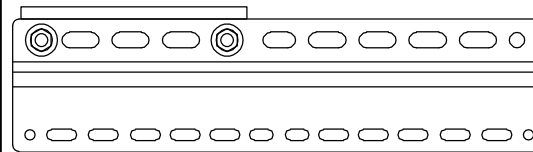
SIDE



FRONT

SABRE DOUBLE Z-BRACKET G10123155	
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 DETAIL

NO SCALE

1

RRH DETAIL

NO SCALE

2

RRH MOUNT DETAIL

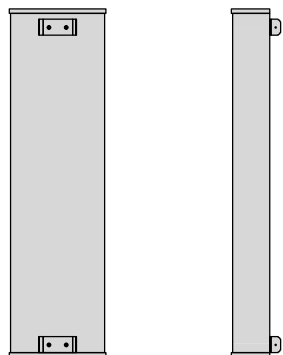
NO SCALE

3

JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	64.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE

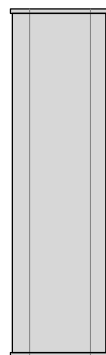


PLAN



BACK

SIDE



FRONT

ANTENNA DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

ANTENNA BRACKET DETAIL

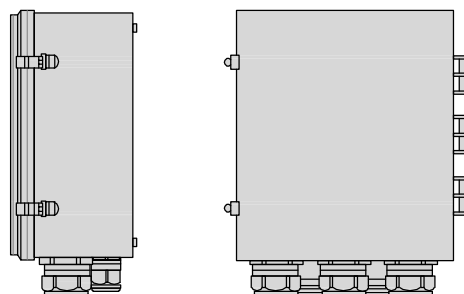
NO SCALE

6

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

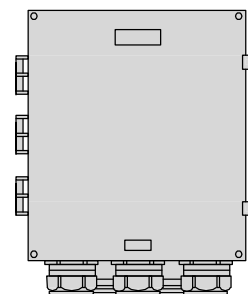


PLAN



SIDE

BACK



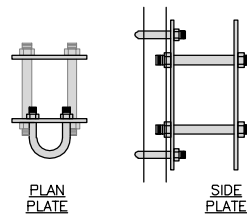
FRONT

SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

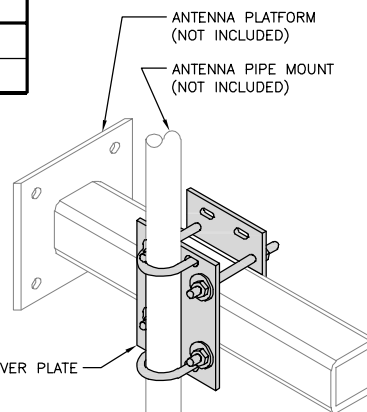
7

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS

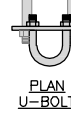


PLAN PLATE

SIDE PLATE



CROSSOVER PLATE



PLAN U-BOLT



SIDE U-BOLT

OPTION OF EITHER
SQUARE OR CIRCULAR
U-BOLT

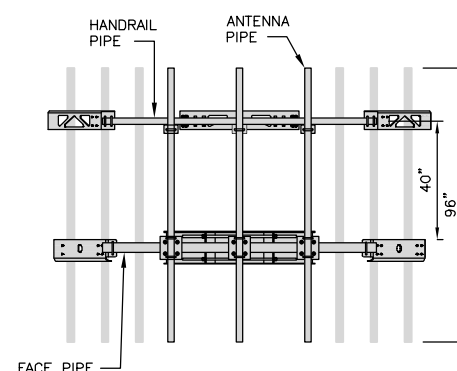
RRH/OVP MOUNT DETAIL

NO SCALE

8

COMMSCOPE MC-PK8-DSH	
FACE WIDTH	96"
WEIGHT	1373.08 lbs
NOTE: 15" TO 38" O.D.	

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



FACE PIPE

HANDRAIL PIPE

ANTENNA PIPE

40"

PLATFORM

96"

ANTENNA PLATFORM DETAIL

NO SCALE

9

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY: CHECKED BY: APPROVED BY:

CCC BW BW

RFDS REV #: 1

CONSTRUCTION
DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/20/2022	ISSUED FOR REVIEW
0	08/03/2022	ISSUED FOR CONSTRUCTION



08/03/2022

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TO ALTER THIS DOCUMENT.

A&E PROJECT NUMBER
302538-14112747

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN001748
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

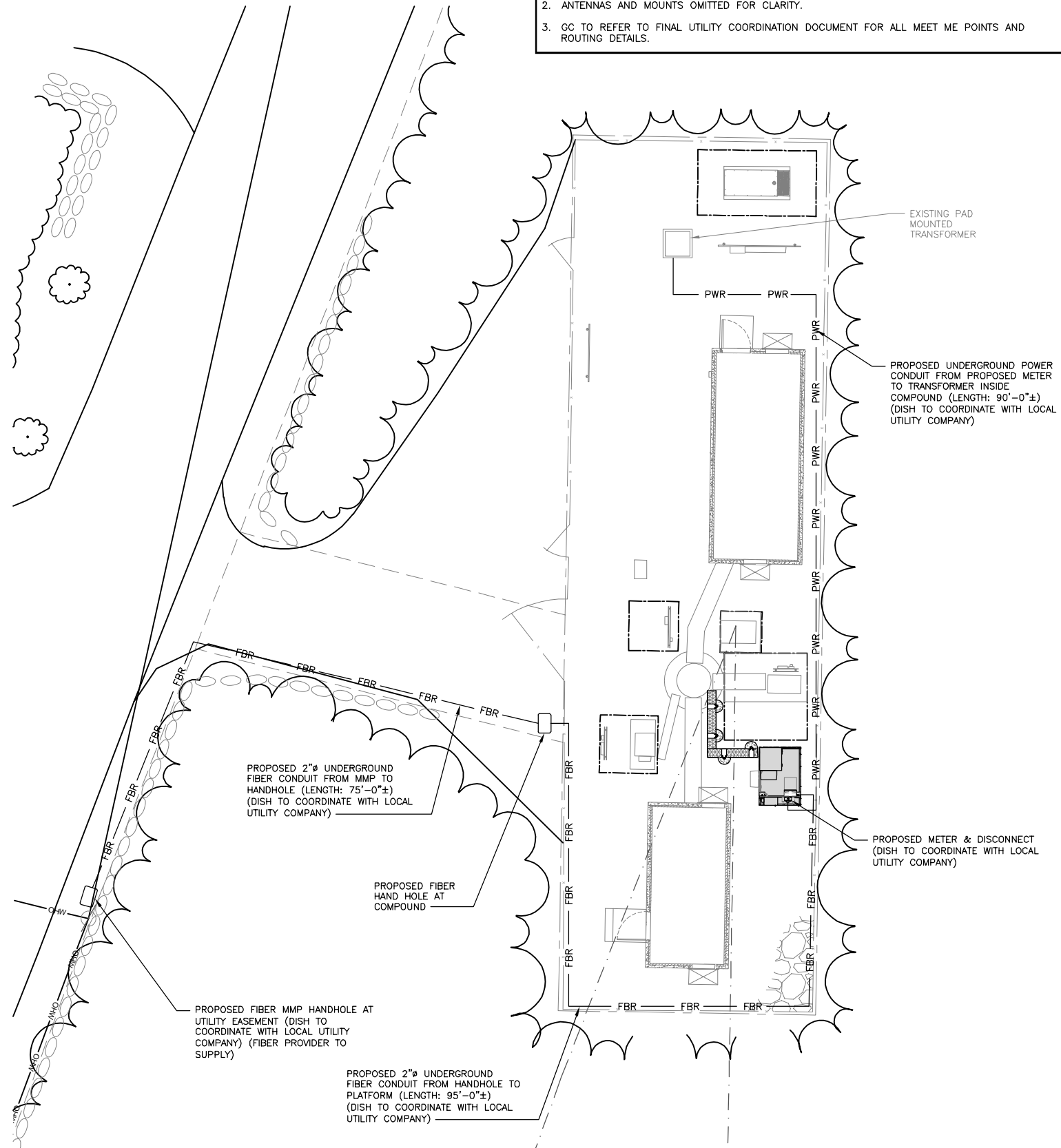
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

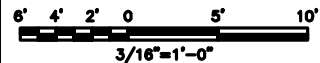
A-6

NOTES

1. CONTRACTOR MUST VERIFY THAT THE PROPOSED UTILITY ROUTES ARE WITHIN AMERICAN TOWER'S EASEMENT.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. GC TO REFER TO FINAL UTILITY COORDINATION DOCUMENT FOR ALL MEET ME POINTS AND ROUTING DETAILS.



UTILITY ROUTE PLAN



1

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

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

ELECTRICAL NOTES

NO SCALE

2



OVERALL UTILITY PLAN

NO SCALE

3

dish
wireless.

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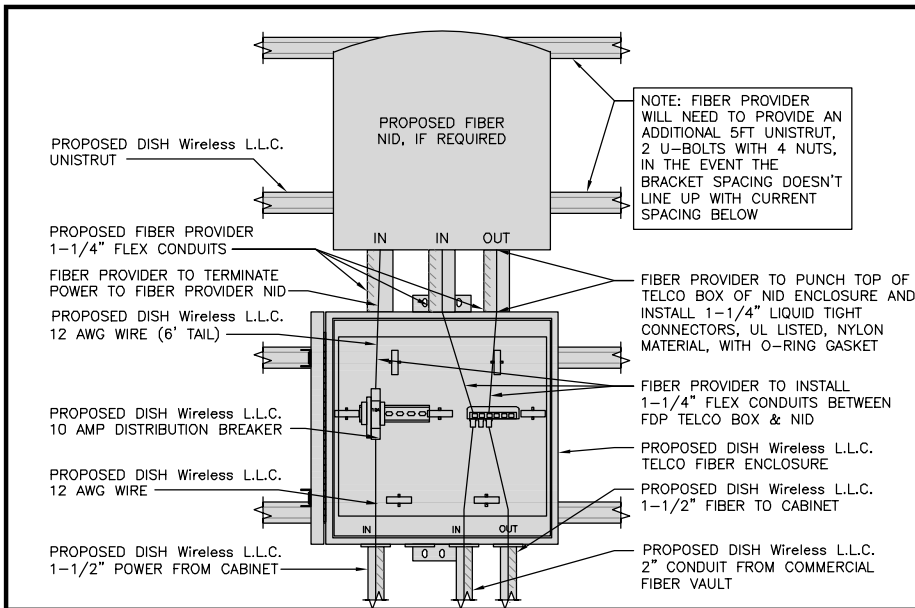
A&E PROJECT NUMBER
302538-14112747

DISH Wireless LLC.
PROJECT INFORMATION
BOHVN001748
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
ELECTRICAL/FIBER ROUTE PAN AND NOTES

SHEET NUMBER

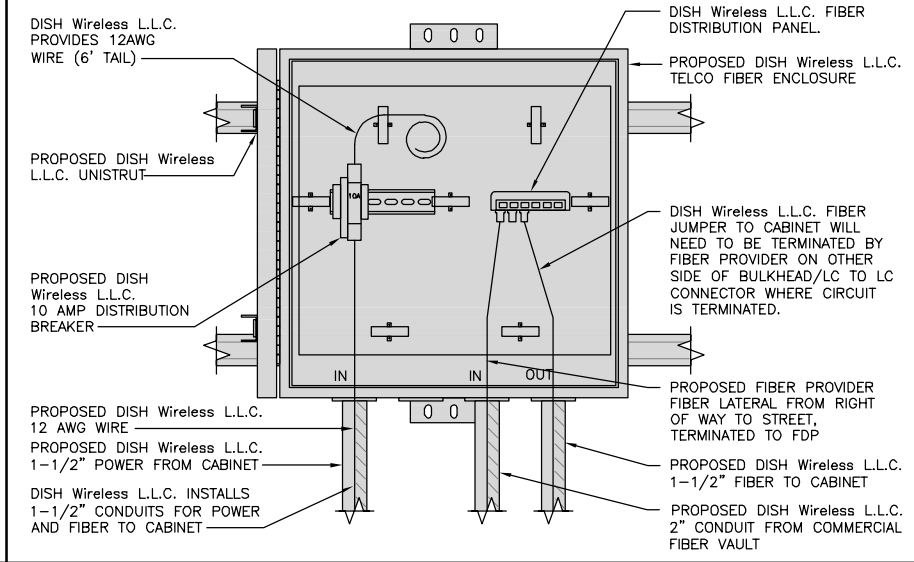
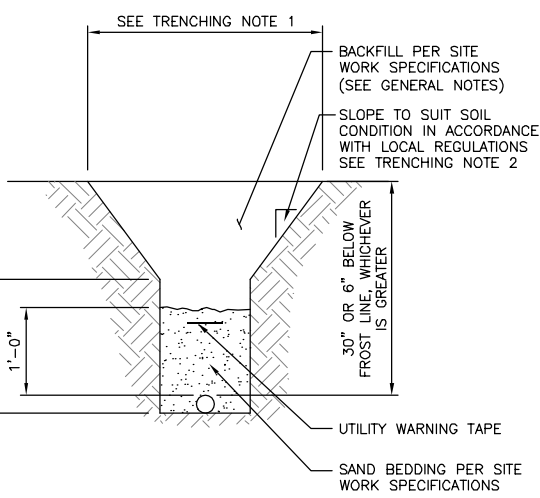
E-1



NOTE: FIBER PROVIDER WILL NEED TO PROVIDE AN ADDITIONAL 5FT UNISTRUT, 2 U-BOLTS WITH 4 NUTS, IN THE EVENT THE BRACKET SPACING DOESN'T LINE UP WITH CURRENT SPACING BELOW

TRENCHING NOTES

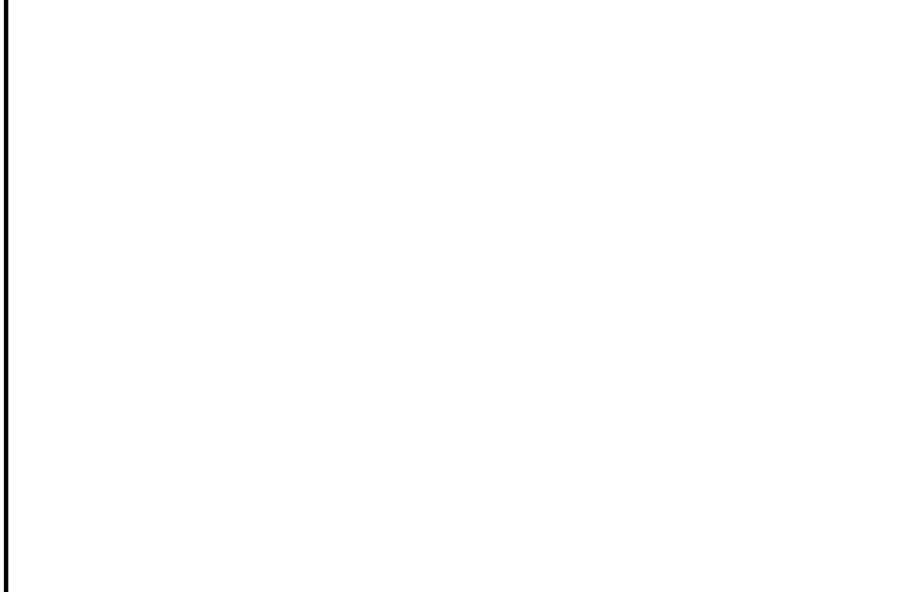
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT 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.



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL NO SCALE 2

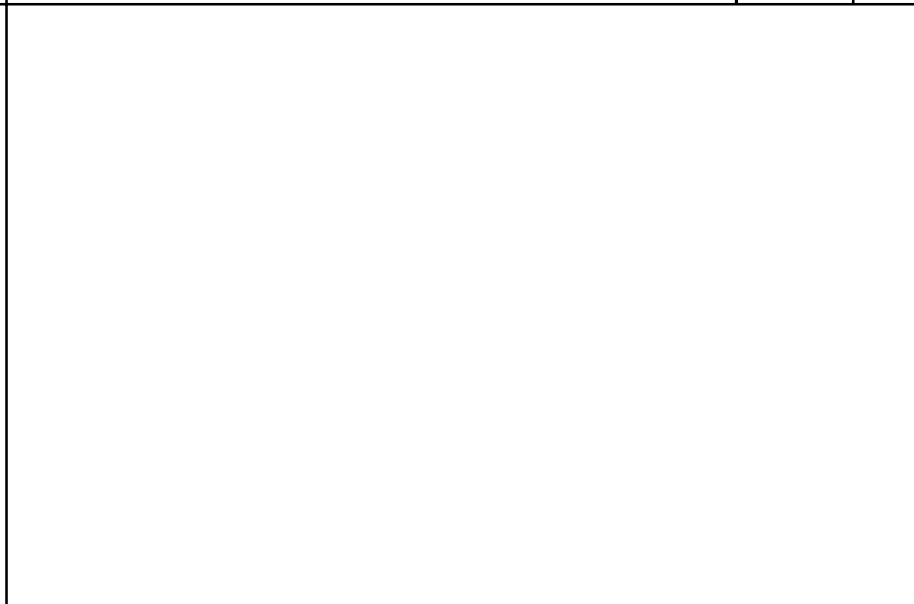
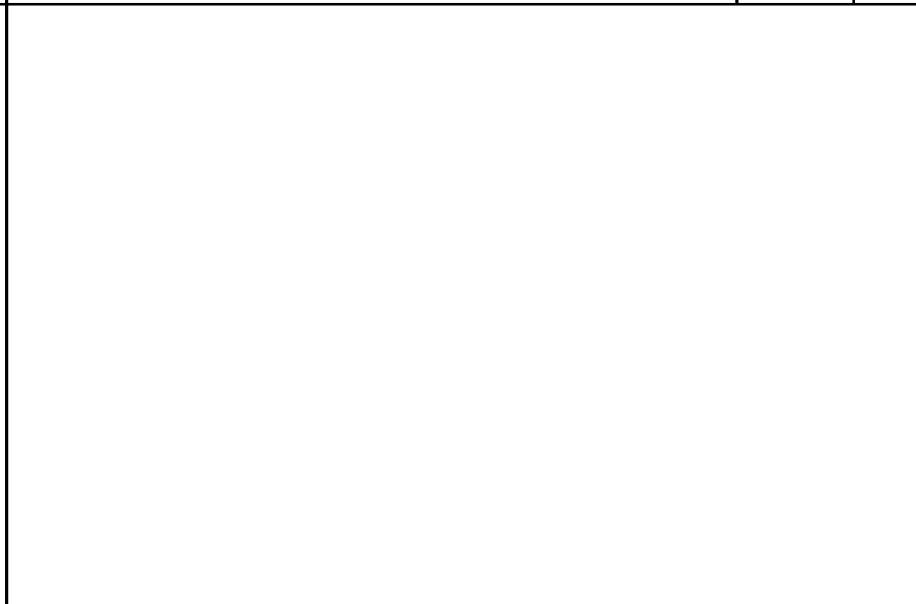
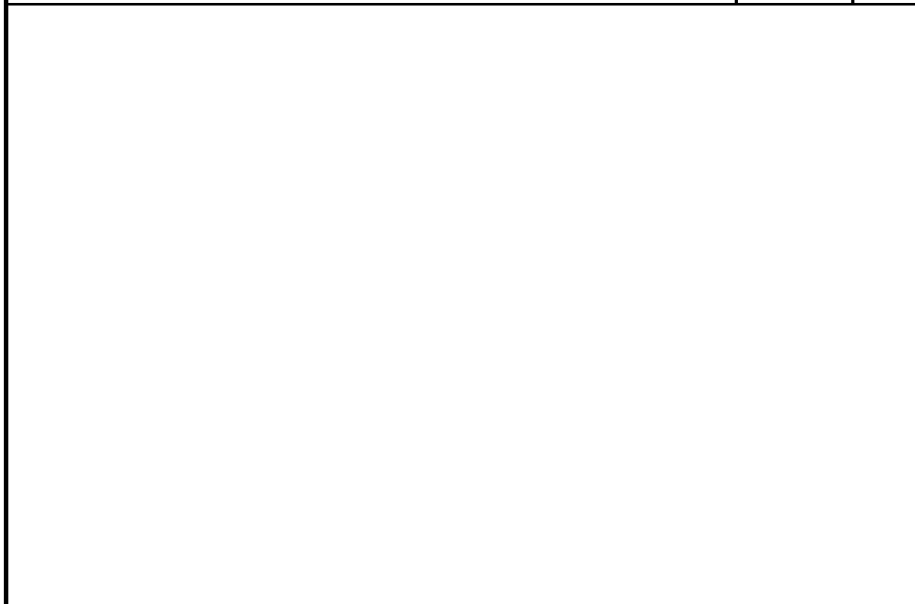
DARK TELCO BOX – INTERIOR WIRING LAYOUT NO SCALE 3



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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DISH Wireless L.L.C. PROJECT INFORMATION
BOHVN00174B
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2

CONSTRUCTION DOCUMENTS

SUBMITTALS

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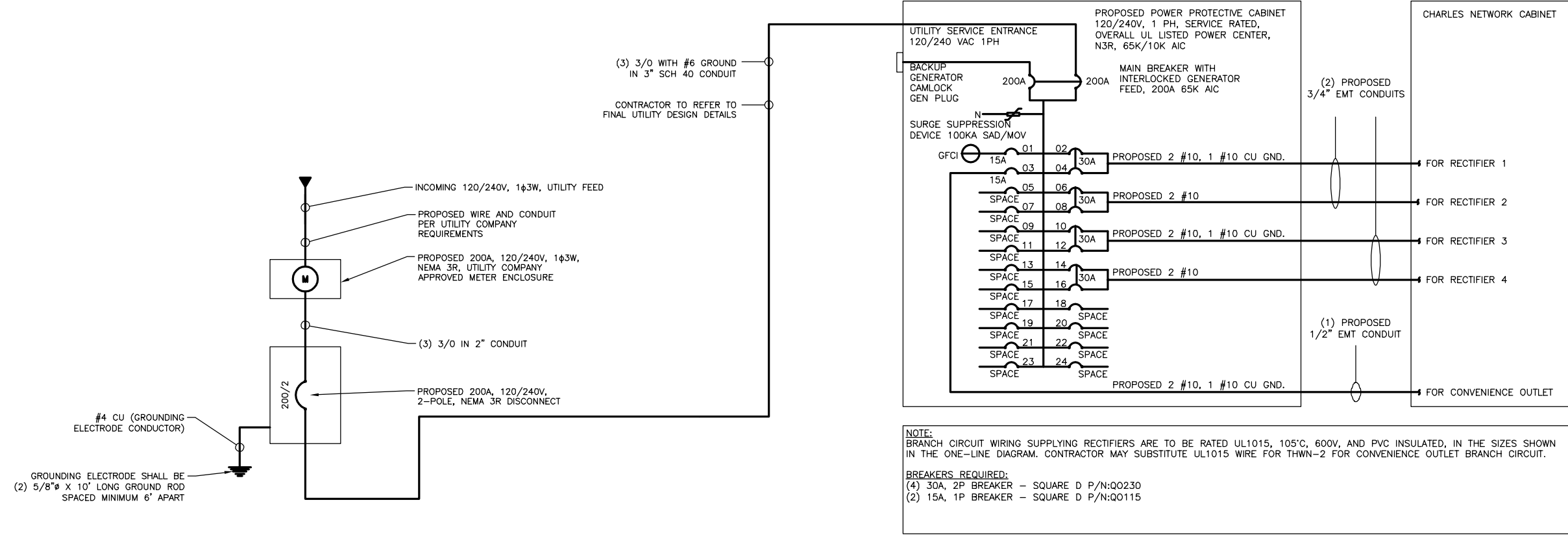
A&E PROJECT NUMBER
302538-14112747

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN001748
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
ELECTRICAL ONE-LINE AND PANEL SCHEDULE

SHEET NUMBER

E-3



PPC ONE-LINE DIAGRAM

NO SCALE

1

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

PANEL SCHEDULE

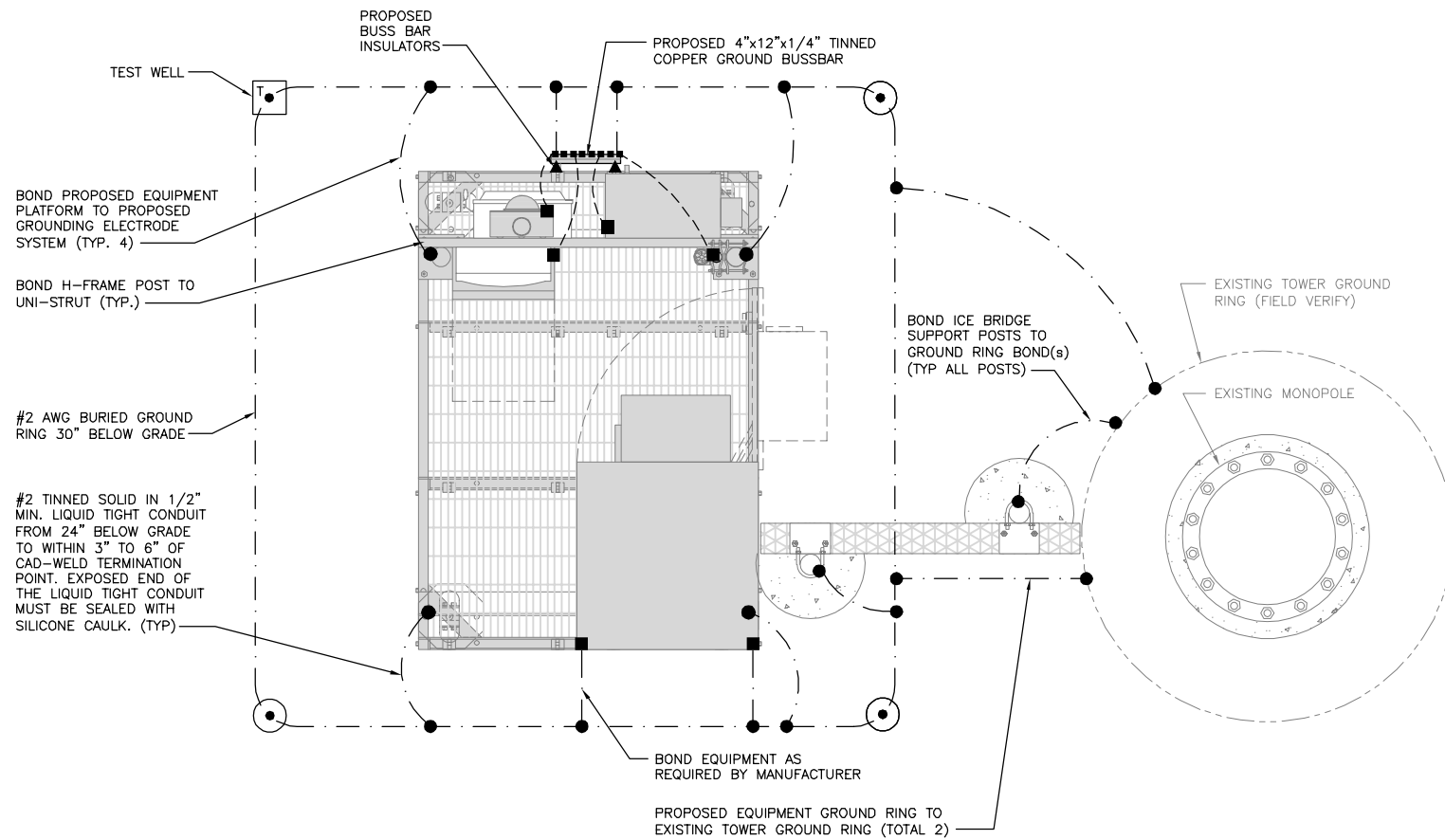
NO SCALE

2

NOT USED

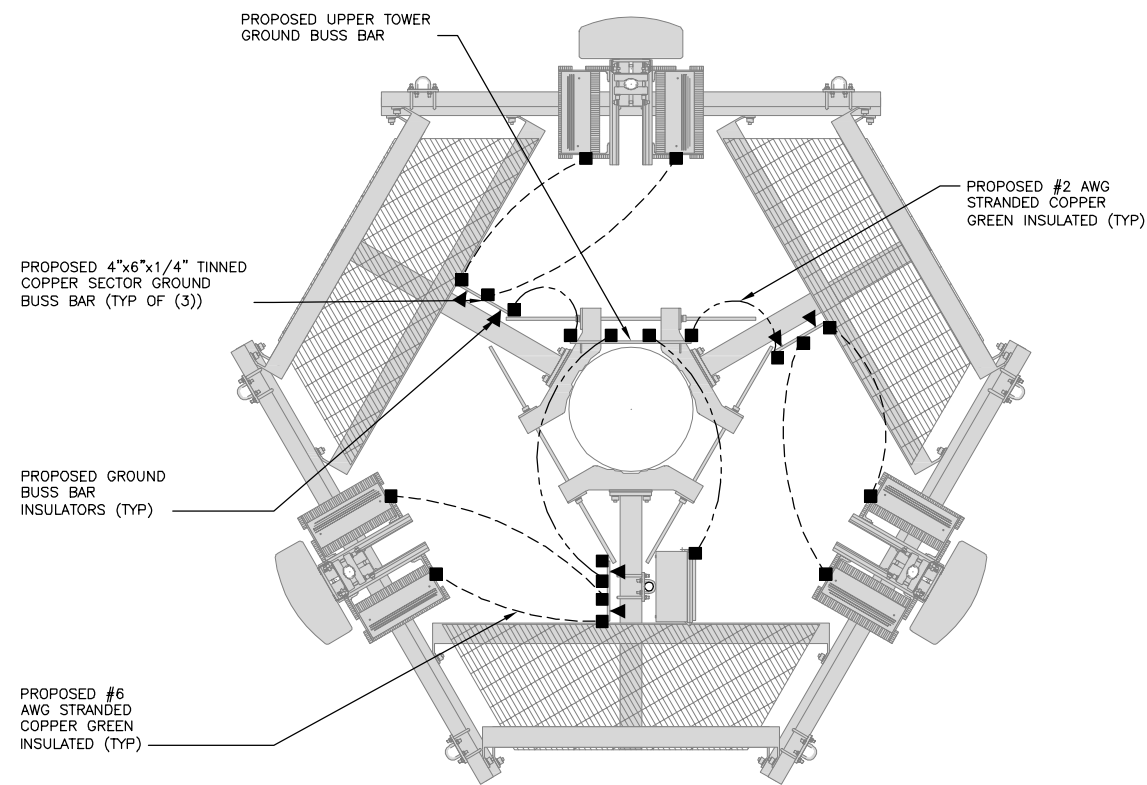
NO SCALE

3



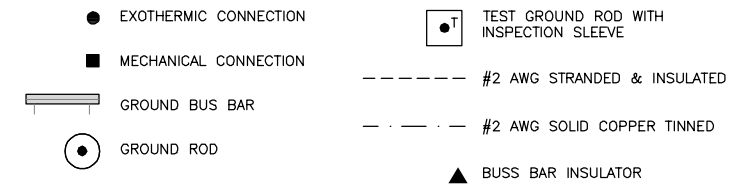
TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



GROUNDING LEGEND

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

GROUNDING KEY NOTES

- (A) EXTERIOR GROUND RING:** #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- (B) TOWER GROUND RING:** THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- (C) INTERIOR GROUND RING:** #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUND TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- (D) BOND TO INTERIOR GROUND RING:** #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.
- (E) GROUND ROD:** UL LISTED COPPER CLAD STEEL. MINIMUM 5/8" 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.
- (J) TELCO GROUND BAR:** BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- (K) FRAME BONDING:** THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
- (L) 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.
- (M) 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.
- (N) 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.
- (P) 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.
- (Q) 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.**
- (R) 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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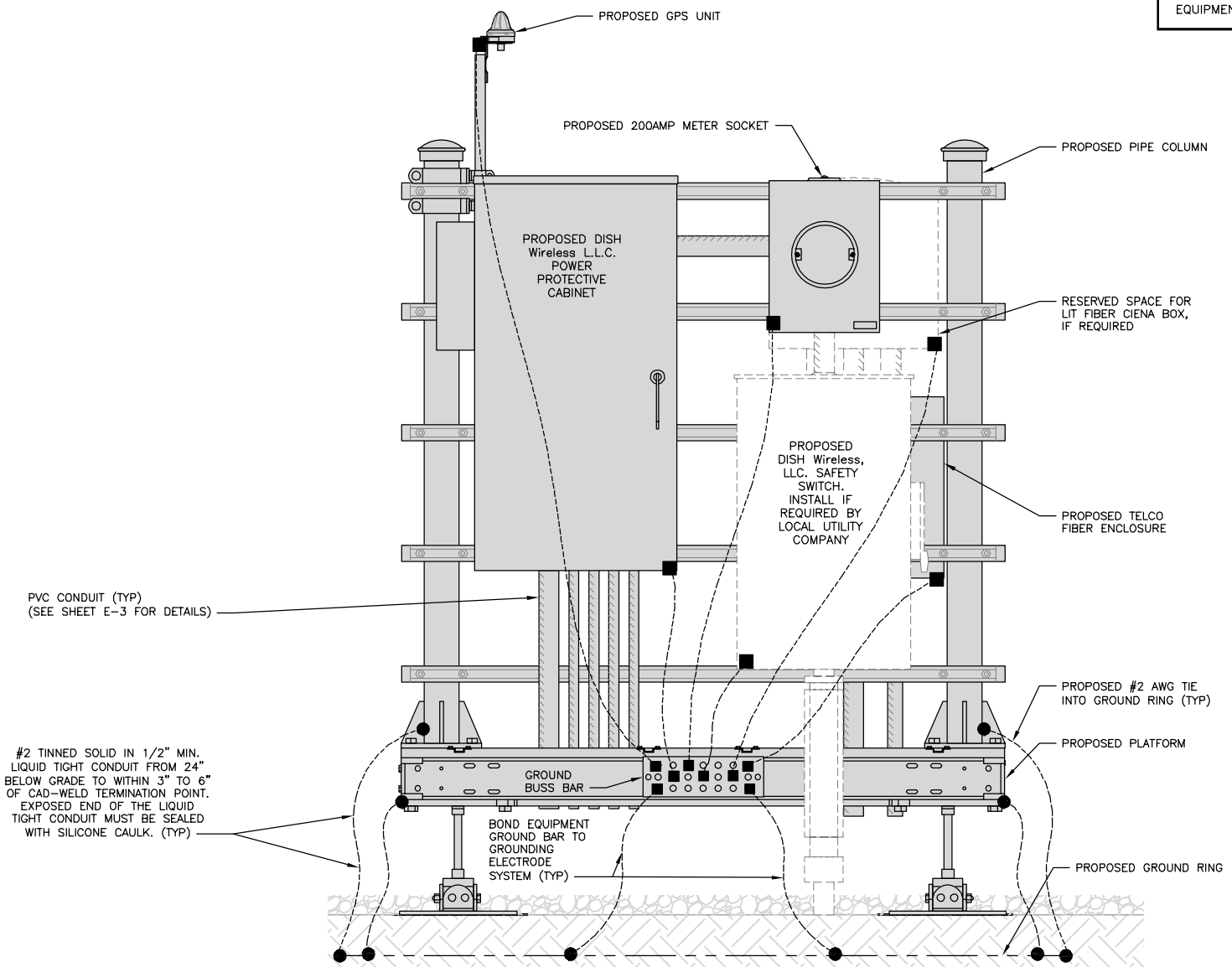
DISH Wireless L.L.C. PROJECT INFORMATION
BOHVN001748
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
GROUNDING PLAN AND NOTES

SHEET NUMBER
G-1

NOTES

EQUIPMENT CABINET OMITTED FOR CLARITY

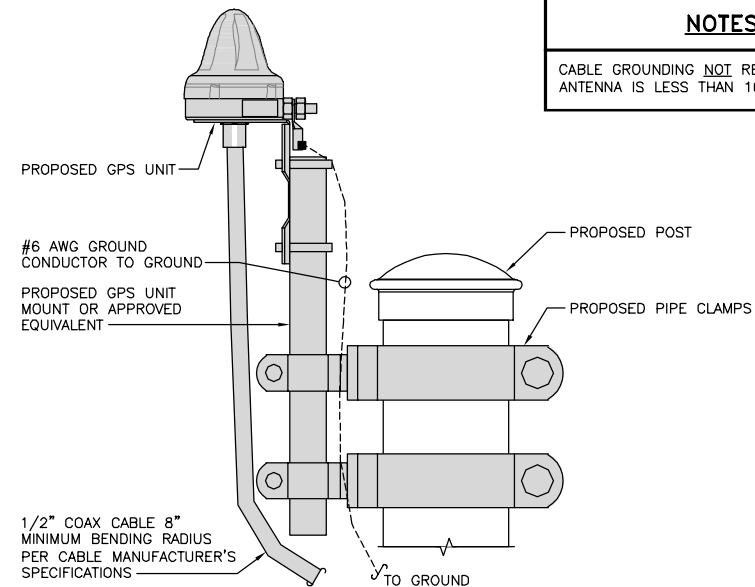


H-FRAME GROUNDING DETAIL

NO SCALE 1

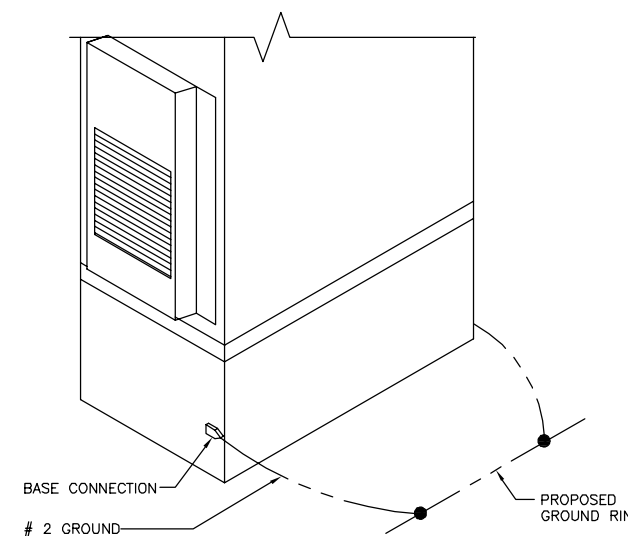
NOTES

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



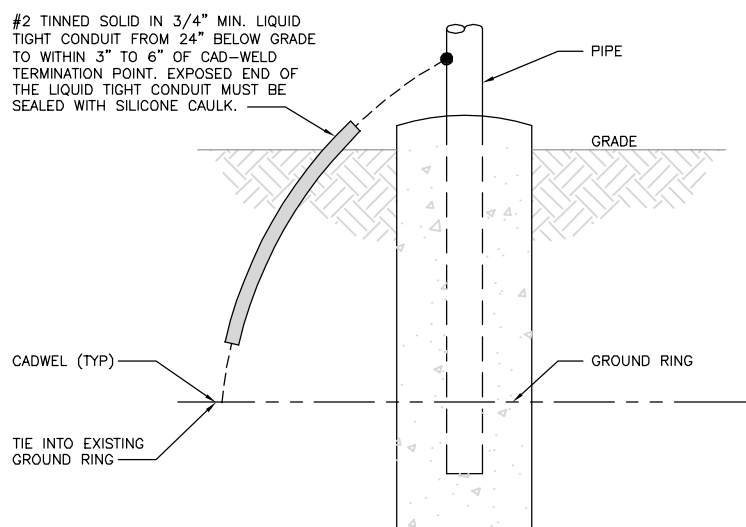
TYPICAL GPS UNIT GROUNDING

NO SCALE 2



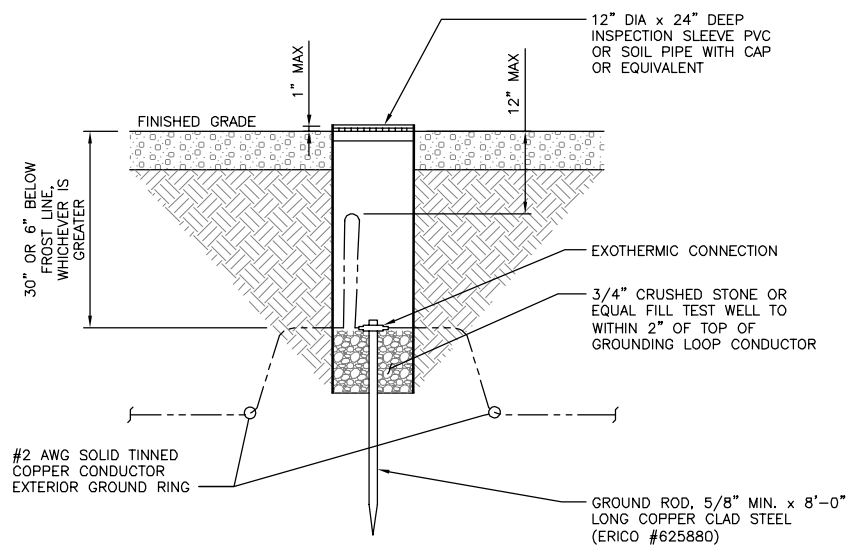
OUTDOOR CABINET GROUNDING

NO SCALE 3



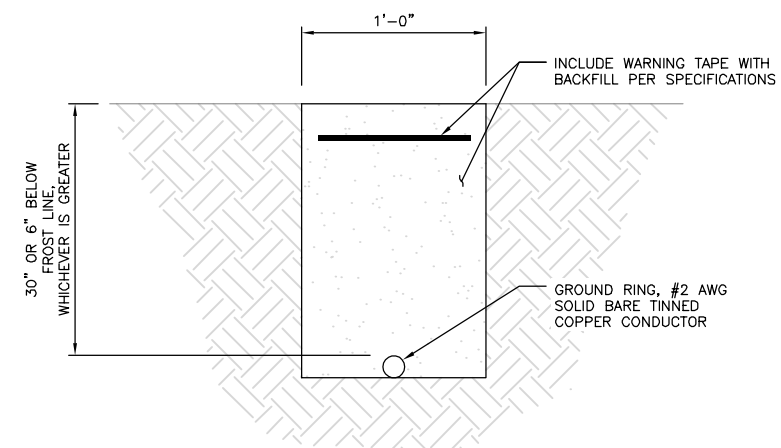
TRANSITIONING GROUND DETAIL

NO SCALE 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5



TYPICAL GROUND RING TRENCH

NO SCALE 6

dish wireless.
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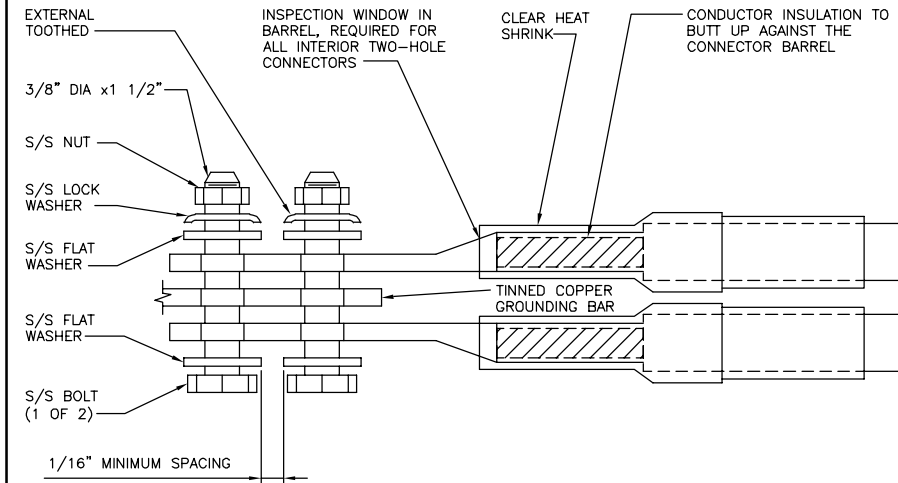
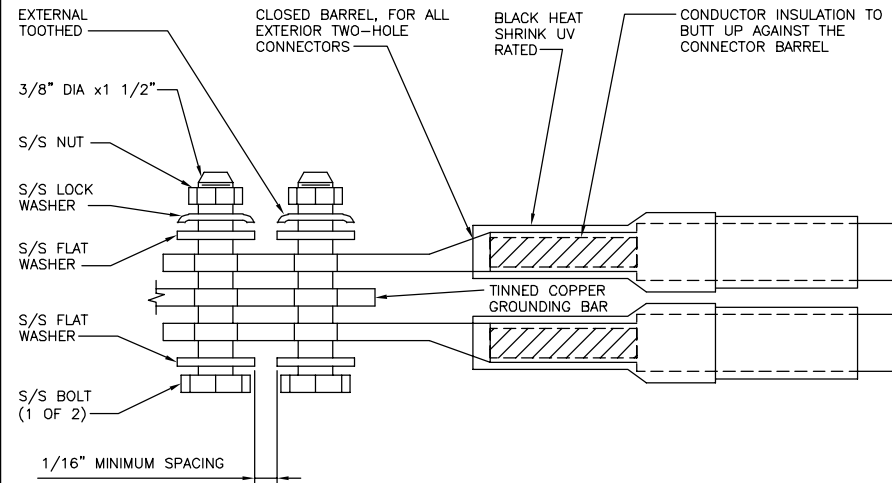
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DISH Wireless L.L.C.
PROJECT INFORMATION
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1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-2

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



TYPICAL GROUNDING NOTES

NO SCALE

1

TYPICAL EXTERIOR TWO HOLE LUG

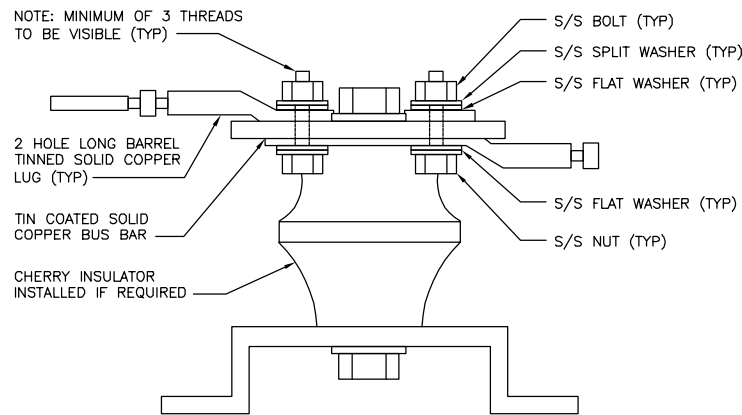
NO SCALE

2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE

3



LUG DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9



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SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

HYBRID/DISCREET CABLES											
3/4" TAPE WIDTHS WITH 3/4" SPACING											
<p>LOW-BAND RRH (600 MHz N71 BASEBAND) + (850 MHz N26 BAND) + (700 MHz N29 BAND) - OPTIONAL PER MARKET</p> <p>ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BAND)</p>											
ALPHA RRH				BETA RRH				GAMMA RRH			
PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT
RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
ORANGE	ORANGE	RED	RED	ORANGE	ORANGE	BLUE	BLUE	ORANGE	ORANGE	GREEN	GREEN
	WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT
<p>MID-BAND RRH (AWS BANDS N66+N70)</p> <p>ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BANDS)</p>											
RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
PURPLE	PURPLE	RED	RED	PURPLE	PURPLE	BLUE	BLUE	PURPLE	PURPLE	GREEN	GREEN
	WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT
<p>HYBRID/DISCREET CABLES</p> <p>INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.</p> <p>EXAMPLE 1 - HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS.</p> <p>EXAMPLE 2 - HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.</p> <p>EXAMPLE 3 - MAIN COAX WITH GROUND MOUNTED RRHs.</p>											
EXAMPLE 1		EXAMPLE 2		EXAMPLE 3		CANISTER COAX #1 (ALPHA)		CANISTER COAX #2 (ALPHA)			
RED	RED	RED	RED	RED	RED	RED	RED	RED	RED		
BLUE	BLUE	BLUE	BLUE	BLUE	BLUE	BLUE	BLUE	BLUE	BLUE		
GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN		
ORANGE	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE		
PURPLE	PURPLE	PURPLE	PURPLE	PURPLE	PURPLE	PURPLE	PURPLE	PURPLE	PURPLE		
<p>FIBER JUMPERS TO RRHs</p> <p>LOW-BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.</p>											
LOW BAND RRH		MID BAND RRH		LOW BAND RRH		MID BAND RRH		LOW BAND RRH		MID BAND RRH	
RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED
ORANGE	ORANGE	PURPLE	PURPLE	ORANGE	ORANGE	PURPLE	PURPLE	ORANGE	ORANGE	PURPLE	PURPLE
<p>POWER CABLES TO RRHs</p> <p>LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY</p>											
LOW BAND RRH		MID BAND RRH		LOW BAND RRH		MID BAND RRH		LOW BAND RRH		MID BAND RRH	
RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED
ORANGE	ORANGE	PURPLE	PURPLE	ORANGE	ORANGE	PURPLE	PURPLE	ORANGE	ORANGE	PURPLE	PURPLE
<p>RET MOTORS AT ANTENNAS</p> <p>RET CONTROL IS HANDLED BY THE MID-BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA.</p> <p>SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.</p>											
ANTENNA 1 MID BAND		ANTENNA 1 LOW BAND		ANTENNA 1 MID BAND		ANTENNA 1 LOW BAND		ANTENNA 1 MID BAND		ANTENNA 1 LOW BAND	
IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN
RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED
PURPLE	PURPLE	ORANGE	ORANGE	PURPLE	PURPLE	ORANGE	ORANGE	PURPLE	PURPLE	ORANGE	ORANGE
<p>MICROWAVE RADIO LINKS</p> <p>LINKS WILL HAVE A 1.5-2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.</p> <p>ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.</p> <p>MICROWAVE CABLES WILL REQUIRE P-TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID's.</p>											
FORWARD AZIMUTH OF 0-120 DEGREES			FORWARD AZIMUTH OF 120-240 DEGREES			FORWARD AZIMUTH OF 240-359 DEGREES					
PRIMARY		SECONDARY	PRIMARY		SECONDARY	PRIMARY		SECONDARY			
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE			
RED	RED	RED	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN			
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE			
		RED			BLUE			GREEN			
		WHITE			WHITE			WHITE			

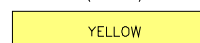
LOW BANDS (N71+N26) OPTIONAL - (N29)



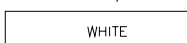
AWS (N66+N70+H-BLOCK)



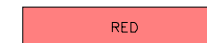
CBRS TECH (3 GHz)



NEGATIVE SLANT PORT ON ANT/RRH



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR



COLOR IDENTIFIER

2

NOT USED

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY: CHECKED BY: APPROVED BY:

CCC BIW BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/20/2022	ISSUED FOR REVIEW
0	08/03/2022	ISSUED FOR CONSTRUCTION



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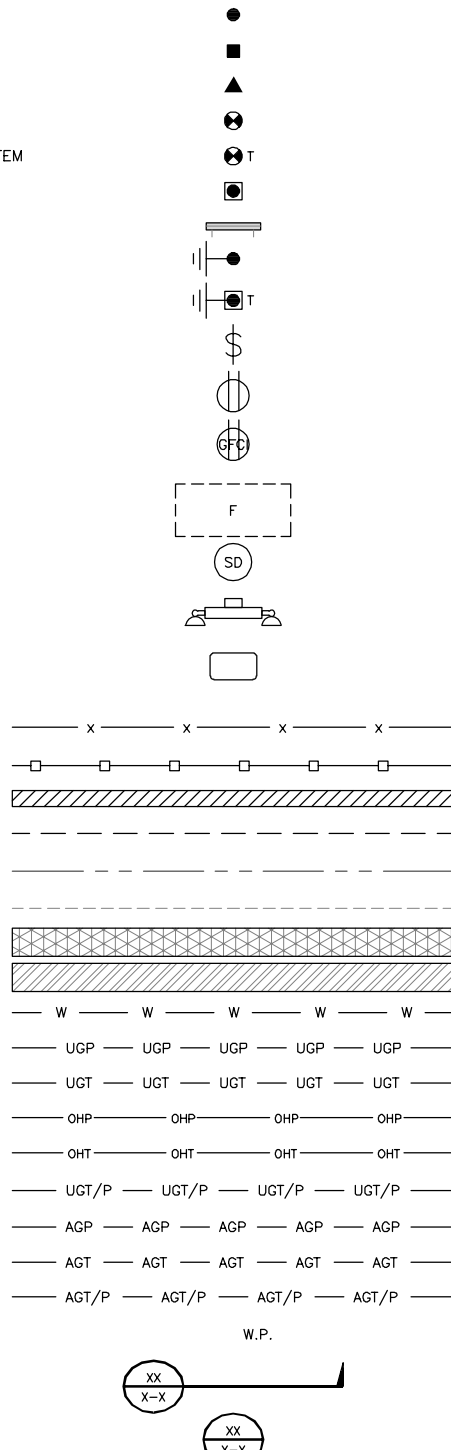
A&E PROJECT NUMBER
302538-14112747

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00174B
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
RF CABLE COLOR CODES

SHEET NUMBER
RF-1

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



LEGEND

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

ABBREVIATIONS



DRAWN BY:	CHECKED BY:	APPROVED BY:
CCC	BIW	BIW
RFDS REV #:		1

CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER
302538-14112747

DISH Wireless L.L.C.
 PROJECT INFORMATION
BOHVN001748
 1000 NORTHROP ROAD
 WALLINGFORD, CT 06492

SHEET TITLE
LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

SIGN TYPES		
TYPE	COLOR	COLOR CODE PURPOSE
INFORMATION	GREEN	"INFORMATIONAL SIGN" TO NOTIFY OTHERS OF SITE OWNERSHIP & CONTACT NUMBER AND POTENTIAL RF EXPOSURE.
NOTICE	BLUE	"NOTICE BEYOND THIS POINT" RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
CAUTION	YELLOW	"CAUTION BEYOND THIS POINT" RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
WARNING	ORANGE/RED	"WARNING BEYOND THIS POINT" RF FIELDS AT THIS SITE EXCEED FCC RULES FOR HUMAN EXPOSURE. FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS COULD RESULT IN SERIOUS INJURY. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)

SIGN PLACEMENT:

- RF SIGNAGE PLACEMENT SHALL FOLLOW THE RECOMMENDATIONS OF AN EXISTING EME REPORT, CREATED BY A THIRD PARTY PREVIOUSLY AUTHORIZED BY DISH Wireless L.L.C.
- INFORMATION SIGN (GREEN) SHALL BE LOCATED ON EXISTING DISH Wireless L.L.C. EQUIPMENT.
 - A) IF THE INFORMATION SIGN IS A STICKER, IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C. EQUIPMENT CABINET.
 - B) IF THE INFORMATION SIGN IS A METAL SIGN IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C. H-FRAME WITH A SECURE ATTACH METHOD.
- IF EME REPORT IS NOT AVAILABLE AT THE TIME OF CREATION OF CONSTRUCTION DOCUMENTS; PLEASE CONTACT DISH Wireless L.L.C. CONSTRUCTION MANAGER FOR FURTHER INSTRUCTION ON HOW TO PROCEED.

NOTES:

- FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
- SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
- TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE NAME AND NUMBER AS PER DISH Wireless L.L.C. CONSTRUCTION MANAGER RECOMMENDATIONS.
- CABINET/SHELTER MOUNTING APPLICATION REQUIRES ANOTHER PLATE APPLIED TO THE FACE OF THE CABINET WITH WATER PROOF POLYURETHANE ADHESIVE
- ALL SIGNS WILL BE SECURED WITH EITHER STAINLESS STEEL ZIP TIES OR STAINLESS STEEL TECH SCREWS
- ALL SIGNS TO BE 8.5"x11" AND MADE WITH 0.04" OF ALUMINUM MATERIAL

INFORMATION

This is an access point to an area with transmitting antennas.

Obey all signs and barriers beyond this point.
Call the DISH Wireless L.L.C. NOC at 1-866-624-6874

Site ID: _____



THIS SIGN IS FOR REFERENCE PURPOSES ONLY

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY: CHECKED BY: APPROVED BY:

CCC BIW BIW

RFDS REV #: 1

CONSTRUCTION
DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER
302538-14112747

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00174B
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
RF SIGNAGE

SHEET NUMBER
GN-2

NOTICE



Transmitting Antenna(s)

Radio frequency fields beyond this point **MAY EXCEED** the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____



THIS SIGN IS FOR REFERENCE PURPOSES ONLY

CAUTION



Transmitting Antenna(s)

Radio frequency fields beyond this point **MAY EXCEED** the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____



THIS SIGN IS FOR REFERENCE PURPOSES ONLY

WARNING



Transmitting Antenna(s)

Radio frequency fields beyond this point **EXCEED** the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____



THIS SIGN IS FOR REFERENCE PURPOSES ONLY

SITE ACTIVITY REQUIREMENTS:

- 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.
- "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.
- 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.
- 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).
- 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."
- 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.
- 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.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
- 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.
- ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
- 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.
- 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.
- 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.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- 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.
- 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.
- 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.
- 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
- 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:

- 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
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- 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.
- 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.
- 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
- 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.



DRAWN BY:	CHECKED BY:	APPROVED BY:
CCC	BIW	BIW
RFDS REV #:		1

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A&E PROJECT NUMBER
302538-14112747

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00174B
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- 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.
- 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.
- 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).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- TIE WRAPS ARE NOT ALLOWED.
- 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.
- 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.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- 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.
- 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).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C."
- ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.



DRAWN BY:	CHECKED BY:	APPROVED BY:
CCC	BIW	BIW
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A&E PROJECT NUMBER
302538-14112747

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00174B
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

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 GROUND 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.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
 - A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
 - B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
 - C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
 - D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
 - E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
 - A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
 - B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
 - C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
 - D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
 - E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
 - F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
 - G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.
 - H. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.
 - I. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND DISH NETWORK PROJECT MANAGER IN WRITING



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



TOTALLY COMMITTED
NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
CCC	BIW	BIW

RFDS REV #: 1

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A&E PROJECT NUMBER
302538-14112747

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVNO0174B
1000 NORTHROP ROAD
WALLINGFORD, CT 06492

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-5



August 30, 2022

OMEGA WALLINGFORD LLC
1282 49th Street
Brooklyn, NY 11219

Re: Tower Share Application – Dish Wireless Site # 14112747
Dish Wireless Telecommunications Facility @ 1000 Northrop Rd., Wallingford, CT 06492
AKA 922 Northrop Road

Dear Property Owner:

Dish Wireless (“Dish”) is proposing a wireless telecommunications facility on an existing one hundred fifty (150) foot tall tower at 1000 Northrop Rd., Wallingford, CT (Latitude: 41.48937115, Longitude: -72.76828251) and within the existing fenced compound on the above referenced property. The monopole tower is owned and operated by American Tower Corporation. The subject property is owned by OMEGA WALLINGFORD LLC. The tower was approved by the Wallingford Planning and Zoning Commission on June 14, 1994 (copy enclosed).

Dish proposes to install a five (5) foot by seven (7) foot metal platform within the existing fenced compound to accommodate two (2) cabinets and related equipment, and to install three (3) antennas, a single antenna mount, six (6) RRUs, and cables on the existing tower at one hundred fifteen (115) feet as more particularly detailed and described on the enclosed Construction Drawings. No tower height increase, or compound expansion are proposed.

This letter is intended to serve as the required notice to the property owner. As required by Regulations of Connecticut State Agencies (“RCSA”) 16-50j-73 the Connecticut Siting Council (“CSC”) has been notified of this proposal and will review this application. Please accept this letter as notification pursuant to RCSA 16-50j-73.

The enclosed letter and attachments to the CSC fully describe AT&T’s proposal for the site. However, if you have any questions or require any additional information concerning our plans or the CSC procedures, please contact me at 443-677-0144 or contact Melanie Bachmann, Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read "Jack Andrews", is written over the typed name and title.

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144



June 30, 2022

The Honorable William W. Dickinson, Jr.
45 South Main Street, Rm. 310
Wallingford, CT 06492

Re: Exempt Modification Application – AT&T Site 13753549
AT&T Mobility Telecommunications Facility @ 922 Northrop Road, Wallingford, CT 06492
AKA 1000 Northrop Road

Dear Mayor Dickinson:

Dish Wireless (“Dish”) is proposing a wireless telecommunications facility on an existing one hundred fifty (150) foot tall tower at 1000 Northrop Rd., Wallingford, CT (Latitude: 41.48937115, Longitude: -72.76828251) and within the existing fenced compound on the above referenced property. The monopole tower is owned and operated by American Tower Corporation. The subject property is owned by OMEGA WALLINGFORD LLC. The tower was approved by the Wallingford Planning and Zoning Commission on June 14, 1994 (copy enclosed).

Dish proposes to install a five (5) foot by seven (7) foot metal platform within the existing fenced compound to accommodate two (2) cabinets and related equipment, and to install three (3) antennas, a single antenna mount, six (6) RRUs, and cables on the existing tower at one hundred fifteen (115) feet as more particularly detailed and described on the enclosed Construction Drawings. No tower height increase, or compound expansion are proposed.

This letter is intended to serve as the required notice to the chief elected official of the municipality. As required by Regulations of Connecticut State Agencies (“RCSA”) 16-50j-73 the Connecticut Siting Council (“CSC”) has been notified of this proposal and will review this application. Please accept this letter as notification pursuant to RCSA 16-50j-73.

The enclosed letter and attachments to the CSC fully describe AT&T’s proposal for the site. However, if you have any questions or require any additional information concerning our plans or the CSC procedures, please contact me at 443-677-0144 or contact Melanie Bachmann, Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read 'Jack Andrews', is written over the typed name.

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

Enclosures



August 30, 2022

Blake Paynter
Project Manager, Site Development
American Tower Corporation
10 Presidential Way
Woburn, MA 01801

Re: Tower Share Application – Dish Wireless Site # 14112747
Dish Wireless Telecommunications Facility @ 1000 Northrop Rd., Wallingford, CT 06492
AKA 922 Northrop Road

Dear Mr. Paynter:

Dish Wireless (“Dish”) is proposing a wireless telecommunications facility on an existing one hundred fifty (150) foot tall tower at 1000 Northrop Rd., Wallingford, CT (Latitude: 41.48937115, Longitude: -72.76828251) and within the existing fenced compound on the above referenced property. The monopole tower is owned and operated by American Tower Corporation. The subject property is owned by OMEGA WALLINGFORD LLC. The tower was approved by the Wallingford Planning and Zoning Commission on June 14, 1994 (copy enclosed).

Dish proposes to install a five (5) foot by seven (7) foot metal platform within the existing fenced compound to accommodate two (2) cabinets and related equipment, and to install three (3) antennas, a single antenna mount, six (6) RRUs, and cables on the existing tower at one hundred fifteen (115) feet as more particularly detailed and described on the enclosed Construction Drawings. No tower height increase, or compound expansion are proposed.

This letter is intended to serve as the required notice to the tower owner. As required by Regulations of Connecticut State Agencies (“RCSA”) 16-50j-73 the Connecticut Siting Council (“CSC”) has been notified of this proposal and will review this application. Please accept this letter as notification pursuant to RSCA 16-50j-73.

The enclosed letter and attachments to the CSC fully describe Dish’s proposal for the site. However, if you have any questions or require any additional information concerning our plans or the CSC procedures, please contact me at 443-677-0144 or contact Melanie Bachmann, Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read 'Jack Andrews', is written over a circular blue stamp or seal.

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046

Jack Andrews, 10130 Donleigh Dr., Columbia, MD 21046 443-677-0144 jmandrews@clinellc.com
Centerline Communications • 750 W Center Street, Suite 301, W Bridgewater, MA 02379



August 30, 2022

Kevin Pagini, Town Planner
45 South Main Street
Room #G-40
Wallingford, CT 06492

Re: Tower Share Application – Dish Wireless Site # 14112747
Dish Wireless Telecommunications Facility @ 1000 Northrop Rd., Wallingford, CT 06492
AKA 922 Northrop Road

Dear Mr. Pagini:

Dish Wireless (“Dish”) is proposing a wireless telecommunications facility on an existing one hundred fifty (150) foot tall tower at 1000 Northrop Rd., Wallingford, CT (Latitude: 41.48937115, Longitude: -72.76828251) and within the existing fenced compound on the above referenced property. The monopole tower is owned and operated by American Tower Corporation. The subject property is owned by OMEGA WALLINGFORD LLC. The tower was approved by the Wallingford Planning and Zoning Commission on June 14, 1994 (copy enclosed).

Dish proposes to install a five (5) foot by seven (7) foot metal platform within the existing fenced compound to accommodate two (2) cabinets and related equipment, and to install three (3) antennas, a single antenna mount, six (6) RRUs, and cables on the existing tower at one hundred fifteen (115) feet as more particularly detailed and described on the enclosed Construction Drawings. No tower height increase or compound expansion are proposed.

This letter is intended to serve as the required notice to the municipal planning agency. As required by Regulations of Connecticut State Agencies (“RCSA”) 16-50j-73 the Connecticut Siting Council (“CSC”) has been notified of this proposal and will review this application. Please accept this letter as notification pursuant to RSCA 16-50j-73.

The enclosed letter and attachments to the CSC fully describe Dish’s proposal for the site. However, if you have any questions or require any additional information concerning our plans or the CSC procedures, please contact me at 443-677-0144 or contact Melanie Bachmann, Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read 'Jack Andrews', is written over a circular blue stamp or seal.

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046

Service Alert due to Situation in Ukraine [...More \(/us/en/service-alerts.page?id=alert1\)](#)



Your shipment
1Z9Y45030236391277

Delivered On
Wednesday, September 21 at 9:57 A.M. at Front Desk

Delivered To
WALLINGFORD, CT US

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Your item was delivered to the front desk, reception area, or mail room at 9:40 am on September 6, 2022 in WALLINGFORD, CT 06492.

USPS Tracking Plus® Available ∨

Delivered, Front Desk/Reception/Mail Room

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WALLINGFORD, CT 06492

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Your item was delivered in or at the mailbox at 11:58 am on September 2, 2022 in WOBURN, MA 01801.

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WOBURN, MA 01801

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BROOKLYN, NY 11219

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