



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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VIA ELECTRONIC MAIL

March 14, 2023

Hollis M. Redding
SAI Communications, LLC
12 Industrial Way
Salem, NH 03079
hredding@saigrp.com

RE: **EM-AT&T-076-230208** - AT&T notice of intent to modify an existing telecommunications facility located at 135 New Road, Madison, Connecticut.

Dear Hollis Redding:

The Connecticut Siting Council (Council) is in receipt of your correspondence of March 10, 2023 submitted in response to the Council's February 16, 2023 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie Bachman
Executive Director

MAB/ANM/laf



March 10, 2023

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

Re: Response to Incomplete Letter EM-AT&T-076-230208
New Cingular Wireless PCS LLC ("AT&T") Site CT5206
135 New Road, Madison, Connecticut 06443

Dear Ms. Bachman:

Per the incomplete letter of February 16, 2023, attached please find a revised mount analysis using the 2022 Building Code and a revised structural analysis that includes the latest T-Mobile modification from September 13, 2022, and the updated construction drawings. A copy of these documents are being sent to your office.

Please let me know if the revised mount & structural analyses and the revised drawings deem the exempt modification complete or if you need further information. Thank you for your time.

Sincerely,

Hollis M. Redding

Hollis M. Redding
SAI Communications, LLC
12 Industrial Way
Salem, NH 03079
Mobile: 860-834-6964
hredding@saigrp.com

Enclosures

March 8, 2023 (Rev.2)

July 7, 2022 (Rev.1)

April 20, 2022



SAI Communications
12 Industrial Way
Salem NH, 03079

RE: AT&T Site Number: CT5206 (LTE 2C-4C)
 FA Number: 10071098
 PACE Number: MRCTB033805
 PT Number: 2051A0JD7V
 TEP Site Number: 388940
 AT&T Site Name: MADISON EAST
 Site Address: 135 New Road
 Madison, CT 06443

To Whom It May Concern:

TEP Northeast (TEP NE) has been authorized by SAI Communications to perform a mount analysis on the existing AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (1) DC6-48-60-18-8F Surge Arrestor (31.4"x10.2"Ø – Wt. = 29 lbs.) (tower mounted)
- **(3) SBNHH-1D65A Antennas (55.6"x11.9"x7.1" - Wt. = 34 lbs. /each)**
- **(3) DMP65R-BU4DA Antennas (48.0"x20.7"x7.7" – Wt. = 68 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)**
- **(3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**

**Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. A survey climb and mapping of the existing AT&T antenna mounts was conducted by ProVertic LLC on March 27, 2019. This office conducted a ground audit of the existing AT&T antenna mounts on November 10, 2021.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2021 with 2022 Connecticut State Building Code, and AT&T Mount Technical Directive – R22.
- TEP NE considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix P of the Connecticut State Building Code, the max basic wind speed for this site is equal to 135 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.25 in was used for this analysis.
- TEP NE considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- TEP NE considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- TEP NE considers this site to have a spectral response acceleration parameter at short periods, S_s , of 0.206 and a spectral response acceleration parameter at a period of 1 second, S_1 , of 0.054.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 3.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount is secured to the existing guyed tower with threaded rods and steel plates tightened around the tower leg. TEP NE considers the threaded rods as the governing connection members.

Based on our evaluation, we have determined that the existing mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Mount Rating	14	LC65	60%	PASS

Reference Documents:

- Mount mapping report prepared by ProVertic LLC dated March 27, 2019.

This determination was based on the following limitations and assumptions:

1. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. TEP NE performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
TEP Northeast



Michael Cabral
Director



Daniel P. Hamm, PE
Vice President

FIELD PHOTOS:



FIELD PHOTOS (CONT.):





Wind & Ice Calculations

Date: 3/8/2023
 Project Name: MADISON EAST
 Project No.: CT5206
 Designed By: CL Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

$$K_z = 2.01 (z/z_g)^{2/\alpha}$$

$z = 77$ (ft)
 $z_g = 1200$ (ft)
 $\alpha = 7.0$

$K_z = 0.917$

$K_{zmin} \leq K_z \leq 2.01$

Table 2-4

Exposure	Z _g	α	K _{zmin}	K _c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K _t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$$K_{zt} = [1 + (K_c K_t / K_h)]^2$$

$K_{zt} = 1$

(If Category 1 then $K_{zt} = 1.0$)

Category = 1

$$K_h = e^{(fz/H)}$$

$K_h = 1$
 $K_c = 0.9$ (from Table 2-4)
 $K_t = 0$ (from Table 2-5)
 $f = 0$ (from Table 2-5)
 $z = 77$
 $z_s = 57$ (Mean elevation of base of structure above sea level)
 $H = 0$ (Ht. of the crest above surrounding terrain)
 $K_{zt} = 1.00$ (from 2.6.6.2.1)
 $K_e = 1.00$ (from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness =
 Importance Factor =

$t_i = 1.00$ in
 $I = 1.15$ (from Table 2-3)
 $K_{iz} = 1.09$ (from Sec. 2.6.10)

$$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$$

$t_{iz} = 1.25$ in

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2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$ Latticed Structures > 600 ft

$G_h = 0.85$ Latticed Structures 450 ft or less

$G_h = 0.85 + 0.15 [h/150 - 3.0]$

$h =$ ht. of structure

$h =$ 180

$G_h =$ 0.85

2.6.9.2 Guyed Masts

$G_h =$ 0.85

2.6.9.3 Pole Structures

$G_h =$ 1.1

2.6.9 Appurtenances

$G_h =$ 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilevered tubular or latticed spines, pole, structures on buildings ($ht. : width$ ratio > 5))

$G_h =$ 1.35

$G_h =$ 1.00

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

$q_z =$	36.30
$q_z (ice) =$	4.98
$q_z (30) =$	1.79

$K_z =$	0.917 (from 2.6.5.2)
$K_{zt} =$	1.0 (from 2.6.6.2.1)
$K_s =$	1.0 (from 2.6.7)
$K_e =$	1.00 (from 2.6.8)
$K_d =$	0.85 (from Table 2-2)
$V_{max} =$	135 mph (Ultimate Wind Speed)
$V_{max (ice)} =$	50 mph
$V_{30} =$	30 mph

Table 2-2

Structure Type	Wind Direction Probability Factor, K_d
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	4.14/(C ^{0.485})	3.66/(C ^{0.415})	46.8/(C ^{1.0})
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance.)

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.25 in** Angle = **0 (deg)** Equivalent Angle = **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	4.67	1.30	216	38	11
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.32	1.20	301	49	15
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	71	13	4
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.20	59	11	3
DC6-48-60-18-8F Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	57	10	3
1" Round Bar	1.0	12.0		0.08	0.08	1.20	4		
1" Pipe	1.3	12.0		0.11	0.11	1.20	5		
1-1/2" Pipe	1.9	12.0		0.16	0.16	1.20	7		
2" Pipe	2.4	12.0		0.20	0.20	1.20	9		

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WIND LOADS

Angle = 30 (deg) Ice Thickness = 1.25 in. Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	216	142	198
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	301	127	257
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	71	51	66
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	59	49	57

WIND LOADS WITH ICE:

SBNHH-1D65A Antenna	58.1	14.4	9.6	5.81	3.87	4.03	6.05	1.27	1.36	37	26	34
DMP65R-BU4DA Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	49	23	42
4449 B5/B12 RRH	20.4	15.7	11.9	2.23	1.69	1.30	1.71	1.20	1.20	13	10	12
8843 B2/B66A RRH	17.4	15.7	13.4	1.90	1.62	1.11	1.30	1.20	1.20	11	10	11

WIND LOADS AT 30 MPH:

SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	11	7	10
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	15	6	13
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	2	3

Date: 3/8/2023
 Project Name: MADISON EAST
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 Designed By: CL Checked By: MSC



WIND LOADS

Angle = 60 (deg) Ice Thickness = 1.25 in. Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	216	142	161
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	301	127	171
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	71	51	56
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	59	49	52

WIND LOADS WITH ICE:

SBNHH-1D65A Antenna	58.1	14.4	9.6	5.81	3.87	4.03	6.05	1.27	1.36	37	26	29
DMP65R-BU4DA Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	49	23	30
4449 B5/B12 RRH	20.4	15.7	11.9	2.23	1.69	1.30	1.71	1.20	1.20	13	10	11
8843 B2/B66A RRH	17.4	15.7	13.4	1.90	1.62	1.11	1.30	1.20	1.20	11	10	10

WIND LOADS AT 30 MPH:

SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	11	7	8
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	15	6	8
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	2	3

Date: 3/8/2023
 Project Name: MADISON EAST
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 Designed By: CL Checked By: MSC



WIND LOADS

Angle = 90 (deg) Ice Thickness = 1.25 in. Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	216	142	142
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	301	127	127
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	71	51	51
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	59	49	49

WIND LOADS WITH ICE:

SBNHH-1D65A Antenna	58.1	14.4	9.6	5.81	3.87	4.03	6.05	1.27	1.36	37	26	26
DMP65R-BU4DA Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	49	23	23
4449 B5/B12 RRH	20.4	15.7	11.9	2.23	1.69	1.30	1.71	1.20	1.20	13	10	10
8843 B2/B66A RRH	17.4	15.7	13.4	1.90	1.62	1.11	1.30	1.20	1.20	11	10	10

WIND LOADS AT 30 MPH:

SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	11	7	7
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	15	6	6
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	2	2

Date: 3/8/2023
 Project Name: MADISON EAST
 Project No.: CT5206
 Designed By: CL Checked By: MSC



WIND LOADS

Angle = 120 (deg) Ice Thickness = 1.25 in. Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	216	142	161
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	301	127	171
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	71	51	56
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	59	49	52

WIND LOADS WITH ICE:

SBNHH-1D65A Antenna	58.1	14.4	9.6	5.81	3.87	4.03	6.05	1.27	1.36	37	26	29
DMP65R-BU4DA Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	49	23	30
4449 B5/B12 RRH	20.4	15.7	11.9	2.23	1.69	1.30	1.71	1.20	1.20	13	10	11
8843 B2/B66A RRH	17.4	15.7	13.4	1.90	1.62	1.11	1.30	1.20	1.20	11	10	10

WIND LOADS AT 30 MPH:

SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	11	7	8
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	15	6	8
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	2	3

Date: 3/8/2023
 Project Name: MADISON EAST
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 Designed By: CL Checked By: MSC



WIND LOADS

Angle = 150 (deg) Ice Thickness = 1.25 in. Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	216	142	198
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	301	127	257
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	71	51	66
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	59	49	57

WIND LOADS WITH ICE:

SBNHH-1D65A Antenna	58.1	14.4	9.6	5.81	3.87	4.03	6.05	1.27	1.36	37	26	34
DMP65R-BU4DA Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	49	23	42
4449 B5/B12 RRH	20.4	15.7	11.9	2.23	1.69	1.30	1.71	1.20	1.20	13	10	12
8843 B2/B66A RRH	17.4	15.7	13.4	1.90	1.62	1.11	1.30	1.20	1.20	11	10	11

WIND LOADS AT 30 MPH:

SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	11	7	10
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	15	6	13
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	2	3

Date: 3/8/2023

Project Name: MADISON EAST

Project No.: CT5206

Designed By: CL Checked By: MSC



ICE WEIGHT CALCULATIONS

Thickness of ice: 1.11 in.
Density of ice: 56 pcf

SBNHH-1D65A Antenna

Weight of ice based on total radial SF area:
Height (in): 55.6
Width (in): 11.9
Depth (in): 7.1
Total weight of ice on object: 94 lbs
Weight of object: 34.0 lbs
Combined weight of ice and object: 128 lbs

DMP65R-BU4DA Antenna

Weight of ice based on total radial SF area:
Height (in): 48.0
Width (in): 20.7
Depth (in): 7.7
Total weight of ice on object: 126 lbs
Weight of object: 68.0 lbs
Combined weight of ice and object: 194 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:
Height (in): 17.9
Width (in): 13.2
Depth (in): 9.4
Total weight of ice on object: 35 lbs
Weight of object: 73.0 lbs
Combined weight of ice and object: 108 lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:
Height (in): 14.9
Width (in): 13.2
Depth (in): 10.9
Total weight of ice on object: 31 lbs
Weight of object: 72.0 lbs
Combined weight of ice and object: 103 lbs

DC6-48-60-18-8F Surge Arrestor

Weight of ice based on total radial SF area:
Depth (in): 31.4
Diameter(in): 10.2
Total weight of ice on object: 40 lbs
Weight of object: 29 lbs
Combined weight of ice and object: 69 lbs

1" Round Bar

Per foot weight of ice:
diameter (in): 1
Per foot weight of ice on object: 3 plf

1" Pipe

Per foot weight of ice:
diameter (in): 1.32
Per foot weight of ice on object: 3 plf

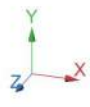
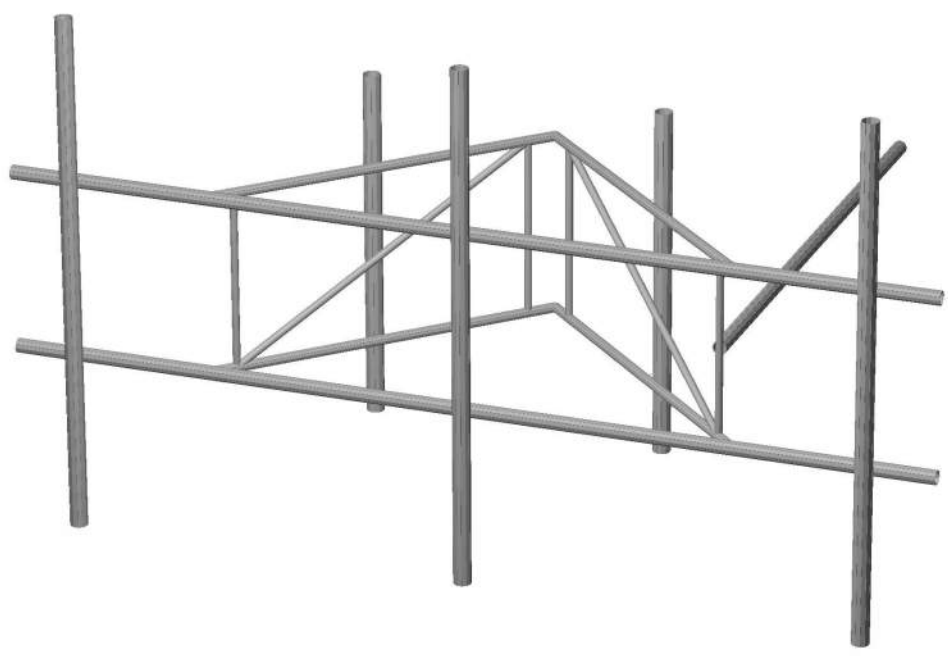
1-1/2" Pipe

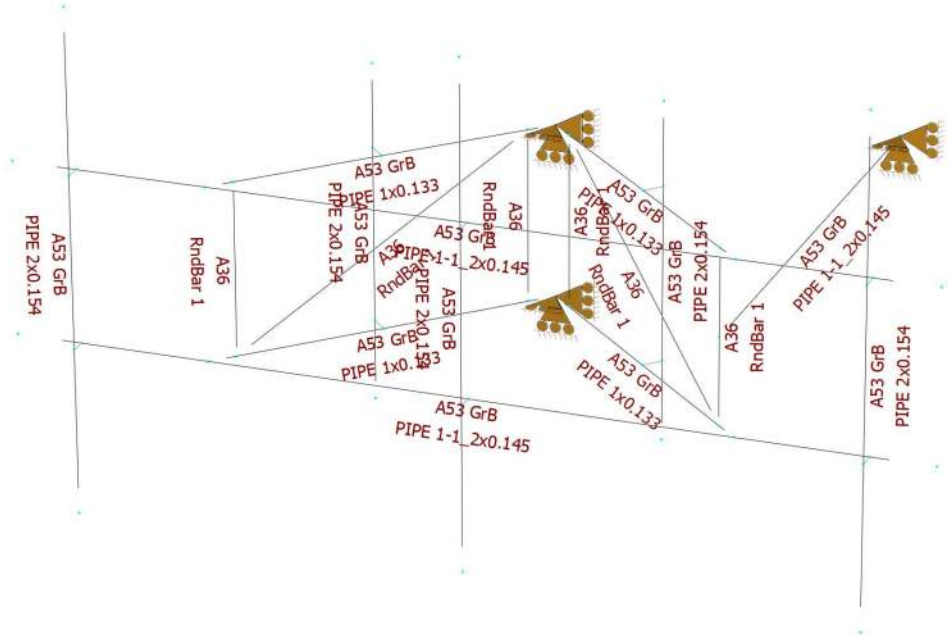
Per foot weight of ice:
diameter (in): 1.9
Per foot weight of ice on object: 4 plf

2" Pipe

Per foot weight of ice:
diameter (in): 2.38
Per foot weight of ice on object: 5 plf

**Mount Calculations
(Existing Conditions)**

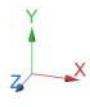
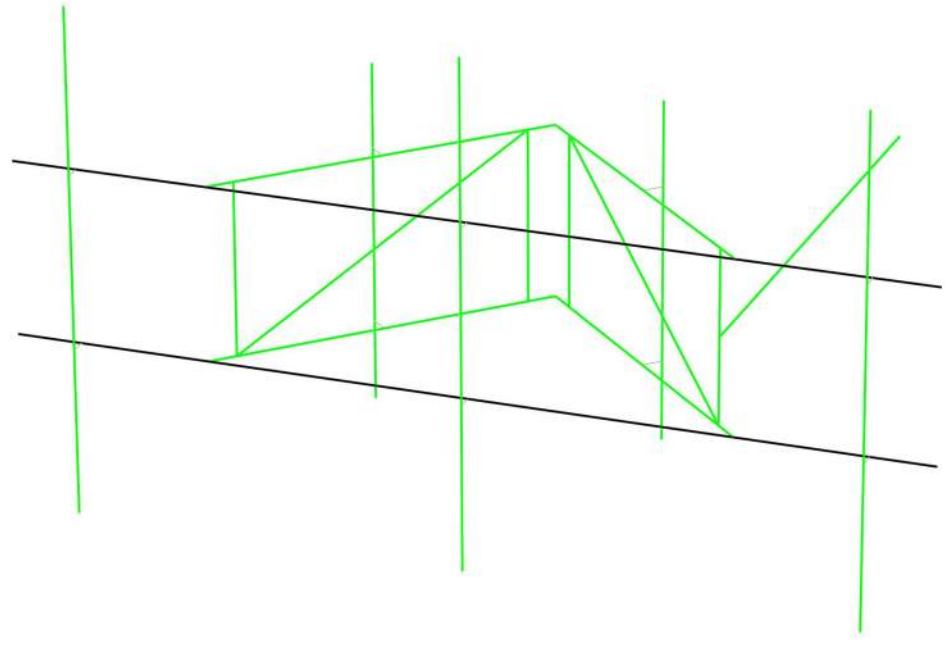


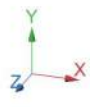
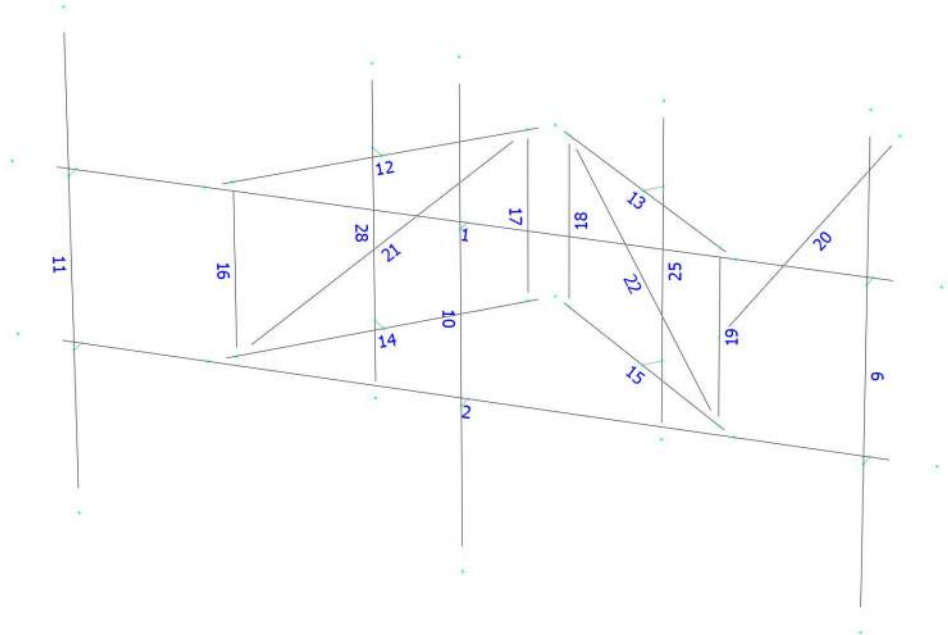




Design status

- Not designed
- Error on design
- Design O.K.
- With warnings





Load data

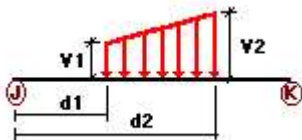
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No <td WIND	
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	500 lb Live Load Antenna 1	No	LL
LLa2	500 lb Live Load Antenna 2	No	LL
LLa3	500 lb Live Load Antenna 3	No	LL

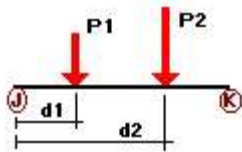
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%	
Wo	1	z	-0.007	-0.007	0.00	No	100.00	Yes	
	2	z	-0.007	-0.007	0.00	No	100.00	Yes	
	10	z	-0.009	-0.009	0.00	No	100.00	Yes	
	12	z	-0.005	-0.005	0.00	No	100.00	Yes	
	13	z	-0.005	-0.005	0.00	No	100.00	Yes	
	14	z	-0.005	-0.005	0.00	No	100.00	Yes	
	15	z	-0.005	-0.005	0.00	No	100.00	Yes	
	16	z	-0.004	-0.004	0.00	No	100.00	Yes	
	17	z	-0.004	-0.004	0.00	No	100.00	Yes	
	18	z	-0.004	-0.004	0.00	No	100.00	Yes	
	19	z	-0.004	-0.004	0.00	No	100.00	Yes	
	20	z	-0.007	-0.007	0.00	No	100.00	Yes	
	21	z	-0.004	-0.004	0.00	No	100.00	Yes	
	22	z	-0.004	-0.004	0.00	No	100.00	Yes	
	25	z	-0.009	-0.009	0.00	No	100.00	Yes	
	28	z	-0.009	-0.009	0.00	No	100.00	Yes	
	W30	1	z	-0.007	-0.007	0.00	No	100.00	Yes
		2	z	-0.007	-0.007	0.00	No	100.00	Yes
		10	z	-0.009	-0.009	0.00	No	100.00	Yes
		12	z	-0.005	-0.005	0.00	No	100.00	Yes
		13	z	-0.005	-0.005	0.00	No	100.00	Yes
		14	z	-0.005	-0.005	0.00	No	100.00	Yes
		15	z	-0.005	-0.005	0.00	No	100.00	Yes
		16	z	-0.004	-0.004	0.00	No	100.00	Yes
		17	z	-0.004	-0.004	0.00	No	100.00	Yes
		18	z	-0.004	-0.004	0.00	No	100.00	Yes
		19	z	-0.004	-0.004	0.00	No	100.00	Yes
		20	z	-0.007	-0.007	0.00	No	100.00	Yes
21		z	-0.004	-0.004	0.00	No	100.00	Yes	
22		z	-0.004	-0.004	0.00	No	100.00	Yes	
25		z	-0.009	-0.009	0.00	No	100.00	Yes	
28		z	-0.009	-0.009	0.00	No	100.00	Yes	
W60		9	x	-0.009	-0.009	0.00	No	100.00	Yes
		10	x	-0.009	-0.009	0.00	No	100.00	Yes
		11	x	-0.009	-0.009	0.00	No	100.00	Yes
		12	x	-0.005	-0.005	0.00	No	100.00	Yes
		13	x	-0.005	-0.005	0.00	No	100.00	Yes
		14	x	-0.005	-0.005	0.00	No	100.00	Yes
		15	x	-0.005	-0.005	0.00	No	100.00	Yes
		16	x	-0.004	-0.004	0.00	No	100.00	Yes
		17	x	-0.004	-0.004	0.00	No	100.00	Yes
		18	x	-0.004	-0.004	0.00	No	100.00	Yes
		19	x	-0.004	-0.004	0.00	No	100.00	Yes
		20	x	-0.007	-0.007	0.00	No	100.00	Yes
	21	x	-0.004	-0.004	0.00	No	100.00	Yes	
	22	x	-0.004	-0.004	0.00	No	100.00	Yes	
	25	x	-0.009	-0.009	0.00	No	100.00	Yes	
	28	x	-0.009	-0.009	0.00	No	100.00	Yes	
	W90	9	x	-0.009	-0.009	0.00	No	100.00	Yes
		10	x	-0.009	-0.009	0.00	No	100.00	Yes
		11	x	-0.009	-0.009	0.00	No	100.00	Yes
		12	x	-0.005	-0.005	0.00	No	100.00	Yes
		13	x	-0.005	-0.005	0.00	No	100.00	Yes
		14	x	-0.005	-0.005	0.00	No	100.00	Yes
		15	x	-0.005	-0.005	0.00	No	100.00	Yes
		16	x	-0.004	-0.004	0.00	No	100.00	Yes
		17	x	-0.004	-0.004	0.00	No	100.00	Yes
		18	x	-0.004	-0.004	0.00	No	100.00	Yes
		19	x	-0.004	-0.004	0.00	No	100.00	Yes
		20	x	-0.007	-0.007	0.00	No	100.00	Yes

	21	x	-0.004	-0.004	0.00	No	100.00	Yes
	22	x	-0.004	-0.004	0.00	No	100.00	Yes
	25	x	-0.009	-0.009	0.00	No	100.00	Yes
	28	x	-0.009	-0.009	0.00	No	100.00	Yes
W120	9	x	-0.009	-0.009	0.00	No	100.00	Yes
	10	x	-0.009	-0.009	0.00	No	100.00	Yes
	11	x	-0.009	-0.009	0.00	No	100.00	Yes
	12	x	-0.005	-0.005	0.00	No	100.00	Yes
	13	x	-0.005	-0.005	0.00	No	100.00	Yes
	14	x	-0.005	-0.005	0.00	No	100.00	Yes
	15	x	-0.005	-0.005	0.00	No	100.00	Yes
	16	x	-0.004	-0.004	0.00	No	100.00	Yes
	17	x	-0.004	-0.004	0.00	No	100.00	Yes
	18	x	-0.004	-0.004	0.00	No	100.00	Yes
	19	x	-0.004	-0.004	0.00	No	100.00	Yes
	20	x	-0.007	-0.007	0.00	No	100.00	Yes
	21	x	-0.004	-0.004	0.00	No	100.00	Yes
	22	x	-0.004	-0.004	0.00	No	100.00	Yes
	25	x	-0.009	-0.009	0.00	No	100.00	Yes
	28	x	-0.009	-0.009	0.00	No	100.00	Yes
W150	1	z	0.007	0.007	0.00	No	100.00	Yes
	2	z	0.007	0.007	0.00	No	100.00	Yes
	9	z	0.009	0.009	0.00	No	100.00	Yes
	10	z	0.009	0.009	0.00	No	100.00	Yes
	11	z	0.009	0.009	0.00	No	100.00	Yes
	12	z	0.005	0.005	0.00	No	100.00	Yes
	13	z	0.005	0.005	0.00	No	100.00	Yes
	14	z	0.005	0.005	0.00	No	100.00	Yes
	15	z	0.005	0.005	0.00	No	100.00	Yes
	16	z	0.004	0.004	0.00	No	100.00	Yes
	17	z	0.004	0.004	0.00	No	100.00	Yes
	18	z	0.004	0.004	0.00	No	100.00	Yes
	19	z	0.004	0.004	0.00	No	100.00	Yes
	20	z	0.007	0.007	0.00	No	100.00	Yes
	21	z	0.004	0.004	0.00	No	100.00	Yes
	22	z	0.004	0.004	0.00	No	100.00	Yes
	25	z	0.009	0.009	0.00	No	100.00	Yes
	28	z	0.009	0.009	0.00	No	100.00	Yes
Di	1	y	-0.004	-0.004	0.00	No	100.00	Yes
	2	y	-0.004	-0.004	0.00	No	100.00	Yes
	9	y	-0.005	-0.005	0.00	No	100.00	Yes
	10	y	-0.005	-0.005	0.00	No	100.00	Yes
	11	y	-0.005	-0.005	0.00	No	100.00	Yes
	12	y	-0.003	-0.003	0.00	No	100.00	Yes
	13	y	-0.003	-0.003	0.00	No	100.00	Yes
	14	y	-0.003	-0.003	0.00	No	100.00	Yes
	15	y	-0.003	-0.003	0.00	No	100.00	Yes
	16	y	-0.003	-0.003	0.00	No	100.00	Yes
	17	y	-0.003	-0.003	0.00	No	100.00	Yes
	18	y	-0.003	-0.003	0.00	No	100.00	Yes
	19	y	-0.003	-0.003	0.00	No	100.00	Yes
	20	y	-0.004	-0.004	0.00	No	100.00	Yes
	21	y	-0.003	-0.003	0.00	No	100.00	Yes
	22	y	-0.003	-0.003	0.00	No	100.00	Yes
	25	y	-0.005	-0.005	0.00	No	100.00	Yes
	28	y	-0.005	-0.005	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	9	y	-0.017	1.00	No
		y	-0.017	5.00	No
	11	y	-0.034	1.00	No
		y	-0.034	5.00	No
		y	-0.073	2.00	No
Wo	9	z	-0.108	1.00	No
		z	-0.108	5.00	No
	11	z	-0.151	1.00	No
		z	-0.151	5.00	No
		z	-0.071	2.00	No
W30	9	3	-0.099	1.00	No
		3	-0.099	5.00	No
	11	3	-0.129	1.00	No
		3	-0.129	5.00	No
		3	-0.066	2.00	No
W60	9	3	-0.081	1.00	No
		3	-0.081	5.00	No
	11	3	-0.086	1.00	No
		3	-0.086	5.00	No
		3	-0.056	2.00	No
W90	9	x	-0.071	1.00	No
		x	-0.071	5.00	No
	11	x	-0.064	1.00	No
		x	-0.064	5.00	No
		x	-0.051	2.00	No
W120	9	2	-0.081	1.00	No
		2	-0.081	5.00	No
	11	2	-0.086	1.00	No
		2	-0.086	5.00	No
		2	-0.056	2.00	No
W150	9	2	-0.099	1.00	No
		2	-0.099	5.00	No
	11	2	-0.129	1.00	No
		2	-0.129	5.00	No
		2	-0.066	2.00	No
Di	9	y	-0.047	1.00	No
		y	-0.047	5.00	No
	11	y	-0.063	1.00	No
		y	-0.063	5.00	No
		y	-0.035	2.00	No
W10	9	z	-0.031	2.00	No
		z	-0.019	1.00	No
	11	z	-0.019	5.00	No
		z	-0.025	1.00	No
		z	-0.025	5.00	No
25	z	-0.013	2.00	No	
	28	z	-0.011	2.00	No
		z	-0.011	2.00	No

WI30	9	3	-0.017	1.00	No
		3	-0.017	5.00	No
	11	3	-0.021	1.00	No
		3	-0.021	5.00	No
	25	3	-0.012	2.00	No
	28	3	-0.011	2.00	No
WI60	9	3	-0.015	1.00	No
		3	-0.015	5.00	No
	11	3	-0.015	1.00	No
		3	-0.015	5.00	No
	25	3	-0.011	2.00	No
	28	3	-0.01	2.00	No
WI90	9	x	-0.013	1.00	No
		x	-0.013	5.00	No
	11	x	-0.012	1.00	No
		x	-0.012	5.00	No
	25	x	-0.01	2.00	No
	28	x	-0.01	2.00	No
WI120	9	2	-0.015	1.00	No
		2	-0.015	5.00	No
	11	2	-0.015	1.00	No
		2	-0.015	5.00	No
	25	2	-0.011	2.00	No
	28	2	-0.01	2.00	No
WI150	9	2	-0.017	1.00	No
		2	-0.017	5.00	No
	11	2	-0.021	1.00	No
		2	-0.021	5.00	No
	25	2	-0.012	2.00	No
	28	2	-0.011	2.00	No
WL0	9	z	-0.006	1.00	No
		z	-0.006	5.00	No
	11	z	-0.008	1.00	No
		z	-0.008	5.00	No
	25	z	-0.004	2.00	No
	28	z	-0.003	2.00	No
WL30	9	3	-0.005	1.00	No
		3	-0.005	5.00	No
	11	3	-0.007	1.00	No
		3	-0.007	5.00	No
	25	3	-0.003	2.00	No
	28	3	-0.003	2.00	No
WL60	9	3	-0.004	1.00	No
		3	-0.004	5.00	No
	11	3	-0.004	1.00	No
		3	-0.004	5.00	No
	25	3	-0.003	2.00	No
	28	3	-0.003	2.00	No
WL90	9	x	-0.004	1.00	No
		x	-0.004	5.00	No
	11	x	-0.003	1.00	No
		x	-0.003	5.00	No
	25	x	-0.003	2.00	No
	28	x	-0.002	2.00	No
WL120	9	2	-0.004	1.00	No
		2	-0.004	5.00	No
	11	2	-0.004	1.00	No
		2	-0.004	5.00	No
	25	2	-0.003	2.00	No
	28	2	-0.003	2.00	No

WL150	9	2	-0.005	1.00	No
		2	-0.005	5.00	No
	11	2	-0.007	1.00	No
		2	-0.007	5.00	No
	25	2	-0.003	2.00	No
	28	2	-0.003	2.00	No
LL1	1	y	-0.25	50.00	Yes
LL2	1	y	-0.25	100.00	Yes
LL3	1	y	-0.25	0.00	Yes
LLa1	9	y	-0.50	50.00	Yes
LLa2	10	y	-0.50	50.00	Yes
LLa3	11	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load Antenna 3	No	0.00	0.00	0.00

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+W10
LC26=1.2D+Di+W130
LC27=1.2D+Di+W160
LC28=1.2D+Di+W190
LC29=1.2D+Di+W120
LC30=1.2D+Di+W1150
LC31=1.2D+Di-W10
LC32=1.2D+Di-W130
LC33=1.2D+Di-W160
LC34=1.2D+Di-W190
LC35=1.2D+Di-W120
LC36=1.2D+Di-W1150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+W10+1.6LLa1
LC41=1.2D+W130+1.6LLa1
LC42=1.2D+W160+1.6LLa1
LC43=1.2D+W190+1.6LLa1
LC44=1.2D+W120+1.6LLa1
LC45=1.2D+W150+1.6LLa1
LC46=1.2D-W10+1.6LLa1
LC47=1.2D-W130+1.6LLa1
LC48=1.2D-W160+1.6LLa1
LC49=1.2D-W190+1.6LLa1
LC50=1.2D-W120+1.6LLa1
LC51=1.2D-W150+1.6LLa1
LC52=1.2D+W10+1.6LLa2
LC53=1.2D+W130+1.6LLa2
LC54=1.2D+W160+1.6LLa2

LC55=1.2D+WL90+1.6LLa2
 LC56=1.2D+WL120+1.6LLa2
 LC57=1.2D+WL150+1.6LLa2
 LC58=1.2D-WL0+1.6LLa2
 LC59=1.2D-WL30+1.6LLa2
 LC60=1.2D-WL60+1.6LLa2
 LC61=1.2D-WL90+1.6LLa2
 LC62=1.2D-WL120+1.6LLa2
 LC63=1.2D-WL150+1.6LLa2
 LC64=1.2D+WL0+1.6LLa3
 LC65=1.2D+WL30+1.6LLa3
 LC66=1.2D+WL60+1.6LLa3
 LC67=1.2D+WL90+1.6LLa3
 LC68=1.2D+WL120+1.6LLa3
 LC69=1.2D+WL150+1.6LLa3
 LC70=1.2D-WL0+1.6LLa3
 LC71=1.2D-WL30+1.6LLa3
 LC72=1.2D-WL60+1.6LLa3
 LC73=1.2D-WL90+1.6LLa3
 LC74=1.2D-WL120+1.6LLa3
 LC75=1.2D-WL150+1.6LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 1-1_2x0.145	1	LC75 at 7.29%	0.44	With warnings	
		2	LC70 at 7.29%	0.49	With warnings	
		20	LC11 at 0.00%	0.07	OK	
	PIPE 1x0.133	12	LC64 at 92.19%	0.44	OK	
		13	LC51 at 7.81%	0.42	OK	
		14	LC65 at 92.19%	0.60	OK	
		15	LC41 at 7.81%	0.58	OK	
	PIPE 2x0.154	9	LC43 at 66.67%	0.30	OK	
		10	LC39 at 66.67%	0.10	OK	
		11	LC71 at 66.67%	0.32	OK	
		25	LC7 at 50.00%	0.03	OK	
		28	LC75 at 25.00%	0.02	OK	
	RndBar 1	16	LC71 at 100.00%	0.29	OK	
		17	LC64 at 0.00%	0.30	OK	
		18	LC41 at 0.00%	0.29	OK	
		19	LC4 at 50.00%	0.49	OK	
		21	LC70 at 0.00%	0.15	OK	
		22	LC46 at 100.00%	0.15	OK	

Geometry data

GLOSSARY

- Cb22, Cb33 : Moment gradient coefficients
- Cm22, Cm33 : Coefficients applied to bending term in interaction formula
- d0 : Tapered member section depth at J end of member
- DJX : Rigid end offset distance measured from J node in axis X
- DJY : Rigid end offset distance measured from J node in axis Y
- DJZ : Rigid end offset distance measured from J node in axis Z
- DKX : Rigid end offset distance measured from K node in axis X
- DKY : Rigid end offset distance measured from K node in axis Y
- DKZ : Rigid end offset distance measured from K node in axis Z
- dL : Tapered member section depth at K end of member
- Ig factor : Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
- K22 : Effective length factor about axis 2
- K33 : Effective length factor about axis 3
- L22 : Member length for calculation of axial capacity
- L33 : Member length for calculation of axial capacity
- LB pos : Lateral unbraced length of the compression flange in the positive side of local axis 2
- LB neg : Lateral unbraced length of the compression flange in the negative side of local axis 2
- RX : Rotation about X
- RY : Rotation about Y
- RZ : Rotation about Z
- TO : 1 = Tension only member 0 = Normal member
- TX : Translation in X
- TY : Translation in Y
- TZ : Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	2.06	0.00	0
2	-5.25	2.06	0.00	0
3	5.25	2.06	0.00	0
4	0.00	0.00	0.00	0
5	-5.25	0.00	0.00	0
6	5.25	0.00	0.00	0
7	4.50	2.06	0.00	0
8	4.50	0.00	0.00	0
9	-4.50	2.06	0.00	0
10	-4.50	0.00	0.00	0
11	0.00	2.06	0.20	0
12	0.00	0.00	0.20	0
13	4.50	2.06	0.20	0
14	4.50	0.00	0.20	0
15	-4.50	2.06	0.20	0
16	-4.50	0.00	0.20	0
17	0.00	4.03	0.20	0
18	4.50	4.03	0.20	0
19	-4.50	4.03	0.20	0
20	-4.50	-1.97	0.20	0
21	0.00	-1.97	0.20	0
22	4.50	-1.97	0.20	0
23	3.00	2.06	0.00	0

24	3.00	0.00	0.00	0
25	-3.00	2.06	0.00	0
26	-3.00	0.00	0.00	0
27	0.00	2.06	-2.90	0
28	0.00	0.00	-2.90	0
29	-0.2411	2.06	-2.667	0
30	-2.7589	2.06	-0.233	0
31	-0.2411	0.00	-2.667	0
32	-2.7589	0.00	-0.233	0
33	0.2411	2.06	-2.667	0
34	0.2411	0.00	-2.667	0
35	2.7589	2.06	-0.233	0
36	2.7589	0.00	-0.233	0
37	2.7589	1.03	-0.233	0
39	3.00	1.03	-6.233	0
40	-1.50	2.06	-1.45	0
41	-1.50	0.00	-1.45	0
42	-1.67	2.06	-1.62	0
43	-1.67	0.00	-1.62	0
44	-1.67	3.06	-1.62	0
45	-1.67	-0.94	-1.62	0
46	1.50	2.06	-1.45	0
47	1.67	2.06	-1.62	0
48	1.50	0.00	-1.45	0
49	1.67	0.00	-1.62	0
50	1.67	3.06	-1.62	0
51	1.67	-0.94	-1.62	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
27	1	1	1	0	0	0
28	1	1	1	0	0	0
39	1	1	1	0	0	0

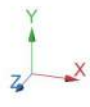
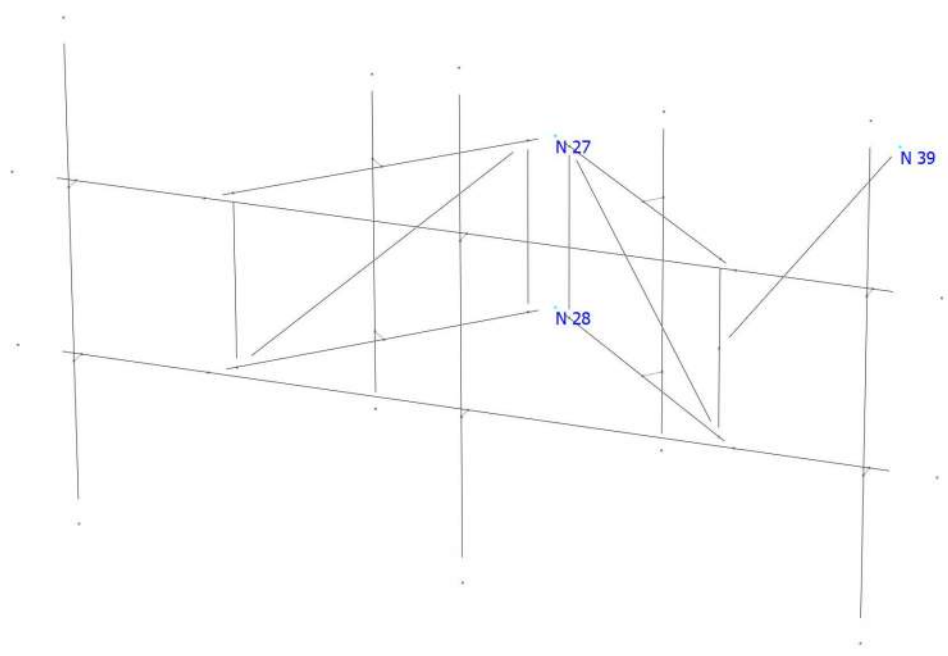
Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	2	3		PIPE 1-1_2x0.145	A53 GrB	0.00	0.00	0.00
2	5	6		PIPE 1-1_2x0.145	A53 GrB	0.00	0.00	0.00
9	18	22		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
10	17	21		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
11	19	20		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
12	25	27		PIPE 1x0.133	A53 GrB	0.00	0.00	0.00
13	27	23		PIPE 1x0.133	A53 GrB	0.00	0.00	0.00
14	26	28		PIPE 1x0.133	A53 GrB	0.00	0.00	0.00
15	28	24		PIPE 1x0.133	A53 GrB	0.00	0.00	0.00
16	32	30		RndBar 1	A36	0.00	0.00	0.00
17	31	29		RndBar 1	A36	0.00	0.00	0.00
18	34	33		RndBar 1	A36	0.00	0.00	0.00

19	36	35	RndBar 1	A36	0.00	0.00	0.00
20	37	39	PIPE 1-1_2x0.145	A53 GrB	0.00	0.00	0.00
21	32	29	RndBar 1	A36	0.00	0.00	0.00
22	33	36	RndBar 1	A36	0.00	0.00	0.00
25	50	51	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
28	44	45	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

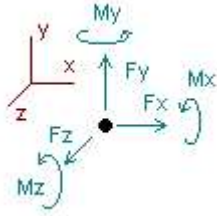
Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
9	315.00	0	0.00	0.00	0.00
10	315.00	0	0.00	0.00	0.00
11	315.00	0	0.00	0.00	0.00
25	315.00	0	0.00	0.00	0.00
28	315.00	0	0.00	0.00	0.00



Analysis result

Reactions



Direction of positive forces and moments

Node	Forces [Kip]			Moments [Kip*ft]		
	FX	FY	FZ	MX	MY	MZ
Condition LC1=1.2D+Wo						
27	0.06963	0.30261	-0.00949	0.00000	0.00000	0.00000
28	-0.07697	0.27350	1.18029	0.00000	0.00000	0.00000
39	0.00734	0.00727	-0.12913	0.00000	0.00000	0.00000
SUM	0.00000	0.58337	1.04167	0.00000	0.00000	0.00000
Condition LC2=1.2D+W30						
27	0.27161	0.28702	0.02966	0.00000	0.00000	0.00000
28	0.12072	0.28867	1.22153	0.00000	0.00000	0.00000
39	0.01708	0.00769	-0.44811	0.00000	0.00000	0.00000
SUM	0.40941	0.58337	0.80309	0.00000	0.00000	0.00000
Condition LC3=1.2D+W60						
27	0.40783	0.29744	-0.14947	0.00000	0.00000	0.00000
28	0.25437	0.27799	1.04515	0.00000	0.00000	0.00000
39	0.04282	0.00794	-0.58314	0.00000	0.00000	0.00000
SUM	0.70501	0.58337	0.31254	0.00000	0.00000	0.00000
Condition LC4=1.2D+W90						
27	0.43758	0.28951	-0.28925	0.00000	0.00000	0.00000
28	0.28292	0.28581	0.90747	0.00000	0.00000	0.00000
39	0.04197	0.00805	-0.61822	0.00000	0.00000	0.00000
SUM	0.76247	0.58337	0.00000	0.00000	0.00000	0.00000
Condition LC5=1.2D+W120						
27	0.41069	0.28520	-0.47595	0.00000	0.00000	0.00000
28	0.25666	0.29014	0.72258	0.00000	0.00000	0.00000
39	0.03766	0.00803	-0.55917	0.00000	0.00000	0.00000
SUM	0.70501	0.58337	-0.31254	0.00000	0.00000	0.00000

Condition **LC6=1.2D+W150**

27	0.27581	0.30542	-0.89466	0.00000	0.00000	0.00000
28	0.12488	0.27024	0.30494	0.00000	0.00000	0.00000
39	0.00872	0.00771	-0.32137	0.00000	0.00000	0.00000

SUM	0.40941	0.58337	-0.91109	0.00000	0.00000	0.00000

Condition **LC7=1.2D-Wo**

27	0.07685	0.31695	-1.18505	0.00000	0.00000	0.00000
28	-0.06946	0.25913	0.01469	0.00000	0.00000	0.00000
39	-0.00739	0.00730	0.12869	0.00000	0.00000	0.00000

SUM	0.00000	0.58337	-1.04167	0.00000	0.00000	0.00000

Condition **LC8=1.2D-W30**

27	-0.12535	0.33232	-1.22390	0.00000	0.00000	0.00000
28	-0.26734	0.24414	-0.02621	0.00000	0.00000	0.00000
39	-0.01672	0.00692	0.44702	0.00000	0.00000	0.00000

SUM	-0.40941	0.58337	-0.80309	0.00000	0.00000	0.00000

Condition **LC9=1.2D-W60**

27	-0.26177	0.32184	-1.04466	0.00000	0.00000	0.00000
28	-0.40122	0.25485	0.15018	0.00000	0.00000	0.00000
39	-0.04202	0.00669	0.58194	0.00000	0.00000	0.00000

SUM	-0.70501	0.58337	-0.31254	0.00000	0.00000	0.00000

Condition **LC10=1.2D-W90**

27	-0.29154	0.32979	-0.90477	0.00000	0.00000	0.00000
28	-0.42981	0.24701	0.28786	0.00000	0.00000	0.00000
39	-0.04112	0.00658	0.61692	0.00000	0.00000	0.00000

SUM	-0.76247	0.58337	0.00000	0.00000	0.00000	0.00000

Condition **LC11=1.2D-W120**

27	-0.26451	0.33422	-0.71834	0.00000	0.00000	0.00000
28	-0.40345	0.24258	0.47239	0.00000	0.00000	0.00000
39	-0.03704	0.00657	0.55849	0.00000	0.00000	0.00000

SUM	-0.70501	0.58337	0.31254	0.00000	0.00000	0.00000

Condition **LC12=1.2D-W150**

27	-0.12935	0.31419	-0.30006	0.00000	0.00000	0.00000
28	-0.27140	0.26233	0.88962	0.00000	0.00000	0.00000
39	-0.00866	0.00685	0.32153	0.00000	0.00000	0.00000

SUM	-0.40941	0.58337	0.91109	0.00000	0.00000	0.00000

Condition **LC13=0.9D+Wo**

27	0.05129	0.22480	0.13995	0.00000	0.00000	0.00000
28	-0.05864	0.20728	1.03085	0.00000	0.00000	0.00000
39	0.00735	0.00545	-0.12913	0.00000	0.00000	0.00000

SUM	0.00000	0.43753	1.04167	0.00000	0.00000	0.00000

Condition **LC14=0.9D+W30**

27	0.25317	0.20917	0.17907	0.00000	0.00000	0.00000
28	0.13915	0.22251	1.07213	0.00000	0.00000	0.00000
39	0.01709	0.00585	-0.44812	0.00000	0.00000	0.00000
SUM	0.40941	0.43753	0.80309	0.00000	0.00000	0.00000

Condition **LC15=0.9D+W60**

27	0.38937	0.21962	-0.00010	0.00000	0.00000	0.00000
28	0.27281	0.21181	0.89579	0.00000	0.00000	0.00000
39	0.04282	0.00610	-0.58314	0.00000	0.00000	0.00000
SUM	0.70501	0.43753	0.31254	0.00000	0.00000	0.00000

Condition **LC16=0.9D+W90**

27	0.41910	0.21167	-0.13993	0.00000	0.00000	0.00000
28	0.30139	0.21966	0.75816	0.00000	0.00000	0.00000
39	0.04198	0.00620	-0.61823	0.00000	0.00000	0.00000
SUM	0.76247	0.43753	0.00000	0.00000	0.00000	0.00000

Condition **LC17=0.9D+W120**

27	0.39220	0.20735	-0.32667	0.00000	0.00000	0.00000
28	0.27514	0.22399	0.57331	0.00000	0.00000	0.00000
39	0.03767	0.00619	-0.55918	0.00000	0.00000	0.00000
SUM	0.70501	0.43753	-0.31254	0.00000	0.00000	0.00000

Condition **LC18=0.9D+W150**

27	0.25740	0.22762	-0.74544	0.00000	0.00000	0.00000
28	0.14329	0.20403	0.15574	0.00000	0.00000	0.00000
39	0.00873	0.00587	-0.32138	0.00000	0.00000	0.00000
SUM	0.40941	0.43753	-0.91109	0.00000	0.00000	0.00000

Condition **LC19=0.9D-W0**

27	0.05856	0.23918	-1.03584	0.00000	0.00000	0.00000
28	-0.05118	0.19287	-0.13450	0.00000	0.00000	0.00000
39	-0.00738	0.00548	0.12867	0.00000	0.00000	0.00000
SUM	0.00000	0.43753	-1.04167	0.00000	0.00000	0.00000

Condition **LC20=0.9D-W30**

27	-0.14355	0.25459	-1.07466	0.00000	0.00000	0.00000
28	-0.24916	0.17782	-0.17543	0.00000	0.00000	0.00000
39	-0.01670	0.00512	0.44700	0.00000	0.00000	0.00000
SUM	-0.40941	0.43753	-0.80309	0.00000	0.00000	0.00000

Condition **LC21=0.9D-W60**

27	-0.27995	0.24409	-0.89538	0.00000	0.00000	0.00000
28	-0.38306	0.18855	0.00091	0.00000	0.00000	0.00000
39	-0.04200	0.00489	0.58192	0.00000	0.00000	0.00000
SUM	-0.70501	0.43753	-0.31254	0.00000	0.00000	0.00000

Condition **LC22=0.9D-W90**

27	-0.30968	0.25206	-0.75545	0.00000	0.00000	0.00000
28	-0.41168	0.18069	0.13855	0.00000	0.00000	0.00000
39	-0.04111	0.00479	0.61690	0.00000	0.00000	0.00000
SUM	-0.76247	0.43753	0.00000	0.00000	0.00000	0.00000

Condition **LC23=0.9D-W120**

27	-0.28266	0.25650	-0.56897	0.00000	0.00000	0.00000
28	-0.38533	0.17625	0.32303	0.00000	0.00000	0.00000
39	-0.03703	0.00478	0.55848	0.00000	0.00000	0.00000
SUM	-0.70501	0.43753	0.31254	0.00000	0.00000	0.00000

Condition **LC24=0.9D-W150**

27	-0.14756	0.23642	-0.15063	0.00000	0.00000	0.00000
28	-0.25320	0.19606	0.74020	0.00000	0.00000	0.00000
39	-0.00865	0.00505	0.32152	0.00000	0.00000	0.00000
SUM	-0.40941	0.43753	0.91109	0.00000	0.00000	0.00000

Condition **LC25=1.2D+Di+W10**

27	0.12028	0.55770	-1.08451	0.00000	0.00000	0.00000
28	-0.12159	0.47348	1.21486	0.00000	0.00000	0.00000
39	0.00131	0.01729	-0.01835	0.00000	0.00000	0.00000
SUM	0.00000	1.04847	0.11200	0.00000	0.00000	0.00000

Condition **LC26=1.2D+Di+W130**

27	0.15490	0.55499	-1.07792	0.00000	0.00000	0.00000
28	-0.08787	0.47612	1.22179	0.00000	0.00000	0.00000
39	0.00297	0.01737	-0.07387	0.00000	0.00000	0.00000
SUM	0.07000	1.04847	0.07000	0.00000	0.00000	0.00000

Condition **LC27=1.2D+Di+W160**

27	0.14886	0.55529	-1.09512	0.00000	0.00000	0.00000
28	-0.09372	0.47584	1.20456	0.00000	0.00000	0.00000
39	0.00214	0.01735	-0.05217	0.00000	0.00000	0.00000
SUM	0.05728	1.04847	0.05728	0.00000	0.00000	0.00000

Condition **LC28=1.2D+Di+W190**

27	0.15538	0.55374	-1.11874	0.00000	0.00000	0.00000
28	-0.08751	0.47736	1.18131	0.00000	0.00000	0.00000
39	0.00213	0.01737	-0.06257	0.00000	0.00000	0.00000
SUM	0.07000	1.04847	0.00000	0.00000	0.00000	0.00000

Condition **LC29=1.2D+Di+W1120**

27	0.14933	0.55301	-1.15277	0.00000	0.00000	0.00000
28	-0.09343	0.47810	1.14759	0.00000	0.00000	0.00000
39	0.00137	0.01737	-0.05210	0.00000	0.00000	0.00000
SUM	0.05728	1.04847	-0.05728	0.00000	0.00000	0.00000

Condition **LC30=1.2D+Di+W1150**

27	0.15570	0.55258	-1.15721	0.00000	0.00000	0.00000
28	-0.08713	0.47852	1.14318	0.00000	0.00000	0.00000
39	0.00143	0.01738	-0.05597	0.00000	0.00000	0.00000
SUM	0.07000	1.04847	-0.07000	0.00000	0.00000	0.00000

Condition **LC31=1.2D+Di-W10**

27	0.12168	0.55390	-1.21543	0.00000	0.00000	0.00000
28	-0.12023	0.47727	1.08493	0.00000	0.00000	0.00000
39	-0.00145	0.01730	0.01850	0.00000	0.00000	0.00000
SUM	0.00000	1.04847	-0.11200	0.00000	0.00000	0.00000

Condition **LC32=1.2D+Di-W130**

27	0.08705	0.55661	-1.22202	0.00000	0.00000	0.00000
28	-0.15395	0.47464	1.07800	0.00000	0.00000	0.00000
39	-0.00311	0.01723	0.07401	0.00000	0.00000	0.00000
SUM	-0.07000	1.04847	-0.07000	0.00000	0.00000	0.00000

Condition **LC33=1.2D+Di-W160**

27	0.09309	0.55631	-1.20482	0.00000	0.00000	0.00000
28	-0.14809	0.47492	1.09523	0.00000	0.00000	0.00000
39	-0.00228	0.01724	0.05232	0.00000	0.00000	0.00000
SUM	-0.05728	1.04847	-0.05728	0.00000	0.00000	0.00000

Condition **LC34=1.2D+Di-W190**

27	0.08657	0.55786	-1.18119	0.00000	0.00000	0.00000
28	-0.15430	0.47340	1.11848	0.00000	0.00000	0.00000
39	-0.00227	0.01722	0.06271	0.00000	0.00000	0.00000
SUM	-0.07000	1.04847	0.00000	0.00000	0.00000	0.00000

Condition **LC35=1.2D+Di-W1120**

27	0.09263	0.55859	-1.14716	0.00000	0.00000	0.00000
28	-0.14839	0.47266	1.15220	0.00000	0.00000	0.00000
39	-0.00151	0.01722	0.05224	0.00000	0.00000	0.00000
SUM	-0.05728	1.04847	0.05728	0.00000	0.00000	0.00000

Condition **LC36=1.2D+Di-W1150**

27	0.08626	0.55903	-1.14271	0.00000	0.00000	0.00000
28	-0.15469	0.47224	1.15661	0.00000	0.00000	0.00000
39	-0.00157	0.01721	0.05611	0.00000	0.00000	0.00000
SUM	-0.07000	1.04847	0.07000	0.00000	0.00000	0.00000

Condition **LC37=1.2D+1.6LL1**

27	0.07401	0.52398	-1.16124	0.00000	0.00000	0.00000
28	-0.07391	0.45164	1.16112	0.00000	0.00000	0.00000
39	-0.00010	0.00775	0.00011	0.00000	0.00000	0.00000
SUM	0.00000	0.98337	0.00000	0.00000	0.00000	0.00000

Condition **LC38=1.2D+1.6LL2**

27	-0.93767	0.53270	-1.16953	0.00000	0.00000	0.00000
28	0.93753	0.43732	1.17021	0.00000	0.00000	0.00000
39	0.00014	0.01336	-0.00068	0.00000	0.00000	0.00000
SUM	0.00000	0.98337	0.00000	0.00000	0.00000	0.00000

Condition **LC39=1.2D+1.6LL3**

27	1.08496	0.54016	-1.15132	0.00000	0.00000	0.00000
28	-1.08479	0.44148	1.15065	0.00000	0.00000	0.00000
39	-0.00016	0.00173	0.00067	0.00000	0.00000	0.00000
SUM	0.00000	0.98337	0.00000	0.00000	0.00000	0.00000

Condition **LC40=1.2D+WL0+1.6LLa1**

27	-1.66362	0.75711	-1.79235	0.00000	0.00000	0.00000
28	1.66305	0.61163	1.83375	0.00000	0.00000	0.00000
39	0.00057	0.01463	-0.00640	0.00000	0.00000	0.00000
SUM	0.00000	1.38337	0.03500	0.00000	0.00000	0.00000

Condition **LC41=1.2D+WL30+1.6LLa1**

27	-1.65316	0.75622	-1.79001	0.00000	0.00000	0.00000
28	1.67324	0.61248	1.83639	0.00000	0.00000	0.00000
39	0.00113	0.01467	-0.02517	0.00000	0.00000	0.00000
SUM	0.02121	1.38337	0.02121	0.00000	0.00000	0.00000

Condition **LC42=1.2D+WL60+1.6LLa1**

27	-1.65585	0.75634	-1.79803	0.00000	0.00000	0.00000
28	1.67067	0.61238	1.82822	0.00000	0.00000	0.00000
39	0.00073	0.01466	-0.01463	0.00000	0.00000	0.00000
SUM	0.01556	1.38337	0.01556	0.00000	0.00000	0.00000

Condition **LC43=1.2D+WL90+1.6LLa1**

27	-1.65411	0.75599	-1.80432	0.00000	0.00000	0.00000
28	1.67238	0.61272	1.82206	0.00000	0.00000	0.00000
39	0.00074	0.01466	-0.01774	0.00000	0.00000	0.00000
SUM	0.01900	1.38337	0.00000	0.00000	0.00000	0.00000

Condition **LC44=1.2D+WL120+1.6LLa1**

27	-1.65574	0.75575	-1.81380	0.00000	0.00000	0.00000
28	1.67078	0.61296	1.81263	0.00000	0.00000	0.00000
39	0.00052	0.01466	-0.01439	0.00000	0.00000	0.00000
SUM	0.01556	1.38337	-0.01556	0.00000	0.00000	0.00000

Condition **LC45=1.2D+WL150+1.6LLa1**

27	-1.65291	0.75553	-1.81583	0.00000	0.00000	0.00000
28	1.67360	0.61317	1.81062	0.00000	0.00000	0.00000
39	0.00053	0.01466	-0.01600	0.00000	0.00000	0.00000
SUM	0.02121	1.38337	-0.02121	0.00000	0.00000	0.00000

Condition **LC46=1.2D-WL0+1.6LLa1**

27	-1.66326	0.75587	-1.83335	0.00000	0.00000	0.00000
28	1.66357	0.61287	1.79287	0.00000	0.00000	0.00000
39	-0.00031	0.01463	0.00548	0.00000	0.00000	0.00000
SUM	0.00000	1.38337	-0.03500	0.00000	0.00000	0.00000

Condition **LC47=1.2D-WL30+1.6LLa1**

27	-1.67372	0.75677	-1.83569	0.00000	0.00000	0.00000
28	1.65339	0.61201	1.79023	0.00000	0.00000	0.00000
39	-0.00088	0.01459	0.02424	0.00000	0.00000	0.00000
SUM	-0.02121	1.38337	-0.02121	0.00000	0.00000	0.00000

Condition **LC48=1.2D-WL60+1.6LLa1**

27	-1.67104	0.75665	-1.82766	0.00000	0.00000	0.00000
28	1.65595	0.61211	1.79840	0.00000	0.00000	0.00000
39	-0.00047	0.01461	0.01371	0.00000	0.00000	0.00000
SUM	-0.01556	1.38337	-0.01556	0.00000	0.00000	0.00000

Condition **LC49=1.2D-WL90+1.6LLa1**

27	-1.67277	0.75699	-1.82137	0.00000	0.00000	0.00000
28	1.65425	0.61178	1.80456	0.00000	0.00000	0.00000
39	-0.00048	0.01460	0.01681	0.00000	0.00000	0.00000
SUM	-0.01900	1.38337	0.00000	0.00000	0.00000	0.00000

Condition **LC50=1.2D-WL120+1.6LLa1**

27	-1.67114	0.75724	-1.81190	0.00000	0.00000	0.00000
28	1.65585	0.61153	1.81399	0.00000	0.00000	0.00000
39	-0.00026	0.01461	0.01347	0.00000	0.00000	0.00000
SUM	-0.01556	1.38337	0.01556	0.00000	0.00000	0.00000

Condition **LC51=1.2D-WL150+1.6LLa1**

27	-1.67397	0.75745	-1.80987	0.00000	0.00000	0.00000
28	1.65302	0.61132	1.81600	0.00000	0.00000	0.00000
39	-0.00027	0.01460	0.01508	0.00000	0.00000	0.00000
SUM	-0.02121	1.38337	0.02121	0.00000	0.00000	0.00000

Condition **LC52=1.2D+WL0+1.6LLa2**

27	0.07447	0.73919	-1.78205	0.00000	0.00000	0.00000
28	-0.07476	0.63602	1.82282	0.00000	0.00000	0.00000
39	0.00029	0.00816	-0.00577	0.00000	0.00000	0.00000
SUM	0.00000	1.38337	0.03500	0.00000	0.00000	0.00000

Condition **LC53=1.2D+WL30+1.6LLa2**

27	0.08499	0.73829	-1.77961	0.00000	0.00000	0.00000
28	-0.06463	0.63689	1.82536	0.00000	0.00000	0.00000
39	0.00085	0.00819	-0.02453	0.00000	0.00000	0.00000
SUM	0.02121	1.38337	0.02121	0.00000	0.00000	0.00000

Condition **LC54=1.2D+WL60+1.6LLa2**

27	0.08231	0.73842	-1.78769	0.00000	0.00000	0.00000
28	-0.06720	0.63677	1.81724	0.00000	0.00000	0.00000
39	0.00045	0.00818	-0.01400	0.00000	0.00000	0.00000
SUM	0.01556	1.38337	0.01556	0.00000	0.00000	0.00000

Condition **LC55=1.2D+WL90+1.6LLa2**

27	0.08407	0.73808	-1.79396	0.00000	0.00000	0.00000
28	-0.06553	0.63711	1.81107	0.00000	0.00000	0.00000
39	0.00046	0.00819	-0.01710	0.00000	0.00000	0.00000
SUM	0.01900	1.38337	0.00000	0.00000	0.00000	0.00000

Condition **LC56=1.2D+WL120+1.6LLa2**

27	0.08244	0.73783	-1.80345	0.00000	0.00000	0.00000
28	-0.06712	0.63735	1.80166	0.00000	0.00000	0.00000
39	0.00024	0.00819	-0.01376	0.00000	0.00000	0.00000
SUM	0.01556	1.38337	-0.01556	0.00000	0.00000	0.00000

Condition **LC57=1.2D+WL150+1.6LLa2**

27	0.08529	0.73762	-1.80547	0.00000	0.00000	0.00000
28	-0.06432	0.63756	1.79963	0.00000	0.00000	0.00000
39	0.00025	0.00819	-0.01537	0.00000	0.00000	0.00000
SUM	0.02121	1.38337	-0.02121	0.00000	0.00000	0.00000

Condition **LC58=1.2D-WL0+1.6LLa2**

27	0.07492	0.73797	-1.82310	0.00000	0.00000	0.00000
28	-0.07433	0.63723	1.78199	0.00000	0.00000	0.00000
39	-0.00059	0.00817	0.00611	0.00000	0.00000	0.00000
SUM	0.00000	1.38337	-0.03500	0.00000	0.00000	0.00000

Condition **LC59=1.2D-WL30+1.6LLa2**

27	0.06440	0.73887	-1.82554	0.00000	0.00000	0.00000
28	-0.08446	0.63637	1.77945	0.00000	0.00000	0.00000
39	-0.00115	0.00814	0.02487	0.00000	0.00000	0.00000
SUM	-0.02121	1.38337	-0.02121	0.00000	0.00000	0.00000

Condition **LC60=1.2D-WL60+1.6LLa2**

27	0.06708	0.73874	-1.81746	0.00000	0.00000	0.00000
28	-0.08189	0.63648	1.78757	0.00000	0.00000	0.00000
39	-0.00075	0.00815	0.01434	0.00000	0.00000	0.00000
SUM	-0.01556	1.38337	-0.01556	0.00000	0.00000	0.00000

Condition **LC61=1.2D-WL90+1.6LLa2**

27	0.06532	0.73908	-1.81118	0.00000	0.00000	0.00000
28	-0.08356	0.63615	1.79374	0.00000	0.00000	0.00000
39	-0.00076	0.00814	0.01744	0.00000	0.00000	0.00000
SUM	-0.01900	1.38337	0.00000	0.00000	0.00000	0.00000

Condition **LC62=1.2D-WL120+1.6LLa2**

27	0.06695	0.73932	-1.80170	0.00000	0.00000	0.00000
28	-0.08197	0.63590	1.80315	0.00000	0.00000	0.00000
39	-0.00054	0.00814	0.01410	0.00000	0.00000	0.00000
SUM	-0.01556	1.38337	0.01556	0.00000	0.00000	0.00000

Condition **LC63=1.2D-WL150+1.6LLa2**

27	0.06410	0.73954	-1.79968	0.00000	0.00000	0.00000
28	-0.08477	0.63569	1.80518	0.00000	0.00000	0.00000
39	-0.00055	0.00814	0.01571	0.00000	0.00000	0.00000
SUM	-0.02121	1.38337	0.02121	0.00000	0.00000	0.00000

Condition **LC64=1.2D+WL0+1.6LLa3**

27	1.81254	0.76563	-1.77170	0.00000	0.00000	0.00000
28	-1.81279	0.61602	1.81214	0.00000	0.00000	0.00000
39	0.00026	0.00173	-0.00545	0.00000	0.00000	0.00000
SUM	0.00000	1.38337	0.03500	0.00000	0.00000	0.00000

Condition **LC65=1.2D+WL30+1.6LLa3**

27	1.82299	0.76473	-1.76916	0.00000	0.00000	0.00000
28	-1.80259	0.61690	1.81459	0.00000	0.00000	0.00000
39	0.00082	0.00175	-0.02421	0.00000	0.00000	0.00000
SUM	0.02121	1.38337	0.02121	0.00000	0.00000	0.00000

Condition **LC66=1.2D+WL60+1.6LLa3**

27	1.82035	0.76487	-1.77727	0.00000	0.00000	0.00000
28	-1.80521	0.61676	1.80651	0.00000	0.00000	0.00000
39	0.00042	0.00175	-0.01368	0.00000	0.00000	0.00000
SUM	0.01556	1.38337	0.01556	0.00000	0.00000	0.00000

Condition **LC67=1.2D+WL90+1.6LLa3**

27	1.82212	0.76453	-1.78352	0.00000	0.00000	0.00000
28	-1.80354	0.61710	1.80030	0.00000	0.00000	0.00000
39	0.00042	0.00175	-0.01679	0.00000	0.00000	0.00000
SUM	0.01900	1.38337	0.00000	0.00000	0.00000	0.00000

Condition **LC68=1.2D+WL120+1.6LLa3**

27	1.82050	0.76429	-1.79300	0.00000	0.00000	0.00000
28	-1.80515	0.61733	1.79089	0.00000	0.00000	0.00000
39	0.00020	0.00175	-0.01344	0.00000	0.00000	0.00000
SUM	0.01556	1.38337	-0.01556	0.00000	0.00000	0.00000

Condition **LC69=1.2D+WL150+1.6LLa3**

27	1.82332	0.76407	-1.79500	0.00000	0.00000	0.00000
28	-1.80232	0.61754	1.78884	0.00000	0.00000	0.00000
39	0.00021	0.00175	-0.01506	0.00000	0.00000	0.00000
SUM	0.02121	1.38337	-0.02121	0.00000	0.00000	0.00000

Condition **LC70=1.2D-WL0+1.6LLa3**

27	1.81305	0.76445	-1.81270	0.00000	0.00000	0.00000
28	-1.81243	0.61719	1.77128	0.00000	0.00000	0.00000
39	-0.00062	0.00174	0.00642	0.00000	0.00000	0.00000
SUM	0.00000	1.38337	-0.03500	0.00000	0.00000	0.00000

Condition **LC71=1.2D-WL30+1.6LLa3**

27	1.80260	0.76535	-1.81524	0.00000	0.00000	0.00000
28	-1.82263	0.61631	1.76884	0.00000	0.00000	0.00000
39	-0.00118	0.00172	0.02519	0.00000	0.00000	0.00000
SUM	-0.02121	1.38337	-0.02121	0.00000	0.00000	0.00000

Condition **LC72=1.2D-WL60+1.6LLa3**

27	1.80524	0.76520	-1.80713	0.00000	0.00000	0.00000
28	-1.82002	0.61644	1.77692	0.00000	0.00000	0.00000
39	-0.00078	0.00173	0.01465	0.00000	0.00000	0.00000
SUM	-0.01556	1.38337	-0.01556	0.00000	0.00000	0.00000

Condition **LC73=1.2D-WL90+1.6LLa3**

27	1.80347	0.76555	-1.80088	0.00000	0.00000	0.00000
28	-1.82168	0.61611	1.78313	0.00000	0.00000	0.00000
39	-0.00079	0.00172	0.01776	0.00000	0.00000	0.00000
SUM	-0.01900	1.38337	0.00000	0.00000	0.00000	0.00000

Condition **LC74=1.2D-WL120+1.6LLa3**

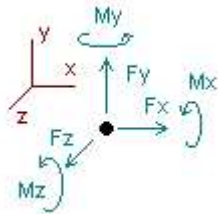
27	1.80508	0.76579	-1.79140	0.00000	0.00000	0.00000
28	-1.82007	0.61587	1.79254	0.00000	0.00000	0.00000
39	-0.00057	0.00172	0.01442	0.00000	0.00000	0.00000
SUM	-0.01556	1.38337	0.01556	0.00000	0.00000	0.00000

Condition **LC75=1.2D-WL150+1.6LLa3**

27	1.80226	0.76600	-1.78940	0.00000	0.00000	0.00000
28	-1.82290	0.61566	1.79458	0.00000	0.00000	0.00000
39	-0.00058	0.00172	0.01603	0.00000	0.00000	0.00000
SUM	-0.02121	1.38337	0.02121	0.00000	0.00000	0.00000

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2D+W0
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-W0
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+W0
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-W0
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+W10
LC26=1.2D+Di+W130
LC27=1.2D+Di+W160
LC28=1.2D+Di+W190
LC29=1.2D+Di+W120
LC30=1.2D+Di+W150
LC31=1.2D+Di-W10
LC32=1.2D+Di-W130
LC33=1.2D+Di-W160
LC34=1.2D+Di-W190
LC35=1.2D+Di-W120
LC36=1.2D+Di-W150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+W10+1.6LLa1
LC41=1.2D+W130+1.6LLa1
LC42=1.2D+W160+1.6LLa1
LC43=1.2D+W190+1.6LLa1
LC44=1.2D+W120+1.6LLa1
LC45=1.2D+W150+1.6LLa1
LC46=1.2D-W10+1.6LLa1
LC47=1.2D-W130+1.6LLa1
LC48=1.2D-W160+1.6LLa1
LC49=1.2D-W190+1.6LLa1
LC50=1.2D-W120+1.6LLa1
LC51=1.2D-W150+1.6LLa1
LC52=1.2D+W10+1.6LLa2
LC53=1.2D+W130+1.6LLa2
LC54=1.2D+W160+1.6LLa2
LC55=1.2D+W190+1.6LLa2
LC56=1.2D+W120+1.6LLa2
LC57=1.2D+W150+1.6LLa2
LC58=1.2D-W10+1.6LLa2
LC59=1.2D-W130+1.6LLa2
LC60=1.2D-W160+1.6LLa2
LC61=1.2D-W190+1.6LLa2
LC62=1.2D-W120+1.6LLa2
LC63=1.2D-W150+1.6LLa2

LC64=1.2D+WL0+1.6LLa3
 LC65=1.2D+WL30+1.6LLa3
 LC66=1.2D+WL60+1.6LLa3
 LC67=1.2D+WL90+1.6LLa3
 LC68=1.2D+WL120+1.6LLa3
 LC69=1.2D+WL150+1.6LLa3
 LC70=1.2D-WL0+1.6LLa3
 LC71=1.2D-WL30+1.6LLa3
 LC72=1.2D-WL60+1.6LLa3
 LC73=1.2D-WL90+1.6LLa3
 LC74=1.2D-WL120+1.6LLa3
 LC75=1.2D-WL150+1.6LLa3

Node		Forces						Moments					
		Fx [Kip]	lc	Fy [Kip]	lc	Fz [Kip]	lc	Mx [Kip*ft]	lc	My [Kip*ft]	lc	Mz [Kip*ft]	lc
27	Max	1.823	LC69	0.766	LC75	0.179	LC14	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-1.674	LC51	0.207	LC17	-1.836	LC47	0.00000	LC1	0.00000	LC1	0.00000	LC1
28	Max	1.674	LC45	0.638	LC57	1.836	LC41	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-1.823	LC75	0.176	LC23	-0.175	LC20	0.00000	LC1	0.00000	LC1	0.00000	LC1
39	Max	0.043	LC15	0.017	LC30	0.617	LC10	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.042	LC9	0.002	LC75	-0.618	LC16	0.00000	LC1	0.00000	LC1	0.00000	LC1

Connection Check

Date: 3/8/2023
Project Name: MADISON EAST
Project No.: CT5206
Designed By: CL Checked By: MSC



CHECK CONNECTION CAPACITY (Worst Case) → SINGLE BOLT CONNECTION

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A325 1" Threaded Rod

Allowable Tensile Load =

$$F_{Tall} = 35343 \text{ lbs.}$$

Allowable Shear Load =

$$F_{Vall} = 21206 \text{ lbs.}$$

TENSILE FORCES

Reaction $F = 766$ lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 1823 lbs. (See Bentley Output)

Reactions in Z direction: 1836 lbs. (See Bentley Output)

Resultant: 2587 lbs.

No. of Supports = 1

No. of Bolts / Support = 1

Tension Design Load /Bolts =

$$f_t = 766.00 \text{ lbs.} < 35343 \text{ lbs.} \text{ Therefore, OK !}$$

Shear Design Load / Bolts=

$$f_v = 2587.32 \text{ lbs.} < 21206 \text{ lbs.} \text{ Therefore, OK !}$$

CHECK COMBINED TENSION AND SHEAR

$$\begin{array}{rclclcl} f_t / F_T & + & f_v / F_V & \leq & 1.0 & \\ 0.022 & + & 0.122 & = & 0.144 & < 1.0 \text{ Therefore, OK !} \end{array}$$

Date: 3/8/2023
Project Name: MADISON EAST
Project No.: CT5206
Designed By: CL Checked By: MSC



CHECK CONNECTION CAPACITY (Worst Case) → CLAMP KIT CONNECTION

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 3/4" Threaded Rod

Allowable Tensile Load =

$$F_{Tall} = 9609 \text{ lbs.}$$

Allowable Shear Load =

$$F_{Vall} = 5765 \text{ lbs.}$$

TENSILE FORCES

Reaction $F = 1836 \text{ lbs.}$ (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 1823 lbs. (See Bentley Output)

Reactions in Y direction: 766 lbs. (See Bentley Output)

Resultant: 1977 lbs.

No. of Supports = 1

No. of Bolts / Support = 2

Tension Design Load /Bolts =

$$f_t = 918.00 \text{ lbs.} < 9608.9 \text{ lbs.} \text{ Therefore, OK !}$$

Shear Design Load / Bolts=

$$f_v = 988.70 \text{ lbs.} < 5765.3 \text{ lbs.} \text{ Therefore, OK !}$$

CHECK COMBINED TENSION AND SHEAR

$$\begin{aligned} f_t / F_T &+ f_v / F_V \leq 1.0 \\ 0.096 &+ 0.171 = 0.267 < 1.0 \text{ Therefore, OK !} \end{aligned}$$

PROJECT INFORMATION

SCOPE OF WORK: ITEMS TO BE MOUNTED ON THE EXISTING GUYED TOWER:
 • NEW AT&T ANTENNAS: SBNHH-1D65A (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 • NEW AT&T ANTENNAS: DMP65R-BU4DA (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 • NEW AT&T RRUS: B5/B12 4449 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 • NEW AT&T RRUS: B2/B66A 8843 (PCS/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 • ADD (6) Y-CABLES.

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
 • REPLACE DUS WITH 5216.
 • ADD XMU.
 • ADD RBS 6630.
 • ADD IDLe.
 • INSTALL NETSURE 5100 OD W/FLEX (TO REPLACE EXISTING).

ITEMS TO BE REMOVED:
 • EXISTING AT&T ANTENNAS: 7770 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 • EXISTING AT&T ANTENNAS: AM-X-CD-14-65-00T-RET (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 • EXISTING AT&T RRUS: RRUS-11 B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 • EXISTING (6) COAX CABLES.
 • RIP POWER PLANT.

ITEMS TO REMAIN:
 • (1) SURGE ARRESTOR. (2) AWG6 DC POWER & (1) 12-PAIR FIBER.

SITE ADDRESS: 135 NEW ROAD
 MADISON, CT 06443
 LATITUDE: 41.293091° N, 41° 17' 35.13" N
 LONGITUDE: 72.578398° W, 72° 34' 42.23" W
 TYPE OF SITE: GUYED TOWER / OUTDOOR
 STRUCTURE HEIGHT: 180'-0"±
 RAD CENTER: 77'-0"±
 CURRENT USE: TELECOMMUNICATIONS FACILITY
 PROPOSED USE: TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	4
GN-1	GENERAL NOTES	4
A-1	COMPOUND & EQUIPMENT PLANS	4
A-2	ANTENNA LAYOUTS & ELEVATION	4
A-3	DETAILS	4
G-1	GROUNDING DETAILS	4
RF-1	RF PLUMBING DIAGRAM	4



SITE NUMBER: CTL05206

SITE NAME: MADISON EAST

FA CODE: 10071098

PACE ID: MRCTB033530, MRCTB033653, MRCTB033595, MRCTB033805

PROJECT: LTE 2C,3C,4C 2022 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

I-95N TO EXIT 62. AT TOP OF RAMP MAKE LEFT AND CROSS OVER HIGHWAY. AT NEXT INTERSECTION, MAKE LEFT ONTO NEW ROAD. AFTER MAKING TURN, LOOK FOR ARAMARK SIGN AT 135 NEW ROAD ON YOUR RIGHT AND ENTER HERE. AFTER PASSING ARAMARK SIGN, TAKE DRIVEWAY ON YOUR RIGHT AND HEAD STRAIGHT TO CL&P GATE. PROCEED THROUGH GATE AND DRIVE TOWARD REAR OF COMPLEX WHERE TOWER IS LOCATED.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS



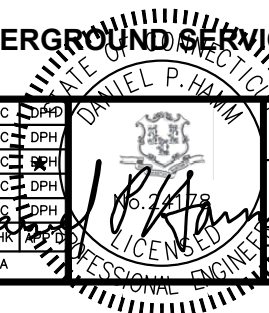
CALL BEFORE YOU DIG



CALL TOLL FREE 1-800-922-4455

OR CALL 811

UNDERGROUND SERVICE ALERT



SITE NUMBER: CTL05206
SITE NAME: MADISON EAST

135 NEW ROAD
 MADISON, CT 06443
 NEW HAVEN COUNTY



500 ENTERPRISE DRIVE, SUITE 3A
 ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
4	02/27/23	ISSUED FOR CONSTRUCTION	GA/YH	HC	DPH
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2	08/30/22	ISSUED FOR REVIEW	MR	HC	DPH
1	05/26/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	04/26/22	ISSUED FOR REVIEW	GA	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

AT&T

TITLE SHEET
 LTE 2C,3C,4C 2022 UPGRADE

SHEET NUMBER	DRAWING NUMBER	REV
CTL05206	T-1	4

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR – SAI
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. **APPLICABLE BUILDING CODES:**
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

**BUILDING CODE: IBC 2021 WITH 2022 CT STATE BUILDING CODE AMENDMENTS
 ELECTRICAL CODE: 2020 NATIONAL ELECTRICAL CODE (NFPA 70-2020)**

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

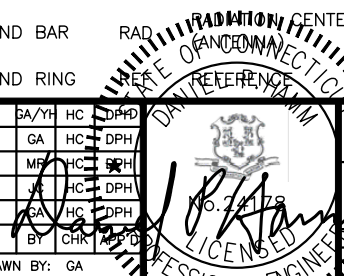


**SITE NUMBER: CTL05206
 SITE NAME: MADISON EAST**

135 NEW ROAD
MADISON, CT 06443
NEW HAVEN COUNTY



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A	04/26/22	ISSUED FOR REVIEW	GA	HC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: GA		



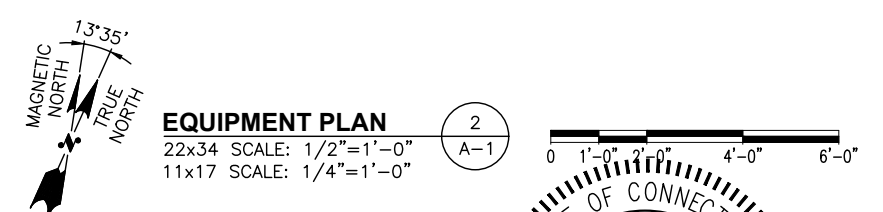
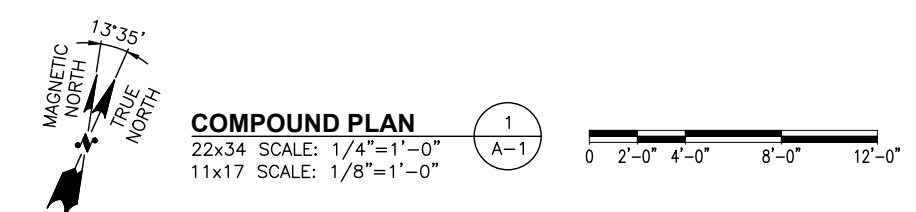
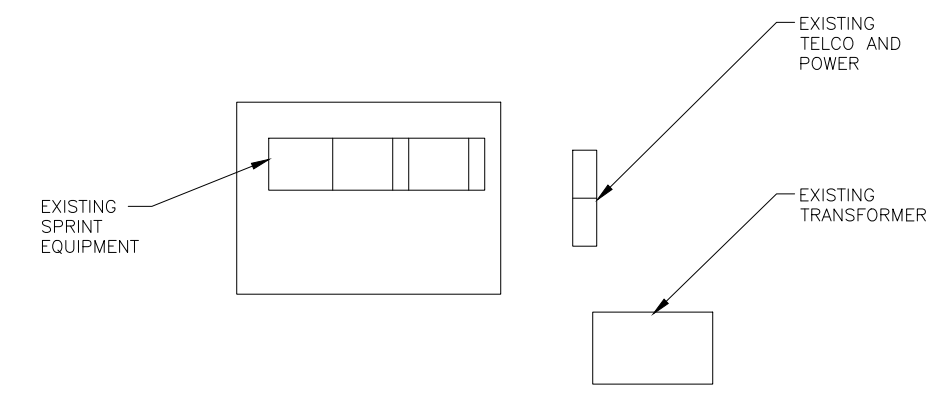
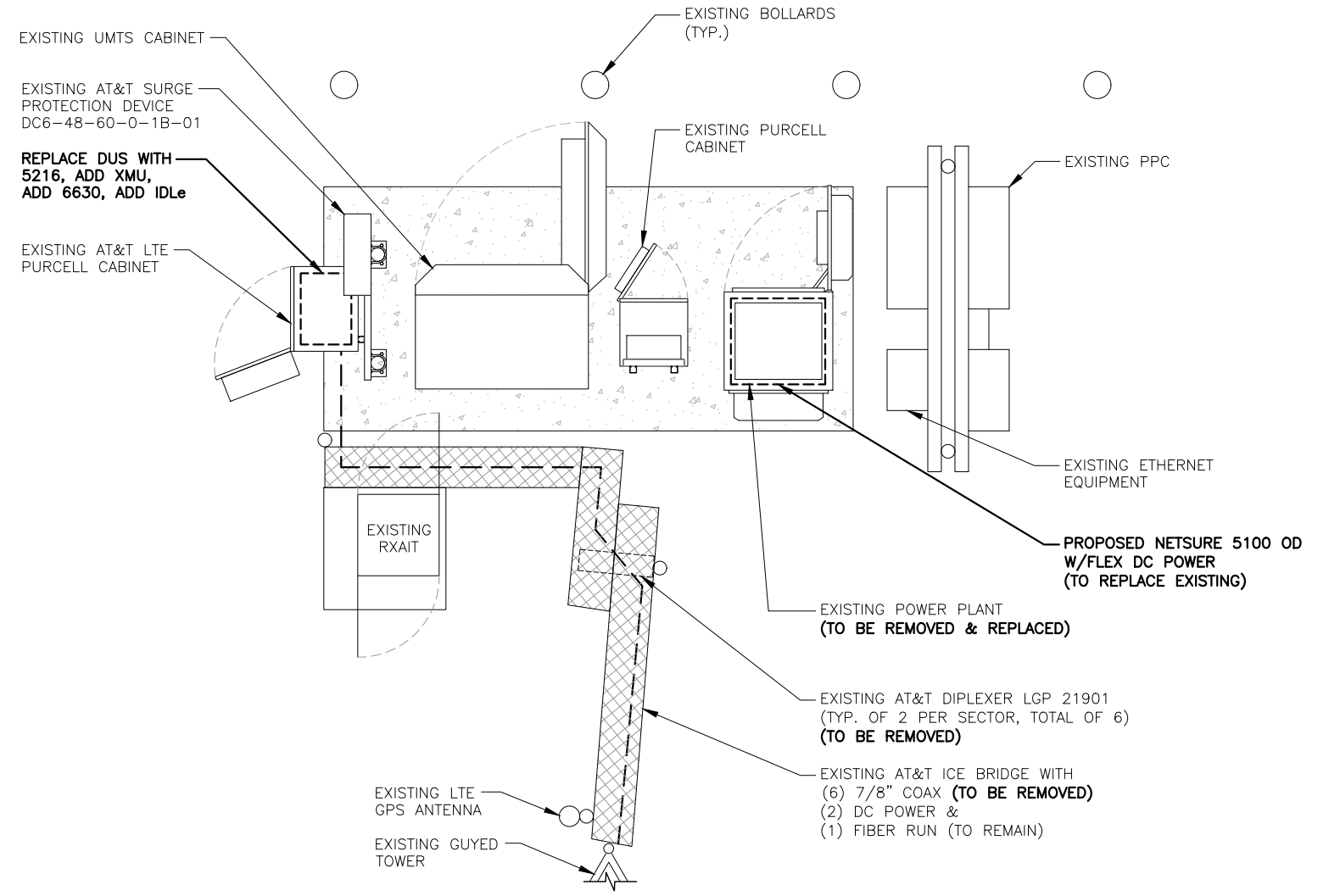
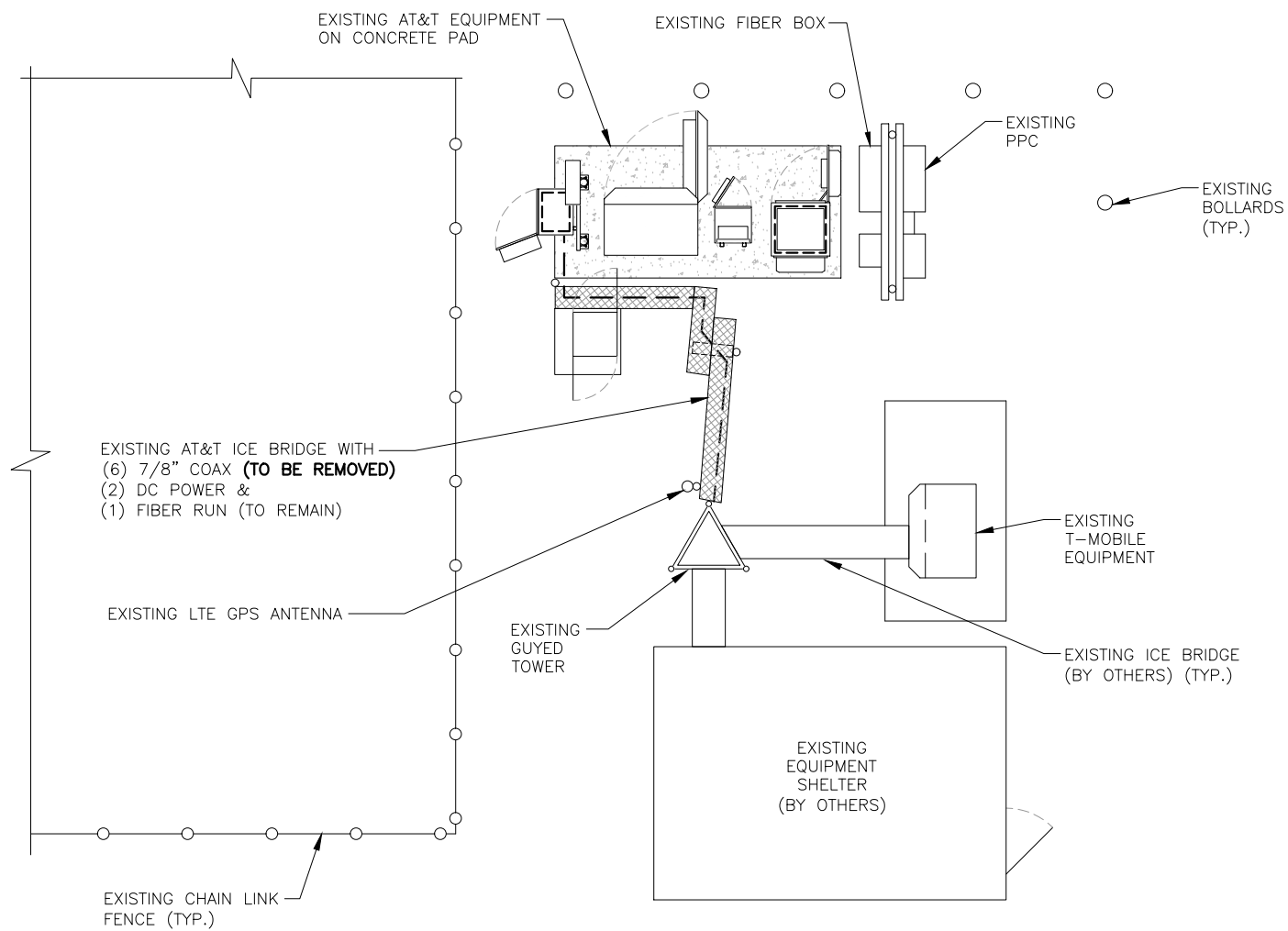
AT&T

GENERAL NOTES
 LTE 2C,3C,4C 2022 UPGRADE

PROJECT NUMBER	DRAWING NUMBER	REV
CTL05206	GN-1	4

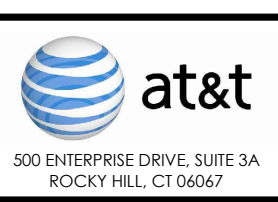
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
REFER TO **STRUCTURAL ANALYSIS** BY: CENTEK ENGINEERING. DATED: FEBRUARY 22, 2023 (Rev.1) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



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135 NEW ROAD
MADISON, CT 06443
NEW HAVEN COUNTY

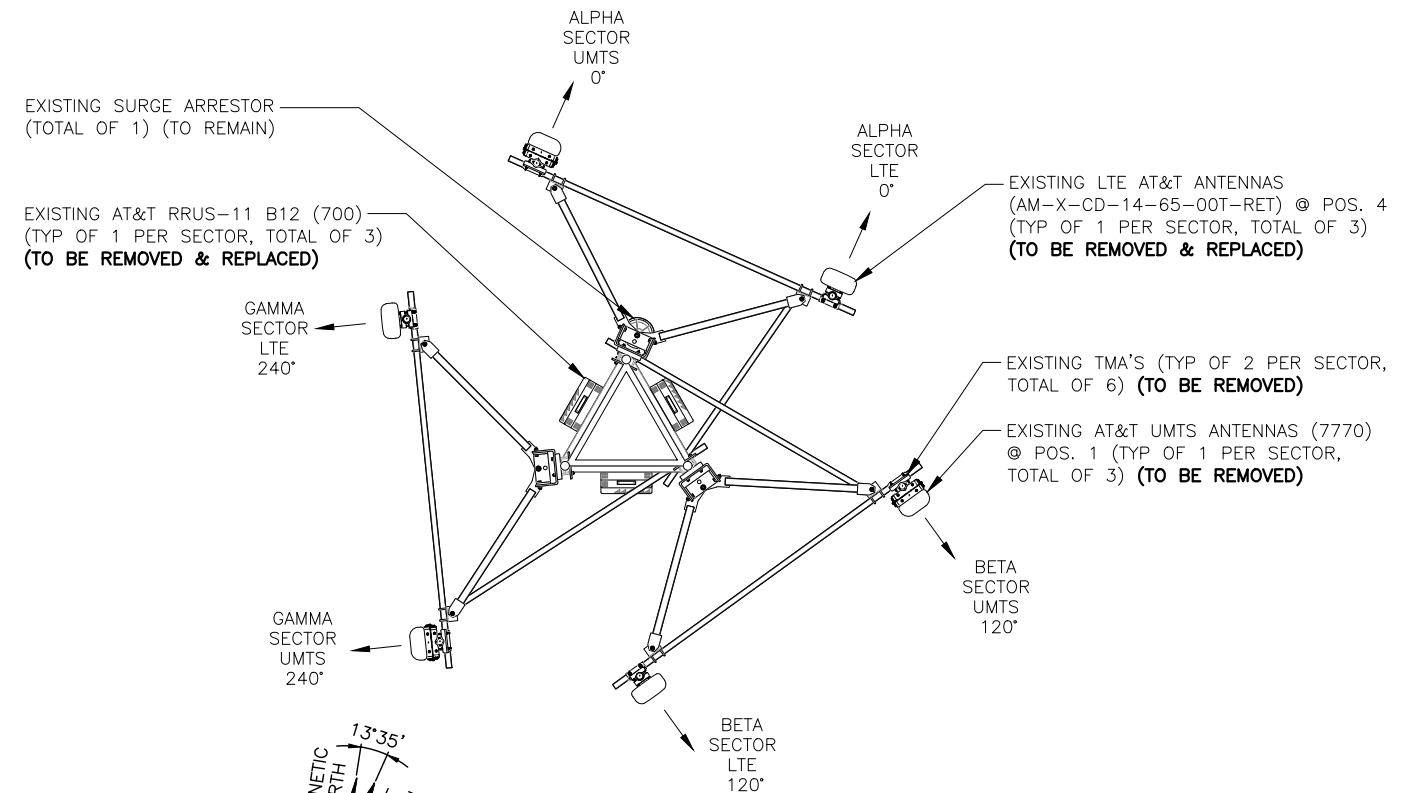


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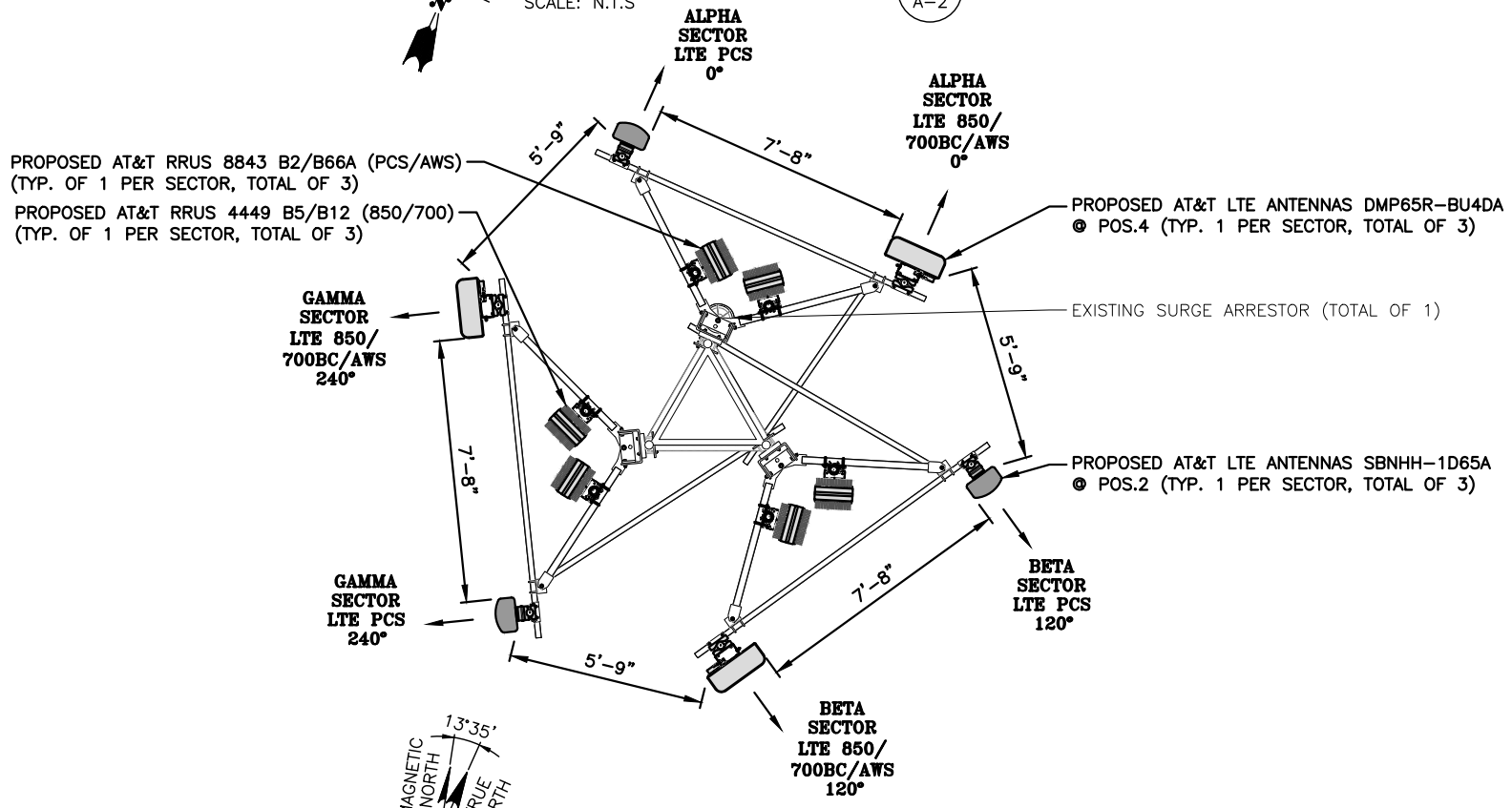
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PROJECT NUMBER	DRAWING NUMBER	REV
CTL05206	A-1	4

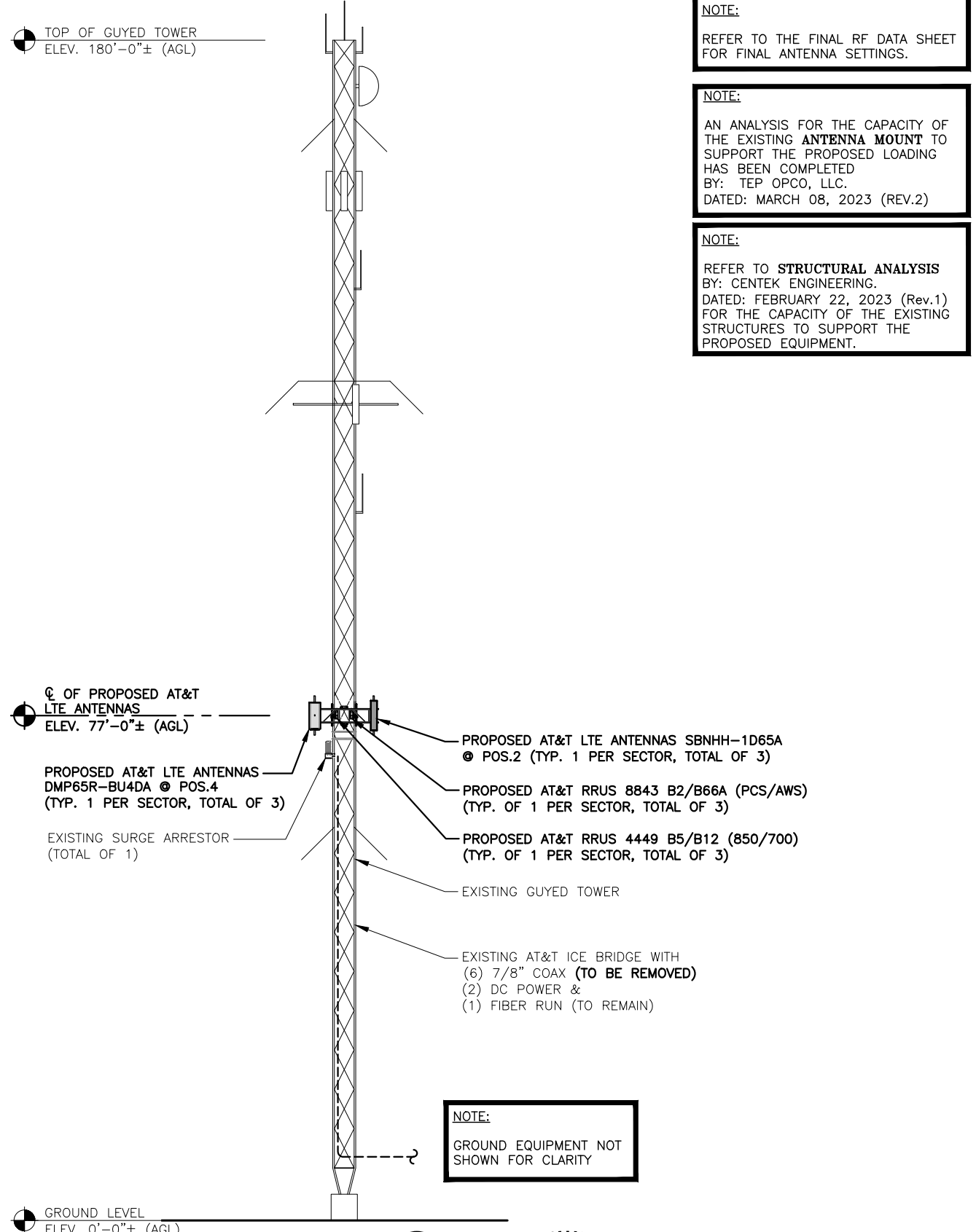
AT&T
COMPOUND & EQUIPMENT PLANS
LTE 2C,3C,4C 2022 UPGRADE



EXISTING ANTENNA LAYOUT
SCALE: N.T.S



PROPOSED ANTENNA LAYOUT
SCALE: N.T.S



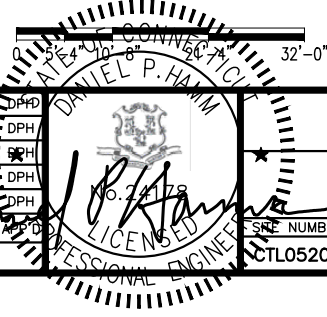
ELEVATION
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

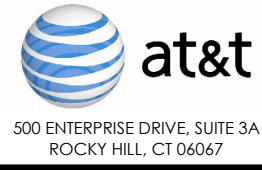
NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: TEP OPCO, LLC. DATED: MARCH 08, 2023 (REV.2)

NOTE:
REFER TO **STRUCTURAL ANALYSIS** BY: CENTEK ENGINEERING. DATED: FEBRUARY 22, 2023 (Rev.1) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY



SITE NUMBER: CTL05206
SITE NAME: MADISON EAST
135 NEW ROAD
MADISON, CT 06443
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AT&T		
ANTENNA LAYOUTS & ELEVATION		
LTE 2C,3C,4C 2022 UPGRADE		
SCALE NUMBER	DRAWING NUMBER	REV
CTL05206	A-2	4

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ϕ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	-	-	-	-	-	-	-	-	-	-	(E) (1) RAYCAP DC6-48-60-18-8F
A2	PROPOSED	LTE PCS	SBNHH-1D65A	55X11.9X7.1	77'-0"±	0°	-	(1)(P) 8843 B2/B66A (PCS/AWS)	14.9X13.2X10.9	(2)(E) DC POWER & (1) FIBER	
A3	-	-	-	-	-	-	-	-	-	(1)(P) Y-CABLE	
A4	PROPOSED	LTE 850/ 700BC/AWS	DMP65R-BU4DA	48X20.7X7.7	77'-0"±	0°	-	(1)(P) 4449 B5/B12 (850/700)	17.9X13.2X10.4	(1)(P) Y-CABLE	
B1	-	-	-	-	-	-	-	-	-	-	I
B2	PROPOSED	LTE PCS	SBNHH-1D65A	55X11.9X7.1	77'-0"±	120°	-	(1)(P) 8843 B2/B66A (PCS/AWS)	14.9X13.2X10.9	-	
B3	-	-	-	-	-	-	-	-	-	(1)(P) Y-CABLE	
B4	PROPOSED	LTE 850/ 700BC/AWS	DMP65R-BU4DA	48X20.7X7.7	77'-0"±	120°	-	(1)(P) 4449 B5/B12 (850/700)	17.9X13.2X10.4	(1)(P) Y-CABLE	
C1	-	-	-	-	-	-	-	-	-	-	I
C2	PROPOSED	LTE PCS	SBNHH-1D65A	55X11.9X7.1	77'-0"±	240°	-	(1)(P) 8843 B2/B66A (PCS/AWS)	14.9X13.2X10.9	-	
C3	-	-	-	-	-	-	-	-	-	(1)(P) Y-CABLE	
C4	PROPOSED	LTE 850/ 700BC/AWS	DMP65R-BU4DA	48X20.7X7.7	77'-0"±	240°	-	(1)(P) 4449 B5/B12 (850/700)	17.9X13.2X10.4	(1)(P) Y-CABLE	

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
3(P)	4449 (850/700)	17.9"x13.2"x10.4"
3(P)	8843 (PCS/AWS)	14.9"x13.2"x10.9"

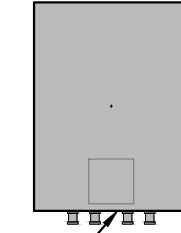
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: TEP OPCO, LLC. DATED: MARCH 08, 2023 (REV.2)

NOTE:
REFER TO **STRUCTURAL ANALYSIS** BY: CENTEK ENGINEERING. DATED: FEBRUARY 22, 2023 (Rev.1) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

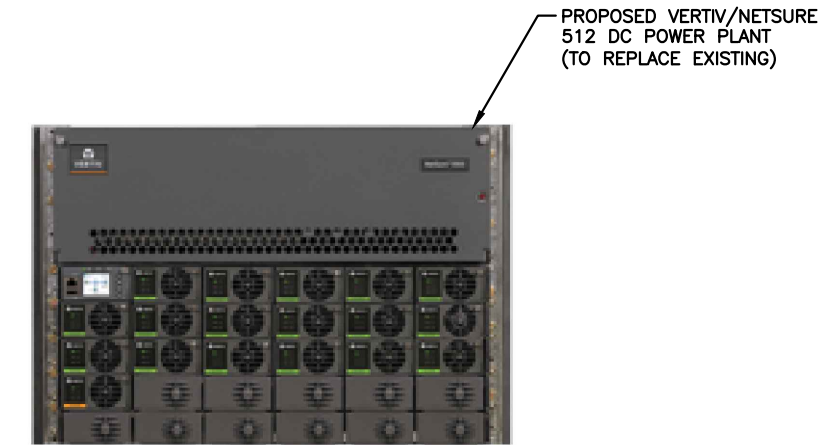
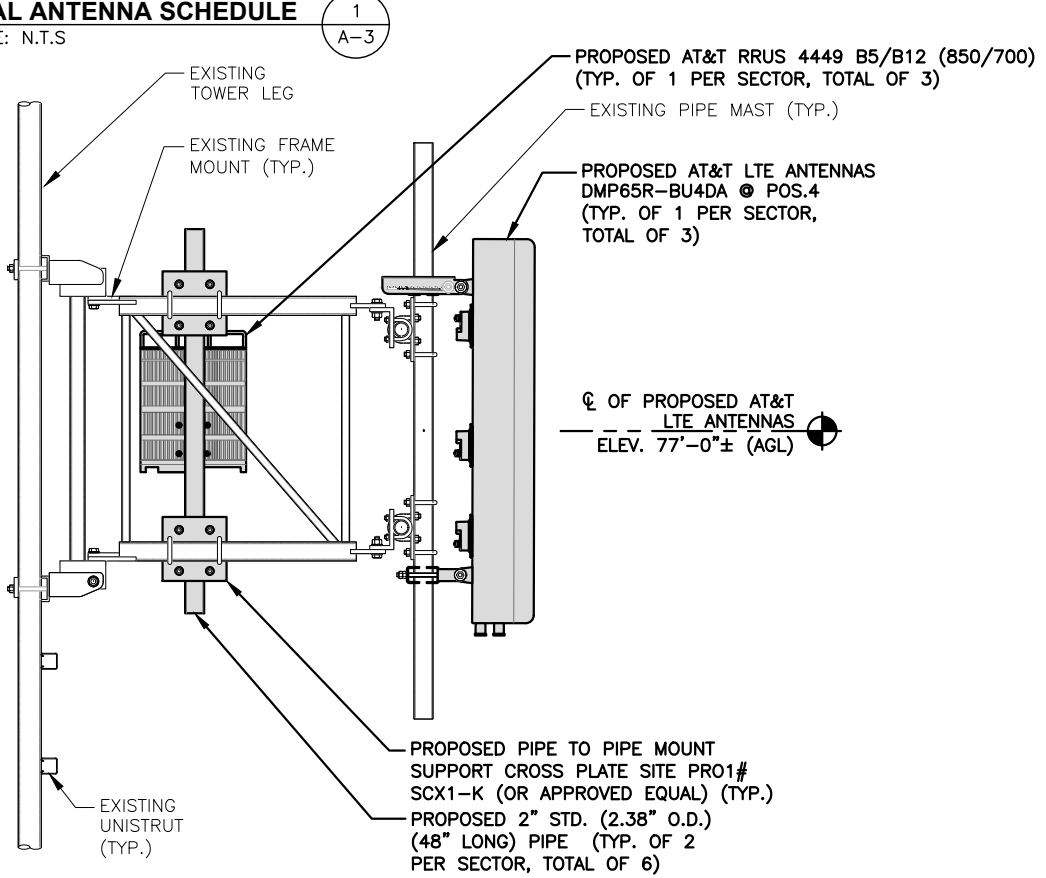
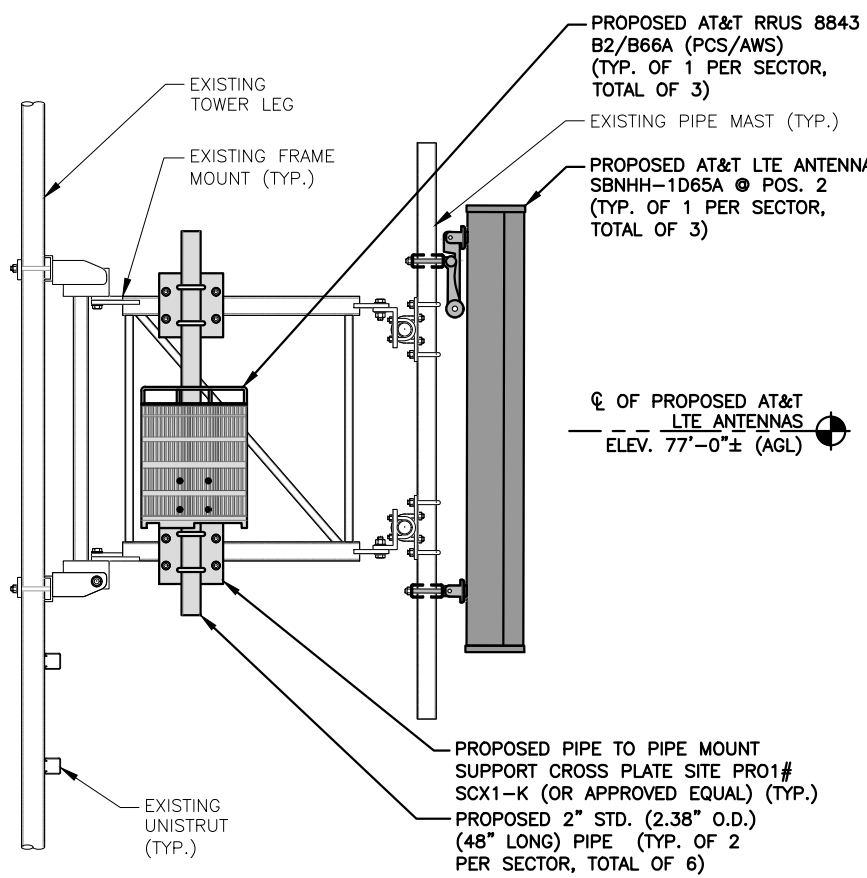
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL 2
SCALE: N.T.S

FINAL ANTENNA SCHEDULE

SCALE: N.T.S

1
A-3



PROPOSED VERTIV/NETSURE 512 DC POWER PLANT (TO REPLACE EXISTING)

PROPOSED LTE ANTENNA MOUNTING DETAIL @ POS. 2

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

3
A-3



PROPOSED LTE ANTENNA MOUNTING DETAIL @ POS. 4

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

4
A-3



PROPOSED NETSURE 5100 OD W/FLEX DC POWER PLANT DETAIL

SCALE: N.T.S



TEP
NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05206
SITE NAME: MADISON EAST
135 NEW ROAD
MADISON, CT 06443
NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
4	02/27/23	ISSUED FOR CONSTRUCTION	GA/YH	HC	DPH
3	09/09/22	ISSUED FOR REVIEW	GA	HC	DPH
2	08/30/22	ISSUED FOR REVIEW	MR	HC	DPH
1	05/26/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	04/26/22	ISSUED FOR REVIEW	GA	HC	DPH

SCALE: AS SHOWN DESIGNED BY: HC DRAWN BY: GA

ESR# NUMBER	DRAWING NUMBER	REV
CTL05206	A-3	4

AT&T
DETAILS
LTE 2C,3C,4C 2022 UPGRADE

STRUCTURAL NOTES:

- DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
- DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
- STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
- STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D.I.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL", 14TH EDITION.
- INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
- UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
- EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
- WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
- ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
- NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
- SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

MASSACHUSETTS AMENDMENTS TO THE IBC

(REFERENCE 780 CMR):

107.6 CONSTRUCTION CONTROL.

107.6.1 GENERAL. THIS SECTION SHALL APPLY TO THE CONSTRUCTION CONTROLS, PROFESSIONAL SERVICES AND CONTRACTOR SERVICES REQUIRED FOR BUILDINGS AND STRUCTURES NEEDING REGISTERED DESIGN PROFESSIONAL SERVICES.

107.6.1.1 SPECIALIZED STRUCTURES. TELECOMMUNICATION TOWERS, WIND TURBINE TOWERS, AND SIMILAR STRUCTURES ARE ENGINEERED STRUCTURES AND SHALL BE SUBJECT TO THE REQUIREMENTS OF SECTION 107.6.

107.6.2.2 CONSTRUCTION. THE REGISTERED DESIGN PROFESSIONALS WHO ARE RESPONSIBLE FOR THE DESIGN, PLANS, CALCULATIONS, AND SPECIFICATIONS, THEIR DESIGNEE OR THE REGISTERED DESIGN PROFESSIONALS WHO HAVE BEEN RETAINED FOR CONSTRUCTION PHASE SERVICES, SHALL PERFORM THE FOLLOWING TASKS:

- REVIEW, FOR CONFORMANCE TO 780 CMR AND THE DESIGN CONCEPT, SHOP DRAWINGS, SAMPLES AND OTHER SUBMITTALS BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS.
- PERFORM THE DUTIES FOR REGISTERED DESIGN PROFESSIONALS IN 780 CMR 17.00 SPECIAL INSPECTIONS AND TESTS.
- BE PRESENT AT INTERVALS APPROPRIATE TO THE STAGE OF CONSTRUCTION TO BECOME GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE WORK AND TO DETERMINE IF THE WORK IS BEING PERFORMED IN A MANNER CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND 780 CMR.

THE PERMIT APPLICATION SHALL NOT BE DEEMED COMPLETED UNTIL ALL OF THE CONSTRUCTION DOCUMENTS REQUIRED BY 780 CMR HAVE BEEN SUBMITTED. DOCUMENTATION INDICATING THAT WORK COMPLIES WITH THE PLANS AND SPECIFICATIONS SHALL BE PROVIDED AT THE COMPLETION OF EACH PHASE WHEN REQUIRED BY THE BUILDING OFFICIAL. UPON COMPLETION OF THE WORK, THE REGISTERED DESIGN PROFESSIONAL SHALL FILE A FINAL DOCUMENT TO THE BUILDING OFFICIAL INDICATING THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE APPROVED PLANS AND 780 CMR. FORMS FOR CONSTRUCTION CONTROL WHEN REQUIRED BY THE BUILDING OFFICIAL SHALL BE THOSE FOUND AT <http://www.mass.gov/ocabr/government/oca-agencies/dpl-ip/ops/>.

107.6.2.3 SPECIAL INSPECTIONS AND TESTS. SPECIAL INSPECTIONS AND TESTS SHALL BE PROVIDED IN ACCORDANCE WITH 780 CMR 17.00 SPECIAL INSPECTIONS AND TESTS.

170.6.2.4 NON STRUCTURAL SYSTEM TEST AND INSPECTION. TESTS AND INSPECTIONS OF NON-STRUCTURAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE ENGINEERING PRACTICE STANDARDS, REFERENCED STANDARDS LISTED IN 780 CMR 35.00: REFERENCED STANDARDS, OR AS OTHERWISE SPECIFIED IN 780 CMR.

107.6.3 CONSTRUCTION CONTRACTOR SERVICES. THE ACTUAL CONSTRUCTION OF THE WORK SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AS IDENTIFIED ON THE APPROVED PERMIT AND SHALL INVOLVE THE FOLLOWING:

- EXECUTION OF ALL WORK IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.
- EXECUTION AND CONTROL OF ALL METHODS OF CONSTRUCTION IN A SAFE AND SATISFACTORY MANNER IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL STATUTES AND REGULATIONS.
- UPON COMPLETION OF THE CONSTRUCTION, CERTIFICATION IN WRITING TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE THAT, TO THE BEST OF THE CONTRACTOR'S KNOWLEDGE AND BELIEF, CONSTRUCTION HAS BEEN DONE IN SUBSTANTIAL ACCORD WITH SECTION 107.6 AND WITH ALL PERTINENT DEVIATIONS SPECIFICALLY NOTED. THE BUILDING OFFICIAL MAY REQUIRE A COPY OF THIS CERTIFICATION.

107.6.4 PROJECT REPRESENTATION. A PROJECT REPRESENTATIVE MAY BE REQUIRED BY THE BUILDING OFFICIAL. THIS REPRESENTATIVE SHALL KEEP DAILY RECORDS AND SUBMIT REPORTS AS MAY BE REQUIRED BY THE BUILDING OFFICIAL. THIS PROJECT REPRESENTATION REQUIREMENT SHALL BE DETERMINED PRIOR TO THE ISSUANCE OF THE PERMIT AND MAY BE A PREREQUISITE FOR PERMIT ISSUANCE. REFUSAL BY THE APPLICANT TO PROVIDE SUCH SERVICE IF REQUIRED BY THE BUILDING OFFICIAL SHALL RESULT IN THE DENIAL OF THE PERMIT. ALL FEES AND COSTS RELATED TO THE PERFORMANCE OF PROJECT REPRESENTATION SHALL BE BORNE BY THE OWNER. WHEN APPLICATIONS FOR UNUSUAL DESIGNS OR MAGNITUDE OF CONSTRUCTION ARE FILED, OR WHERE REFERENCE STANDARDS REQUIRE SPECIAL ARCHITECTURAL OR ENGINEERING INSPECTIONS, THE BUILDING OFFICIAL MAY REQUIRE THAT THE PROJECT REPRESENTATIVE BE A REGISTERED DESIGN PROFESSIONAL IN ADDITION TO THOSE REGISTERED DESIGN PROFESSIONALS REQUIRED ELSEWHERE IN ACCORDANCE WITH SECTION 107.6.

107.6.5 BUILDING OFFICIAL RESPONSIBILITY. NOTHING CONTAINED IN SECTION 107.6 SHALL HAVE THE EFFECT OF WAIVING OR LIMITING THE BUILDING OFFICIAL'S AUTHORITY TO ENFORCE 780 CMR WITH RESPECT TO EXAMINATION OF THE CONTRACT DOCUMENTS, INCLUDING PLANS, COMPUTATIONS AND SPECIFICATIONS, AND FIELD INSPECTIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

REQUIRED INSPECTIONS AND SITE REVIEW DOCUMENT AS A CONDITION OF THE BUILDING PERMIT THE FOLLOWING INSPECTIONS AND SITE REVIEWS IDENTIFIED BY THE BUILDING OFFICIAL ARE REQUIRED FOR WORK PER THE 9TH EDITION OF THE MASSACHUSETTS STATE BUILDING CODE, 780 CMR, SECTION 110 AND CHAPTER 17

REQUIRED SITE REVIEW AND DOCUMENTATION FOR PORTIONS OR PHASES CONSTRUCTION 1,6,7
(TO BE PERFORMED BY THE APPROPRIATE REGISTERED DESIGN PROFESSIONAL OR HIS/HER DESIGNEE OR M.G.L.C 112 §81R CONTRACTOR)

SITE REVIEW AND DOCUMENTATION	X	SITE REVIEW AND DOCUMENTATION	X
SOIL CONDITION/ANALYSIS/REPORT		ENERGY EFFICIENCY REQUIREMENTS	
FOOTING AND FOUNDATION (INCLUDING REINFORCEMENT AND FOUNDATION ATTACHMENT)		FIRE ALARM INSTALLATION ²	
CONCRETE FLOOR AND UNDER FLOOR		FIRE SUPPRESSION INSTALLATION ³	
LOWEST FLOOR FLOOD ELEVATION		FIELD REPORTS ⁵	
STRUCTURAL FRAME - WALL/FLOOR/ROOF	X	CARBON MONOXIDE DETECTION SYSTEM ⁴	
LATH AND PLASTER/GYPSUM		SEISMIC REINFORCEMENT	
FIRE RESISTANT WALL/PARTITIONS FRAMING		SMOKE CONTROL SYSTEMS	
FIRE RESISTANT WALL/PARTITIONS FINISH ATTACHMENTS		SMOKE AND HEAT VENTS	
ABOVE CEILING INSPECTION		ACCESSIBILITY (521 CMR)	
FIRE BLOCKING/STOPPING SYSTEM		OTHER:	
EMERGENCY LIGHTING/EXIT SIGNAGE			
MEANS OF EGRESS COMPONENTS		SPECIAL INSPECTIONS (SECTION 1704):	X
ROOFING, COPING/SYSTEM			
VENTING SYSTEMS (KITCHEN, CHEMICAL, FUME)			
MECHANICAL SYSTEMS			

NOTES:

- ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4" A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
- VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
- CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
- EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

NOTES:

- REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
- PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
- PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
- HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
- ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
- AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

SPECIAL INSPECTION CHECKLIST

BEFORE CONSTRUCTION

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	ENGINEER OF RECORD APPROVED SHOP DRAWINGS ¹
REQUIRED	MATERIAL SPECIFICATIONS REPORT ²
N/A	FABRICATOR NDE INSPECTION
REQUIRED	PACKING SLIPS ³

ADDITIONAL TESTING AND INSPECTIONS:

DURING CONSTRUCTION

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS ⁴
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION ⁵
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT

ADDITIONAL TESTING AND INSPECTIONS:

AFTER CONSTRUCTION

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS ⁶
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS

ADDITIONAL TESTING AND INSPECTIONS:

- IT IS THE RESPONSIBILITY OF THE PERMIT APPLICANT TO NOTIFY THE BUILDING OFFICIAL OF REQUIRED INSPECTIONS (X). INSPECTION OF 780 CMR FIRE PROTECTION SYSTEMS MAY BE WITNESSED BY THE FIRE OFFICIAL AND INSTALLATION PERMITS ARE REQUIRED FROM THE FIRE DEPARTMENT PER 527 CMR.
- INCLUDE NFPA 72 TEST AND ACCEPTANCE DOCUMENTATION
- INCLUDE APPLICABLE NFPA 13, 13R, 13D, 14, 15, 17, 20, 241, ETC. - TEST AND ACCEPTANCE DOCUMENTATION
- INCLUDE NFPA 720 RECORD OF COMPLETION AND INSPECTION AND TEST FORM
- INCLUDE FIELD REPORTS AND RELATED DOCUMENTATION
- WORK SHALL NOT PROCEED, OR BE CONCEALED, UNTIL THE REQUIRED INSPECTION HAS BEEN APPROVED BY THE BUILDING OFFICIAL, AND NOTHING WITHIN CONSTRUCTION CONTROL SHALL HAVE THE EFFECT OF WAIVING OR LIMITING THE BUILDING OFFICIAL'S AUTHORITY TO ENFORCE THIS CODE WITH RESPECT TO EXAMINATION OF THE CONTRACT DOCUMENTS, INCLUDING PLANS, COMPUTATIONS AND SPECIFICATIONS, AND FIELD INSPECTIONS.
- ROUGH AND/OR FINISH INSPECTIONS OF ELECTRICAL, PLUMBING, OR SHEET METAL SHALL BE INSPECTED PRIOR TO ROUGH AND FINISH INSPECTIONS BY THE BUILDING OFFICIAL.

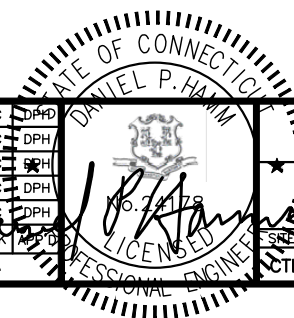


SITE NUMBER: CTL05206
SITE NAME: MADISON EAST

135 NEW ROAD
MADISON, CT 06443
NEW HAVEN COUNTY



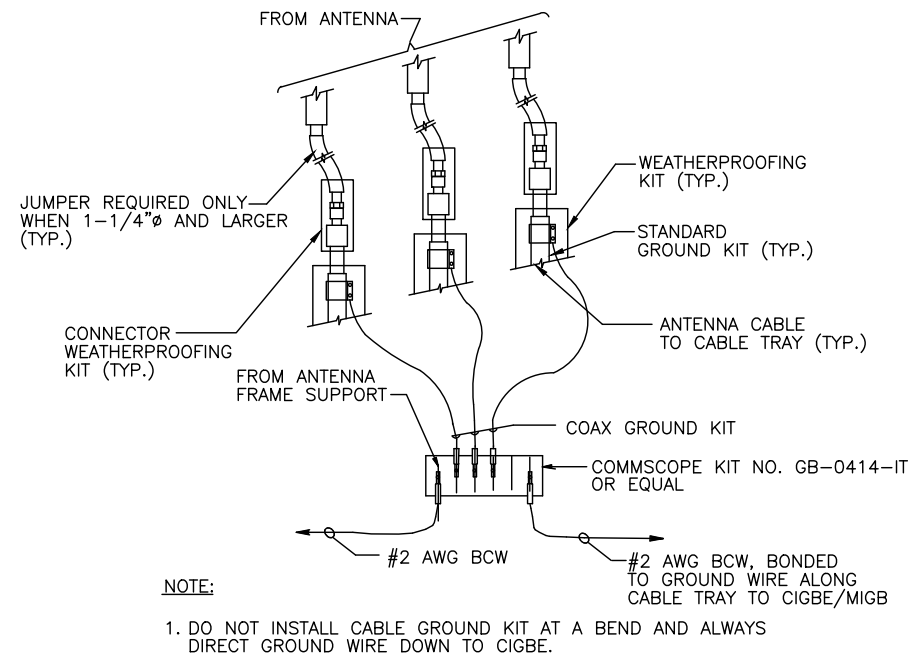
4	02/27/23	ISSUED FOR CONSTRUCTION	GA/YH	HC	DPH
3	09/09/22	ISSUED FOR REVIEW	GA	HC	DPH
2	08/30/22	ISSUED FOR REVIEW	MF	HC	DPH
1	05/26/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	04/26/22	ISSUED FOR REVIEW	GA	HC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN			DESIGNED BY: HC	DRAWN BY: GA	



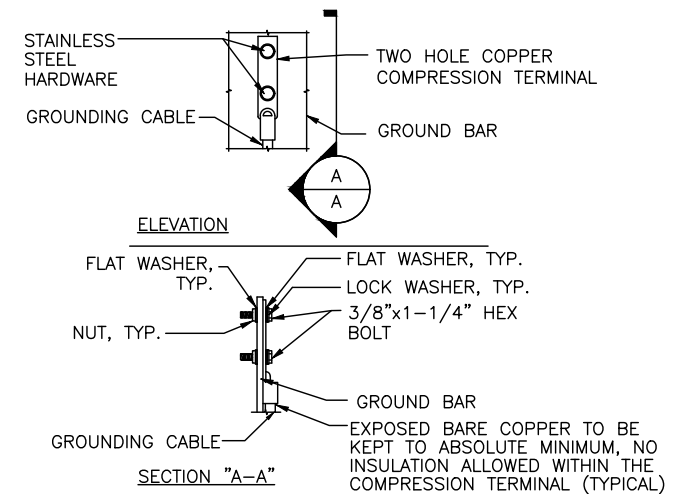
AT&T

STRUCTURAL NOTES
LTE 2C,3C,4C 2022 UPGRADE

SHEET NUMBER	DRAWING NUMBER	REV
CTL05206	SN-1	4

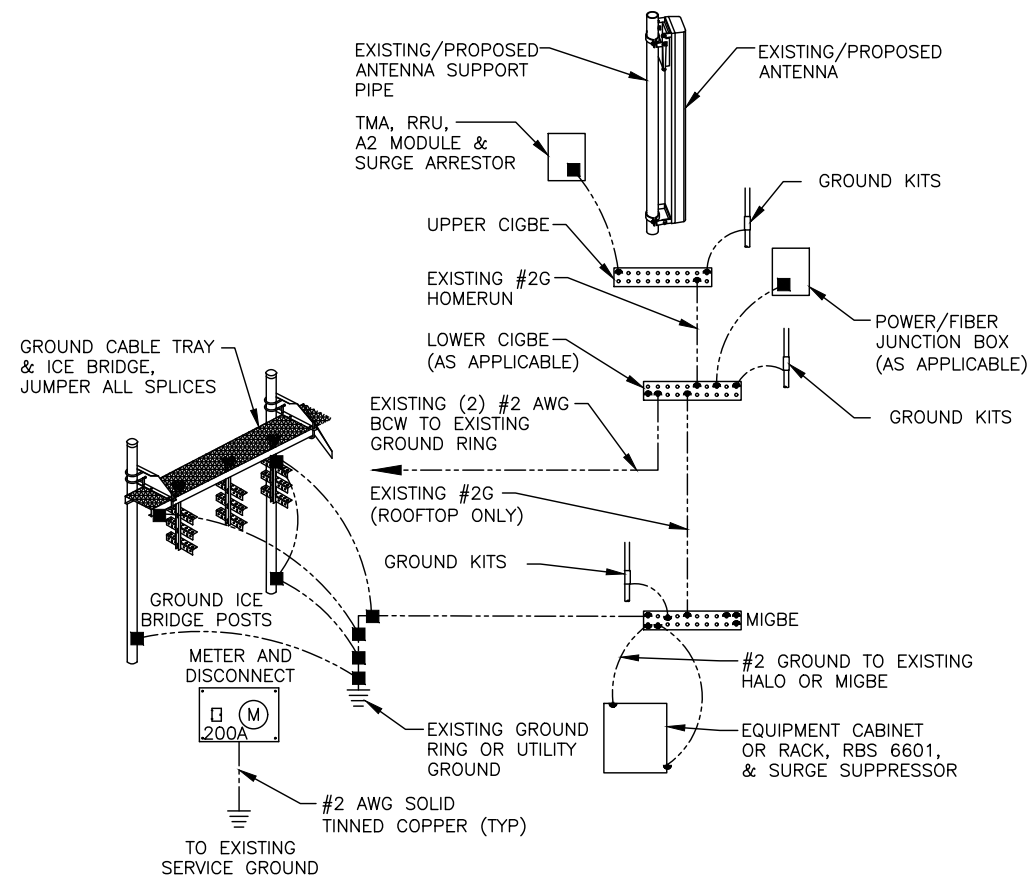


GROUND WIRE TO GROUND BAR CONNECTION DETAIL 1
SCALE: N.T.S. G-1



- NOTES:
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 - OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
 - CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL 3
SCALE: N.T.S. G-1



GROUNDING RISER DIAGRAM 2
SCALE: N.T.S. G-1

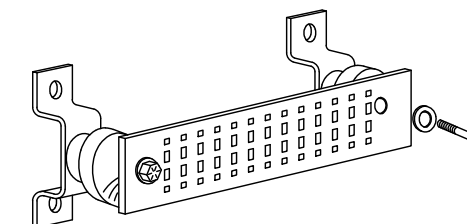
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

- CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
- +24V POWER SUPPLY RETURN BAR (#2 AWG)
- 48V POWER SUPPLY RETURN BAR (#2 AWG)
- RECTIFIER FRAMES.

SECTION "A" - SURGE ABSORBERS

- INTERIOR GROUND RING (#2 AWG)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
- BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUND BAR - DETAIL (AS REQUIRED)
SCALE: N.T.S.



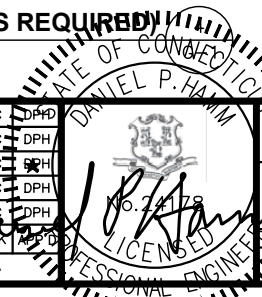
SITE NUMBER: CTL05206
SITE NAME: MADISON EAST

135 NEW ROAD
MADISON, CT 06443
NEW HAVEN COUNTY



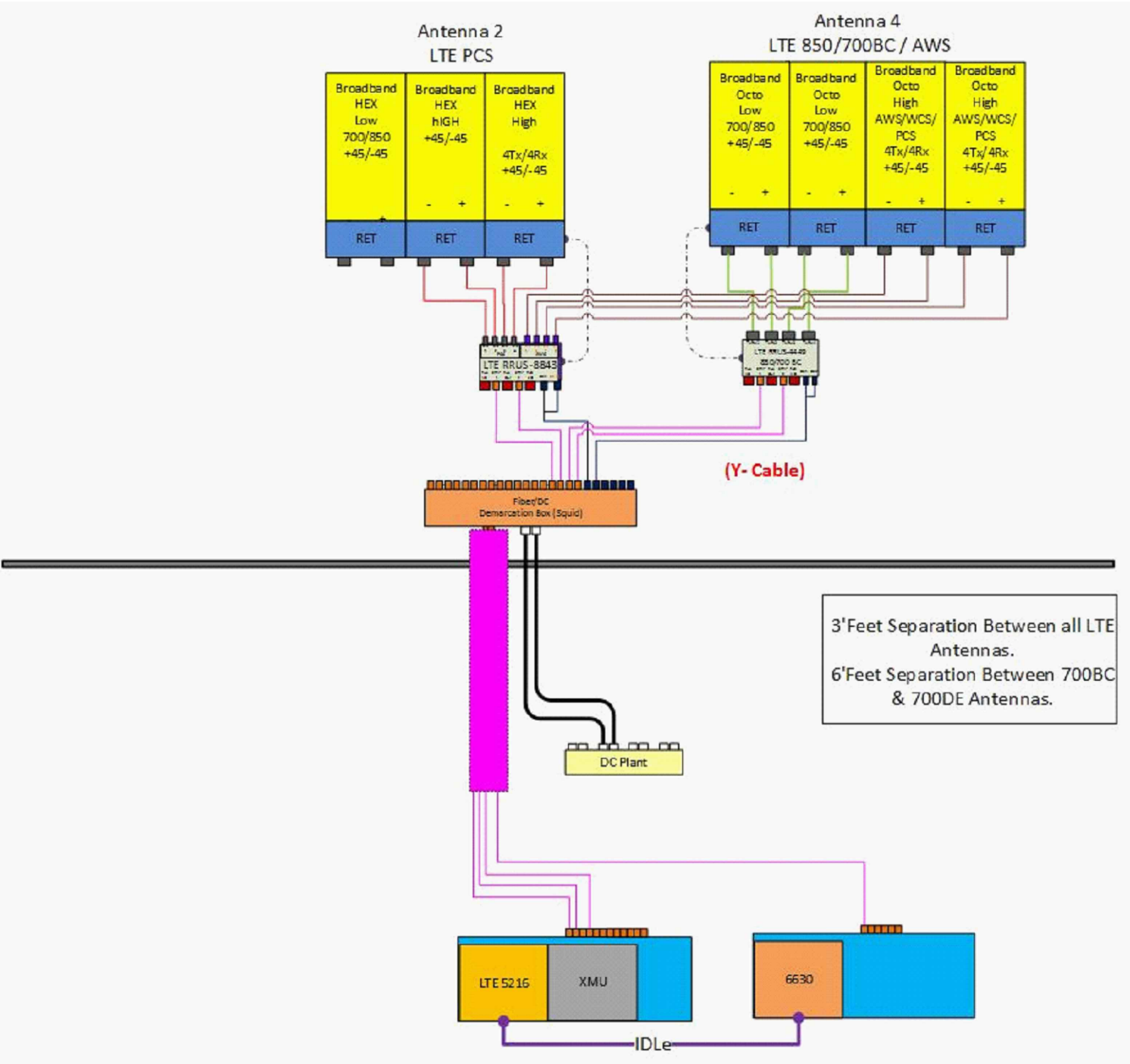
NO.	DATE	REVISIONS	BY	CHK	APP'D
4	02/27/23	ISSUED FOR CONSTRUCTION	GA	YH	HC DPH
3	09/09/22	ISSUED FOR REVIEW	GA	HC	DPH
2	08/30/22	ISSUED FOR REVIEW	MF	HC	DPH
1	05/26/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	04/26/22	ISSUED FOR REVIEW	GA	HC	DPH

SCALE: AS SHOWN DESIGNED BY: HC DRAWN BY: GA



AT&T		
GROUNDING DETAILS		
LTE 2C,3C,4C 2022 UPGRADE		
FILE NUMBER	DRAWING NUMBER	REV
CTL05206	G-1	4

NOTE:
 REV: 2
 DATED: 02/03/2022
 RFDS ID: 2457781



RF PLUMBING DIAGRAM 1
 SCALE: N.T.S RF-1

NOTE:
 1. CONTRACTOR TO CONFIRM ALL PARTS.
 2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:
 REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



SITE NUMBER: CTL05206
SITE NAME: MADISON EAST
 135 NEW ROAD
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4	02/27/23	ISSUED FOR CONSTRUCTION	GA/YH	HC	DPH
3	09/09/22	ISSUED FOR REVIEW	GA	HC	DPH
2	08/30/22	ISSUED FOR REVIEW	MR	HC	DPH
1	05/26/22	ISSUED FOR CONSTRUCTION	JC	HC	DPH
A	04/26/22	ISSUED FOR REVIEW	GA	HC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: GA		

AT&T		
RF PLUMBING DIAGRAM LTE 2C,3C,4C 2022 UPGRADE		
SITE NUMBER	DRAWING NUMBER	REV
CTL05206	RF-1	4