



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

July 22, 2022

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

RE: Tower Share Application
1055 Wintergreen Avenue, Hamden, CT 06541
Latitude: 41.349722
Longitude: -72.972500
Site #: CT22107-A_BOHVN00181A_SBA_DISH

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 1055 Wintergreen Avenue, Hamden, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 130-foot level of the existing 195-foot self-support tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the fenced compound. Included are plans by B+T, dated July 1, 2022, Exhibit C. Also included is a structural analysis prepared by TES, dated April 14, 2022, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. As previously documented by the tower owner (SBA), the facility was approved by the Town of Hamden, Special Permit # 01-939 on October 9th, 2001 although a copy of the decision was not available. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Mayor Lauren Garrett and Eugene Livshits, Acting Town Planner for the Town of Hamden, as well as the tower owner (MCM Acquisitions 2017 LLC / SBA) and property owner (West Rock LLC).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 195-feet and the Dish Wireless LLC antennas will be located at a center line height of 130-feet.
2. The proposed modifications will not result in an increase of the site boundary as depicted on the attached site plan.



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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 9.52% as evidenced by Exhibit F.

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

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

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

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 130-foot level of the existing 195-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Dish Wireless LLC proposed loading. Dish Wireless LLC is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish Wireless LLC intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Hamden.

Sincerely,

Denise Sabo

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



NSS **NORTHEAST**
SITE SOLUTIONS
Turnkey Wireless Development

Attachments

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

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

West Rock LLC – Property Owner
8051 Congress Ave
Boca Raton, FL 33487

SBA - Tower Owner

Exhibit A

Original Facility Approval



Filed by:

Kri Pelletier, Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3804 - kpelletier@sbsite.com

December 18, 2017

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

Notice of Exempt Modification

1055 Wintergreen Ave., Hamden, CT

41 20 58.7900 N

72 58 20.9900 W

Sprint #: CT52XC069_DO Macro Upgrade

Dear Ms. Bachman:

Sprint (Clearwire) currently maintains antennas at the 140-foot level of the existing 197-foot Self Support Tower at 1055 Wintergreen Avenue, Hamden, CT. The property and tower are owned by MCM Acquisition 2017, an SBA entity. Sprint now intends to remove (3) existing cell antennas and replace with (3) newer technology cell antennas at the 140-foot level of the tower. The proposed full scope of work is as follows:

Remove:

- (2) 2-1/4" lines
- (3) (Clearwire) 20"x14"x7" RRHs
- (1) (Clearwire) 18"x18"x7" Junction Box

Remove and Replace:

- Remove: (3) (Clearwire) Argus LLPX310R-V1 Panel Antennas at 138'
- Replace with: (3) KMW ETCR-654L12H6 Panel Antennas at 140'
- Ground: (No change to existing compound – cabinet swap on existing pad)*
- Remove: (1) (Clearwire) equipment cabinet
- Replace with: (1) new equipment cabinet

Install:

- (3) ALU 1900 Mhz RRU/RRHs
 - (6) ALU 800 Mhz RRU/RRHs
 - (3) ALU TD-RRH8x20-25 RRU/RRHs
 - (6) Back-to-back pipe mounts
 - (9) SCH40 pipes
 - (6) 36" standoff arms
 - (1) 1/2" line
 - (4) 1-1/4" lines
- Ground: (No change to compound – H-frame on existing concrete pad)*



- (1) H-Frame
- (1) PPC cabinet on H-frame
- (1) telco cabinet on H-frame

Existing Equipment to Remain (Including entitlements):

- (3) Dragonwave A-ANT-23G-2.5-C Dishes (1 is entitlement only)
- (2) ½" lines

This facility was approved prior to the Council's jurisdiction by Special Permit on 10/9/01. Approval was given under Case 01-939 for a 195' tower. Conditions set included the placement of bollards around propane tanks and north pads, that a removal bond be posted, and that the tower be built within 3 years' time. A Minor Amendment to the Special Permit approved whips to be mounted for utility and first responder beepers/pagers and that the access road be moved further from the ledge. It is SBA's opinion that the proposed modification complies with all known tower conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town's Mayor, Curt B. Leng, and Zoning Enforcement Officer, Holly Masi. (Separate notice is not being sent to the property or tower owner, as they are SBA.)

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16.50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification will not require the 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 replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Sprint respectfully submits that the proposed modifications to the above-referenced telecommunication facility constitute an exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,


Kri Pelletier

Property Specialist

SBA COMMUNICATIONS CORPORATION

134 Flanders Rd., Suite 125

Westborough, MA 01581

508.251.0720 x3804 + T - 508.366.2610 + F - kpelletier@sbsite.com

Attachments

cc: Curt B. Leng, Mayor / with attachments

Town of Hamden, Office of the Mayor, 2750 Dixwell Avenue, Hamden, CT 06518

Holly Masi, Zoning Enforcement Officer / with attachments

Town of Hamden, Planning & Zoning Dept., 2750 Dixwell Avenue, Hamden, CT 06518

Exhibit B

Property Card



Town of Hamden, CT

Property Listing Report

Map Block Lot

2220-001-00-0000

Building # 1

PID 20299

Account

Property Information

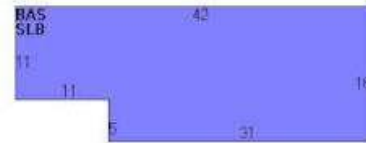
Property Location	1055 WINTERGREEN AVE
Owner	WEST ROCK LLC
Co-Owner	% M C M ACQUISITIONS 2017 LLC
Mailing Address	8051 CONGRESS AVE BOCA RATON FL 33487
Land Use	4330 RAD/TV TR M96
Land Class	I
Zoning Code	R1
Census Tract	

Neighborhood	75
Acreage	1.03
Utilities	Well,Septic
Lot Setting/Desc	Rural Above Street,Steep
Book / Page	2405/0030
Additional Info	

Photo



Sketch



Primary Construction Details

Year Built	1962
Building Desc.	RAD/TV TR M96
Building Style	Warehouse
Building Grade	C
Stories	1
Occupancy	1.00
Exterior Walls	Concr/Cinder
Exterior Walls 2	NA
Roof Style	Shed
Roof Cover	Metal/Tin
Interior Walls	Minim/Masonry
Interior Walls 2	NA
Interior Floors 1	Concr-Finished
Interior Floors 2	NA

Heating Fuel	Coal or Wood
Heating Type	None
AC Type	None
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	0
Fireplaces	0

(*Industrial / Commercial Details)

Building Use	Ind/Comm
Building Condition	A
Sprinkler %	NA
Heat / AC	NONE
Frame Type	MASONRY
Baths / Plumbing	NONE
Ceiling / Wall	NONE
Rooms / Prtns	LIGHT
Wall Height	
First Floor Use	NA
Foundation	NA

Town of Hamden

Geographic Information System (GIS)



Date Printed: 6/29/2022



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Hamden and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 200 feet

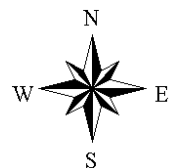


Exhibit C

Construction Drawings



DISH Wireless L.L.C. SITE ID:

BOHVN00181A

DISH Wireless L.L.C. SITE ADDRESS:

**1055 WINTERGREEN AVE
HAMDEN, CT 06514**

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:	
<ul style="list-style-type: none"> REMOVE EXISTING ANTENNAS, MOUNT AND FEEDLINES FROM 179'-0" LEVEL INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR) INSTALL (3) PROPOSED SECTOR FRAMES 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:	
<ul style="list-style-type: none"> 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 FIBER NID (IF REQUIRED) INSTALL (1) PROPOSED METER SOCKET 	

SITE INFORMATION	PROJECT DIRECTORY
PROPERTY OWNER: WEST ROCK LLC ADDRESS: 8051 CONGRESS AVE BOCA RATON, FL 33487	APPLICANT: DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER TYPE: SELF-SUPPORT TOWER	TOWER OWNER: SBA COMMUNICATAIONS CORP. 8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800) 487-7483
TOWER CO SITE ID: CT-SBA-T-CT22107A	SITE DESIGNER: B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
TOWER APP NUMBER: T.B.D	SITE ACQUISITION: RYAN LYNCH ryan.lynych@dish.com
COUNTY: NEW HAVEN	CONST. MANAGER: JAVIER SOTO javier.soto@dish.com
LATITUDE (NAD 83): 41° 20' 59.1" N 41.349741	RF ENGINEER: SYED ZAIDI syed.zaidi@dish.com
LONGITUDE (NAD 83): 72° 58' 21.3" W -72.97258822	
ZONING JURISDICTION: NEW HAVEN COUNTY	
ZONING DISTRICT: RESIDENTIAL	
PARCEL NUMBER: 2220-001-00-0000	
OCCUPANCY GROUP: U	
CONSTRUCTION TYPE: II-B	
POWER COMPANY: EVERSOURCE	
TELEPHONE COMPANY: AT&T	



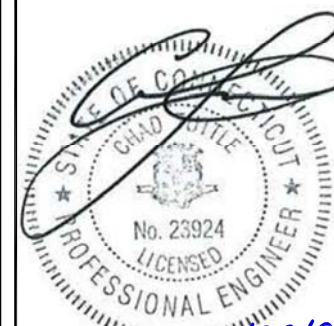
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



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



MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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

DRAWN BY: RPA
CHECKED BY: BLJ
APPROVED BY: BLJ

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	1/24/22	ISSUED FOR REVIEW
0	6/29/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1



UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM
CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

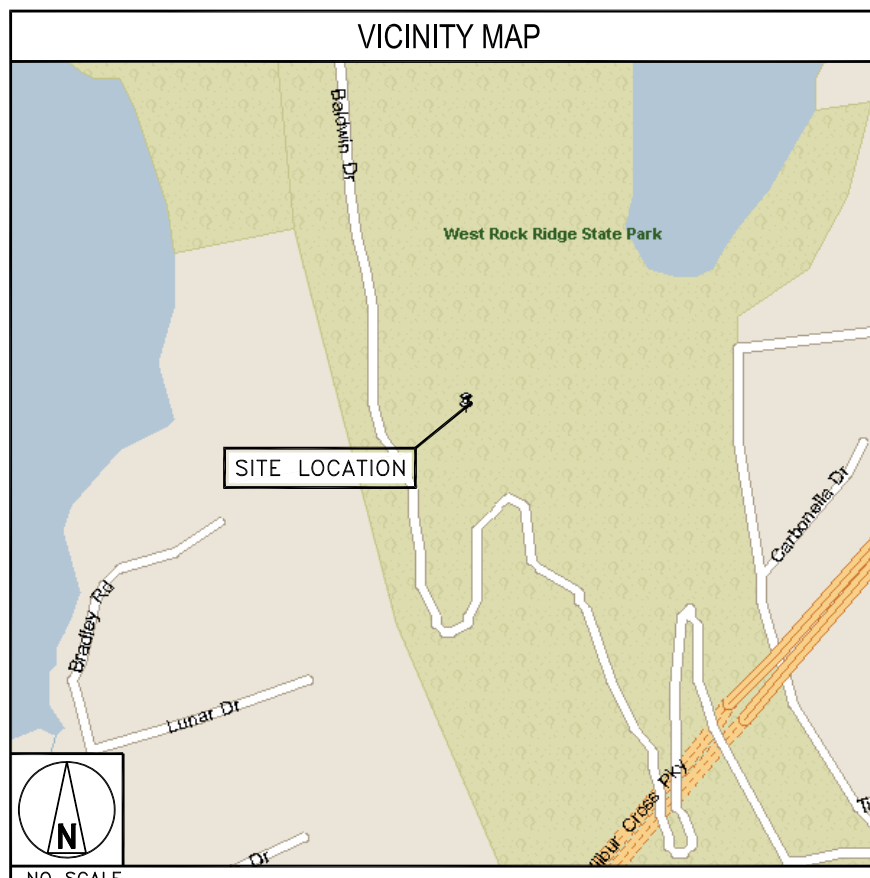
THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE, NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE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

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

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

DIRECTIONS

DIRECTIONS FROM TWEED NEW HAVEN AIRPORT:
TAKE FORT HALE RD TO TOWNSEND AVE, HEAD SOUTHWEST, TURN LEFT, CONTINUE ONTO FORT HALE RD, CONTINUE ON TOWNSEND AVE. TAKE I-95 S AND CT-122 N TO BRADLEY RD IN WOODBRIDGE, TURN RIGHT ONTO TOWNSEND AVE TURN LEFT ONTO MAIN ST/MAIN STREET ANX, USE THE RIGHT 2 LANES TO TAKE THE RAMP ONTO I-95 S, TAKE EXIT 43 FOR CT-122/1ST AVE, TURN RIGHT ONTO CT-122 N/1ST AVE, CONTINUE TO FOLLOW CT-122 N, PASS BY 7-ELEVEN (ON THE LEFT IN 0.5 MI), TURN LEFT ONTO FOUNTAIN ST, TURN RIGHT ONTO DAYTON ST, TURN LEFT ONTO WHALLEY AVE PASS BY BURGER KING (ON THE RIGHT IN 0.3 MI), SLIGHT RIGHT ONTO CT-69 N/WHALLEY AVE, CONTINUE TO FOLLOW CT-69 DRIVE TO BRADLEY RD, TURN RIGHT ONTO BRADLEY RD TURN LEFT TO STAY ON BRADLEY RD.



CONNECTICUT CODE OF COMPLIANCE

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

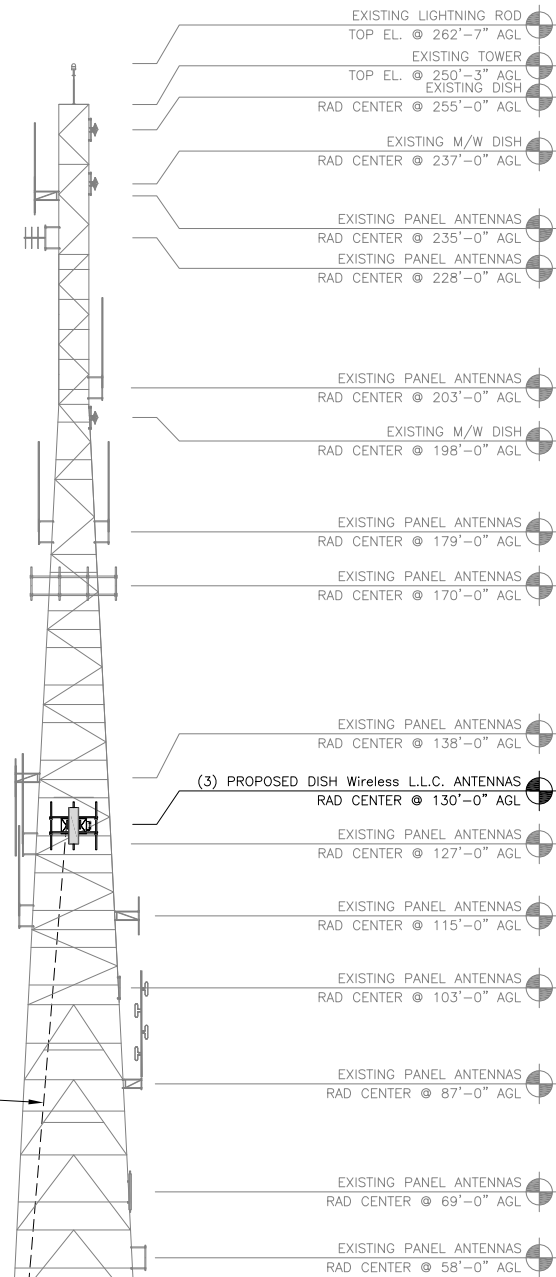
CODE TYPE	CODE
BUILDING	2018 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS
MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS

SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
LS1	SITE SURVEY
LS2	SITE SURVEY
LS3	SITE SURVEY
A-1	OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	EQUIPMENT PLATFORM AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODE
GN-1	LEGEND AND ABBREVIATIONS
GN-2	RF SIGNAGE
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES
GN-5	GENERAL NOTES

NOTES

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



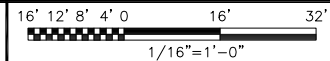
(1) PROPOSED DISH Wireless L.L.C. HYBRID CABLE ON NEW WAVEGUIDE LADDER

PROPOSED DISH Wireless L.L.C. ICE BRIDGE

PROPOSED DISH Wireless L.L.C. GPS UNIT

PROPOSED DISH Wireless L.L.C. EQUIPMENT ON PROPOSED STEEL PLATFORM

PROPOSED SOUTH ELEVATION



1

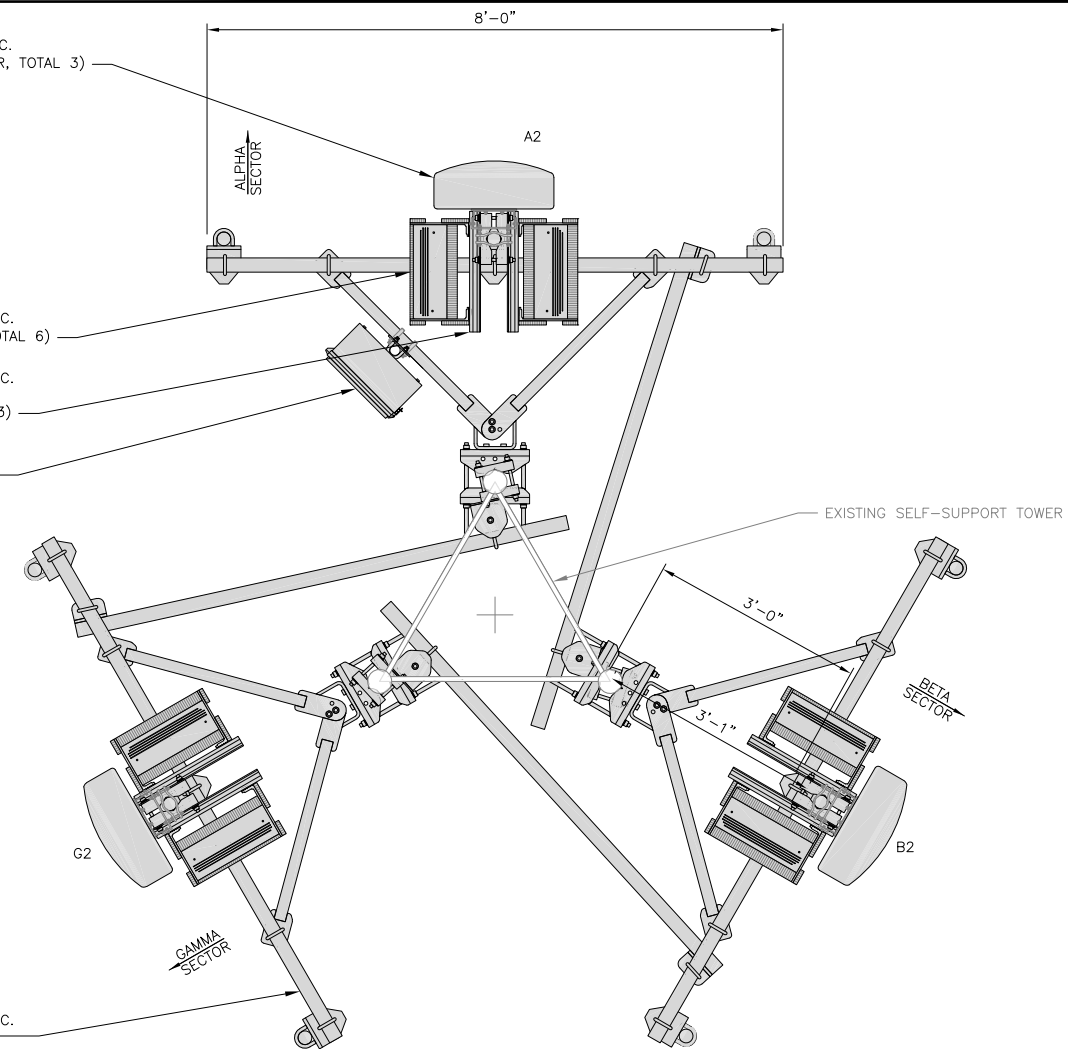
PROPOSED DISH Wireless L.L.C. ANTENNA (TYP 1 PER SECTOR, TOTAL 3)

PROPOSED DISH Wireless L.L.C. RRH (TYP 2 PER SECTOR, TOTAL 6)

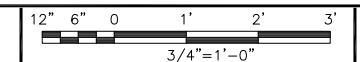
PROPOSED DISH Wireless L.L.C. BACK-TO-BACK MOUNT (TYP 1 PER SECTOR, TOTAL 3)

PROPOSED DISH Wireless L.L.C. OVP DEVICE

PROPOSED DISH Wireless L.L.C. ANTENNA SECTOR FRAME



WIDTH OF TOWER FACE IS NOT TO BE CONSIDERED TO SCALE



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 (160' LONG)	FUJITSU - TA08025-B605	5G	A2	RAYCAP - RDIDC-9181 -PF-48
A2	PROPOSED	JMA WIRELESS - MX08FR0665-21	5G	0°	130'-0"		FUJITSU - TA08025-B604	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU - TA08025-B605	5G	B2	SHARED W/ALPHA
B2	PROPOSED	JMA WIRELESS - MX08FR0665-21	5G	120°	130'-0"		FUJITSU - TA08025-B604	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU - TA08025-B605	5G	C2	SHARED W/ALPHA
C2	PROPOSED	JMA WIRELESS - MX08FR0665-21	5G	240°	130'-0"		FUJITSU - TA08025-B604	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



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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DRAWN BY: CHECKED BY: APPROVED BY:
RPA BLJ BLJ

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	1/24/22	ISSUED FOR REVIEW
0	6/29/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149544.001.01

DISH Wireless L.L.C. PROJECT INFORMATION
BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



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



MTS ENGINEERING P.L.L.C.
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1055 WINTERGREEN AVE
HAMDEN, CT 06514

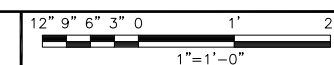
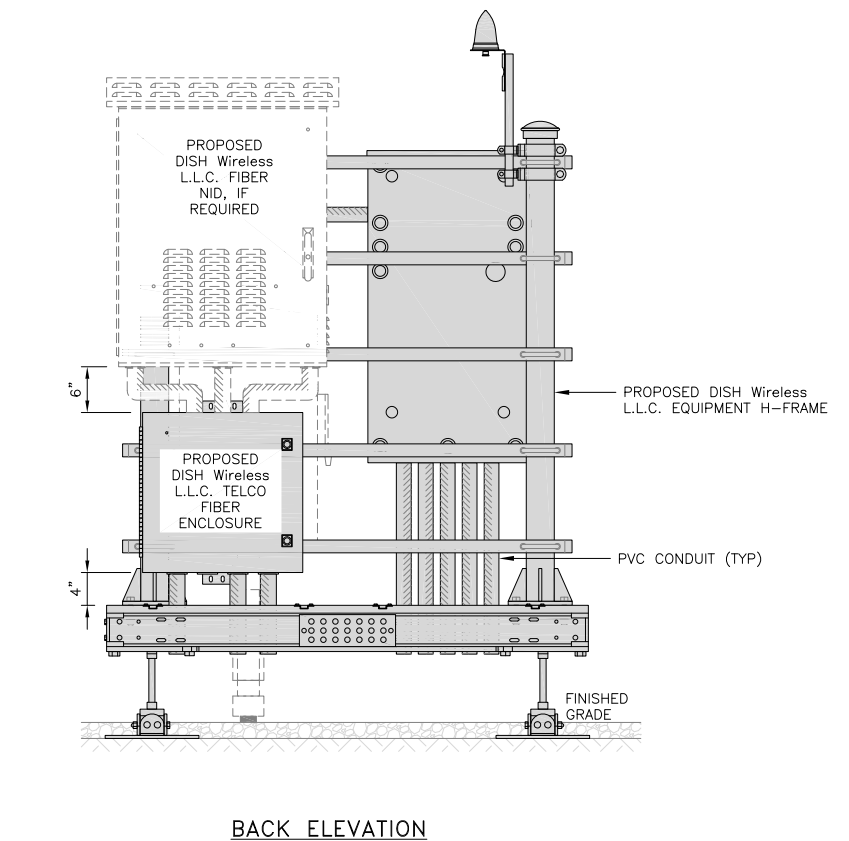
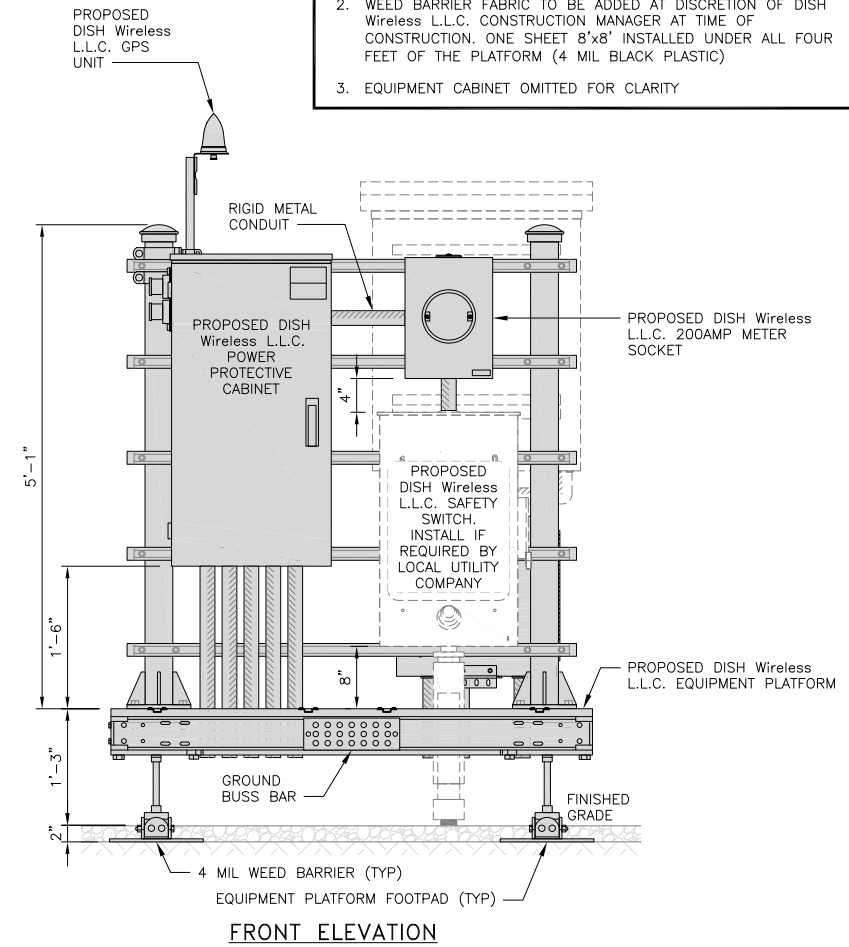
SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER

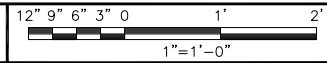
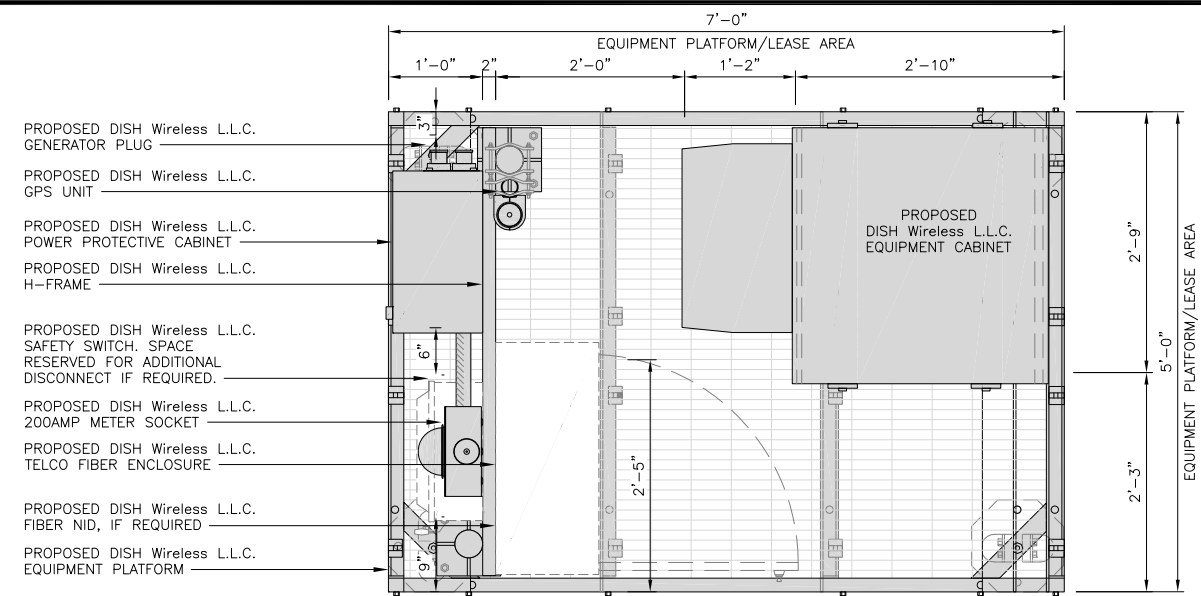
A-3

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



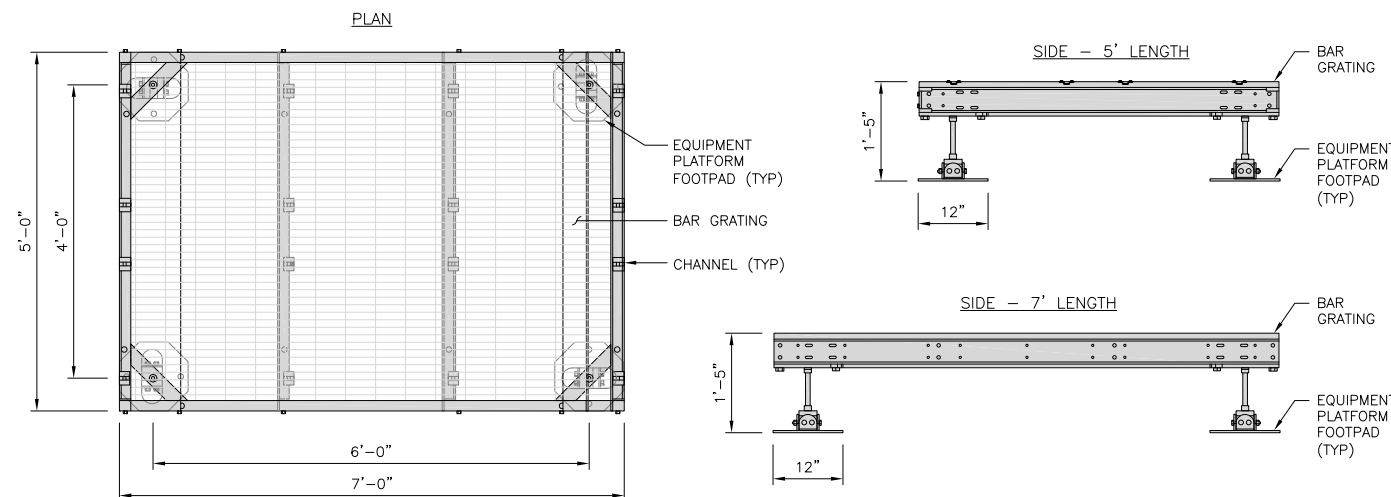
5



1

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

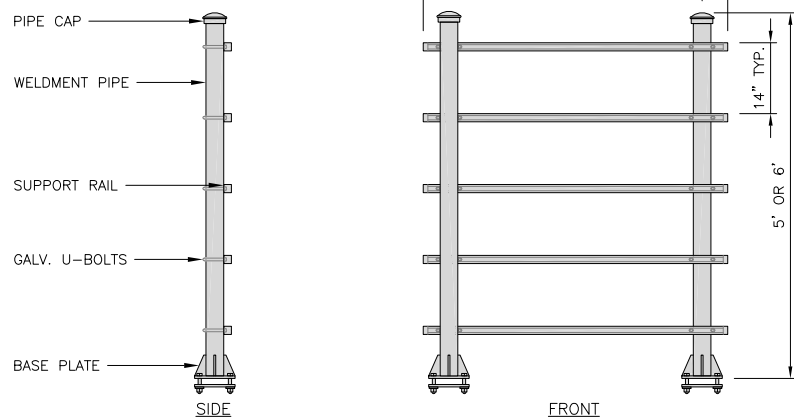
NOTE:
GC TO PROVIDE EXTENDED
THREAD FOR PLATFORM IF
REQUIRED HEIGHT EXCEEDS 17"



NO SCALE 2

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

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



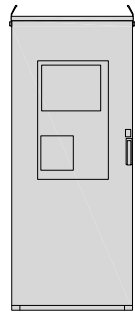
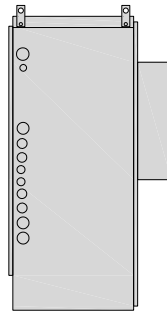
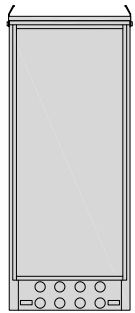
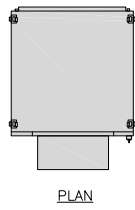
NO SCALE 3

NOT USED

NO SCALE 4

H-FRAME EQUIPMENT ELEVATION

ENERSYS HVAC 2000005995	
DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/600A
HVAC	600W
TOTAL WEIGHT (EMPTY)	371 lbs



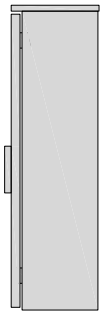
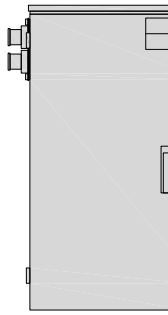
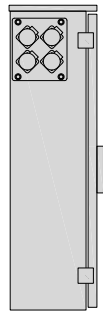
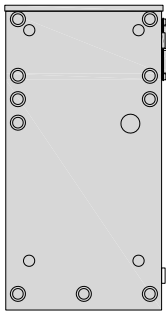
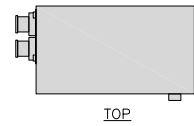
BACK SIDE FRONT

CABINET DETAIL

NO SCALE

1

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



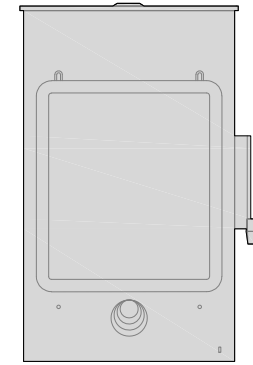
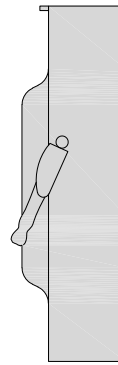
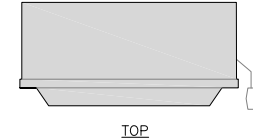
BACK SIDE FRONT SIDE

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



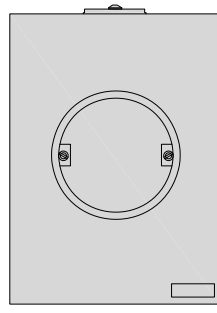
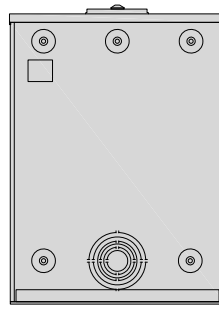
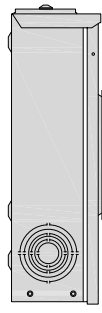
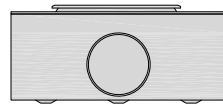
SIDE FRONT

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



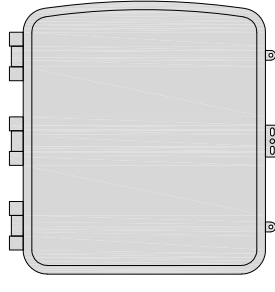
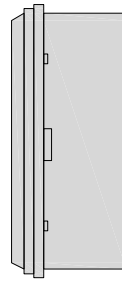
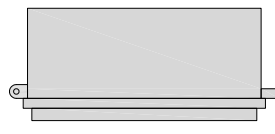
SIDE BACK FRONT

METER SOCKET DETAIL

NO SCALE

4

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



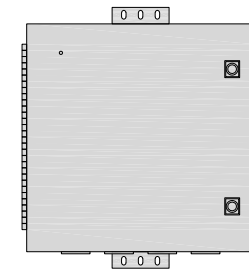
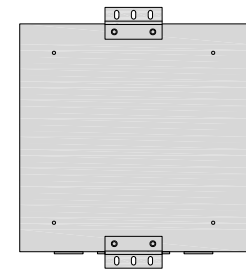
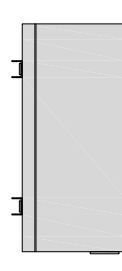
SIDE FRONT

FIBER NID ENCLOSURE DETAIL

NO SCALE

5

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



SIDE BACK FRONT

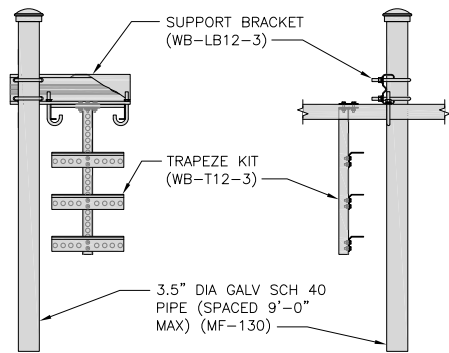
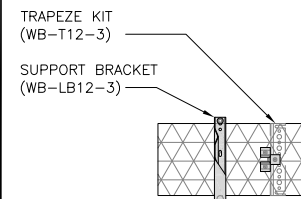
FIBER TELCO ENCLOSURE DETAIL

NO SCALE

6

COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10"
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

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

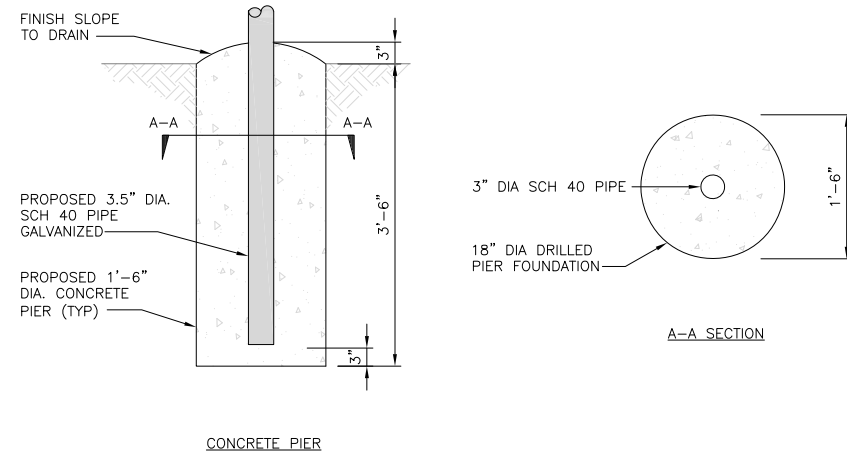


PLAN FRONT SIDE

ICE BRIDGE DETAIL

NO SCALE

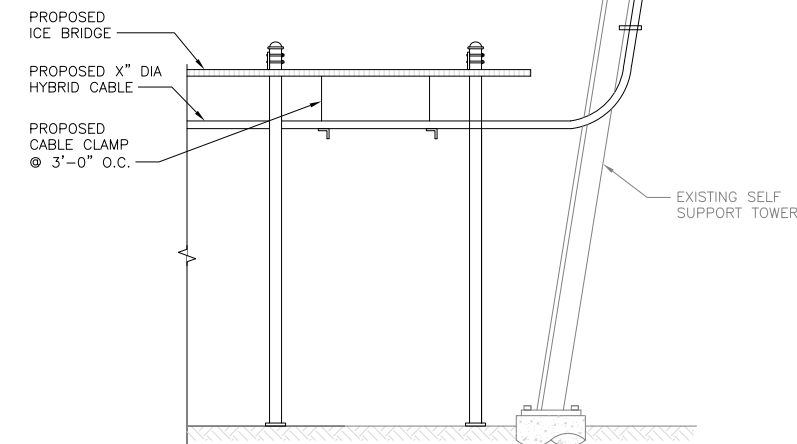
7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE

8



HYBRID CABLE RUN

NO SCALE

9

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wireless.

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SUITE 300
TULSA, OK 74119
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RPA BLJ BLJ

RFDS REV #: 1

CONSTRUCTION
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	1/24/22	ISSUED FOR REVIEW
0	6/29/22	ISSUED FOR CONSTRUCTION

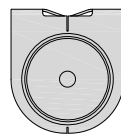
A&E PROJECT NUMBER
149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

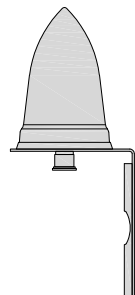
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

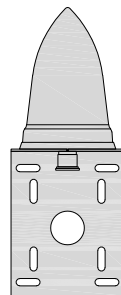
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



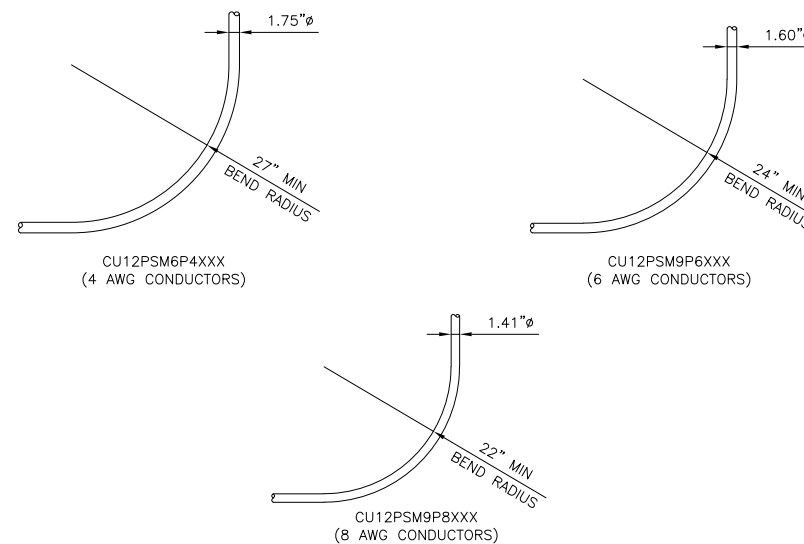
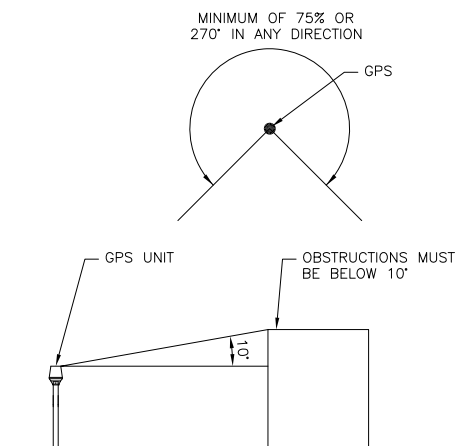
TOP



BACK



SIDE



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND 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



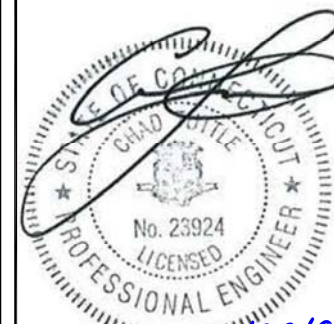
5701 SOUTH SANTA FE DRIVE
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TULSA, OK 74119
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8/29/22

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RFDS REV #: 1

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A&E PROJECT NUMBER
149544.001.01

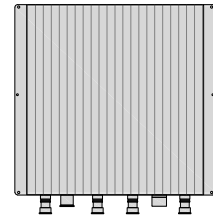
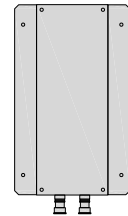
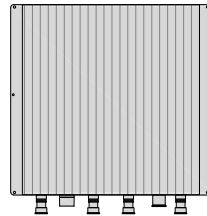
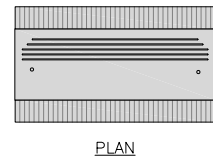
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

A-5

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

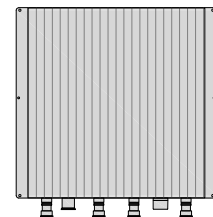
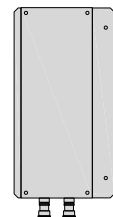
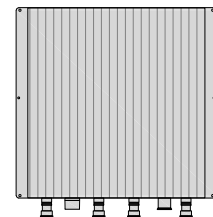
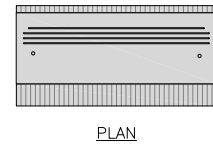


BACK

SIDE

FRONT

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



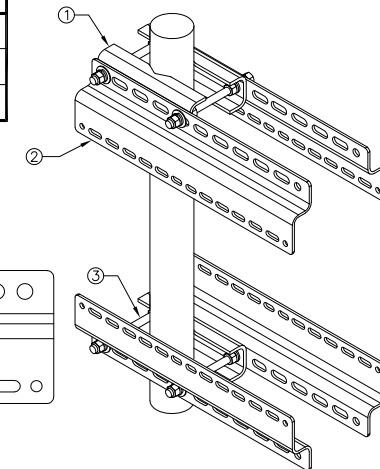
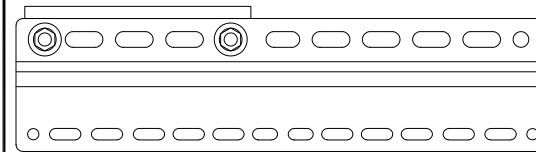
BACK

SIDE

FRONT

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

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



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

RRH DETAIL

NO SCALE

1

RRH DETAIL

NO SCALE

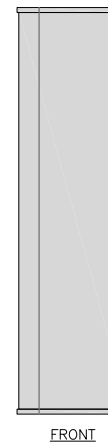
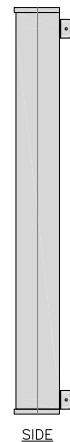
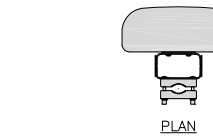
2

RRH MOUNT DETAIL

NO SCALE

3

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



SIDE

FRONT

ANTENNA DETAIL

NO SCALE

4

NOT USED

NO SCALE

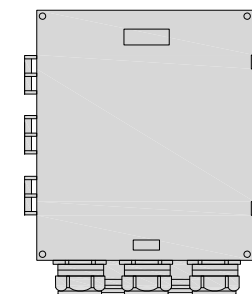
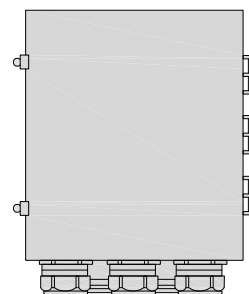
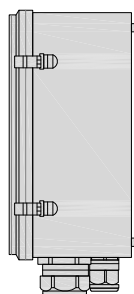
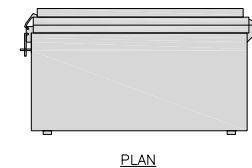
5

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



SIDE

BACK

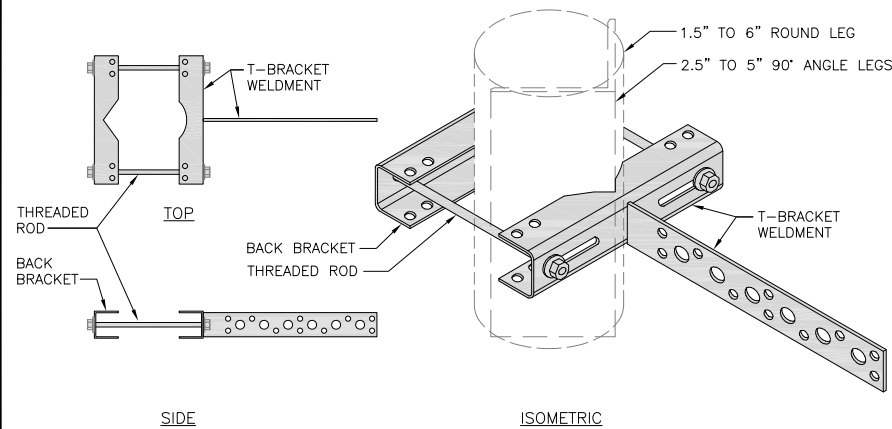
FRONT

SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

7

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



SIDE

ISOMETRIC

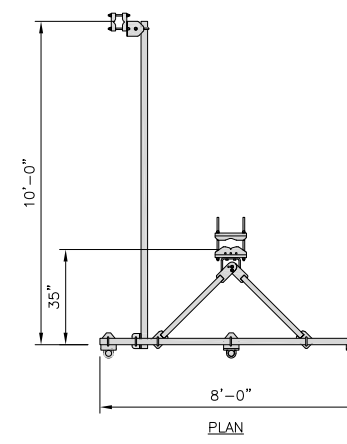
VERTICAL CABLE SUPPORT DETAIL

NO SCALE

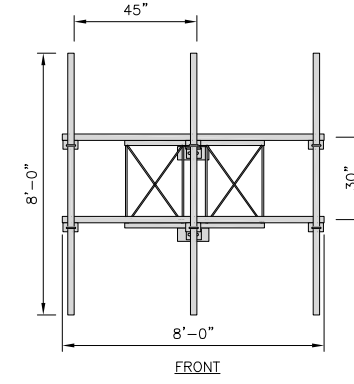
8

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

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



PLAN



FRONT

ANTENNA FRAME DETAIL

NO SCALE

9

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wireless.

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1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE
EQUIPMENT DETAILS

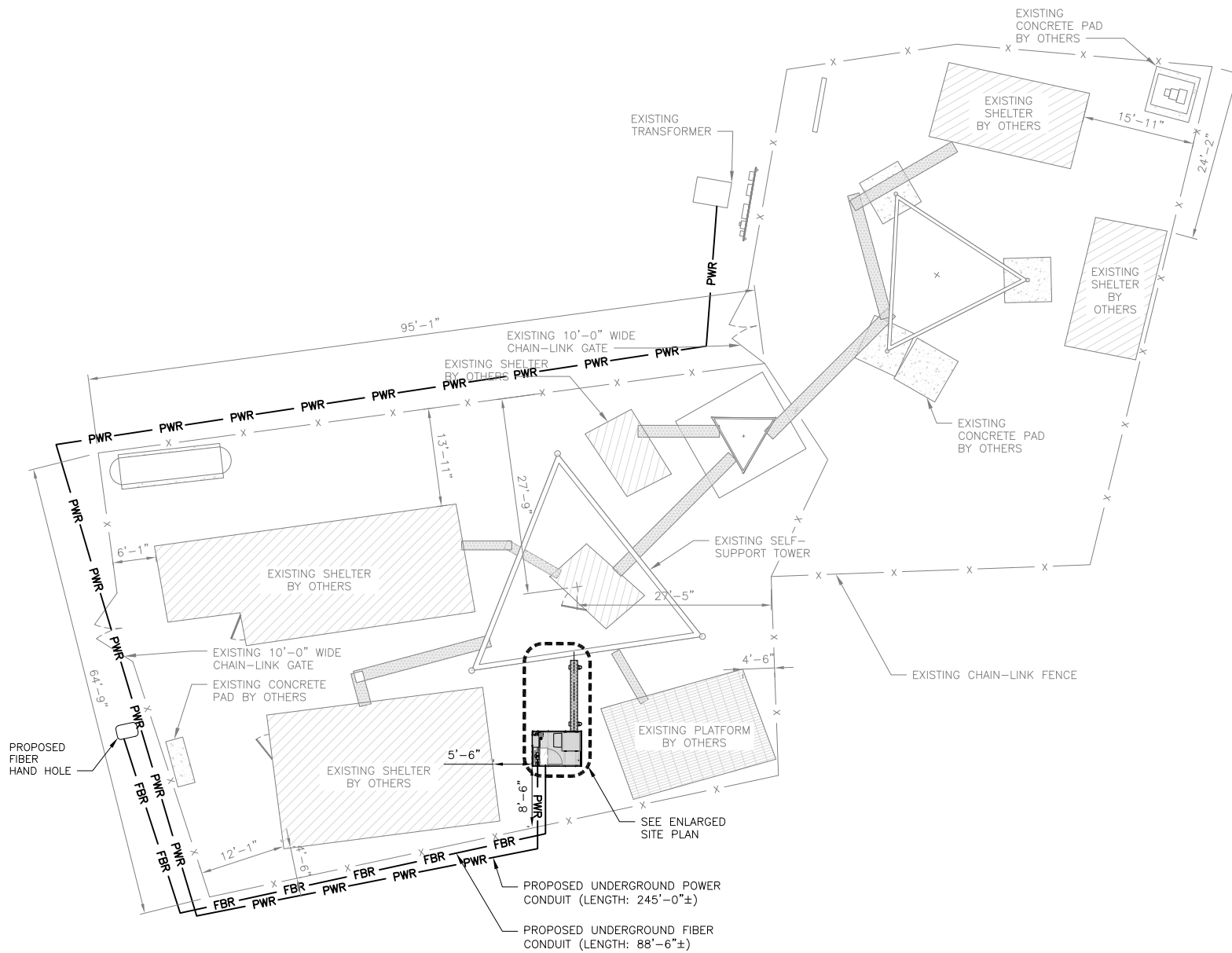
SHEET NUMBER
A-6

NOTES

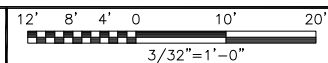
1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS NOT AN OPTION, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.

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

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



UTILITY ROUTE PLAN



1

ELECTRICAL NOTES

NO SCALE

2



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8051 CONGRESS AVENUE
BOCA RATON, FL 33487



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



MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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DRAWN BY:	CHECKED BY:	APPROVED BY:
RPA	BLJ	BLJ

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	1/24/22	ISSUED FOR REVIEW
0	6/29/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

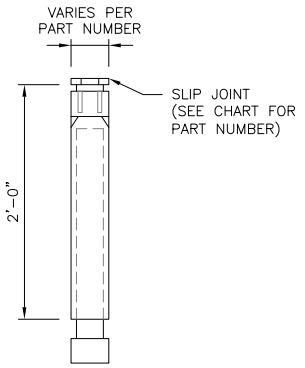
SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER

E-1

CARLON EXPANSION FITTINGS

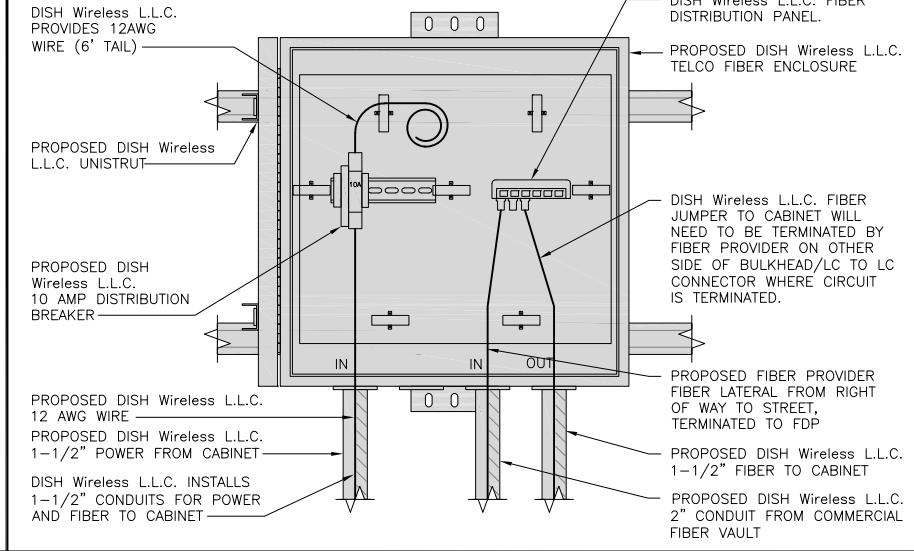
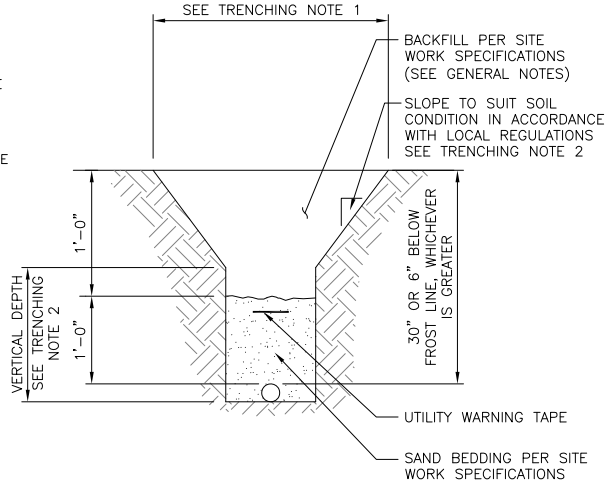
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N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



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

TRENCHING NOTES

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



EXPANSION JOINT DETAIL

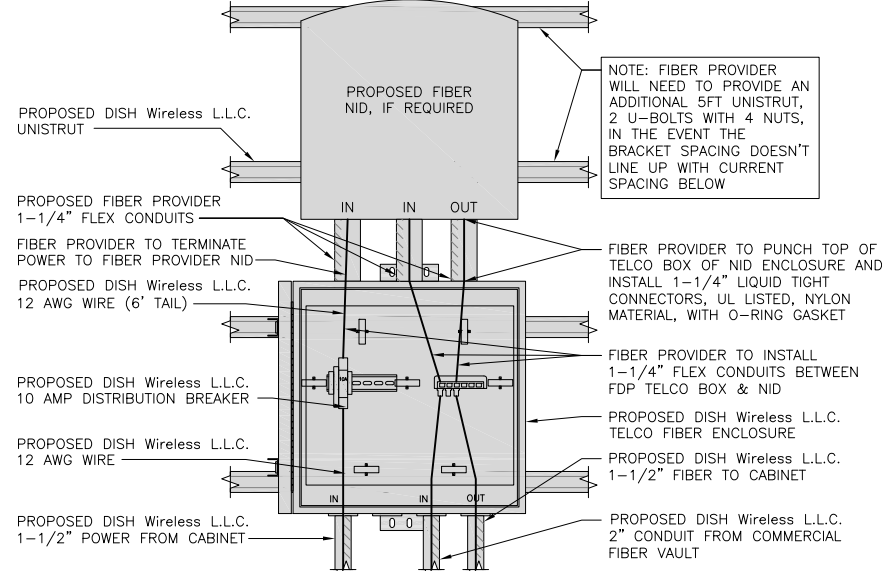
NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL

NO SCALE 2

DARK TELCO BOX – INTERIOR WIRING LAYOUT

NO SCALE 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL)

NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6

NOT USED

NO SCALE 7

NOT USED

NO SCALE 8

NOT USED

NO SCALE 9



5701 SOUTH SANTA FE DRIVE
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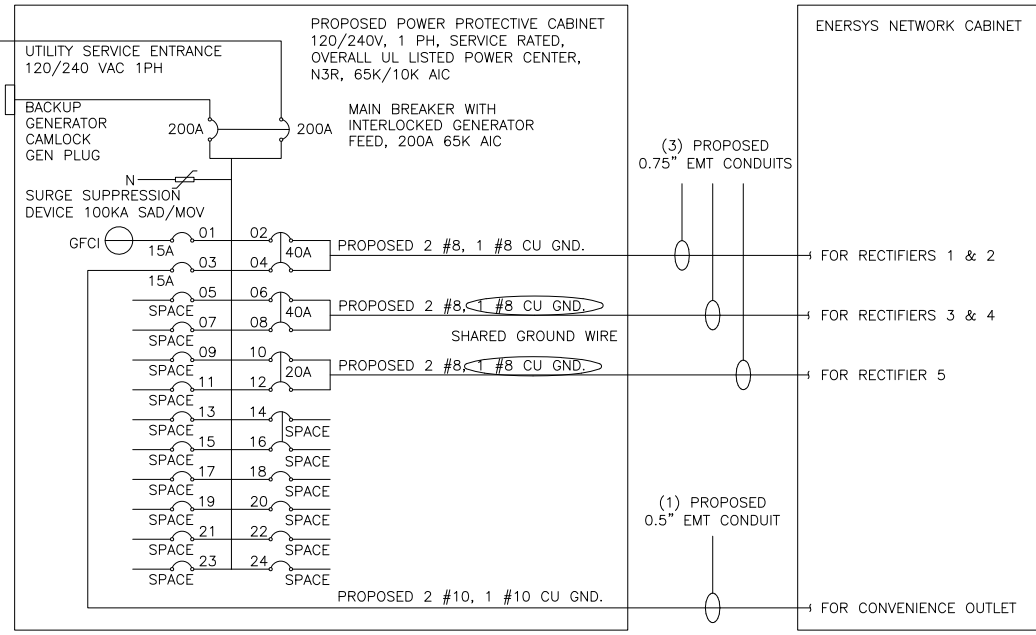
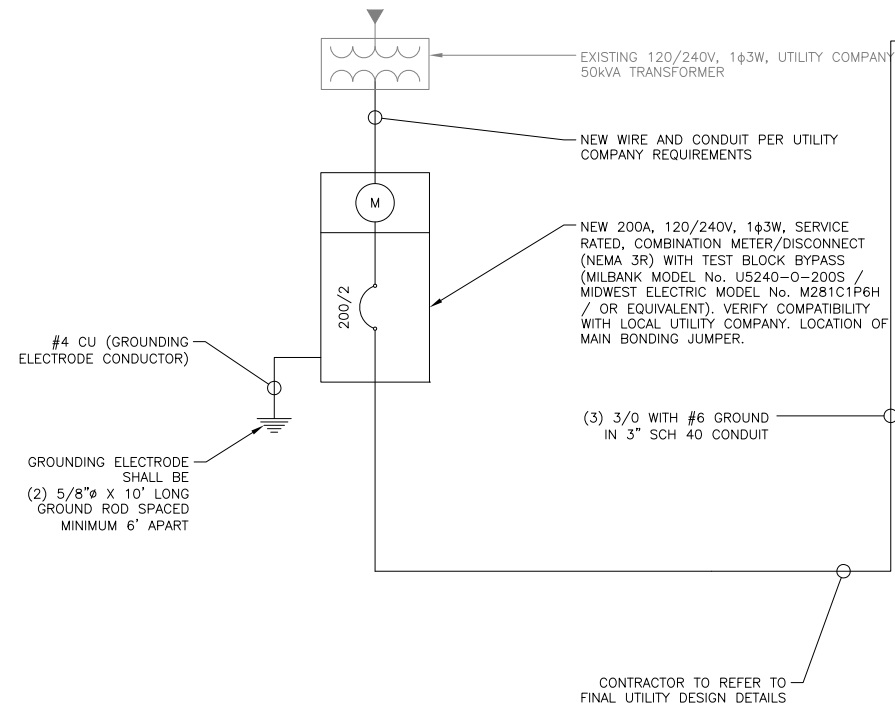
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SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



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

BREAKERS REQUIRED:
 (2) 40A, 2P BREAKER - SQUARE D P/N:Q0240
 (1) 20A, 2P BREAKER - SQUARE D P/N:Q0220
 (1) 20A, 1P BREAKER - SQUARE D P/N:Q0120

NOTES

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUIT AND FEEDERS COMPLY WITH THE NEC (LISTED ON T-1) ARTICLE 210.19(A)(1) FPN NO. 4.

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.

0.5" CONDUIT - 0.122 SQ. IN AREA
 0.75" CONDUIT - 0.213 SQ. IN AREA
 2.0" CONDUIT - 1.316 SQ. IN AREA
 3.0" CONDUIT - 2.907 SQ. IN AREA

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

#10 - 0.0211 SQ. IN X 2 = 0.0422 SQ. IN
 #8 - 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
 TOTAL = 0.0633 SQ. IN

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

RECTIFIER CONDUCTORS (3 CONDUITS): USING UL1015, CU.

#8 - 0.0552 SQ. IN X 2 = 0.1103 SQ. IN
 #8 - 0.0131 SQ. IN X 1 = 0.0131 SQ. IN <BARE GROUND
 TOTAL = 0.1234 SQ. IN

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

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

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

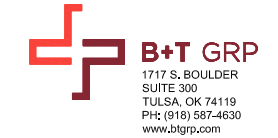
3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.



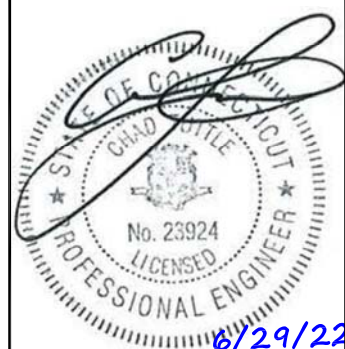
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SHEET TITLE
ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3

PPC ONE-LINE DIAGRAM

NO SCALE 1

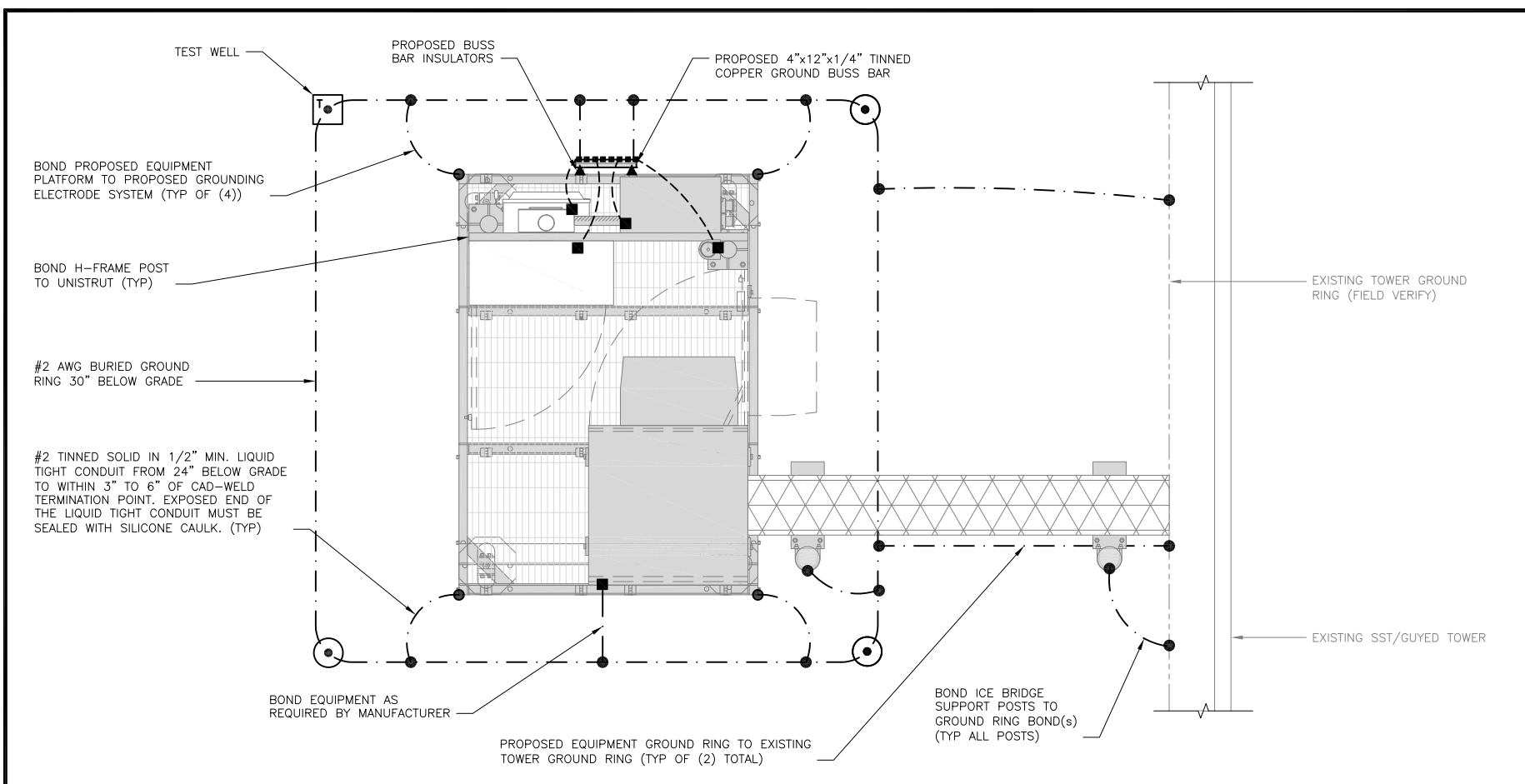
LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
PPC GFCI OUTLET	180	180	15A	1	A	2	40A	3840	3840	ENERSYS ALPHA CORDEX RECTIFIERS 1 & 2
ENERSYS GFCI OUTLET			15A	3	B	4	40A	3840	3840	ENERSYS ALPHA CORDEX RECTIFIER 3 & 4
-SPACE-				5	A	6	20A	1920	1920	ENERSYS ALPHA CORDEX RECTIFIER 5
-SPACE-				7	B	8				-SPACE-
-SPACE-				9	A	10				-SPACE-
-SPACE-				11	B	12				-SPACE-
-SPACE-				13	A	14				-SPACE-
-SPACE-				15	B	16				-SPACE-
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS			180	180				9500	9500	
200A MCB, 1ϕ, 24 SPACE, 120/240V			L1		L2		VOLTAGE AMPS			
MB RATING: 65,000 AIC			9680	9680	81		AMPS			
			81	81	102		MAX AMPS			
							MAX 125%			

PANEL SCHEDULE

NO SCALE 2

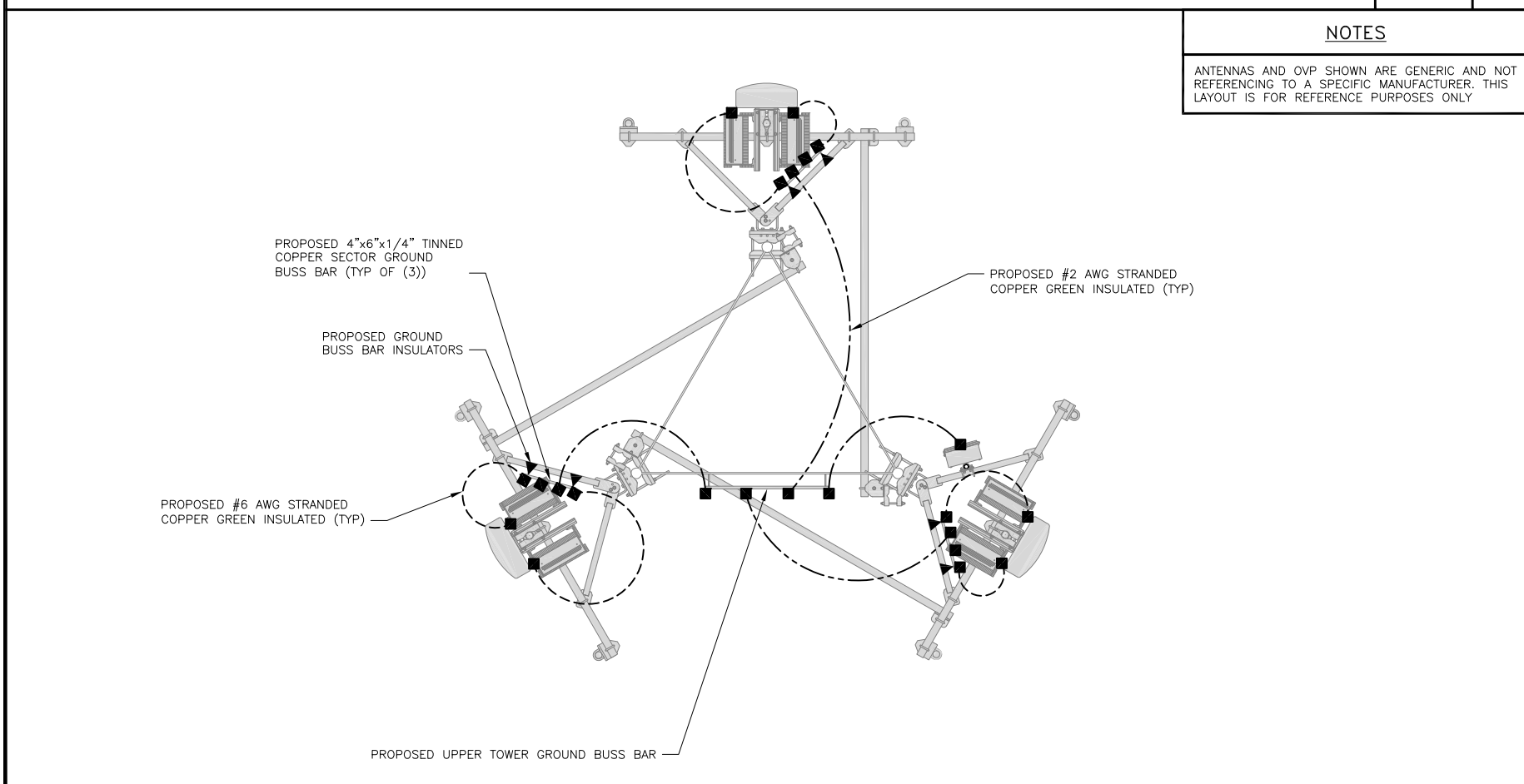
NOT USED

NO SCALE 3



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2

GROUNDING LEGEND

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

- GROUNDING KEY NOTES**
- 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**
- 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.
 - 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.
 - 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.
 - 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.
 - GROUND ROD:** UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
 - 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.
 - 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.
 - 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.
 - TELCO GROUND BAR:** BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
 - FRAME BONDING:** THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
 - 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.
 - 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.
 - 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
 - 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.
 - 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
 - TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO TOWER STEEL.
- REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE 3



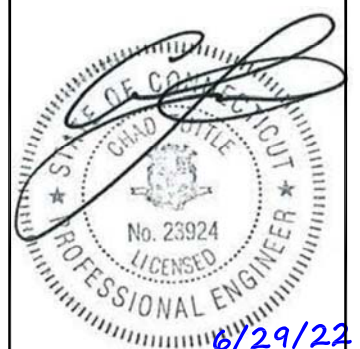
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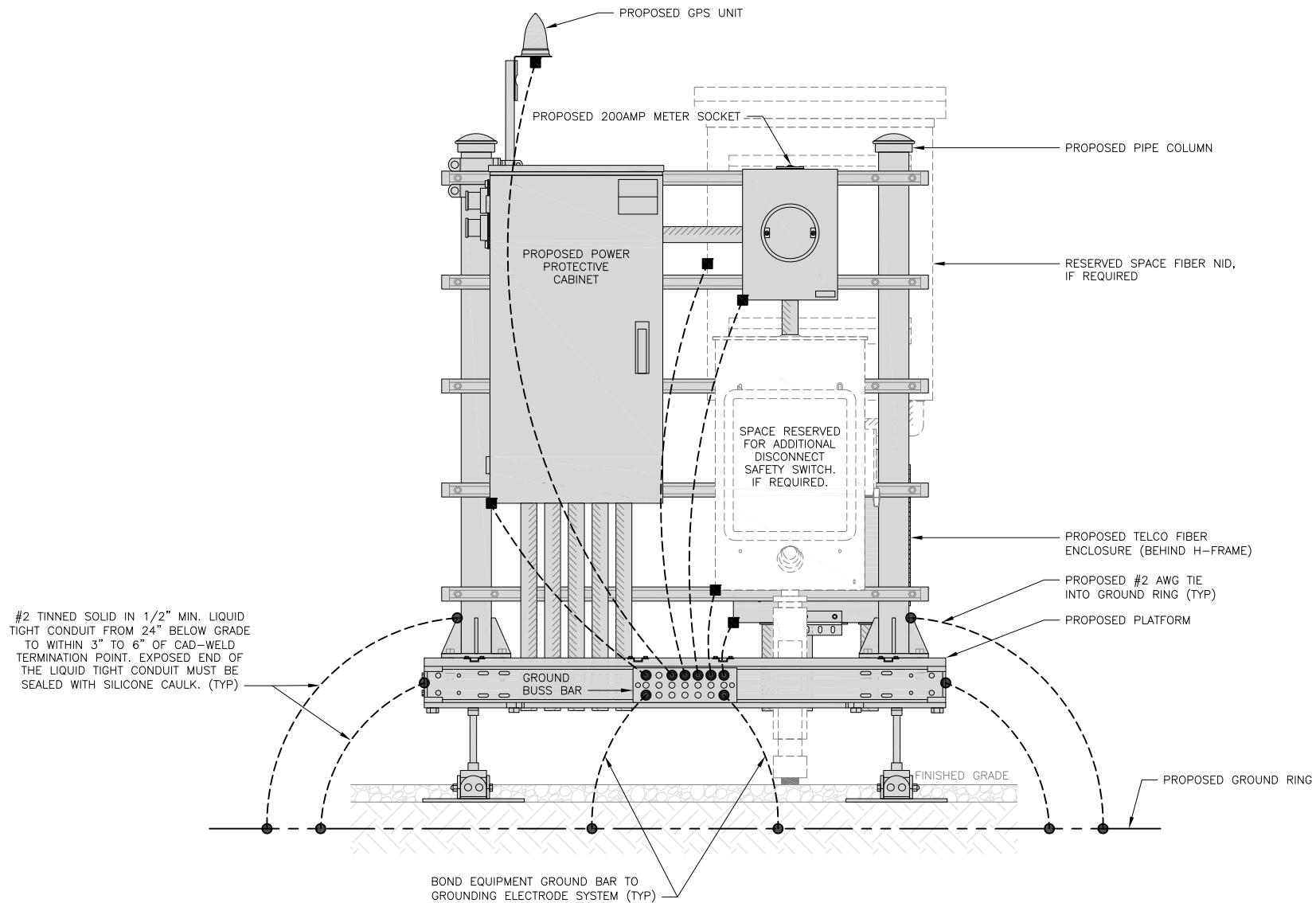
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GROUNDING PLANS AND NOTES

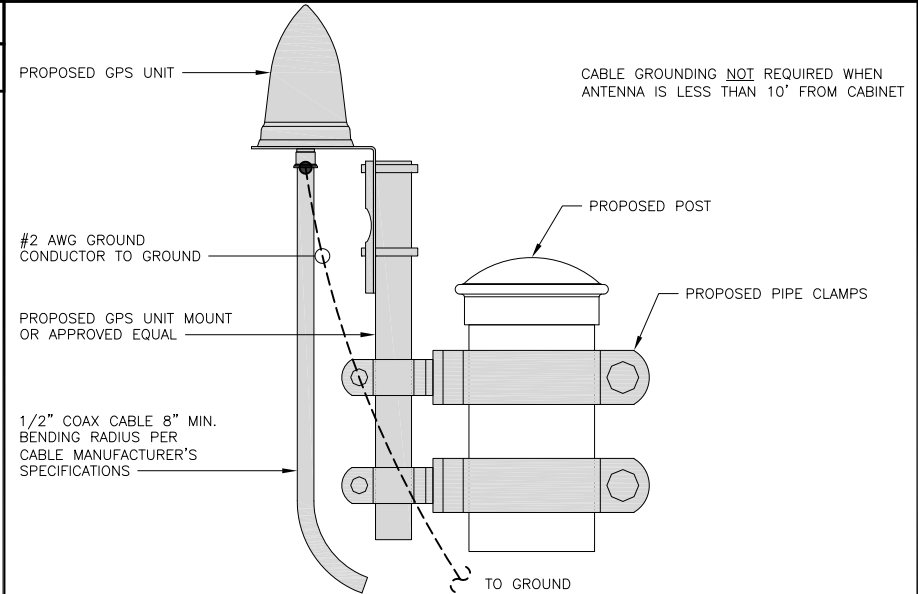
SHEET NUMBER
G-1

NOTES
EQUIPMENT CABINET OMITTED FOR CLARITY



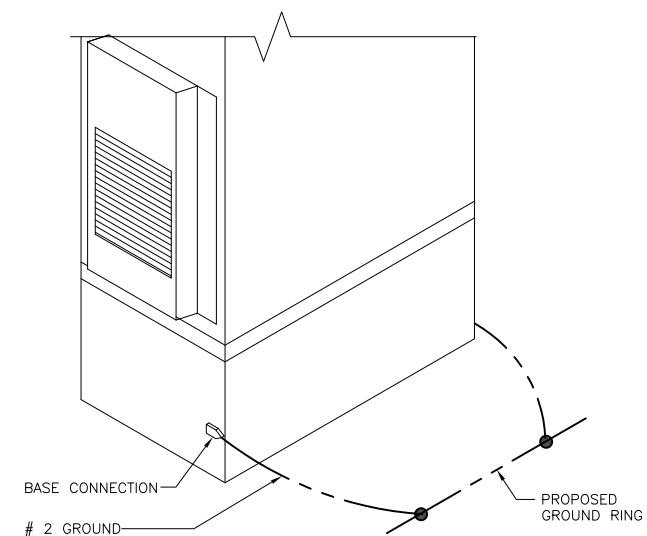
H-FRAME GROUNDING DETAIL

NO SCALE 1



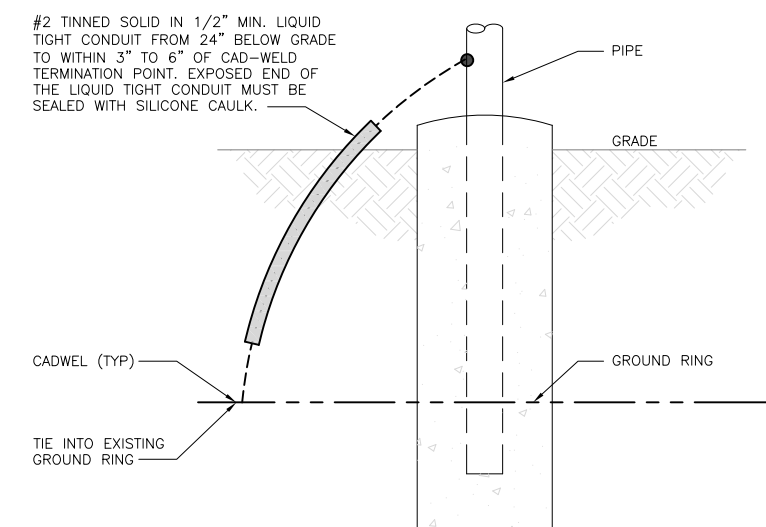
TYPICAL GPS UNIT GROUNDING

NO SCALE 2



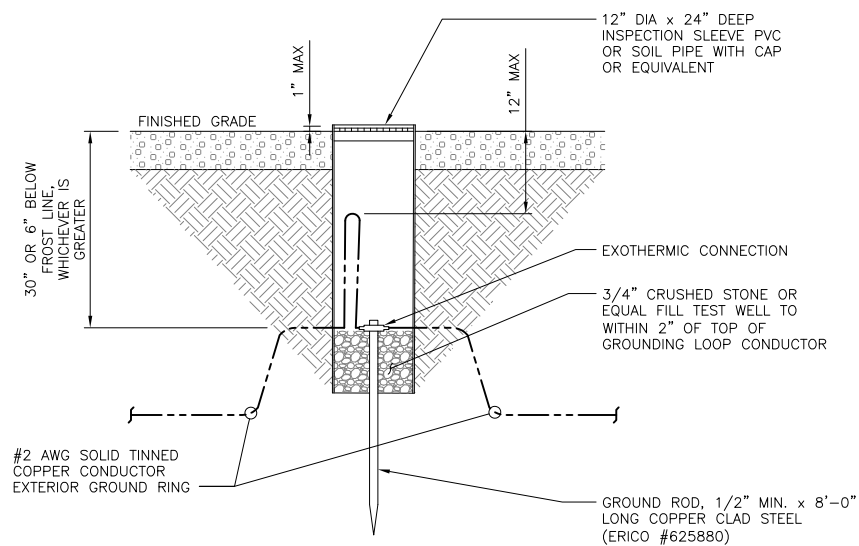
OUTDOOR CABINET GROUNDING

NO SCALE 3



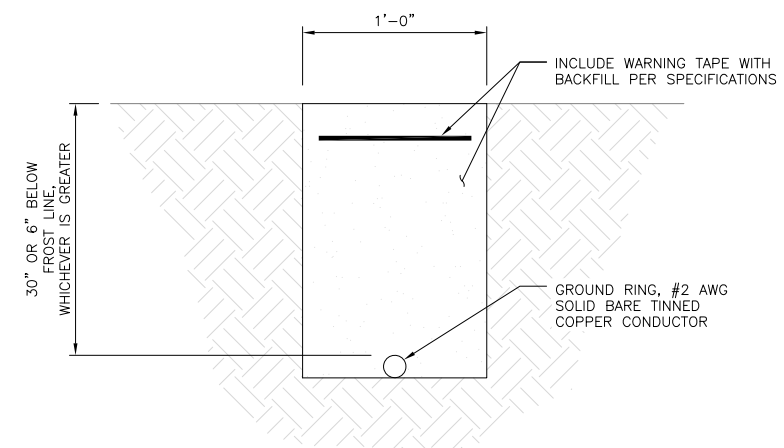
TRANSITIONING GROUND DETAIL

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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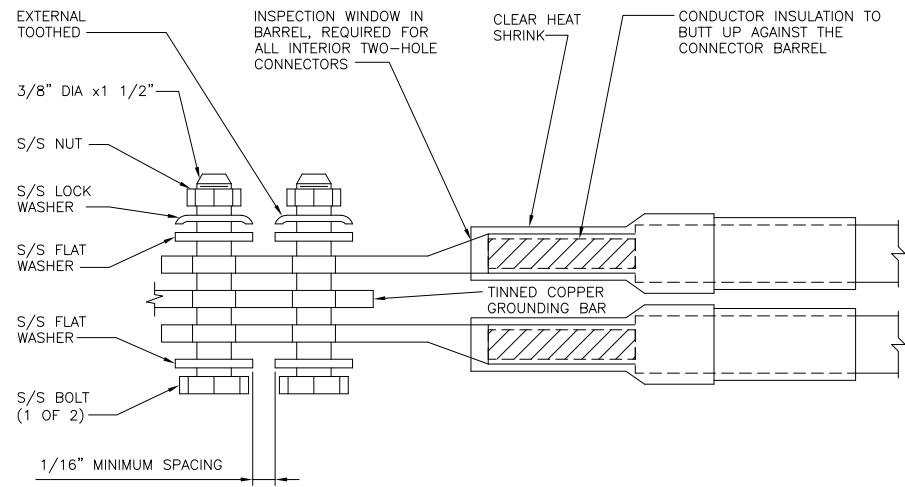
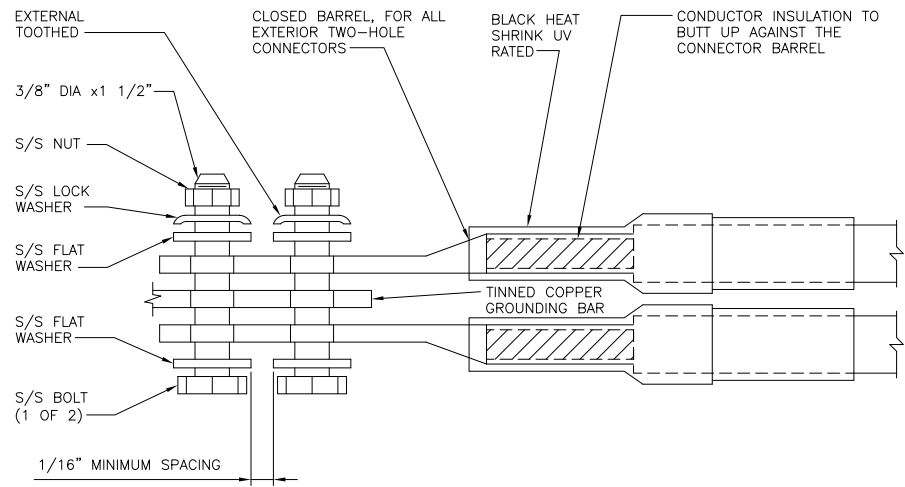
BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

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

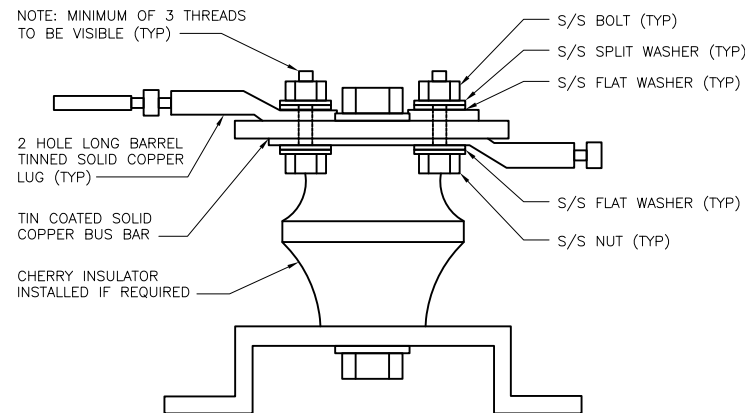
NO SCALE 1

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

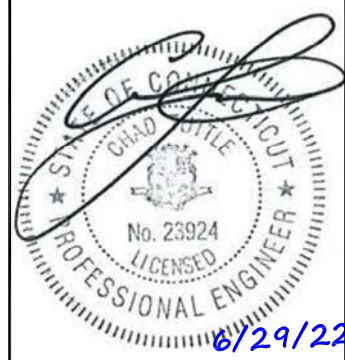
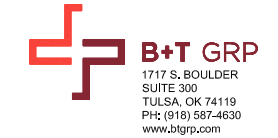
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5701 SOUTH SANTA FE DRIVE
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Expires 3/31/23

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DRAWN BY: RPA CHECKED BY: BLJ APPROVED BY: BLJ

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
A	1/24/22	ISSUED FOR REVIEW
0	6/29/22	ISSUED FOR CONSTRUCTION

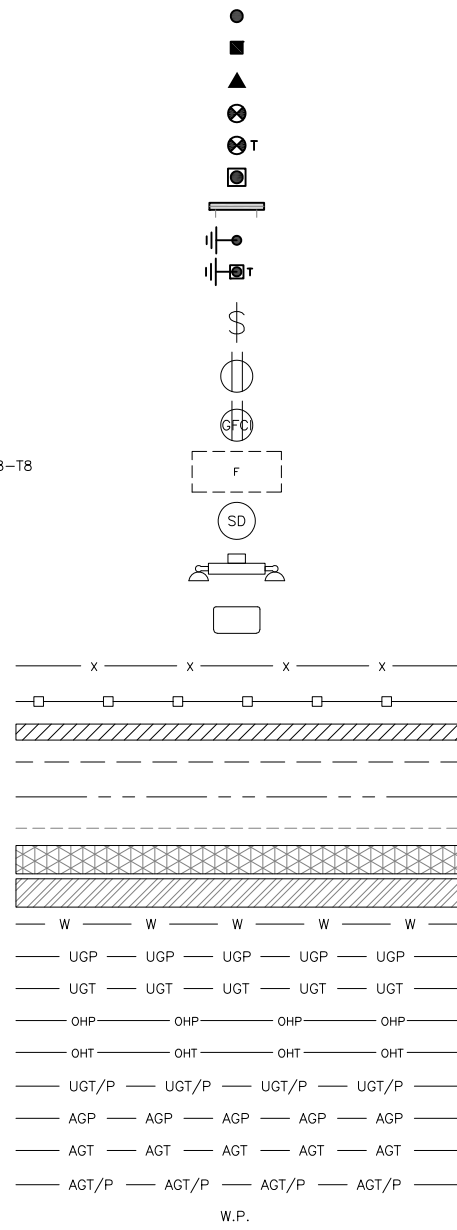
A&E PROJECT NUMBER
149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

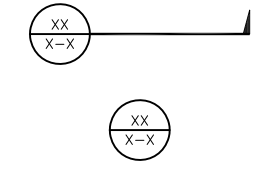
SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

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-DOBTXD
 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
 ABV ABOVE
 AC ALTERNATING CURRENT
 ADDL ADDITIONAL
 AFF ABOVE FINISHED FLOOR
 AFG ABOVE FINISHED GRADE
 AGL ABOVE GROUND LEVEL
 AIC AMPERAGE INTERRUPTION CAPACITY
 ALUM ALUMINUM
 ALT ALTERNATE
 ANT ANTENNA
 APPROX APPROXIMATE
 ARCH ARCHITECTURAL
 ATS AUTOMATIC TRANSFER SWITCH
 AWG AMERICAN WIRE GAUGE
 BATT BATTERY
 BLDG BUILDING
 BLK BLOCK
 BLKG BLOCKING
 BM BEAM
 BTC BARE TINNED COPPER CONDUCTOR
 BOF BOTTOM OF FOOTING
 CAB CABINET
 CANT CANTILEVERED
 CHG CHARGING
 CLG CEILING
 CLR CLEAR
 COL COLUMN
 COMM COMMON
 CONC CONCRETE
 CONSTR CONSTRUCTION
 DBL DOUBLE
 DC DIRECT CURRENT
 DEPT DEPARTMENT
 DF DOUGLAS FIR
 DIA DIAMETER
 DIAG DIAGONAL
 DIM DIMENSION
 DWG DRAWING
 DWL DOWEL
 EA EACH
 EC ELECTRICAL CONDUCTOR
 EL ELEVATION
 ELEC ELECTRICAL
 EMT ELECTRICAL METALLIC TUBING
 ENG ENGINEER
 EQ EQUAL
 EXP EXPANSION
 EXT EXTERIOR
 EW EACH WAY
 FAB FABRICATION
 FF FINISH FLOOR
 FG FINISH GRADE
 FIF FACILITY INTERFACE FRAME
 FIN FINISH(ED)
 FLR FLOOR
 FDN FOUNDATION
 FOC FACE OF CONCRETE
 FOM FACE OF MASONRY
 FOS FACE OF STUD
 FOW FACE OF WALL
 FS FINISH SURFACE
 FT FOOT
 FTG FOOTING
 GA GAUGE
 GEN GENERATOR
 GFCI GROUND FAULT CIRCUIT INTERRUPTER
 GLB GLUE LAMINATED BEAM
 GLV GALVANIZED
 GPS GLOBAL POSITIONING SYSTEM
 GND GROUND
 GSM GLOBAL SYSTEM FOR MOBILE
 HDG HOT DIPPED GALVANIZED
 HDR HEADER
 HGR HANGER
 HVAC HEAT/VENTILATION/AIR CONDITIONING
 HT HEIGHT
 IGR INTERIOR GROUND RING

IN INCH
 INT INTERIOR
 LB(S) POUND(S)
 LF LINEAR FEET
 LTE LONG TERM EVOLUTION
 MAS MASONRY
 MAX MAXIMUM
 MB MACHINE BOLT
 MECH MECHANICAL
 MFR MANUFACTURER
 MGB MASTER GROUND BAR
 MIN MINIMUM
 MISC MISCELLANEOUS
 MTL METAL
 MTS MANUAL TRANSFER SWITCH
 MW MICROWAVE
 NEC NATIONAL ELECTRIC CODE
 NM NEWTON METERS
 NO. NUMBER
 # NUMBER
 NTS NOT TO SCALE
 OC ON-CENTER
 OSHA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
 OPNG OPENING
 P/C PRECAST CONCRETE
 PCS PERSONAL COMMUNICATION SERVICES
 PCU PRIMARY CONTROL UNIT
 PRC PRIMARY RADIO CABINET
 PP POLARIZING PRESERVING
 PSF POUNDS PER SQUARE FOOT
 PSI POUNDS PER SQUARE INCH
 PT PRESSURE TREATED
 PWR POWER CABINET
 QTY QUANTITY
 RAD RADIUS
 RECT RECTIFIER
 REF REFERENCE
 REINF REINFORCEMENT
 REQ'D REQUIRED
 RET REMOTE ELECTRIC TILT
 RF RADIO FREQUENCY
 RMC RIGID METALLIC CONDUIT
 RRH REMOTE RADIO HEAD
 RRU REMOTE RADIO UNIT
 RWY RACEWAY
 SCH SCHEDULE
 SHT SHEET
 SIAD SMART INTEGRATED ACCESS DEVICE
 SIM SIMILAR
 SPEC SPECIFICATION
 SQ SQUARE
 SS STAINLESS STEEL
 STD STANDARD
 STL STEEL
 TEMP TEMPORARY
 THK THICKNESS
 TMA TOWER MOUNTED AMPLIFIER
 TN TOE NAIL
 TOA TOP OF ANTENNA
 TOC TOP OF CURB
 TOF TOP OF FOUNDATION
 TOP TOP OF PLATE (PARAPET)
 TOS TOP OF STEEL
 TOW TOP OF WALL
 TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION
 TYP TYPICAL
 UG UNDERGROUND
 UL UNDERWRITERS LABORATORY
 UNO UNLESS NOTED OTHERWISE
 UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
 UPS UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
 VIF VERIFIED IN FIELD
 W WIDE
 W/ WITH
 WD WOOD
 WP WEATHERPROOF
 WT WEIGHT

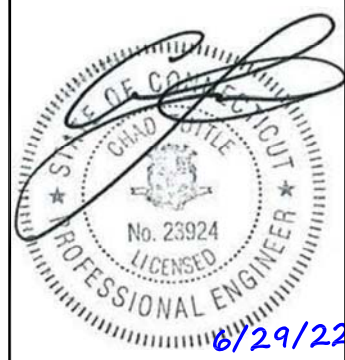
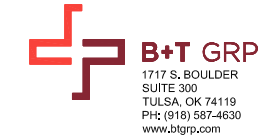
ABBREVIATIONS



5701 SOUTH SANTA FE DRIVE
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8051 CONGRESS AVENUE
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RPA BLJ BLJ

RFDS REV #: 1

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SUBMITTALS		
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A&E PROJECT NUMBER
149544.001.01

DISH Wireless L.L.C.
 PROJECT INFORMATION
BOHVN00181A
 1055 WINTERGREEN AVE
 HAMDEN, CT 06514

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:


1. FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
2. SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
3. TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE NAME AND NUMBER AS PER DISH Wireless L.L.C. CONSTRUCTION MANAGER RECOMMENDATIONS.
4. CABINET/SHELTER MOUNTING APPLICATION REQUIRES ANOTHER PLATE APPLIED TO THE FACE OF THE CABINET WITH WATER PROOF POLYURETHANE ADHESIVE
5. ALL SIGNS WILL BE SECURED WITH EITHER STAINLESS STEEL ZIP TIES OR STAINLESS STEEL TECH SCREWS
6. 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.

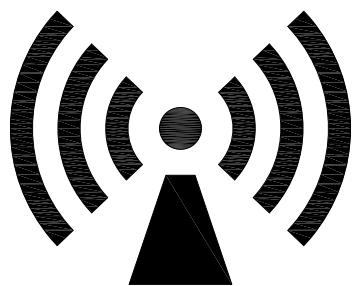
Obey all signs and barriers beyond this point.
Call the DISH Wireless L.L.C. NOC at 1-866-624-6874

Site ID: _____



THIS SIGN IS FOR REFERENCE PURPOSES ONLY

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: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY



CAUTION



Transmitting Antenna(s)

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dish

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WARNING



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dish


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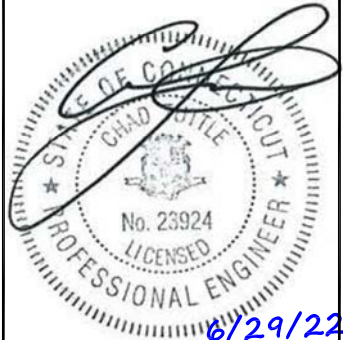
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



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



6/29/22

MTS ENGINEERING P.L.L.C.
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Expires 3/31/23

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RPA	BLJ	BLJ

RFDS REV #: _____ 1

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE
RF SIGNAGE ABBREVIATIONS

SHEET NUMBER
GN-2

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.



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PROJECT INFORMATION
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SHEET TITLE
GENERAL NOTES

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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.



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



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RPA	BLJ	BLJ

RFDS REV #: 1

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A&E PROJECT NUMBER
149544.001.01

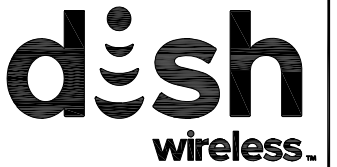
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

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 GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.



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SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-5

Exhibit D

Structural Analysis Report



Tower Engineering Solutions

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

Structural Analysis Report

Existing 195 ft Valmont Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT22107-A

Customer Site Name: Westrock Park

Carrier Name: Dish Wireless (App#: 169200, v2)

Carrier Site ID / Name: BOHVN00181A / 0

Site Location: 1055 Wintergreen Ave

Hamden, Connecticut

NEW HAVEN County

Latitude: 41.349800

Longitude: -72.972700

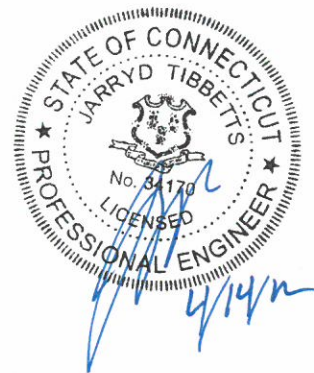
Analysis Result:

Max Structural Usage: 49.8% [Pass]

Max Foundation Usage: 48.7% [Pass]

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

Report Prepared By: Ram Kodali





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Report Prepared By: Ram Kodali

Introduction

The purpose of this report is to summarize the analysis results on the 195 ft Valmont Self Supporting Tower to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Valmont, Dwg # 184028, dated 7/29/2004
Foundation Drawing	Tectonic, work order # 3997.02, dated 9/21/2004
Geotechnical Report	BL Companies, Project # 00C827/C-3053, dated 11/12/2001
Mount Analysis	N/A

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 125$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 97$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	2
Crest Height:	235 ft
Seismic Parameters:	$S_5 = 0.189$, $S_1 = 0.063$

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	195.0	2	15' Omni - Whip	Leg	(2) 1 1/4"	Building B
2	195.0	4	8' Yagi*	Pipe	-	Building C
3	187.0	1	8' Yagi	(1) Stand-Off	(1) 1/2"	
4	185.0	2	18' Omni	(1) Stand-Off	(1) 7/8"	
5	182.0	1	1 ft Dish	Pipe	(1) 1/4"	
6	177.0	1	12' Omni	(2) Sector Frame*	(2) 1/2" (2) 7/8"	
7		2	15' Omni (Inverted)			
8		1	5' Out Broadcast			
9	140.0	3	NNVV-65B-R4 - Panel	(3) VFA10-HD + BCAM-HDLL	(3) 1 1/4" (1) 1.689" Hybrid (3) 1/2"	Sprint Nextel
10		3	AAHC - Panel			
11		3	A-ANT-23G-2.5-C - Dish			
12		3	ALU 1900 Mhz RRU/RRH			
13		3	ALU 800 MHz RRU			
14	137.5	1	18" x 18" x 7" Junction Box	Leg	-	Building C
19	107.0	1	10' Omni	(3) Sector Frame	(2) 1/2" (1) 7/8"	
20		1	5' Omni			
21		1	T09170P1000690 - Panel			
22	56.3	1	12' Omni	(1) Stand-Off	(2) 1 1/4"	
23	43.0	1	3 ft Channel Master Dish	Pipe	(1) 1/4"	

*Based on recent photos.

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
15	130.0	3	JMA Wireless MX08FRO665-21 - Panel	Commscope (3) MTC3975083	(1) 1.75" Hybrid	Dish Wireless
16		3	Fujitsu TA08025-B604			
17		3	Fujitsu TA08025-B605			
18		1	Raycap RDIDC-9181-PF-48			

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

Analysis Results

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

Tower Component	Legs	Diagonals	Horizontals
Max. Usage:	44.7%	49.8%	44.4%
Pass/Fail	Pass	Pass	Pass

Foundations

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Analysis Reactions	374.3	310.2	42.4

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

Operational Condition (Rigidity)

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.1003 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Structure: CT22107-A-SBA

Site Name: Westrock Park

Code: TIA-222-G

4/14/2022

Type: Self Support

Base Shape: Triangle

Basic WS: 97.00

Height: 195.00 (ft)

Base Width: 24.00

Basic Ice WS: 50.00

Base Elev: 0.00 (ft)

Top Width: 4.88

Operational WS: 60.00

Page: 1



Section Properties

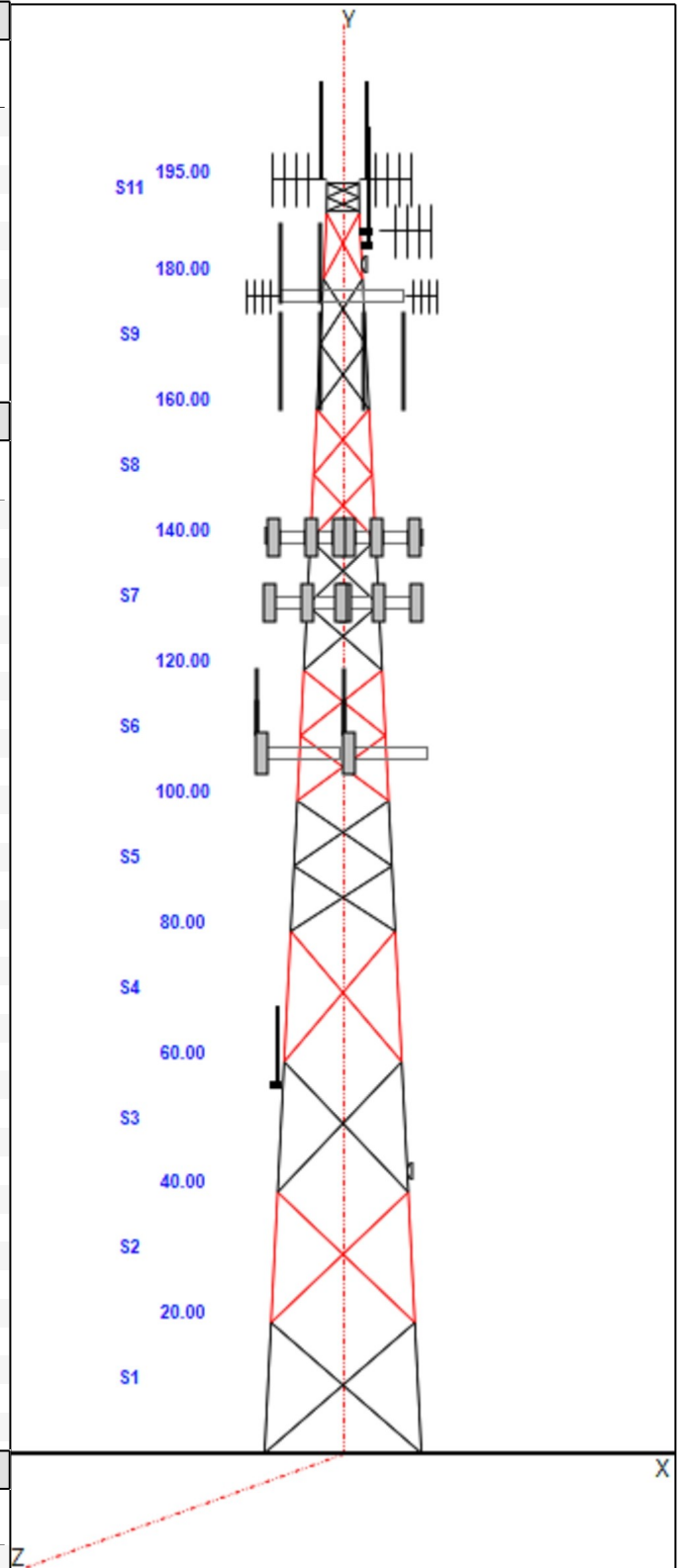
Sect	Leg Members	Diagonal Members	Horizontal Members
1	18B 18"BD 3.00"	DAE 3.5X3.5X0.3125	
2	18B 18"BD 2.75"	DAE 3.5X3.5X0.3125	
3-4	18B 18"BD 2.5"	DAE 3.5X3.5X0.3125	
5	12B 12"BD 2.25"	SAE 3.5X3.5X0.3125	
6	12B 12"BD 2"	SAE 3.5X3.5X0.3125	
7	12B 12"BD 2"	SAE 3X3X0.3125	
8	12B 12"BD 1.75"	SAE 3X3X0.1875	
9	12B 12"BD 1.5"	SAE 3X3X0.1875	
10	12B 12"BD 1.5"	SAE 2.5X2.5X0.1875	
11	SOL 2 1/2" SOLID	SOL 1" SOLID	SOL 7/8" SOLID

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
195.00	202.50	2	15' Omni
195.00	200.00	4	8' Yagi
195.00	195.00	2	Pipe Mount
187.00	187.00	1	Stand-Off
187.00	187.00	1	8' Yagi
185.00	194.00	2	18' Omni
185.00	185.00	1	Stand-Off
182.00	182.00	1	1 ft Dish
177.00	177.00	2	Sector Frame
177.00	182.00	1	12' Omni
177.00	167.00	2	15' Omni (Inverted)
177.00	177.00	1	5' Out Broadcast
140.00	140.00	3	VFA10-HD + BCAM-HDLL
140.00	140.00	3	Stabilizer Kit
140.00	140.00	3	NNVV-65B-R4
140.00	140.00	3	AAHC
140.00	140.00	3	A-ANT-23G-2.5-C
140.00	140.00	3	ALU 1900 Mhz RRU/RRH
140.00	140.00	3	ALU 800 MHz RRU
137.50	137.50	1	18" x 18" x 7" Junction Box
130.00	130.00	3	MX08FRO665-21
130.00	130.00	3	TA08025-B604
130.00	130.00	3	TA08025-B605
130.00	130.00	1	RDIDC-9181-PF-48
130.00	130.00	1	(3) MTC3975083
107.00	107.00	3	Sector Frame
107.00	115.00	1	10' Omni
107.00	112.50	1	5' Omni
107.00	107.00	1	T09170P1000690
56.30	56.30	1	Stand-Off
56.30	62.30	1	12' Omni
43.00	43.00	1	3 ft Channel Master Dish
43.00	43.00	1	Pipe Mount

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
0.00	195.00	2	1 1/4" Coax
0.00	195.00	1	Safety Cable
0.00	187.00	1	1/2" Coax



Structure: CT22107-A-SBA

Site Name: Westrock Park	Code: TIA-222-G	4/14/2022
Type: Self Support	Base Shape: Triangle	Basic WS: 97.00
Height: 195.00 (ft)	Base Width: 24.00	Basic Ice WS: 50.00
Base Elev: 0.00 (ft)	Top Width: 4.88	Operational WS: 60.00



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0.00	185.00	1	7/8" Coax
0.00	182.00	1	1/4" Coax
0.00	177.00	2	1/2" Coax
0.00	177.00	2	7/8" Coax
0.00	140.00	3	1 1/4" Coax
0.00	140.00	1	1.689" Hybrid
0.00	140.00	3	1/2" Coax
0.00	130.00	1	1.75" Hybrid
0.00	107.00	2	1/2" Coax
0.00	107.00	1	7/8" Coax
0.00	56.30	2	1 1/4" Coax
0.00	43.00	1	1/4" Coax

Base Reactions

Leg	Overturning
-----	-------------

Max Uplift:	-310.24 (kips)	Moment:	7275.98 (ft-kips)
Max Down:	374.34 (kips)	Total Down:	72.82 (kips)
Max Shear:	42.43 (kips)	Total Shear:	66.46 (kips)

Structure: CT22107-A-SBA

Site Name: Westrock Park

Type: Self Support

Height: 195.00 (ft)

Base Elev: 0.00 (ft)

Base Shape: Triangle

Base Width: 24.00

Top Width: 4.88

Code: TIA-222-G

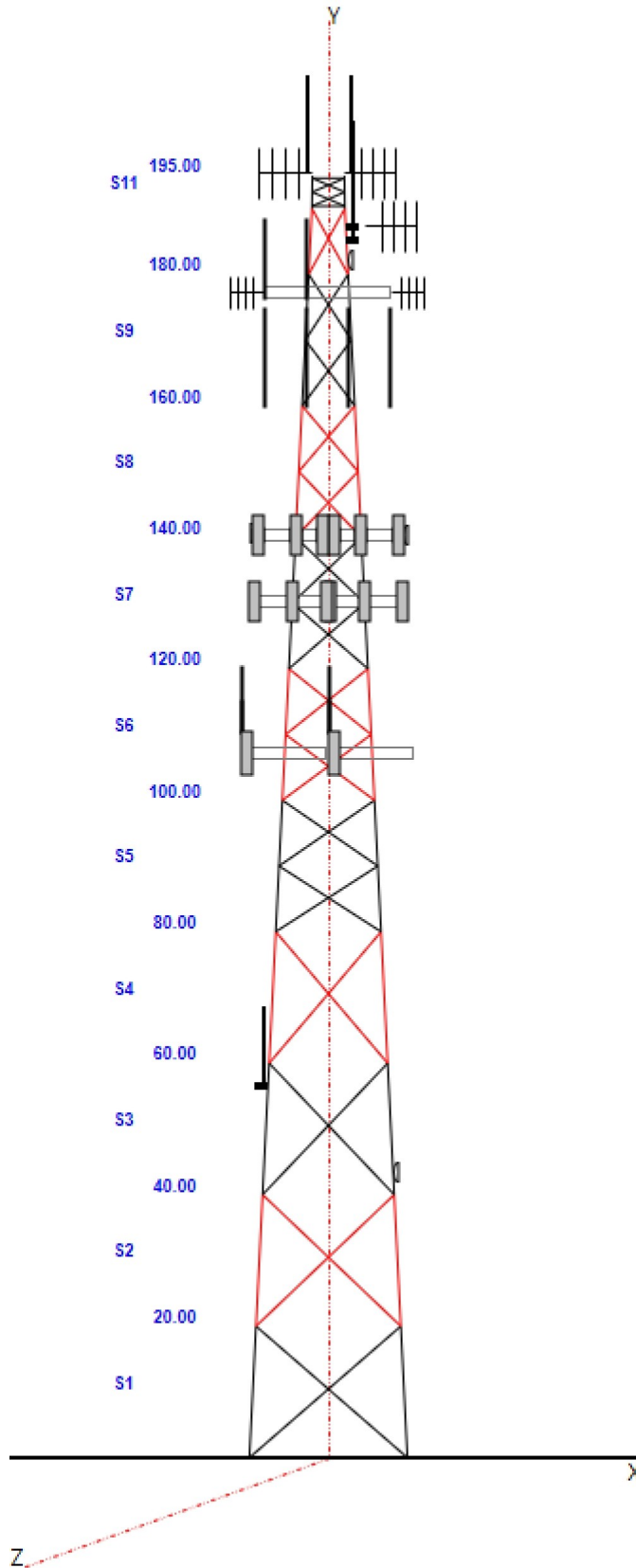
Basic WS: 97.00

Basic Ice WS: 50.00

Operational WS: 60.00

4/14/2022

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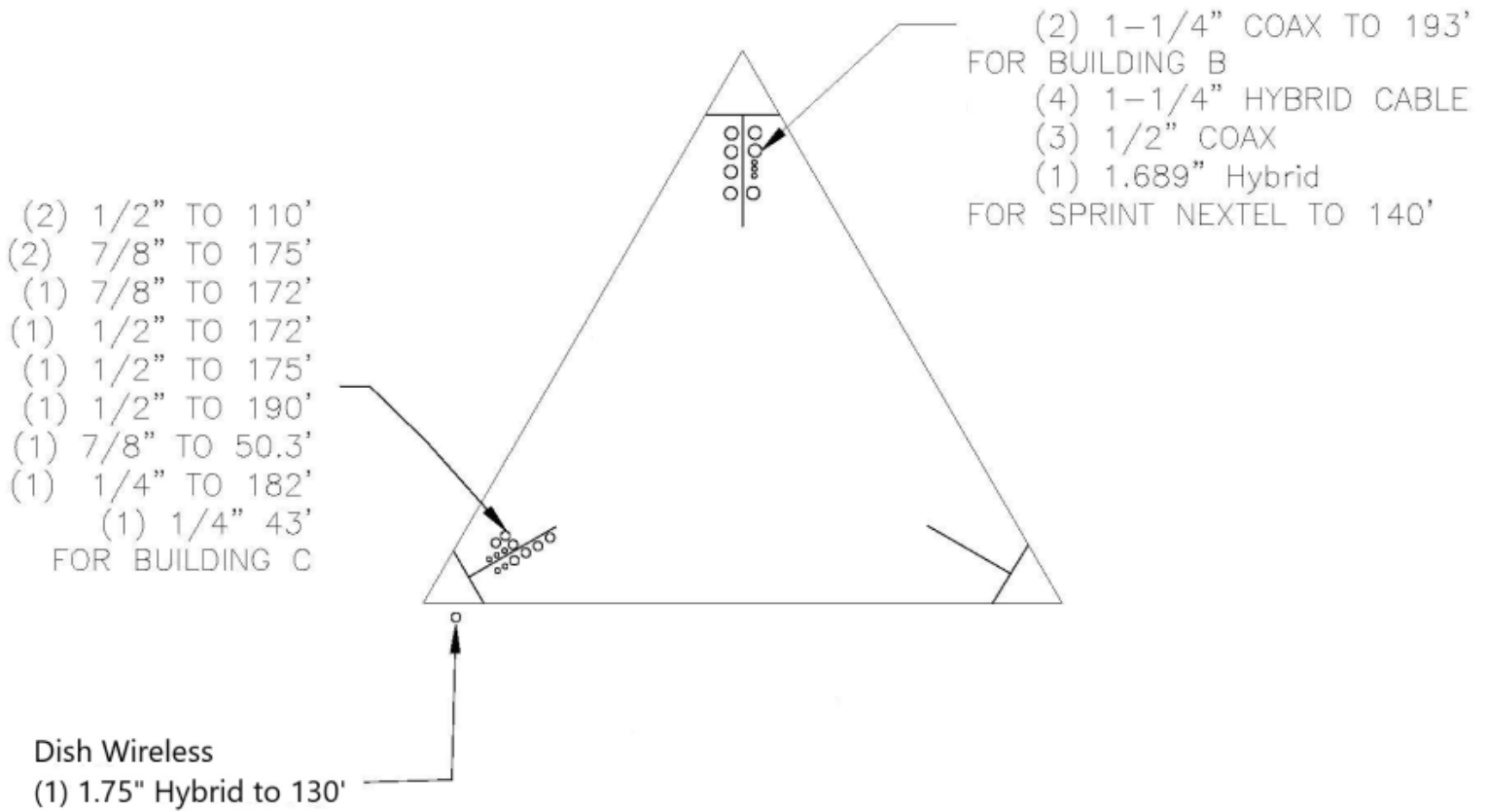


Structure: CT22107-A-SBA - Coax Line Placement

Type: Self Support
Site Name: Westrock Park
Height: 195.00 (ft)

4/14/2022

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Loading Summary

Structure: CT22107-A-SBA	Code: TIA-222-G	4/14/2022
Site Name: Westrock Park	Exposure: C	
Height: 195.00 (ft)	Crest Height: 235.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 2	Struct Class: II



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Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice		Ice		Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
			Weight (lb)	CaAa (sf)	Weight (lb)	CaAa (sf)						
195.00	15' Omni	2	40.00	4.500	168.53	10.569	180.000	3.000	3.000	1.00	1.00	7.500
195.00	8' Yagi	4	30.00	12.000	414.75	49.941	96.000	60.000	3.000	1.00	1.00	5.000
195.00	Pipe Mount	2	100.00	4.000	194.97	7.166	0.000	0.000	0.000	1.00	1.00	0.000
187.00	Stand-Off	1	120.00	4.500	238.69	10.447	0.000	0.000	0.000	1.00	1.00	0.000
187.00	8' Yagi	1	30.00	12.000	414.68	49.934	96.000	60.000	3.000	1.00	1.00	0.000
185.00	18' Omni	2	55.00	5.400	208.82	12.652	216.000	3.000	3.000	1.00	1.00	9.000
185.00	Stand-Off	1	120.00	4.500	238.64	10.444	0.000	0.000	0.000	1.00	1.00	0.000
182.00	1 ft Dish	1	20.00	1.000	99.09	1.791	0.000	0.000	0.000	1.00	1.00	0.000
177.00	Sector Frame	2	450.00	14.000	848.63	21.973	0.000	0.000	0.000	1.00	1.00	0.000
177.00	12' Omni	1	40.00	3.600	143.07	8.477	144.000	3.000	3.000	1.00	1.00	5.000
177.00	15' Omni (Inverted)	2	40.00	4.500	168.45	10.565	180.000	3.000	3.000	1.00	1.00	-10.000
177.00	5' Out Broadcast	1	96.00	9.780	540.87	17.059	60.000	24.000	7.000	1.00	1.00	0.000
140.00	VFA10-HD + BCAM-HDLL	3	616.00	16.200	1296.30	39.203	0.000	0.000	0.000	0.75	0.75	0.000
140.00	Stabilizer Kit	3	60.00	2.400	145.20	5.240	0.000	0.000	0.000	0.75	0.75	0.000
140.00	NNVV-65B-R4	3	77.40	12.270	400.08	13.915	72.000	19.600	7.800	0.80	0.74	0.000
140.00	AAHC	3	104.00	4.200	253.72	5.147	25.600	19.700	9.600	0.80	0.75	0.000
140.00	A-ANT-23G-2.5-C	3	47.60	8.430	242.67	10.358	35.000	35.000	0.000	1.00	1.00	0.000
140.00	ALU 1900 Mhz RRU/RRH	3	19.50	1.510	89.69	2.141	20.100	9.000	7.200	0.80	0.67	0.000
140.00	ALU 800 MHz RRU	3	53.00	2.490	136.58	3.783	19.700	13.000	10.800	0.80	0.67	0.000
137.50	18" x 18" x 7" Junction Box	1	22.00	2.700	114.79	4.229	18.000	12.000	8.000	1.00	1.00	0.000
130.00	MX08FRO665-21	3	64.50	12.490	393.19	14.145	72.000	20.000	8.000	0.80	0.74	0.000
130.00	TA08025-B604	3	63.90	1.960	121.11	2.594	15.800	15.000	7.900	0.80	0.67	0.000
130.00	TA08025-B605	3	75.00	1.960	134.10	2.594	15.800	15.000	9.100	0.80	0.67	0.000
130.00	RDIDC-9181-PF-48	1	21.90	2.010	82.07	2.652	16.600	14.600	8.500	1.00	1.00	0.000
130.00	(3) MTC3975083	1	1242.0	28.050	2613.64	67.879	0.000	0.000	0.000	0.75	1.00	0.000
107.00	Sector Frame	3	450.00	14.000	846.42	21.928	0.000	0.000	0.000	0.75	0.75	0.000
107.00	10' Omni	1	25.00	3.000	110.69	7.063	120.000	3.000	3.000	1.00	1.00	8.000
107.00	5' Omni	1	10.00	1.000	40.93	2.546	60.000	2.000	2.000	1.00	1.00	5.500
107.00	T09170P1000690	1	13.00	5.910	122.29	8.820	79.000	7.000	2.500	1.00	1.00	0.000
56.30	Stand-Off	1	50.00	2.000	97.72	4.550	0.000	0.000	0.000	1.00	1.00	0.000
56.30	12' Omni	1	40.00	3.600	139.50	8.308	144.000	3.000	3.000	1.00	1.00	6.000
43.00	3 ft Channel Master Dish	1	100.00	11.760	284.88	14.369	0.000	0.000	0.000	1.00	1.00	0.000
43.00	Pipe Mount	1	50.00	2.000	94.37	3.479	0.000	0.000	0.000	1.00	1.00	0.000
Totals:		63	8,382.60		22,390.88						Number of Appurtenances :	33

Loading Summary

Structure: CT22107-A-SBA	Code: TIA-222-G	4/14/2022
Site Name: Westrock Park	Exposure: C	
Height: 195.00 (ft)	Crest Height: 235.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 2	Struct Class: II



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Linear Appurtenances Properties

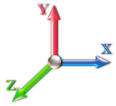
Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	195.00	1 1/4" Coax	2	1.55	0.66	100.00		Individual NR		N	1.00	1.00	
0.00	195.00	Safety Cable	1	0.38	0.27	100.00	1	Individual NR		N	1.00	1.00	
0.00	187.00	1/2" Coax	1	0.65	0.16	100.00		Individual NR		N	1.00	1.00	
0.00	185.00	7/8" Coax	1	1.11	0.52	100.00		Individual NR		N	1.00	1.00	
0.00	182.00	1/4" Coax	1	0.25	0.04	100.00		Individual NR		N	1.00	1.00	
0.00	177.00	1/2" Coax	2	0.65	0.16	100.00		Individual NR		N	1.00	1.00	
0.00	177.00	7/8" Coax	2	1.11	0.52	100.00		Individual NR		N	1.00	1.00	
0.00	140.00	1 1/4" Coax	3	1.55	0.66	100.00		Individual NR		N	1.00	1.00	
0.00	140.00	1.689" Hybrid	1	1.69	1.00	100.00		Individual NR		N	1.00	1.00	
0.00	140.00	1/2" Coax	3	0.65	0.16	100.00		Individual NR		N	1.00	1.00	
0.00	130.00	1.75" Hybrid	1	1.75	1.99	100.00	1	Individual NR		N	1.00	1.00	
0.00	107.00	1/2" Coax	2	0.65	0.16	100.00		Individual NR		N	1.00	1.00	
0.00	107.00	7/8" Coax	1	1.11	0.52	100.00		Individual NR		N	1.00	1.00	
0.00	56.30	1 1/4" Coax	2	1.55	0.66	100.00		Individual NR		N	1.00	1.00	
0.00	43.00	1/4" Coax	1	0.25	0.04	100.00		Individual NR		N	1.00	1.00	

Section Forces

Structure: CT22107-A-SBA
Site Name: Westrock Park
Height: 195.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Topography: 2

Code: TIA-222-G
Exposure: C
Crest Height: 235.00
Site Class: D - Stiff Soil
Struct Class: II

4/14/2022

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Load Case: 1.2D + 1.6W Normal Wind

1.2D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60
Dead Load Factor: 1.20
Ice Dead Load Factor: 0.00

Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	34.49	17.355	29.42	0.00	0.10	2.97	1.00	1.00	0.00	28.96	41.34	0.00	10,850.	0.0	4033.64	1396.05	5,429.68
2	30.0	37.56	16.503	27.83	0.00	0.10	2.96	1.00	1.00	0.00	27.52	41.34	0.00	9,878.3	0.0	4154.65	1520.34	5,674.99
3	50.0	39.59	15.702	26.21	0.00	0.11	2.94	1.00	1.00	0.00	26.13	40.03	0.00	8,982.1	0.0	4133.17	1551.76	5,684.93
4	70.0	40.39	14.934	26.21	0.00	0.12	2.90	1.00	1.00	0.00	25.48	35.76	0.00	8,817.5	0.0	4057.74	1414.35	5,472.09
5	90.0	40.65	20.331	23.64	0.00	0.14	2.80	1.00	1.00	0.00	30.12	35.76	0.00	6,075.4	0.0	4670.44	1423.19	6,093.63
6	110.0	40.62	18.488	22.04	0.00	0.15	2.77	1.00	1.00	0.00	27.71	33.15	0.00	5,244.7	0.0	4245.11	1318.39	5,563.50
7	130.0	40.45	14.323	22.04	0.00	0.16	2.74	1.00	1.00	0.00	23.63	30.28	0.00	4,819.1	0.0	3568.03	1199.40	4,767.42
8	150.0	40.21	12.972	18.83	0.00	0.17	2.71	1.00	1.00	0.00	21.04	15.01	0.00	3,353.3	0.0	3114.36	590.92	3,705.28
9	170.0	39.94	11.777	17.23	0.00	0.20	2.61	1.00	1.00	0.00	19.81	14.13	0.00	2,827.5	0.0	2811.41	552.58	3,363.98
10	185.0	39.74	4.578	8.61	0.00	0.22	2.52	1.00	1.00	0.00	8.72	3.78	0.00	1,321.8	0.0	1189.03	147.06	1,336.09
11	192.5	39.64	0.000	4.50	0.00	0.17	2.68	1.00	1.00	0.00	2.62	1.45	0.00	589.9	0.0	379.16	56.20	435.37
														62,759.9	0.0			47,526.97

Load Case: 1.2D + 1.6W 60° Wind

1.2D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60
Dead Load Factor: 1.20
Ice Dead Load Factor: 0.00

Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

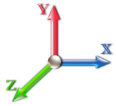
Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	34.49	17.355	29.42	0.00	0.10	2.97	0.80	1.00	0.00	25.49	41.34	0.00	10,850.	0.0	3550.15	1396.05	4,946.19
2	30.0	37.56	16.503	27.83	0.00	0.10	2.96	0.80	1.00	0.00	24.22	41.34	0.00	9,878.3	0.0	3656.41	1520.34	5,176.75
3	50.0	39.59	15.702	26.21	0.00	0.11	2.94	0.80	1.00	0.00	22.99	40.03	0.00	8,982.1	0.0	3636.49	1551.76	5,188.25
4	70.0	40.39	14.934	26.21	0.00	0.12	2.90	0.80	1.00	0.00	22.50	35.76	0.00	8,817.5	0.0	3582.14	1414.35	4,996.49
5	90.0	40.65	20.331	23.64	0.00	0.14	2.80	0.80	1.00	0.00	26.06	35.76	0.00	6,075.4	0.0	4039.98	1423.19	5,463.17
6	110.0	40.62	18.488	22.04	0.00	0.15	2.77	0.80	1.00	0.00	24.01	33.15	0.00	5,244.7	0.0	3678.64	1318.39	4,997.03
7	130.0	40.45	14.323	22.04	0.00	0.16	2.74	0.80	1.00	0.00	20.77	30.28	0.00	4,819.1	0.0	3135.55	1199.40	4,334.95
8	150.0	40.21	12.972	18.83	0.00	0.17	2.71	0.80	1.00	0.00	18.45	15.01	0.00	3,353.3	0.0	2730.37	590.92	3,321.28
9	170.0	39.94	11.777	17.23	0.00	0.20	2.61	0.80	1.00	0.00	17.46	14.13	0.00	2,827.5	0.0	2477.19	552.58	3,029.77
10	185.0	39.74	4.578	8.61	0.00	0.22	2.52	0.80	1.00	0.00	7.81	3.78	0.00	1,321.8	0.0	1064.20	147.06	1,211.26
11	192.5	39.64	0.000	4.50	0.00	0.17	2.68	0.80	1.00	0.00	2.62	1.45	0.00	589.9	0.0	379.16	56.20	435.37
														62,759.9	0.0			43,100.51

Section Forces

Structure: CT22107-A-SBA
Site Name: Westrock Park
Height: 195.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Topography: 2

Code: TIA-222-G
Exposure: C
Crest Height: 235.00
Site Class: D - Stiff Soil
Struct Class: II

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 Page: 8



Load Case: 1.2D + 1.6W 90° Wind

1.2D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60
Dead Load Factor: 1.20
Ice Dead Load Factor: 0.00

Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	34.49	17.355	29.42	0.00	0.10	2.97	0.85	1.00	0.00	26.35	41.34	0.00	10,850.	0.0	3671.02	1396.05	5,067.07
2	30.0	37.56	16.503	27.83	0.00	0.10	2.96	0.85	1.00	0.00	25.05	41.34	0.00	9,878.3	0.0	3780.97	1520.34	5,301.31
3	50.0	39.59	15.702	26.21	0.00	0.11	2.94	0.85	1.00	0.00	23.78	40.03	0.00	8,982.1	0.0	3760.66	1551.76	5,312.42
4	70.0	40.39	14.934	26.21	0.00	0.12	2.90	0.85	1.00	0.00	23.24	35.76	0.00	8,817.5	0.0	3701.04	1414.35	5,115.39
5	90.0	40.65	20.331	23.64	0.00	0.14	2.80	0.85	1.00	0.00	27.07	35.76	0.00	6,075.4	0.0	4197.59	1423.19	5,620.78
6	110.0	40.62	18.488	22.04	0.00	0.15	2.77	0.85	1.00	0.00	24.94	33.15	0.00	5,244.7	0.0	3820.26	1318.39	5,138.65
7	130.0	40.45	14.323	22.04	0.00	0.16	2.74	0.85	1.00	0.00	21.48	30.28	0.00	4,819.1	0.0	3243.67	1199.40	4,443.07
8	150.0	40.21	12.972	18.83	0.00	0.17	2.71	0.85	1.00	0.00	19.10	15.01	0.00	3,353.3	0.0	2826.37	590.92	3,417.28
9	170.0	39.94	11.777	17.23	0.00	0.20	2.61	0.85	1.00	0.00	18.05	14.13	0.00	2,827.5	0.0	2560.75	552.58	3,113.32
10	185.0	39.74	4.578	8.61	0.00	0.22	2.52	0.85	1.00	0.00	8.03	3.78	0.00	1,321.8	0.0	1095.41	147.06	1,242.47
11	192.5	39.64	0.000	4.50	0.00	0.17	2.68	0.85	1.00	0.00	2.62	1.45	0.00	589.9	0.0	379.16	56.20	435.37
														62,759.9	0.0			44,207.13

Load Case: 0.9D + 1.6W Normal Wind

0.9D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00

Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

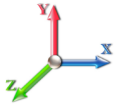
Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	34.49	17.355	29.42	0.00	0.10	2.97	1.00	1.00	0.00	28.96	41.34	0.00	8,137.7	0.0	4033.64	1396.05	5,429.68
2	30.0	37.56	16.503	27.83	0.00	0.10	2.96	1.00	1.00	0.00	27.52	41.34	0.00	7,408.7	0.0	4154.65	1520.34	5,674.99
3	50.0	39.59	15.702	26.21	0.00	0.11	2.94	1.00	1.00	0.00	26.13	40.03	0.00	6,736.6	0.0	4133.17	1551.76	5,684.93
4	70.0	40.39	14.934	26.21	0.00	0.12	2.90	1.00	1.00	0.00	25.48	35.76	0.00	6,613.1	0.0	4057.74	1414.35	5,472.09
5	90.0	40.65	20.331	23.64	0.00	0.14	2.80	1.00	1.00	0.00	30.12	35.76	0.00	4,556.6	0.0	4670.44	1423.19	6,093.63
6	110.0	40.62	18.488	22.04	0.00	0.15	2.77	1.00	1.00	0.00	27.71	33.15	0.00	3,933.5	0.0	4245.11	1318.39	5,563.50
7	130.0	40.45	14.323	22.04	0.00	0.16	2.74	1.00	1.00	0.00	23.63	30.28	0.00	3,614.4	0.0	3568.03	1199.40	4,767.42
8	150.0	40.21	12.972	18.83	0.00	0.17	2.71	1.00	1.00	0.00	21.04	15.01	0.00	2,515.0	0.0	3114.36	590.92	3,705.28
9	170.0	39.94	11.777	17.23	0.00	0.20	2.61	1.00	1.00	0.00	19.81	14.13	0.00	2,120.6	0.0	2811.41	552.58	3,363.98
10	185.0	39.74	4.578	8.61	0.00	0.22	2.52	1.00	1.00	0.00	8.72	3.78	0.00	991.3	0.0	1189.03	147.06	1,336.09
11	192.5	39.64	0.000	4.50	0.00	0.17	2.68	1.00	1.00	0.00	2.62	1.45	0.00	442.4	0.0	379.16	56.20	435.37
														47,070.0	0.0			47,526.97

Section Forces

Structure: CT22107-A-SBA
Site Name: Westrock Park
Height: 195.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Topography: 2

Code: TIA-222-G
Exposure: C
Crest Height: 235.00
Site Class: D - Stiff Soil
Struct Class: II

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Load Case: 0.9D + 1.6W 60° Wind

0.9D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00

Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Area		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	34.49	17.355	29.42	0.00	0.10	2.97	0.80	1.00	0.00	25.49	41.34	0.00	8,137.7	0.0	3550.15	1396.05	4,946.19
2	30.0	37.56	16.503	27.83	0.00	0.10	2.96	0.80	1.00	0.00	24.22	41.34	0.00	7,408.7	0.0	3656.41	1520.34	5,176.75
3	50.0	39.59	15.702	26.21	0.00	0.11	2.94	0.80	1.00	0.00	22.99	40.03	0.00	6,736.6	0.0	3636.49	1551.76	5,188.25
4	70.0	40.39	14.934	26.21	0.00	0.12	2.90	0.80	1.00	0.00	22.50	35.76	0.00	6,613.1	0.0	3582.14	1414.35	4,996.49
5	90.0	40.65	20.331	23.64	0.00	0.14	2.80	0.80	1.00	0.00	26.06	35.76	0.00	4,556.6	0.0	4039.98	1423.19	5,463.17
6	110.0	40.62	18.488	22.04	0.00	0.15	2.77	0.80	1.00	0.00	24.01	33.15	0.00	3,933.5	0.0	3678.64	1318.39	4,997.03
7	130.0	40.45	14.323	22.04	0.00	0.16	2.74	0.80	1.00	0.00	20.77	30.28	0.00	3,614.4	0.0	3135.55	1199.40	4,334.95
8	150.0	40.21	12.972	18.83	0.00	0.17	2.71	0.80	1.00	0.00	18.45	15.01	0.00	2,515.0	0.0	2730.37	590.92	3,321.28
9	170.0	39.94	11.777	17.23	0.00	0.20	2.61	0.80	1.00	0.00	17.46	14.13	0.00	2,120.6	0.0	2477.19	552.58	3,029.77
10	185.0	39.74	4.578	8.61	0.00	0.22	2.52	0.80	1.00	0.00	7.81	3.78	0.00	991.3	0.0	1064.20	147.06	1,211.26
11	192.5	39.64	0.000	4.50	0.00	0.17	2.68	0.80	1.00	0.00	2.62	1.45	0.00	442.4	0.0	379.16	56.20	435.37
														47,070.0	0.0			43,100.51

Load Case: 0.9D + 1.6W 90° Wind

0.9D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00

Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

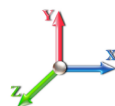
Sect Seq	Wind Height (ft)	qz (psf)	Total Area		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	34.49	17.355	29.42	0.00	0.10	2.97	0.85	1.00	0.00	26.35	41.34	0.00	8,137.7	0.0	3671.02	1396.05	5,067.07
2	30.0	37.56	16.503	27.83	0.00	0.10	2.96	0.85	1.00	0.00	25.05	41.34	0.00	7,408.7	0.0	3780.97	1520.34	5,301.31
3	50.0	39.59	15.702	26.21	0.00	0.11	2.94	0.85	1.00	0.00	23.78	40.03	0.00	6,736.6	0.0	3760.66	1551.76	5,312.42
4	70.0	40.39	14.934	26.21	0.00	0.12	2.90	0.85	1.00	0.00	23.24	35.76	0.00	6,613.1	0.0	3701.04	1414.35	5,115.39
5	90.0	40.65	20.331	23.64	0.00	0.14	2.80	0.85	1.00	0.00	27.07	35.76	0.00	4,556.6	0.0	4197.59	1423.19	5,620.78
6	110.0	40.62	18.488	22.04	0.00	0.15	2.77	0.85	1.00	0.00	24.94	33.15	0.00	3,933.5	0.0	3820.26	1318.39	5,138.65
7	130.0	40.45	14.323	22.04	0.00	0.16	2.74	0.85	1.00	0.00	21.48	30.28	0.00	3,614.4	0.0	3243.67	1199.40	4,443.07
8	150.0	40.21	12.972	18.83	0.00	0.17	2.71	0.85	1.00	0.00	19.10	15.01	0.00	2,515.0	0.0	2826.37	590.92	3,417.28
9	170.0	39.94	11.777	17.23	0.00	0.20	2.61	0.85	1.00	0.00	18.05	14.13	0.00	2,120.6	0.0	2560.75	552.58	3,113.32
10	185.0	39.74	4.578	8.61	0.00	0.22	2.52	0.85	1.00	0.00	8.03	3.78	0.00	991.3	0.0	1095.41	147.06	1,242.47
11	192.5	39.64	0.000	4.50	0.00	0.17	2.68	0.85	1.00	0.00	2.62	1.45	0.00	442.4	0.0	379.16	56.20	435.37
														47,070.0	0.0			44,207.13

Section Forces

Structure: CT22107-A-SBA
Site Name: Westrock Park
Height: 195.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Topography: 2

Code: TIA-222-G
Exposure: C
Crest Height: 235.00
Site Class: D - Stiff Soil
Struct Class: II

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Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind

1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face

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

Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)						
1	10.0	9.16	17.355	57.89	28.48	0.16	2.75	1.00	1.00	1.69	50.25	41.34	135.3	18,196.	7346.5	1075.27	1392.32	2,467.60	
2	30.0	9.98	16.503	58.05	30.22	0.17	2.70	1.00	1.00	1.85	49.58	41.34	147.9	17,938.	8060.5	1136.03	1599.95	2,735.98	
3	50.0	10.52	15.702	56.51	30.30	0.18	2.66	1.00	1.00	1.91	47.99	40.03	144.9	17,016.	8034.5	1141.99	1625.74	2,767.73	
4	70.0	10.73	14.934	56.13	29.92	0.20	2.60	1.00	1.00	1.94	47.16	35.76	135.7	16,574.	7757.0	1120.26	1506.51	2,626.77	
5	90.0	10.80	20.331	60.22	36.58	0.25	2.43	1.00	1.00	1.96	55.61	35.76	136.9	13,312.	7237.0	1239.63	1421.12	2,660.75	
6	110.0	10.79	18.488	56.68	34.64	0.27	2.38	1.00	1.00	1.97	51.95	33.15	124.8	11,936.	6692.0	1132.60	1268.44	2,401.04	
7	130.0	10.75	14.323	54.76	32.72	0.29	2.32	1.00	1.00	1.97	46.97	30.28	115.0	10,781.	5962.2	995.73	1129.84	2,125.57	
8	150.0	10.68	12.972	49.75	30.92	0.32	2.24	1.00	1.00	1.98	43.09	15.01	65.85	7,825.6	4472.3	878.15	599.12	1,477.27	
9	170.0	10.61	11.777	46.54	29.31	0.38	2.11	1.00	1.00	1.98	40.91	14.13	61.96	6,970.0	4142.4	780.21	514.14	1,294.35	
10	185.0	10.56	4.578	22.75	14.13	0.44	2.00	1.00	1.00	1.98	19.43	3.78	14.51	2,895.6	1573.8	348.07	110.97	459.04	
11	192.5	10.53	0.000	18.14	13.64	0.66	1.78	1.00	1.00	1.98	14.32	1.45	4.95	1,534.8	944.9	227.99	23.18	251.16	
														124,983.2	62223.2				21,267.27

Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face

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

Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

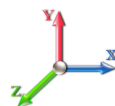
Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)						
1	10.0	9.16	17.355	57.89	28.48	0.16	2.75	0.80	1.00	1.69	46.78	41.34	135.3	18,196.	7346.5	1001.01	1392.32	2,393.33	
2	30.0	9.98	16.503	58.05	30.22	0.17	2.70	0.80	1.00	1.85	46.28	41.34	147.9	17,938.	8060.5	1060.40	1599.95	2,660.35	
3	50.0	10.52	15.702	56.51	30.30	0.18	2.66	0.80	1.00	1.91	44.85	40.03	144.9	17,016.	8034.5	1067.26	1625.74	2,693.00	
4	70.0	10.73	14.934	56.13	29.92	0.20	2.60	0.80	1.00	1.94	44.17	35.76	135.7	16,574.	7757.0	1049.30	1506.51	2,555.82	
5	90.0	10.80	20.331	60.22	36.58	0.25	2.43	0.80	1.00	1.96	51.54	35.76	136.9	13,312.	7237.0	1148.98	1421.12	2,570.11	
6	110.0	10.79	18.488	56.68	34.64	0.27	2.38	0.80	1.00	1.97	48.25	33.15	124.8	11,936.	6692.0	1051.99	1268.44	2,320.42	
7	130.0	10.75	14.323	54.76	32.72	0.29	2.32	0.80	1.00	1.97	44.10	30.28	115.0	10,781.	5962.2	935.00	1129.84	2,064.84	
8	150.0	10.68	12.972	49.75	30.92	0.32	2.24	0.80	1.00	1.98	40.50	15.01	65.85	7,825.6	4472.3	825.28	599.12	1,424.40	
9	170.0	10.61	11.777	46.54	29.31	0.38	2.11	0.80	1.00	1.98	38.56	14.13	61.96	6,970.0	4142.4	735.30	514.14	1,249.43	
10	185.0	10.56	4.578	22.75	14.13	0.44	2.00	0.80	1.00	1.98	18.51	3.78	14.51	2,895.6	1573.8	331.66	110.97	442.64	
11	192.5	10.53	0.000	18.14	13.64	0.66	1.78	0.80	1.00	1.98	14.32	1.45	4.95	1,534.8	944.9	227.99	23.18	251.16	
														124,983.2	62223.2				20,625.51

Section Forces

Structure: CT22107-A-SBA
Site Name: Westrock Park
Height: 195.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Topography: 2

Code: TIA-222-G
Exposure: C
Crest Height: 235.00
Site Class: D - Stiff Soil
Struct Class: II

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 Page: 11



Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face

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

Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	9.16	17.355	57.89	28.48	0.16	2.75	0.85	1.00	1.69	47.65	41.34	135.3	18,196.	7346.5	1019.57	1392.32	2,411.90
2	30.0	9.98	16.503	58.05	30.22	0.17	2.70	0.85	1.00	1.85	47.10	41.34	147.9	17,938.	8060.5	1079.31	1599.95	2,679.26
3	50.0	10.52	15.702	56.51	30.30	0.18	2.66	0.85	1.00	1.91	45.64	40.03	144.9	17,016.	8034.5	1085.95	1625.74	2,711.69
4	70.0	10.73	14.934	56.13	29.92	0.20	2.60	0.85	1.00	1.94	44.92	35.76	135.7	16,574.	7757.0	1067.04	1506.51	2,573.56
5	90.0	10.80	20.331	60.22	36.58	0.25	2.43	0.85	1.00	1.96	52.56	35.76	136.9	13,312.	7237.0	1171.64	1421.12	2,592.77
6	110.0	10.79	18.488	56.68	34.64	0.27	2.38	0.85	1.00	1.97	49.17	33.15	124.8	11,936.	6692.0	1072.14	1268.44	2,340.58
7	130.0	10.75	14.323	54.76	32.72	0.29	2.32	0.85	1.00	1.97	44.82	30.28	115.0	10,781.	5962.2	950.18	1129.84	2,080.02
8	150.0	10.68	12.972	49.75	30.92	0.32	2.24	0.85	1.00	1.98	41.15	15.01	65.85	7,825.6	4472.3	838.50	599.12	1,437.62
9	170.0	10.61	11.777	46.54	29.31	0.38	2.11	0.85	1.00	1.98	39.15	14.13	61.96	6,970.0	4142.4	746.53	514.14	1,260.66
10	185.0	10.56	4.578	22.75	14.13	0.44	2.00	0.85	1.00	1.98	18.74	3.78	14.51	2,895.6	1573.8	335.76	110.97	446.74
11	192.5	10.53	0.000	18.14	13.64	0.66	1.78	0.85	1.00	1.98	14.32	1.45	4.95	1,534.8	944.9	227.99	23.18	251.16
														124,983.2	62223.2			20,785.95

Load Case: 1.0D + 1.0W Normal Wind

1.0D + 1.0W 60 mph Wind at Normal To Face

Wind Load Factor: 1.00
Dead Load Factor: 1.00
Ice Dead Load Factor: 0.00

Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

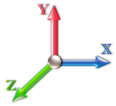
Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	13.20	17.355	29.42	0.00	0.10	2.97	1.00	1.00	0.00	30.02	41.34	0.00	9,041.9	0.0	1000.10	333.84	1,333.94
2	30.0	14.37	16.503	27.83	0.00	0.10	2.96	1.00	1.00	0.00	28.63	41.34	0.00	8,231.9	0.0	1033.49	363.56	1,397.05
3	50.0	15.15	15.702	26.21	0.00	0.11	2.94	1.00	1.00	0.00	27.42	40.03	0.00	7,485.1	0.0	1036.99	371.08	1,408.07
4	70.0	15.46	14.934	26.21	0.00	0.12	2.90	1.00	1.00	0.00	26.66	35.76	0.00	7,347.9	0.0	1015.29	338.22	1,353.50
5	90.0	15.55	20.331	23.64	0.00	0.14	2.80	1.00	1.00	0.00	31.71	35.76	0.00	5,062.9	0.0	1175.84	340.33	1,516.17
6	110.0	15.54	18.488	22.04	0.00	0.15	2.77	1.00	1.00	0.00	29.51	33.15	0.00	4,370.6	0.0	1081.01	315.27	1,396.28
7	130.0	15.48	14.323	22.04	0.00	0.16	2.74	1.00	1.00	0.00	25.40	30.28	0.00	4,015.9	0.0	917.10	286.82	1,203.92
8	150.0	15.38	12.972	18.83	0.00	0.17	2.71	1.00	1.00	0.00	23.07	15.01	0.00	2,794.4	0.0	816.61	141.31	957.92
9	170.0	15.28	11.777	17.23	0.00	0.20	2.61	1.00	1.00	0.00	21.38	14.13	0.00	2,356.3	0.0	725.33	132.14	857.47
10	185.0	15.21	4.578	8.61	0.00	0.22	2.52	1.00	1.00	0.00	9.44	3.78	0.00	1,101.5	0.0	307.66	35.17	342.82
11	192.5	15.17	0.000	4.50	0.00	0.17	2.68	1.00	1.00	0.00	2.62	1.45	0.00	491.6	0.0	90.67	13.44	104.11
														52,300.0	0.0			11,871.26

Section Forces

Structure: CT22107-A-SBA
Site Name: Westrock Park
Height: 195.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Topography: 2

Code: TIA-222-G
Exposure: C
Crest Height: 235.00
Site Class: D - Stiff Soil
Struct Class: II

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Load Case: 1.0D + 1.0W 60° Wind

1.0D + 1.0W 60 mph Wind at 60° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.00
Ice Dead Load Factor: 0.00

Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	13.20	17.355	29.42	0.00	0.10	2.97	0.80	1.00	0.00	26.55	41.34	0.00	9,041.9	0.0	884.48	333.84	1,218.32
2	30.0	14.37	16.503	27.83	0.00	0.10	2.96	0.80	1.00	0.00	25.33	41.34	0.00	8,231.9	0.0	914.34	363.56	1,277.90
3	50.0	15.15	15.702	26.21	0.00	0.11	2.94	0.80	1.00	0.00	24.28	40.03	0.00	7,485.1	0.0	918.22	371.08	1,289.30
4	70.0	15.46	14.934	26.21	0.00	0.12	2.90	0.80	1.00	0.00	23.68	35.76	0.00	7,347.9	0.0	901.56	338.22	1,239.77
5	90.0	15.55	20.331	23.64	0.00	0.14	2.80	0.80	1.00	0.00	27.65	35.76	0.00	5,062.9	0.0	1025.07	340.33	1,365.41
6	110.0	15.54	18.488	22.04	0.00	0.15	2.77	0.80	1.00	0.00	25.81	33.15	0.00	4,370.6	0.0	945.55	315.27	1,260.82
7	130.0	15.48	14.323	22.04	0.00	0.16	2.74	0.80	1.00	0.00	22.54	30.28	0.00	4,015.9	0.0	813.69	286.82	1,100.50
8	150.0	15.38	12.972	18.83	0.00	0.17	2.71	0.80	1.00	0.00	20.48	15.01	0.00	2,794.4	0.0	724.79	141.31	866.09
9	170.0	15.28	11.777	17.23	0.00	0.20	2.61	0.80	1.00	0.00	19.02	14.13	0.00	2,356.3	0.0	645.41	132.14	777.55
10	185.0	15.21	4.578	8.61	0.00	0.22	2.52	0.80	1.00	0.00	8.52	3.78	0.00	1,101.5	0.0	277.81	35.17	312.97
11	192.5	15.17	0.000	4.50	0.00	0.17	2.68	0.80	1.00	0.00	2.62	1.45	0.00	491.6	0.0	90.67	13.44	104.11
														52,300.0	0.0			10,812.75

Load Case: 1.0D + 1.0W 90° Wind

1.0D + 1.0W 60 mph Wind at 90° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.00
Ice Dead Load Factor: 0.00

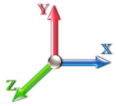
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	13.20	17.355	29.42	0.00	0.10	2.97	0.85	1.00	0.00	27.42	41.34	0.00	9,041.9	0.0	913.39	333.84	1,247.23
2	30.0	14.37	16.503	27.83	0.00	0.10	2.96	0.85	1.00	0.00	26.15	41.34	0.00	8,231.9	0.0	944.13	363.56	1,307.69
3	50.0	15.15	15.702	26.21	0.00	0.11	2.94	0.85	1.00	0.00	25.06	40.03	0.00	7,485.1	0.0	947.91	371.08	1,318.99
4	70.0	15.46	14.934	26.21	0.00	0.12	2.90	0.85	1.00	0.00	24.42	35.76	0.00	7,347.9	0.0	929.99	338.22	1,268.21
5	90.0	15.55	20.331	23.64	0.00	0.14	2.80	0.85	1.00	0.00	28.66	35.76	0.00	5,062.9	0.0	1062.76	340.33	1,403.10
6	110.0	15.54	18.488	22.04	0.00	0.15	2.77	0.85	1.00	0.00	26.73	33.15	0.00	4,370.6	0.0	979.41	315.27	1,294.68
7	130.0	15.48	14.323	22.04	0.00	0.16	2.74	0.85	1.00	0.00	23.25	30.28	0.00	4,015.9	0.0	839.54	286.82	1,126.36
8	150.0	15.38	12.972	18.83	0.00	0.17	2.71	0.85	1.00	0.00	21.13	15.01	0.00	2,794.4	0.0	747.74	141.31	889.05
9	170.0	15.28	11.777	17.23	0.00	0.20	2.61	0.85	1.00	0.00	19.61	14.13	0.00	2,356.3	0.0	665.39	132.14	797.53
10	185.0	15.21	4.578	8.61	0.00	0.22	2.52	0.85	1.00	0.00	8.75	3.78	0.00	1,101.5	0.0	285.27	35.17	320.43
11	192.5	15.17	0.000	4.50	0.00	0.17	2.68	0.85	1.00	0.00	2.62	1.45	0.00	491.6	0.0	90.67	13.44	104.11
														52,300.0	0.0			11,077.37

Force/Stress Compression Summary

Structure: CT22107-A-SBA
Site Name: Westrock Park
Height: 195.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Code: TIA-222-G
Exposure: C
Crest Height: 235.00
Site Class: D - Stiff Soil
Struct Class: II

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LEG MEMBERS

Sect	Top Elev	Member	Force (kips)		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls	
							X	Y	Z					
1	20	18B - 18"BD 3.00"	-353.02	1.2D + 1.6W	Normal Wind	20.03	100	100	100	32.55	50.00	882.89	40.0	Member X
2	40	18B - 18"BD 2.75"	-317.24	1.2D + 1.6W	Normal Wind	20.03	100	100	100	32.57	50.00	742.04	42.8	Member X
3	60	18B - 18"BD 2.5"	-273.75	1.2D + 1.6W	Normal Wind	20.03	100	100	100	32.60	50.00	612.89	44.7	Member X
4	80	18B - 18"BD 2.5"	-228.95	1.2D + 1.6W	Normal Wind	20.03	100	100	100	32.60	50.00	612.89	37.4	Member X
5	100	12B - 12"BD 2.25"	-198.99	1.2D + 1.6W	Normal Wind	10.02	100	100	100	24.38	50.00	514.03	38.7	Member X
6	120	12B - 12"BD 2"	-155.16	1.2D + 1.6W	Normal Wind	10.02	100	100	100	24.41	50.00	405.83	38.2	Member X
7	140	12B - 12"BD 2"	-111.84	1.2D + 1.6W	Normal Wind	10.02	100	100	100	24.41	50.00	405.83	27.6	Member X
8	160	12B - 12"BD 1.75"	-72.41	1.2D + 1.6W	Normal Wind	10.02	100	100	100	25.99	50.00	308.82	23.4	Member X
9	180	12B - 12"BD 1.5"	-44.24	1.2D + 1.6W	Normal Wind	10.02	100	100	100	30.32	50.00	222.99	19.8	Member X
10	190	12B - 12"BD 1.5"	-12.71	1.2D + 1.6W	Normal Wind	10.02	100	100	100	30.32	50.00	222.99	5.7	Member X
11	195	SOL - 2 1/2" SOLID	-8.06	1.2D + 1.6W	Normal Wind	2.13	100	100	100	40.80	50.00	195.57	4.1	Member X

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
							X	Y	Z								
1	20									0.00	0	0					
2	40									0.00	0	0					
3	60									0.00	0	0					
4	80									0.00	0	0					
5	100									0.00	0	0					
6	120									0.00	0	0					
7	140									0.00	0	0					
8	160									0.00	0	0					
9	180									0.00	0	0					
10	190									0.00	0	0					
11	195	SOL - 7/8" SOLID	-1.71	1.2D + 1.6W	60° Wind	4.88	100	100	100	187.52	50.00	3.86	0	0		44	Member X

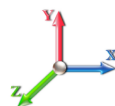
DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls	
							X	Y	Z									
1	20	DAE - 3.5X3.5X0.3125	-15.5	1.2D + 1.6W	Normal Wind	30.48	47	47	24	162.57	36.00	35.73	4	2	127.24	278.	43	Member Y
2	40	DAE - 3.5X3.5X0.3125	-15.2	0.9D + 1.6W	90° Wind	29.01	47	47	24	155.27	36.00	39.17	4	2	127.24	278.	39	Member Y
3	60	DAE - 3.5X3.5X0.3125	-15.2	1.2D + 1.6W	90° Wind	27.59	47	47	24	148.29	36.00	42.94	4	2	127.24	278.	35	Member Y
4	80	DAE - 3.5X3.5X0.3125	-15.0	1.2D + 1.6W	90° Wind	26.26	47	47	24	141.70	36.00	47.03	4	2	127.24	278.	32	Member Y
5	100	SAE - 3.5X3.5X0.3125	-9.84	0.9D + 1.6W	90° Wind	18.45	47	47	47	150.79	36.00	20.76	1	1	43.49	33.1	47	Member Z
6	120	SAE - 3.5X3.5X0.3125	-9.92	1.2D + 1.6W	90° Wind	16.80	47	47	47	137.34	36.00	25.03	1	1	43.49	33.1	40	Member Z
7	140	SAE - 3X3X0.3125	-9.00	1.2D + 1.6W	90° Wind	15.24	48	48	48	149.06	36.00	18.10	1	1	43.49	33.1	50	Member Z
8	160	SAE - 3X3X0.1875	-5.53	1.2D + 1.6W	90° Wind	13.80	48	48	48	133.33	36.00	13.85	1	1	31.81	17.9	40	Member Z
9	180	SAE - 3X3X0.1875	-6.37	1.2D + 1.6W	90° Wind	11.93	48	48	48	116.48	36.00	17.29	1	1	31.81	17.9	37	Member Z
10	190	SAE - 2.5X2.5X0.1875	-4.24	1.2D + 1.6W	Normal Wind	11.42	48	48	48	132.84	36.00	11.54	1	1	31.81	17.9	37	Member Z
11	195	SOL - 1" SOLID	-4.39	1.2D + 1.6W	Normal Wind	5.35	50	50	50	115.58	50.00	13.28	0	0			33	Member X

Force/Stress Tension Summary

Structure: CT22107-A-SBA
Site Name: Westrock Park
Height: 195.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Code: TIA-222-G
Exposure: C
Crest Height: 235.00
Site Class: D - Stiff Soil
Struct Class: II
Topography: 2

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LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	18B - 18"BD 3.00"	294.25	0.9D + 1.6W 60° Wind	50	954.00	30.8	Member
2	40	18B - 18"BD 2.75"	263.56	0.9D + 1.6W 60° Wind	50	801.90	32.9	Member
3	60	18B - 18"BD 2.5"	228.59	0.9D + 1.6W 60° Wind	50	662.40	34.5	Member
4	80	18B - 18"BD 2.5"	192.20	0.9D + 1.6W 60° Wind	50	662.40	29.0	Member
5	100	12B - 12"BD 2.25"	168.42	0.9D + 1.6W 60° Wind	50	536.85	31.4	Member
6	120	12B - 12"BD 2"	130.43	0.9D + 1.6W 60° Wind	50	423.90	30.8	Member
7	140	12B - 12"BD 2"	93.07	0.9D + 1.6W 60° Wind	50	423.90	22.0	Member
8	160	12B - 12"BD 1.75"	60.93	0.9D + 1.6W 60° Wind	50	324.45	18.8	Member
9	180	12B - 12"BD 1.5"	34.98	0.9D + 1.6W 60° Wind	50	238.50	14.7	Member
10	190	12B - 12"BD 1.5"	7.17	0.9D + 1.6W 60° Wind	50	238.50	3.0	Member
11	195	SOL - 2 1/2" SOLID	3.87	0.9D + 1.6W Normal Wind	50	220.89	1.8	Member

HORIZONTAL MEMBERS

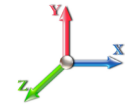
Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	-			36	0.00	0	0					
2	40	-			36	0.00	0	0					
3	60	-			36	0.00	0	0					
4	80	-			36	0.00	0	0					
5	100	-			36	0.00	0	0					
6	120	-			36	0.00	0	0					
7	140	-			36	0.00	0	0					
8	160	-			36	0.00	0	0					
9	180	-			36	0.00	0	0					
10	190	-			36	0.00	0	0					
11	195	SOL - 7/8" SOLID	2.93	1.2D + 1.6W Normal Wi	50	27.06	0	0				10.8	Member

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	DAE - 3.5X3.5X0.3125	14.19	0.9D + 1.6W 90° Wind	36	135.43	4	2	127.24	278.40	134.33	11.2	Bolt Shear
2	40	DAE - 3.5X3.5X0.3125	15.51	1.2D + 1.6W 90° Wind	36	135.43	4	2	127.24	278.40	134.33	12.2	Bolt Shear
3	60	DAE - 3.5X3.5X0.3125	15.12	0.9D + 1.6W 90° Wind	36	135.43	4	2	127.24	278.40	134.33	11.9	Bolt Shear
4	80	DAE - 3.5X3.5X0.3125	14.24	0.9D + 1.6W 90° Wind	36	135.43	4	2	127.24	278.40	136.86	11.2	Bolt Shear
5	100	SAE - 3.5X3.5X0.3125	10.27	0.9D + 1.6W 90° Wind	36	67.72	1	1	43.49	33.17	22.44	45.8	Blck Shear
6	120	SAE - 3.5X3.5X0.3125	9.79	1.2D + 1.6W 90° Wind	36	67.72	1	1	43.49	33.17	22.44	43.6	Blck Shear
7	140	SAE - 3X3X0.3125	8.90	1.2D + 1.6W 90° Wind	36	44.05	1	1	43.49	33.17	19.04	46.7	Blck Shear
8	160	SAE - 3X3X0.1875	5.48	1.2D + 1.6W 90° Wind	36	28.68	1	1	31.81	17.94	11.68	46.9	Blck Shear
9	180	SAE - 3X3X0.1875	5.73	1.2D + 1.6W 90° Wind	36	28.68	1	1	31.81	17.94	11.68	49.1	Blck Shear
10	190	SAE - 2.5X2.5X0.1875	4.04	0.9D + 1.6W 60° Wind	36	22.55	1	1	31.81	17.94	10.66	37.9	Blck Shear
11	195	SOL - 1" SOLID	5.13	1.2D + 1.6W Normal Wi	50	35.34	0	0				14.5	Member

Seismic Section Forces

Structure: CT22107-A-SBA	Code: TIA-222-G	4/14/2022
Site Name: Westrock Park	Exposure: C	
Height: 195.00 (ft)	Crest Height: 235.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 2	Struct Class: II



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Load Case: 1.2D + 1.0E

Dead Load Factor	1.20	Sds 0.201	Ss 0.1890	Fa 1.6000	Ke 0.0000
Seismic Load Factor	1.00	Sd1 0.100	S1 0.0630	Fv 2.4000	Kg 0.0000
Seismic Importance Factor	1.00	SA 0.168	R 3.0000	Vs 4.0945	f1 1.6726

Sect #	Elev (ft)	Wz (lb)	Lateral			Fsz (lb)
			a	b	c	
1	10.00	9041.8	0.00	0.04	0.03	34.26
2	30.00	8231.9	0.04	0.07	0.04	65.56
3	50.00	7725.1	0.12	0.07	0.03	95.00
4	70.00	7347.9	0.24	0.06	0.02	132.27
5	90.00	5062.8	0.40	0.02	0.01	121.09
6	110.00	5768.5	0.60	-0.05	0.01	168.52
7	130.00	8844.5	0.84	-0.12	0.07	319.11
8	150.00	2794.4	1.12	-0.06	0.20	143.40
9	170.00	3472.2	1.44	0.36	0.47	293.80
10	185.00	1501.4	1.70	1.13	0.82	189.93
11	192.50	891.57	1.84	1.74	1.05	137.00

Load Case: 0.9D + 1.0E

Dead Load Factor	0.90	Sds 0.201	Ss 0.1890	Fa 1.6000	Ke 0.0000
Seismic Load Factor	1.00	Sd1 0.100	S1 0.0630	Fv 2.4000	Kg 0.0000
Seismic Importance Factor	1.00	SA 0.168	R 3.0000	Vs 4.0945	f1 1.6726

Sect #	Elev (ft)	Wz (lb)	Lateral			Fsz (lb)
			a	b	c	
1	10.00	9041.8	0.00	0.04	0.03	34.26
2	30.00	8231.9	0.04	0.07	0.04	65.56
3	50.00	7725.1	0.12	0.07	0.03	95.00
4	70.00	7347.9	0.24	0.06	0.02	132.27
5	90.00	5062.8	0.40	0.02	0.01	121.09
6	110.00	5768.5	0.60	-0.05	0.01	168.52
7	130.00	8844.5	0.84	-0.12	0.07	319.11
8	150.00	2794.4	1.12	-0.06	0.20	143.40
9	170.00	3472.2	1.44	0.36	0.47	293.80
10	185.00	1501.4	1.70	1.13	0.82	189.93
11	192.50	891.57	1.84	1.74	1.05	137.00

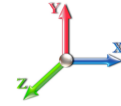
Support Forces Summary

Structure: CT22107-A-SBA
Site Name: Westrock Park
Height: 195.00 (ft)
Base Elev: 0.000 (ft)
Gh: 0.85

Topography: 2

Code: TIA-222-G
Exposure: C
Crest Height: 235.00
Site Class: D - Stiff Soil
Struct Class: II

4/14/2022



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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	0.16	374.34	-42.43	
	1a	14.61	-150.69	-12.20	
	1b	-14.77	-150.83	-11.84	
1.2D + 1.6W 60° Wind	1	-2.63	189.32	-20.82	
	1a	-19.49	187.90	7.87	
	1b	-31.61	-304.41	-18.07	
1.2D + 1.6W 90° Wind	1	-3.23	24.27	-1.78	
	1a	-31.50	312.81	16.20	
	1b	-28.42	-264.26	-14.43	
0.9D + 1.6W Normal Wind	1	0.16	368.04	-41.98	
	1a	14.99	-156.66	-12.42	
	1b	-15.16	-156.77	-12.06	
0.9D + 1.6W 60° Wind	1	-2.63	183.15	-20.37	
	1a	-19.10	181.70	7.64	
	1b	-31.99	-310.24	-18.29	
0.9D + 1.6W 90° Wind	1	-3.24	18.21	-1.33	
	1a	-31.11	306.53	15.98	
	1b	-28.81	-270.12	-14.65	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.05	193.25	-16.85	
	1a	6.97	-24.45	-5.64	
	1b	-7.02	-24.39	-5.53	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-1.27	119.37	-8.12	
	1a	-7.69	118.43	2.88	
	1b	-14.76	-93.39	-8.46	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-1.51	48.16	0.25	
	1a	-12.80	170.99	6.48	
	1b	-13.24	-74.74	-6.74	
1.2D + 1.0E	1	0.00	35.09	5.37	
	1a	6.04	18.86	-3.51	
	1b	-6.04	18.86	-3.51	
0.9D + 1.0E	1	0.00	29.02	5.82	
	1a	6.44	12.80	-3.74	
	1b	-6.44	12.80	-3.74	
1.0D + 1.0W Normal Wind	1	0.04	106.45	-11.54	
	1a	2.68	-22.83	-2.47	
	1b	-2.72	-22.93	-2.38	
1.0D + 1.0W 60° Wind	1	-0.65	60.97	-6.21	
	1a	-5.74	60.69	2.48	
	1b	-6.89	-60.97	-3.93	
1.0D + 1.0W 90° Wind	1	-0.80	20.21	-1.50	
	1a	-8.71	91.45	4.53	
	1b	-6.09	-50.98	-3.03	

Max Reactions

Leg		Overturning	
Max Uplift:	-310.24 (kips)	Moment:	7275.98 (ft-kips)
Max Down:	374.34 (kips)	Total Down:	72.82 (kips)
Max Shear:	42.43 (kips)	Total Shear:	66.46 (kips)

Analysis Summary

Structure: CT22107-A-SBA	Code: TIA-222-G	4/14/2022
Site Name: Westrock Park	Exposure: C	
Height: 195.00 (ft)	Crest Height: 235.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 0.85	Topography: 2	Struct Class: II
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Max Reactions

	Leg	Overturning
Max Uplift:	-310.24 (kips)	Moment: 7275.98 (ft-kips)
Max Down:	374.34 (kips)	Total Down: 72.82 (kips)
Max Shear:	42.43 (kips)	Total Shear: 66.46 (kips)

Anchor Bolts

Bolt Size (in.): 1.25	Number Bolts: 12
Yield Strength (Ksi): 105.00	Tensile Strength (Ksi): 150.00
Detail Type: D	Length: 2.00

Interaction Ratio: 0.26

Max Usages

Max Leg: 44.7% (1.2D + 1.6W Normal Wind - Sect 3)
 Max Diag: 49.8% (1.2D + 1.6W 90° Wind - Sect 7)
 Max Horiz: 44.4% (1.2D + 1.6W 60° Wind - Sect 11)

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.0E - Normal To Face	40.00	0.0036	0.0002	0.0096
	60.00	0.0013	0.0000	0.0006
	110.00	0.0119	0.0006	0.0120
	130.00	0.0162	0.0007	0.0146
	140.00	0.0187	0.0008	0.0157
	180.00	0.0311	0.0011	0.0209
	190.00	0.0346	0.0011	0.0212
	195.00	0.0364	-0.0011	0.0210
0.9D + 1.6W 97 mph Wind at 60° From Face	40.00	0.0380	0.0068	0.1054
	60.00	0.0830	-0.0091	0.1610
	110.00	0.2957	0.0260	0.3178
	130.00	0.4184	0.0365	0.3827
	140.00	0.4870	0.0417	0.4052
	180.00	0.8124	0.0841	0.5206
	190.00	0.9031	0.0406	0.5151
	195.00	0.9454	0.1638	0.8354
0.9D + 1.6W 97 mph Wind at 90° From Face	40.00	0.0410	0.0043	0.1040
	60.00	0.0820	-0.0119	0.1622
	110.00	0.2987	-0.0230	0.3203
	130.00	0.4226	0.0274	0.3863
	140.00	0.4919	0.0303	0.4080
	180.00	0.8188	0.0521	0.5217
	190.00	0.9082	0.0196	0.5125
	195.00	0.9487	-0.1107	0.4249

0.9D + 1.6W 97 mph Wind at Normal To Face	40.00	0.0403	0.0060	0.1124
	60.00	0.0951	-0.0001	0.1736
	110.00	0.3139	0.0149	0.3399
	130.00	0.4439	0.0179	0.4074
	140.00	0.5167	0.0188	0.4309
	180.00	0.8632	0.0401	0.5802
	190.00	0.9614	0.0206	0.5706
	195.00	1.0169	0.0848	1.6108

1.0D + 1.0W 60 mph Wind at 60° From Face	40.00	0.0095	0.0016	0.0259
	60.00	0.0208	-0.0024	0.0398
	110.00	0.0729	0.0052	0.0783
	130.00	0.1032	0.0073	0.0943
	140.00	0.1201	0.0083	0.1000
	180.00	0.2003	0.0167	0.1276
	190.00	0.2225	0.0074	0.1263
	195.00	0.2329	0.0298	0.2001

1.0D + 1.0W 60 mph Wind at 90° From Face	40.00	0.0103	0.0011	0.0254
	60.00	0.0203	-0.0029	0.0401
	110.00	0.0738	-0.0057	0.0790
	130.00	0.1043	-0.0067	0.0952
	140.00	0.1214	0.0073	0.1006
	180.00	0.2016	0.0124	0.1280
	190.00	0.2237	0.0050	0.1256
	195.00	0.2336	-0.0267	0.0983

1.0D + 1.0W 60 mph Wind at Normal To Face	40.00	0.0098	0.0015	0.0279
	60.00	0.0239	0.0000	0.0429
	110.00	0.0775	0.0036	0.0838
	130.00	0.1095	0.0044	0.1003
	140.00	0.1274	0.0046	0.1061
	180.00	0.2123	0.0095	0.1421
	190.00	0.2364	0.0049	0.1396
	195.00	0.2499	0.0207	0.3882

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	40.00	0.0160	0.0027	0.0477
	60.00	0.0353	-0.0044	0.0676
	110.00	0.1273	0.0106	0.1354
	130.00	0.1794	0.0149	0.1633
	140.00	0.2088	0.0170	0.1749
	180.00	0.3506	0.0345	0.2319
	190.00	0.3912	0.0163	0.2327
	195.00	0.4098	0.0772	0.5029

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	40.00	0.0168	0.0018	0.0481
	60.00	0.0350	-0.0054	0.0687
	110.00	0.1271	-0.0109	0.1351
	130.00	0.1793	-0.0133	0.1630
	140.00	0.2087	-0.0142	0.1743
	180.00	0.3501	0.0233	0.2289
	190.00	0.3889	0.0113	0.2274
	195.00	0.4068	-0.0656	0.3374

1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	40.00	0.0172	0.0021	0.0447
	60.00	0.0384	-0.0001	0.0690
	110.00	0.1295	0.0048	0.1404
	130.00	0.1834	0.0055	0.1693
	140.00	0.2139	0.0063	0.1805
	180.00	0.3620	0.0189	0.2524
	190.00	0.4055	0.0044	0.2548
	195.00	0.4311	0.0497	0.8801

1.2D + 1.0E - Normal To Face	40.00	0.0035	0.0002	0.0094
	60.00	0.0011	0.0000	0.0005
	110.00	0.0119	0.0006	0.0120
	130.00	0.0162	0.0007	0.0146
	140.00	0.0187	0.0008	0.0157
	180.00	0.0311	-0.0011	0.0209
	190.00	0.0347	0.0011	0.0213
	195.00	0.0364	0.0011	0.0210

1.2D + 1.6W 97 mph Wind at 60° From Face	40.00	0.0380	0.0068	0.1054
	60.00	0.0832	-0.0092	0.1612
	110.00	0.2959	0.0260	0.3181
	130.00	0.4187	0.0365	0.3831
	140.00	0.4874	0.0417	0.4057
	180.00	0.8131	0.0841	0.5210
	190.00	0.9039	0.0407	0.5155
	195.00	0.9463	0.1638	0.8353

1.2D + 1.6W 97 mph Wind at 90° From Face	40.00	0.0411	0.0043	0.1040
	60.00	0.0820	-0.0119	0.1623
	110.00	0.2989	-0.0231	0.3206
	130.00	0.4230	0.0274	0.3867
	140.00	0.4924	0.0303	0.4084
	180.00	0.8195	0.0522	0.5222
	190.00	0.9091	0.0196	0.5129
	195.00	0.9496	-0.1107	0.4244

1.2D + 1.6W 97 mph Wind at Normal To Face	40.00	0.0403	0.0060	0.1125
	60.00	0.0953	-0.0001	0.1738
	110.00	0.3142	0.0149	0.3402
	130.00	0.4443	0.0179	0.4078
	140.00	0.5172	0.0188	0.4313
	180.00	0.8640	0.0401	0.5807
	190.00	0.9622	0.0206	0.5711
	195.00	1.0178	0.0848	1.6113

Exhibit E

Mount Analysis



June 14, 2022

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

MTS Engineering, P.L.L.C.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587- 4630
btwo@btgrp.com

Subject: **Appurtenance Mount Analysis Report**

Carrier Designation: **Dish Co-Locate**
Site Number: BOHVN00181A
Site Name: N/A

SBA Network Services Designation: **Site Number:** CT22107-A
Site Name: Westrock Park
Application Number: 169200, v1

Engineering Firm Designation: **Project Number:** 164295.001.01

Site Data: **1055 Wintergreen Ave, Hamden, CT, 06514, New Haven County**
Latitude 41.34980°, Longitude -72.97270°
Self-Support Tower
(3) 8 ft. Sector Mount

Dear Mr. Knapik,

We are pleased to submit this “**Appurtenance Mount Analysis Report**” to determine the structural integrity of the antenna mount on the above-mentioned structure.

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

Proposed Equipment

Note: See Table 1 for the final loading configuration

Sufficient Capacity
(Passing at 48.1%)

This analysis utilizes an ultimate 3-second gust wind speed of 119 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 – Analysis Criteria.

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

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

Mount structural analysis prepared by: Matthew Williams

Respectfully submitted by: MTS Engineering, P.L.L.C.
COA: BER:2386985 Expires: 02/01/2023



Chad E. Tuttle, P.E.

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1) INTRODUCTION

The appurtenance mount consists of Commscope sector mounts, (Part #MTC3975083) at 130 ft., attached to self-support tower at 1055 Wintergreen Ave, Hamden, CT, 06514, New Haven County. The proposed antenna loading information was obtained from SBA Network Services, LLC. All information provided to us was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-H-2017 Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures using a 3-second gust wind speed of 119 mph with no ice and 50 mph with 1 inch escalated ice thickness. Exposure Category C, Topographic Category 5 and Risk Category II were used in this analysis. In addition, the platform mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500-pound man live load applied individually at mount pipe locations using a 3-second gust of 30 mph. The mount was analyzed under 30° increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed Equipment Information

Loading	RAD Center Elev. (ft.)	Position	Qty.	Description	Note
Proposed	130	2	3	JMA Wireless MX08FRO665-21	1
			3	Fujitsu TA08025-B605	2
			3	Fujitsu TA08025-B604	
		-	1	Raycap RDIDC-9181-PF-48	3

Note:

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

Table 2 – Documents Provided

Documents	Remarks	Reference	Source
SBA Application	Proposed Loading	Date: 08/11/2021	SBA Network Services, LLC.
RFDS		Date: 07/23/2021	
Previous MA	MTS Engineering, P.L.L.C.	Date: 01/13/2022	On File

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 20.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

Manufacturers drawing were used to create the model.

3.2) Assumptions

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

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

This analysis may be affected if any assumptions are not valid or have been made in error. MTS Engineering, P.L.L.C. should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

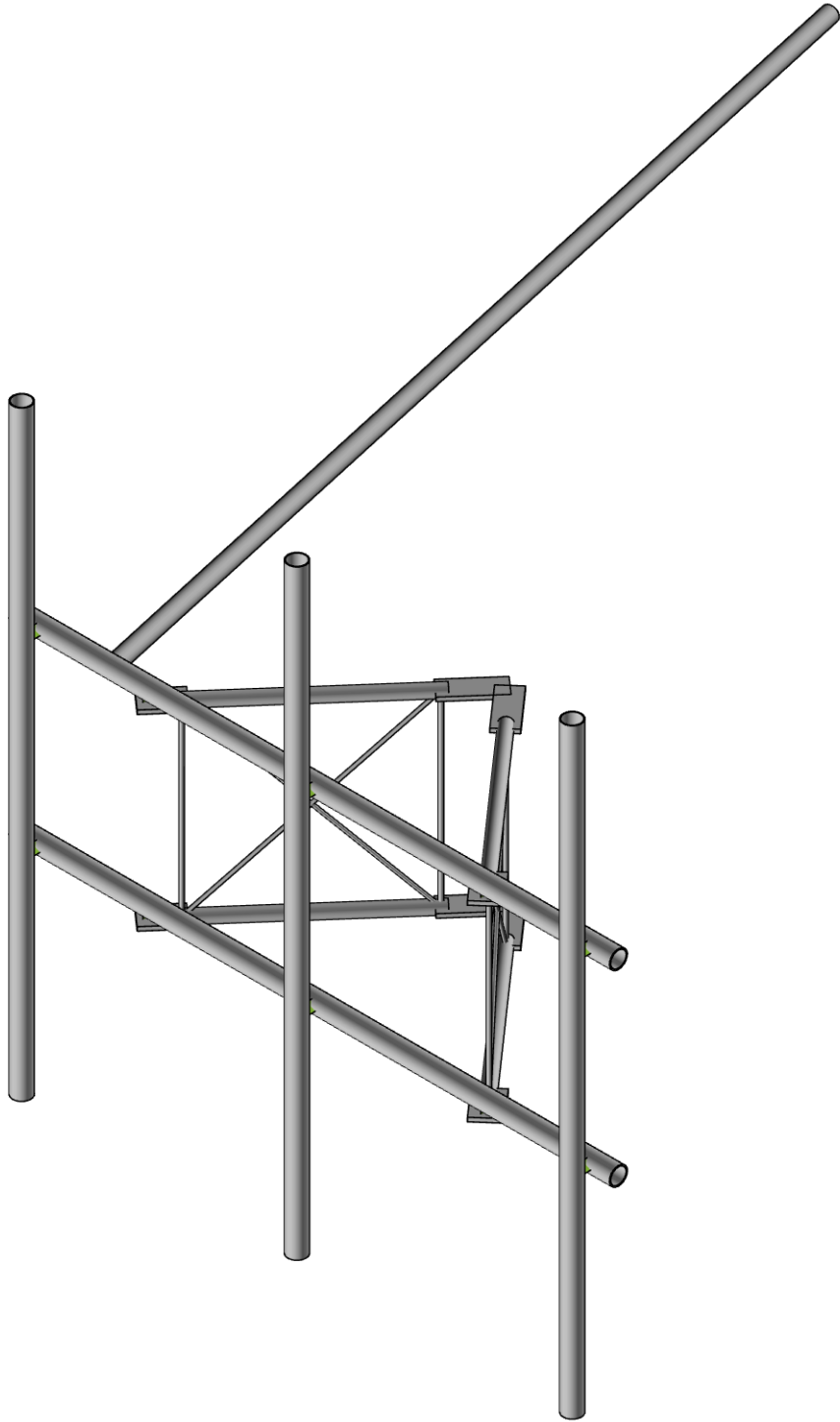
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Face Horizontals	130	11.3	Pass
-	Support Arms	130	27.2	Pass
-	Diagonals	130	26.9	Pass
-	Connection Plates	130	21.9	Pass
-	Verticals	130	48.1	Pass
-	Tiebacks	130	36.0	Pass
-	Mount Pipes	130	23.1	Pass

5) RECOMMENDATIONS

The Commscope sector mounts, (Part #MTC3975083) has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed loading. (Refer to the RISA output for the specific members).

APPENDIX A

(RISA-3D Output)



Envelope Only Solution

MTS Engineering, P.L.L.C.

MP

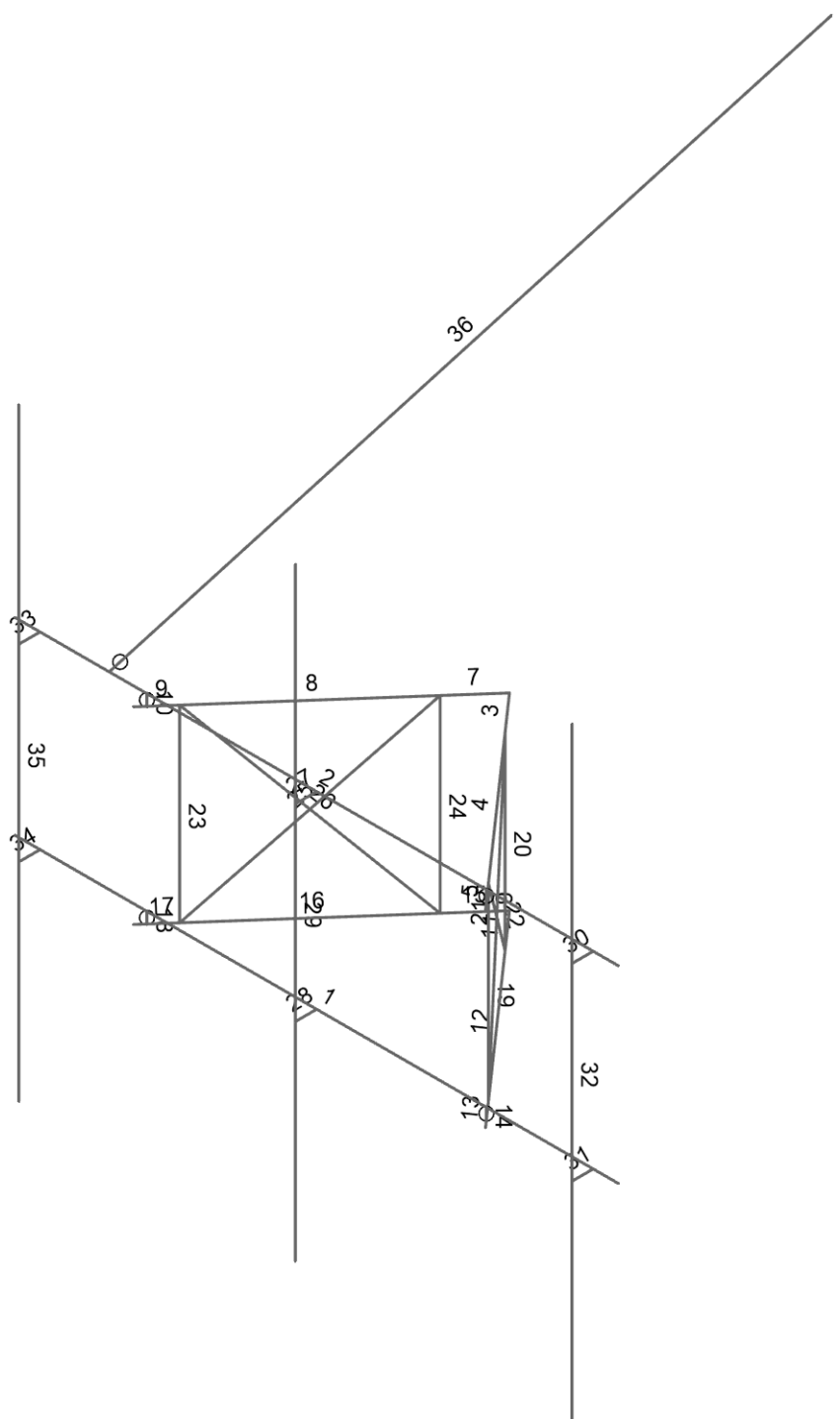
164295.001.01

CT22107-A - Westrock Park

SK-1

Jun 14, 2022

164295_001_01_Westrock Park_...

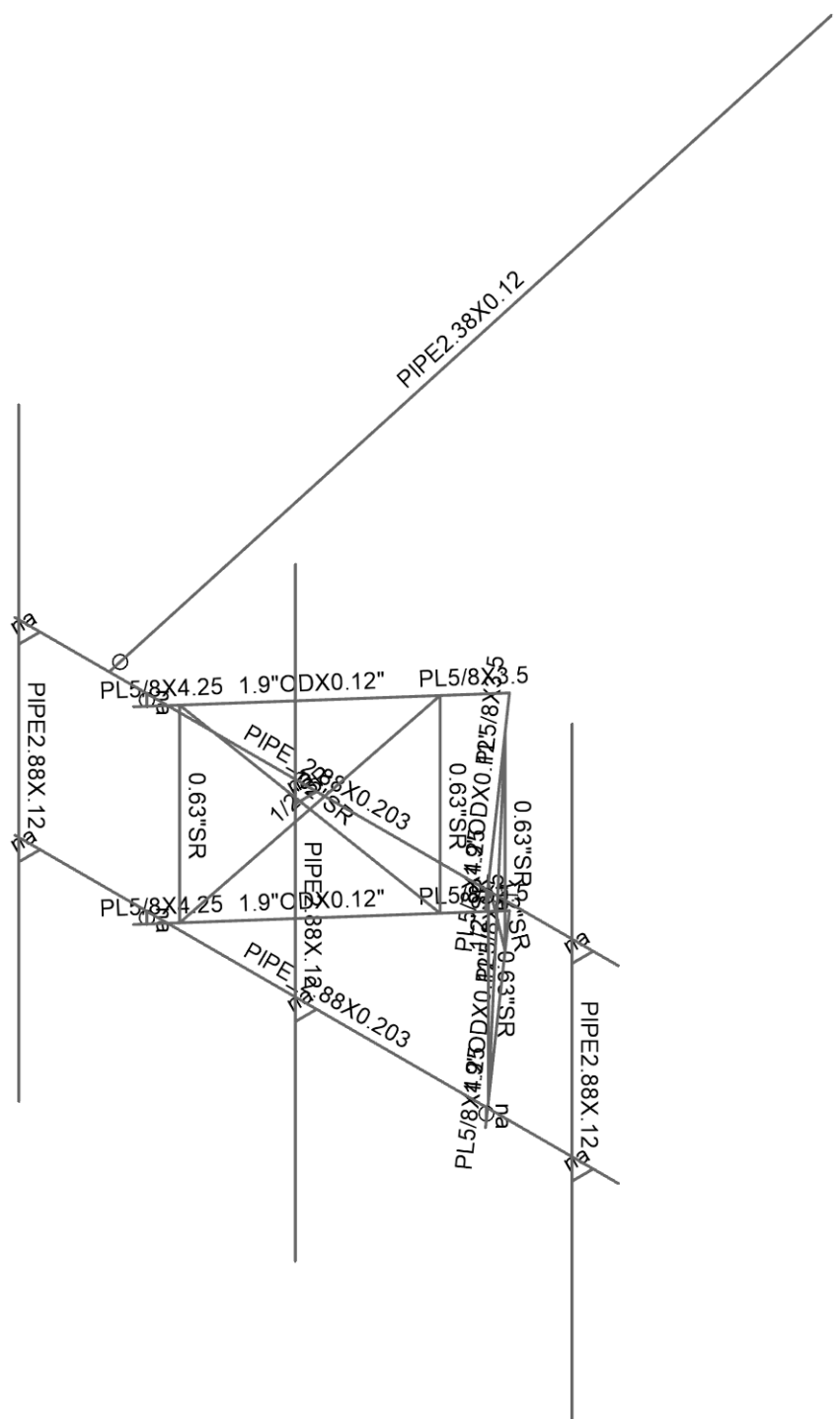


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 164295.001.01

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SK-2
 Jun 14, 2022
 164295_001_01_Westrock Park_...



Envelope Only Solution

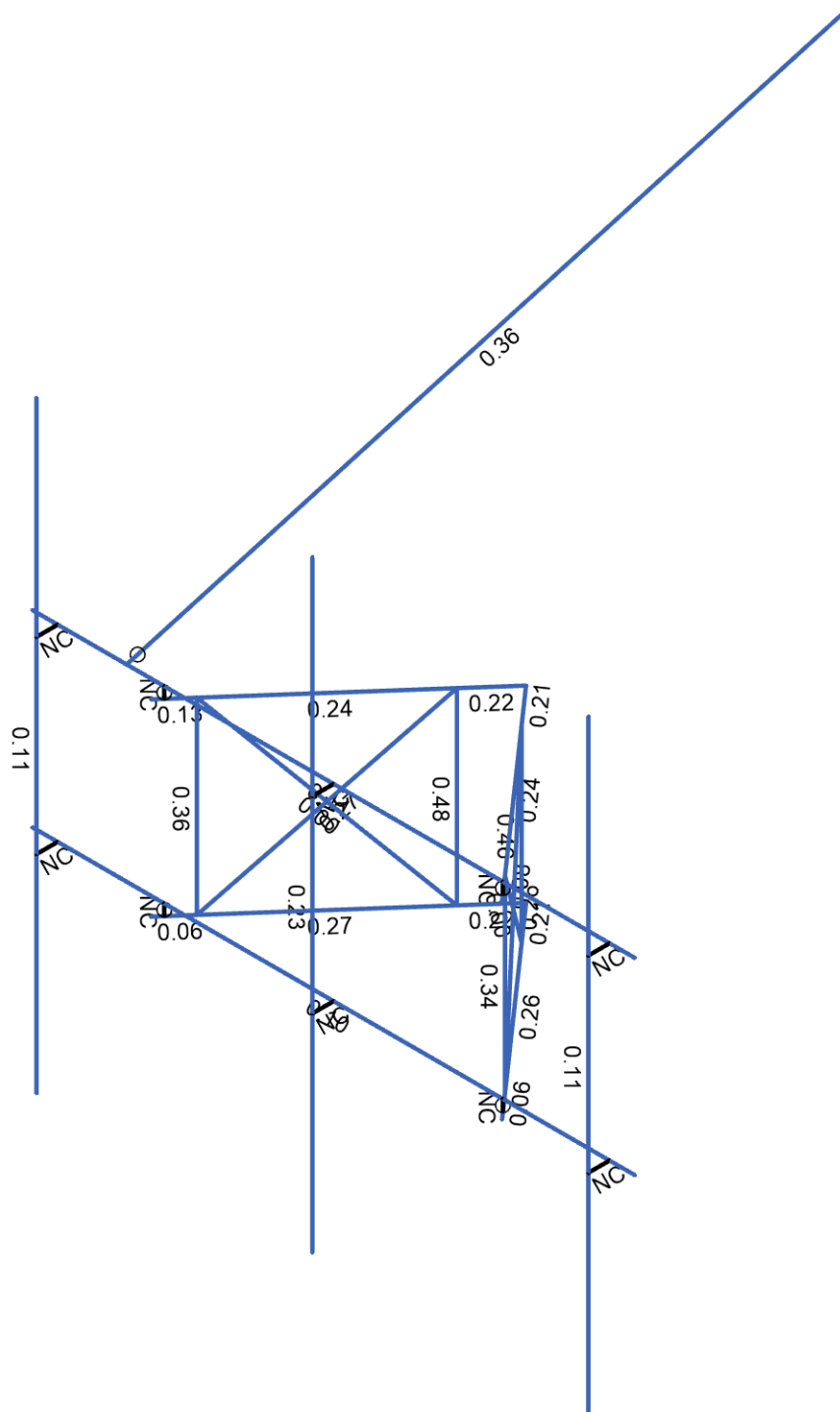
MTS Engineering, P.L.L.C.
 MP
 164295.001.01

CT22107-A - Westrock Park

SK-3
 Jun 14, 2022
 164295_001_01_Westrock Park_...



Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50

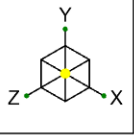


Member Code Checks Displayed (Enveloped)
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MP
164295.001.01

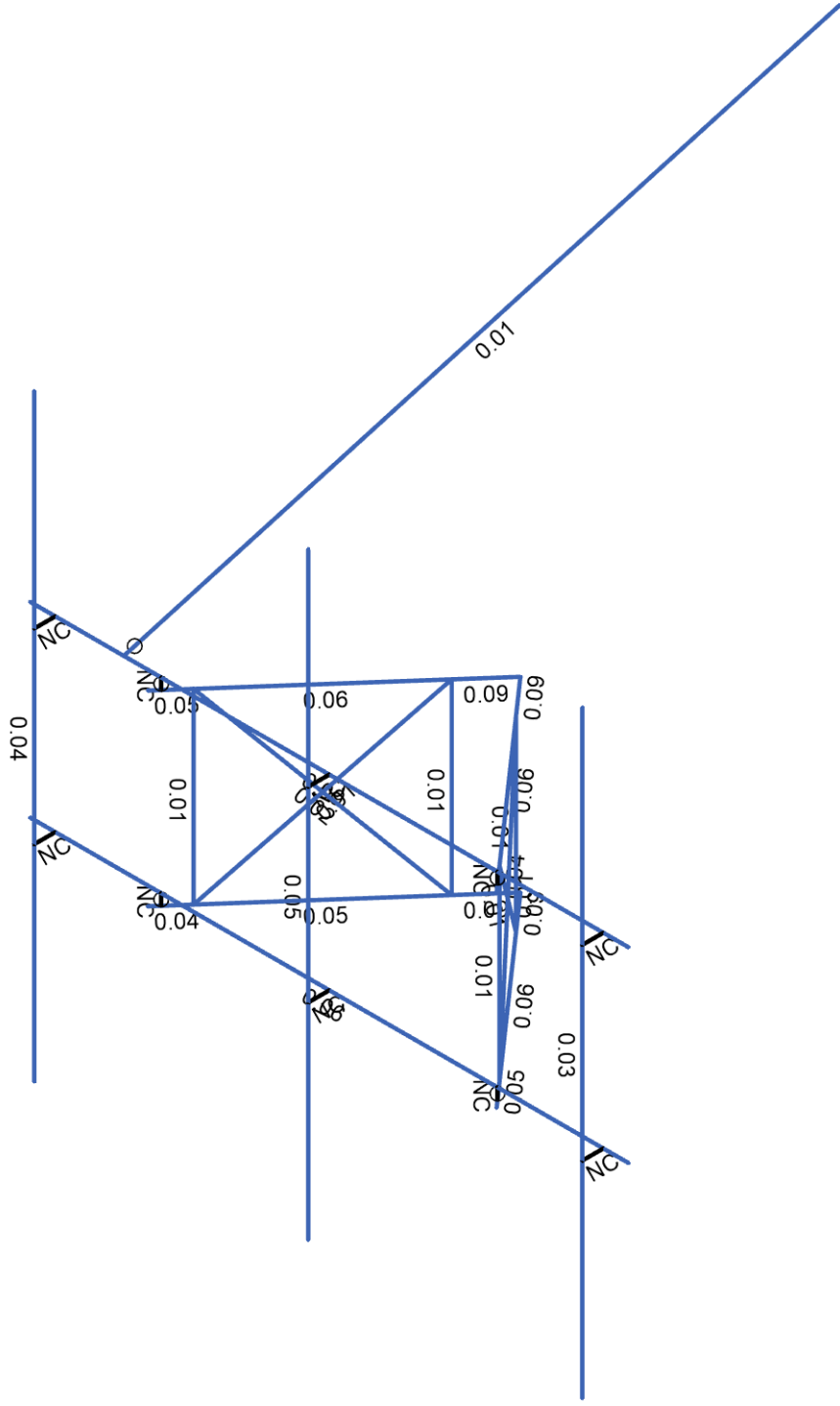
CT22107-A - Westrock Park

SK-4
Jun 14, 2022
164295_001_01_Westrock Park_...



Shear Check
(Env)

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



Member Shear Checks Displayed (Enveloped)
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MTS Engineering, P.L.L.C.
MP
164295.001.01

CT22107-A - Westrock Park

SK-5
Jun 14, 2022
164295_001_01_Westrock Park_...



Company : MTS Engineering, P.L.L.C.
 Designer : MP
 Job Number : 164295.001.01
 Model Name : CT22107-A - Westrock Park

6/14/2022
 6:07:40 PM
 Checked By : _____

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	-4	-2.354167	2.796875	
2	2	4	-2.354167	2.796875	
3	3	-4	0.145833	2.796875	
4	4	4	0.145833	2.796875	
5	5	0.467947	0	0.771833	
6	6	0.385368	0	0.677994	
7	7	2.091999	0	2.61733	
8	8	2.00942	0	2.523491	
9	9	2.332579	0	2.890714	
10	10	2.25	0.145833	2.796875	
11	11	2.25	0	2.796875	
12	12	0	0	0.24008	
13	13	-0.467947	0	0.771833	
14	14	-0.385368	0	0.677994	
15	15	-2.091999	0	2.61733	
16	16	-2.00942	0	2.523491	
17	17	-2.332579	0	2.890714	
18	18	-2.25	0.145833	2.796875	
19	19	-2.25	0	2.796875	
20	20	0.467947	-2.5	0.771833	
21	21	0.385368	-2.5	0.677994	
22	22	2.091999	-2.5	2.61733	
23	23	2.00942	-2.5	2.523491	
24	24	2.332579	-2.5	2.890714	
25	25	2.25	-2.354167	2.796875	
26	26	2.25	-2.5	2.796875	
27	27	0	-2.5	0.24008	
28	28	-0.467947	-2.5	0.771833	
29	29	-0.385368	-2.5	0.677994	
30	30	-2.091999	-2.5	2.61733	
31	31	-2.00942	-2.5	2.523491	
32	32	-2.332579	-2.5	2.890714	
33	33	-2.25	-2.354167	2.796875	
34	34	-2.25	-2.5	2.796875	
35	35	0.430236	0	0.72898	
36	36	2.047131	-2.5	2.566344	
37	37	2.047131	0	2.566344	
38	38	0.430236	-2.5	0.72898	
39	39	-0.430236	0	0.72898	
40	40	-2.047131	-2.5	2.566344	
41	41	-2.047131	0	2.566344	
42	42	-0.430236	-2.5	0.72898	
43	43	0	0.145833	2.796875	
44	44	0	0.145833	3.078125	
45	45	0	-2.354167	2.796875	
46	46	0	-2.354167	3.078125	
47	47	0	2.895833	3.078125	
48	48	0	-5.104167	3.078125	
49	49	3.666667	0.145833	2.796875	
50	50	3.666667	0.145833	3.078125	
51	51	3.666667	-2.354167	2.796875	
52	52	3.666667	-2.354167	3.078125	
53	53	3.666667	2.895833	3.078125	
54	54	3.666667	-5.104167	3.078125	
55	55	-3.666667	0.145833	2.796875	



Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	-3.666667	0.145833	3.078125	
57	57	-3.666667	-2.354167	2.796875	
58	58	-3.666667	-2.354167	3.078125	
59	59	-3.666667	2.895833	3.078125	
60	60	-3.666667	-5.104167	3.078125	
61	61	0	0	0	
62	62	-2.75	0.145833	2.796875	
63	63	-5.5	0.145833	-9.526279	
64	64	5.5	0	-9.526279	
65	65	-5.5	0	-9.526279	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]
1	12	Reaction	Reaction	Reaction
2	27	Reaction	Reaction	Reaction
3	63	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e ⁻⁶ F ⁻¹]	Density [k/ft ³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8	A529 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
9	A500 Gr.42	29000	11154	0.3	0.65	0.49	42	1.4	58	1.3
10	A500 Gr.46	29000	11154	0.3	0.65	0.49	46	1.4	58	1.3
11	A500 Gr.C	29000	11154	0.3	0.65	0.49	46	1.4	62	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	MF-H1	PIPE 2.88X0.203	Beam	Pipe	A500 Gr.C	Typical	1.704	1.53	1.53	3.059
2	MF-SA1	1.9"ODX0.12"	Beam	Pipe	A500 Gr.B RND	Typical	0.671	0.267	0.267	0.534
3	MF-D1	1/2"SR	VBrace	BAR	A529 Gr.50	Typical	0.196	0.003	0.003	0.006
4	MF-CP1	PL5/8X3.5	Beam	RECT	A572 Gr.50	Typical	2.205	0.073	2.251	0.259
5	MF-V1	0.63"SR	Column	BAR	A529 Gr.50	Typical	0.312	0.008	0.008	0.015
6	MF-CP2	PL5/8X4.25	Beam	RECT	A572 Gr.50	Typical	2.656	0.086	3.998	0.314
7	Tieback	PIPE2.38X0.12	Beam	Pipe	A500 Gr.C	Typical	0.852	0.545	0.545	1.091
8	MF-P1	PIPE2.88X.12	Column	Pipe	A500 Gr.C	Typical	1.04	0.993	0.993	1.985

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		MF-H1	Beam	Pipe	A500 Gr.C	Typical
2	2	3	4		MF-H1	Beam	Pipe	A500 Gr.C	Typical
3	3	12	5	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
4	4	6	7		MF-SA1	Beam	Pipe	A500 Gr.B RND	Typical
5	5	8	9	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
6	6	10	11	90	RIGID	None	None	RIGID	Typical



Member Primary Data (Continued)

Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule	
7	7	12	13	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
8	8	14	15		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
9	9	16	17	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
10	10	18	19	90	RIGID	None	None	RIGID	Typical
11	11	27	20	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
12	12	21	22		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
13	13	23	24	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
14	14	25	26	90	RIGID	None	None	RIGID	Typical
15	15	27	28	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
16	16	29	30		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
17	17	31	32	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
18	18	33	34	90	RIGID	None	None	RIGID	Typical
19	19	37	36		MF-V1	Column	BAR	A529 Gr.50	Typical
20	20	35	38		MF-V1	Column	BAR	A529 Gr.50	Typical
21	21	35	36		MF-D1	VBrace	BAR	A529 Gr.50	Typical
22	22	37	38		MF-D1	VBrace	BAR	A529 Gr.50	Typical
23	23	41	40		MF-V1	Column	BAR	A529 Gr.50	Typical
24	24	39	42		MF-V1	Column	BAR	A529 Gr.50	Typical
25	25	39	40		MF-D1	VBrace	BAR	A529 Gr.50	Typical
26	26	41	42		MF-D1	VBrace	BAR	A529 Gr.50	Typical
27	27	43	44	90	RIGID	None	None	RIGID	Typical
28	28	45	46	90	RIGID	None	None	RIGID	Typical
29	29	47	48		MF-P1	Column	Pipe	A500 Gr.C	Typical
30	30	49	50	90	RIGID	None	None	RIGID	Typical
31	31	51	52	90	RIGID	None	None	RIGID	Typical
32	32	53	54		MF-P1	Column	Pipe	A500 Gr.C	Typical
33	33	55	56	90	RIGID	None	None	RIGID	Typical
34	34	57	58	90	RIGID	None	None	RIGID	Typical
35	35	59	60		MF-P1	Column	Pipe	A500 Gr.C	Typical
36	36	62	63		Tieback	Beam	Pipe	A500 Gr.C	Typical

Member Advanced Data

Label	I Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
1	1		Yes	N/A	None
2	2		Yes	N/A	None
3	3		Yes	N/A	None
4	4		Yes	N/A	None
5	5		Yes	N/A	None
6	6	OOOOXO	Yes	** NA **	None
7	7		Yes	N/A	None
8	8		Yes	N/A	None
9	9		Yes	N/A	None
10	10	OOOOXO	Yes	** NA **	None
11	11		Yes	N/A	None
12	12		Yes	N/A	None
13	13		Yes	N/A	None
14	14	OOOOXO	Yes	** NA **	None
15	15		Yes	N/A	None
16	16		Yes	N/A	None
17	17		Yes	N/A	None
18	18	OOOOXO	Yes	** NA **	None
19	19		Yes	** NA **	None
20	20		Yes	** NA **	None
21	21		Yes	** NA **	None
22	22		Euler Buckling	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
23	23			Yes	** NA **	None
24	24			Yes	** NA **	None
25	25			Yes	** NA **	None
26	26		Euler Buckling	Yes	** NA **	None
27	27			Yes	** NA **	None
28	28			Yes	** NA **	None
29	29			Yes	** NA **	None
30	30			Yes	** NA **	None
31	31			Yes	** NA **	None
32	32			Yes	** NA **	None
33	33			Yes	** NA **	None
34	34			Yes	** NA **	None
35	35			Yes	** NA **	None
36	36	BenPIN		Yes	Default	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	1	MF-H1	8	Lbyy	N/A	N/A	Lateral
2	2	MF-H1	8	Lbyy	N/A	N/A	Lateral
3	3	MF-CP1	0.708	Lbyy	N/A	N/A	Lateral
4	4	MF- SA1	2.583	Lbyy	N/A	N/A	Lateral
5	5	MF-CP2	0.489	Lbyy	N/A	N/A	Lateral
6	7	MF-CP1	0.708	Lbyy	N/A	N/A	Lateral
7	8	MF- SA1	2.583	Lbyy	N/A	N/A	Lateral
8	9	MF-CP2	0.489	Lbyy	N/A	N/A	Lateral
9	11	MF-CP1	0.708	Lbyy	N/A	N/A	Lateral
10	12	MF- SA1	2.583	Lbyy	N/A	N/A	Lateral
11	13	MF-CP2	0.489	Lbyy	N/A	N/A	Lateral
12	15	MF-CP1	0.708	Lbyy	N/A	N/A	Lateral
13	16	MF- SA1	2.583	Lbyy	N/A	N/A	Lateral
14	17	MF-CP2	0.489	Lbyy	N/A	N/A	Lateral
15	19	MF-V1	2.5	Lbyy	N/A	N/A	Lateral
16	20	MF-V1	2.5	Lbyy	N/A	N/A	Lateral
17	21	MF-D1	3.499	Lbyy	N/A	N/A	Lateral
18	22	MF-D1	3.499	Lbyy	N/A	N/A	Lateral
19	23	MF-V1	2.5	Lbyy	N/A	N/A	Lateral
20	24	MF-V1	2.5	Lbyy	N/A	N/A	Lateral
21	25	MF-D1	3.499	Lbyy	N/A	N/A	Lateral
22	26	MF-D1	3.499	Lbyy	N/A	N/A	Lateral
23	29	MF-P1	8	Lbyy	N/A	N/A	Lateral
24	32	MF-P1	8	Lbyy	N/A	N/A	Lateral
25	35	MF-P1	8	Lbyy	N/A	N/A	Lateral
26	36	Tieback	12.626	Lbyy	N/A	N/A	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Y	-0.032	%15
2	29	Y	-0.032	%85
3	29	Y	-0.075	%20
4	29	Y	-0.064	%50
5	29	Y	0	0
6	8	Y	-0.022	%40
7	8	Y	0	0



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

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

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Z	-0.313	%15
2	29	Z	-0.313	%85
3	29	Z	-0.138	%20
4	29	Z	-0.138	%50
5	29	Z	0	0
6	8	Z	-0.141	%40
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	X	-0.125	%15
2	29	X	-0.125	%85
3	29	X	-0.084	%20
4	29	X	-0.073	%50
5	29	X	0	0
6	8	X	-0.079	%40
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Z	-0.062	%15
2	29	Z	-0.062	%85
3	29	Z	-0.024	%20
4	29	Z	-0.024	%50
5	29	Z	0	0
6	8	Z	-0.025	%40
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	X	-0.028	%15
2	29	X	-0.028	%85
3	29	X	-0.015	%20
4	29	X	-0.013	%50
5	29	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
6	8	X	-0.014	%40
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Z	-0.02	%15
2	29	Z	-0.02	%85
3	29	Z	-0.009	%20
4	29	Z	-0.009	%50
5	29	Z	0	0
6	8	Z	-0.009	%40
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	X	-0.008	%15
2	29	X	-0.008	%85
3	29	X	-0.005	%20
4	29	X	-0.005	%50
5	29	X	0	0
6	8	X	-0.005	%40
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Y	-0.118	%15
2	29	Y	-0.118	%85
3	29	Y	-0.042	%20
4	29	Y	-0.041	%50
5	29	Y	0	0
6	8	Y	-0.042	%40
7	8	Y	0	0
8	8	Y	0	0
9	8	Y	0	0
10	8	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Z	-0.011	%15
2	29	Z	-0.011	%85
3	29	Z	-0.013	%20

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
4	29	Z	-0.011	%50
5	29	Z	0	0
6	8	Z	-0.004	%40
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	X	-0.011	%15
2	29	X	-0.011	%85
3	29	X	-0.013	%20
4	29	X	-0.011	%50
5	29	X	0	0
6	8	X	-0.004	%40
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

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

Member Point Loads (BLC 16 : Maint LL 2)

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

Member Point Loads (BLC 17 : Maint LL 3)

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

Member Point Loads (BLC 18 : Maint LL 4)

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

Member Point Loads (BLC 19 : Maint LL 5)

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

Member Point Loads (BLC 20 : Maint LL 6)

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



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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.018	-0.018	0	%100
2	2	Z	-0.018	-0.018	0	%100
3	3	Z	-0.006	-0.006	0	%100
4	4	Z	-0.011	-0.011	0	%100
5	5	Z	-0.005	-0.005	0	%100
6	7	Z	-0.006	-0.006	0	%100
7	8	Z	-0.011	-0.011	0	%100
8	9	Z	-0.005	-0.005	0	%100
9	11	Z	-0.006	-0.006	0	%100
10	12	Z	-0.011	-0.011	0	%100
11	13	Z	-0.005	-0.005	0	%100
12	15	Z	-0.006	-0.006	0	%100
13	16	Z	-0.011	-0.011	0	%100
14	17	Z	-0.005	-0.005	0	%100
15	19	Z	-0.004	-0.004	0	%100
16	20	Z	-0.004	-0.004	0	%100
17	21	Z	-0.004	-0.004	0	%100
18	22	Z	-0.004	-0.004	0	%100
19	23	Z	-0.004	-0.004	0	%100
20	24	Z	-0.004	-0.004	0	%100
21	25	Z	-0.004	-0.004	0	%100
22	26	Z	-0.004	-0.004	0	%100
23	29	Z	-0.018	-0.018	0	%100
24	32	Z	-0.018	-0.018	0	%100
25	35	Z	-0.018	-0.018	0	%100
26	36	Z	-0.017	-0.017	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.018	-0.018	0	%100
2	2	X	-0.018	-0.018	0	%100
3	3	X	-0.006	-0.006	0	%100
4	4	X	-0.011	-0.011	0	%100
5	5	X	-0.005	-0.005	0	%100
6	7	X	-0.006	-0.006	0	%100
7	8	X	-0.011	-0.011	0	%100
8	9	X	-0.005	-0.005	0	%100
9	11	X	-0.006	-0.006	0	%100
10	12	X	-0.011	-0.011	0	%100
11	13	X	-0.005	-0.005	0	%100
12	15	X	-0.006	-0.006	0	%100
13	16	X	-0.011	-0.011	0	%100
14	17	X	-0.005	-0.005	0	%100
15	19	X	-0.004	-0.004	0	%100
16	20	X	-0.004	-0.004	0	%100
17	21	X	-0.004	-0.004	0	%100
18	22	X	-0.004	-0.004	0	%100
19	23	X	-0.004	-0.004	0	%100
20	24	X	-0.004	-0.004	0	%100
21	25	X	-0.004	-0.004	0	%100
22	26	X	-0.004	-0.004	0	%100
23	29	X	-0.018	-0.018	0	%100
24	32	X	-0.018	-0.018	0	%100
25	35	X	-0.018	-0.018	0	%100



Company : MTS Engineering, P.L.L.C.
 Designer : MP
 Job Number : 164295.001.01
 Model Name : CT22107-A - Westrock Park

6/14/2022
 6:07:40 PM
 Checked By : _____

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
26	36	X	-0.017	-0.017	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.004	-0.004	0	%100
2	2	Z	-0.004	-0.004	0	%100
3	3	Z	-0.007	-0.007	0	%100
4	4	Z	-0.003	-0.003	0	%100
5	5	Z	-0.007	-0.007	0	%100
6	7	Z	-0.007	-0.007	0	%100
7	8	Z	-0.003	-0.003	0	%100
8	9	Z	-0.007	-0.007	0	%100
9	11	Z	-0.007	-0.007	0	%100
10	12	Z	-0.003	-0.003	0	%100
11	13	Z	-0.007	-0.007	0	%100
12	15	Z	-0.007	-0.007	0	%100
13	16	Z	-0.003	-0.003	0	%100
14	17	Z	-0.007	-0.007	0	%100
15	19	Z	-0.003	-0.003	0	%100
16	20	Z	-0.003	-0.003	0	%100
17	21	Z	-0.004	-0.004	0	%100
18	22	Z	-0.004	-0.004	0	%100
19	23	Z	-0.003	-0.003	0	%100
20	24	Z	-0.003	-0.003	0	%100
21	25	Z	-0.004	-0.004	0	%100
22	26	Z	-0.004	-0.004	0	%100
23	29	Z	-0.004	-0.004	0	%100
24	32	Z	-0.004	-0.004	0	%100
25	35	Z	-0.004	-0.004	0	%100
26	36	Z	-0.003	-0.003	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.004	-0.004	0	%100
2	2	X	-0.004	-0.004	0	%100
3	3	X	-0.007	-0.007	0	%100
4	4	X	-0.003	-0.003	0	%100
5	5	X	-0.007	-0.007	0	%100
6	7	X	-0.007	-0.007	0	%100
7	8	X	-0.003	-0.003	0	%100
8	9	X	-0.007	-0.007	0	%100
9	11	X	-0.007	-0.007	0	%100
10	12	X	-0.003	-0.003	0	%100
11	13	X	-0.007	-0.007	0	%100
12	15	X	-0.007	-0.007	0	%100
13	16	X	-0.003	-0.003	0	%100
14	17	X	-0.007	-0.007	0	%100
15	19	X	-0.003	-0.003	0	%100
16	20	X	-0.003	-0.003	0	%100
17	21	X	-0.004	-0.004	0	%100
18	22	X	-0.004	-0.004	0	%100
19	23	X	-0.003	-0.003	0	%100
20	24	X	-0.003	-0.003	0	%100



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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
21	25	X	-0.004	-0.004	0	%100
22	26	X	-0.004	-0.004	0	%100
23	29	X	-0.004	-0.004	0	%100
24	32	X	-0.004	-0.004	0	%100
25	35	X	-0.004	-0.004	0	%100
26	36	X	-0.003	-0.003	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.0006	-0.0006	0	%100
2	2	Z	-0.0006	-0.0006	0	%100
3	3	Z	-0.0004	-0.0004	0	%100
4	4	Z	-0.0004	-0.0004	0	%100
5	5	Z	-0.0003	-0.0003	0	%100
6	7	Z	-0.0004	-0.0004	0	%100
7	8	Z	-0.0004	-0.0004	0	%100
8	9	Z	-0.0003	-0.0003	0	%100
9	11	Z	-0.0004	-0.0004	0	%100
10	12	Z	-0.0004	-0.0004	0	%100
11	13	Z	-0.0003	-0.0003	0	%100
12	15	Z	-0.0004	-0.0004	0	%100
13	16	Z	-0.0004	-0.0004	0	%100
14	17	Z	-0.0003	-0.0003	0	%100
15	19	Z	-0.0002	-0.0002	0	%100
16	20	Z	-0.0002	-0.0002	0	%100
17	21	Z	-0.0002	-0.0002	0	%100
18	22	Z	-0.0002	-0.0002	0	%100
19	23	Z	-0.0002	-0.0002	0	%100
20	24	Z	-0.0002	-0.0002	0	%100
21	25	Z	-0.0002	-0.0002	0	%100
22	26	Z	-0.0002	-0.0002	0	%100
23	29	Z	-0.0006	-0.0006	0	%100
24	32	Z	-0.0006	-0.0006	0	%100
25	35	Z	-0.0006	-0.0006	0	%100
26	36	Z	-0.0005	-0.0005	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.0006	-0.0006	0	%100
2	2	X	-0.0006	-0.0006	0	%100
3	3	X	-0.0004	-0.0004	0	%100
4	4	X	-0.0004	-0.0004	0	%100
5	5	X	-0.0003	-0.0003	0	%100
6	7	X	-0.0004	-0.0004	0	%100
7	8	X	-0.0004	-0.0004	0	%100
8	9	X	-0.0003	-0.0003	0	%100
9	11	X	-0.0004	-0.0004	0	%100
10	12	X	-0.0004	-0.0004	0	%100
11	13	X	-0.0003	-0.0003	0	%100
12	15	X	-0.0004	-0.0004	0	%100
13	16	X	-0.0004	-0.0004	0	%100
14	17	X	-0.0003	-0.0003	0	%100
15	19	X	-0.0002	-0.0002	0	%100



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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
16	20	X	-0.0002	-0.0002	0	%100
17	21	X	-0.0002	-0.0002	0	%100
18	22	X	-0.0002	-0.0002	0	%100
19	23	X	-0.0002	-0.0002	0	%100
20	24	X	-0.0002	-0.0002	0	%100
21	25	X	-0.0002	-0.0002	0	%100
22	26	X	-0.0002	-0.0002	0	%100
23	29	X	-0.0006	-0.0006	0	%100
24	32	X	-0.0006	-0.0006	0	%100
25	35	X	-0.0006	-0.0006	0	%100
26	36	X	-0.0005	-0.0005	0	%100

Member Distributed Loads (BLC 8 : Ice)

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.007	-0.007	0	%100
2	2	Y	-0.007	-0.007	0	%100
3	3	Y	-0.008	-0.008	0	%100
4	4	Y	-0.006	-0.006	0	%100
5	5	Y	-0.01	-0.01	0	%100
6	7	Y	-0.008	-0.008	0	%100
7	8	Y	-0.006	-0.006	0	%100
8	9	Y	-0.01	-0.01	0	%100
9	11	Y	-0.008	-0.008	0	%100
10	12	Y	-0.006	-0.006	0	%100
11	13	Y	-0.01	-0.01	0	%100
12	15	Y	-0.008	-0.008	0	%100
13	16	Y	-0.006	-0.006	0	%100
14	17	Y	-0.01	-0.01	0	%100
15	19	Y	-0.003	-0.003	0	%100
16	20	Y	-0.003	-0.003	0	%100
17	21	Y	-0.003	-0.003	0	%100
18	22	Y	-0.003	-0.003	0	%100
19	23	Y	-0.003	-0.003	0	%100
20	24	Y	-0.003	-0.003	0	%100
21	25	Y	-0.003	-0.003	0	%100
22	26	Y	-0.003	-0.003	0	%100
23	29	Y	-0.007	-0.007	0	%100
24	32	Y	-0.007	-0.007	0	%100
25	35	Y	-0.007	-0.007	0	%100
26	36	Y	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	4	Z	-0.0004	-0.0004	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	7	Z	-0.001	-0.001	0	%100
7	8	Z	-0.0004	-0.0004	0	%100
8	9	Z	-0.002	-0.002	0	%100
9	11	Z	-0.001	-0.001	0	%100
10	12	Z	-0.0004	-0.0004	0	%100



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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
11	13	Z	-0.002	-0.002	0	%100
12	15	Z	-0.001	-0.001	0	%100
13	16	Z	-0.0004	-0.0004	0	%100
14	17	Z	-0.002	-0.002	0	%100
15	19	Z	-0.0003	-0.0003	0	%100
16	20	Z	-0.0003	-0.0003	0	%100
17	21	Z	-0.0003	-0.0003	0	%100
18	22	Z	-0.0003	-0.0003	0	%100
19	23	Z	-0.0003	-0.0003	0	%100
20	24	Z	-0.0003	-0.0003	0	%100
21	25	Z	-0.0003	-0.0003	0	%100
22	26	Z	-0.0003	-0.0003	0	%100
23	29	Z	-0.0006	-0.0006	0	%100
24	32	Z	-0.0006	-0.0006	0	%100
25	35	Z	-0.0006	-0.0006	0	%100
26	36	Z	-0.0005	-0.0005	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.001	-0.001	0	%100
3	3	X	-0.001	-0.001	0	%100
4	4	X	-0.0004	-0.0004	0	%100
5	5	X	-0.002	-0.002	0	%100
6	7	X	-0.001	-0.001	0	%100
7	8	X	-0.0004	-0.0004	0	%100
8	9	X	-0.002	-0.002	0	%100
9	11	X	-0.001	-0.001	0	%100
10	12	X	-0.0004	-0.0004	0	%100
11	13	X	-0.002	-0.002	0	%100
12	15	X	-0.001	-0.001	0	%100
13	16	X	-0.0004	-0.0004	0	%100
14	17	X	-0.002	-0.002	0	%100
15	19	X	-0.0003	-0.0003	0	%100
16	20	X	-0.0003	-0.0003	0	%100
17	21	X	-0.0003	-0.0003	0	%100
18	22	X	-0.0003	-0.0003	0	%100
19	23	X	-0.0003	-0.0003	0	%100
20	24	X	-0.0003	-0.0003	0	%100
21	25	X	-0.0003	-0.0003	0	%100
22	26	X	-0.0003	-0.0003	0	%100
23	29	X	-0.0006	-0.0006	0	%100
24	32	X	-0.0006	-0.0006	0	%100
25	35	X	-0.0006	-0.0006	0	%100
26	36	X	-0.0005	-0.0005	0	%100

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

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



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

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

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)]
1	51	L	Y	-0.5

Basic Load Cases

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

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				



Load Combinations (Continued)

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



Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5
101	1.2 D + 1.5 LL Maint (16)	Yes	Y	1	1.2					30	1.5
102	1.2 D + 1.5 LL Maint (17)	Yes	Y	1	1.2					31	1.5
103	1.2 D + 1.5 LL Maint (18)	Yes	Y	1	1.2					32	1.5
104	1.2 D + 1.5 LL Maint (19)	Yes	Y	1	1.2					33	1.5
105	1.2 D + 1.5 LL Maint (20)	Yes	Y	1	1.2					34	1.5
106	1.2 D + 1.5 LL Maint (21)	Yes	Y	1	1.2					35	1.5
107	1.2 D + 1.5 LL Maint (22)	Yes	Y	1	1.2					36	1.5
108	1.2 D + 1.5 LL Maint (23)	Yes	Y	1	1.2					37	1.5
109	1.2 D + 1.5 LL Maint (24)	Yes	Y	1	1.2					38	1.5



Envelope Node Reactions

Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
1	12	max	1.169	41	0.77	17	1.115	13	0	109	0	109	0	109
2		min	-1.098	71	0.238	9	-2.307	7	0	1	0	1	0	1
3	27	max	1.086	65	0.718	23	1.615	14	0	109	0	109	0	109
4		min	-1.157	47	0.224	3	-0.111	8	0	1	0	1	0	1
5	63	max	0.362	5	0.06	23	1.152	5	0	109	0	109	0	109
6		min	-0.363	11	0.022	4	-1.153	11	0	1	0	1	0	1
7	Totals:	max	1.66	5	1.523	23	2.217	2						
8		min	-1.66	11	0.629	5	-2.217	8						

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

Member	Shape	Code Check	Loc [ft]	LC	Shear Check	Loc [ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	PIPE 2.88X0.203	0.098	4	54	0.06	1.75	48	35.361	70.548	5.01	5.01	1	H1-1b
2	2	PIPE 2.88X0.203	0.113	4	9	0.089	1.75	4	35.361	70.548	5.01	5.01	1	H1-1b
3	3	PL5/8X3.5	0.213	0.583	66	0.088	0.583	y 49	84.578	99.225	1.302	7.235	1.172	H1-1b
4	4	1.9"ODX0.12"	0.236	0.135	65	0.06	2.449	16	21.867	25.364	1.2	1.2	1	H1-1b
5	5	PL5/8X4.25	0.083	0.362	2	0.041	0.127	y 38	110.629	119.531	1.556	10.583	1.434	H1-1b
6	7	PL5/8X3.5	0.219	0.583	46	0.085	0.583	y 64	84.578	99.225	1.302	7.235	1.249	H1-1b
7	8	1.9"ODX0.12"	0.242	0.135	42	0.064	2.449	17	21.867	25.364	1.2	1.2	1	H1-1b
8	9	PL5/8X4.25	0.13	0.362	12	0.055	0.362	y 5	110.629	119.531	1.556	10.583	1.507	H1-1b
9	11	PL5/8X3.5	0.207	0.583	64	0.091	0.583	y 45	84.578	99.225	1.302	7.235	1.08	H1-1b
10	12	1.9"ODX0.12"	0.26	0.135	64	0.059	2.449	20	21.867	25.364	1.2	1.2	1	H1-1b
11	13	PL5/8X4.25	0.059	0.127	67	0.046	0.127	y 8	110.629	119.531	1.556	10.583	1.44	H1-1b
12	15	PL5/8X3.5	0.216	0.583	48	0.086	0.583	y 67	84.578	99.225	1.302	7.235	1.053	H1-1b
13	16	1.9"ODX0.12"	0.272	0.135	47	0.055	2.449	68	21.867	25.364	1.2	1.2	1	H1-1b
14	17	PL5/8X4.25	0.061	0.127	44	0.044	0.127	y 8	110.629	119.531	1.556	10.583	1.391	H1-1b
15	19	0.63"SR	0.341	2.5	62	0.006	2.5	48	1.941	14.028	0.147	0.147	1	H1-1a
16	20	0.63"SR	0.457	2.5	65	0.012	2.5	48	1.941	14.028	0.147	0.147	1	H1-1a
17	21	1/2"SR	0.26	0	67	0.01	0	44	0.393	8.836	0.074	0.074	1	H1-1a
18	22	1/2"SR	0	3.499	109	0.009	3.499	13	0.393	8.836	0.074	0.074	1	H1-1a
19	23	0.63"SR	0.358	2.5	49	0.012	0	11	1.941	14.028	0.147	0.147	1	H1-1a
20	24	0.63"SR	0.481	2.5	47	0.011	2.5	65	1.941	14.028	0.147	0.147	1	H1-1a
21	25	1/2"SR	0.269	0	44	0.01	0	9	0.393	8.836	0.074	0.074	1	H1-1a
22	26	1/2"SR	0	3.499	109	0.016	3.499	4	0.393	8.836	0.074	0.074	1	H1-1a
23	29	PIPE2.88X.12	0.231	2.75	8	0.049	2.75	13	22.492	43.076	3.156	3.156	1	H1-1b
24	32	PIPE2.88X.12	0.112	5.25	71	0.033	2.75	70	22.492	43.076	3.156	3.156	1	H1-1b
25	35	PIPE2.88X.12	0.114	5.25	41	0.035	2.75	5	22.492	43.076	3.156	3.156	1	H1-1b
26	36	PIPE2.38X0.12	0.36	6.445	5	0.01	12.626	5	5.363	35.273	2.115	2.115	1	H1-1a

APPENDIX B

Additional Calculations

PROJECT	164295.001.01 - Westrock Park, CT	KSC
SUBJECT	Sector Mount Analysis	
DATE	06/14/22	PAGE 1 OF 1



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

B+T GRP

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	2.307	k
Vertical Shear	:	0.77	k
Horizontal Shear	:	1.169	k
Torsion	:	0	k.ft
Moment from Horizontal Forces	:	0	k.ft
Moment from Vertical Forces	:	0	k.ft

Bolt Parameters

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

Summary of Forces

Shear Resultant Force	:	1.40	k
Force from Horz. Moment	:	0.00	k
Force from Vert. Moment	:	0.00	k
Shear Load / Bolt	:	0.35	k
Tension Load / Bolt	:	0.58	k
Resultant from Moments / Bolt	:	0.00	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	2.78%		OKAY
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	8.38%		OKAY
Unity Check, Combined	:	11.17%		OKAY
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	1.01%		OKAY

PROJECT	164295.001.01 - Westrock Park, CT	KSC
SUBJECT	Sector Mount Analysis	
DATE	06/14/22	



B+T Group
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 Tulsa, OK 74119
 (918) 587-4630

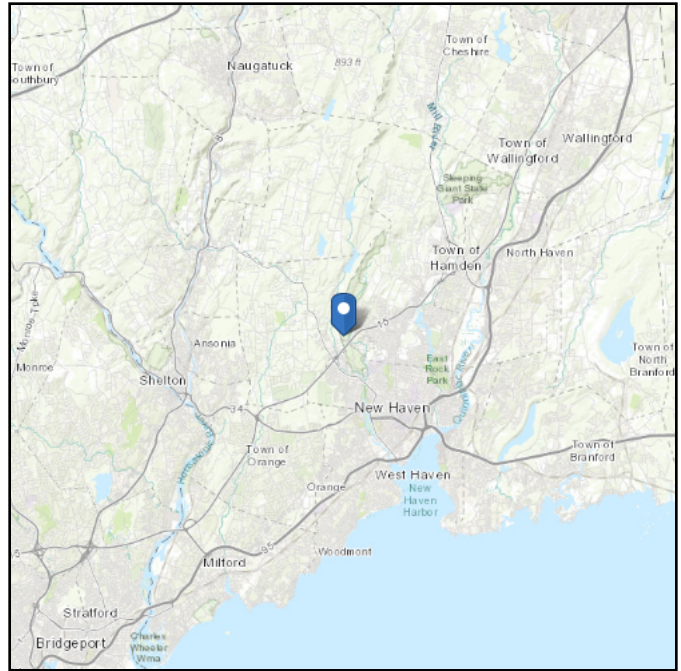
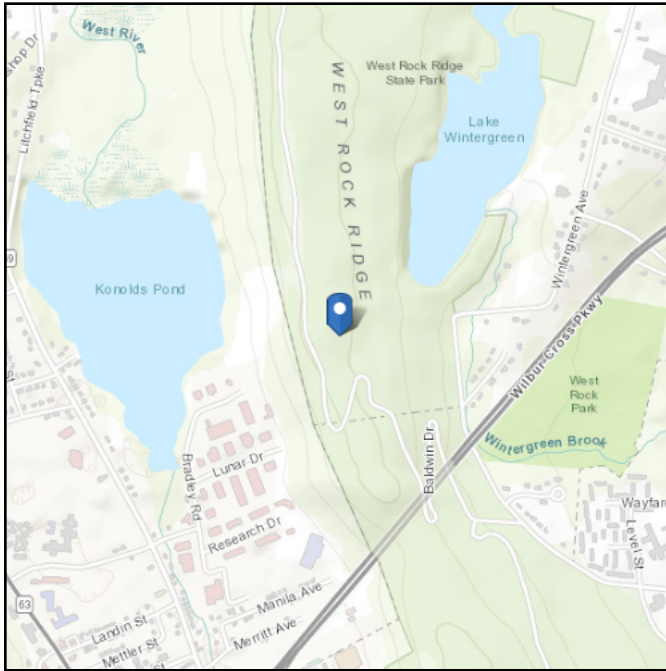
Tower Type	:	SST		
Ground Elevation	z_s	: 425	ft	[ASCE7 Hazard Tool]
Tower Height	:	195.00	ft	
Mount Elevation	:	130.00	ft	
Antenna Elevation	:	130.00	ft	
Crest Height	:	229	ft	
Risk Category	:	II		[Table 2-1]
Exposure Category	:	C		[Sec. 2.6.5.1.2]
Topography Category	:	5.00		[Sec. 2.6.6.2]
Wind Velocity	V	: 119	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	: 50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	: 30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	: 1.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.	:	B		[ASCE7 Hazard Tool]
	S_S	: 0.20		
	S_1	: 0.05		
	S_{DS}	: 0.21		
	S_{D1}	: 0.09		
Gust Factor	G_h	: 1.00		[Sec. 16.6]
Pressure Coefficient	K_z	: 1.34		[Sec. 2.6.5.2]
Topography Facto	K_{zt}	: 1.72		[Sec. 2.6.6]
Elevation Factor	K_e	: 0.98		[Sec. 2.6.8]
Directionality Factor	K_d	: 0.95		[Sec. 16.6]
Shielding Factor	K_a	: 0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	: 1.39	in	[Sec. 2.6.10]
Importance Factor	I_e	: 1		[Table 2-3]
Response Coefficient	C_s	: 0.107		[Sec. 2.7.7.1]
Amplification	A_s	: 1.666667		[Sec. 16.7]
	q_z	: 78.06	psf	

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 424.73 ft (NAVD 88)
Latitude: 41.3498
Longitude: -72.9727



Wind

Results:

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

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Tue Jun 14 2022

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

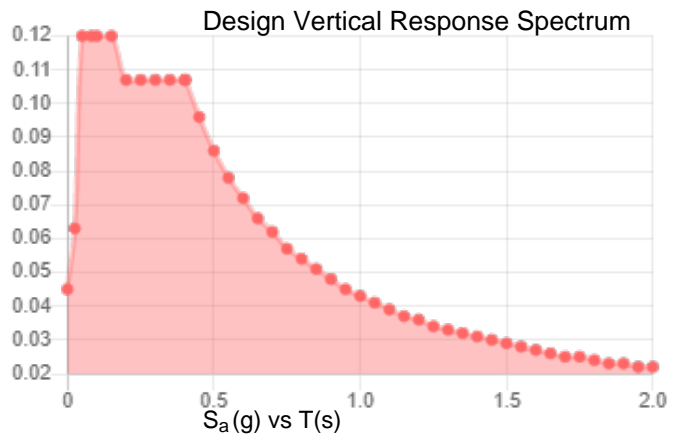
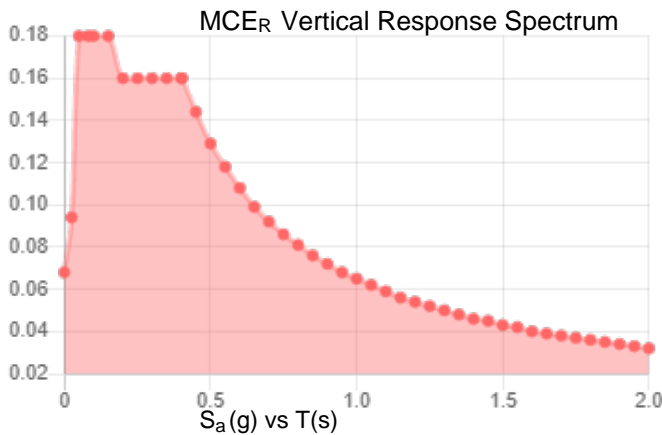
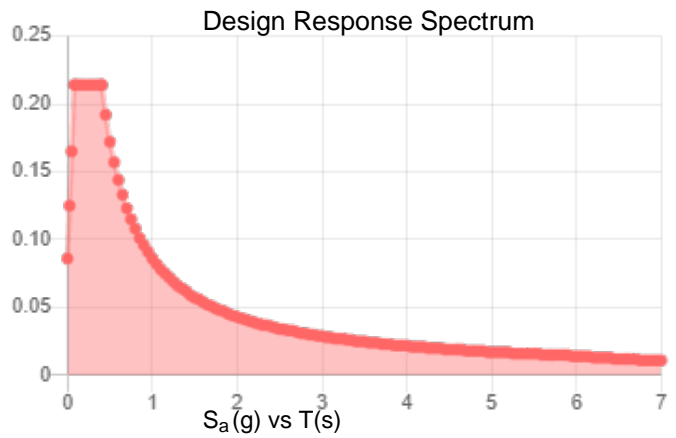
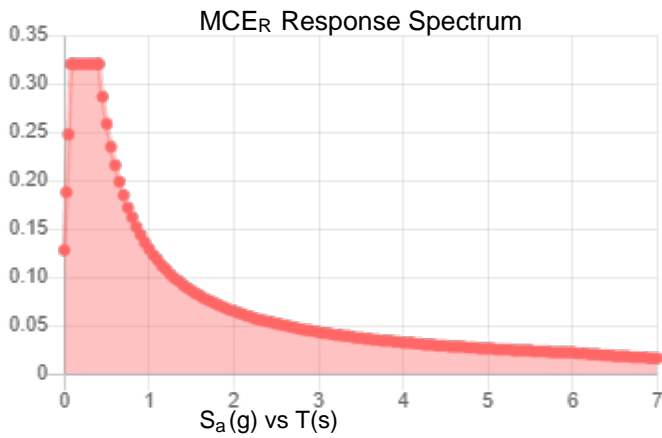
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

Results:

S_s :	0.201	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.112
F_v :	2.4	PGA _M :	0.177
S_{MS} :	0.321	F_{PGA} :	1.576
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.214	C_v :	0.701

Seismic Design Category B



Data Accessed: Tue Jun 14 2022

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 15 F
Gust Speed 50 mph

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

Date Accessed: Tue Jun 14 2022

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

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

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Exhibit F

Power Density/RF Emissions Report



Radio Frequency Emissions Analysis Report



Site ID: BOHVN00181A

SBA - Hamden CT
1055 Wintergreen Avenue
Hamden, CT 06514

May 3, 2022

Fox Hill Telecom Project Number: 220973

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	9.52 %



May 3, 2022

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOHVN00181A – SBA - Hamden CT**

Fox Hill Telecom, Inc (“Fox Hill”) was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **1055 Wintergreen Avenue, Hamden, 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 **1055 Wintergreen Avenue, Hamden, 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	180
B	1	JMA MX08FRO665-21	180
C	1	JMA MX08FRO665-21	180

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	2.68
Sector A Composite MPE%							2.68
Antenna B1	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	2.68
Sector B Composite MPE%							2.68
Antenna C1	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	2.68
Sector C Composite MPE%							2.68

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	2.68 %
Mobile Comm	0.03 %
Page America	0.02 %
Tri State Radio	0.09 %
Skytel	0.10 %
Utility Comm	0.59 %
Marcus/VoiceLink	0.02 %
Destineer	0.11 %
Pronet	0.03 %
Airtouch	2.47 %
Metrocall	0.13 %
United Illum.	0.39 %
PageNet	0.24 %
Tri State Radio	0.18 %
United Illum.	0.31 %
ProNET	0.07 %
Emergency Medical	0.13 %
Arch CT paging	0.66 %
Teligent	0.00 %
Verizon Wireless	1.27 %
Site Total MPE %:	9.52 %

Table 4: All Carrier MPE Contributions



Dish Sector A Total:	2.68 %
Dish Sector B Total:	2.68 %
Dish Sector C Total:	2.68 %
Site Total:	9.52 %

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	180	4.08	n71 (600 MHz)	400	1.02%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,648.39	180	7.83	n70 (AWS-4 / 1995-2020)	1000	0.78%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,849.52	180	8.78	n66 (AWS-4 / 2180-2200)	1000	0.88%
						Total	2.68%

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:	2.68 %
Sector B:	2.68 %
Sector C:	2.68 %
Dish Maximum Total (per sector):	2.68 %
Site Total:	9.52 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **9.52 %** 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

Exhibit G

Letter of Authorization

SBA Letter of Authorization

CT - CONNECTICUT SITING COUNCIL

Melanie A. Bachman

Executive Director

Connecticut Siting Council

10 Franklin Square

New Britain, CT 06051

Re: Tower Share Application

SBA COMMUNICATIONS CORPORATION hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CONNECTICUT SITING COUNCIL for existing wireless communications towers.

Kri Pelletier

Site Development Manager


SBA COMMUNICATIONS CORPORATION

134 Flanders Road, Suite 125

Westboro, MA 01581

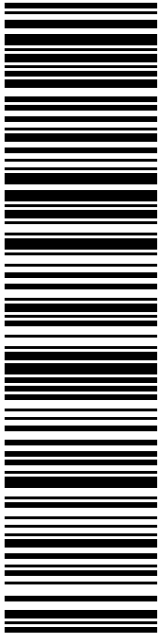
Exhibit H

Recipient Mailings



SBA COMMUNICATIONS CORPORATION
STE 125
13 FLANDERS RD
WESTBOROUGH MA 01581

USPS TRACKING #




9405 5036 9930 0301 9611 15

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

PRIORITY MAIL®

Expected Delivery Date: 07/23/22
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9405 5036 9930 0301 9611 15	
Trans. #: 568069144	Priority Mail® Postage: \$8.95
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Ship Date: 07/21/2022	
Expected Delivery Date: 07/23/2022	
<hr/>	
From: DEBORAH CHASE NORTHEAST SITE SOLUTIONS STE 1 420 MAIN ST STURBRIDGE MA 01566-1359	Ref#: SBDS-00181
<hr/>	
To: SBA COMMUNICATIONS CORPORATION STE 125 13 FLANDERS RD WESTBOROUGH MA 01581	
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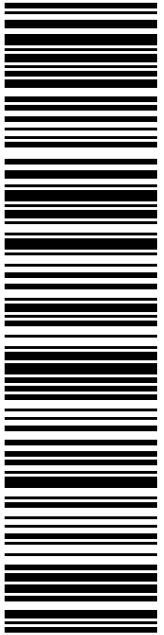


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LAUREN GARRETT
MAYOR- TOWN OF HAMDEN
2750 DIXWELL AVE
HAMDEN CT 06518-3320

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 STE 1
 420 MAIN ST
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To: LAUREN GARRETT
 MAYOR- TOWN OF HAMDEN
 2750 DIXWELL AVE
 HAMDEN CT 06518-3320

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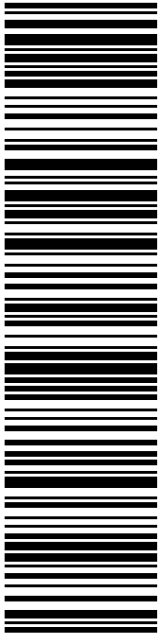
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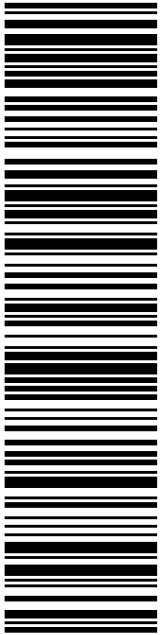
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Ship Date: 07/21/2022	
Expected Delivery Date: 07/25/2022	
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From: DEBORAH CHASE NORTHEAST SITE SOLUTIONS STE 1 420 MAIN ST STURBRIDGE MA 01566-1359	Ref#: SBDS-00181
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HAMDEN CT 06518-3320

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Expected Delivery Date: 07/25/2022	
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NORTHEAST SITE SOLUTIONS	
STE 1	
420 MAIN ST	
STURBRIDGE MA 01566-1359	
To: EUGENE LIVSHITS	
ACTING TOWN PLANNER- TOWN OF HAMDEN	
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2750 DIXWELL AVE	
HAMDEN CT 06518-3320	
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STE 1
STURBRIDGE MA 01566-1359

Type of Mail	Volume
Priority Mail®	4
Priority Mail Express™*	0
International Mail*	0
First-Class Package Service - Retail™	0
Parcel Select® Ground	0
Other	0
Total Volume	4

*Start time for products with service guarantees will begin when mail arrives at the local Post Office™ and items receive individual processing and acceptance scans.

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