



October 4, 2022

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

Re: Exempt Modification Application – AT&T Site 13757806
AT&T Mobility Telecommunications Facility @ 134 Kikapoo Road, Middlefield, CT

Dear Ms. Bachman,

Enclosed please find a check in the amount of Six Hundred and Twenty Five Dollars (\$625.00); an original and two (2) copies of the following documents: the CSC Tower Share letter; a Letter of Authorization from the tower owner; GIS data of the property; a set of Construction Drawings; a Structural Analysis Report; an Antenna Mount Analysis Report; an EME Study Report; and four (4) Notice Confirmations.

Please note that in accordance with the Council directive dated September 23, 2022, all information used in EME Report was analyzed as a percentage of the Maximum Permissible Exposure limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01.

I will email copies of these documents to the Council.

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

Respectfully Submitted,

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

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



September 28, 2022

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

Re: Exempt Modification Application – AT&T Site 13757806
AT&T Mobility Telecommunications Facility @ 134 Kikapoo Road, Middlefield, CT 06455
Original Tower Approval: Connecticut Siting Council Docket # 40, dated May 15, 1984

Dear Ms. Bachman,

New Cingular Wireless, PCS, LLC (dba AT&T) currently maintains antennas on a wireless telecommunications facility on an existing American Tower Corporation (ATC) telecommunications tower at the above referenced address. AT&T desires to modify its existing equipment as described in the attached Construction Drawings:

- Remove three (3) sector frames, six (6) antennas and four (4) RRHs;
- Install three (3) sector frames, nine (9) antennas, two (2) RRHs, four (4) Y-cables, one (1) 2" Conduit, one (1) DC-6 squid, two (2) 8 AWG 6 DC, and one (1) 18-pair fiber.
- Ground work includes removal of (3) RRUWs and the installation of three (3) RRUS 2012 B29, four (4) rectifiers, and one (1) 6648 + IDLE.

Please accept this letter as notification pursuant to R.C.S.A §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 following individuals: American Tower Corporation as Tower Operator/Owner; SBC Tower Holdings LLC as Property Owner; the Honorable Robert Yamartino, First Selectman of Middlefield, and Jerry Russ, Middlefield Zoning Officer.

The applicant's proposal falls squarely within those activities explicitly provided for in R.C.S.A. §16-50j-89. Specifically:

1. The proposed modifications will NOT result in an increase in the height of the existing structure.
2. The proposed modifications will NOT require an extension of the site boundary.
3. The proposed modifications will NOT increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will NOT increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. Please see the RF emissions calculation for AT&T's modified facility enclosed herewith.
5. The proposed modifications will NOT cause an ineligible change or alteration in the physical or environmental characteristics of the site.



6. The existing structure and its foundation can support the proposed loading. Please see the Post Construction Structural Analysis Report dated September 9, 2022, enclosed herewith.

For the foregoing reasons, AT&T respectfully requests that the Council approve this Exempt Modification request for this tower located at 134 Kikapoo Road, Middlefield 06455. If you have any questions, please feel free to contact me.

Sincerely,

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

Jack Andrews
Zoning Manager, Centerline Communications
443-677-0144

Enclosures: Exhibit 1 – Letter of Authorization from tower owner
Exhibit 2 – Property Card and GIS
Exhibit 3 – Construction Drawings
Exhibit 4 – Structural Analysis Report
Exhibit 5 – Antenna Mount Analysis Report
Exhibit 6 – EME Study Report
Exhibit 7 – Four (4) Notice Confirmations

cc: American Tower Corporation - Tower Operator/Owner
SBC Tower Holdings LLC - Property Owner;
The Honorable Robert Yamartino - First Selectman of Middlefield
Jerry Russ - Middlefield Zoning Officer



AMERICAN TOWER®
CORPORATION
LETTER OF AUTHORIZATION

CENTERLINE COMMUNICATIONS LLC/ AT&T MOBILITY

I, Margaret Robinson, Vice President, US Tower Legal Division on behalf of American Tower*, owner/operator of the tower facility located at the address identified below (the "Tower Facilities"), do hereby authorize AT&T MOBILITY, CENTERLINE COMMUNICATIONS LLC, its successors and assigns, to act as American Tower's non-exclusive agent for the purpose of filing and securing any zoning, land-use, building permit and/or electrical permit application(s) and approvals of the applicable jurisdiction for and to conduct the construction of the installation of antennas and related telecommunications equipment on the Tower Facility located at the above address. This installation shall not affect adjoining lands and will occur only within the area leased by American Tower.

American Tower understands that the application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by American Tower of conditions related to American Tower's installation. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit AT&T MOBILITY, CENTERLINE COMMUNICATIONS LLC to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to American Tower's installation of telecommunications equipment without the prior written approval of American Tower.

*American Tower includes all affiliates and subsidiaries of American Tower Corporation.


ATC Asset #	Site Name	Project Number	Site Address
283420	STONEBROOK RD CT	13682835	23 Stonybrook Road, Stratford, Connecticut
243036	WEST HAVEN & RT 162 CT	13682841	668 Jones Hill Road, West Haven, Connecticut
302479	Rkhl - Rocky Hill	13683394	699 West Street, Rocky Hill, Connecticut
302537	Middletown CT 3	13747862	47 Inwood Road, Rocky Hill, Connecticut
302535	Milford CT 2	13748383	185 Research Drive, Milford, Connecticut
302473	E H F R - Prestige Park	13748397	310 Prestige Park Road, East Hartford, Connecticut
302505	Wshn - West Haven	13748405	204 Burwell Street, West Haven, Connecticut
302489	Enfd - Enfield	13753208	77 Town Farm Road, Enfield, Connecticut
302524	Beacon Falls	13753210	664 Rimmon Hill Road, Seymour, Connecticut
310968	WSPT-WESTPORT REBUILD CT	13753216	180A Bayberry Lane, Westport, Connecticut
302526	Naugatuck (telephone Pole)	13753218	585 South Main St. (soc. Club), Naugatuck, Connecticut
310972	WATERFORD REBUILD CT	13753547	15 Miner Lane, Waterford, Connecticut
302538	Parsonage Hill Aka Wallin	13753549	922 Northrop Road, Wallingford, Connecticut
370624	Mankes Silo	13754283	1338 Highland Ave, Cheshire, Connecticut



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88017	SHELTON-TRUMBULL	13755484	14 OXFORD DRIVE/BOOTH HILL RD, Shelton, Connecticut
414240	Byram Park CT	13755490	48 RITCH AVENUE WEST, Greenwich, Connecticut
283423	NAUGATUCK CT	13755758	880 Andrew Mountain Road, Naugatuck, Connecticut
302480	Woodbridge CT 1	13756843	77 Pease Road, Woodbridge, Connecticut
411183	WATERFORD CT	13756866	53 Dayton Rd. Waterford, Connecticut
302540	Madison CT 6	13757740	8 Old 79, Madison, Connecticut
411259	CT Collinsville CAC 802816 CT	13757764	650 Albany Turnpike, Collinsville, Connecticut
411256	CANTON CT	13757774	14 CANTON SPRINGS ROAD, Canton, Connecticut
302493	Nrwc - Norwich	13757776	225 Rogers Road, Norwich, Connecticut
302476	Wtbr - Waterbury	13757794	352 Garden Circle, Waterbury, Connecticut
302475	Sttn - Southington	13757796	80 Shuttle Meadow Road, Southington, Connecticut
302494	Hddm - Haddam	13757798	139 Morris Hubbard Rd, Higganum, Connecticut
283419	PINE ORCHARD BRANFORD CT	13757800	123 Pine Orchard Road, Branford, Connecticut
302482	North Havent CT 1	13757802	15 Dewight Street, North Haven, Connecticut
302485	Mdfd - Middlefield	13757806	134 Kikapoo Road, Middlefield, Connecticut
302500	Brst - Bristol	13757810	790 Willis Street, Bristol, Connecticut
302467	Bilkays Express	13757812	90 North Plains Industrial Rd. Wallingford, Connecticut
302536	Cherry Hill-branford	13759895	4 Beaver Road, Brandford, Connecticut
302482	North Havent CT 1	14050356	15 Dewight Street, North Haven, Connecticut
311305	GLFD-GUILFORD REBUILD CT	14050358	10 Tanner Marsh Road, Guilford, Connecticut
411261	CROMWELLSW CT	14089799	99 Christian Hill Road, Cromwell, Connecticut
302481	Hrfr - South	14090117	289 Mountain Street, Hartford, Connecticut

Signature: _____


Margaret Robinson, Vice President
US Tower Legal Division

See attached Notary Block



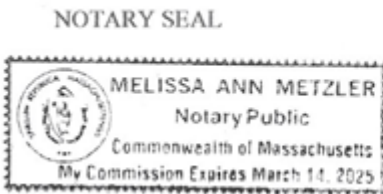
**LETTER OF AUTHORIZATION
CENTERLINE COMMUNICATIONS LLC/ AT&T MOBILITY**

NOTARY BLOCK

COMMONWEALTH OF MASSACHUSETTS
County of Middlesex

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

WITNESS my hand and official seal, this 30th day of June, 2022.



Notary Public 
My Commission Expires: March 14, 2025

AN APPLICATION SUBMITTED BY THE SOUTHERN : CONNECTICUT SITING
NEW ENGLAND TELEPHONE COMPANY FOR A
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY :
AND PUBLIC NEED FOR THE CONSTRUCTION, : COUNCIL
MAINTENANCE, AND OPERATION OF FACILITIES
TO PROVIDE CELLULAR SERVICE IN THE HARTFORD :
AND MIDDLESEX COUNTIES. : May 15, 1984

D E C I S I O N A N D O R D E R

Pursuant to the foregoing opinion, the Council hereby directs that a certificate of environmental compatibility and public need as required by section 16-50k of the General Statutes of Connecticut, revisions of 1958, revised to 1983, as amended, be issued to Southern New England Telephone for the construction, operation, and maintenance of a telecommunications tower and associated equipment to provide cellular service at each of the following sites:

Shuttle Meadow Road, Southington, Connecticut;
Mountain Street, Hartford, Connecticut;
Prestige Park Road, East Hartford, Connecticut;
Beckley Road, Berlin, Connecticut;
Slicer tract, Niederwerfer Road, South Windsor, Connecticut; and
Kikapoo Road, Middlefield, Connecticut.

The facilities shall be constructed, operated, and maintained as specified in the Council's record on this matter, and subject to the following conditions.

1. The towers shall be no taller than necessary to provide the proposed service and in no event shall exceed
 - a) 150 feet at the Southington site,
 - b) 100 feet at the Hartford site,
 - c) 150 feet at the East Hartford site,
 - d) 150 feet at the Berlin site,
 - e) 75 feet at the South Windsor site, and
 - f) 75 feet at the Middlefield site.
2. A fence not lower than eight feet shall surround each tower and its associated equipment.

3. The applicant or its successor shall notify the Council if and when directional antennas or any other equipment is added to any of these facilities.
4. The applicant or its successor shall permit in accordance with representations made by it during the proceeding public or private entities to share space on the facilities, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
5. Unless necessary to comply with condition number seven, below, no lights shall be installed on any of these towers.
6. The facility construction shall be conducted in accordance with all applicable federal, state, and municipal laws and regulations.
7. The applicant shall submit a development and management plan (D&M) for the South Windsor, Southington, and Berlin sites pursuant to sections 16-50j-85 through 16-50j-87 of the regulations of state agencies, except that irrelevant items in section 16-50j-86 need only be identified as such. The D&M plans shall include appropriate evergreen screening of the sites. The applicant shall comply with the reporting requirements of section 16-50j-87 for all sites. The applicant shall consult with Mrs. Claire Aubin and the Town of South Windsor in the preparation of the South Windsor site D&M.
8. Construction activities shall take place during daylight working hours.
9. This decision and order shall be void and the towers and associated equipment approved herein shall be dismantled and removed,

or reapplication for any new use shall be made to the Connecticut Siting Council before any such new use is made, if the towers do not provide or permanently cease to provide cellular service following completion of construction.

10. This decision and order shall be void if all construction authorized is not completed within three years of the issuance of this decision.

Pursuant to section 16-50p(c) of the General Statutes, we hereby direct that a copy of the opinion and decision and order be served on each person listed below. A notice of the issuance shall be published in the Hartford Courant, Journal Inquirer, and the Middletown Press.

The parties to this proceeding are

Southern New England
Telephone Company
Room 314
227 Church Street
New Haven, Connecticut 06506

(Applicant)

ATTN: Mr. Peter J. Tyrrell, Esquire

(its attorney)

Town of South Windsor
1540 Sullivan Avenue
South Windsor, Connecticut 06074

represented by:

Mr. Richard M. Rittenband
Town Attorney
1734 Ellington Road
South Windsor, Connecticut 06074

Frank Niederwerfer
260 Niederwerfer Road
South Windsor, Connecticut 06074

(service waived)

Claire Aubin
407 Niederwerfer Road
South Windsor, Connecticut 06074

(service waived)

Betty S. Kleiner
Chairman
Hartford Audubon Society, Inc.
5 Flintlock Ridge
Simsbury, Connecticut 06070

(service waived)

Roger Thorpe
2916 Ellington Road
South Windsor, Connecticut 06074

Intervenors in this proceeding are

Dwight A. Johnson
Murtha, Cullina, Richter
and Pinney
101 Pearl Street
P.O. Box 3197
Hartford, Connecticut 06103-0197

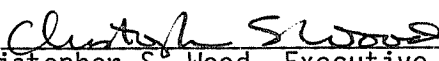
representing:

Metromedia TeleCommunications
Nutmeg Telecommunications, Inc.
CSI of New Haven
CSI of Stamford
Cellular Communications, Inc.
LIN Cellular Corp.
Cellular Mobile Services
Maxcell TeleCommunications, Inc.
Mobile Cellular Telephone, Inc.
Cellular Dynamics
Connecticut Corridor Cellular
Chase/Post Cellular

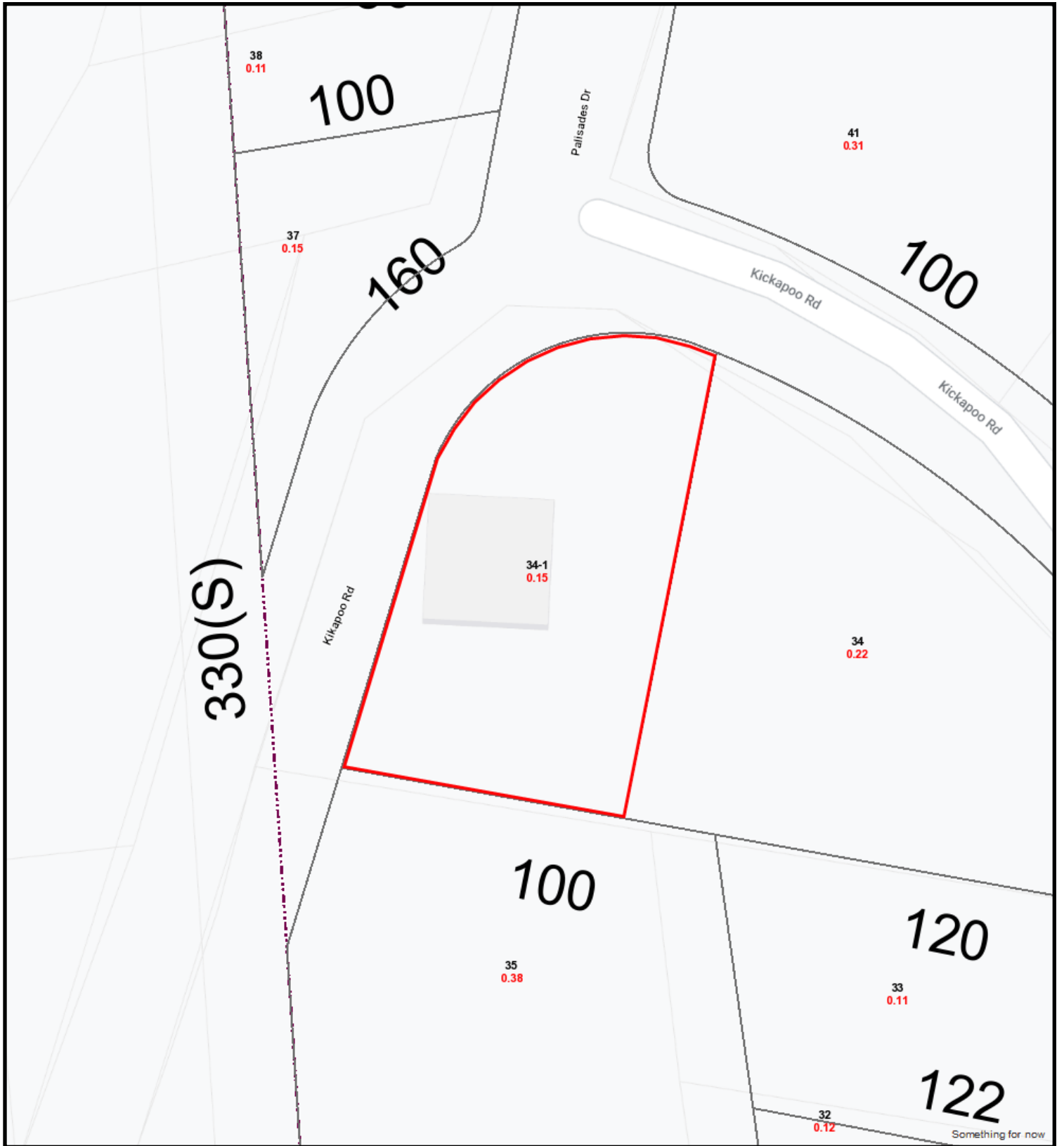
STATE OF CONNECTICUT)
 :
COUNTY OF HARTFORD) ss. New Britain, May 15, 1984

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:



Christopher S. Wood, Executive Director
Connecticut Siting Council



13757806

9/27/2022 6:17:02 PM

Scale: 1"=31'

Scale is approximate

The information depicted on this map is for planning purposes only.
It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.





AMERICAN TOWER®
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Post Modification Structural Analysis Report

Structure : 75 ft Monopole
ATC Site Name : Mdfd - Middlefield,CT
ATC Site Number : 302485
Engineering Number : 13757806_C4_05
Proposed Carrier : AT&T MOBILITY
Carrier Site Name : MRCTB056008
Carrier Site Number : CTL01016
Site Location : 134 Kikapoo Road
Middlefield, CT 06455-1334
41.5136, -72.7458
County : Middlesex
Date : September 9, 2022
Max Usage : 76%
Result : Pass

Prepared By:

Kingsley C. Igboanugo
Structural Engineer III

Reviewed By:



COA : PEC.0001553



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Introduction

The purpose of this report is to summarize results of a post modification structural analysis performed on the 75 ft Monopole to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

Tower Drawings	Meyer Industries Job #AT&T Technologies Mapping by HTS Project #HTS071108, dated July 10, 2008
Foundation Drawing	Southern New England Telephone Job #38920, dated October 28, 1983
Geotechnical Report	S&ME Job #1261-08-261M, dated July 30, 2008
Modifications	ATC Project #13193668_C6_08, dated August 27, 2020
Inspection	ATC Project #13757806_C6_04, dated August 9, 2022 (Pending)

Analysis

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

Basic Wind Speed:	119 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 2
Crest Height (H):	309 ft
Crest Length (L):	422 ft
Spectral Response:	$S_s = 0.21, S_i = 0.06$
Site Class:	D - Stiff Soil - Default

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

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report. If the pending modifications cited in the supporting documents table are not completed, the results of this analysis are no longer valid, and AT&T mobility should contact America Tower's Site Manager for further direction on how to proceed.

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

Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
83.0	1	Generic 10' Omni		(1) 7/8" Coax	OTHER
	1	Generic 10' Omni		(1) 1 5/8" Coax	SPOK HOLDINGS, INC.
	2	Ericsson RRUS 4449 B5, B12		AT&T MOBILITY	
	2	Raycap DC6-48-60-18-8C			
	2	Raycap DC6-48-60-18-8F (23.5" Height)			
	2	Ericsson RRUS 32 B2			
	3	Ericsson RRUS 32 B30			
	2	CCI DMP65R-BU8D			
10.0	1	Channel Master Type 120	Flush	(1) 0.28" (7mm) RG-6	SPOK HOLDINGS, INC.

Equipment to be Removed

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
78.0	3	Ericsson 4478 Band 14 (15" Height)	T-Arm with Platform	(1) 0.39" (10mm) Fiber Trunk (6) 7/8" Coax (2) 3" conduit	AT&T MOBILITY
	6	Powerwave Allgon 7020			
	1	CCI DMP65R-BU8D			
	1	Ericsson RRUS 32 B2			
	2	Raycap DC6-48-60-18-8C			
	3	CCI HPA-65R-BUU-H8			
	3	CCI TPA-65R-LCUUUU-H8			

Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
80.0	3	Ericsson Air 6449 B77D	Triangular Platform with Handrails and Walking Platforms	(3) 0.41" (10.3mm) Fiber (8) 0.82" (20.8mm) 8 AWG 6 (2) 2" conduit	AT&T MOBILITY
78.0	6	Kaelus DBC0051F3V51-2			
	5	Ericsson RRUS 8843 B2, B66A			
	3	Ericsson RRUS 4478 B14			
	1	Raycap DC6-48-60-18-8C-EV			
	1	Raycap DC9-48-60-24-8C-EV			
	1	Matsing MBA-3.2-H4-L4			
76.0	3	Quintel QD8616-7			
76.0	3	Ericsson AIR 6419 B77G			

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

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	27%	Pass
Shaft	76%	Pass
Reinforcement	67%	Pass
Base Plate	46%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	1104.8	73%
Shear (Kips)	20.9	5%

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

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
80.0	Ericsson Air 6449 B77D	AT&T MOBILITY	0.000	0.000
78.0	Ericsson RRUS 8843 B2, B66A	AT&T MOBILITY	0.000	0.000
	Matsing MBA-3.2-H4-L4			
	Kaelus DBC0051F3V51-2			
	Quintel QD8616-7			
	Ericsson RRUS 4478 B14			
	Raycap DC6-48-60-18-8C-EV			
	Raycap DC9-48-60-24-8C-EV			
76.0	Ericsson AIR 6419 B77G	AT&T MOBILITY	0.000	0.000
10.0	Channel Master Type 120	SPOK HOLDINGS, INC.	0.013	0.140

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

Standard Conditions

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

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

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

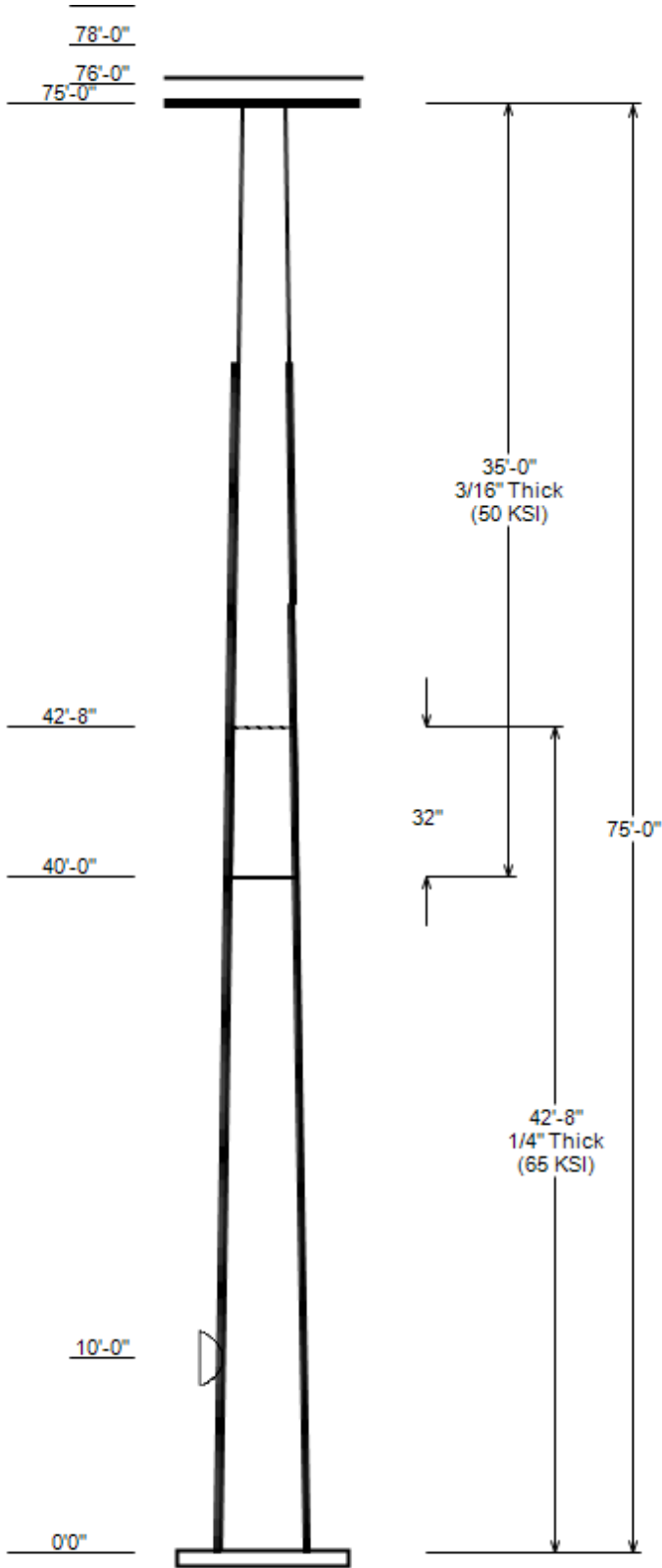
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively “American Tower”) are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

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

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

Asset : 302485, Mdfd - Middlefield
 Client : AT&T MOBILITY
 Code : ANSI/TIA-222-H

Height : 75 ft
 Base Width : 27.97
 Shape : 12 Sides



SITE PARAMETERS

Nominal Wind: 115.99 mph wind with no ic **Topo Category:** 0
Ice Wind: 48.73 mph wind with 0.850" **Topo Method:** Method 2
Base Elev (ft): 0.00 **Taper :** 0.17800 (in/ft) **Topo Feature:** Flat Topped Ridge
Structure Class: II **Exposure :** B **S_s :** 0.207 **S₁ :** 0.055

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in) Across Flats		Thick Joint (in) Type	Overlap Length (in) Shape	Steel Grade (ksi)
		Top	Bottom			
1	42.667	20.38	27.97	0.250	0.000 12 Sides	65
2	35.000	15.00	21.23	0.188 Slip Joint	32.000 12 Sides	50

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
83.0	83.0	1	Generic 10' Omni
83.0	84.0	1	Generic 10' Omni
80.0	80.0	3	Ericsson Air 6449 B77D
78.0	78.0	6	Kaelus DBC0051F3V51-2
78.0	78.0	2	Raycap DC6-48-60-18-8F (23.5")
78.0	78.0	5	Ericsson RRUS 8843 B2, B66A
78.0	78.0	4	Ericsson RRUS 4449 B5, B12
78.0	78.0	3	Ericsson RRUS 4478 B14
78.0	78.0	3	Ericsson RRUS 32 B30
78.0	78.0	2	Ericsson RRUS 32 B2
78.0	78.0	1	Raycap DC6-48-60-18-8C-EV
78.0	78.0	1	Raycap DC9-48-60-24-8C-EV
78.0	78.0	3	CCI HPA-65R-BUU-H8
78.0	78.0	1	Matsing MBA-3.2-H4-L4
78.0	78.0	2	CCI DMP65R-BU8D
78.0	78.0	3	Quintel QD8616-7
76.0	76.0	3	Ericsson AIR 6419 B77G
75.0	75.0	1	Generic Mount Reinforcement
75.0	75.0	1	Generic Round Platform with Ha
10.0	10.0	1	Channel Master Type 120

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	83.0	7/8" Coax	No
0.0	83.0	1 5/8" Coax	No
0.0	78.0	7/8" Coax	No
0.0	78.0	2" conduit	No
0.0	78.0	0.82" (20.8mm) 8 AWG 6	No
0.0	78.0	0.41" (10.3mm) Fiber	No
52.5	67.5	#20 w/ Angle Brackets	Yes
52.5	67.5	#20 w/ Angle Brackets	Yes
52.5	67.5	#20 w/ Angle Brackets	Yes
52.5	67.5	#20 w/ Angle Brackets	Yes
0.0	52.5	#20 w/ Angle Brackets	Yes
0.0	52.5	#20 w/ Angle Brackets	Yes
0.0	52.5	#20 w/ Angle Brackets	Yes
0.0	52.5	#20 w/ Angle Brackets	Yes
0.0	10.0	0.28" (7mm) RG-6	No

LOAD CASES

1.2D + 1.0W 115.99 mph wind with no ice
 0.9D + 1.0W 115.99 mph wind with no ice

JOB INFORMATION

Asset : 302485, Mdfd - Middlefield
 Client : AT&T MOBILITY
 Code : ANSI/TIA-222-H

Height : 75 ft
 Base Width : 27.97
 Shape : 12 Sides

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

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W	1104.76	20.88	19.43
0.9D + 1.0W	1098.48	20.86	14.56
1.2D + 1.0Di + 1.0Wi	256.12	4.55	26.36
1.2D + 1.0Ev + 1.0Eh	48.69	0.76	19.10
0.9D - 1.0Ev + 1.0Eh	48.34	0.76	13.14
1.0D + 1.0W	268.88	5.13	16.23

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	10.00	0.149	0.138

ASSET: 302485, Mdfd - Middlefield
CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
ENG NO: 13757806_C4_05

ANALYSIS PARAMETERS

Location:	Middlesex County,CT	Height:	75 ft
Type and Shape:	Taper, 12 Sides	Base Diameter:	27.97 in
Manufacturer:	ITT Meyer	Top Diameter:	15.00 in
K_d (non-service):	0.95	Taper:	0.1780 in/ft
K_e:	0.97	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed w/o Ice:	116 mph
Risk Category:	II	Design Wind Speed w/Ice:	49 mph
Topo Factor Procedure:	Method 2	Operational Wind Speed:	60 mph
		Design Ice Thickness:	0.85 in
		HMSL:	770.00 ft
Crest Height(H):	309 ft	Distance from Apex (x):	101 ft
Crest Length(L):	422 ft	Upwind/Downwind:	Upwind
Feature:	Flat Topped Ridge		

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	1.25
T_L (sec):	6	P:	1
S_s:	0.207	S₁:	0.055
F_a:	1.600	F_v:	2.400
S_{ds}:	0.221	S_{d1}:	0.088
		C_s:	0.047
		C_s Max:	0.047
		C_s Min:	0.030

LOAD CASES

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

ASSET: 302485, Mdfd - Middlefield
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
 ENG NO: 13757806_C4_05

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-12	42.67	0.2500	65		0.00	2,796	27.97	0.003	22.31	2,188.6	27.30	111.88	20.38	42.67	16.20	837.9	19.16	81.51	0.1779
2-12	35.00	0.1875	50	Slip	32.00	1,289	21.23	40.000	12.70	717.8	27.66	113.22	15.00	75.00	8.94	250.5	18.76	80.00	0.1779

Shaft Weight 4,085

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice			Ice											
					Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor									
83.00	Generic 10' Omni	1	1.00	0.000	25.00	3.000	1.00	74.79	5.361	1.00									
83.00	Generic 10' Omni	1	1.00	1.000	25.00	3.000	1.00	74.79	5.361	1.00									
80.00	Ericsson Air 6449 B77D	3	0.75	0.000	81.60	4.028	0.65	149.06	4.930	0.65									
78.00	Ericsson RRUS 32 B2	2	0.75	0.000	53.00	2.743	0.50	101.25	3.510	0.50									
78.00	Quintel QD8616-7	3	0.75	0.000	150.00	18.815	0.65	399.80	21.240	0.65									
78.00	CCI DMP65R-BU8D	2	0.75	0.000	95.70	17.871	0.63	318.66	20.288	0.63									
78.00	Matsing MBA-3.2-H4-L4	1	0.75	0.000	130.00	15.211	1.00	444.69	17.102	1.00									
78.00	Kaelus DBC0051F3V51-2	6	0.75	0.000	12.40	0.413	0.50	22.15	0.702	0.50									
78.00	Raycap DC6-48-60-18-8F (23.5"	2	0.75	0.000	20.00	1.260	0.50	54.54	1.692	0.50									
78.00	Ericsson RRUS 8843 B2, B66A	5	0.75	0.000	72.00	1.639	0.50	112.21	2.193	0.50									
78.00	Ericsson RRUS 4449 B5, B12	4	0.75	0.000	71.00	1.969	0.50	113.28	2.581	0.50									
78.00	Ericsson RRUS 4478 B14	3	0.75	0.000	59.40	2.021	0.50	99.66	2.640	0.50									
78.00	Ericsson RRUS 32 B30	3	0.75	0.000	60.00	2.743	0.50	108.26	3.510	0.50									
78.00	Raycap DC6-48-60-18-8C-EV	1	0.75	0.000	16.00	4.788	0.50	100.71	5.753	0.50									
78.00	Raycap DC9-48-60-24-8C-EV	1	0.75	0.000	16.00	4.788	0.50	100.69	5.753	0.50									
78.00	CCI HPA-65R-BUU-H8	3	0.75	0.000	68.00	12.976	0.67	236.56	15.324	0.67									
76.00	Ericsson AIR 6419 B77G	3	0.75	0.000	66.10	3.797	0.65	129.75	4.661	0.65									
75.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3562.52	43.235	1.00									
75.00	Generic Mount Reinforcement	1	1.00	0.000	200.00	7.500	1.00	326.95	12.412	1.00									
10.00	Channel Master Type 120	1	1.00	0.000	126.00	20.190	0.93	240.87	21.871	0.93									
Totals	Num Loadings: 20					47		5,549.10					10,391.25						

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : 0.00_

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	83.00	1	7/8" Coax	1.09	0.33	N	0	0	0	0	0	N	OTHER
0.00	83.00	1	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	SPOK HOLDINGS
0.00	78.00	8	7/8" Coax	1.09	0.33	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	78.00	8	0.82" (20.8mm) 8 AWG	0.82	0.62	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	78.00	3	0.41" (10.3mm) Fiber	0.41	0.09	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	78.00	2	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
52.50	67.50	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	0	0	Y	
52.50	67.50	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	90	0	Y	
52.50	67.50	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	270	0	Y	
52.50	67.50	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	180	0	Y	
0.00	52.50	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	180	0	Y	
0.00	52.50	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	0	0	Y	
0.00	52.50	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	270	0	Y	
0.00	52.50	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	90	0	Y	
0.00	10.00	1	0.28" (7mm) RG-6	0.28	0.03	N	0	0	0	0	0	N	SPOK HOLDINGS

ADDITIONAL STEEL

Intermediate Connectors

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	49.04	4	SOL #20 All Thread Bar	80	2.19	6" Angle Bracket	30.00	3.13	5/8" A36 U-Bolt	N
49.04	61.58	4	SOL #20 All Thread Bar	80	2.19	6" Angle Bracket	30.00	3.31	5/8" A36 U-Bolt	Y

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SEGMENT PROPERTIES

(Max Len: 5.ft)

Additional Reinforcing

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)	Area (in ²)	Ix (in ⁴)	Weight (lb)
0.00		0.2500	27.970	22.315	2,188.60	27.30	111.88	74.9	151.2	0.0	0.0	19.640	2,989.30	0.0
5.00		0.2500	27.080	21.598	1,984.50	26.35	108.32	76	141.6	0.0	373.6	19.640	2,839.00	334.0
10.00		0.2500	26.191	20.882	1,793.60	25.39	104.76	77	132.3	0.0	361.4	19.640	2,692.60	334.0
15.00		0.2500	25.301	20.166	1,615.30	24.44	101.20	78.1	123.3	0.0	349.2	19.640	2,550.10	334.0
20.00		0.2500	24.411	19.450	1,449.30	23.48	97.65	79.1	114.7	0.0	337.0	19.640	2,411.50	334.0
25.00		0.2500	23.522	18.734	1,295.00	22.53	94.09	80.1	106.4	0.0	324.8	19.640	2,276.70	334.0
30.00		0.2500	22.632	18.018	1,152.10	21.58	90.53	81.2	98.3	0.0	312.6	19.640	2,145.90	334.0
35.00		0.2500	21.742	17.301	1,020.10	20.62	86.97	81.9	90.6	0.0	300.5	19.640	2,018.90	334.0
40.00	Bot - Section 2	0.2500	20.853	16.585	898.60	19.67	83.41	81.9	83.2	0.0	288.3	19.640	1,895.80	334.0
42.67	Top - Section 1	0.1875	20.753	12.417	670.30	26.98	110.68	60.7	62.4	0.0	262.7	19.640	1,882.30	178.1
45.00		0.1875	20.338	12.166	630.50	26.38	108.47	61.1	59.9	0.0	97.6	19.640	1,826.40	155.9
49.04	Reinf. Top Reinf Bottom	0.1875	19.619	11.732	565.40	25.36	104.64	61.9	55.7	0.0	164.3	19.640	1,731.60	269.9
50.00		0.1875	19.449	11.629	550.70	25.11	103.73	62.1	54.7	0.0	38.2	19.640	1,709.50	64.1
55.00		0.1875	18.559	11.092	477.80	23.84	98.98	63	49.7	0.0	193.3	19.640	1,596.40	334.0
60.00		0.1875	17.669	10.555	411.70	22.57	94.24	63	45.0	0.0	184.1	19.640	1,487.20	334.0
61.58	Reinf. Top	0.1875	17.388	10.385	392.20	22.17	92.74	63	43.6	0.0	56.3	19.640	1,453.50	105.5
65.00		0.1875	16.780	10.017	352.00	21.30	89.49	63	40.5	0.0	118.7			
70.00		0.1875	15.890	9.480	298.40	20.03	84.75	63	36.3	0.0	165.9			
75.00		0.1875	15.000	8.943	250.50	18.76	80.00	63	32.3	0.0	156.7			
Totals:											4,085.2	4,113.5		

ASSET: 302485, Mdfd - Middlefield
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
 ENG NO: 13757806_C4_05

Load Case: 1.2D + 1.0W	115.99 mph wind with no ice	17 Iterations
Gust Response Factor:	1.10	
Dead load Factor:	1.20	
Wind Load Factor:	1.00	

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-19.43	-20.88	0.00	-1,104.8	0.00	1,104.76	1,505.06	391.62	1,024.09	849.62	0	0	0.559
5.00	-18.27	-20.01	0.00	-1,000.4	0.00	1,000.38	1,476.97	379.05	959.43	806.77	0.16	-0.29	0.519
10.00	-17.00	-18.14	0.00	-900.3	0.00	900.34	1,447.54	366.48	896.88	764.23	0.61	-0.57	0.480
15.00	-15.90	-17.32	0.00	-809.7	0.00	809.66	1,416.77	353.91	836.44	722.09	1.36	-0.84	0.443
20.00	-14.83	-16.52	0.00	-723.1	0.00	723.08	1,384.66	341.35	778.10	680.42	2.38	-1.1	0.407
25.00	-13.78	-15.75	0.00	-640.5	0.00	640.48	1,351.21	328.78	721.87	639.28	3.67	-1.35	0.371
30.00	-12.75	-14.99	0.00	-561.7	0.00	561.74	1,316.42	316.21	667.76	598.76	5.22	-1.59	0.335
35.00	-11.75	-14.24	0.00	-486.8	0.00	486.77	1,275.29	303.64	615.75	556.74	7.01	-1.82	0.300
40.00	-10.78	-13.61	0.00	-415.6	0.00	415.57	1,222.50	291.07	565.84	511.35	9.04	-2.03	0.268
42.67	-10.13	-13.21	0.00	-379.3	0.00	379.28	678.31	167.62	325.21	284.06	10.2	-2.14	0.363
45.00	-9.72	-12.77	0.00	-348.4	0.00	348.44	669.39	164.24	312.22	274.62	11.27	-2.23	0.337
49.04	-9.02	-12.32	0.00	-296.9	0.00	296.86	653.49	158.38	290.35	258.44	13.22	-2.38	0.294
50.00	-8.86	-11.97	0.00	-285.0	0.00	285.03	649.63	156.99	285.27	254.63	13.71	-2.41	0.284
55.00	-8.02	-11.22	0.00	-225.2	0.00	225.21	628.90	149.74	259.53	235.01	16.32	-2.57	0.231
60.00	-7.19	-10.66	0.00	-169.1	0.00	169.09	598.44	142.49	235.01	212.69	19.09	-2.71	0.182
61.58	-6.94	-10.34	0.00	-152.2	0.00	152.25	588.82	140.20	227.52	205.87	20	-2.75	0.167
61.58	-6.94	-10.34	0.00	-152.2	0.00	152.25	588.82	140.20	227.52	205.87	20	-2.75	0.757
65.00	-6.64	-9.81	0.00	-116.9	0.00	116.88	567.99	135.24	211.71	191.49	21.99	-2.82	0.627
70.00	-6.27	-9.21	0.00	-67.8	0.00	67.84	537.53	127.98	189.62	171.39	25.16	-3.19	0.413
75.00	0.00	-8.83	0.00	-21.8	0.00	21.81	507.08	120.73	168.75	152.41	28.63	-3.4	0.148

ASSET: 302485, Mdfd - Middlefield
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
 ENG NO: 13757806_C4_05

Load Case: 0.9D + 1.0W	115.99 mph wind with no ice	17 Iterations
Gust Response Factor:	1.10	
Dead load Factor:	0.90	
Wind Load Factor:	1.00	

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-14.56	-20.86	0.00	-1,098.5	0.00	1,098.48	1,505.06	391.62	1,024.09	849.62	0	0	0.554
5.00	-13.67	-19.97	0.00	-994.2	0.00	994.16	1,476.97	379.05	959.43	806.77	0.16	-0.29	0.515
10.00	-12.70	-18.08	0.00	-894.3	0.00	894.30	1,447.54	366.48	896.88	764.23	0.61	-0.57	0.475
15.00	-11.86	-17.25	0.00	-803.9	0.00	803.89	1,416.77	353.91	836.44	722.09	1.35	-0.84	0.438
20.00	-11.04	-16.44	0.00	-717.7	0.00	717.66	1,384.66	341.35	778.10	680.42	2.37	-1.09	0.402
25.00	-10.24	-15.66	0.00	-635.5	0.00	635.48	1,351.21	328.78	721.87	639.28	3.65	-1.34	0.366
30.00	-9.46	-14.89	0.00	-557.2	0.00	557.20	1,316.42	316.21	667.76	598.76	5.19	-1.58	0.331
35.00	-8.70	-14.14	0.00	-482.7	0.00	482.73	1,275.29	303.64	615.75	556.74	6.97	-1.81	0.296
40.00	-7.97	-13.50	0.00	-412.1	0.00	412.06	1,222.50	291.07	565.84	511.35	8.97	-2.02	0.264
42.67	-7.48	-13.11	0.00	-376.0	0.00	376.04	678.31	167.62	325.21	284.06	10.13	-2.12	0.358
45.00	-7.17	-12.66	0.00	-345.4	0.00	345.45	669.39	164.24	312.22	274.62	11.19	-2.21	0.333
49.04	-6.65	-12.22	0.00	-294.3	0.00	294.29	653.49	158.38	290.35	258.44	13.13	-2.36	0.290
50.00	-6.52	-11.86	0.00	-282.6	0.00	282.56	649.63	156.99	285.27	254.63	13.61	-2.39	0.280
55.00	-5.89	-11.12	0.00	-223.3	0.00	223.26	628.90	149.74	259.53	235.01	16.21	-2.55	0.228
60.00	-5.28	-10.57	0.00	-167.6	0.00	167.65	598.44	142.49	235.01	212.69	18.96	-2.69	0.179
61.58	-5.09	-10.25	0.00	-151.0	0.00	150.95	588.82	140.20	227.52	205.87	19.85	-2.73	0.164
61.58	-5.09	-10.25	0.00	-151.0	0.00	150.95	588.82	140.20	227.52	205.87	19.85	-2.73	0.747
65.00	-4.86	-9.71	0.00	-115.9	0.00	115.90	567.99	135.24	211.71	191.49	21.83	-2.8	0.619
70.00	-4.58	-9.11	0.00	-67.3	0.00	67.34	537.53	127.98	189.62	171.39	24.98	-3.17	0.406
75.00	0.00	-8.83	0.00	-21.8	0.00	21.81	507.08	120.73	168.75	152.41	28.42	-3.38	0.148

ASSET: 302485, Mdfd - Middlefield
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
 ENG NO: 13757806_C4_05

Load Case: 1.2D + 1.0Di + 1.0Wi	48.73 mph wind with 0.850" radial ice			16 Iterations
Gust Response Factor: 1.10	Ice Dead Load Factor	1.00		
Dead load Factor: 1.20			Ice Importance Factor	1.00
Wind Load Factor: 1.00				

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-26.36	-4.55	0.00	-256.1	0.00	256.12	1,505.06	391.62	1,024.09	849.62	0	0	0.137
5.00	-25.09	-4.42	0.00	-233.4	0.00	233.38	1,476.97	379.05	959.43	806.77	0.04	-0.07	0.128
10.00	-23.58	-4.09	0.00	-211.3	0.00	211.30	1,447.54	366.48	896.88	764.23	0.14	-0.13	0.119
15.00	-22.31	-3.96	0.00	-190.8	0.00	190.84	1,416.77	353.91	836.44	722.09	0.32	-0.2	0.111
20.00	-21.06	-3.84	0.00	-171.0	0.00	171.01	1,384.66	341.35	778.10	680.42	0.56	-0.26	0.102
25.00	-19.83	-3.70	0.00	-151.8	0.00	151.82	1,351.21	328.78	721.87	639.28	0.86	-0.32	0.093
30.00	-18.62	-3.55	0.00	-133.3	0.00	133.32	1,316.42	316.21	667.76	598.76	1.22	-0.37	0.085
35.00	-17.42	-3.39	0.00	-115.6	0.00	115.58	1,275.29	303.64	615.75	556.74	1.65	-0.43	0.076
40.00	-16.24	-3.25	0.00	-98.6	0.00	98.63	1,222.50	291.07	565.84	511.35	2.12	-0.48	0.068
42.67	-15.48	-3.16	0.00	-90.0	0.00	89.97	678.31	167.62	325.21	284.06	2.4	-0.5	0.092
45.00	-14.98	-3.05	0.00	-82.6	0.00	82.60	669.39	164.24	312.22	274.62	2.65	-0.53	0.086
49.04	-14.12	-2.95	0.00	-70.3	0.00	70.26	653.49	158.38	290.35	258.44	3.11	-0.56	0.075
50.00	-13.91	-2.86	0.00	-67.4	0.00	67.43	649.63	156.99	285.27	254.63	3.22	-0.57	0.073
55.00	-12.86	-2.68	0.00	-53.1	0.00	53.12	628.90	149.74	259.53	235.01	3.84	-0.61	0.060
60.00	-11.83	-2.53	0.00	-39.7	0.00	39.74	598.44	142.49	235.01	212.69	4.49	-0.64	0.048
61.58	-11.51	-2.45	0.00	-35.7	0.00	35.74	588.82	140.20	227.52	205.87	4.71	-0.65	0.044
61.58	-11.51	-2.45	0.00	-35.7	0.00	35.74	588.82	140.20	227.52	205.87	4.71	-0.65	0.193
65.00	-11.09	-2.31	0.00	-27.4	0.00	27.36	567.99	135.24	211.71	191.49	5.18	-0.66	0.163
70.00	-10.58	-2.18	0.00	-15.8	0.00	15.79	537.53	127.98	189.62	171.39	5.92	-0.75	0.112
75.00	0.00	-2.04	0.00	-4.9	0.00	4.87	507.08	120.73	168.75	152.41	6.74	-0.8	0.032

ASSET: 302485, Mdfd - Middlefield
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
 ENG NO: 13757806_C4_05

Load Case: 1.0D + 1.0W	60 mph Wind with No Ice	16 Iterations
Gust Response Factor:	1.10	
Dead load Factor:	1.00	
Wind Load Factor:	1.00	

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-16.23	-5.13	0.00	-268.9	0.00	268.88	1,505.06	391.62	1,024.09	849.62	0	0	0.140
5.00	-15.34	-4.91	0.00	-243.2	0.00	243.22	1,476.97	379.05	959.43	806.77	0.04	-0.07	0.130
10.00	-14.34	-4.45	0.00	-218.7	0.00	218.68	1,447.54	366.48	896.88	764.23	0.15	-0.14	0.120
15.00	-13.48	-4.24	0.00	-196.4	0.00	196.44	1,416.77	353.91	836.44	722.09	0.33	-0.2	0.110
20.00	-12.63	-4.04	0.00	-175.2	0.00	175.23	1,384.66	341.35	778.10	680.42	0.58	-0.27	0.101
25.00	-11.79	-3.85	0.00	-155.0	0.00	155.03	1,351.21	328.78	721.87	639.28	0.89	-0.33	0.092
30.00	-10.97	-3.66	0.00	-135.8	0.00	135.80	1,316.42	316.21	667.76	598.76	1.27	-0.39	0.083
35.00	-10.16	-3.47	0.00	-117.5	0.00	117.52	1,275.29	303.64	615.75	556.74	1.7	-0.44	0.075
40.00	-9.36	-3.31	0.00	-100.2	0.00	100.18	1,222.50	291.07	565.84	511.35	2.19	-0.49	0.067
42.67	-8.82	-3.21	0.00	-91.4	0.00	91.35	678.31	167.62	325.21	284.06	2.48	-0.52	0.090
45.00	-8.49	-3.10	0.00	-83.9	0.00	83.87	669.39	164.24	312.22	274.62	2.73	-0.54	0.084
49.04	-7.91	-2.98	0.00	-71.4	0.00	71.35	653.49	158.38	290.35	258.44	3.21	-0.58	0.073
50.00	-7.78	-2.90	0.00	-68.5	0.00	68.49	649.63	156.99	285.27	254.63	3.32	-0.58	0.070
55.00	-7.07	-2.71	0.00	-54.0	0.00	54.01	628.90	149.74	259.53	235.01	3.96	-0.62	0.057
60.00	-6.38	-2.56	0.00	-40.5	0.00	40.47	598.44	142.49	235.01	212.69	4.63	-0.66	0.045
61.58	-6.17	-2.48	0.00	-36.4	0.00	36.42	588.82	140.20	227.52	205.87	4.85	-0.66	0.042
61.58	-6.17	-2.48	0.00	-36.4	0.00	36.42	588.82	140.20	227.52	205.87	4.85	-0.66	0.188
65.00	-5.93	-2.35	0.00	-27.9	0.00	27.92	567.99	135.24	211.71	191.49	5.33	-0.68	0.157
70.00	-5.63	-2.19	0.00	-16.2	0.00	16.18	537.53	127.98	189.62	171.39	6.1	-0.77	0.105
75.00	0.00	-2.11	0.00	-5.2	0.00	5.22	507.08	120.73	168.75	152.41	6.93	-0.82	0.035

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

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

Spectral Response Acceleration for Short Period (S_S):	0.207
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.055
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	1.000
Site Coefficient F_a :	1.600
Site Coefficient F_v :	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.221
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.088
Seismic Response Coefficient (C_s):	0.047
Upper Limit C_s :	0.047
Lower Limit C_s :	0.030
Period based on Rayleigh Method (sec):	1.250
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	1.380
Total Unfactored Dead Load:	16.240 k
Seismic Base Shear (E):	0.760 k

1.2D + 1.0Ev + 1.0Eh Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
18	72.5	238	87	0.025	19	297
17	67.5	294	97	0.028	21	366
16	63.29	239	72	0.021	16	297
15	60.79	217	62	0.018	14	270
14	57.5	693	184	0.053	40	863
13	52.5	702	164	0.047	36	874
12	49.52	136	29	0.008	6	169
11	47.02	576	116	0.033	25	716
10	43.8333	335	61	0.018	13	417
9	41.3333	534	90	0.026	20	665
8	37.5	797	117	0.034	26	992
7	32.5	810	98	0.028	21	1,007
6	27.5	822	79	0.023	17	1,023
5	22.5	834	61	0.017	13	1,038
4	17.5	846	44	0.012	10	1,053
3	12.5	858	28	0.008	6	1,068
2	7.5	871	14	0.004	3	1,083
1	2.5	883	3	0.001	1	1,098
Generic 10' Omni	75	25	10	0.003	2	31
Generic 10' Omni	75	25	10	0.003	2	31
Ericsson Air 6449 B77D	75	245	94	0.027	20	305
Kaelus DBC0051F3V51-2	75	74	28	0.008	6	93
Raycap DC6-48-60-18-8F (23.5" Height)	75	40	15	0.004	3	50
Ericsson RRUS 8843 B2, B66A	75	360	138	0.040	30	448
Ericsson RRUS 4449 B5, B12	75	284	109	0.031	24	353
Ericsson RRUS 4478 B14	75	178	68	0.020	15	222
Ericsson RRUS 32 B2	75	106	41	0.012	9	132
Ericsson RRUS 32 B30	75	180	69	0.020	15	224
Raycap DC6-48-60-18-8C-EV	75	16	6	0.002	1	20
Raycap DC9-48-60-24-8C-EV	75	16	6	0.002	1	20
CCI HPA-65R-BUUJ-H8	75	204	78	0.022	17	254
Matsing MBA-3.2-H4-L4	75	130	50	0.014	11	162
CCI DMP65R-BU8D	75	191	73	0.021	16	238
Quintel QD8616-7	75	450	172	0.049	38	560

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
Ericsson AIR 6419 B77G	75	198	76	0.022	17	247
Generic Mount Reinforcement	75	200	76	0.022	17	249
Generic Round Platform with Handrails	75	2,500	956	0.274	208	3,110
Channel Master Type 120	10	126	3	0.001	1	157
		16,236	3,484	1.000	759	20,200

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

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
18	72.5	238	87	0.025	19	204
17	67.5	294	97	0.028	21	252
16	63.29	239	72	0.021	16	204
15	60.79	217	62	0.018	14	186
14	57.5	693	184	0.053	40	593
13	52.5	702	164	0.047	36	601
12	49.52	136	29	0.008	6	116
11	47.02	576	116	0.033	25	493
10	43.8333	335	61	0.018	13	287
9	41.3333	534	90	0.026	20	457
8	37.5	797	117	0.034	26	682
7	32.5	810	98	0.028	21	693
6	27.5	822	79	0.023	17	703
5	22.5	834	61	0.017	13	714
4	17.5	846	44	0.012	10	724
3	12.5	858	28	0.008	6	735
2	7.5	871	14	0.004	3	745
1	2.5	883	3	0.001	1	756
Generic 10' Omni	75	25	10	0.003	2	21
Generic 10' Omni	75	25	10	0.003	2	21
Ericsson Air 6449 B77D	75	245	94	0.027	20	210
Kaelus DBC0051F3V51-2	75	74	28	0.008	6	64
Raycap DC6-48-60-18-8F (23.5" Height)	75	40	15	0.004	3	34
Ericsson RRUS 8843 B2, B66A	75	360	138	0.040	30	308
Ericsson RRUS 4449 B5, B12	75	284	109	0.031	24	243
Ericsson RRUS 4478 B14	75	178	68	0.020	15	153
Ericsson RRUS 32 B2	75	106	41	0.012	9	91
Ericsson RRUS 32 B30	75	180	69	0.020	15	154
Raycap DC6-48-60-18-8C-EV	75	16	6	0.002	1	14
Raycap DC9-48-60-24-8C-EV	75	16	6	0.002	1	14
CCI HPA-65R-BUU-H8	75	204	78	0.022	17	175
Matsing MBA-3.2-H4-L4	75	130	50	0.014	11	111
CCI DMP65R-BU8D	75	191	73	0.021	16	164
Quintel QD8616-7	75	450	172	0.049	38	385
Ericsson AIR 6419 B77G	75	198	76	0.022	17	170
Generic Mount Reinforcement	75	200	76	0.022	17	171
Generic Round Platform with Handrails	75	2,500	956	0.274	208	2,140
Channel Master Type 120	10	126	3	0.001	1	108
		16,236	3,484	1.000	759	13,895

1.2D + 1.0Ev + 1.0Eh Seismic

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-19.10	-0.76	0.00	-48.69	0.00	48.69	1,505.06	391.62	1,024	849.62	0.00	0.00	0.03
5.00	-18.02	-0.76	0.00	-44.89	0.00	44.89	1,476.97	379.05	959	806.77	0.01	-0.01	0.03

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
10.00	-16.79	-0.76	0.00	-41.09	0.00	41.09	1,447.54	366.48	897	764.23	0.03	-0.03	0.03
15.00	-15.74	-0.75	0.00	-37.30	0.00	37.30	1,416.77	353.91	836	722.09	0.06	-0.04	0.03
20.00	-14.70	-0.74	0.00	-33.54	0.00	33.54	1,384.66	341.35	778	680.42	0.11	-0.05	0.02
25.00	-13.68	-0.72	0.00	-29.85	0.00	29.85	1,351.21	328.78	722	639.28	0.17	-0.06	0.02
30.00	-12.67	-0.70	0.00	-26.22	0.00	26.22	1,316.42	316.21	668	598.76	0.24	-0.07	0.02
35.00	-11.68	-0.68	0.00	-22.70	0.00	22.70	1,275.29	303.64	616	556.74	0.32	-0.08	0.02
40.00	-11.01	-0.66	0.00	-19.31	0.00	19.31	1,222.50	291.07	566	511.35	0.41	-0.09	0.02
42.67	-10.60	-0.65	0.00	-17.55	0.00	17.55	678.31	167.62	325	284.06	0.47	-0.10	0.02
45.00	-9.88	-0.62	0.00	-16.04	0.00	16.04	669.39	164.24	312	274.62	0.51	-0.10	0.02
49.04	-9.71	-0.62	0.00	-13.53	0.00	13.53	653.49	158.38	290	258.44	0.60	-0.11	0.02
49.04	-9.71	-0.62	0.00	-13.53	0.00	13.53	653.49	158.38	290	258.44	0.60	-0.11	0.02
50.00	-8.84	-0.58	0.00	-12.93	0.00	12.93	649.63	156.99	285	254.63	0.63	-0.11	0.02
55.00	-7.98	-0.54	0.00	-10.04	0.00	10.04	628.90	149.74	260	235.01	0.75	-0.12	0.01
60.00	-7.71	-0.52	0.00	-7.35	0.00	7.35	598.44	142.49	235	212.69	0.87	-0.12	0.01
61.58	-7.41	-0.51	0.00	-6.52	0.00	6.52	588.82	140.20	228	205.87	0.92	-0.13	0.04
61.58	-7.41	-0.51	0.00	-6.52	0.00	6.52	588.82	140.20	228	205.87	0.92	-0.13	0.01
65.00	-7.04	-0.49	0.00	-4.78	0.00	4.78	567.99	135.24	212	191.49	1.01	-0.13	0.04
70.00	-6.75	-0.47	0.00	-2.35	0.00	2.35	537.53	127.98	190	171.39	1.15	-0.14	0.03
75.00	0.00	-0.45	0.00	0.00	0.00	0.00	507.08	120.73	169	152.41	1.30	-0.15	0.00

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

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-13.14	-0.76	0.00	-48.34	0.00	48.34	1,505.06	391.62	1,024	849.62	0.00	0.00	0.03
5.00	-12.39	-0.76	0.00	-44.55	0.00	44.55	1,476.97	379.05	959	806.77	0.01	-0.01	0.03
10.00	-11.55	-0.75	0.00	-40.75	0.00	40.75	1,447.54	366.48	897	764.23	0.03	-0.03	0.03
15.00	-10.83	-0.75	0.00	-36.98	0.00	36.98	1,416.77	353.91	836	722.09	0.06	-0.04	0.02
20.00	-10.11	-0.74	0.00	-33.25	0.00	33.25	1,384.66	341.35	778	680.42	0.11	-0.05	0.02
25.00	-9.41	-0.72	0.00	-29.57	0.00	29.57	1,351.21	328.78	722	639.28	0.16	-0.06	0.02
30.00	-8.72	-0.70	0.00	-25.97	0.00	25.97	1,316.42	316.21	668	598.76	0.23	-0.07	0.02
35.00	-8.03	-0.67	0.00	-22.48	0.00	22.48	1,275.29	303.64	616	556.74	0.32	-0.08	0.02
40.00	-7.58	-0.65	0.00	-19.11	0.00	19.11	1,222.50	291.07	566	511.35	0.41	-0.09	0.02
42.67	-7.29	-0.64	0.00	-17.37	0.00	17.37	678.31	167.62	325	284.06	0.46	-0.10	0.02
45.00	-6.80	-0.62	0.00	-15.87	0.00	15.87	669.39	164.24	312	274.62	0.51	-0.10	0.02
49.04	-6.68	-0.61	0.00	-13.38	0.00	13.38	653.49	158.38	290	258.44	0.60	-0.11	0.02
49.04	-6.68	-0.61	0.00	-13.38	0.00	13.38	653.49	158.38	290	258.44	0.60	-0.11	0.02
50.00	-6.08	-0.57	0.00	-12.80	0.00	12.80	649.63	156.99	285	254.63	0.62	-0.11	0.02
55.00	-5.49	-0.53	0.00	-9.93	0.00	9.93	628.90	149.74	260	235.01	0.74	-0.12	0.01
60.00	-5.30	-0.52	0.00	-7.27	0.00	7.27	598.44	142.49	235	212.69	0.87	-0.12	0.01
61.58	-5.10	-0.50	0.00	-6.45	0.00	6.45	588.82	140.20	228	205.87	0.91	-0.12	0.04
61.58	-5.10	-0.50	0.00	-6.45	0.00	6.45	588.82	140.20	228	205.87	0.91	-0.12	0.01
65.00	-4.84	-0.48	0.00	-4.73	0.00	4.73	567.99	135.24	212	191.49	1.00	-0.13	0.03
70.00	-4.64	-0.46	0.00	-2.32	0.00	2.32	537.53	127.98	190	171.39	1.14	-0.14	0.02
75.00	0.00	-0.45	0.00	0.00	0.00	0.00	507.08	120.73	169	152.41	1.29	-0.15	0.00

ANALYSIS SUMMARY

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	20.88	0.00	19.43	0.00	0.00	1104.76	61.58	0.76
0.9D + 1.0W	20.86	0.00	14.56	0.00	0.00	1098.48	61.58	0.75
1.2D + 1.0Di + 1.0Wi	4.55	0.00	26.36	0.00	0.00	256.12	61.58	0.19
1.2D + 1.0Ev + 1.0Eh	0.76	0.00	19.10	0.00	0.00	48.69	61.58	0.04
0.9D - 1.0Ev + 1.0Eh	0.76	0.00	13.14	0.00	0.00	48.34	61.58	0.04
1.0D + 1.0W	5.13	0.00	16.23	0.00	0.00	268.88	61.58	0.19

ADDITIONAL STEEL SUMMARY

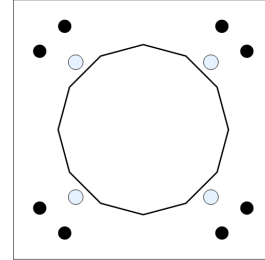
Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Max member			
			VQ/I	Shear Applied (kips)	Shear (phiVn) (kips)	Ratio	Pu (kip)	PhiPn (kip)	Ratio
0.00	49.04	SOL #20 All Thread Bar	349.0	10.5	16.8	0.6228	221.3	330.5	0.6697
49.04	61.58	SOL #20 All Thread Bar	349.0	10.5	16.8	0.6228	102.3	330.5	0.3096

Elev From (ft)	Elev To (ft)	Member	Upper Termination Connectors				Lower Termination Connectors					
			MQ/I	phiVn (kips)	Num Reqd	Num Actual	Ratio	MQ/I (kips)	phiVn (kip)	Num Reqd	Num Actual	Ratio
0.00	49.04	SOL #20 All Thread Bar	0	12	0	8	0.0000	0	12	0	0	0.0000
49.04	61.58	SOL #20 All Thread Bar	58.9742	12	5	12	0.4095	0	12	0	0	0.0000

BASE PLATE ANALYSIS @ 0 FT

PLATE PARAMETERS (ID# 21101)

Width:	44	in
Shape:	Square	
Thickness:	2	in
Grade:	A572-60	
Yield Strength:	60	ksi
Tensile Strength:	75	ksi
Clip Length:	0	in
Rod Detail Type:	c	
Clear Distance:	-	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Elastic	
Neutral Axis:	316	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 21659]	Cluster	8	2.25	44	A615-75	75	100	6	-

DYWIDAG BAR PARAMETERS

Quantity	Bar Size	Bar Diameter (in)	Fy (ksi)	Fu (ksi)	Bracket Type	Bracket Offset (in)	Circle (in)	Offset (°)
4 [ID# 1769]	#20	2.5	80	100	Angle	2.19	34.85	45

ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (8) 2.25"Ø [ID 21659]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in ⁴)	Axial Load (k)	Shear Load (k)
1	0.649	17.53	13.30	20.443	1358.135	65.66	0.71
2	0.922	13.30	17.53	20.541	1371.201	65.97	0.55
3	2.220	-13.30	17.53	3.170	33.466	11.02	4.58
4	2.493	-17.53	13.30	-2.454	20.400	-6.77	4.60
5	3.791	-17.53	-13.30	-20.443	1358.135	-63.67	0.71
6	4.063	-13.30	-17.53	-20.541	1371.201	-63.98	0.55
7	5.361	13.30	-17.53	-3.170	33.466	-9.03	4.58
8	5.634	17.53	-13.30	2.454	20.400	8.76	4.60

DYWIDAG BAR GEOMETRY AND APPLIED LOADS --- (4) #20 [ID 1769]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in ⁴)	Axial Load (k)
1	2.356	-12.32	12.32	0.304	2.371	6.78
2	3.927	-12.32	-12.32	-17.422	1491.907	-221.36
3	5.498	12.32	-12.32	-0.304	2.371	-1.04
4	0.785	12.32	12.32	17.422	1491.907	227.10

ASSET: 302485, Mdfd - Middlefield
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
 ENG NO: 13757806

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	27.97"ø x 0.25" (12 Sides)	451.8	19.43	20.88	0.409
Bolt Group	Original (8) 2.25"ø	451.8	-	20.88	0.409
Dywidag Group	(4) #20	653.0	-	-	0.591
TOTALS		1104.76	19.43	20.88	

COMPONENT PROPERTIES

Component	ID	Gross Area (in ²)	Net Area (in ²)	Individual Inertia (in ⁴)	Moment of Inertia (in ⁴)	Threads/in
Pole	27.97"ø x 0.25" (12 Sides)	21.5234	-	-	2067.77	-
Bolt Group	Original (8) 2.25"ø	3.9761	3.2477	0.8393	5566.40	4.5
Dywidag Group	(4) #20	4.9087	4.9087	1.9175	2988.56	-

EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter: 28.10 in
 Point-to-Point Diameter: 29.09 in
 Flat Width: 7.528 in
 Flat Radians: 0.524 rad

PLATE PROPERTIES

Neutral Axis: 316 °
 Bend Line Lower Limit: rad
 Bend Line Upper Limit: -0.645 rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in ³)	Applied Moment Mu (k-in)	Moment Capacity φMn (k-in)	Ratio
Flat	34.130	0.00	34.130	848.3	1843.0	0.460
Corner	33.139	0.00	33.139	783.1	1789.5	0.438

ELASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity φPn (k)	Ratio	Interaction
Original	8	2.25	66.0	0.5	243.6	0.271	0.271

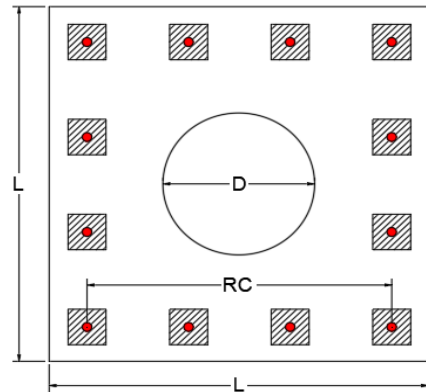
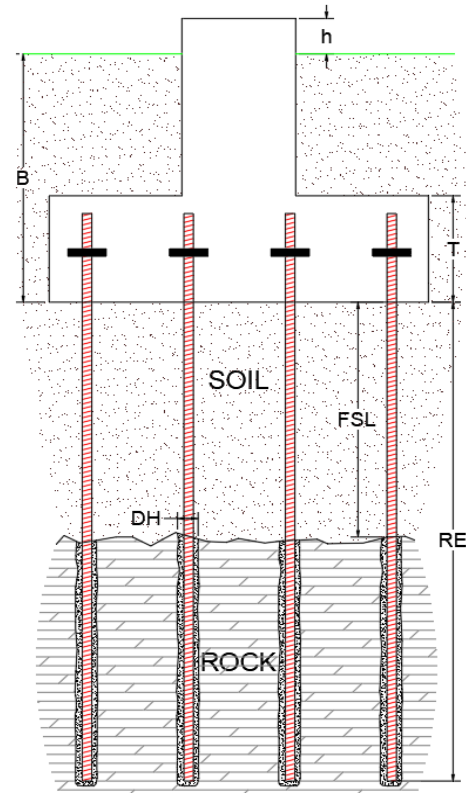
DYWIDAG BAR ANALYSIS

Group Quantity	Bar Size	Bar Circle (in)	Applied Axial Load Pu (k)	Compressive Capacity φPn (k)	Ratio
4	#20	34.85	227.1	368.2	0.617

Site Name: MDFD - Middlefield, CT
 Site Number: 302485
 Tower Type: MP
 Design Base Loads (Factored) - Analysis per TIA-222-H Standards

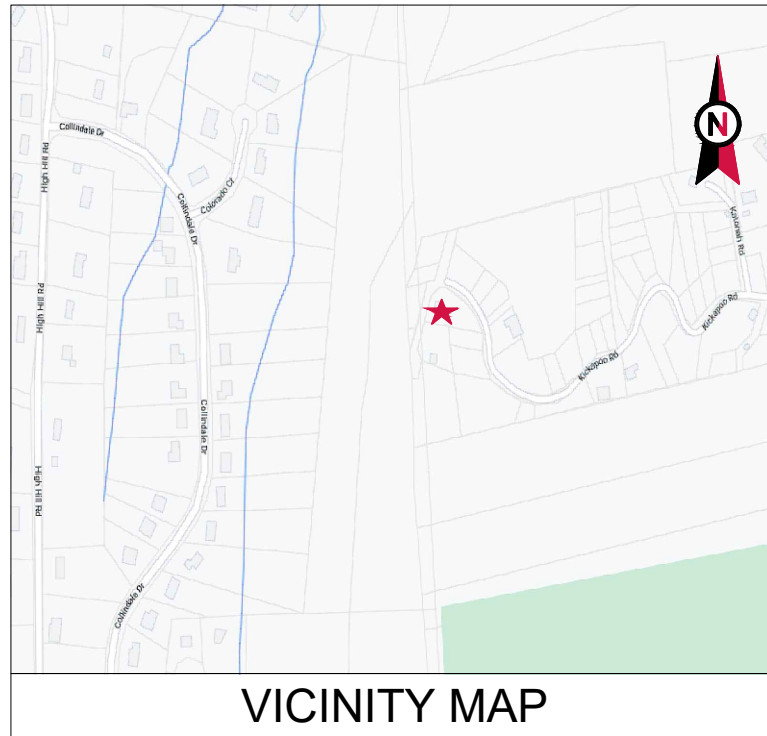
Rock Anchor Group Foundation Analysis

Foundation Parameters		
Include Rebar Analysis?	N	
Include Bearing Plate Analysis?	N	
Moment (Overturning) (M_u):	1104.8	k-ft
Shear/Leg (V_u):	20.9	k
Compression/Leg (P_u):	19.4	k
Uplift/Leg (T_u):	0.0	k
Mat/Pier Height Above Ground [h]:	0.50	ft
Pier Diameter [D]:		ft
Length / Width of Mat [L]:	9.0	ft
Mat Thickness [T]:	5.00	ft
Base Depth of Mat [B]:	5.00	ft
Water Table Depth (BGL):	99.0	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil at Mat/Pier:	120	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	57.6	pcf
Ultimate Compressive Bearing Pressure:	45,000	psf
Shear Friction Coefficient:	0.50	
Capacity Increase (Due to Transient Loads):	1.000	
Pullout Angle:	45	°
Rod Diameter:	1.00	in
Rod Ultimate Strength:	100	ksi
Rod Net Area:	0.79	in ²
Number of Rods:	12	
Rod Arrangement:	Square	
If Square: If Square, Grid or Border?	Border	
Number of Rows:	4	
Number of Columns:	4	
Rod Group Width [RC]:	90.0	in
Diameter of Cored Hole [DH]:	2.000	in
Overall Rod Embedment Length [RE]:	121.7	in
Free Stress Length [FSL]	12.0	in
Ultimate Rod-to-Grout Interface Bond Strength:	300	psi
Ultimate Grout-to-Rock Anchor Interface Bond Strength:	630	psi
Lock Off Load:	0	k
Rock Anchor Design Plastic or Elastic:	Elastic	
Ignore Pullout Weight Resistance (Y/N):	N	



Capacities & Results		
Soil Strength Reduction Factor (ϕ_s):	0.75	
Bearing Strength Reduction Factor (ϕ_b):	0.75	
Factored Nominal Moment Capacity per Leg ($\phi_s M_n$):	1659.5	k
Factored Nominal Uplift Capacity per Leg ($\phi_s T_n$):	494.9	k
Applied Moment, M_u :	1219.6	k-ft
Applied Uplift, T_u :	0.0	k
$T_u / \phi_s T_n + M_u / \phi_s M_n$:	73%	Pass
Applied Axial, P_u :	32.6	k
Factored Nominal Compressive Capacity per Leg ($\phi_b P_n$):	2147.1	k
$P_u / \phi_b P_n$:	2%	Pass
Applied Shear, V_u :	20.9	k
Factored Nominal Shear Capacity per Leg ($\phi_s V_n$):	424.1	k
$V_u / \phi_s V_n$:	5%	Pass

Governing Strengths		
Total Pullout Weight:	579.7	k
Total Grout-to-Rock Bond Strength:	2,482.5	k
Total Rod-to-Grout Bond Strength:	2,606.6	k
Total Rod Mechanical Strength:	942.5	k
Pullout Weight per Rod:	48.3	k
Rock-to-Grout Bond Strength per Rod:	206.9	k
Rod-to-Grout Bond Strength per Rod:	217.2	k
Rod Mechanical Strength per Rod:	78.5	k



VICINITY MAP



AMERICAN TOWER®

ATC SITE NAME: MDFD - MIDDLEFIELD
 ATC SITE NUMBER: 302485
 AT&T PACE NUMBERS: MRCTB054466/ MRCTB054947/
 MRCTB055998/ MRCTB054082/
 MRCTB056008

AT&T SITE ID: CTL01016
 AT&T FA CODE: 10034970
 AT&T SITE NAME: MIDDLEFIELD-KICKAPOO
 SITE ADDRESS: 134 KICKAPOO ROAD

MIDDLEFIELD, CT 06455-1334

AT&T LTE 6C,5G NR 1SR,5G NR 1SR CBAND,5G NR ACTIVATION,5G NR RADIO AMENDMENT PLAN



LOCATION MAP



45 BEECHWOOD DRIVE TEL: (978) 557-5553
 N. ANDOVER, MA 01845 FAX: (978) 336-5586

REV.	DESCRIPTION	BY	DATE
A	PRELIM	TM	04/06/22
0	FINALS	TR	09/12/22

ATC SITE NUMBER:
302485

ATC SITE NAME:
MDFD - MIDDLEFIELD

AT&T SITE NAME:
MIDDLEFIELD-KICKAPOO

SITE ADDRESS:
134 KICKAPOO ROAD
MIDDLEFIELD, CT 06455-1334

SEAL:



DATE DRAWN:	04/06/22
ATC JOB NO:	13757806_G5
CUSTOMER ID:	CTL01016
CUSTOMER #:	10034970

TITLE SHEET

SHEET NUMBER:
G-001

REVISION:
0

COMPLIANCE CODE


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

- INTERNATIONAL BUILDING CODE (IBC)
- NATIONAL ELECTRIC CODE (NEC)
- LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: UTILITY COMPANY DIRECT
PHONE: UNKNOWN

TELEPHONE COMPANY: UNKNOWN
PHONE: UNKNOWN



PROJECT SUMMARY

SITE ADDRESS:
134 KICKAPOO ROAD
MIDDLEFIELD, CT 06455-1334
COUNTY: MIDDLESEX

GEOGRAPHIC COORDINATES:
LATITUDE: 41.5136031
LONGITUDE: -72.7458319
GROUND ELEVATION: 770' AMSL

PROJECT TEAM

<u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801	<u>APPLICANT:</u> AT&T MOBILITY
<u>ENGINEER:</u> HUDSON DESIGN GROUP, LLC 45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845	
<u>PROPERTY OWNER:</u> --- 134 KICKAPOO ROAD MIDDLEFIELD, CT 06455-1334	

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:

TOWER WORK:
REMOVE (3) SECTOR FRAMES, (6) ANTENNA(S) AND (4) RRH(S)

INSTALL (3) SECTOR FRAMES, (9) ANTENNA(S), (2) RRH(S), (4) Y-CABLE(S), (1) 2" CONDUIT, (1) DC-6 SQUID, (2) 8 AWG 6 DC AND (1) 18-PAIR FIBER

EXISTING (3) ANTENNA(S), (15) RRH(S), (2) DC-6 SQUID(S), (1) DC-9 SQUID, (6) DIPLEXER(S), (7) 8 AWG 6 DC TRUNK(S), (8) 7/8" COAX CABLE(S), (5) Y-CABLE(S), (2) 2" CONDUIT CABLE(S) AND (3) .405" FIBER TRUNK(S) TO REMAIN

GROUND WORK:
REMOVE (3) RRUW

INSTALL (3) RRUW 2012 B29, (4) RECTIFIER(S), AND (1) 6648 + IDLE

PROJECT NOTES

- THE FACILITY IS UNMANNED.
- A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.
- THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.
- NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.
- HANDICAP ACCESS IS NOT REQUIRED.
- THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).

PROJECT LOCATION DIRECTIONS

FROM HARTFORD TAKE I-91 SOUTH TO RT 66 EAST. ONCE ON RT 66 TAKE RIGHT AT FIRST LIGHT (RT 147). FOLLOW TO LAKE ROAD AND TAKE RIGHT. FOLLOW ROAD AROUND UNTIL YOU GET TO KICKAPOO ROAD AND TURN RIGHT. ACCESS GATE IS AT END OF ROAD ON TOP OF HILL

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	0	09/12/22	TR
G-002	GENERAL NOTES	0	09/12/22	TR
C-101	DETAILED SITE PLAN	0	09/12/22	TR
C-102	DETAILED EQUIPMENT PLAN	0	09/12/22	TR
C-201	TOWER ELEVATION	0	09/12/22	TR
C-401	RF SCHEDULE AND ANTENNA INSTALLATION	0	09/12/22	TR
C-501	CONSTRUCTION DETAILS	0	09/12/22	TR
E-501	GROUNDING DETAILS	0	09/12/22	TR
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			
R-604	SUPPLEMENTAL			

AT&T RAN SCOPING NOTES:

- 0 DC UPCONVERTERS REQUIRED
- INSTALL (4) RECTIFIERS

GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, AT&T "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
 - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
 - B. AC/TELCO INTERFACE BOX (PPC)
 - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
 - D. TOWERS, MONOPOLES
 - E. TOWER LIGHTING
 - F. GENERATORS & LIQUID PROPANE TANK
 - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
 - H. ANTENNAS (INSTALLED BY OTHERS)
 - I. TRANSMISSION LINE
 - J. TRANSMISSION LINE JUMPERS
 - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
 - L. TRANSMISSION LINE GROUND KITS
 - M. HANGERS
 - N. HOISTING GRIPS
 - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF AT&T TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSIEIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE AT&T REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE AT&T REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE AT&T REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE AT&T CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE AT&T REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH AT&T AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH AT&T REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH AT&T REP TO

- DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY AT&T MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH AT&T SPECIFICATIONS AND REQUIREMENTS.
 24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO AT&T FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
 25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO AT&T SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
 26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
 27. CONTRACTOR SHALL NOTIFY AT&T REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
 28. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
 29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
 30. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE AT&T REP. ANY WORK FOUND BY THE AT&T REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
 31. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.
 32. AT&T FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE AT&T WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
 33. AT&T OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO AT&T OR THEIR ARCHITECT/ENGINEER.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
 - A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
 - B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
 - C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
 - D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
 - E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123, EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
 - A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
 - B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE

- INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
- C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
 - D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
 - E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
 - F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
 - G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/4" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
 - H. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.
 - I. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND T- MOBILE PROJECT MANAGER IN WRITING

SPECIAL CONSTRUCTION

ANTENNA INSTALLATION NOTES:

1. WORK INCLUDED:
 - A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY AT&T UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL.
 - B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND AT&T SPECIFICATIONS.
 - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
 - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT TEST.
 - E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
 - F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
 - G. ANTENNA AND COAXIAL CABLE GROUNDING:
 2. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.
 3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.



45 BEECHWOOD DRIVE TEL: (978) 557-5553
N. ANDOVER, MA 01845 FAX: (978) 336-5586

REV.	DESCRIPTION	BY	DATE
A	PRELIM	TM	04/06/22
0	FINALS	TR	09/12/22

ATC SITE NUMBER:
302485

ATC SITE NAME:
MDFD - MIDDLEFIELD

AT&T SITE NAME:
MIDDLEFIELD-KICKAPOO

SITE ADDRESS:
134 KICKAPOO ROAD
MIDDLEFIELD, CT 06455-1334

SEAL:



DATE DRAWN:	04/06/22
ATC JOB NO:	13757806_G5
CUSTOMER ID:	CTL01016
CUSTOMER #:	10034970

GENERAL NOTES

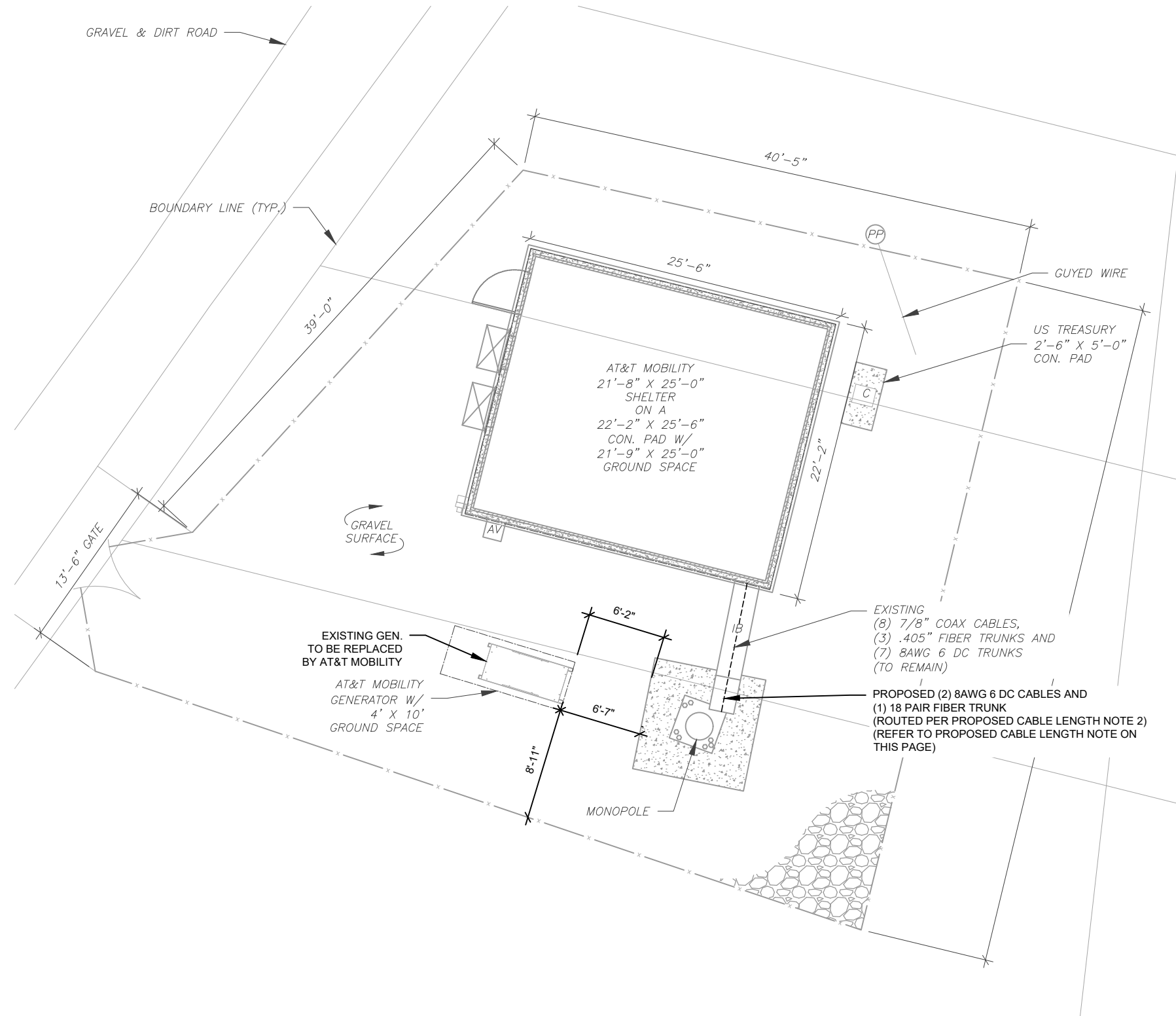
SHEET NUMBER: G-002	REVISION: 0
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SITE PLAN NOTES:

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. NO ELECTRICAL SCOPE IS INCLUDED IN THIS PROJECT.

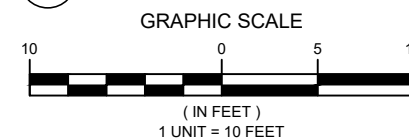
LEGEND	
⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
—x—	CHAINLINK FENCE



PROPOSED CABLE LENGTH:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **115'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES), CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.

1 DETAILED SITE PLAN



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SITE ADDRESS:
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 MIDDLEFIELD, CT 06455-1334

SEAL:



DATE DRAWN:	04/06/22
ATC JOB NO:	13757806_G5
CUSTOMER ID:	CTL01016
CUSTOMER #:	10034970

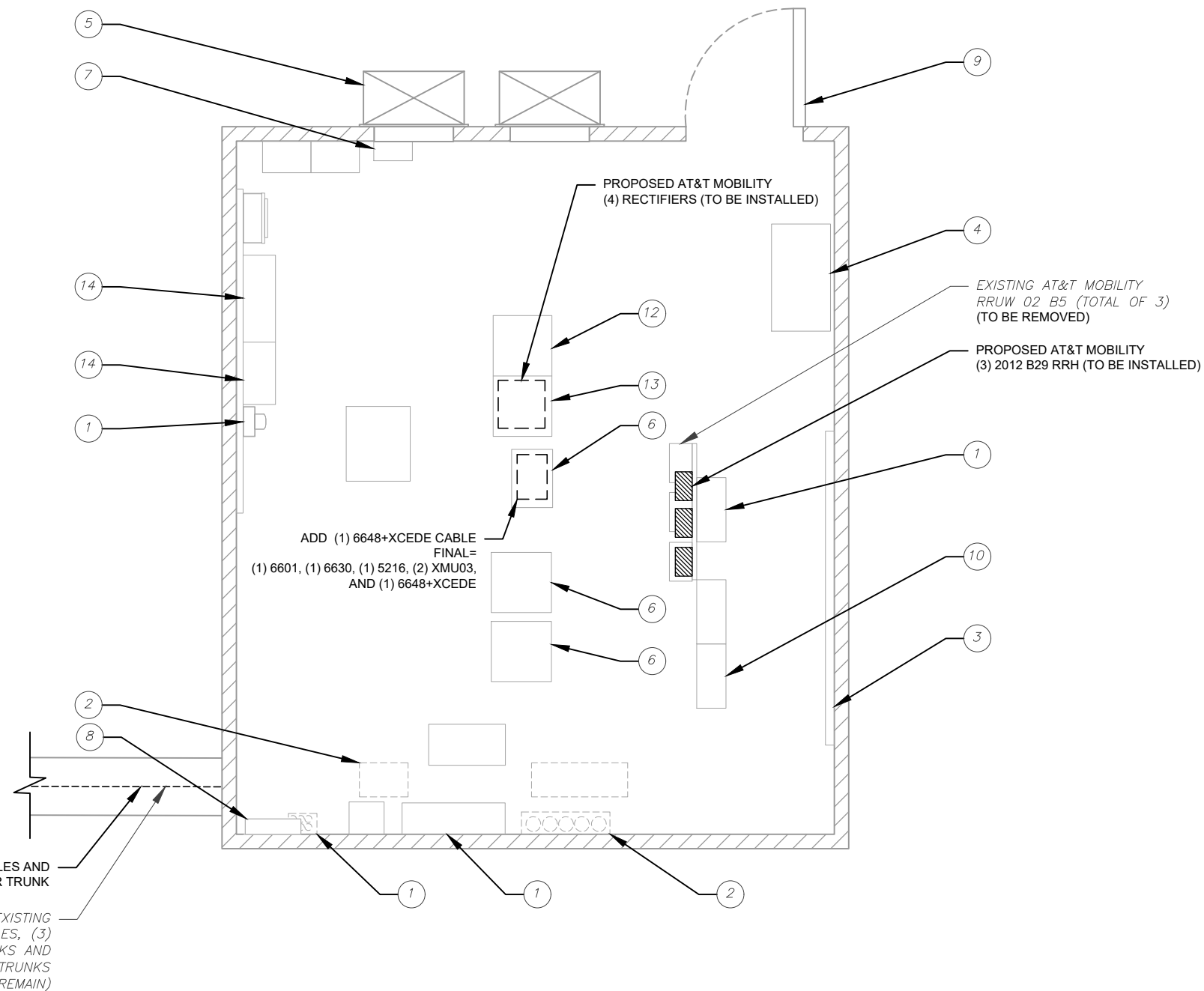
DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0

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AT&T RAN SCOPING NOTES:

- 0 DC UPCONVERTERS REQUIRED
- INSTALL (4) RECTIFIERS



EXISTING EQUIPMENT

- 1 METER
- 2 COAX PORT
- 3 TELCO BOARD
- 4 WALL MOUNTED TABLE
- 5 HVAC
- 6 CDMA CABINETS
- 7 ATS
- 8 FIBER MANAGEMENT BOX
- 9 DOOR
- 10 FIF RACK
- 11 ERICSSON
- 12 BATTERIES
- 13 DC POWER
- 14 ELECTRIC PANEL

1 DETAILED SHELTER PLAN



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0	FINALS	TR	09/12/22

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AT&T SITE NAME:
MIDDLEFIELD-KICKAPOO

SITE ADDRESS:
134 KICKAPOO ROAD
MIDDLEFIELD, CT 06455-1334

SEAL:



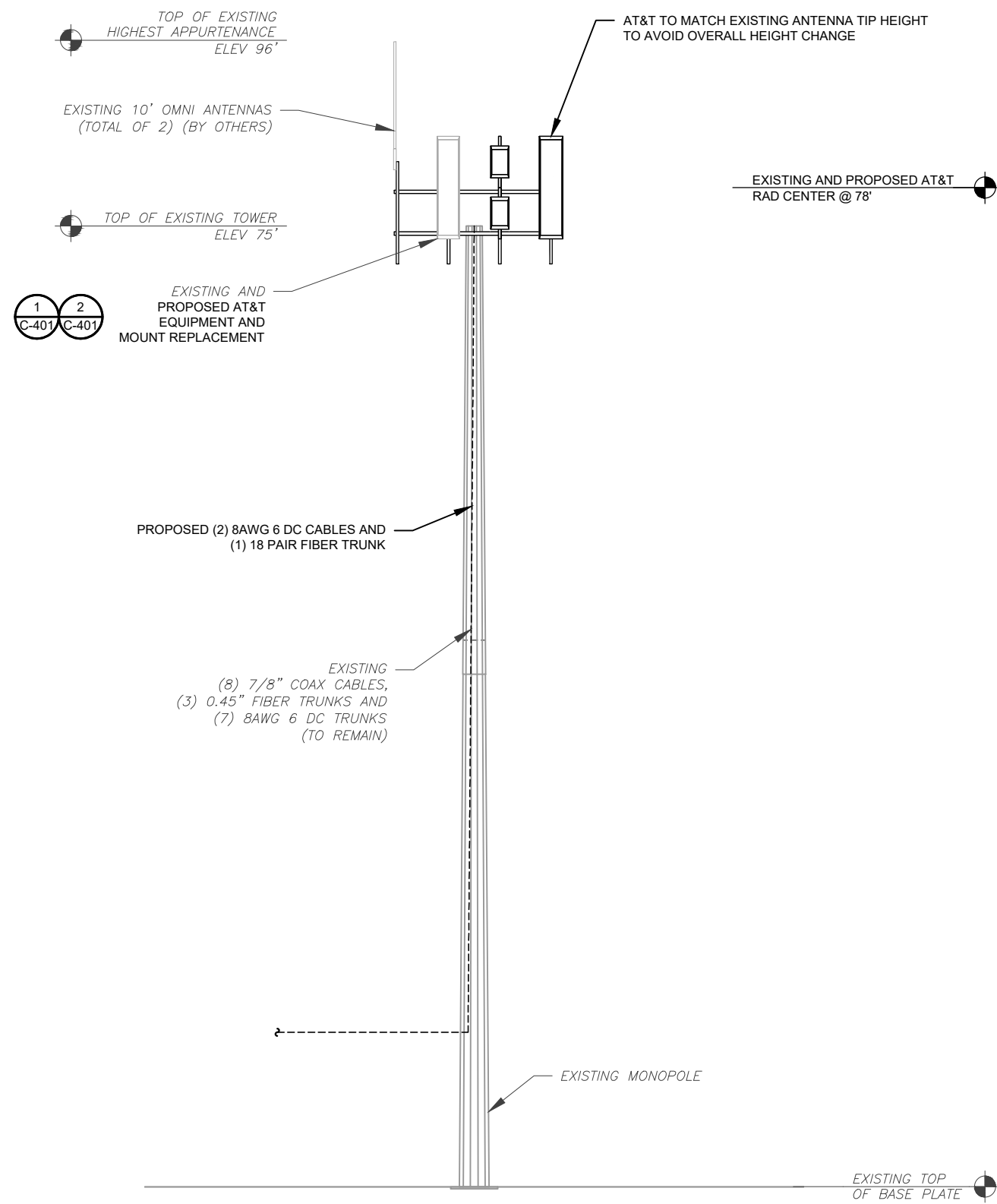
DATE DRAWN:	04/06/22
ATC JOB NO:	13757806_G5
CUSTOMER ID:	CTL01016
CUSTOMER #:	10034970

DETAILED EQUIPMENT LAYOUT

SHEET NUMBER:	REVISION:
C-102	0

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PER MOUNT ANALYSIS COMPLETED BY ENGINEERED TOWER SOLUTIONS, DATED 08/19/22, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.



1 TOWER ELEVATION
SCALE: N.T.S.

TOWER NOTE:

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
- WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
- ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
- TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)
- TOWER ELEVATION DEPICTION MAY NOT REFLECT ALL EQUIPMENT INCLUDED IN STRUCTURAL ANALYSIS. REFER TO STRUCTURAL ANALYSIS FOR FULL TOWER LOADING.



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0	FINALS	TR	09/12/22

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AT&T SITE NAME:
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SITE ADDRESS:
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MIDDLEFIELD, CT 06455-1334

SEAL:

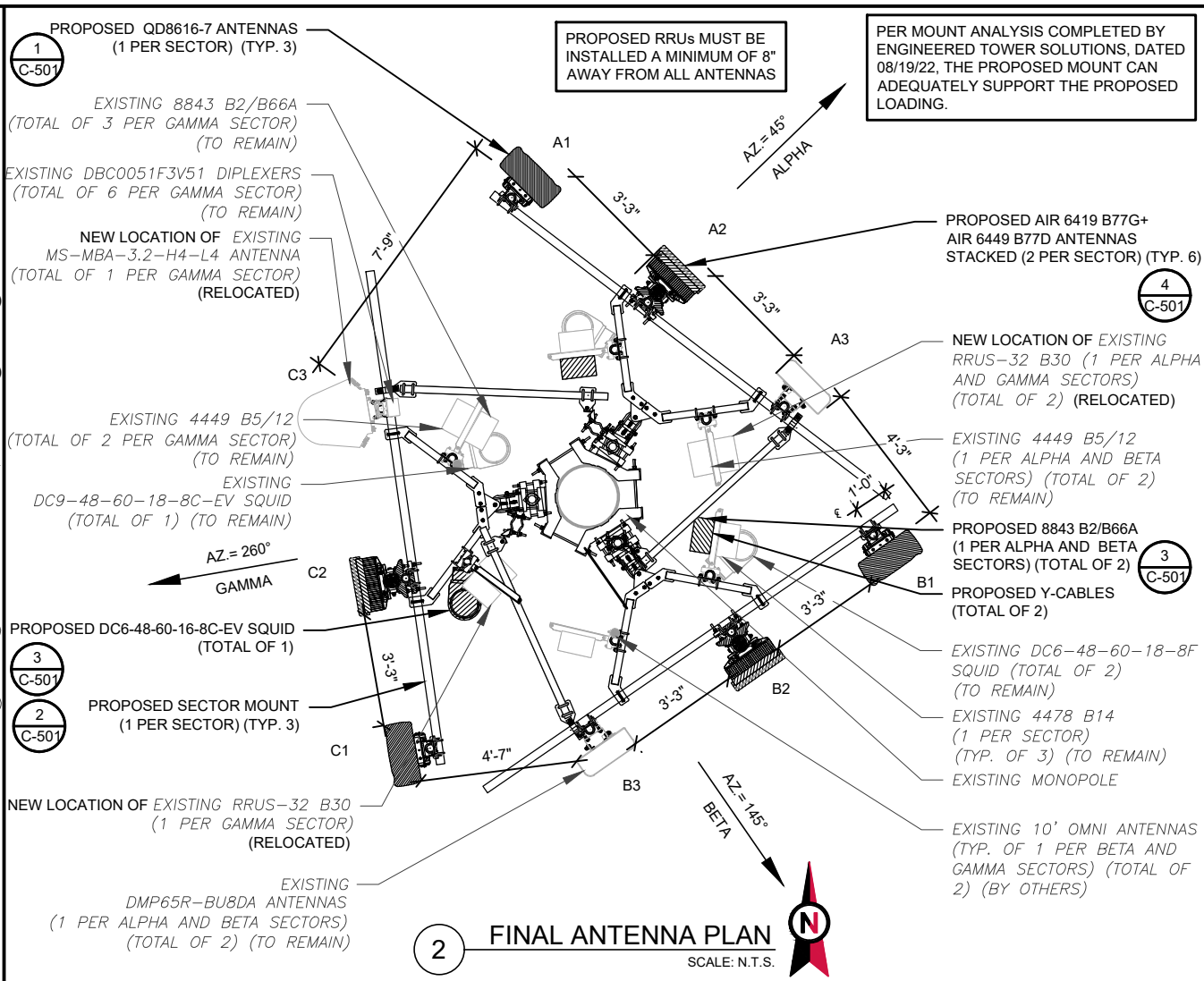
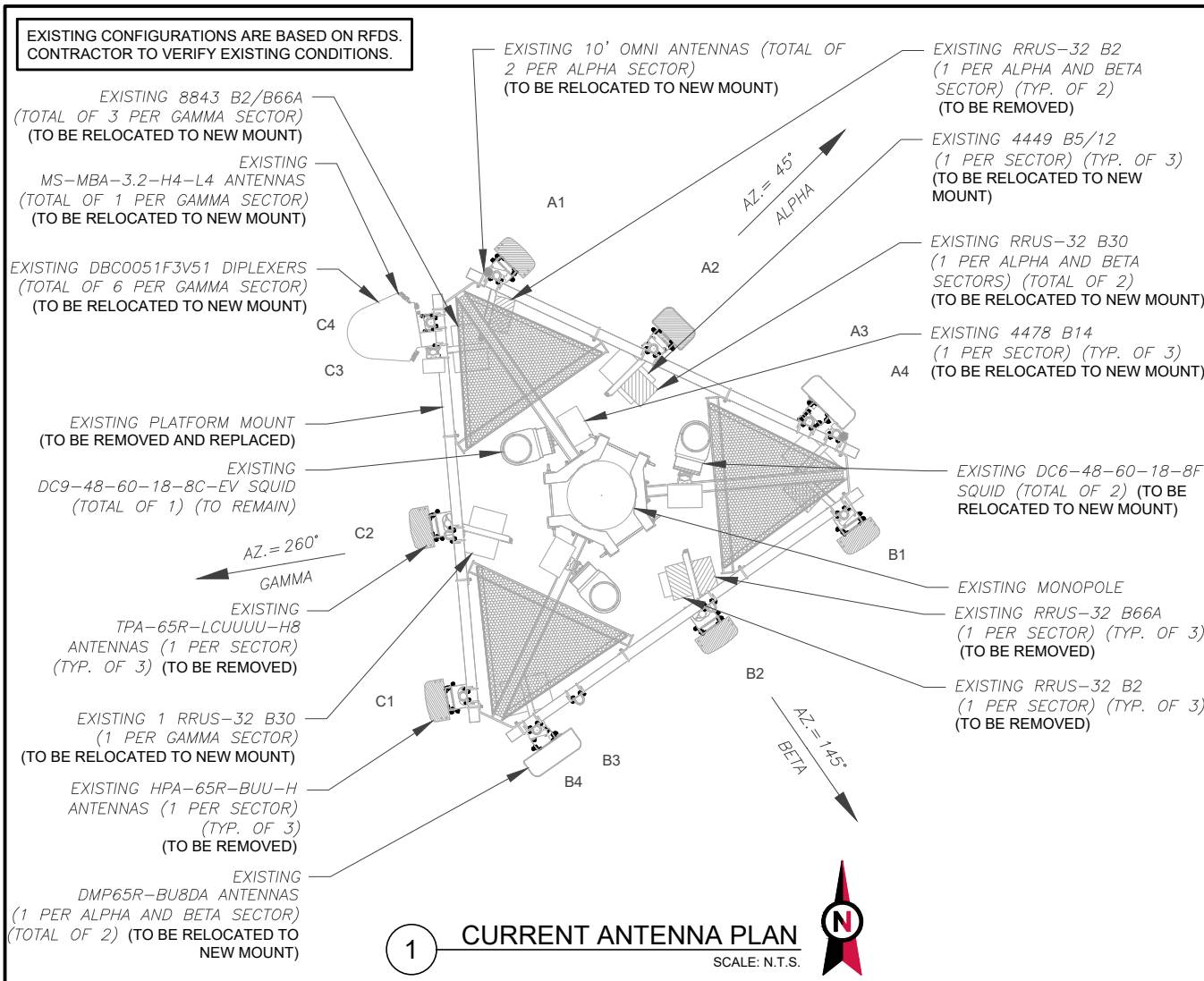


DATE DRAWN:	04/06/22
ATC JOB NO:	13757806_G5
CUSTOMER ID:	CTL01016
CUSTOMER #:	10034970

TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-201	0

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EXISTING ANTENNA SCHEDULE								
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	78'	45°	A1	HPA-65R-BUU-H8	1900	RMV	RRUS-32 B2	RMV
			A2	TPA-65R-LCUUUU-H	700,AWS,WCS	RMV	4478 B14 RRUS-32 B66A RRUS-32 B30	REL RMV REL
			A3	-	-	-	-	-
			A4	DMP65R-BU8DA	700, 1900	REL	4449 B5/B12 RRUS-32 B2	REL RMV
BETA	78'	145°	B1	HPA-65R-BUU-H8	1900	RMV	RRUS-32 B2	RMV
			B2	TPA-65R-LCUUUU-H	700,WCS	RMV	4478 B14 RRUS-32 B66A RRUS-32 B30	REL RMV REL
			B3	-	-	-	-	
			B4	DMP65R-BU8DA	700, 1900	REL	4449 B5/B12 RRUS-32 B2	REL RMV
GAMMA	78'	260°	C1	HPA-65R-BUU-H8	850	RMV	-	-
			C2	TPA-65R-LCUUUU-H8	WCS	RMV	4478 B14 RRUS-32 B30	REL REL
			C3	-	-	-	-	
			C4	MS-MBA-3.2-H4-L	700, 1900	REL	(2) 4449 B5/B12 (3) 8843 B2/B66A (5) Y-CABLES	REL REL REL

EXISTING FIBER DISTRIBUTION/SQUID							EXISTING CABLING SUMMARY						
MODEL NUMBER	STATUS	COAX	CONDUIT	DC	FIBER	STATUS	MODEL NUMBER	STATUS	COAX	CONDUIT	DC	FIBER	STATUS
(2) DC6-48-60-18-8F (1) DC9-46-60-24-8C-EV	RMN RMN	(8) 7/8"	(2) 2"	(7) 8AWG6	(3) .405"	RMN							

FINAL FIBER DISTRIBUTION/SQUID							FINAL CABLING SUMMARY						
MODEL NUMBER	STATUS	COAX	CONDUIT	DC	FIBER	STATUS	MODEL NUMBER	STATUS	COAX	CONDUIT	DC	FIBER	STATUS
(2) DC6-48-60-18-8F (1) DC9-46-60-24-8C-EV (1) DC6-48-60-16-8C-EV	RMN RMN ADD	(8) 7/8"	(2) 2"	(7) 8AWG 6	(3) .405"	RMN			(1) 2"	(2) 8AWG 6	(1) 18 pair		ADD

NOTES

- CONFIRM WITH AT&T REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
- CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
- THE ANTENNA ORIENTATION PLAN IS A SCHEMATIC. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA AZIMUTHS, MOUNT CONFIGURATIONS AND TOWER ORIENTATION. SCALES SHOWN ARE FOR REFERENCE ONLY AND EXISTING DIMENSIONS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO INSTALLATION AND NOTIFY ATC OF ANY DISCREPANCIES.
- CONTRACTOR TO ENSURE PROPER SEPARATION IN ACCORDANCE WITH AT&T'S FIRSTNET REQUIREMENTS (SEE SHEET R-602)

STATUS ABBREVIATIONS
 RMV: TO BE REMOVED
 RMN: TO REMAIN
 REL: TO BE RELOCATED
 ADD: TO BE ADDED

CABLE LENGTHS FOR JUMPERS
 JUNCTION BOX TO RRU: 15'
 RRU TO COMBINER: 10'
 COMBINER TO ANTENNA: 10'

FINAL ANTENNA SCHEDULE								
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	78'	45°	A1	QD8616-7	LTE 700DE/ B14 / PCS /AWS	ADD	RRU 4478 B14 8843 B2/B66A (1) Y-CABLE	REL ADD ADD
			A2 UP A2 DN	AIR6419 B77G AIR6449 B77D	DoD + C BAND	ADD	-	-
			A3	DMP65R-BU8DA	LTE 700 BC / 850 / WCS	REL	4449 B5/B12 (1) Y-CABLE RRUS-32 B30	REL ADD REL
			A4	-	-	-	-	
			A5	-	-	-	-	
BETA	78'	145°	B1	QD8616-7	LTE 700DE/ B14 / PCS /AWS	ADD	RRU 4478 B14 8843 B2/B66A (1) Y-CABLE	REL ADD ADD
			B2 UP B2 DN	AIR6419 B77G AIR6449 B77D	DoD + C BAND	ADD	-	-
			B3	DMP65R-BU8DA	LTE 700 BC / 850 / WCS	REL	4449 B5/B12 (1) Y-CABLE RRUS-32 B30	REL ADD REL
			B4	-	-	-	-	
			B5	-	-	-	-	
GAMMA	78'	260°	C1	QD8616-7	LTE 700DE/ B14 / PCS /AWS	ADD	RRU 4478 B14 RRUS-32 B30	REL REL
			C3 UP C3 DN	AIR6419 B77G AIR6449 B77D	DoD + C BAND	ADD	-	-
			C3	MS-MBA-3.2-H4-L4	LTE 700 BC / PCS / AWS	REL	(2) 4449 B5/B12 (3) 8843 B2/B66A (6) DBC0051F3V51 (5) Y-CABLES	REL REL REL REL
			C4	-	-	-	-	
			C4	-	-	-	-	

3 EQUIPMENT SCHEDULES

AMERICAN TOWER®

HDG HUDSON Design Group LLC

45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845

TEL: (978) 557-5553
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A	PRELIM	TM	04/06/22
0	FINALS	TR	09/12/22

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302485

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SITE ADDRESS:
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MIDDLEFIELD, CT 06455-1334

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AT&T

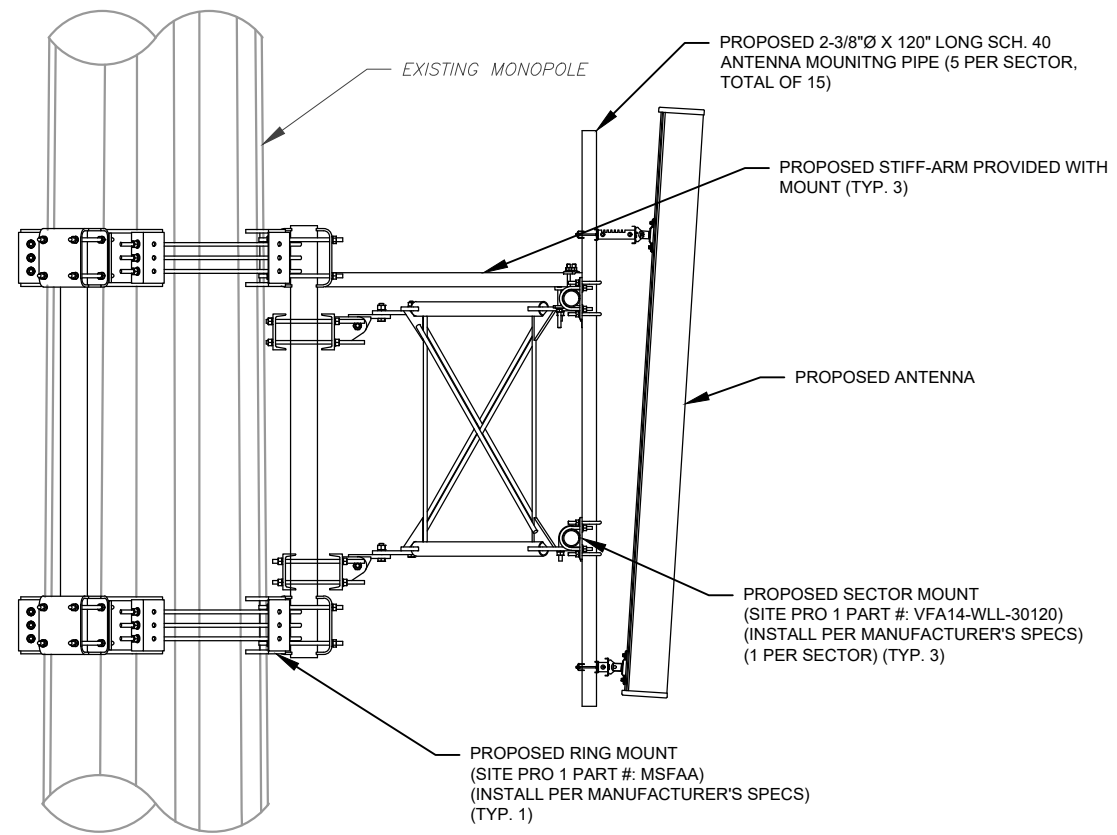
DATE DRAWN:	04/06/22
ATC JOB NO:	13757806_G5
CUSTOMER ID:	CTL01016
CUSTOMER #:	10034970

RF SCHEDULE AND ANTENNA INSTALLATION

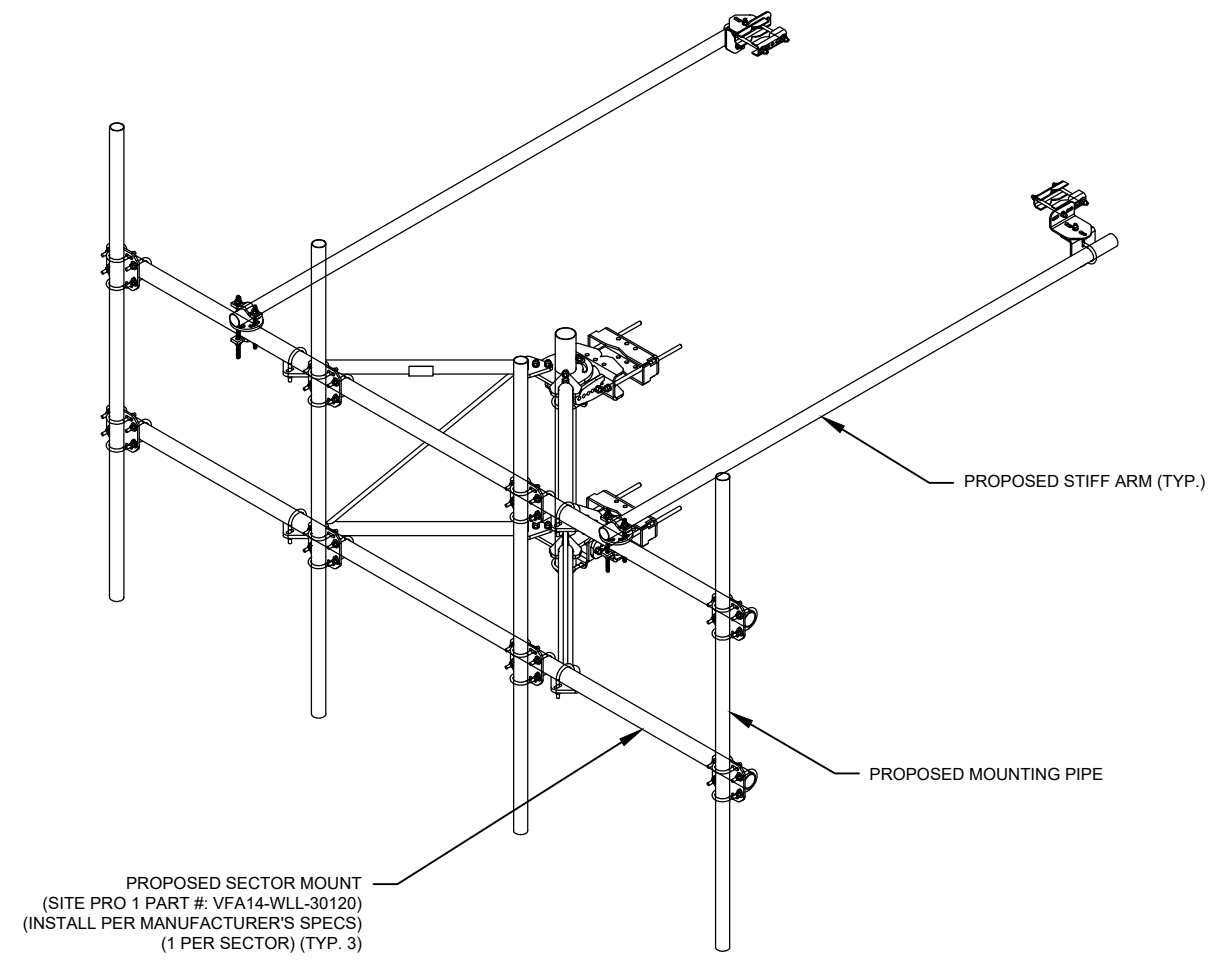
SHEET NUMBER:
C-401

REVISION:
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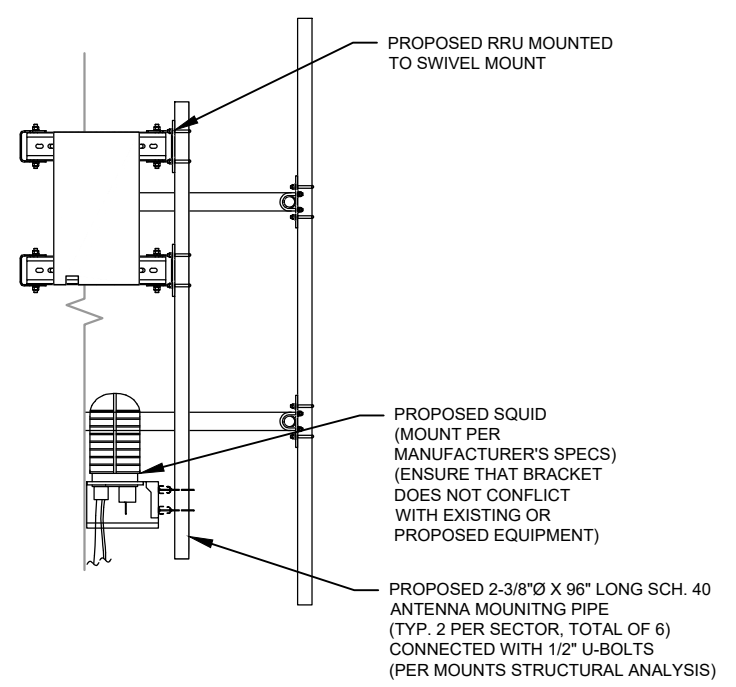
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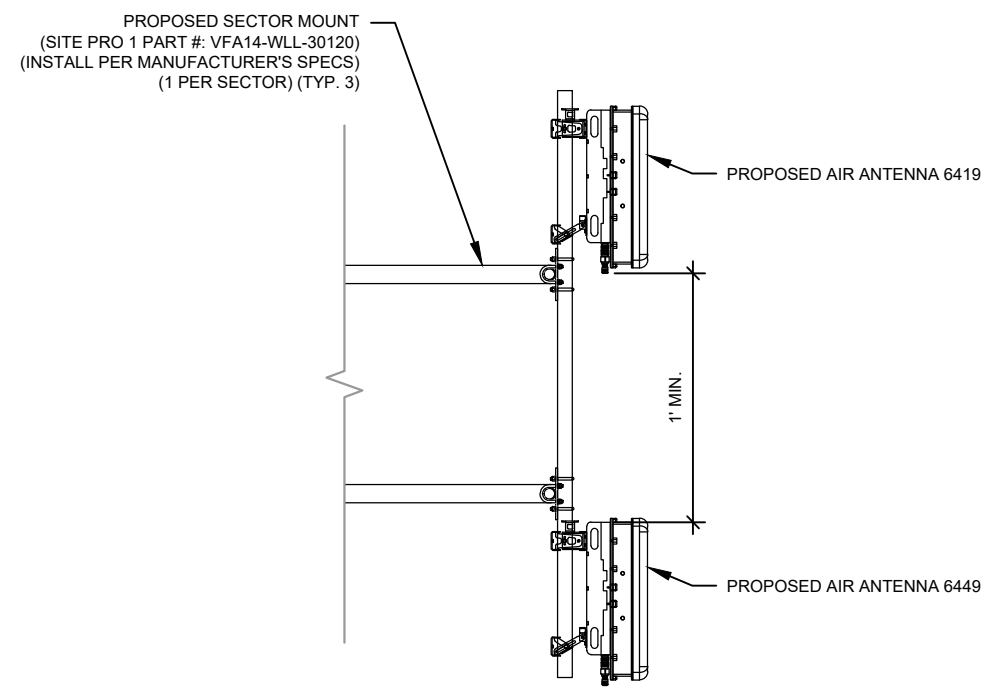
1 PROPOSED ANTENNA MOUNTING DETAIL (ELEVATION) SCALE: NOT TO SCALE



2 ISOMETRIC MOUNT DETAIL SCALE: N.T.S.



3 RRU/SQUID MOUNTING DETAIL SCALE: N.T.S.



4 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL SCALE: N.T.S.



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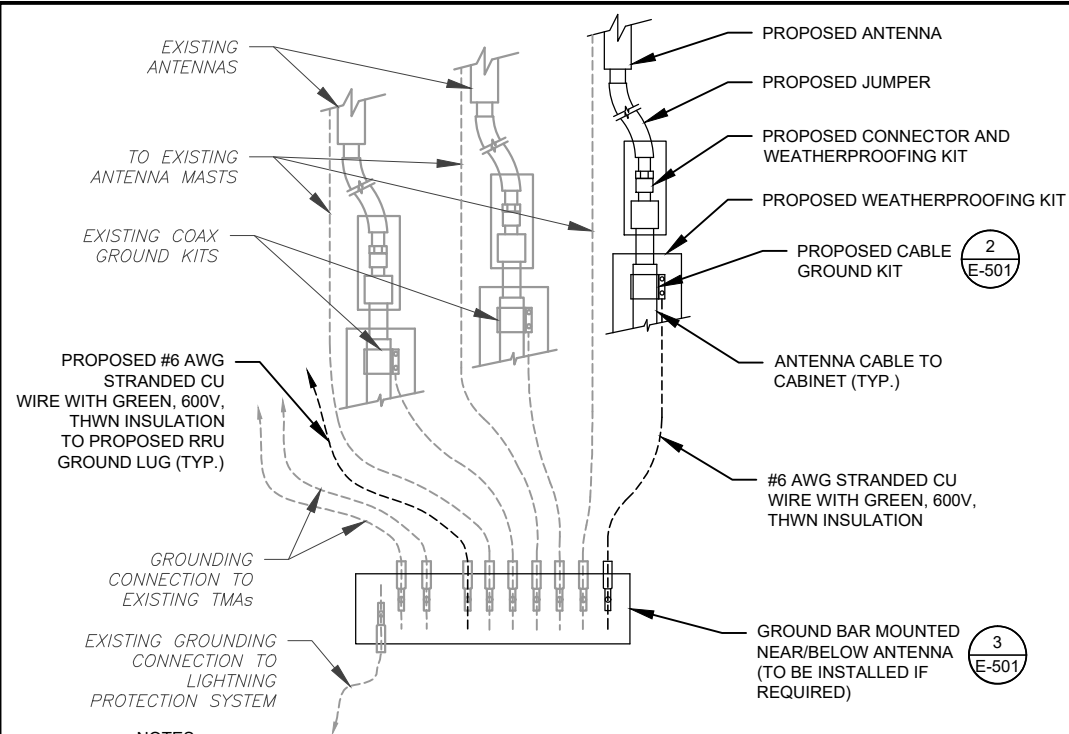


DATE DRAWN:	04/06/22
ATC JOB NO:	13757806_G5
CUSTOMER ID:	CTL01016
CUSTOMER #:	10034970

CONSTRUCTION
DETAILS

SHEET NUMBER:	REVISION:
C-501	0

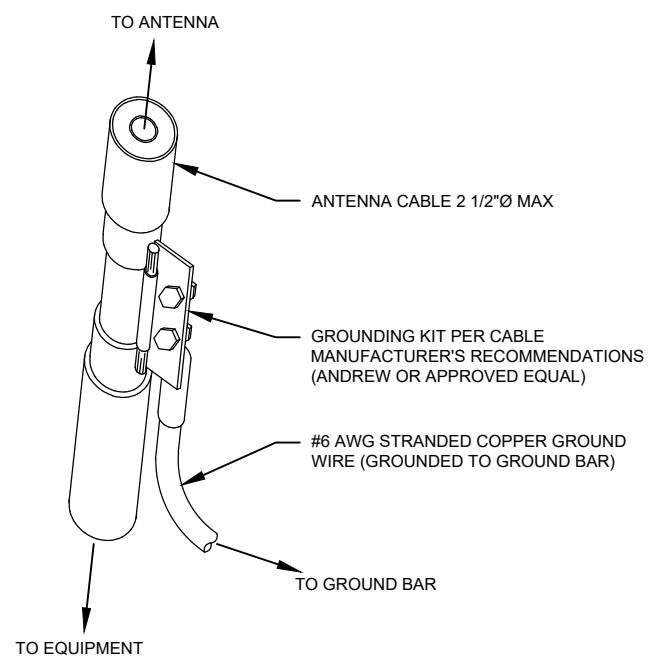
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NOTES:

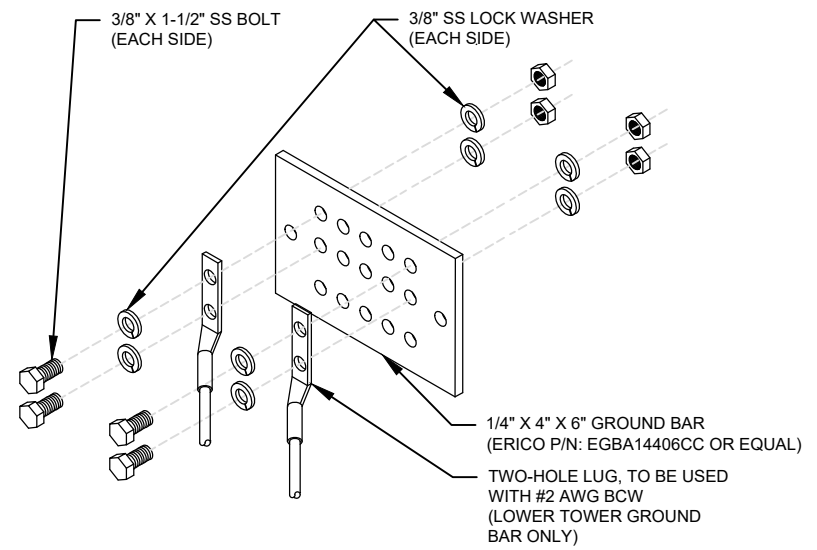
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH AT&T GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH AT&T GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

1 TYPICAL ANTENNA GROUNDING DIAGRAM
SCALE: N.T.S.



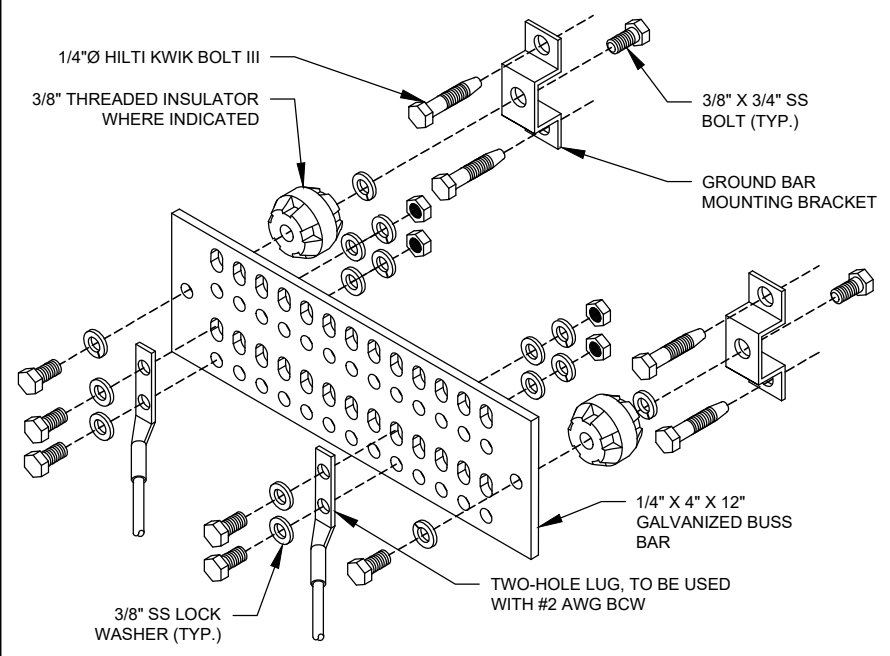
- GROUND KIT NOTES:**
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

2 CABLE GROUND KIT CONNECTION DETAIL
SCALE: N.T.S.



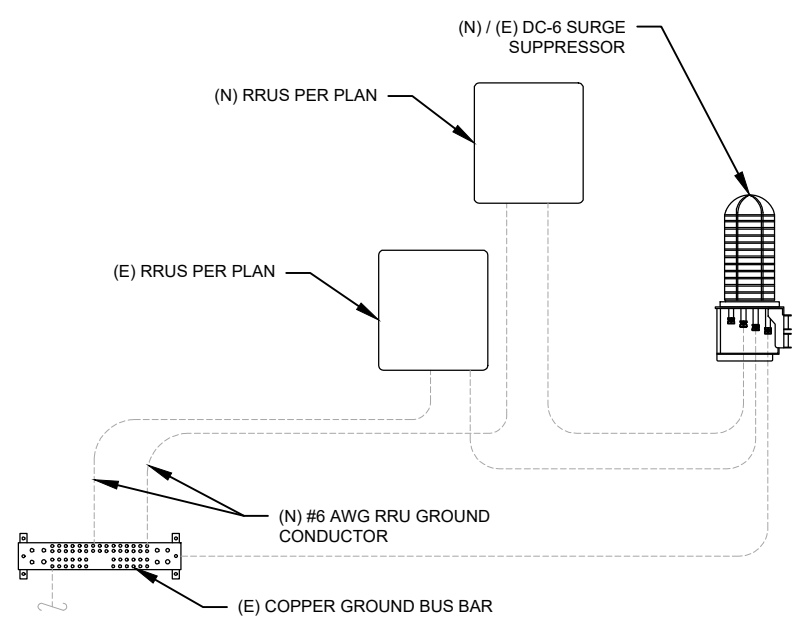
- GROUND BAR NOTES:**
1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
 2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL
SCALE: N.T.S.

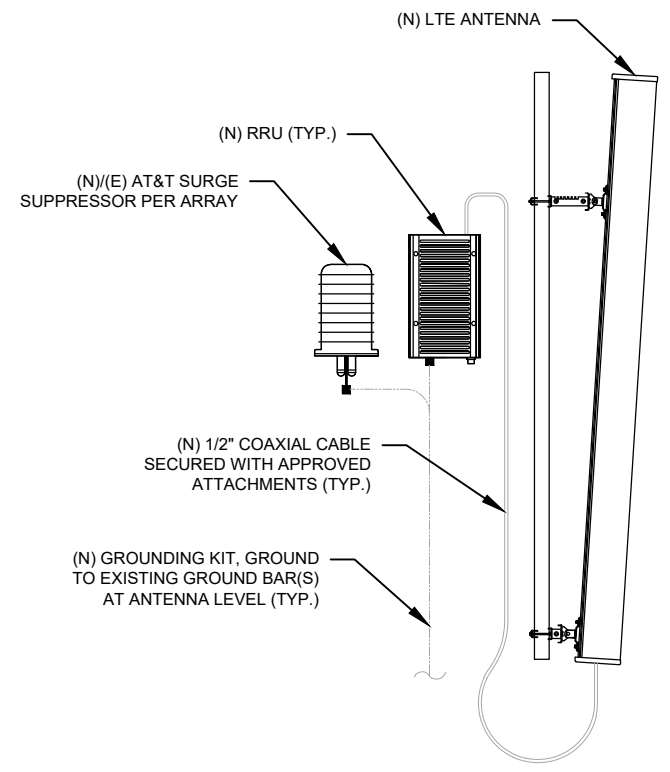


- GROUND BAR NOTES:**
1. GROUND KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
 2. GROUND BAR SHALL BE BOLTED TO STRUCTURAL MEMBER OR ANCHORED TO CONCRETE SLAB W/ HILTI KWIK BOLT III.

4 MAIN GROUND BAR DETAIL
SCALE: N.T.S.



5 RRU GROUNDING
SCALE: N.T.S.



6 ANTENNA/RRU GROUNDING
SCALE: N.T.S.



45 BEECHWOOD DRIVE N. ANDOVER, MA 01845
TEL: (978) 557-5553 FAX: (978) 336-5586

REV.	DESCRIPTION	BY	DATE
A	PRELIM	TM	04/06/22
0	FINALS	TR	09/12/22

ATC SITE NUMBER:
302485

ATC SITE NAME:
MDFD - MIDDLEFIELD

AT&T SITE NAME:
MIDDLEFIELD-KICKAPOO

SITE ADDRESS:
134 KICKAPOO ROAD
MIDDLEFIELD, CT 06455-1334

SEAL:

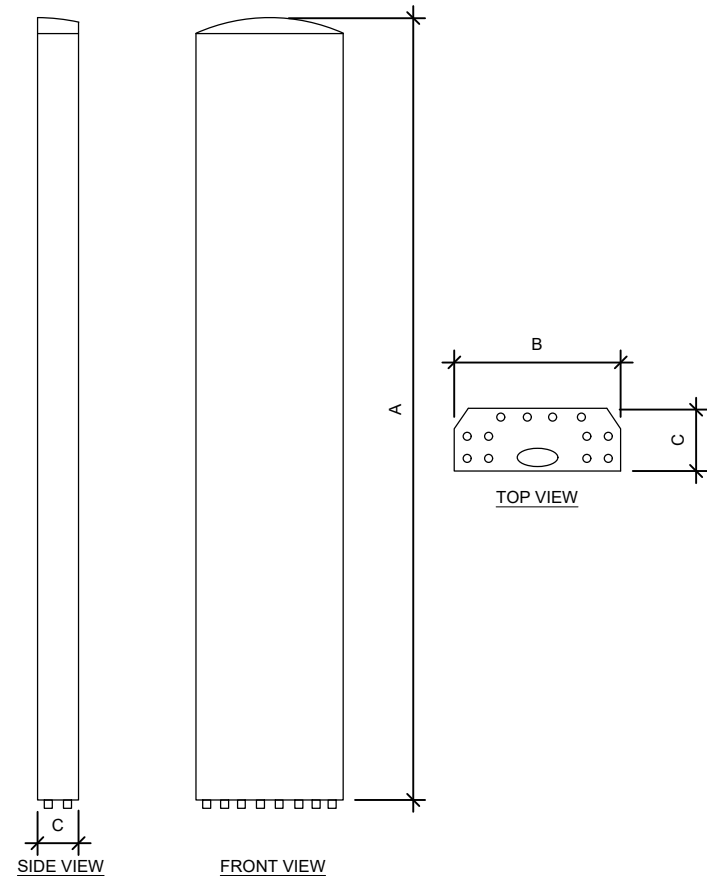


DATE DRAWN:	04/06/22
ATC JOB NO:	13757806_G5
CUSTOMER ID:	CTL01016
CUSTOMER #:	10034970

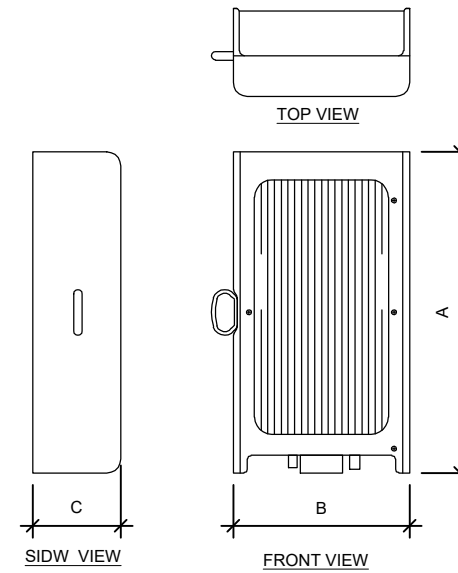
GROUNDING DETAILS

SHEET NUMBER: E-501	REVISION: 0
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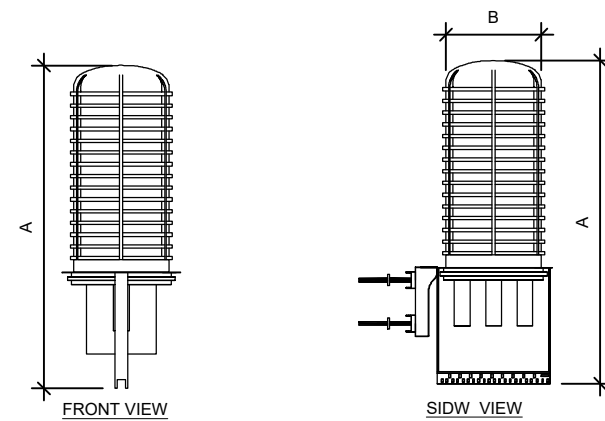
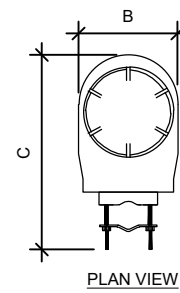
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ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
QD8616-7	96.0"	22"	9.6"	87.1
Air 6449 B77D	30.4"	15.9"	8.1"	81.6
AIR 6419 B77G	28.3"	16.1"	7.9"	66.1



RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
2012 B29	16.5"	13.5"	6.4"	46.5



RAYCAP SPECIFICATIONS				
RAYCAP MODEL	A	B	C	WEIGHT (LBS)
DC6-48-60-18-8C-EV	31.4"	18.3"	10.2"	16.0

1 EQUIPMENT SPECIFICATIONS
SCALE: N.T.S.

SUPPLEMENTAL

SHEET NUMBER: **R-601** REVISION: **0**

RF REQUIREMENTS FOR 700 B14 FIRSTNET, 700 B12, 700D B29 ANTENNA SEPARATION

- ❑ Horizontal separation (side to side of antenna): $\geq 3'$
- ❑ Vertical separation (between the tips of the antennas): $> 3'$
- ❑ Inter-sector separation: $> 4'$ between the center of the antenna backplanes.



- ❑ Please note additional horizontal separation may be required if B14 antennas azimuth are different from others or antennas are severely angled with respect to the mount.
- ❑ Typical 3' horizontal separation can tolerate skew angle up to 6° .



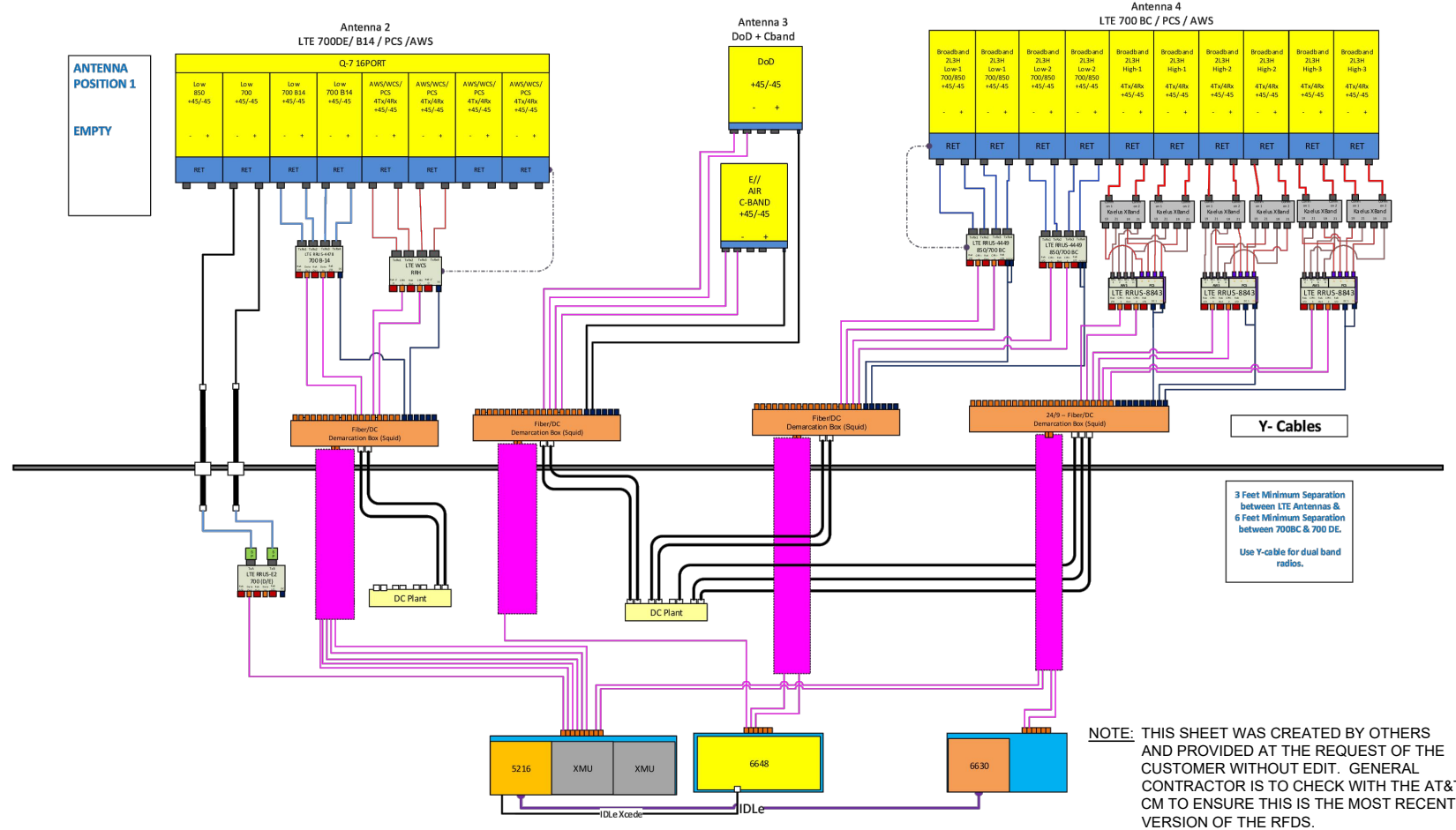
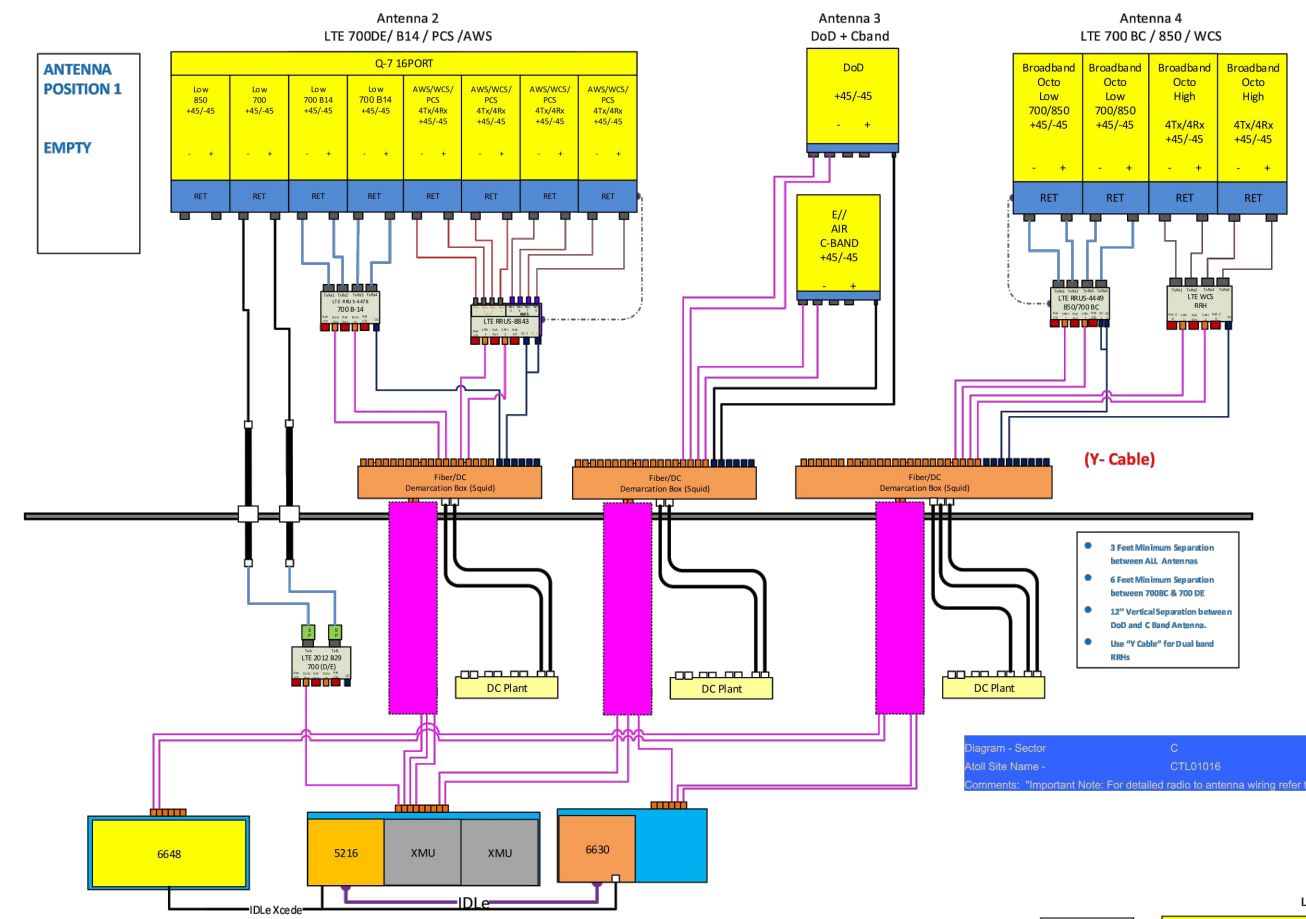
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SUPPLEMENTAL

SHEET NUMBER:
R-602

REVISION:
0

ALPHA & BETA



GAMMA

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. GENERAL CONTRACTOR IS TO CHECK WITH THE AT&T CM TO ENSURE THIS IS THE MOST RECENT VERSION OF THE RFDS.

SUPPLEMENTAL	
SHEET NUMBER: R-603	REVISION: 0



This report was prepared for American Tower Corporation by



Eng. Number 13757806_C8_06
August 19, 2022
Page 1

Antenna Mount Analysis Report

ATC Site Name : Mdfd - Middlefield
 ATC Site Number : 302485
 Engineering Number : 13757806_C8_06
 ETS, PLLC Job Number : 22110571.STR.2234
 Mount Elevation : 75 ft
 Carrier : AT&T Mobility
 Carrier Site Name : MRCTB056008
 Carrier Site Number : CLT01016
 Site Location : 134 Kikapoo Road
 Middlefield, CT 06455
 41.51361111, -72.7458
 County : Middlesex
 Date : August 19, 2022
 Max Usage : 93%
 Result : Contingent Pass

Prepared By:
Kousthub Mahendra, EI
Structural Engineer III

Reviewed By:
Frederick Geoffrey Bost, PE
Chief Technical officer



Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for AT&T Mobility at 75 ft.

Supporting Documents

RFDS	RFDS, FA#10034970 dated February 18, 2022
Spec Sheet	Site Pro Document# VFA14-WLL-30120, dated September 21, 2022
Preliminary Construction Drawings	American Tower FA# 10034970, dated April 06, 2022

Analysis

This antenna mount was analyzed using RISA-3D v17.0.4 analysis software.

Basic Wind Speed:	119 mph (3-Second gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second gust) w/ 1" radial ice concurrent
Codes:	TIA-222-H
Structure Class:	II
Exposure Category:	B
Topographic Procedure:	Method 2
Topographic Feature:	Flat Top Ridge
Crest Height:	309 ft
Crest Length:	422 ft
Spectral Response:	S _s = 0.207, S ₁ = 0.055
Site Class:	D - Default
Live Loads:	L _m = 500 lbs, L _v = 250 lbs

Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above provided the modifications listed below are completed:

1. Install the mount pipes to match the spacing requirements as shown in the equipment layout.
2. Install (2) new 2.0 SCH40 x 8'-0" mount pipes on each mount side arm. Connect with (2) 1/2" U-bolts each. Typical all sectors.

No structural failures were addressed with the noted contingencies. Contingencies address Carrier's antenna spacing requirements. The rough cost estimate, pre-MOD design, is estimated to be ≤\$10k.

Analysis is based on new Site Pro 1 VFA14-WLL-30120 mount (CEQ.53332, M1500R(1000)-5[0]) with Site Pro 1 MSFAA Monopole Sector Frame attachment assembly.

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

SUPPLEMENTAL

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONSTRUCTION.

1 MOUNT ANALYSIS

SHEET NUMBER:
R-604

REVISION:
A



Radio Frequency Exposure Analysis Report

July 7, 2022

American Tower on behalf of AT&T
Centerline Communications Project Number: 950035-008

AT&T Site Name: Mdfd - Middlefield
Site Number: CTL01016/302485
FA#: 10034970
USID: 59336

Site Address: 134 KIKAPOO ROAD, MIDDLEFIELD, CT 06455

Site Compliance Summary

AT&T Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	59.00656 $\mu\text{W}/\text{cm}^2$
Cumulative General Population % MPE (Ground Level):	5.9011199999999997%



July 7, 2022

Centerline
Attn: Jennifer Iliades, Project Manager
750 W Center St, Suite 301
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **Mdfd - Middlefield**

Centerline Communications, LLC ("Centerline") was contracted to analyze the proposed AT&T facility at **134 KIKAPOO ROAD, MIDDLEFIELD, CT 06455** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in mW/cm^2) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ($f_{\text{MHz}}/1500$). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of $1 \text{ mW}/\text{cm}^2$ ($1000 \mu\text{W}/\text{cm}^2$). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the 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.

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, 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.



Calculation Methodology

Centerline Communications, LLC has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.



Data & Results

The following table details the antennas and operating parameters for the AT&T antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the Ground Level.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.



Maximum Calculated Cumulative Power Density (Location: approximately 175' east of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
AT&T A 1	QUINTEL QD8616-7 V1	700	13.04	78.00	4.00	30.00	2414.58	0.00061	466.67	0.00013
AT&T A 1	QUINTEL QD8616-7 V1	700	13.04	78.00	2.00	18.00	724.37	0.00019	466.67	0.00004
AT&T A 1	QUINTEL QD8616-7 V1	1900	15.25	78.00	4.00	30.00	4020.33	0.00040	1000.00	0.00004
AT&T A 1	QUINTEL QD8616-7 V1	2100	15.56	78.00	4.00	30.00	4321.67	0.00048	1000.00	0.00005
AT&T A 2	Ericsson SON_AIR6419	3450	23.45	79.75	1.00	108.40	23989.95	0.00589	1000.00	0.00059
AT&T A 3	Ericsson SON_AIR6449	3700	23.45	76.25	1.00	108.40	23989.95	0.00707	1000.00	0.00071
AT&T A 4	CCI DMP65R-BU8D	700	12.25	78.00	4.00	30.00	2014.56	0.00073	466.67	0.00016
AT&T A 4	CCI DMP65R-BU8D	850	12.55	78.00	4.00	30.00	2158.65	0.00038	566.67	0.00007
AT&T A 4	CCI DMP65R-BU8D	2300	14.95	78.00	4.00	18.00	2250.78	0.00030	1000.00	0.00003
AT&T B 5	QUINTEL QD8616-7 V1	700	13.04	78.00	4.00	30.00	2414.58	0.00045	466.67	0.00010
AT&T B 5	QUINTEL QD8616-7 V1	700	13.04	78.00	2.00	18.00	724.37	0.00014	466.67	0.00003
AT&T B 5	QUINTEL QD8616-7 V1	1900	15.25	78.00	4.00	30.00	4020.33	0.00059	1000.00	0.00006
AT&T B 5	QUINTEL QD8616-7 V1	2100	15.56	78.00	4.00	30.00	4321.67	0.00057	1000.00	0.00006
AT&T B 6	Ericsson SON_AIR6419	3450	23.45	79.75	1.00	108.40	23989.95	0.00610	1000.00	0.00061
AT&T B 7	Ericsson SON_AIR6449	3700	23.45	76.25	1.00	108.40	23989.95	0.00733	1000.00	0.00073
AT&T B 8	CCI DMP65R-BU8D	700	12.25	78.00	4.00	30.00	2014.56	0.00122	466.67	0.00026
AT&T B 8	CCI DMP65R-BU8D	850	12.55	78.00	4.00	30.00	2158.65	0.00043	566.67	0.00008
AT&T B 8	CCI DMP65R-BU8D	2300	14.95	78.00	4.00	18.00	2250.78	0.00038	1000.00	0.00004
AT&T C 9	QUINTEL QD8616-7 V1	700	12.90	78.00	4.00	30.00	2342.45	0.00001	466.67	0.00000
AT&T C 9	QUINTEL QD8616-7 V1	700	12.90	78.00	2.00	18.00	702.74	0.00000	466.67	0.00000
AT&T C 9	QUINTEL QD8616-7 V1	2300	16.53	78.00	4.00	18.00	3236.48	0.00000	1000.00	0.00000
AT&T C 10	Ericsson SON_AIR6419	3450	23.45	79.75	1.00	108.40	23989.95	0.00001	1000.00	0.00000
AT&T C 11	Ericsson SON_AIR6449	3700	23.45	76.25	1.00	108.40	23989.95	0.00002	1000.00	0.00000
AT&T C 12	MATSING MS-MBA-3.2-H4-L4 AZ-30	700	10.14	78.00	4.00	30.00	1239.31	0.00001	466.67	0.00000
AT&T C 12	MATSING MS-MBA-3.2-H4-L4 AZ+30	700	10.10	78.00	4.00	30.00	1227.95	0.00000	466.67	0.00000
AT&T C 12	MATSING MS-MBA-3.2-H4-L4 AZ-30	850	12.80	78.00	4.00	30.00	2286.55	0.00000	566.67	0.00000
AT&T C 12	MATSING MS-MBA-3.2-H4-L4 AZ+30	850	12.44	78.00	4.00	30.00	2104.66	0.00000	566.67	0.00000
AT&T C 12	MATSING MS-MBA-3.2-H4-L4 AZ-40	1900	15.66	78.00	4.00	30.00	4417.55	0.00000	1000.00	0.00000
AT&T C 12	MATSING MS-MBA-3.2-H4-L4 AZ0	1900	15.18	78.00	4.00	30.00	3955.32	0.00000	1000.00	0.00000
AT&T C 12	MATSING MS-MBA-3.2-H4-L4 AZ+40	1900	15.32	78.00	4.00	30.00	4084.90	0.00000	1000.00	0.00000
AT&T C 12	MATSING MS-MBA-3.2-H4-L4 AZ-40	2100	16.30	78.00	4.00	30.00	5118.95	0.00000	1000.00	0.00000
AT&T C 12	MATSING MS-MBA-3.2-H4-L4 AZ0	2100	15.87	78.00	4.00	30.00	4636.40	0.00000	1000.00	0.00000
AT&T C 12	MATSING MS-MBA-3.2-H4-L4 AZ+40	2100	16.06	78.00	4.00	30.00	4843.74	0.00000	1000.00	0.00000
Unknown A 13	GENERIC OMNI 9.5FT	450	5.96	91.00	1.00	25.25	99.60	0.00004	300.00	0.00002
Unknown A 14	GENERIC OMNI 9.5FT	450	5.96	91.00	1.00	25.25	99.60	0.00004	300.00	0.00002



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
							Cumulative Power Density:	59.00656 $\mu\text{W}/\text{cm}^2$	Cumulative % MPE:	5.90112%



Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at Ground Level that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **Compliant** with FCC rules and regulations.

Matt Schulzinger
RF EME Technical Writer
Centerline Communications, LLC



AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by



Antenna Mount Analysis Report

ATC Site Name : Mdfd - Middlefield
ATC Site Number : 302485
Engineering Number : 13757806_C8_06
ETS, PLLC Job Number : 22110571.STR.2234
Mount Elevation : 75 ft
Carrier : AT&T Mobility
Carrier Site Name : MRCTB056008
Carrier Site Number : CLT01016
Site Location : 134 Kikapoo Road
Middlefield, CT 06455
41.51361111, -72.7458
County : Middlesex
Date : August 19, 2022
Max Usage : 93%
Result : Contingent Pass

Prepared By:
Kousthub Mahendra, EI
Structural Engineer III

Reviewed By:
Frederick Geoffrey Bost, PE
Chief Technical officer





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Structure Usages..... 2

Mount Layout 3

Equipment Layout 4

Standard Conditions5

Calculations..... Attached

Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for AT&T Mobility at 75 ft.

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Spec Sheet	Site Pro Document# VFA14-WLL-30120, dated September 21, 2022
Preliminary Construction Drawings	American Tower FA# 10034970, dated April 06, 2022

Analysis

This antenna mount was analyzed using RISA-3D v17.0.4 analysis software.

Basic Wind Speed:	119 mph (3-Second gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second gust) w/ 1" radial ice concurrent
Codes:	TIA-222-H
Structure Class:	II
Exposure Category:	B
Topographic Procedure:	Method 2
Topographic Feature:	Flat Top Ridge
Crest Height:	309 ft
Crest Length:	422 ft
Spectral Response:	S _s = 0.207, S ₁ = 0.055
Site Class:	D - Default
Live Loads:	L _m = 500 lbs, L _v = 250 lbs

Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above provided the modifications listed below are completed:

1. Install the mount pipes to match the spacing requirements as shown in the equipment layout.
2. Install (2) new 2.0 SCH40 x 8'-0" mount pipes on each mount side arm. Connect with (2) 1/2" U-bolts each. Typical all sectors.

No structural failures were addressed with the noted contingencies. Contingencies address Carrier's antenna spacing requirements. The rough cost estimate, pre-MOD design, is estimated to be ≤\$10k.

Analysis is based on new Site Pro 1 VFA14-WLL-30120 mount (CEQ.53332, M1500R(1000)-5[0]) with Site Pro 1 MSFAA Monopole Sector Frame attachment assembly.

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

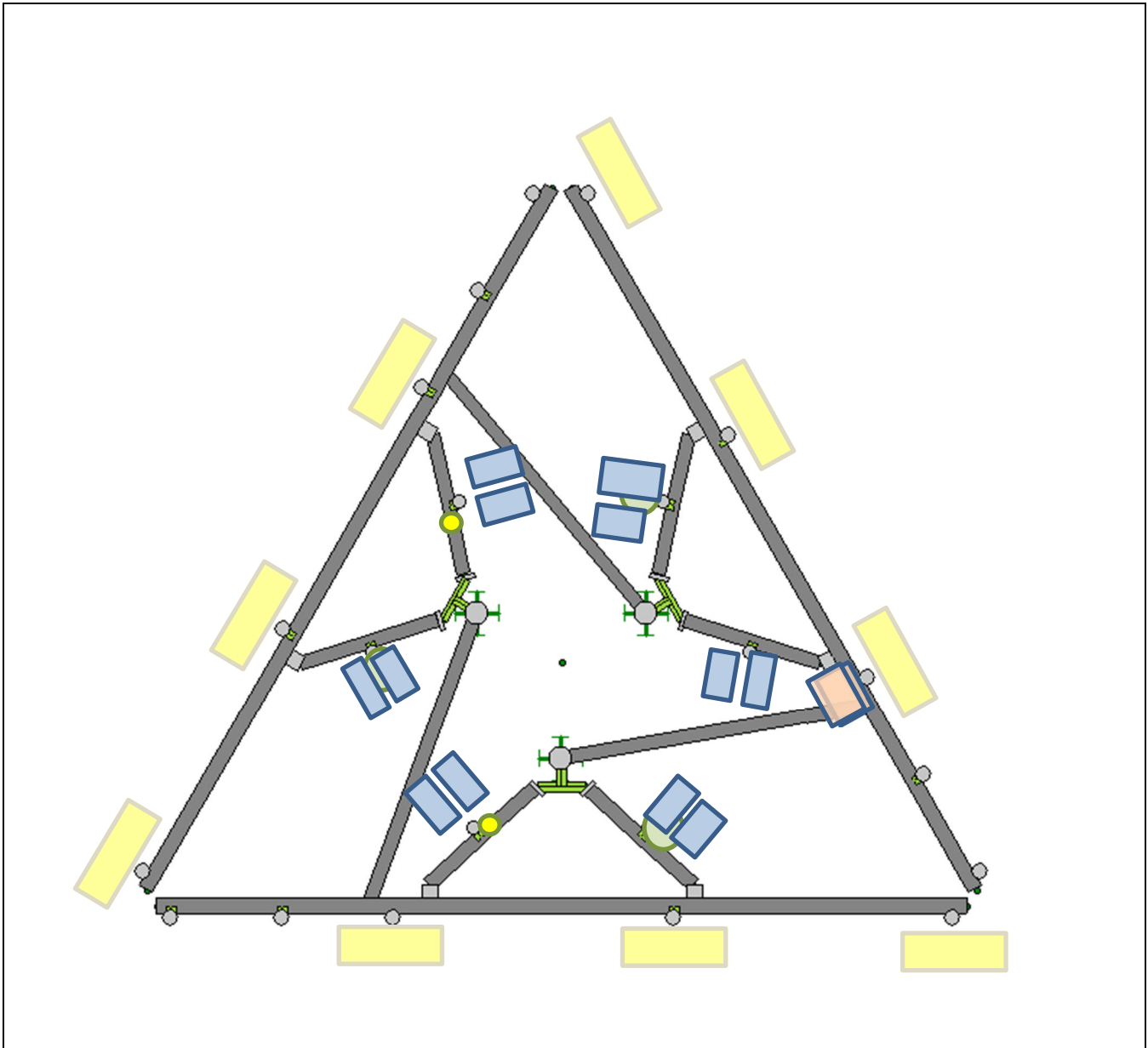
Antenna Loading

Mount Centerline (ft)	Antenna Centerline (ft)	Qty	Antenna Model
75.0	80.0	3	Ericsson Air 6449 B77D
	78.0	3	Quintel QD8616-7
		1	Matsing MBA-3.2-H4-L4
		2	CCI DMP65R-BU8D
		6	Kaelus DBC0051 F3V51-2
		2	Raycap DC6-48-60-18-8F (23.5" Height)
		1	Raycap DC9-46-60-24-8C-EV
		1	Raycap DC6-48-60-16-8C-EV
		5	Ericsson RRUS 8843 B2, B66A
		4	Ericsson RRUS 4449 B5, B12
		3	Ericsson RRUS 4478 B14
		3	Ericsson RRUS 32 B30
		2	Generic 10' Omni
	76.0	3	Ericsson AIR 6419 B77G

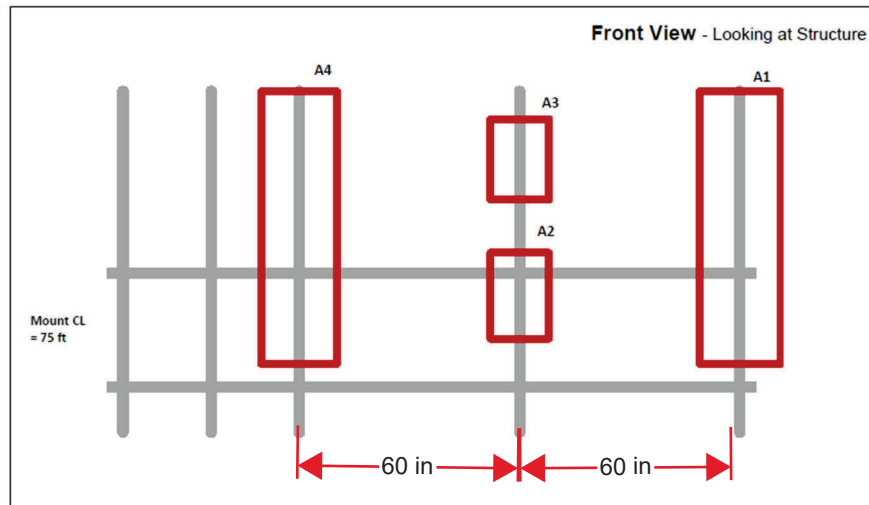
Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Horizontals	93%	Pass
Mount Pipes	70%	Pass
Verticals	39%	Pass
Diagonals	51%	Pass
Tie-Backs	11%	Pass
Connection Plates	71%	Pass
Mount to Tower Connection	76%	Pass

Mount Layout



Equipment Layout



Position	Equipment	Qty	Eqp. Type	A _{CL} (ft)
A1	QUINTEL TECHNOLOGY / QD8616-7	1	Antenna	78.0
A2	ERICSSON / AIR 6449 B77D	1	Antenna	78.0
A3	ERICSSON / AIR 6419 B77G	1	Antenna	78.0
A4	CCI ANTENNAS / DMP65R-BU8D	1	Antenna	78.0

1)	RAYCAP / DC6-48-60-18-8F
	RAYCAP / DC9-48-60-24-8C-EV
	RAYCAP / DC9-48-60-24-8C-EV
	ERICSSON / RRUS 8843 B2/B66A
	ERICSSON / RRUS 4449 B5/B12
	ERICSSON / RRUS 4478 B14
	ERICSSON / RRUS 32 B30

1) Equipment mounted on the side arm

Standard Conditions

All engineering services performed by Engineered Tower Solutions, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of ETS, PLLC

It is the responsibility of the client to ensure that the information provided to ETS, PLLC and used in the performance of our engineering services is correct and complete.

The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specification.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate, Threaded Rod	ASTM A36 (Gr. 36)
HSS (Rectangular)	ASTM A500 (Gr. B-46)
HSS (Round)	ASTM A500 (Gr. B-42)
Pipe	ASTM A53 (Gr. 35)
Connection Bolts	ASTM A325
U-Bolt	SAE J429 (Gr. 2)

Unless explicitly agreed by both the client and ETS, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

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

Site Inputs	
Mount Support (Tower, or Building Support)?	Tower
Risk Category (TIA Table 2-1)	II
Exposure Category	B
Basic Wind Speed without Ice, V	119 mph
Basic Wind Speed with Ice, V _i	50 mph
Design of Ice, δ _{ice}	56 pcf
Design Ice Thickness, t _i	1.00 in
Basic Wind Speed (Maintenance)	30 mph
Maintenance Load, L _m	500 lb
Maintenance Load, L _v	250 lb
Height of Structure, h	79.8 ft
Mount Centerline, h _m	75.0 ft
Topographic Factor, K _z	1.979
Rooftop Wind Speed-Up Factor, K _r	1.00
Mean Elevation of base of structure above sea level, z _s	770 ft
Ground Elevation Factor, K _g	0.97
Wind Direction Probability Factor, K _d	0.95
Gust Response Factor, G _s	1.00
Shielding Factor for Appurtenances, K _s	0.90

TIA-222-H Mount Load Generator

Seismic Design Input/Output	
0.207	Spectral response acceleration at short periods, S _s
0.055	Spectral response acceleration at a period of 1 second, S ₁
D	Soil Site Class
1.600	Short-period site coefficient, F _s
2.400	Long-period site coefficient, F _l
0.221	Design spectral response acceleration at short periods, S _{DS}
0.088	Design spectral response acceleration at a period of 1 second, S _{DS1}
2.00	Response modification coefficient, R
1.00	Earthquake amplification factor, A _s
1.00	Importance Factor
0.1104	Seismic Response Coefficient, C _s
Eh = 0.110 W	Total Seismic Shear Force, E _s = ρ Q _s (Q _s = ρ C _s W A _s & ρ = 1.0)
Ev = 0.044 D	Vertical Seismic Load Effect, E _v = 0.2 S _{DS} D A _s



Output File Name: 302485_Mdfd-Middlefield

Mount Pipe Information							Mount Pipe Forces					
Mount Pipe	Mount Location	Vertical Offset	Length	Diameter	Weight	Shape	Front Design Wind Force, F _w	Side Design Wind Force, F _l	Design Ice Thickness, t _z	Ice Weight	Front Design Wind Force on Ice, F _A	Side Design Wind Force on Ice, F _A
P 2 SCH 40 x 120	MP1	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	24.06 lb	144.37 lb	1.382 in	63.44 lb	10.25 lb	55.26 lb
P 2 SCH 40 x 120	MP2	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	90.88 lb	144.37 lb	1.382 in	63.44 lb	35.78 lb	55.26 lb
P 2 SCH 40 x 120	MP3	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	24.06 lb	144.37 lb	1.382 in	63.44 lb	10.25 lb	55.26 lb
P 2 SCH 40 x 120	MP4	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	144.37 lb	144.37 lb	1.382 in	63.44 lb	55.26 lb	55.26 lb
P 2 SCH 40 x 120	MP5	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	24.06 lb	144.37 lb	1.382 in	63.44 lb	10.25 lb	55.26 lb
P 2 SCH 40 x 120	MP6	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	90.88 lb	144.37 lb	1.382 in	63.44 lb	35.78 lb	55.26 lb
P 2 SCH 40 x 120	MP7	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	24.06 lb	144.37 lb	1.382 in	63.44 lb	10.25 lb	55.26 lb
P 2 SCH 40 x 120	MP8	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	144.37 lb	144.37 lb	1.382 in	63.44 lb	55.26 lb	55.26 lb
P 2 SCH 40 x 120	MP9	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	24.06 lb	144.37 lb	1.382 in	63.44 lb	10.25 lb	55.26 lb
P 2 SCH 40 x 120	MP10	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	90.88 lb	144.37 lb	1.382 in	63.44 lb	35.78 lb	55.26 lb
P 2 SCH 40 x 120	MP11	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	48.12 lb	144.37 lb	1.382 in	63.44 lb	19.44 lb	55.26 lb
P 2 SCH 40 x 120	MP12	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	144.37 lb	144.37 lb	1.382 in	63.44 lb	55.26 lb	55.26 lb
P 2 SCH 40 x 96	MP13	0.00 ft	96.00 in	2.38 in	29.25 lb	Round	95.53 lb	114.63 lb	1.379 in	50.57 lb	37.49 lb	40.19 lb
P 2 SCH 40 x 96	MP14	0.00 ft	96.00 in	2.38 in	29.25 lb	Round	95.53 lb	114.63 lb	1.379 in	50.57 lb	37.49 lb	40.19 lb
P 2 SCH 40 x 96	MP15	0.00 ft	96.00 in	2.38 in	29.25 lb	Round	95.53 lb	114.63 lb	1.379 in	50.57 lb	37.49 lb	40.19 lb
P 2 SCH 40 x 96	MP16	0.00 ft	96.00 in	2.38 in	29.25 lb	Round	95.53 lb	114.63 lb	1.379 in	50.57 lb	37.49 lb	40.19 lb
P 2 SCH 40 x 96	MP17	0.00 ft	96.00 in	2.38 in	29.25 lb	Round	95.53 lb	114.63 lb	1.379 in	50.57 lb	37.49 lb	40.19 lb
P 2 SCH 40 x 96	MP18	0.00 ft	96.00 in	2.38 in	29.25 lb	Round	95.53 lb	114.63 lb	1.379 in	50.57 lb	37.49 lb	40.19 lb
P 2 SCH 40 x 120	MP19	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	144.37 lb	144.37 lb	1.382 in	63.44 lb	55.26 lb	55.26 lb
P 2 SCH 40 x 120	MP20	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	144.37 lb	144.37 lb	1.382 in	63.44 lb	55.26 lb	55.26 lb
P 2 SCH 40 x 120	MP21	2.00 ft	120.00 in	2.38 in	36.56 lb	Round	144.37 lb	144.37 lb	1.382 in	63.44 lb	55.26 lb	55.26 lb

Appurtenance Information - MP1							Appurtenance Forces - MP1					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_{ice}	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
QUINTEL TECHNOLOGY / QD8616-7	1	3.00 ft	96.00 in	22.00 in	9.60 in	150.00 lb	1147.95 lb	585.72 lb	1.384 in	343.40 lb	215.01 lb	117.22 lb

Appurtenance Information - MP2							Appurtenance Forces - MP2					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_{ice}	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
ERICSSON / AIR 6449 B77D	1	1.00 ft	30.40 in	15.90 in	8.10 in	81.60 lb	243.94 lb	130.04 lb	1.380 in	82.13 lb	47.82 lb	28.41 lb
ERICSSON / AIR 6419 B77G	1	5.00 ft	28.30 in	16.10 in	7.90 in	66.10 lb	233.34 lb	119.09 lb	1.387 in	77.24 lb	45.74 lb	26.30 lb

Appurtenance Information - MP3							Appurtenance Forces - MP3					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_{ice}	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
CCI ANTENNAS / DMP65R-BU8D	1	3.00 ft	96.00 in	20.70 in	7.70 in	95.70 lb	1090.37 lb	495.56 lb	1.384 in	317.46 lb	204.75 lb	100.73 lb

Appurtenance Information - MP5							Appurtenance Forces - MP5					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_{ice}	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
QUINTEL TECHNOLOGY / QD8616-7	1	3.00 ft	96.00 in	22.00 in	9.60 in	150.00 lb	1147.95 lb	585.72 lb	1.384 in	343.40 lb	215.01 lb	117.22 lb

Appurtenance Information - MP6							Appurtenance Forces - MP6					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_{ice}	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
ERICSSON / AIR 6449 B77D	1	1.00 ft	30.40 in	15.90 in	8.10 in	81.60 lb	243.94 lb	130.04 lb	1.380 in	82.13 lb	47.82 lb	28.41 lb
ERICSSON / AIR 6419 B77G	1	5.00 ft	28.30 in	16.10 in	7.90 in	66.10 lb	233.34 lb	119.09 lb	1.387 in	77.24 lb	45.74 lb	26.30 lb

Appurtenance Information - MP7							Appurtenance Forces - MP7					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_{ice}	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
CCI ANTENNAS / DMP65R-BU8D	1	3.00 ft	96.00 in	20.70 in	7.70 in	95.70 lb	1090.37 lb	495.56 lb	1.384 in	317.46 lb	204.75 lb	100.73 lb

Appurtenance Information - MP9							Appurtenance Forces - MP9					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_{i2}	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
QUINTEL TECHNOLOGY / QD8616-7	1	3.00 ft	96.00 in	22.00 in	9.60 in	150.00 lb	1147.95 lb	585.72 lb	1.384 in	343.40 lb	215.01 lb	117.22 lb

Appurtenance Information - MP10							Appurtenance Forces - MP10					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_{i2}	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
ERICSSON / AIR 6449 B77D	1	1.00 ft	30.40 in	15.90 in	8.10 in	81.60 lb	243.94 lb	130.04 lb	1.380 in	82.13 lb	47.82 lb	28.41 lb
ERICSSON / AIR 6419 B77G	1	5.00 ft	28.30 in	16.10 in	7.90 in	66.10 lb	233.34 lb	119.09 lb	1.387 in	77.24 lb	45.74 lb	26.30 lb

Appurtenance Information - MP11							Appurtenance Forces - MP11					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_{i2}	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
MATSING / MBA-3.2-H4-L4	1	3.00 ft	72.00 in	25.00 in	24.00 in	130.00 lb	928.07 lb	894.86 lb	1.384 in	365.61 lb	173.62 lb	171.24 lb
KAELUS / DBC0051F3V51-2	2	-0.75 ft	8.00 in	6.20 in	4.40 in	12.40 lb	49.73 lb	35.29 lb	1.377 in	10.07 lb	11.84 lb	10.54 lb
KAELUS / DBC0051F3V51-2	2	-1.50 ft	8.00 in	6.20 in	4.40 in	12.40 lb	49.59 lb	35.19 lb	1.376 in	10.06 lb	11.80 lb	10.50 lb
KAELUS / DBC0051F3V51-2	2	-2.25 ft	8.00 in	6.20 in	4.40 in	12.40 lb	49.44 lb	35.09 lb	1.374 in	10.05 lb	11.76 lb	10.47 lb

Appurtenance Information - MP13							Appurtenance Forces - MP13					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_{i2}	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
ERICSSON / RRU8 8843 B2/B66A	1	2.00 ft	14.90 in	10.90 in	13.20 in	72.00 lb	82.27 lb	99.63 lb	1.382 in	38.79 lb	18.24 lb	22.04 lb
ERICSSON / RRU8 4478 B14	1	2.00 ft	18.10 in	13.40 in	8.30 in	59.40 lb	122.86 lb	76.10 lb	1.382 in	43.67 lb	26.23 lb	17.64 lb
RAYCAP / DC6-48-60-18-8F	1	-2.00 ft	23.50 in	9.70 in	9.70 in	20.00 lb	47.39 lb	47.39 lb	1.375 in	36.43 lb	16.40 lb	16.79 lb

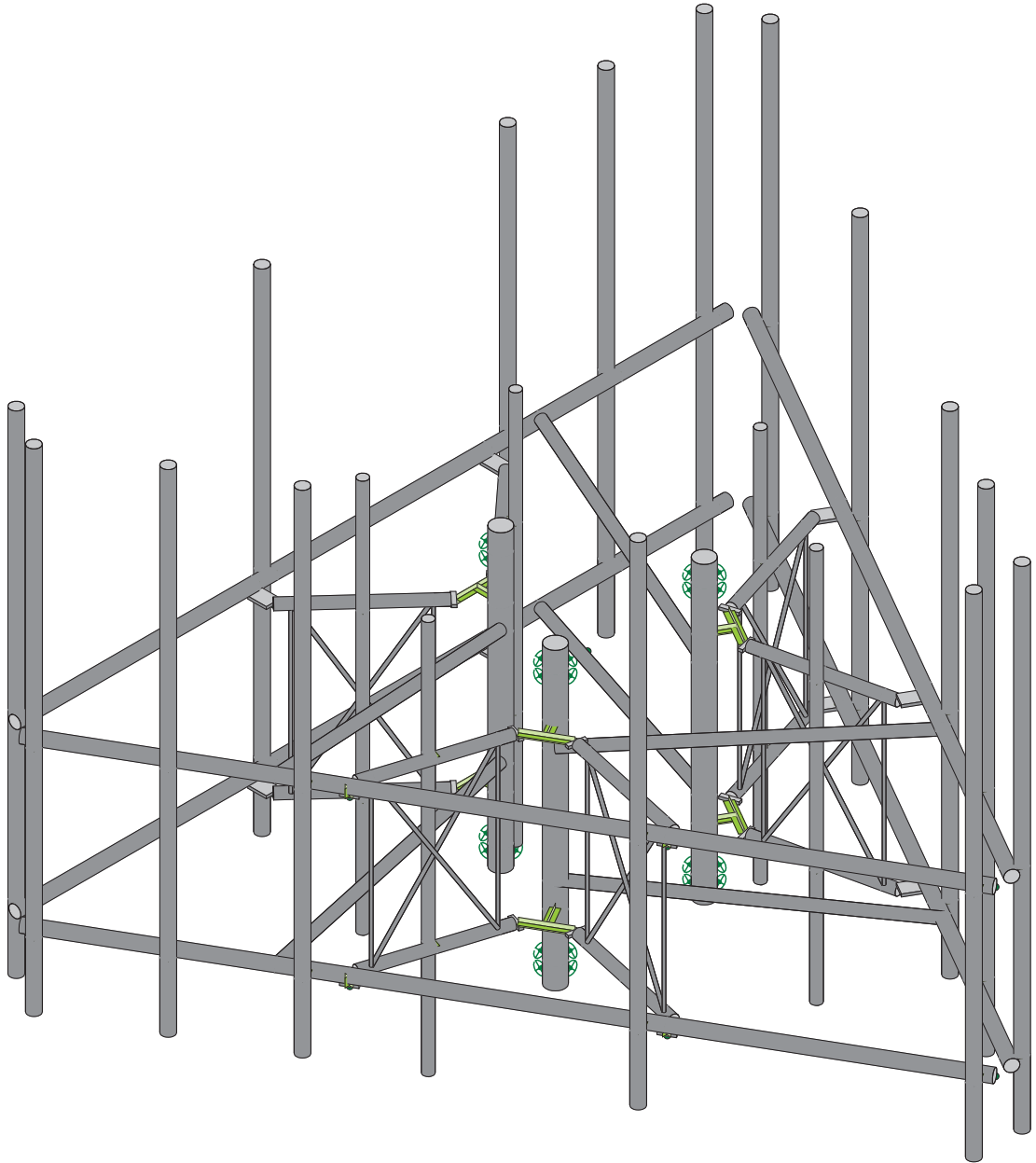
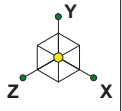
Appurtenance Information - MP14							Appurtenance Forces - MP14					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_{i2}	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
ERICSSON / RRU8 4449 B5/B12	1	2.00 ft	17.90 in	9.40 in	13.20 in	71.00 lb	85.24 lb	0.00 lb	1.382 in	44.30 lb	18.98 lb	4.88 lb
ERICSSON / RRU8 32 B30	1	2.00 ft	27.20 in	7.00 in	12.10 in	60.00 lb	101.40 lb	166.72 lb	1.382 in	58.79 lb	22.41 lb	35.50 lb
Generic Omni	1	3.50 ft	120.00 in	2.38 in	2.38 in	30.00 lb	145.17 lb	145.17 lb	1.385 in	63.61 lb	55.02 lb	55.60 lb

Appurtenance Information - MP15							Appurtenance Forces - MP15					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_{i2}	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
ERICSSON / RRU8 8843 B2/B66A	1	2.00 ft	14.90 in	10.90 in	13.20 in	72.00 lb	82.27 lb	99.63 lb	1.382 in	38.79 lb	18.24 lb	22.04 lb
ERICSSON / RRU8 4478 B14	1	2.00 ft	18.10 in	13.40 in	8.30 in	59.40 lb	122.86 lb	76.10 lb	1.382 in	43.67 lb	26.23 lb	17.64 lb
RAYCAP / DC6-48-60-18-8C-EV	1	-2.00 ft	31.40 in	18.30 in	10.20 in	16.00 lb	119.45 lb	68.29 lb	1.375 in	86.47 lb	36.54 lb	22.82 lb

Appurtenance Information - MP16							Appurtenance Forces - MP16					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_i	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
ERICSSON / RRUS 4449 B5/B12	1	2.00 ft	17.90 in	9.40 in	13.20 in	71.00 lb	85.24 lb	0.00 lb	1.382 in	44.30 lb	18.98 lb	4.88 lb
ERICSSON / RRUS 32 B30	1	2.00 ft	27.20 in	7.00 in	12.10 in	60.00 lb	101.40 lb	166.72 lb	1.382 in	58.79 lb	22.41 lb	35.50 lb
Generic Omni	1	3.50 ft	120.00 in	2.38 in	2.38 in	30.00 lb	145.17 lb	145.17 lb	1.385 in	63.61 lb	55.02 lb	55.60 lb

Appurtenance Information - MP17							Appurtenance Forces - MP17					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_i	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
ERICSSON / RRUS 32 B30	1	2.00 ft	27.20 in	7.00 in	12.10 in	60.00 lb	101.40 lb	166.72 lb	1.382 in	58.79 lb	22.41 lb	35.50 lb
ERICSSON / RRUS 4478 B14	1	2.00 ft	18.10 in	13.40 in	8.30 in	59.40 lb	122.86 lb	76.10 lb	1.382 in	43.67 lb	26.23 lb	17.64 lb
RAYCAP / DC9-48-60-24-8C-EV	1	-2.00 ft	31.40 in	18.30 in	10.20 in	16.00 lb	119.45 lb	68.29 lb	1.375 in	86.47 lb	36.54 lb	22.82 lb

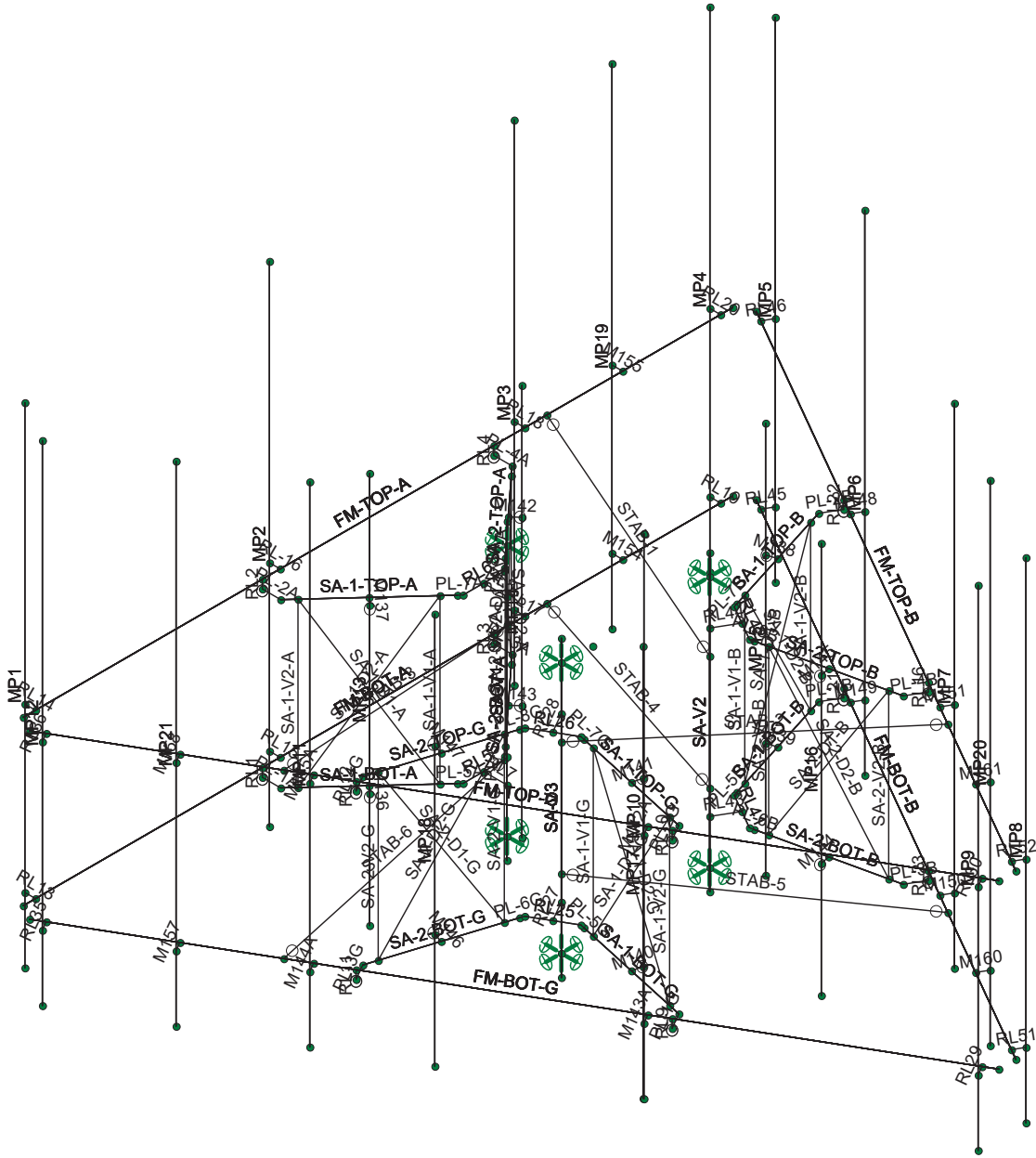
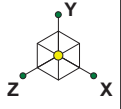
Appurtenance Information - MP18							Appurtenance Forces - MP18					
Appurtenance	Quantity	Vertical Offset	Length	Width	Depth	Weight	Front Design Wind Force, F_A	Side Design Wind Force, F_A	Design Ice Thickness, t_i	Ice Weight	Front Design Wind Force on Ice, F_A	Side Design Wind Force on Ice, F_A
ERICSSON / RRUS 4449 B5/B12	1	0.00 ft	17.90 in	9.40 in	13.20 in	71.00 lb	84.60 lb	118.80 lb	1.379 in	44.17 lb	18.83 lb	25.81 lb
ERICSSON / RRUS 4449 B5/B12	1	0.00 ft	17.90 in	9.40 in	13.20 in	71.00 lb	84.60 lb	0.00 lb	1.379 in	44.17 lb	18.83 lb	4.83 lb
ERICSSON / RRUS 8843 B2/B66A	1	2.00 ft	14.90 in	10.90 in	13.20 in	72.00 lb	82.27 lb	99.63 lb	1.382 in	38.79 lb	18.24 lb	22.04 lb
ERICSSON / RRUS 8843 B2/B66A	1	2.00 ft	14.90 in	10.90 in	13.20 in	72.00 lb	82.27 lb	0.00 lb	1.382 in	38.79 lb	18.24 lb	4.45 lb
ERICSSON / RRUS 8843 B2/B66A	1	-2.00 ft	14.90 in	10.90 in	13.20 in	72.00 lb	81.03 lb	98.13 lb	1.375 in	38.57 lb	17.95 lb	21.68 lb



ETS, PLLC
KM
ETS#22110571.STR.2234

Mdfd - Middlefield

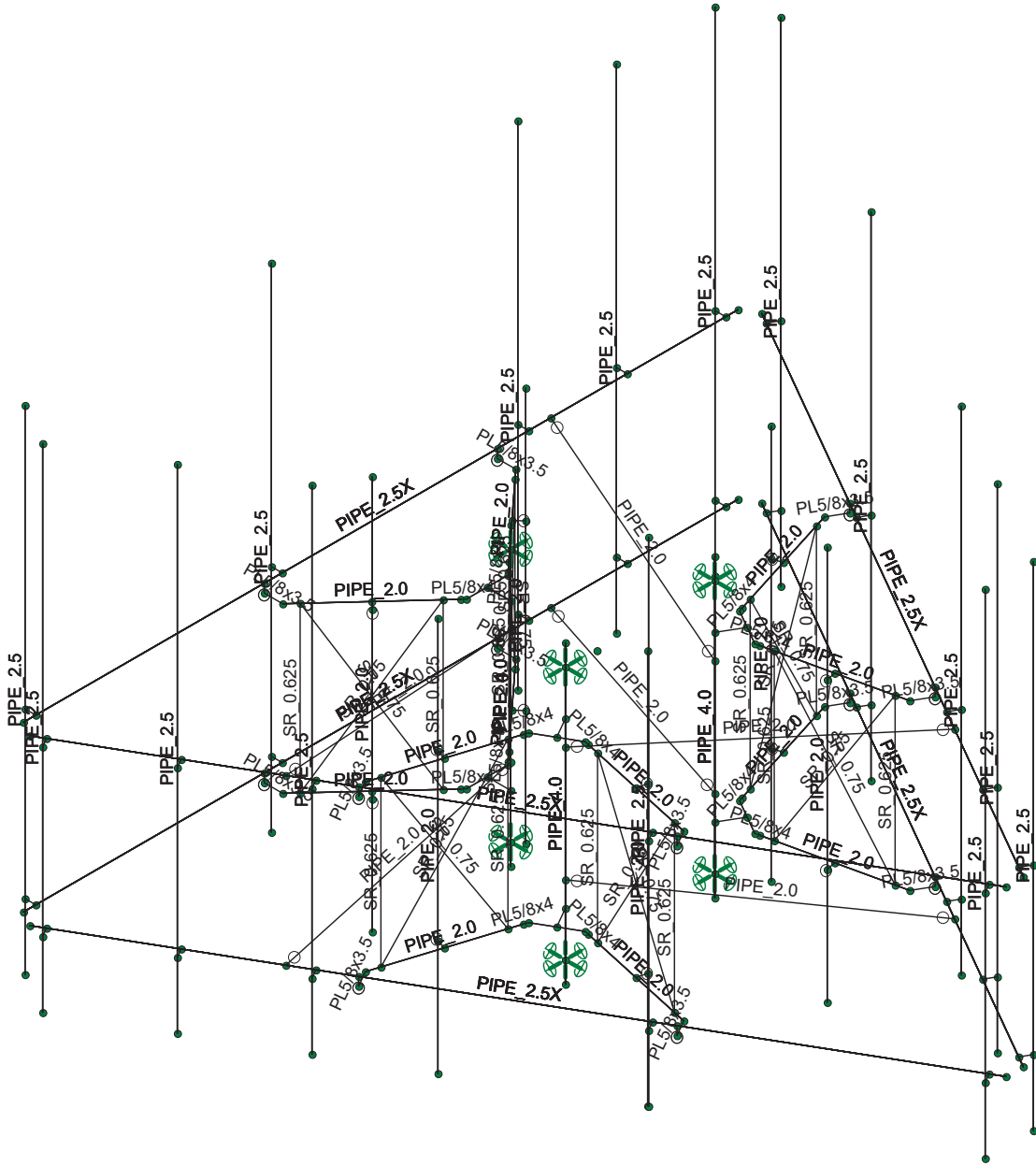
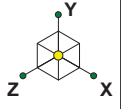
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 KM
 ETS#22110571.STR.2234

Mdfd - Middlefield

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ETS, PLLC

KM

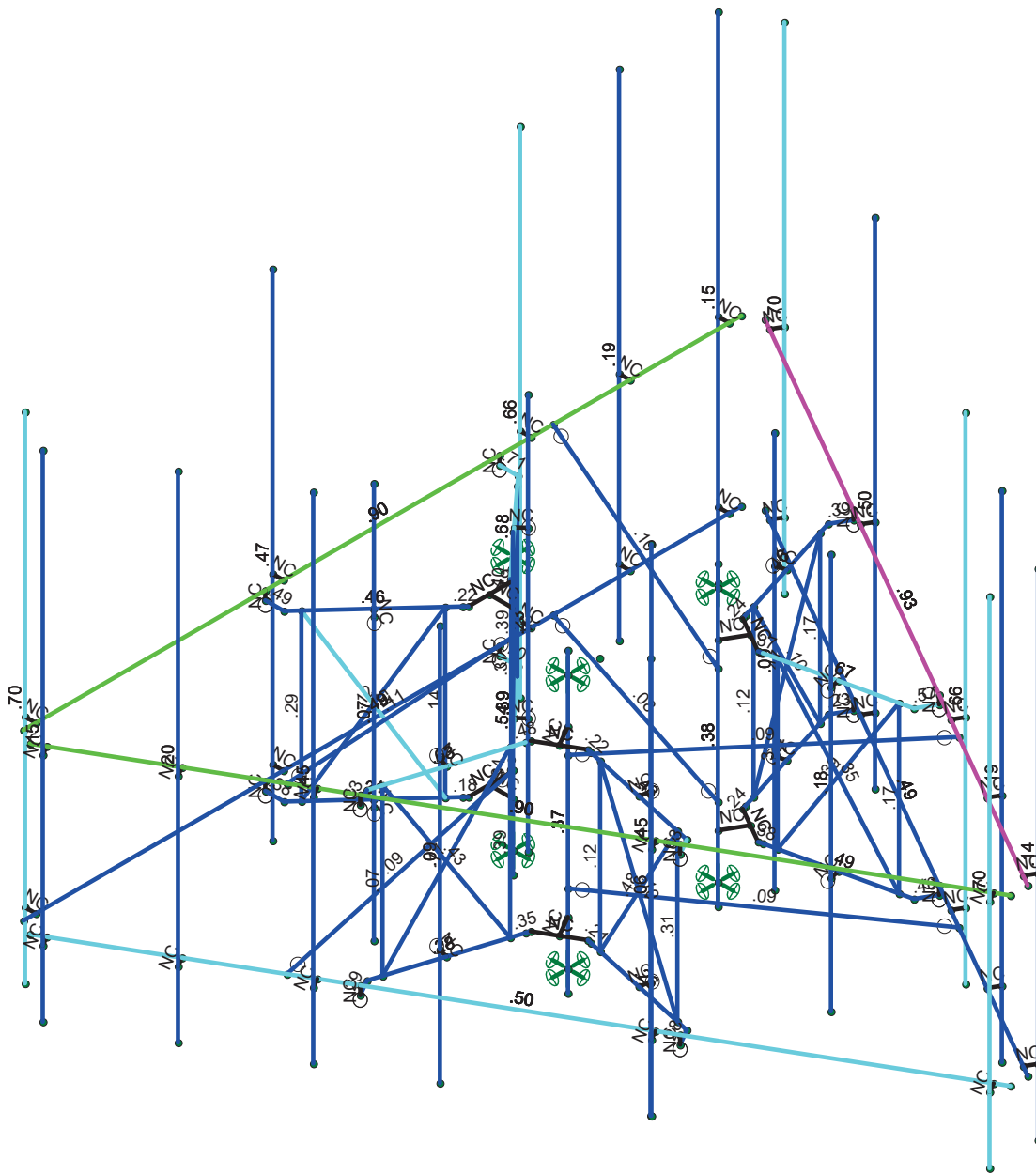
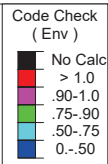
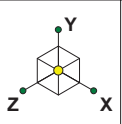
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Mdfd - Middlefield

SK - 3

Aug 19, 2022 at 11:35 AM

302485_Mdfd-Middlefield.r3d



Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.4D

ETS, PLLC	Mdfd - Middlefield	SK - 4
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ETS#22110571.STR.2234		302485_Mdfd-Middlefield.r3d



Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...Surface(...
1	Dead Load	None		-1			44		
2	Wind Load (0 deg)	None					88	150	
3	Wind Load (30 deg)	None					88	150	
4	Wind Load (60 deg)	None					88	150	
5	Wind Load (90 deg)	None					88	150	
6	Wind Load (120 deg)	None					88	150	
7	Wind Load (150 deg)	None					88	150	
8	Wind Load (180 deg)	None					88	150	
9	Wind Load (210 deg)	None					88	150	
10	Wind Load (240 deg)	None					88	150	
11	Wind Load (270 deg)	None					88	150	
12	Wind Load (300 deg)	None					88	150	
13	Wind Load (330 deg)	None					88	150	
14	Ice Load	None					44	75	
15	Wind on Ice (0 deg)	None					88	150	
16	Wind on Ice (30 deg)	None					88	150	
17	Wind on Ice (60 deg)	None					88	150	
18	Wind on Ice (90 deg)	None					88	150	
19	Wind on Ice (120 deg)	None					88	150	
20	Wind on Ice (150 deg)	None					88	150	
21	Wind on Ice (180 deg)	None					88	150	
22	Wind on Ice (210 deg)	None					88	150	
23	Wind on Ice (240 deg)	None					88	150	
24	Wind on Ice (270 deg)	None					88	150	
25	Wind on Ice (300 deg)	None					88	150	
26	Wind on Ice (330 deg)	None					88	150	
27	Horizontal Seismic, Eh (0)	None	1				88		
28	Horizontal Seismic, Eh (30)	None	.866		.5		88		
29	Horizontal Seismic, Eh (60)	None	.5		.866		88		
30	Horizontal Seismic, Eh (90)	None			1		88		
31	Horizontal Seismic, Eh (120)	None	-.5		.866		88		
32	Horizontal Seismic, Eh (150)	None	-.866		.5		88		
33	Horizontal Seismic, Eh (180)	None	-1				88		
34	Horizontal Seismic, Eh (210)	None	-.866		-.5		88		
35	Horizontal Seismic, Eh (240)	None	-.5		-.866		88		
36	Horizontal Seismic, Eh (270)	None			-1		88		
37	Horizontal Seismic, Eh (300)	None	.5		-.866		88		
38	Horizontal Seismic, Eh (330)	None	.866		-.5		88		
39	Maintenance Load, Lm (MP1)	None					1		
40	Maintenance Load, Lm (MP2)	None					1		
41	Maintenance Load, Lm (MP3)	None					1		
42	Maintenance Load, Lm (MP4)	None					1		
43	Maintenance Load, Lm (MP5)	None					1		
44	Maintenance Load, Lm (MP6)	None					1		
45	Maintenance Load, Lm (MP7)	None					1		
46	Maintenance Load, Lm (MP8)	None					1		
47	Maintenance Load, Lm (MP9)	None					1		
48	Maintenance Load, Lm (MP10)	None					1		
49	Maintenance Load, Lm (MP11)	None					1		
50	Maintenance Load, Lm (MP12)	None					1		
51	Maintenance Load, Lm (MP13)	None							
52	Maintenance Load, Lm (MP14)	None							
53	Maintenance Load, Lm (MP15)	None							
54	Maintenance Load, Lm (MP16)	None							
55	Maintenance Load, Lm (MP17)	None							
56	Maintenance Load, Lm (MP18)	None							



Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
57	Maintenance Load, Lm (MP19)	None					1			
58	Maintenance Load, Lm (MP20)	None					1			
59	Maintenance Load, Lm (MP21)	None					1			
60	Maintenance Load, Lm (MP22)	None								
61	Maintenance Load, Lm (MP23)	None								
62	Maintenance Load, Lm (MP24)	None								
63	Maintenance Load, Lm (MP25)	None								
64	Maintenance Load, Lm (MP26)	None								
65	Maintenance Load, Lm (MP27)	None								
66	Maintenance Load, Lm (MP28)	None								
67	Maintenance Load, Lm (MP29)	None								
68	Maintenance Load, Lm (MP30)	None								
69	Maintenance Load, Lm (MP31)	None								
70	Maintenance Load, Lm (MP32)	None								
71	Maintenance Load, Lm (MP33)	None								
72	Maintenance Load, Lm (MP34)	None								
73	Maintenance Load, Lm (MP35)	None								
74	Maintenance Load, Lm (MP36)	None								
75	Maintenance Load, Lv (Pos. 1)	None					1			
76	Maintenance Load, Lv (Pos. 2)	None					1			
77	Maintenance Load, Lv (Pos. 3)	None					1			
78	Maintenance Load, Lv (Pos. 4)	None					1			
79	Maintenance Load, Lv (Pos. 5)	None					1			
80	Maintenance Load, Lv (Pos. 6)	None					1			
81	Maintenance Load, Lv (Pos. 7)	None					1			
82	Maintenance Load, Lv (Pos. 8)	None					1			
83	Maintenance Load, Lv (Pos. 9)	None					1			
84	Maintenance Load, Lv (Pos. 10)	None					1			
85	Maintenance Load, Lv (Pos. 11)	None					1			
86	Maintenance Load, Lv (Pos. 12)	None					1			
87	Maintenance Load, Lv (Pos. 13)	None					1			
88	Maintenance Load, Lv (Pos. 14)	None					1			
89	Maintenance Load, Lv (Pos. 15)	None					1			
90	Maintenance Load, Lv (Pos. 16)	None					1			
91	Maintenance Load, Lv (Pos. 17)	None					1			
92	Maintenance Load, Lv (Pos. 18)	None					1			
93	Maintenance Load, Lv (Pos. 19)	None					1			
94	Maintenance Load, Lv (Pos. 20)	None					1			
95	Maintenance Load, Lv (Pos. 21)	None					1			
96	Maintenance Load, Lv (Pos. 22)	None					1			
97	Maintenance Load, Lv (Pos. 23)	None					1			
98	Maintenance Load, Lv (Pos. 24)	None					1			
99	Maintenance Load, Lv (Pos. 25)	None					1			
100	Maintenance Load, Lv (Pos. 26)	None					1			
101	Maintenance Load, Lv (Pos. 27)	None					1			
102	Maintenance Load, Lv (Pos. 28)	None					1			
103	Maintenance Load, Lv (Pos. 29)	None					1			
104	Maintenance Load, Lv (Pos. 30)	None					1			
105	Maintenance Load, Lv (Pos. 31)	None								
106	Maintenance Load, Lv (Pos. 32)	None								
107	Maintenance Load, Lv (Pos. 33)	None								
108	Maintenance Load, Lv (Pos. 34)	None								
109	Maintenance Load, Lv (Pos. 35)	None								
110	Maintenance Load, Lv (Pos. 36)	None								
111	Maintenance Load, Lv (Pos. 37)	None								
112	Maintenance Load, Lv (Pos. 38)	None								
113	Maintenance Load, Lv (Pos. 39)	None								



Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
114	Maintenance Load, Lv (Pos. 40)	None								
115	Maintenance Load, Lv (Pos. 41)	None								
116	Maintenance Load, Lv (Pos. 42)	None								
117	Maintenance Load, Lv (Pos. 43)	None								
118	Maintenance Load, Lv (Pos. 44)	None								
119	Maintenance Load, Lv (Pos. 45)	None								
120	Maintenance Load, Lv (Pos. 46)	None								
121	Maintenance Load, Lv (Pos. 47)	None								
122	Maintenance Load, Lv (Pos. 48)	None								
123	Maintenance Load, Lv (Pos. 49)	None								
124	Maintenance Load, Lv (Pos. 50)	None								
125	Maintenance Load, Lv (Pos. 51)	None								
126	Maintenance Load, Lv (Pos. 52)	None								
127	Maintenance Load, Lv (Pos. 53)	None								
128	Maintenance Load, Lv (Pos. 54)	None								
129	Maintenance Load, Lv (Pos. 55)	None								
130	Maintenance Load, Lv (Pos. 56)	None								
131	Maintenance Load, Lv (Pos. 57)	None								
132	Maintenance Load, Lv (Pos. 58)	None								
133	Maintenance Load, Lv (Pos. 59)	None								
134	Maintenance Load, Lv (Pos. 60)	None								
135	Maintenance Load, Lv (Pos. 61)	None								
136	Maintenance Load, Lv (Pos. 62)	None								
137	Maintenance Load, Lv (Pos. 63)	None								
138	Maintenance Load, Lv (Pos. 64)	None								
139	Maintenance Load, Lv (Pos. 65)	None								
140	Maintenance Load, Lv (Pos. 66)	None								
141	Maintenance Load, Lv (Pos. 67)	None								
142	Maintenance Load, Lv (Pos. 68)	None								
143	Maintenance Load, Lv (Pos. 69)	None								
144	Maintenance Load, Lv (Pos. 70)	None								
145	Maintenance Load, Lv (Pos. 71)	None								
146	Maintenance Load, Lv (Pos. 72)	None								
147	Maintenance Load, Lv (Pos. 73)	None								
148	Maintenance Load, Lv (Pos. 74)	None								
149	Maintenance Load, Lv (Pos. 75)	None								
150	Maintenance Load, Lv (Pos. 76)	None								
151	Maintenance Load, Lv (Pos. 77)	None								
152	Maintenance Load, Lv (Pos. 78)	None								
153	Maintenance Load, Lv (Pos. 79)	None								
154	Maintenance Load, Lv (Pos. 80)	None								
155	Maintenance Load, Lv (Pos. 81)	None								
156	Maintenance Load, Lv (Pos. 82)	None								
157	Maintenance Load, Lv (Pos. 83)	None								
158	Maintenance Load, Lv (Pos. 84)	None								
159	Maintenance Load, Lv (Pos. 85)	None								
160	Maintenance Load, Lv (Pos. 86)	None								
161	Maintenance Load, Lv (Pos. 87)	None								
162	Maintenance Load, Lv (Pos. 88)	None								
163	Maintenance Load, Lv (Pos. 89)	None								
164	Maintenance Load, Lv (Pos. 90)	None								
165	Maintenance Load, Lv (Pos. 91)	None								
166	Maintenance Load, Lv (Pos. 92)	None								
167	Maintenance Load, Lv (Pos. 93)	None								
168	Maintenance Load, Lv (Pos. 94)	None								
169	Maintenance Load, Lv (Pos. 95)	None								
170	Maintenance Load, Lv (Pos. 96)	None								



Company : ETS, PLLC
 Designer : KM
 Job Number : ETS#22110571.STR.2234
 Model Name : Mdfd - Middlefield

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Basic Load Cases (Continued)

BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
171 Maintenance Load, Lv (Pos. 97)	None								
172 Maintenance Load, Lv (Pos. 98)	None								
173 Maintenance Load, Lv (Pos. 99)	None								
174 Maintenance Load, Lv (Pos. 100)	None								
175 Antenna Dead Load	None					24			
176 Antenna Wind Load (0 deg)	None					48			
177 Antenna Wind Load (30 deg)	None					48			
178 Antenna Wind Load (60 deg)	None					48			
179 Antenna Wind Load (90 deg)	None					48			
180 Antenna Wind Load (120 deg)	None					48			
181 Antenna Wind Load (150 deg)	None					48			
182 Antenna Wind Load (180 deg)	None					48			
183 Antenna Wind Load (210 deg)	None					48			
184 Antenna Wind Load (240 deg)	None					48			
185 Antenna Wind Load (270 deg)	None					48			
186 Antenna Wind Load (300 deg)	None					48			
187 Antenna Wind Load (330 deg)	None					48			
188 Antenna Ice Load	None					24			
189 Antenna Wind on Ice (0 deg)	None					48			
190 Antenna Wind on Ice (30 deg)	None					48			
191 Antenna Wind on Ice (60 deg)	None					48			
192 Antenna Wind on Ice (90 deg)	None					48			
193 Antenna Wind on Ice (120 deg)	None					48			
194 Antenna Wind on Ice (150 deg)	None					48			
195 Antenna Wind on Ice (180 deg)	None					48			
196 Antenna Wind on Ice (210 deg)	None					48			
197 Antenna Wind on Ice (240 deg)	None					48			
198 Antenna Wind on Ice (270 deg)	None					48			
199 Antenna Wind on Ice (300 deg)	None					48			
200 Antenna Wind on Ice (330 deg)	None					48			
201 Ant. Horiz. Seismic, Eh (0)	None					48			
202 Ant. Horiz. Seismic, Eh (30)	None					48			
203 Ant. Horiz. Seismic, Eh (60)	None					48			
204 Ant. Horiz. Seismic, Eh (90)	None					48			
205 Ant. Horiz. Seismic, Eh (120)	None					48			
206 Ant. Horiz. Seismic, Eh (150)	None					48			
207 Ant. Horiz. Seismic, Eh (180)	None					48			
208 Ant. Horiz. Seismic, Eh (210)	None					48			
209 Ant. Horiz. Seismic, Eh (240)	None					48			
210 Ant. Horiz. Seismic, Eh (270)	None					48			
211 Ant. Horiz. Seismic, Eh (300)	None					48			
212 Ant. Horiz. Seismic, Eh (330)	None					48			

Load Combinations

Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1 1.4D	Yes	Y	1	1.4	175	1.4													
2 1.2D + 1.0W (0 deg)	Yes	Y	1	1.2	2	1	175	1.2	176	1									
3 1.2D + 1.0W (30 deg)	Yes	Y	1	1.2	3	1	175	1.2	177	1									
4 1.2D + 1.0W (60 deg)	Yes	Y	1	1.2	4	1	175	1.2	178	1									
5 1.2D + 1.0W (90 deg)	Yes	Y	1	1.2	5	1	175	1.2	179	1									
6 1.2D + 1.0W (120 deg)	Yes	Y	1	1.2	6	1	175	1.2	180	1									
7 1.2D + 1.0W (150 deg)	Yes	Y	1	1.2	7	1	175	1.2	181	1									
8 1.2D + 1.0W (180 deg)	Yes	Y	1	1.2	8	1	175	1.2	182	1									
9 1.2D + 1.0W (210 deg)	Yes	Y	1	1.2	9	1	175	1.2	183	1									
10 1.2D + 1.0W (240 deg)	Yes	Y	1	1.2	10	1	175	1.2	184	1									



Load Combinations (Continued)

Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	
524	1.2D + 1.5Lv (Position 55)		Y		1	1.2	129	1.5	175	1.2												
525	1.2D + 1.5Lv (Position 56)		Y		1	1.2	130	1.5	175	1.2												
526	1.2D + 1.5Lv (Position 57)		Y		1	1.2	131	1.5	175	1.2												
527	1.2D + 1.5Lv (Position 58)		Y		1	1.2	132	1.5	175	1.2												
528	1.2D + 1.5Lv (Position 59)		Y		1	1.2	133	1.5	175	1.2												
529	1.2D + 1.5Lv (Position 60)		Y		1	1.2	134	1.5	175	1.2												
530	1.2D + 1.5Lv (Position 61)		Y		1	1.2	135	1.5	175	1.2												
531	1.2D + 1.5Lv (Position 62)		Y		1	1.2	136	1.5	175	1.2												
532	1.2D + 1.5Lv (Position 63)		Y		1	1.2	137	1.5	175	1.2												
533	1.2D + 1.5Lv (Position 64)		Y		1	1.2	138	1.5	175	1.2												
534	1.2D + 1.5Lv (Position 65)		Y		1	1.2	139	1.5	175	1.2												
535	1.2D + 1.5Lv (Position 66)		Y		1	1.2	140	1.5	175	1.2												
536	1.2D + 1.5Lv (Position 67)		Y		1	1.2	141	1.5	175	1.2												
537	1.2D + 1.5Lv (Position 68)		Y		1	1.2	142	1.5	175	1.2												
538	1.2D + 1.5Lv (Position 69)		Y		1	1.2	143	1.5	175	1.2												
539	1.2D + 1.5Lv (Position 70)		Y		1	1.2	144	1.5	175	1.2												
540	1.2D + 1.5Lv (Position 71)		Y		1	1.2	145	1.5	175	1.2												
541	1.2D + 1.5Lv (Position 72)		Y		1	1.2	146	1.5	175	1.2												
542	1.2D + 1.5Lv (Position 73)		Y		1	1.2	147	1.5	175	1.2												
543	1.2D + 1.5Lv (Position 74)		Y		1	1.2	148	1.5	175	1.2												
544	1.2D + 1.5Lv (Position 75)		Y		1	1.2	149	1.5	175	1.2												
545	1.2D + 1.5Lv (Position 76)		Y		1	1.2	150	1.5	175	1.2												
546	1.2D + 1.5Lv (Position 77)		Y		1	1.2	151	1.5	175	1.2												
547	1.2D + 1.5Lv (Position 78)		Y		1	1.2	152	1.5	175	1.2												
548	1.2D + 1.5Lv (Position 79)		Y		1	1.2	153	1.5	175	1.2												
549	1.2D + 1.5Lv (Position 80)		Y		1	1.2	154	1.5	175	1.2												
550	1.2D + 1.5Lv (Position 81)		Y		1	1.2	155	1.5	175	1.2												
551	1.2D + 1.5Lv (Position 82)		Y		1	1.2	156	1.5	175	1.2												
552	1.2D + 1.5Lv (Position 83)		Y		1	1.2	157	1.5	175	1.2												
553	1.2D + 1.5Lv (Position 84)		Y		1	1.2	158	1.5	175	1.2												
554	1.2D + 1.5Lv (Position 85)		Y		1	1.2	159	1.5	175	1.2												
555	1.2D + 1.5Lv (Position 86)		Y		1	1.2	160	1.5	175	1.2												
556	1.2D + 1.5Lv (Position 87)		Y		1	1.2	161	1.5	175	1.2												
557	1.2D + 1.5Lv (Position 88)		Y		1	1.2	162	1.5	175	1.2												
558	1.2D + 1.5Lv (Position 89)		Y		1	1.2	163	1.5	175	1.2												
559	1.2D + 1.5Lv (Position 90)		Y		1	1.2	164	1.5	175	1.2												
560	1.2D + 1.5Lv (Position 91)		Y		1	1.2	165	1.5	175	1.2												
561	1.2D + 1.5Lv (Position 92)		Y		1	1.2	166	1.5	175	1.2												
562	1.2D + 1.5Lv (Position 93)		Y		1	1.2	167	1.5	175	1.2												
563	1.2D + 1.5Lv (Position 94)		Y		1	1.2	168	1.5	175	1.2												
564	1.2D + 1.5Lv (Position 95)		Y		1	1.2	169	1.5	175	1.2												
565	1.2D + 1.5Lv (Position 96)		Y		1	1.2	170	1.5	175	1.2												
566	1.2D + 1.5Lv (Position 97)		Y		1	1.2	171	1.5	175	1.2												
567	1.2D + 1.5Lv (Position 98)		Y		1	1.2	172	1.5	175	1.2												
568	1.2D + 1.5Lv (Position 99)		Y		1	1.2	173	1.5	175	1.2												
569	1.2D + 1.5Lv (Position 100)		Y		1	1.2	174	1.5	175	1.2												

Member Primary Data

Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design ...	Material	Design Rules
1	SA-1-V1-A	N19	N20		SR_0.625	Beam	None	A36 Gr.36	Typical
2	SA-1-V1-B	N145	N146		SR_0.625	Beam	None	A36 Gr.36	Typical
3	SA-1-V1-G	N82	N83		SR_0.625	Beam	None	A36 Gr.36	Typical
4	SA-1-V2-A	N23	N24		SR_0.625	Beam	None	A36 Gr.36	Typical
5	SA-1-V2-B	N149	N150		SR_0.625	Beam	None	A36 Gr.36	Typical
6	SA-1-V2-G	N86	N87		SR_0.625	Beam	None	A36 Gr.36	Typical



Company : ETS, PLLC
 Designer : KM
 Job Number : ETS#22110571.STR.2234
 Model Name : Mdfd - Middlefield

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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design ...	Material	Design Rules
7	SA-2-V1-A	N21	N22			SR 0.625	Beam	None	A36 Gr.36	Typical
8	SA-2-V1-B	N147	N148			SR 0.625	Beam	None	A36 Gr.36	Typical
9	SA-2-V1-G	N84	N85			SR 0.625	Beam	None	A36 Gr.36	Typical
10	SA-2-V2-A	N25	N26			SR 0.625	Beam	None	A36 Gr.36	Typical
11	SA-2-V2-B	N151	N152			SR 0.625	Beam	None	A36 Gr.36	Typical
12	SA-2-V2-G	N88	N89			SR 0.625	Beam	None	A36 Gr.36	Typical
13	SA-1-D1-A	N19	N24			SR 0.75	Beam	None	A36 Gr.36	Typical
14	SA-1-D1-B	N145	N150			SR 0.75	Beam	None	A36 Gr.36	Typical
15	SA-1-D1-G	N82	N87			SR 0.75	Beam	None	A36 Gr.36	Typical
16	SA-1-D2-A	N23	N20			SR 0.75	Beam	None	A36 Gr.36	Typical
17	SA-1-D2-B	N149	N146			SR 0.75	Beam	None	A36 Gr.36	Typical
18	SA-1-D2-G	N86	N83			SR 0.75	Beam	None	A36 Gr.36	Typical
19	SA-2-D1-A	N21	N26			SR 0.75	Beam	None	A36 Gr.36	Typical
20	SA-2-D1-B	N147	N152			SR 0.75	Beam	None	A36 Gr.36	Typical
21	SA-2-D1-G	N84	N89			SR 0.75	Beam	None	A36 Gr.36	Typical
22	SA-2-D2-A	N25	N22			SR 0.75	Beam	None	A36 Gr.36	Typical
23	SA-2-D2-B	N151	N148			SR 0.75	Beam	None	A36 Gr.36	Typical
24	SA-2-D2-G	N88	N85			SR 0.75	Beam	None	A36 Gr.36	Typical
25	RL-16	N32	N40			RIGID	None	None	RIGID	Typical
26	RL1	N3	N53			RIGID	None	None	RIGID	Typical
27	RL2	N4	N54			RIGID	None	None	RIGID	Typical
28	RL3	N5	N55			RIGID	None	None	RIGID	Typical
29	RL4	N6	N56			RIGID	None	None	RIGID	Typical
30	RL5	N63	N65			RIGID	None	None	RIGID	Typical
31	RL6	N64	N66			RIGID	None	None	RIGID	Typical
32	RL7	N1	N67			RIGID	None	None	RIGID	Typical
33	RL8	N2	N68			RIGID	None	None	RIGID	Typical
34	RL9	N66A	N116			RIGID	None	None	RIGID	Typical
35	RL10	N67A	N117			RIGID	None	None	RIGID	Typical
36	RL11	N68A	N118			RIGID	None	None	RIGID	Typical
37	RL12	N69	N119			RIGID	None	None	RIGID	Typical
38	RL13	N27	N35			RIGID	None	None	RIGID	Typical
39	RL14	N28	N36			RIGID	None	None	RIGID	Typical
40	RL15	N31	N39			RIGID	None	None	RIGID	Typical
41	RL16	N132	N182			RIGID	None	None	RIGID	Typical
42	RL17	N33	N41			RIGID	None	None	RIGID	Typical
43	RL18	N34	N42			RIGID	None	None	RIGID	Typical
44	RL19	N29	N37			RIGID	None	None	RIGID	Typical
45	RL20	N30	N38			RIGID	None	None	RIGID	Typical
46	RL21	N129	N179			RIGID	None	None	RIGID	Typical
47	RL22	N130	N180			RIGID	None	None	RIGID	Typical
48	RL23	N131	N181			RIGID	None	None	RIGID	Typical
49	RL25	N120	N122			RIGID	None	None	RIGID	Typical
50	RL26	N121	N123			RIGID	None	None	RIGID	Typical
51	RL27	N64A	N124			RIGID	None	None	RIGID	Typical
52	RL28	N65A	N125			RIGID	None	None	RIGID	Typical
53	RL29	N90	N98			RIGID	None	None	RIGID	Typical
54	RL30	N91	N99			RIGID	None	None	RIGID	Typical
55	RL35	N92	N100			RIGID	None	None	RIGID	Typical
56	RL36	N93	N101			RIGID	None	None	RIGID	Typical
57	RL41	N183	N185			RIGID	None	None	RIGID	Typical
58	RL42	N184	N186			RIGID	None	None	RIGID	Typical
59	RL43	N127	N187			RIGID	None	None	RIGID	Typical
60	RL44	N128	N188			RIGID	None	None	RIGID	Typical
61	RL45	N153	N161			RIGID	None	None	RIGID	Typical
62	RL46	N154	N162			RIGID	None	None	RIGID	Typical
63	RL51	N155	N163			RIGID	None	None	RIGID	Typical



Company : ETS, PLLC
 Designer : KM
 Job Number : ETS#22110571.STR.2234
 Model Name : Mdfd - Middlefield

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 Checked By: DHK

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design ...	Material	Design Rules
64	RL52	N156	N164			RIGID	None	None	RIGID	Typical
65	PL-5A	N63	N11		90	PL5/8x4	Beam	None	A36 Gr.36	Typical
66	PL-5B	N183	N137		90	PL5/8x4	Beam	None	A36 Gr.36	Typical
67	PL-5G	N120	N74		90	PL5/8x4	Beam	None	A36 Gr.36	Typical
68	PL-6A	N65	N13		90	PL5/8x4	Beam	None	A36 Gr.36	Typical
69	PL-6B	N185	N139		90	PL5/8x4	Beam	None	A36 Gr.36	Typical
70	PL-6G	N122	N76		90	PL5/8x4	Beam	None	A36 Gr.36	Typical
71	PL-7A	N64	N12		90	PL5/8x4	Beam	None	A36 Gr.36	Typical
72	PL-7B	N184	N138		90	PL5/8x4	Beam	None	A36 Gr.36	Typical
73	PL-7G	N121	N75		90	PL5/8x4	Beam	None	A36 Gr.36	Typical
74	PL-8A	N66	N14		90	PL5/8x4	Beam	None	A36 Gr.36	Typical
75	PL-8B	N186	N140		90	PL5/8x4	Beam	None	A36 Gr.36	Typical
76	PL-8G	N123	N77		90	PL5/8x4	Beam	None	A36 Gr.36	Typical
77	PL-1A	N7	N3		90	PL5/8x3.5	Beam	None	A36 Gr.36	Typical
78	PL-1B	N133	N129		90	PL5/8x3.5	Beam	None	A36 Gr.36	Typical
79	PL-1G	N70	N66A		90	PL5/8x3.5	Beam	None	A36 Gr.36	Typical
80	PL-2A	N8	N4		90	PL5/8x3.5	Beam	None	A36 Gr.36	Typical
81	PL-2B	N134	N130		90	PL5/8x3.5	Beam	None	A36 Gr.36	Typical
82	PL-2G	N71	N67A		90	PL5/8x3.5	Beam	None	A36 Gr.36	Typical
83	PL-3A	N9	N5		90	PL5/8x3.5	Beam	None	A36 Gr.36	Typical
84	PL-3B	N135	N131		90	PL5/8x3.5	Beam	None	A36 Gr.36	Typical
85	PL-3G	N72	N68A		90	PL5/8x3.5	Beam	None	A36 Gr.36	Typical
86	PL-4A	N10	N6		90	PL5/8x3.5	Beam	None	A36 Gr.36	Typical
87	PL-4B	N136	N132		90	PL5/8x3.5	Beam	None	A36 Gr.36	Typical
88	PL-4G	N73	N69		90	PL5/8x3.5	Beam	None	A36 Gr.36	Typical
89	SA-V3	N192	N189A			PIPE 4.0	Beam	None	A53 Gr.B	Typical
90	SA-V1	N191	N188B			PIPE 4.0	Beam	None	A53 Gr.B	Typical
91	SA-V2	N193	N190A			PIPE 4.0	Beam	None	A53 Gr.B	Typical
92	FM-BOT-A	N15	N17			PIPE 2.5X	Beam	None	A53 Gr.B	Typical
93	FM-BOT-B	N141	N143			PIPE 2.5X	Beam	None	A53 Gr.B	Typical
94	FM-BOT-G	N78	N80			PIPE 2.5X	Beam	None	A53 Gr.B	Typical
95	FM-TOP-A	N16	N18			PIPE 2.5X	Beam	None	A53 Gr.B	Typical
96	FM-TOP-B	N142	N144			PIPE 2.5X	Beam	None	A53 Gr.B	Typical
97	FM-TOP-G	N79	N81			PIPE 2.5X	Beam	None	A53 Gr.B	Typical
98	MP1	N47	N43			PIPE 2.5	Beam	None	A53 Gr.B	Typical
99	MP2	N49	N45			PIPE 2.5	Beam	None	A53 Gr.B	Typical
100	MP3	N50	N46			PIPE 2.5	Beam	None	A53 Gr.B	Typical
101	MP4	N48	N44			PIPE 2.5	Beam	None	A53 Gr.B	Typical
102	MP5	N173	N169			PIPE 2.5	Beam	None	A53 Gr.B	Typical
103	MP8	N174	N170			PIPE 2.5	Beam	None	A53 Gr.B	Typical
104	MP9	N110	N106			PIPE 2.5	Beam	None	A53 Gr.B	Typical
105	MP12	N111	N107			PIPE 2.5	Beam	None	A53 Gr.B	Typical
106	SA-1-BOT-A	N11	N7			PIPE 2.0	Beam	None	A53 Gr.B	Typical
107	SA-1-BOT-B	N137	N133			PIPE 2.0	Beam	None	A53 Gr.B	Typical
108	SA-1-BOT-G	N74	N70			PIPE 2.0	Beam	None	A53 Gr.B	Typical
109	SA-1-TOP-A	N12	N8			PIPE 2.0	Beam	None	A53 Gr.B	Typical
110	SA-1-TOP-B	N138	N134			PIPE 2.0	Beam	None	A53 Gr.B	Typical
111	SA-1-TOP-G	N75	N71			PIPE 2.0	Beam	None	A53 Gr.B	Typical
112	SA-2-BOT-A	N13	N9			PIPE 2.0	Beam	None	A53 Gr.B	Typical
113	SA-2-BOT-B	N139	N135			PIPE 2.0	Beam	None	A53 Gr.B	Typical
114	SA-2-BOT-G	N76	N72			PIPE 2.0	Beam	None	A53 Gr.B	Typical
115	SA-2-TOP-A	N14	N10			PIPE 2.0	Beam	None	A53 Gr.B	Typical
116	SA-2-TOP-B	N140	N136			PIPE 2.0	Beam	None	A53 Gr.B	Typical
117	SA-2-TOP-G	N77	N73			PIPE 2.0	Beam	None	A53 Gr.B	Typical
118	STAB-1	N243A	N51			PIPE 2.0	Beam	None	A53 Gr.B	Typical
119	STAB-2	N245	N177			PIPE 2.0	Beam	None	A53 Gr.B	Typical
120	STAB-3	N243B	N114			PIPE 2.0	Beam	None	A53 Gr.B	Typical



Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design ...	Material	Design Rules
121	STAB-4	N242B	N206			PIPE 2.0	Beam	None	A53 Gr.B	Typical
122	STAB-5	N244	N208			PIPE 2.0	Beam	None	A53 Gr.B	Typical
123	STAB-6	N242C	N207			PIPE 2.0	Beam	None	A53 Gr.B	Typical
124	M136	N206A	N207A			RIGID	None	None	RIGID	Typical
125	M137	N208A	N209A			RIGID	None	None	RIGID	Typical
126	M138	N210A	N211A			RIGID	None	None	RIGID	Typical
127	M139	N212	N213			RIGID	None	None	RIGID	Typical
128	M140	N214	N215			RIGID	None	None	RIGID	Typical
129	M141	N216	N217			RIGID	None	None	RIGID	Typical
130	M142	N218	N219			RIGID	None	None	RIGID	Typical
131	M143	N220	N221			RIGID	None	None	RIGID	Typical
132	M144	N222	N223			RIGID	None	None	RIGID	Typical
133	M145	N224	N225			RIGID	None	None	RIGID	Typical
134	M146	N226	N227			RIGID	None	None	RIGID	Typical
135	M147	N228	N229			RIGID	None	None	RIGID	Typical
136	MP14	N231	N233			PIPE 2.0	None	None	A53 Gr.B	Typical
137	MP13	N230	N232			PIPE 2.0	None	None	A53 Gr.B	Typical
138	MP18	N236	N238			PIPE 2.0	None	None	A53 Gr.B	Typical
139	MP17	N235	N237			PIPE 2.0	None	None	A53 Gr.B	Typical
140	MP16	N241	N243			PIPE 2.0	None	None	A53 Gr.B	Typical
141	MP15	N240	N242			PIPE 2.0	None	None	A53 Gr.B	Typical
142	M142A	N219A	N223A			RIGID	None	None	RIGID	Typical
143	M143A	N218A	N222A			RIGID	None	None	RIGID	Typical
144	M144A	N220A	N224A			RIGID	None	None	RIGID	Typical
145	M145A	N221A	N225A			RIGID	None	None	RIGID	Typical
146	MP10	N228A	N226A			PIPE 2.5	Beam	None	A53 Gr.B	Typical
147	MP11	N229A	N227A			PIPE 2.5	Beam	None	A53 Gr.B	Typical
148	M148	N232A	N236A			RIGID	None	None	RIGID	Typical
149	M149	N231A	N235A			RIGID	None	None	RIGID	Typical
150	M150	N233A	N237A			RIGID	None	None	RIGID	Typical
151	M151	N234	N238A			RIGID	None	None	RIGID	Typical
152	MP6	N241A	N239			PIPE 2.5	Beam	None	A53 Gr.B	Typical
153	MP7	N242A	N240A			PIPE 2.5	Beam	None	A53 Gr.B	Typical
154	M154	N242D	N244A			RIGID	None	None	RIGID	Typical
155	M155	N243C	N245A			RIGID	None	None	RIGID	Typical
156	MP19	N247	N246			PIPE 2.5	Beam	None	A53 Gr.B	Typical
157	M157	N248	N250			RIGID	None	None	RIGID	Typical
158	M158	N249	N251			RIGID	None	None	RIGID	Typical
159	MP21	N253	N252			PIPE 2.5	Beam	None	A53 Gr.B	Typical
160	M160	N254	N256			RIGID	None	None	RIGID	Typical
161	M161	N255	N257			RIGID	None	None	RIGID	Typical
162	MP20	N259	N258			PIPE 2.5	Beam	None	A53 Gr.B	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Lengt...	Lbby[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
1	SA-1-V1-A	SR 0.625	40						.7	.7		Late...
2	SA-1-V1-B	SR 0.625	40						.7	.7		Late...
3	SA-1-V1-G	SR 0.625	40						.7	.7		Late...
4	SA-1-V2-A	SR 0.625	40						.7	.7		Late...
5	SA-1-V2-B	SR 0.625	40						.7	.7		Late...
6	SA-1-V2-G	SR 0.625	40						.7	.7		Late...
7	SA-2-V1-A	SR 0.625	40						.7	.7		Late...
8	SA-2-V1-B	SR 0.625	40						.7	.7		Late...
9	SA-2-V1-G	SR 0.625	40						.7	.7		Late...
10	SA-2-V2-A	SR 0.625	40						.7	.7		Late...



Company : ETS, PLLC
 Designer : KM
 Job Number : ETS#22110571.STR.2234
 Model Name : Mdfd - Middlefield

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Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Lengt...	Lbby[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
11	SA-2-V2-B	SR 0.625	40						.7	.7		Late...
12	SA-2-V2-G	SR 0.625	40						.7	.7		Late...
13	SA-1-D1-A	SR 0.75	46.995						.7	.7		Late...
14	SA-1-D1-B	SR 0.75	46.995						.7	.7		Late...
15	SA-1-D1-G	SR 0.75	46.995						.7	.7		Late...
16	SA-1-D2-A	SR 0.75	46.995						.7	.7		Late...
17	SA-1-D2-B	SR 0.75	46.995						.7	.7		Late...
18	SA-1-D2-G	SR 0.75	46.995						.7	.7		Late...
19	SA-2-D1-A	SR 0.75	46.995						.7	.7		Late...
20	SA-2-D1-B	SR 0.75	46.995						.7	.7		Late...
21	SA-2-D1-G	SR 0.75	46.995						.7	.7		Late...
22	SA-2-D2-A	SR 0.75	46.995						.7	.7		Late...
23	SA-2-D2-B	SR 0.75	46.995						.7	.7		Late...
24	SA-2-D2-G	SR 0.75	46.995						.7	.7		Late...
25	PL-5A	PL5/8x4	.975									Late...
26	PL-5B	PL5/8x4	.975									Late...
27	PL-5G	PL5/8x4	.975									Late...
28	PL-6A	PL5/8x4	.975									Late...
29	PL-6B	PL5/8x4	.975									Late...
30	PL-6G	PL5/8x4	.975									Late...
31	PL-7A	PL5/8x4	.975									Late...
32	PL-7B	PL5/8x4	.975									Late...
33	PL-7G	PL5/8x4	.975									Late...
34	PL-8A	PL5/8x4	.975									Late...
35	PL-8B	PL5/8x4	.975									Late...
36	PL-8G	PL5/8x4	.975									Late...
37	PL-1A	PL5/8x3.5	4.5									Late...
38	PL-1B	PL5/8x3.5	4.5									Late...
39	PL-1G	PL5/8x3.5	4.5									Late...
40	PL-2A	PL5/8x3.5	4.5									Late...
41	PL-2B	PL5/8x3.5	4.5									Late...
42	PL-2G	PL5/8x3.5	4.5									Late...
43	PL-3A	PL5/8x3.5	4.5									Late...
44	PL-3B	PL5/8x3.5	4.5									Late...
45	PL-3G	PL5/8x3.5	4.5									Late...
46	PL-4A	PL5/8x3.5	4.5									Late...
47	PL-4B	PL5/8x3.5	4.5									Late...
48	PL-4G	PL5/8x3.5	4.5									Late...
49	SA-V3	PIPE 4.0	72									Late...
50	SA-V1	PIPE 4.0	72									Late...
51	SA-V2	PIPE 4.0	72									Late...
52	FM-BOT-A	PIPE 2.5X	174	56.754	56.754							Late...
53	FM-BOT-B	PIPE 2.5X	174	56.754	56.754							Late...
54	FM-BOT-G	PIPE 2.5X	174	56.754	56.754							Late...
55	FM-TOP-A	PIPE 2.5X	174	56.754	56.754							Late...
56	FM-TOP-B	PIPE 2.5X	174	56.754	56.754							Late...
57	FM-TOP-G	PIPE 2.5X	174	56.754	56.754							Late...
58	MP1	PIPE 2.5	120									Late...
59	MP2	PIPE 2.5	120									Late...
60	MP3	PIPE 2.5	120									Late...
61	MP4	PIPE 2.5	120									Late...
62	MP5	PIPE 2.5	120									Late...
63	MP8	PIPE 2.5	120									Late...
64	MP9	PIPE 2.5	120									Late...
65	MP12	PIPE 2.5	120									Late...
66	SA-1-BOT-A	PIPE 2.0	30.668		Segment							Late...
67	SA-1-BOT-B	PIPE 2.0	30.668		Segment							Late...



Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Lengt...	Lbvy[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
68	SA-1-BOT-G	PIPE 2.0	30.668		Segment							Late...
69	SA-1-TOP-A	PIPE 2.0	30.668		Segment							Late...
70	SA-1-TOP-B	PIPE 2.0	30.668		Segment							Late...
71	SA-1-TOP-G	PIPE 2.0	30.668		Segment							Late...
72	SA-2-BOT-A	PIPE 2.0	30.668		Segment							Late...
73	SA-2-BOT-B	PIPE 2.0	30.668		Segment							Late...
74	SA-2-BOT-G	PIPE 2.0	30.668		Segment							Late...
75	SA-2-TOP-A	PIPE 2.0	30.668		Segment							Late...
76	SA-2-TOP-B	PIPE 2.0	30.668		Segment							Late...
77	SA-2-TOP-G	PIPE 2.0	30.668		Segment							Late...
78	STAB-1	PIPE 2.0	67.761									Late...
79	STAB-2	PIPE 2.0	67.761									Late...
80	STAB-3	PIPE 2.0	67.761									Late...
81	STAB-4	PIPE 2.0	67.394									Late...
82	STAB-5	PIPE 2.0	67.394									Late...
83	STAB-6	PIPE 2.0	67.394									Late...
84	MP14	PIPE 2.0	96									Late...
85	MP13	PIPE 2.0	96									Late...
86	MP18	PIPE 2.0	96									Late...
87	MP17	PIPE 2.0	96									Late...
88	MP16	PIPE 2.0	96									Late...
89	MP15	PIPE 2.0	96									Late...
90	MP10	PIPE 2.5	120									Late...
91	MP11	PIPE 2.5	120									Late...
92	MP6	PIPE 2.5	120									Late...
93	MP7	PIPE 2.5	120									Late...
94	MP19	PIPE 2.5	120									Late...
95	MP21	PIPE 2.5	120									Late...
96	MP20	PIPE 2.5	120									Late...

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1						
2	N2						
3	N63A						
4	N64A						
5	N65A						
6	N127						
7	N128						
8	N188B						
9	N189A						
10	N190A						
11	N191						
12	N192						
13	N193						
14	N194	Reaction	Reaction	Reaction	Reaction		Reaction
15	N195	Reaction	Reaction	Reaction	Reaction		Reaction
16	N196	Reaction	Reaction	Reaction	Reaction		Reaction
17	N197	Reaction	Reaction	Reaction	Reaction		Reaction
18	N198	Reaction	Reaction	Reaction	Reaction		Reaction
19	N199	Reaction	Reaction	Reaction	Reaction		Reaction
20	N242B						
21	N243A						
22	N242C						
23	N243B						



Company : ETS, PLLC
 Designer : KM
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Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
24	N244						
25	N245						

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra...	Analysis Offset[in]	Inactive	Seismi...
1	SA-1-V1-A						Yes				None
2	SA-1-V1-B						Yes				None
3	SA-1-V1-G						Yes				None
4	SA-1-V2-A						Yes				None
5	SA-1-V2-B						Yes				None
6	SA-1-V2-G						Yes				None
7	SA-2-V1-A						Yes				None
8	SA-2-V1-B						Yes				None
9	SA-2-V1-G						Yes				None
10	SA-2-V2-A						Yes				None
11	SA-2-V2-B						Yes				None
12	SA-2-V2-G						Yes				None
13	SA-1-D1-A						Yes				None
14	SA-1-D1-B						Yes				None
15	SA-1-D1-G						Yes				None
16	SA-1-D2-A						Yes				None
17	SA-1-D2-B						Yes				None
18	SA-1-D2-G						Yes				None
19	SA-2-D1-A						Yes				None
20	SA-2-D1-B						Yes				None
21	SA-2-D1-G						Yes				None
22	SA-2-D2-A						Yes				None
23	SA-2-D2-B						Yes				None
24	SA-2-D2-G						Yes				None
25	RL-16						Yes	** NA **			None
26	RL1		000X00				Yes	** NA **			None
27	RL2		000X00				Yes	** NA **			None
28	RL3		000X00				Yes	** NA **			None
29	RL4		000X00				Yes	** NA **			None
30	RL5						Yes	** NA **			None
31	RL6						Yes	** NA **			None
32	RL7						Yes	** NA **			None
33	RL8						Yes	** NA **			None
34	RL9		000X00				Yes	** NA **			None
35	RL10		000X00				Yes	** NA **			None
36	RL11		000X00				Yes	** NA **			None
37	RL12		000X00				Yes	** NA **			None
38	RL13						Yes	** NA **			None
39	RL14						Yes	** NA **			None
40	RL15						Yes	** NA **			None
41	RL16		000X00				Yes	** NA **			None
42	RL17						Yes	** NA **			None
43	RL18						Yes	** NA **			None
44	RL19						Yes	** NA **			None
45	RL20						Yes	** NA **			None
46	RL21		000X00				Yes	** NA **			None
47	RL22		000X00				Yes	** NA **			None
48	RL23		000X00				Yes	** NA **			None
49	RL25						Yes	** NA **			None
50	RL26						Yes	** NA **			None



Company : ETS, PLLC
 Designer : KM
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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra...	Analysis Offset[in]	Inactive	Seismi...
51	RL27						Yes	** NA **			None
52	RL28						Yes	** NA **			None
53	RL29						Yes	** NA **			None
54	RL30						Yes	** NA **			None
55	RL35						Yes	** NA **			None
56	RL36						Yes	** NA **			None
57	RL41						Yes	** NA **			None
58	RL42						Yes	** NA **			None
59	RL43						Yes	** NA **			None
60	RL44						Yes	** NA **			None
61	RL45						Yes	** NA **			None
62	RL46						Yes	** NA **			None
63	RL51						Yes	** NA **			None
64	RL52						Yes	** NA **			None
65	PL-5A						Yes				None
66	PL-5B						Yes				None
67	PL-5G						Yes				None
68	PL-6A						Yes				None
69	PL-6B						Yes				None
70	PL-6G						Yes				None
71	PL-7A						Yes				None
72	PL-7B						Yes				None
73	PL-7G						Yes				None
74	PL-8A						Yes				None
75	PL-8B						Yes				None
76	PL-8G						Yes				None
77	PL-1A						Yes				None
78	PL-1B						Yes				None
79	PL-1G						Yes				None
80	PL-2A						Yes				None
81	PL-2B						Yes				None
82	PL-2G						Yes				None
83	PL-3A						Yes				None
84	PL-3B						Yes				None
85	PL-3G						Yes				None
86	PL-4A						Yes				None
87	PL-4B						Yes				None
88	PL-4G						Yes				None
89	SA-V3						Yes				None
90	SA-V1						Yes				None
91	SA-V2						Yes				None
92	FM-BOT-A						Yes				None
93	FM-BOT-B						Yes				None
94	FM-BOT-G						Yes				None
95	FM-TOP-A						Yes				None
96	FM-TOP-B						Yes				None
97	FM-TOP-G						Yes				None
98	MP1						Yes				None
99	MP2						Yes				None
100	MP3						Yes				None
101	MP4						Yes				None
102	MP5						Yes				None
103	MP8						Yes				None
104	MP9						Yes				None
105	MP12						Yes				None
106	SA-1-BOT...						Yes				None
107	SA-1-BOT...						Yes				None



Company : ETS, PLLC
 Designer : KM
 Job Number : ETS#22110571.STR.2234
 Model Name : Mdfd - Middlefield

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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra...	Analysis	Offset[in]	Inactive	Seismi...
108	SA-1-BOT..						Yes					None
109	SA-1-TOP..						Yes					None
110	SA-1-TOP..						Yes					None
111	SA-1-TOP..						Yes					None
112	SA-2-BOT..						Yes					None
113	SA-2-BOT..						Yes					None
114	SA-2-BOT..						Yes					None
115	SA-2-TOP..						Yes					None
116	SA-2-TOP..						Yes					None
117	SA-2-TOP..						Yes					None
118	STAB-1	BenPIN	BenPIN				Yes	Default				None
119	STAB-2	BenPIN	BenPIN				Yes	Default				None
120	STAB-3	BenPIN	BenPIN				Yes	Default				None
121	STAB-4	BenPIN	BenPIN				Yes	Default				None
122	STAB-5	BenPIN	BenPIN				Yes	Default				None
123	STAB-6	BenPIN	BenPIN				Yes	Default				None
124	M136	OOOXOO					Yes	** NA **				None
125	M137	OOOXOO					Yes	** NA **				None
126	M138	OOOXOO					Yes	** NA **				None
127	M139	OOOXOO					Yes	** NA **				None
128	M140	OOOXOO					Yes	** NA **				None
129	M141	OOOXOO					Yes	** NA **				None
130	M142	OOOXOO					Yes	** NA **				None
131	M143	OOOXOO					Yes	** NA **				None
132	M144	OOOXOO					Yes	** NA **				None
133	M145	OOOXOO					Yes	** NA **				None
134	M146	OOOXOO					Yes	** NA **				None
135	M147	OOOXOO					Yes	** NA **				None
136	MP14						Yes	** NA **				None
137	MP13						Yes	** NA **				None
138	MP18						Yes	** NA **				None
139	MP17						Yes	** NA **				None
140	MP16						Yes	** NA **				None
141	MP15						Yes	** NA **				None
142	M142A						Yes	** NA **				None
143	M143A						Yes	** NA **				None
144	M144A						Yes	** NA **				None
145	M145A						Yes	** NA **				None
146	MP10						Yes					None
147	MP11						Yes					None
148	M148						Yes	** NA **				None
149	M149						Yes	** NA **				None
150	M150						Yes	** NA **				None
151	M151						Yes	** NA **				None
152	MP6						Yes					None
153	MP7						Yes					None
154	M154						Yes	** NA **				None
155	M155						Yes	** NA **				None
156	MP19						Yes					None
157	M157						Yes	** NA **				None
158	M158						Yes	** NA **				None
159	MP21						Yes					None
160	M160						Yes	** NA **				None
161	M161						Yes	** NA **				None
162	MP20						Yes					None

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (...)	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B R...	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Envelope Joint Reactions

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
1	N194	max	6244.316	9	2125.134	20	3534.828	9	2461.961	3	0	499	3470.9	9
2		min	-4670.474	3	-172.831	2	-3973.766	3	-2230.589	9	0	1	-2925.225	3
3	N195	max	1432.939	9	2429.269	16	5403.145	11	3917.888	5	0	499	675.659	9
4		min	-2442.814	3	-30.028	10	-6961.02	5	-3436.487	11	0	1	-1078.759	3
5	N196	max	5620.723	7	2156.956	24	4280.881	12	1641.412	6	0	499	3487.366	7
6		min	-6021.953	13	-176.751	6	-2747.662	6	-2185.804	12	0	1	-3561.678	13
7	N197	max	456.078	9	2075.517	15	1651.042	5	1214.77	8	0	499	1145.987	3
8		min	-2173.846	15	79.621	9	-1230.372	11	-1019.01	2	0	1	-560.236	9
9	N198	max	1887.76	13	2353.221	23	2691.252	11	1602.444	10	0	499	709.101	7
10		min	-842.75	7	228.281	5	-1061.825	5	-1055.443	4	0	1	-1144.311	13
11	N199	max	1720.359	6	2101.315	19	487.466	2	472.486	2	0	499	1080.174	12
12		min	-1234.761	12	81.348	13	-2134.158	20	-1048.646	8	0	1	-1213.004	6
13	Totals:	max	11636.274	8	11886.931	21	11222.731	11						
14		min	-11636.27	2	5486.229	3	-11222.7...	5						

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

Member	Shape	Code Che...	Loc[in]	LC	Shea...	Loc[in]	Dir	LC	phi*Pn...	phi*	phi*	phi*	Cb	Eqn	
1	FM-TOP-B	PIPE 2.5X	.932	59.812	12	.411	59.8...	12	54748...	661...	464...	464...	3.156	H3-6	
2	FM-TOP-A	PIPE 2.5X	.898	59.813	8	.371	59.8...	2	54748...	661...	464...	464...	3.185	H3-6	
3	FM-TOP-G	PIPE 2.5X	.898	59.812	4	.370	59.8...	4	54748...	661...	464...	464...	3.121	H3-6	
4	PL-4A	PL5/8x3.5	.707	0	10	.330	0	y	9	68600...	708...	923.4	516...	1.667	H1-...
5	MP5	PIPE 2.5	.700	56.25	12	.255	31.25	6	22373...	507...	359...	359...	1.473	H1-...	
6	MP9	PIPE 2.5	.700	56.25	4	.251	31.25	4	22373...	507...	359...	359...	1.609	H1-...	
7	MP1	PIPE 2.5	.700	56.25	2	.253	31.25	2	22373...	507...	359...	359...	1.527	H1-...	
8	PL-3A	PL5/8x3.5	.699	0	9	.183	0	y	9	68600...	708...	923.4	516...	1.667	H1-...
9	SA-2-TOP...	PIPE 2.0	.684	30.668	3	.235	0	8	29709...	321...	187...	187...	1.768	H1-...	
10	SA-2-TOP...	PIPE 2.0	.671	30.668	7	.206	27.7...	7	29709...	321...	187...	187...	1.919	H1-...	
11	MP3	PIPE 2.5	.662	56.25	8	.110	31.25	3	22373...	507...	359...	359...	1.669	H1-...	
12	MP7	PIPE 2.5	.662	56.25	12	.101	31.25	7	22373...	507...	359...	359...	1.623	H1-...	
13	SA-2-TOP...	PIPE 2.0	.635	30.668	12	.237	0	5	29709...	321...	187...	187...	1.508	H1-...	
14	PL-2G	PL5/8x3.5	.634	4.5	10	.600	0	y	3	68600...	708...	923.4	516...	1.667	H1-...
15	PL-4B	PL5/8x3.5	.566	4.5	7	.895	0	y	2	68600...	708...	923.4	516...	1.667	H1-...
16	SA-2-BOT...	PIPE 2.0	.545	27.793	9	.325	27.7...	9	29709...	321...	187...	187...	2.304	H3-6	
17	SA-1-D1-A	SR 0.75	.507	46.995	16	.021	46.9...	6	3242.4...	143...	178...	178...	2.868	H1-...	
18	FM-BOT-G	PIPE 2.5X	.501	63.437	10	.262	61.6...	4	54748...	661...	464...	464...	2.931	H1-...	
19	MP6	PIPE 2.5	.499	55	12	.156	16.25	12	22373...	507...	359...	359...	2.451	H1-...	
20	FM-BOT-B	PIPE 2.5X	.495	63.437	6	.253	61.6...	12	54748...	661...	464...	464...	2.458	H1-...	
21	FM-BOT-A	PIPE 2.5X	.494	63.438	2	.238	61.6...	8	54748...	661...	464...	464...	2.597	H1-...	
22	SA-2-BOT...	PIPE 2.0	.490	27.793	13	.160	0	7	29709...	321...	187...	187...	2.248	H1-...	
23	PL-2A	PL5/8x3.5	.487	0	7	.260	0	y	7	68600...	708...	923.4	516...	1.667	H1-...
24	SA-1-D1-G	SR 0.75	.484	46.995	24	.014	46.9...	12	3242.4...	143...	178...	178...	2.679	H1-...	
25	PL-8G	PL5/8x4	.480	0	5	.099	0	y	11	80875...	810...	105...	6750	1.037	H1-...
26	SA-1-TOP...	PIPE 2.0	.479	30.668	4	.189	27.7...	10	29709...	321...	187...	187...	2.42	H1-...	



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

Member	Shape	Code Che...	Loc[in]	LC	Shea..	Loc[in]	Dir	LC	phi*Pn...	phi*...	phi*...	phi*...	Cb	Eqn	
27	MP2	PIPE 2.5	.471	55	8	.155	16.25		9	22373...	507...	359...	359...	3.379	H1-...
28	SA-1-D1-B	SR 0.75	.470	0	19	.025	0		7	3242.4...	143...	178...	178...	2.424	H1-...
29	SA-1-TOP..	PIPE 2.0	.463	30.668	12	.243	27.7...		6	29709...	321...	187...	187...	2.198	H1-...
30	SA-1-TOP..	PIPE 2.0	.462	30.668	7	.172	27.7...		15	29709...	321...	187...	187...	2.048	H1-...
31	PL-3B	PL5/8x3.5	.457	0	13	.629	0	y	13	68600...	708...	923.4	516...	1.667	H1-...
32	MP10	PIPE 2.5	.451	55	4	.156	16.25		4	22373...	507...	359...	359...	3.503	H1-...
33	MP11	PIPE 2.5	.450	56.25	4	.106	42.5		5	22373...	507...	359...	359...	1.787	H1-...
34	SA-2-D1-G	SR 0.75	.425	46.995	179	.023	46.9...		6	3242.4...	143...	178...	178...	2.309	H1-...
35	PL-8A	PL5/8x4	.398	0	8	.151	0	y	8	80875...	810...	105...	6750	1.038	H1-...
36	SA-2-D1-B	SR 0.75	.391	46.995	124	.024	0		7	3242.4...	143...	178...	178...	2.681	H1-...
37	SA-V1	PIPE 4.0	.391	66.75	9	.256	66.75		9	83097...	932...	106...	106...	3.283	H1-...
38	PL-2B	PL5/8x3.5	.387	4.5	6	.494	0	y	6	68600...	708...	923.4	516...	1.667	H1-...
39	SA-2-D1-A	SR 0.75	.386	46.995	74	.039	0		3	3242.4...	143...	178...	178...	2.6	H1-...
40	SA-2-V1-G	SR 0.625	.385	0	10	.006	0		11	2158.31	994...	103...	103...	1.957	H1-...
41	SA-V2	PIPE 4.0	.382	66.75	13	.250	66.75		13	83097...	932...	106...	106...	3.24	H1-...
42	PL-1A	PL5/8x3.5	.381	0	7	.209	4.5	y	40	68600...	708...	923.4	516...	1.666	H1-...
43	PL-6B	PL5/8x4	.380	0	7	.079	0	y	13	80875...	810...	105...	6750	1.027	H1-...
44	SA-V3	PIPE 4.0	.373	66.75	5	.249	66.75		5	83097...	932...	106...	106...	2.199	H1-...
45	PL-8B	PL5/8x4	.369	0	12	.189	0	y	4	80875...	810...	105...	6750	1.036	H1-...
46	SA-2-V1-A	SR 0.625	.367	0	2	.005	0		5	2158.31	994...	103...	103...	3.077	H1-...
47	SA-2-D2-B	SR 0.75	.353	46.995	7	.010	0		93	3242.4...	143...	178...	178...	1.597	H1-...
48	PL-6G	PL5/8x4	.347	0	10	.078	0	y	3	80875...	810...	105...	6750	1.035	H1-...
49	PL-6A	PL5/8x4	.337	0	3	.080	0	y	8	80875...	810...	105...	6750	1.025	H1-...
50	PL-4G	PL5/8x3.5	.329	0	5	.440	0	y	11	68600...	708...	923.4	516...	1.667	H1-...
51	SA-1-BOT..	PIPE 2.0	.314	27.473	43	.225	27.7...		7	29709...	321...	187...	187...	2.158	H1-...
52	SA-1-V2-G	SR 0.625	.313	0	10	.026	0		12	2158.31	994...	103...	103...	2.386	H1-...
53	SA-2-V1-B	SR 0.625	.312	0	7	.007	0		8	2158.31	994...	103...	103...	2.74	H1-...
54	SA-2-D2-A	SR 0.75	.309	46.995	3	.014	0		11	3242.4...	143...	178...	178...	1.704	H1-...
55	PL-3G	PL5/8x3.5	.288	0	5	.200	0	y	171	68600...	708...	923.4	516...	1.667	H1-...
56	SA-1-V2-A	SR 0.625	.286	0	2	.031	0		4	2158.31	994...	103...	103...	2.112	H1-...
57	SA-2-BOT..	PIPE 2.0	.284	27.793	5	.214	27.7...		173	29709...	321...	187...	187...	2.478	H1-...
58	PL-1G	PL5/8x3.5	.283	4.5	135	.147	4.5	y	2	68600...	708...	923.4	516...	1.667	H1-...
59	SA-1-BOT..	PIPE 2.0	.259	27.473	3	.171	27.7...		4	29709...	321...	187...	187...	2.473	H1-...
60	PL-5B	PL5/8x4	.241	0	21	.160	0	y	12	80875...	810...	105...	6750	1.068	H1-...
61	PL-7B	PL5/8x4	.239	0	19	.155	0	y	13	80875...	810...	105...	6750	1.018	H1-...
62	MP14	PIPE 2.0	.230	68	9	.066	68		6	14916...	321...	187...	187...	2.9	H1-...
63	PL-1B	PL5/8x3.5	.228	0	95	.197	4.5	y	95	68600...	708...	923.4	516...	1.667	H1-...
64	PL-7G	PL5/8x4	.223	0	10	.185	0	y	11	80875...	810...	105...	6750	1.03	H1-...
65	PL-7A	PL5/8x4	.217	0	2	.199	0	y	9	80875...	810...	105...	6750	1.031	H1-...
66	PL-5G	PL5/8x4	.212	0	24	.132	0	y	11	80875...	810...	105...	6750	1.071	H1-...
67	MP21	PIPE 2.5	.199	16.25	175	.053	16.25		11	22373...	507...	359...	359...	3.634	H1-...
68	MP19	PIPE 2.5	.194	16.25	85	.059	16.25		2	22373...	507...	359...	359...	2.283	H1-...
69	MP20	PIPE 2.5	.193	16.25	125	.059	16.25		6	22373...	507...	359...	359...	3.635	H1-...
70	SA-2-V2-A	SR 0.625	.187	40	3	.040	40		3	2158.31	994...	103...	103...	2.223	H1-...
71	MP16	PIPE 2.0	.179	68	13	.064	68		8	14916...	321...	187...	187...	2.37	H1-...
72	PL-5A	PL5/8x4	.177	0	17	.144	.975	y	9	80875...	810...	105...	6750	1.742	H1-...
73	SA-2-V2-B	SR 0.625	.173	40	7	.033	40		7	2158.31	994...	103...	103...	2.26	H1-...
74	SA-1-BOT..	PIPE 2.0	.173	27.473	95	.228	27.7...		95	29709...	321...	187...	187...	2.293	H1-...
75	SA-2-D2-G	SR 0.75	.172	46.995	11	.014	0		175	3242.4...	143...	178...	178...	1.799	H1-...
76	SA-1-V2-B	SR 0.625	.172	0	6	.030	0		8	2158.31	994...	103...	103...	1.843	H1-...
77	MP12	PIPE 2.5	.145	16.25	178	.032	16.25		10	22373...	507...	359...	359...	3.604	H1-...
78	MP4	PIPE 2.5	.145	16.25	85	.035	16.25		2	22373...	507...	359...	359...	3.322	H1-...
79	MP8	PIPE 2.5	.145	16.25	126	.035	16.25		6	22373...	507...	359...	359...	3.586	H1-...
80	SA-1-V1-A	SR 0.625	.138	0	5	.013	0		3	2158.31	994...	103...	103...	2.233	H1-...
81	SA-1-V1-B	SR 0.625	.125	0	9	.014	0		13	2158.31	994...	103...	103...	2.573	H1-...
82	SA-1-V1-G	SR 0.625	.123	0	13	.013	0		5	2158.31	994...	103...	103...	2.379	H1-...
83	SA-1-D2-A	SR 0.75	.118	0	15	.016	0		4	3242.4...	143...	178...	178...	2.835	H1-...



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

Member	Shape	Code Che...	Loc[in]	LC	Shea..	Loc[in]	Dir	LC	phi*Pn...	phi*...	phi*...	phi*...	Cb	Eqn
84	STAB-3	PIPE 2.0	.113	0	8	.052	67.7...	8	21921...	321...	187...	187...	1.136	H1...
85	SA-1-D2-B	SR 0.75	.104	0	19	.016	0	92	3242.4...	143...	178...	178...	2.446	H1...
86	STAB-1	PIPE 2.0	.100	0	12	.053	67.7...	12	21921...	321...	187...	187...	1.136	H1...
87	SA-1-D2-G	SR 0.75	.097	0	22	.011	0	12	3242.4...	143...	178...	178...	2.584	H1...
88	MP15	PIPE 2.0	.093	68	6	.111	68	7	14916...	321...	187...	187...	2.902	H1...
89	STAB-2	PIPE 2.0	.092	0	4	.048	0	4	21921...	321...	187...	187...	1.136	H1...
90	MP18	PIPE 2.0	.092	47	5	.043	68	2	14916...	321...	187...	187...	2.951	H1...
91	STAB-6	PIPE 2.0	.091	67.394	5	.035	67.3...	174	22012...	321...	187...	187...	1.136	H1...
92	STAB-5	PIPE 2.0	.090	67.394	13	.032	0	122	22012...	321...	187...	187...	1.136	H1...
93	STAB-4	PIPE 2.0	.076	67.394	9	.034	67.3...	82	22012...	321...	187...	187...	1.136	H1...
94	MP13	PIPE 2.0	.073	28	5	.112	68	3	14916...	321...	187...	187...	4.951	H1...
95	SA-2-V2-G	SR 0.625	.069	0	8	.030	40	12	2158.31	994...	103...	103...	2.597	H1...
96	MP17	PIPE 2.0	.057	68	3	.105	68	11	14916...	321...	187...	187...	3.275	H1...

TIA-222-H Connection Check

Connection Details	
Bolt Type =	Threaded Rod
Bolt Quantity =	4
Bolt Diameter =	0.625 in
Bolt Threads/Inch, n =	11
Bolt Grade =	A36
Vertical Bolt Spacing =	3.500 in
Horizontal Bolt Spacing =	9.500 in
Use TIA-222-H Section 15.5?	No

Connection Check (Bolts)		
ϕ =	0.75	Strength Reduction Factor (TIA-H 4.9.6.1/4.9.6.3)
A_n =	0.226 in ²	Net Bolt Area (TIA-H 4.9.6.1)
A_b =	0.307 in ²	Gross Bolt Area
$F_{u\text{bolt}}$ =	58 ksi	Bolt Ultimate Stress Capacity
ϕR_{nt} =	9.83 kip	Bolt Nominal Tensile Capacity (TIA-H 4.9.6.1/4.9.11.3)
ϕR_{nv} =	6.67 kip	Bolt Nominal Shear Capacity (TIA-H 4.9.6.3)
$V_{u\text{bolt}}$ =	0.99 kip	Shear Force Per Bolt
$T_{u\text{bolt}}$ =	7.48 kip	Tension Force Per Bolt
CSR =	76.0% OK	(TIA 4.9.6.4)





September 28, 2022

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

Re: Exempt Modification Application – AT&T Site 13757806
AT&T Mobility Telecommunications Facility @ 134 Kikapoo Road, Middlefield, CT 06455
Original Tower Approval: Connecticut Siting Council Docket # 40, dated May 15, 1984

Dear Mr. Paynter:

New Cingular Wireless, PCS, LLC (dba AT&T) currently maintains antennas on a wireless telecommunications facility on an existing American Tower Corporation (ATC) telecommunications tower at the above referenced address. AT&T desires to modify its existing equipment as described in the attached Construction Drawings:

- Remove three (3) sector frames, six (6) antennas and four (4) RRHs;
- Install three (3) sector frames, nine (9) antennas, two (2) RRHs, four (4)
- Y-cables, one (1) 2" Conduit, one (1) DC-6 squid, two (2) 8 AWG 6 DC, and one (1)
- 18-pair fiber.
- Ground work includes removal of (3) RRUWs and the installation of three (3) RRUS 2012 B29, four (4) rectifiers, and one (1) 6648 + IDLE.

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

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

Respectfully Submitted,

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

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

Enclosures



September 28, 2022

First Selectman Robert Yamartino
393 Jackson Hill Rd
P.O. Box 179
Middlefield, CT 06455

Re: Exempt Modification Application – AT&T Site 13757806
AT&T Mobility Telecommunications Facility @ 134 Kikapoo Road, Middlefield, CT 06455
Original Tower Approval: Connecticut Siting Council Docket # 40, dated May 15, 1984

Dear First Selectman Freda:

New Cingular Wireless, PCS, LLC (dba AT&T) currently maintains antennas on a wireless telecommunications facility on an existing American Tower Corporation (ATC) telecommunications tower at the above referenced address. AT&T desires to modify its existing equipment as described in the attached Construction Drawings:

- Remove three (3) sector frames, six (6) antennas and four (4) RRHs;
- Install three (3) sector frames, nine (9) antennas, two (2) RRHs, four (4)
- Y-cables, one (1) 2" Conduit, one (1) DC-6 squid, two (2) 8 AWG 6 DC, and one (1)
- 18-pair fiber.
- Ground work includes removal of (3) RRUWs and the installation of three (3) RRUS 2012 B29, four (4) rectifiers, and one (1) 6648 + IDLE.

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

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

Respectfully Submitted,

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

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

Enclosures



September 22, 2022

SBC Tower Holdings LLC
PO Box 723597
Atlanta, GA 31139

Re: Exempt Modification Application – AT&T Site 13757806
AT&T Mobility Telecommunications Facility @ 134 Kikapoo Road, Middlefield, CT 06455
Original Tower Approval: Connecticut Siting Council Docket # 40, dated May 15, 1984

Dear Property Owner:

New Cingular Wireless, PCS, LLC (dba AT&T) currently maintains antennas on a wireless telecommunications facility on an existing American Tower Corporation (ATC) telecommunications tower at the above referenced address. AT&T desires to modify its existing equipment as described in the attached Construction Drawings:

- Remove three (3) sector frames, six (6) antennas and four (4) RRHs;
- Install three (3) sector frames, nine (9) antennas, two (2) RRHs, four (4)
- Y-cables, one (1) 2" Conduit, one (1) DC-6 squid, two (2) 8 AWG 6 DC, and one (1)
- 18-pair fiber.
- Ground work includes removal of (3) RRUWs and the installation of three (3) RRUS 2012 B29, four (4) rectifiers, and one (1) 6648 + IDLE.

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

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

Respectfully Submitted,

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

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

Enclosures



September 28, 2022

Jerry Russ, Zoning Officer
Community Center Building
405 Main Street
Middlefield, CT 06455

Re: Exempt Modification Application – AT&T Site 13757806
AT&T Mobility Telecommunications Facility @ 134 Kikapoo Road, Middlefield, CT 06455
Original Tower Approval: Connecticut Siting Council Docket # 40, dated May 15, 1984

Dear Mr. Russ:

New Cingular Wireless, PCS, LLC (dba AT&T) currently maintains antennas on a wireless telecommunications facility on an existing American Tower Corporation (ATC) telecommunications tower at the above referenced address. AT&T desires to modify its existing equipment as described in the attached Construction Drawings:

- Remove three (3) sector frames, six (6) antennas and four (4) RRHs;
- Install three (3) sector frames, nine (9) antennas, two (2) RRHs, four (4)
- Y-cables, one (1) 2" Conduit, one (1) DC-6 squid, two (2) 8 AWG 6 DC, and one (1)
- 18-pair fiber.
- Ground work includes removal of (3) RRUWs and the installation of three (3) RRUS 2012 B29, four (4) rectifiers, and one (1) 6648 + IDLE.

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

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

Respectfully Submitted,

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

Jack Andrews
Zoning Manager, Centerline Communications
443-677-0144


Enclosures


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