



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

October 17, 2018

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

Notice of Exempt Modification
15 North Granby Road, Granby, CT 06035
41 57 12.9 N
-72 47 37.4 W
T-Mobile #: CT11281B_L600

Dear Ms. Bachman:

T-Mobile currently maintains three (3) antennas at the 115-foot level of the existing 150-foot Monopole Tower at 15 North Granby Road in Granby, CT. The tower is owned by SBA 2012 TC Assets, LLC. The property is owned by the Town of Granby. T-Mobile plans to replace (3) existing antennas with (12) newer technology antennas. The full scope of proposed work is as follows:

Remove:

- (6) 1-5/8" lines

Remove and Replace:

- Remove: (3) EMS - RR65-18-02DP – Panel Antennas
 - Replace with: (4) Ericsson - AIR32 KRD901146-1_B66A_B2A - Panel Antennas
- Remove: (3) UNK-TMAs
 - Replace with (4) Ericsson - KRY 112 489/2 – TMAs
- Remove: (1) Flush mount
 - Replace with: (1) platform with Site Pro F4P-12W w/ F4P-HRK12 Handrail Kit
At ground level – no change to existing compound size or area
 - Remove: 6201 cabinet
 - Replace with RBS 6102 cabinet

Install:

- (4) RFS - APXVAARR24_43-U-NA20 (Octa) – Panel Antennas
- (4) RFS - APX16DWV-16DWVS-E-A20 – Panel Antennas
- (4) Ericsson - Radio 4449 B71 + B12 – RRUs
- (1) BBU Cabinet
- (14) 1-1/4" lines
- (4) 1-1/4" hybrid

Existing Equipment to Remain (including entitlements): N/A



This facility was approved prior to the Council's jurisdiction. On December 15, 1997, the Town of Granby's Board of Selectmen voted unanimously to authorize negotiations for the tower. On April 28, 1998, the Town's Planning & Zoning Commission approved Nextel's tower build. Building Permit 20680 was issued January 18, 2000 for the tower's construction. We have reached out to the Town for any additional documents outlining original approval conditions. No files have been found and no stipulations are known. As such, this modification complies with all known conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of Granby's First Selectman, B. Scott Kuhnly, as town official and representative for the Town as property owner, as well as to the Town of Granby's Zoning Enforcement Officer, William Volovski. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Kri Pelletier
Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3804 + T
508.366.2610 + F
203.446.7700 + C
kpelletier@sbsite.com

Attachments

cc: B. Scott Kuhnly, First Selectman / with attachments
Town of Granby, Granby Town Hall, 15 North Granby Road, Granby, CT 06035
William Volovski, Zoning Enforcement Officer / with attachments
Town of Granby, Granby Town Hall, 15 North Granby Road, Granby, CT 06035



POWER DENSITY

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C	Sector:	D
Antenna #:	1	Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	200	Total TX Power(W):	200	Total TX Power(W):	200	Total TX Power(W):	200
ERP (W):	7,780.90	ERP (W):	7,780.90	ERP (W):	7,780.90	ERP (W):	7,780.90
Antenna A1 MPE%	2.35	Antenna B1 MPE%	2.35	Antenna C1 MPE%	2.35	Antenna D1 MPE%	2.35
Antenna #:	2	Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	1	Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	15	Total TX Power(W):	15	Total TX Power(W):	15	Total TX Power(W):	15
ERP (W):	639.87	ERP (W):	639.87	ERP (W):	639.87	ERP (W):	639.87
Antenna A2 MPE%	0.20	Antenna B2 MPE%	0.20	Antenna C2 MPE%	0.20	Antenna D2 MPE%	0.20
Antenna #:	3	Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	12.95 / 13.35dBd	Gain:	12.95 / 13.35dBd	Gain:	12.95 / 13.35dBd	Gain:	12.95 / 13.35dBd
Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet
Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz
Channel Count	4	Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,443.03	ERP (W):	2,443.03	ERP (W):	2,443.03	ERP (W):	2,443.03
Antenna A3 MPE%	1.75	Antenna B3 MPE%	1.75	Antenna C3 MPE%	1.75	Antenna D3 MPE%	1.75



Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	4.30 %
AT&T	4.01 %
MetroPCS	0.77 %
Sprint	0.71 %
Nextel	0.28 %
Town 1	1.09 %
Town 2	3.79 %
Site Total MPE %:	14.95 %

T-Mobile Sector A Total:	4.30 %
T-Mobile Sector B Total:	4.30 %
T-Mobile Sector C Total:	4.30 %
T-Mobile Sector D Total:	4.30 %
Site Total:	
	14.95 %

T-Mobile Maximum MPE Power Values (Per Sector)

T-Mobile_Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile PCS - 1900 MHz LTE	2	1,556.18	115	9.42	PCS - 1900 MHz	1000.00	0.94%
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	115	14.13	AWS - 2100 MHz	1000.00	1.41%
T-Mobile PCS - 1900 MHz GSM	1	639.87	115	1.95	PCS - 1900 MHz	1000.00	0.20%
T-Mobile 600 MHz LTE	2	788.97	115	4.77	600 MHz	400.00	1.19%
T-Mobile 700 MHz LTE	2	432.54	115	2.62	700 MHz	467.00	0.56%
Total:							4.30%

ORIGIN ID:BBFA (508) 251-0720
KRIPELL ETTER
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 17OCT18
ACTWGT: 1.00 LB
CAD: 105843304INET4040

BILL SENDER

TO B SCOTT KUHNLY - FIRST SELECTMAN
TOWN OF GRANBY
15 NORTH GRANBY RD

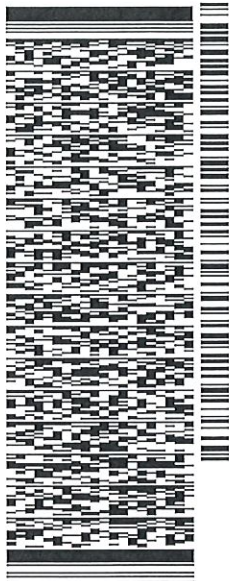
GRANBY CT 06035

(508) 251-0720 X.3804

REF: 10-56-92009-6089

PO:

DEPT:



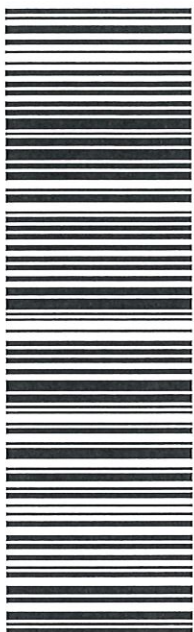
J182110081501uv

TRK# 7734 9625 0300
#0201

THU - 18 OCT 10:30A
PRIORITY OVERNIGHT

EB EHTA

06035
CT-US BDL



552J1.88FB/DCA5

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

ORIGIN ID:BBFA (508) 251-0720
KRIPELLETTER
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 123
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 17OCT18
ACTWGT: 1.00 LB
CAD: 105843304/NET4040
BILL SENDER

TO WILLIAM VOLOVSKI - ZONING ENF OFC
TOWN OF GRANBY - GRANBY TOWN HALL
15 GRANBY RD

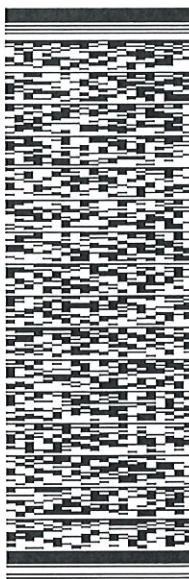
GRANBY CT 06035

(508) 251-0720 X 3804

REF: 10-56-92009-5089

PO:

DEPT:



J182118081501uv

TRK# 0201 7734 9627 9435

THU - 18 OCT 10:30A
PRIORITY OVERNIGHT

EB EHTA

06035
BDL
CT-US



552J1/88FB/DCA5

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15 NORTH GRANBY RD

Location 15 NORTH GRANBY RD

Mblu G-42/ 68/ 8/ /

Acct# 10400015

Owner GRANBY TOWN OF

Assessment \$2,865,380

Appraisal \$4,093,400

PID 3604

Building Count 5

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$3,565,300	\$528,100	\$4,093,400

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$2,495,710	\$369,670	\$2,865,380

Owner of Record

Owner GRANBY TOWN OF

Sale Price \$0

Co-Owner

Certificate

Address 15 NORTH GRANBY ROAD
GRANBY, CT 06035

Book & Page 226/0147

Sale Date 09/21/1998

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
GRANBY TOWN OF	\$0		226/0147	09/21/1998
GRANBY TOWN OF	\$0		226/0146	09/21/1998
GRANBY TOWN OF	\$0		208/0293	05/08/1996
GRANBY TOWN OF	\$0		140/0511	02/03/1987
GRANBY TOWN OF	\$0		116/0880	02/17/1983

Building Information

Building 1 : Section 1

Year Built: 1964
Living Area: 10,354
Replacement Cost: \$962,813
Building Percent 72
Good:
Replacement Cost
Less Depreciation: \$693,200

Building Photo

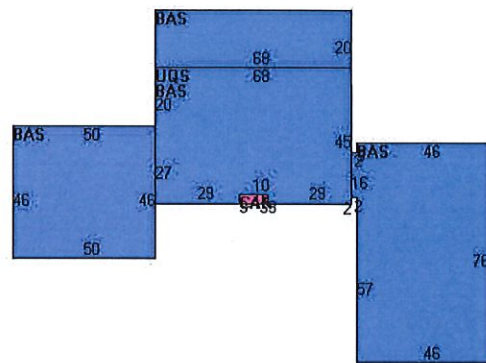
Building Attributes

Field	Description
STYLE	City/Town Hall
MODEL	Commercial
Grade	Good
Stories:	1.75
Occupancy	1
Exterior Wall 1	Brick Veneer
Exterior Wall 2	
Roof Structure	Gambrel
Roof Cover	Asphalt
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Bldg Use	MUNICIPAL M94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	9030
Heat/AC	HEAT/AC PKGS
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	AVERAGE
Wall Height	8
% Comn Wall	0



(http://images.vgsi.com/photos2/GranbyCTPhotos/\00\01\26\68.jpg)

Building Layout



(http://images.vgsi.com/photos2/GranbyCTPhotos//Sketches/)

Building Sub-Areas (sq ft)			Legend	
Code	Description	Gross Area	Living Area	
BAS	First Floor	10,354	10,354	
CAN	Canopy	30	0	
UQS	3/4 story, Unfinished	3,166	0	
		13,550	10,354	

Building 2 : Section 1

Year Built: 1981
Living Area: 10,426
Replacement Cost: \$1,133,544
Building Percent Good: 71
Replacement Cost Less Depreciation: \$804,800

Building Attributes : Bldg 2 of 5	
Field	Description
STYLE	Library
MODEL	Commercial
Grade	Good
Stories:	1

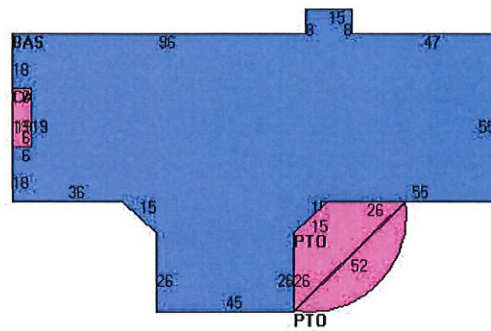
Building Photo

Occupancy	1
Exterior Wall 1	Brick Veneer
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Bldg Use	MUNICIPAL M94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	9030
Heat/AC	HEAT/AC PKGS
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	AVERAGE
Wall Height	10
% Comn Wall	0



(http://images.vgsi.com/photos2/GranbyCTPhotos//\00\01\26\69.jpg)

Building Layout



(http://images.vgsi.com/photos2/GranbyCTPhotos//Sketches/)

Building Sub-Areas (sq ft)		Legend	
Code	Description	Gross Area	Living Area
BAS	First Floor	10,426	10,426
CAN	Canopy	114	0
PTO	PATIO	1,088	0
		11,628	10,426

Building 3 : Section 1

Year Built: 1999
Living Area: 8,913
Replacement Cost: \$972,496
Building Percent Good: 84
Replacement Cost Less Depreciation: \$816,900

Building Attributes : Bldg 3 of 5	
Field	Description
STYLE	Other Municip
MODEL	Commercial
Grade	Excellent
Stories:	1

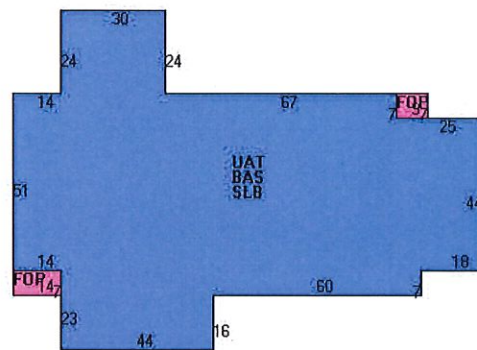
Building Photo

Occupancy	1
Exterior Wall 1	Brick Veneer
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	Vinyl/Asphalt
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Heat Pump
Bldg Use	MUNICIPAL M96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	903I
Heat/AC	HEAT/AC PKGS
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	AVERAGE
Wall Height	8
% Comn Wall	0



(http://images.vgsi.com/photos2/GranbyCTPhotos//\00\01\26\70.jpg)

Building Layout



(http://images.vgsi.com/photos2/GranbyCTPhotos//Sketches/:

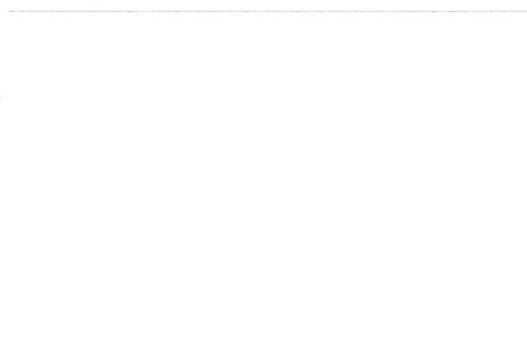
Building Sub-Areas (sq ft)			Legend	
Code	Description	Gross Area	Living Area	
BAS	First Floor	8,913	8,913	
FOP	Porch, Open	161	0	
SLB	Slab	0	0	
UAT	Attic, Unfinished	8,913	0	
		17,987	8,913	

Building 4 : Section 1

Year Built: 2000
Living Area: 6,416
Replacement Cost: \$457,063
Building Percent Good: 83
Replacement Cost Less Depreciation: \$379,400

Building Attributes : Bldg 4 of 5	
Field	Description
STYLE	Office Bldg
MODEL	Commercial
Grade	Good

Building Photo

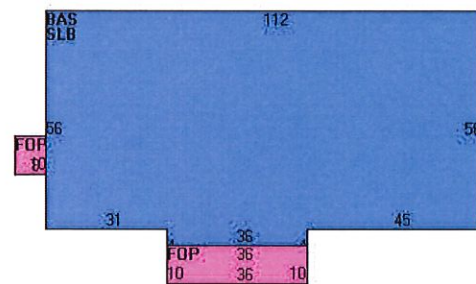


Stories:	1
Occupancy	
Exterior Wall 1	Brick Veneer
Exterior Wall 2	Vinyl Siding
Roof Structure	Gable
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Bldg Use	MUNICIPAL M94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	9030
Heat/AC	HEAT/AC PKGS
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	AVERAGE
Wall Height	9
% Comn Wall	



(http://images.vgsi.com/photos2/GranbyCTPhotos//\00\01\26\71.jpg)

Building Layout



(http://images.vgsi.com/photos2/GranbyCTPhotos//Sketches/)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	6,416	6,416
FOP	Porch, Open	440	0
SLB	Slab	0	0
		6,856	6,416

Building 5 : Section 1

Year Built: 2001
Living Area: 8,578
Replacement Cost: \$674,326
Building Percent Good: 84
Replacement Cost Less Depreciation: \$566,400

Building Attributes : Bldg 5 of 5	
Field	Description
STYLE	Other Municip
MODEL	Commercial
Grade	Good
Stories:	1

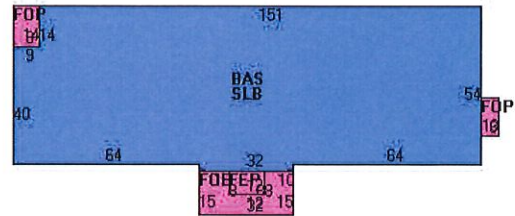
Building Photo

Occupancy	1
Exterior Wall 1	Brick Veneer
Exterior Wall 2	Vinyl Siding
Roof Structure	Gable
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	Ceram Clay Til
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Bldg Use	SCHOOL M94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	903I
Heat/AC	HEAT/AC PKGS
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	AVERAGE
Wall Height	10
% Comn Wall	



(http://images.vgsi.com/photos2/GranbyCTPhotos//\00\01\26\72.jpg)

Building Layout



(http://images.vgsi.com/photos2/GranbyCTPhotos//Sketches/360)

Building Sub-Areas (sq ft)			Legend	
Code	Description	Gross Area	Living Area	
BAS	First Floor	8,578	8,578	
FEP	Porch, Enclosed	96	0	
FOP	Porch, Open	588	0	
SLB	Slab	0	0	
		9,262	8,578	

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
SPR1	SPRINKLERS-WET	190 S.F.	\$200	4
SPR1	SPRINKLERS-WET	350 S.F.	\$300	3
SPR1	SPRINKLERS-WET	8578 S.F.	\$7,200	5
VLT2	VAULT-GOOD	1000 S.F.	\$90,000	1

Land

Land Use

Land Line Valuation

Use Code	9030	Size (Acres)	14.46
Description	MUNICIPAL M94	Frontage	0
Zone	R30	Depth	0
Neighborhood	200	Assessed Value	\$369,670
Alt Land Appr Category	No	Appraised Value	\$528,100

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	PAVING-ASPHALT			60000 S.F.	\$60,000	1
LT1	LIGHTS-IN W/PL			19 UNITS	\$6,600	1
SHD1	SHED FRAME			120 S.F.	\$1,100	1
	CELL TOWER			1	\$135,000	1
SHD1	SHED FRAME			280 S.F.	\$2,100	1
FN4	FENCE-8' CHAIN			200 L.F.	\$2,100	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$3,565,300	\$528,100	\$4,093,400
2016	\$3,471,600	\$506,700	\$3,978,300
2015	\$3,471,600	\$506,700	\$3,978,300

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$2,495,710	\$369,670	\$2,865,380
2016	\$2,430,120	\$354,690	\$2,784,810
2015	\$2,430,120	\$354,690	\$2,784,810

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

T-Mobile Existing Facility

Site ID: CT11281B

Granby/Rt 20
15 North Granby Road (Rt. 20)
Granby, CT 06035

October 10, 2018

EBI Project Number: 6218006578

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	14.95 %



October 10, 2018

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11281B – Granby/Rt 20**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **15 North Granby Road (Rt. 20), Granby, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **15 North Granby Road (Rt. 20), Granby, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 1 GSM channels (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 15 Watts per Channel.
- 2) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.



- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **Ericsson AIR32 B66Aa/B2A & RFS APX16DWV-16DWVS-E-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **RFS APXVAARR24_43-U-NA20** for 600 MHz and 700 MHz channels. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerline of the proposed antennas is **115 feet** above ground level (AGL).
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 11) All calculations were done with respect to uncontrolled / general population threshold limits.



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C	Sector:	D
Antenna #:	1	Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	200	Total TX Power(W):	200	Total TX Power(W):	200	Total TX Power(W):	200
ERP (W):	7,780.90	ERP (W):	7,780.90	ERP (W):	7,780.90	ERP (W):	7,780.90
Antenna A1 MPE%	2.35	Antenna B1 MPE%	2.35	Antenna C1 MPE%	2.35	Antenna D1 MPE%	2.35
Antenna #:	2	Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	1	Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	15	Total TX Power(W):	15	Total TX Power(W):	15	Total TX Power(W):	15
ERP (W):	639.87	ERP (W):	639.87	ERP (W):	639.87	ERP (W):	639.87
Antenna A2 MPE%	0.20	Antenna B2 MPE%	0.20	Antenna C2 MPE%	0.20	Antenna D2 MPE%	0.20
Antenna #:	3	Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	12.95 / 13.35dBd	Gain:	12.95 / 13.35dBd	Gain:	12.95 / 13.35dBd	Gain:	12.95 / 13.35dBd
Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet
Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz
Channel Count	4	Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,443.03	ERP (W):	2,443.03	ERP (W):	2,443.03	ERP (W):	2,443.03
Antenna A3 MPE%	1.75	Antenna B3 MPE%	1.75	Antenna C3 MPE%	1.75	Antenna D3 MPE%	1.75

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	4.30 %
AT&T	4.01 %
MetroPCS	0.77 %
Sprint	0.71 %
Nextel	0.28 %
Town 1	1.09 %
Town 2	3.79 %
Site Total MPE %:	14.95 %

T-Mobile Sector A Total:	4.30 %
T-Mobile Sector B Total:	4.30 %
T-Mobile Sector C Total:	4.30 %
T-Mobile Sector D Total:	4.30 %
Site Total:	14.95 %



T-Mobile Maximum MPE Power Values (Per Sector)

T-Mobile _Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile PCS - 1900 MHz LTE	2	1,556.18	115	9.42	PCS - 1900 MHz	1000.00	0.94%
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	115	14.13	AWS - 2100 MHz	1000.00	1.41%
T-Mobile PCS - 1900 MHz GSM	1	639.87	115	1.95	PCS - 1900 MHz	1000.00	0.20%
T-Mobile 600 MHz LTE	2	788.97	115	4.77	600 MHz	400.00	1.19%
T-Mobile 700 MHz LTE	2	432.54	115	2.62	700 MHz	467.00	0.56%
						Total:	4.30%

Summary

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

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	4.30 %
Sector B:	4.30 %
Sector C:	4.30 %
Sector D:	4.30 %
T-Mobile Maximum MPE % (Per Sector):	4.30 %
Site Total:	14.95 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **14.95%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



Tower Engineering Solutions

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

Post-Mod Structural Analysis Report

Existing 150 ft EEI Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT46134-A

Customer Site Name: Granby-n. Granby

Carrier Name: T-Mobile

Carrier Site ID / Name: CT11281B / Granby/Rt 20

Site Location: 15 North Granby Road

Granby, Connecticut

Hartford County

Latitude: 41.953583

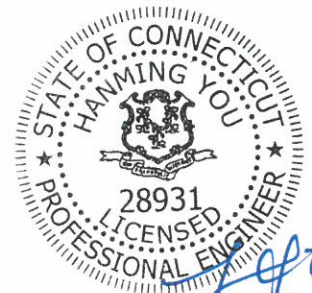
Longitude: -72.793722

Analysis Result:

Max Structural Usage: 96.1% [Pass]

Max Foundation Usage: 99.9% [Pass]

Report Prepared by: Matthew Baker



Handwritten signature and date:
8/21/18

Introduction

The purpose of this report is to summarize the analysis results on the 150 ft EEI Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Tower Drawings	Engineered Endeavors, Inc. Job #3934, Drawing #GS51005, Dated 06/26/98
Foundation Drawing	Engineered Endeavors, Inc. Job #3934, Drawing #F3934-150, Dated 06/26/98
Geotechnical Report	Tectonic Engineering Consultants Job #1170.C938, Dated 06/18/98
Existing Modification	Semaan Engineering Solutions Project #CT2010, Dated 02/06/09; Vertical Solutions Project #121657, Dated 09/07/12; FDH Project #1331731400, Dated 09/11/13
Proposed Modification	TES Job # 56904

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 120.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 93.0$ mph (3-Sec. Gust)
Basic Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$SS = 0.177$, $S1 = 0.065$

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	150.0	1	UNK - 10' Omni - Omni	Low Profile Platform	(3) 1/2" (1) 7/8"	Town of Granby
2		1	UNK - 18' Omni - Omni			
3		1	UNK - 10' Dipole - Dipole			
4		1	UNK - 3' Yagi - Yagi			
5	138.0	1	Andrew - SBNH-1D6565C - Panel	Low Profile Platform	(12) 1 1/4" Coax (3) 3" Conduit	AT&T
6		6	Powerwave - 7770 - Panel			
8		2	Powerwave - P65-17-XLH-RR - Panel			
9		6	Powerwave - TT19-08BP111-001 - TMA			
11		3	Ericsson - RRUS-12 1900 MHz - RRU			
12		6	Ericsson - RRUS-11 700MHz - RRU			
14		6	Powerwave - LGP 21901 - TMA			
15		1	Raycap - DC6-48-60-18-8F - SP			
16	126.0	3	RFS - APXVTM14-C-120 - Panel	Low Profile Platform	(3) 1-1/4"	Sprint
17		3	ALU - 1900MHz - RRU			
18		3	ALU - 800 MHz - RRU			
19		3	ALU - TD-RRH8x20-25 - RRU			
20		3	ALU - 800MHz Filter - Filter			
21		4	ALU - ACU-A20-N - RET			
22		3	RFS - APXVSP18-C-A20 - Panel			
-	115.0	3	EMS - RR65-18-02DP - Panel	Flush Mount	(6) 1 5/8"	T-Mobile
-		3	UNK - TMA - TMA			
28	100.0	3	Kathrein - 742 213 - Panel	Flush Mount	(6) 1 5/8"	Metro PCS
29	50.0	1	GPS	Stand-Off	---	Sprint

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
23	115.0	4	Ericsson - AIR32 KRD901146-1_B66A_B2A - Panel	Platform (Site Pro F4P-12W w/ F4P-HRK12 Handrail Kit)	(14) 1 1/4" (4) 1 1/4" Hybrid	T-Mobile
24		4	RFS - APXVAARR24_43-U-NA20 (Octa) - Panel			
25		4	RFS - APX16DWV-16DWVS-E-A20 - Panel			
26		4	Ericsson - KRY 112 489/2 - TMA			
27		4	Ericsson - Radio 4449 B71 + B12 - RRU			

All transmission lines are considered running inside of the pole shafts.

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	96.1%	0.0%	0.0%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	3762.6	36.0	38.3

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.5071 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the structure and its foundation will be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the design ANSI/TIA/EIA 222-G standards under a basic wind speed of 93 mph no ice and 50 mph with 1" radial ice after the following proposed modification is successfully completed.

- Proposed modification design drawing by TES Job # 56904

Pre-Mod Installation Determination

We have also checked this tower to determine if the proposed T-Mobile equipment loading can be installed prior to the completion of the required modifications. We ran a reduced wind loading case as required by TIA-322 considering a construction period of no more than 6 months.

The tower and foundations passed, so the Carrier can proceed and install their proposed loading prior to the mods completion. Please be aware that this approval is being provided and is based on the method outlined in TIA-322. This approval is not a blanket approval and there is still a risk that the tower will experience a wind event that cannot be predicted by TIA-322 or our Engineers. In the event of an unforeseen wind event, Tower Engineering Solutions will not be liable nor responsible for damage to the tower or the Carriers equipment. Additionally, the tower cannot go beyond the 6-month construction period without the modifications being completed. If the modifications cannot be completed within 6 months from the completed installation of the Carrier's proposed equipment, TES must be notified immediately for further review.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.
4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.
5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.
6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed or/and ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 85.21% at 102.0ft

Structure: CT46134-A-SBA
Site Name: Granby-n. Granby
Height: 150.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-G
Exposure: C
Gh: 1.1

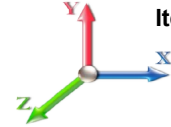
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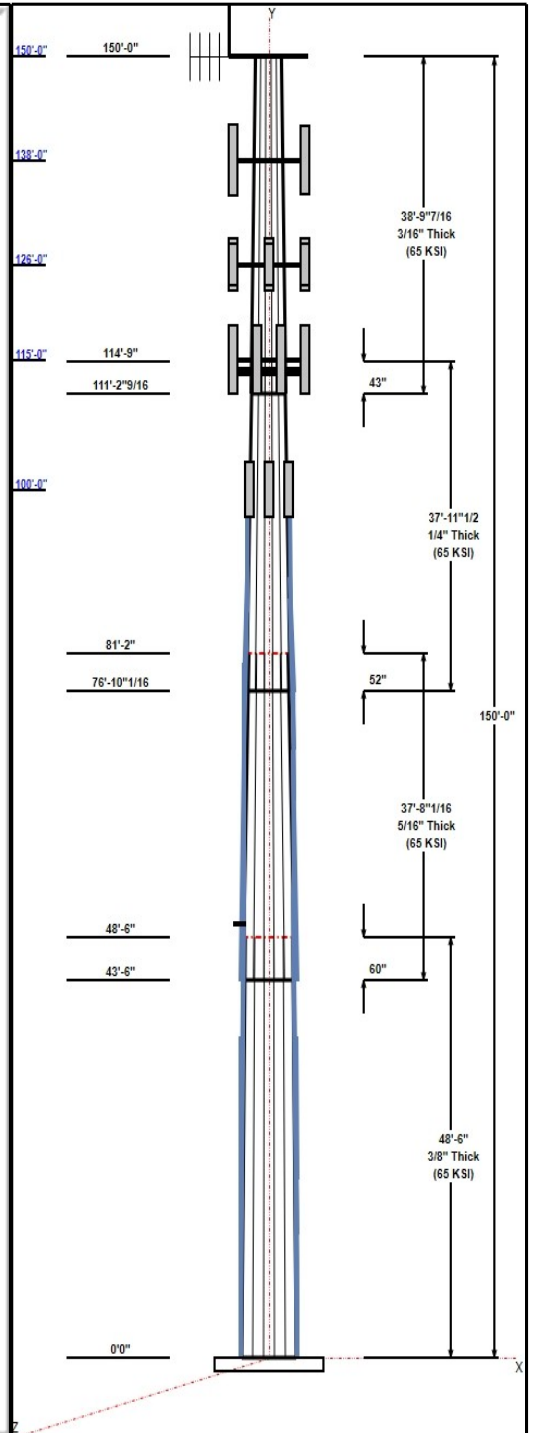
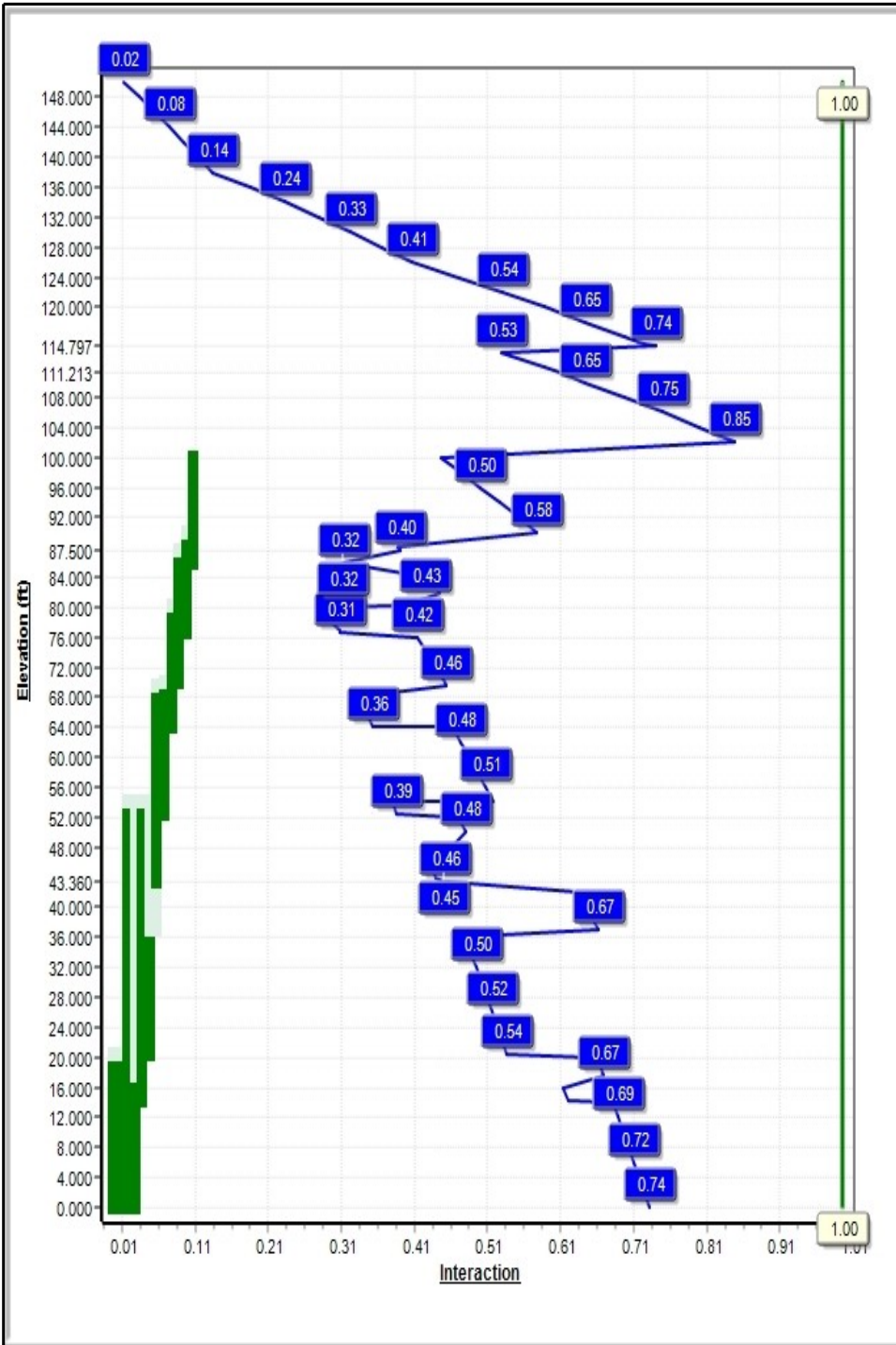
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 93 mph Wind



Iterations: 28

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Structure: CT46134-A-SBA

Type: Tapered
Site Name: Granby-n. Granby
Height: 150.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 12 Sided
Taper: 0.18000

8/21/2018

Page: 2



Shaft Properties

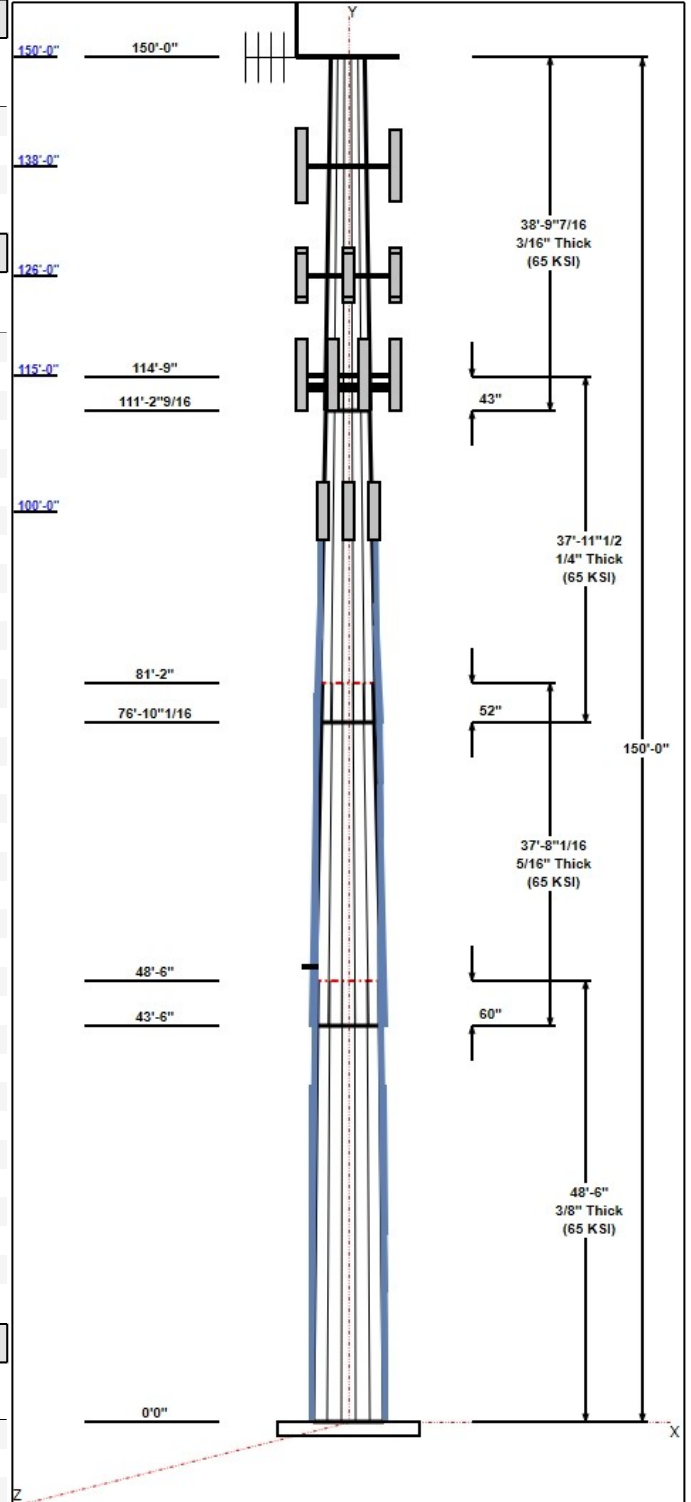
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.50	34.27	43.00	0.375		0.18000	65
2	37.67	29.01	35.80	0.313	Slip	0.18000	65
3	37.96	23.46	30.29	0.250	Slip	0.18000	65
4	38.79	17.50	24.48	0.188	Slip	0.18000	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
150.00	150.00	1	Low Profile Platform-flat	Town of Granby
150.00	155.00	1	10' Omni	Town of Granby
150.00	159.00	1	18' Omni	Town of Granby
150.00	155.00	1	10' Dipole	Town of Granby
150.00	150.00	1	3' Yagi	Town of Granby
138.00	138.00	1	Low Profile Platform-flat	AT&T
138.00	138.00	1	SBNH-1D6565C	AT&T
138.00	138.00	6	7770.00	AT&T
138.00	138.00	2	P65-17-XLH-RR	AT&T
138.00	138.00	6	TT19-08BP111-001	AT&T
138.00	138.00	3	RRUS-12 1900 MHz	AT&T
138.00	138.00	6	RRUS-11 700MHz	AT&T
138.00	138.00	6	LGP 21901	AT&T
138.00	138.00	1	DC6-48-60-18-8F	AT&T
126.00	126.00	1	Low Profile Platform-flat	Sprint
126.00	126.00	3	APXVTM14-C-120	Sprint
126.00	126.00	3	1900MHz	Sprint
126.00	126.00	3	800 MHz	Sprint
126.00	126.00	3	TD-RRH8x20-25	Sprint
126.00	126.00	3	800MHz Filter	Sprint
126.00	126.00	4	ACU-A20-N	Sprint
126.00	126.00	3	APXVSP18-C-A20	Sprint
115.00	115.00	1	F4P-12W	T-Mobile
115.00	115.00	1	F4P-HRK12	T-Mobile
115.00	115.00	4	AIR32	T-Mobile
115.00	115.00	4	APXVAARR24_43-U-NA20	T-Mobile
115.00	115.00	4	APX16DWV-16DWVS-E-A	T-Mobile
115.00	115.00	4	KRY 112 489/2	T-Mobile
115.00	115.00	4	Radio 4449 B71 + B12	T-Mobile
100.00	100.00	1	Flush Mount	Metro PCS
100.00	100.00	3	742 213	Metro PCS
50.00	50.00	1	Standoff	Sprint
50.00	50.00	1	GPS	Sprint
20.50	20.50	2	Splice Plate	---

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	150.00	Inside	1/2"	Town of Granby
0.00	150.00	Inside	7/8"	Town of Granby
0.00	138.00	Inside	1 1/4" Coax	AT&T
0.00	138.00	Inside	3" Conduit	AT&T
0.00	126.00	Inside	1-1/4" Fiber	Sprint
0.00	115.00	Inside	1 1/4" Coax	T-Mobile
0.00	115.00	Inside	1 1/4" Hybrid	T-Mobile
0.00	100.00	Inside	1 5/8" Coax	Metro PCS



Structure: CT46134-A-SBA

Type: Tapered
Site Name: Granby-n. Granby
Height: 150.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 12 Sided
Taper: 0.18000

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76.70	90.00	Outside	1.5" Reinforcing Plate	---
69.50	76.70	Outside	1.25" Reinforcing Plate	---
43.40	69.50	Outside	1.5" Reinforcing Plate	---
37.00	43.40	Outside	1.25" Reinforcing Plate	---
0.50	37.00	Outside	1.5" Reinforcing Plate	---

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
12	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.7500	57.0	60.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 93 mph Wind	3762.6	36.0	38.3
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1221.5	10.6	69.9
1.2D + 1.0E	132.7	1.2	38.3
0.9D + 1.0E	131.3	1.2	28.7
1.0D + 1.0W 60 mph Wind	974.1	9.4	31.9

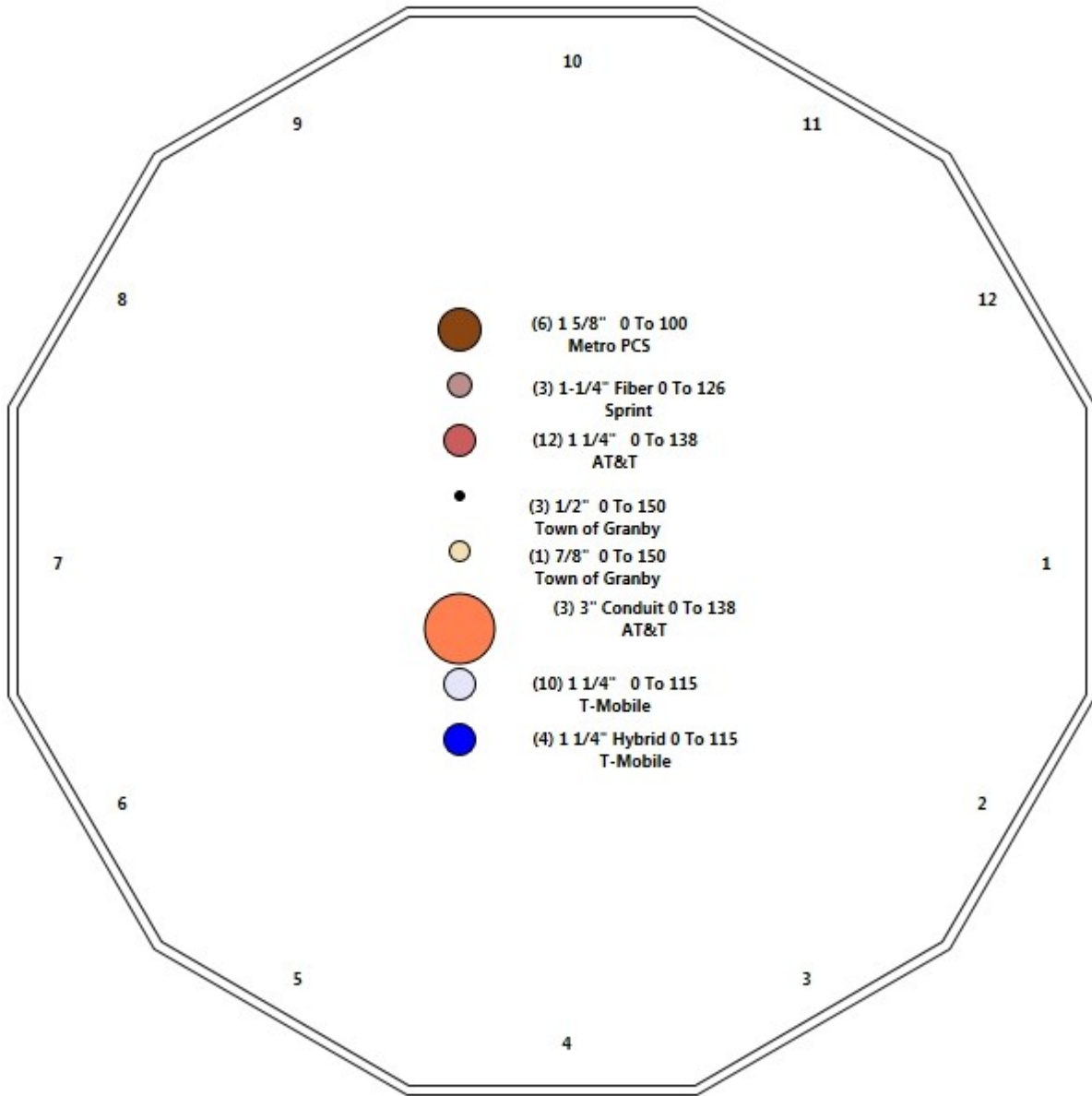
Structure: CT46134-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Granby-n. Granby
Height: 150.00 (ft)

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Shaft Properties

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	12	48.500	0.3750	65		0.00	7,624
2	12	37.670	0.3125	65	Slip	60.00	4,139
3	12	37.960	0.2500	65	Slip	52.00	2,769
4	12	38.787	0.1875	65	Slip	43.00	1,658
Total Shaft Weight:							16,190

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper
1	43.00	0.00	51.47	11936.20	28.58	114.67	34.27	48.50	40.93	6001.78	22.34	91.39	0.180000
2	35.80	43.50	35.70	5737.66	28.55	114.54	29.01	81.17	28.88	3036.85	22.73	92.85	0.180000
3	30.29	76.84	24.19	2786.59	30.33	121.18	23.46	114.80	18.69	1284.98	23.00	93.85	0.180000
4	24.48	111.2	14.67	1104.96	32.84	130.57	17.50	150.00	10.45	399.87	22.86	93.33	0.180000

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Fu (ksi)	Offset (in)	Intermediate Connectors		Termination Connectors			
							Spacing (in)	Description	Spacing (in)	Lower Qty	Upper Qty	
0.00	20.50	2	PLT 6.5x1.5(31mm Hole)	50	65	0.00	AJM20&sleeve	15.00	AJM20&sleeve	3.00	12	11
0.00	20.50	1	PLT 7.25"x1.25(1.25hole)	65	80	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00	13	13
0.00	54.17	2	PLT 7.25"x1.25(1.25hole)	65	80	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00	13	13
0.00	17.50	2	LNP LP6X125-B-20T	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		10
14.17	54.17	1	PLT 7.25"x1.25(1.25hole)	65	80	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00	13	13
20.50	37.00	3	PLT 5.75x1.5(31mm Hole)	50	65	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00	11	11
43.36	69.50	3	PLT 5.75x1.5(31mm Hole)	50	65	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00	11	9
52.50	70.00	3	LNP LP6X100-G-20TC	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00	8	
64.17	80.17	3	PLT 6"x1-1/4"(1.25" Hole)	65	80	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00	11	11
70.00	87.50	3	LNP LP6X100-G-20CT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		8
76.71	90.00	3	PLT 4.75x1.5(31mm Hole)	50	65	0.00	AJM20&sleeve	24.00	AJM20&sleeve	3.00	8	7
85.92	100.0	3	PLT 5"x1-1/4"(1.25"Hole)	65	80	0.00	AJM20&sleeve	24.00	AJM20&sleeve	3.00	9	9

Load Summary

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	150.00	Low Profile Platform-flat	1	1200.00	34.00	1.00	2596.17	71.976	1.00	0.00	0.00
2	150.00	10' Omni	1	25.00	3.00	1.00	126.41	7.808	1.00	0.00	5.00
3	150.00	18' Omni	1	55.00	5.40	1.00	236.02	13.934	1.00	0.00	9.00
4	150.00	10' Dipole	1	30.00	3.76	1.00	178.78	11.760	1.00	0.00	5.00
5	150.00	3' Yagi	1	10.00	2.98	1.00	130.02	11.351	1.00	0.00	0.00
6	138.00	Low Profile Platform-flat	1	1200.00	34.00	1.00	2584.58	71.661	1.00	0.00	0.00
7	138.00	SBNH-1D6565C	1	66.10	11.47	0.84	370.07	15.768	0.87	0.00	0.00
8	138.00	7770.00	6	35.00	5.50	0.77	228.42	6.962	0.81	0.00	0.00
9	138.00	P65-17-XLH-RR	2	59.00	11.44	0.80	345.41	15.717	0.83	0.00	0.00
10	138.00	TT19-08BP111-001	6	16.00	0.64	0.67	42.76	1.424	0.67	0.00	0.00
11	138.00	RRUS-12 1900 MHz	3	60.00	2.70	0.50	158.25	4.123	0.50	0.00	0.00
12	138.00	RRUS-11 700MHz	6	51.00	2.52	0.50	146.56	3.357	0.50	0.00	0.00
13	138.00	LGP 21901	6	5.50	0.23	0.67	15.67	0.717	0.67	0.00	0.00
14	138.00	DC6-48-60-18-8F	1	31.80	0.92	1.00	113.55	1.499	1.00	0.00	0.00
15	126.00	Low Profile Platform-flat	1	1200.00	34.00	1.00	2572.04	71.320	1.00	0.00	0.00
16	126.00	APXVTM14-C-120	3	56.00	6.34	0.78	278.10	7.854	0.82	0.00	0.00
17	126.00	1900MHz	3	44.00	3.80	0.50	187.04	5.621	0.50	0.00	0.00
18	126.00	800 MHz	3	53.00	2.49	0.50	149.91	3.989	0.50	0.00	0.00
19	126.00	TD-RRH8x20-25	3	70.00	4.05	0.50	207.47	5.173	0.50	0.00	0.00
20	126.00	800MHz Filter	3	8.80	0.78	0.67	31.92	1.628	0.67	0.00	0.00
21	126.00	ACU-A20-N	4	1.00	0.14	0.50	6.63	0.529	0.50	0.00	0.00
22	126.00	APXVSP18-C-A20	3	57.00	8.02	0.86	283.49	11.681	0.88	0.00	0.00
23	115.00	F4P-12W	1	3100.00	63.31	1.00	7033.67	66.599	1.00	0.00	0.00
24	115.00	F4P-HRK12	1	507.00	7.57	1.00	1150.35	19.920	1.00	0.00	0.00
25	115.00	AIR32 KRD901146-1_B66A_B2A	4	132.20	6.51	0.91	366.57	7.991	0.92	0.00	0.00
26	115.00	APXVAARR24_43-U-NA20 (Octa)	4	99.00	20.24	0.81	712.40	22.735	0.83	0.00	0.00
27	115.00	APX16DWV-16DWVS-E-A20	4	40.70	6.61	0.77	192.68	9.438	0.81	0.00	0.00
28	115.00	KRY 112 489/2	4	15.40	0.64	0.50	38.31	1.431	0.50	0.00	0.00
29	115.00	Radio 4449 B71 + B12	4	70.00	1.65	0.67	196.89	2.398	0.67	0.00	0.00
30	100.00	Flush Mount	1	350.00	5.00	1.00	725.39	9.469	1.00	0.00	0.00
31	100.00	742 213	3	22.00	5.12	0.78	187.39	6.832	0.84	0.00	0.00
32	50.00	Standoff	1	50.00	1.50	1.00	154.24	3.585	1.00	0.00	0.00
33	50.00	GPS	1	1.00	0.01	1.00	1.08	0.011	1.00	0.00	0.00
34	20.50	Splice Plate	2	276.00	3.83	0.94	378.53	5.118	0.96	0.00	0.00
Totals:			90	11,686.50			32,525.37				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	150.00	(3) 1/2"	0.00	Inside
0.00	150.00	(1) 7/8"	0.00	Inside
0.00	138.00	(12) 1 1/4" Coax	0.00	Inside
0.00	138.00	(3) 3" Conduit	0.00	Inside
0.00	126.00	(3) 1-1/4" Fiber	0.00	Inside
0.00	115.00	(10) 1 1/4" Coax	0.00	Inside
0.00	115.00	(4) 1 1/4" Hybrid	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice		Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)		
0.00	100.00	(6) 1 5/8" Coax		0.00						
76.70	90.00	(1) 1.5" Reinforcing Plate		3.00						
69.50	76.70	(1) 1.25" Reinforcing Plate		2.50						
43.40	69.50	(1) 1.5" Reinforcing Plate		3.00						
37.00	43.40	(1) 1.25" Reinforcing Plate		2.50						
0.50	37.00	(1) 1.5" Reinforcing Plate		3.00						

Shaft Section Properties

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 2 (ft)

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing			
											Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
0.00	RB1 RB2 RB3 RB4	0.3750	43.000	51.470	11936.2	28.58	114.67	65	74	0.0	61.69	19296.5	7885.5	
2.00		0.3750	42.640	51.035	11636.3	28.32	113.71	65	74	348.8	61.69	18985.5	7752.8	419.8
4.00		0.3750	42.280	50.600	11341.5	28.07	112.75	65	74	345.8	61.69	18677.0	7621.3	419.8
6.00		0.3750	41.920	50.166	11051.7	27.81	111.79	65	74	342.9	61.69	18371.1	7491.0	419.8
8.00		0.3750	41.560	49.731	10766.9	27.55	110.83	65	75	339.9	61.69	18067.7	7362.0	419.8
10.00		0.3750	41.200	49.296	10487.0	27.30	109.87	65	75	337.0	61.69	17766.8	7234.2	419.8
12.00		0.3750	40.840	48.861	10212.0	27.04	108.91	65	75	334.0	61.69	17468.6	7107.6	419.8
14.00		0.3750	40.480	48.427	9941.9	26.78	107.95	65	76	331.1	61.69	17172.8	6982.3	419.8
14.17	RB5	0.3750	40.449	48.390	9919.1	26.76	107.87	65	76	28.0	70.75	20603.9	9148.2	40.9
16.00		0.3750	40.120	47.992	9676.6	26.52	106.99	65	76	300.1	70.75	20282.3	9004.1	440.6
17.50	RT4	0.3750	39.850	47.666	9480.7	26.33	106.27	65	76	244.1	55.75	15471.8	7343.9	284.6
18.00		0.3750	39.760	47.557	9416.0	26.27	106.03	65	76	81.0	55.75	15404.5	7311.9	94.9
20.00		0.3750	39.400	47.123	9160.1	26.01	105.07	65	76	322.2	55.75	15136.8	7184.7	379.4
20.50	RT1 RT2 RB6	0.3750	39.310	47.014	9096.9	25.94	104.83	65	76	80.1	53.06	11076.9	11076.9	90.3
22.00		0.3750	39.040	46.688	8909.0	25.75	104.11	65	77	239.1	53.06	10931.7	10931.7	270.8
24.00		0.3750	38.680	46.253	8662.4	25.49	103.15	65	77	316.3	53.06	10739.5	10739.5	361.1
26.00		0.3750	38.320	45.819	8420.5	25.24	102.19	65	77	313.3	53.06	10549.1	10549.1	361.1
28.00		0.3750	37.960	45.384	8183.1	24.98	101.23	65	77	310.3	53.06	10360.4	10360.4	361.1
30.00		0.3750	37.600	44.949	7950.2	24.72	100.27	65	78	307.4	53.06	10173.5	10173.5	361.1
32.00		0.3750	37.240	44.514	7721.8	24.47	99.31	65	78	304.4	53.06	9988.2	9988.2	361.1
34.00		0.3750	36.880	44.080	7497.7	24.21	98.35	65	78	301.5	53.06	9804.7	9804.7	361.1
36.00		0.3750	36.520	43.645	7278.1	23.95	97.39	65	79	298.5	53.06	9622.9	9622.9	361.1
37.00	RT6	0.3750	36.340	43.428	7169.9	23.82	96.91	65	79	148.1	27.19	4863.3	4863.3	92.5
38.00		0.3750	36.160	43.210	7062.8	23.69	96.43	65	79	147.4	27.19	4817.5	4817.5	92.5
40.00		0.3750	35.800	42.776	6851.8	23.44	95.47	65	79	292.6	27.19	4726.4	4726.4	185.0
42.00		0.3750	35.440	42.341	6645.0	23.18	94.51	65	79	289.6	27.19	4636.1	4636.1	185.0
43.36	RB7	0.3750	35.195	42.045	6506.8	23.00	93.85	65	80	195.3	53.06	8968.6	8968.6	245.6
43.50	Bot - Section 2	0.3750	35.170	42.015	6492.7	22.99	93.79	65	80	20.0	53.06	8956.4	8956.4	25.3
44.00		0.3750	35.080	41.906	6442.4	22.92	93.55	65	80	132.1	53.06	9217.6	9217.6	90.3
46.00		0.3750	34.720	41.472	6244.0	22.66	92.59	65	80	524.9	53.06	9041.4	9041.4	361.1
48.00		0.3750	34.360	41.037	6049.7	22.41	91.63	65	80	519.4	53.06	8866.9	8866.9	361.1
48.50	Top - Section 1	0.3125	34.895	34.799	5312.0	27.78	111.66	65	74	129.0	53.06	8823.6	8823.6	90.3
50.00		0.3125	34.625	34.527	5188.6	27.55	110.80	65	75	176.9	53.06	8694.1	8694.1	270.8
52.00		0.3125	34.265	34.165	5027.0	27.24	109.65	65	75	233.7	53.06	8523.1	8523.1	361.1
52.50	RB8	0.3125	34.175	34.074	4987.1	27.16	109.36	65	75	58.1	71.06	11292.2	11292.2	120.9
54.00		0.3125	33.905	33.802	4868.8	26.93	108.50	65	75	173.2	71.06	11122.8	11122.8	362.7
54.17	RT3 RT5	0.3125	33.874	33.772	4855.5	26.90	108.40	65	75	19.5	43.88	6849.7	6849.7	25.4
56.00		0.3125	33.545	33.440	4713.9	26.62	107.34	65	76	209.3	43.88	6723.2	6723.2	273.2
58.00		0.3125	33.185	33.078	4562.4	26.31	106.19	65	76	226.3	43.88	6586.3	6586.3	298.6
60.00		0.3125	32.825	32.716	4414.1	26.00	105.04	65	76	223.9	43.88	6450.9	6450.9	298.6
62.00		0.3125	32.465	32.353	4269.1	25.69	103.89	65	77	221.4	43.88	6316.9	6316.9	298.6
64.00		0.3125	32.105	31.991	4127.3	25.38	102.74	65	77	219.0	43.88	6184.3	6184.3	298.6
64.17	RB9	0.3125	32.074	31.960	4115.4	25.36	102.64	65	77	18.5	66.38	9331.6	9331.6	38.4
66.00		0.3125	31.745	31.629	3988.7	25.08	101.58	65	77	198.0	66.38	9150.2	9150.2	413.3
68.00		0.3125	31.385	31.267	3853.2	24.77	100.43	65	78	214.0	66.38	8954.0	8954.0	451.7
69.50	RT7	0.3125	31.115	30.995	3753.6	24.54	99.57	65	78	158.9	40.50	5329.6	5329.6	206.7
70.00	RT8 RB10	0.3125	31.025	30.904	3720.8	24.46	99.28	65	78	52.7	40.50	5300.3	5300.3	68.9
72.00		0.3125	30.665	30.542	3591.5	24.15	98.13	65	78	209.1	40.50	5183.7	5183.7	275.6
74.00		0.3125	30.305	30.180	3465.2	23.84	96.98	65	79	206.6	40.50	5068.4	5068.4	275.6
76.00		0.3125	29.945	29.818	3341.9	23.53	95.82	65	79	204.2	40.50	4954.5	4954.5	275.6

Increment Length: 2 (ft)

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing			
											Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
76.71	RB11	0.3125	29.817	29.689	3298.9	23.42	95.42	65	79	71.9	61.88	7556.9	7556.9	149.5
76.84	Bot - Section 3	0.3125	29.794	29.666	3291.2	23.40	95.34	65	79	12.8	61.88	7546.0	7546.0	26.7
78.00		0.3125	29.585	29.455	3221.6	23.22	94.67	65	79	212.4	61.88	7686.2	7686.2	244.9
80.00		0.3125	29.225	29.093	3104.2	22.92	93.52	65	80	361.7	61.88	7512.7	7512.7	421.1
80.17	RT9	0.3125	29.194	29.062	3094.3	22.89	93.42	65	80	30.5	39.38	4769.7	4769.7	22.8
81.17	Top - Section 2	0.2500	29.514	23.558	2575.1	29.49	118.06	65	73	179.0	39.38	4714.9	4714.9	134.0
82.00		0.2500	29.365	23.438	2535.9	29.33	117.46	65	73	66.4	39.38	4669.8	4669.8	111.2
84.00		0.2500	29.005	23.148	2443.0	28.94	116.02	65	73	158.5	39.38	4561.9	4561.9	268.0
85.92	RB12	0.2500	28.659	22.870	2356.0	28.57	114.64	65	74	150.3	58.13	6576.8	6576.8	379.7
86.00		0.2500	28.645	22.858	2352.4	28.56	114.58	65	74	6.2	58.13	6570.6	6570.6	15.8
87.50	RT10	0.2500	28.375	22.641	2285.9	28.27	113.50	65	74	116.1	40.13	4484.5	4484.5	204.8
88.00		0.2500	28.285	22.568	2264.0	28.17	113.14	65	74	38.5	40.13	4457.7	4457.7	68.3
90.00	RT11	0.2500	27.925	22.278	2177.9	27.79	111.70	65	74	152.6	18.75	2015.7	2015.7	127.6
92.00		0.2500	27.565	21.989	2094.0	27.40	110.26	65	75	150.6	18.75	1966.8	1966.8	127.6
94.00		0.2500	27.205	21.699	2012.3	27.01	108.82	65	75	148.7	18.75	1918.5	1918.5	127.6
96.00		0.2500	26.845	21.409	1932.8	26.63	107.38	65	76	146.7	18.75	1870.7	1870.7	127.6
98.00		0.2500	26.485	21.119	1855.3	26.24	105.94	65	76	144.7	18.75	1823.6	1823.6	127.6
100.00	RT12	0.2500	26.125	20.829	1780.0	25.86	104.50	65	77	142.7	18.75	1777.1	1777.1	127.6
102.00		0.2500	25.765	20.540	1706.7	25.47	103.06	65	77	140.8				
104.00		0.2500	25.405	20.250	1635.5	25.09	101.62	65	77	138.8				
106.00		0.2500	25.045	19.960	1566.3	24.70	100.18	65	78	136.8				
108.00		0.2500	24.685	19.670	1499.1	24.31	98.74	65	78	134.9				
110.00		0.2500	24.325	19.380	1433.8	23.93	97.30	65	79	132.9				
111.21	Bot - Section 4	0.2500	24.107	19.205	1395.1	23.69	96.43	65	79	79.7				
112.00		0.2500	23.965	19.091	1370.4	23.54	95.86	65	79	90.4				
114.00		0.2500	23.605	18.801	1308.9	23.16	94.42	65	79	227.4				
114.80	Top - Section 3	0.1875	23.837	14.278	1019.3	31.92	127.13	65	70	89.6				
115.00		0.1875	23.800	14.256	1014.5	31.87	126.93	65	70	9.9				
116.00		0.1875	23.620	14.147	991.5	31.61	125.97	65	70	48.3				
118.00		0.1875	23.260	13.930	946.5	31.10	124.05	65	71	95.5				
120.00		0.1875	22.900	13.713	902.9	30.58	122.13	65	71	94.1				
122.00		0.1875	22.540	13.495	860.6	30.07	120.21	65	72	92.6				
124.00		0.1875	22.180	13.278	819.7	29.55	118.29	65	72	91.1				
126.00		0.1875	21.820	13.061	780.1	29.04	116.37	65	73	89.6				
128.00		0.1875	21.460	12.843	741.8	28.52	114.45	65	74	88.1				
130.00		0.1875	21.100	12.626	704.8	28.01	112.53	65	74	86.7				
132.00		0.1875	20.740	12.409	669.0	27.50	110.61	65	75	85.2				
134.00		0.1875	20.380	12.191	634.5	26.98	108.69	65	75	83.7				
136.00		0.1875	20.020	11.974	601.1	26.47	106.77	65	76	82.2				
138.00		0.1875	19.660	11.757	569.0	25.95	104.85	65	76	80.7				
140.00		0.1875	19.300	11.539	538.0	25.44	102.93	65	77	79.3				
142.00		0.1875	18.940	11.322	508.2	24.92	101.01	65	78	77.8				
144.00		0.1875	18.580	11.104	479.5	24.41	99.09	65	78	76.3				
146.00		0.1875	18.220	10.887	451.9	23.89	97.17	65	79	74.8				
148.00		0.1875	17.860	10.670	425.3	23.38	95.25	65	79	73.4				
150.00		0.1875	17.500	10.452	399.9	22.86	93.33	65	80	71.9				
Total Weight										16190.3	16223.4			

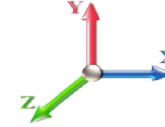
Wind Loading - Shaft

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 28

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1 RB2 RB3 RB4	1.00	0.85	17.879	19.67	318.08	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
2.00		1.00	0.85	17.879	19.67	315.42	1.000	0.000	2.00	7.388	7.39	232.5	0.0	418.6
4.00		1.00	0.85	17.879	19.67	312.75	1.000	0.000	2.00	7.326	7.33	230.5	0.0	415.0
6.00		1.00	0.85	17.879	19.67	310.09	1.000	0.000	2.00	7.264	7.26	228.6	0.0	411.5
8.00		1.00	0.85	17.879	19.67	307.43	1.000	0.000	2.00	7.202	7.20	226.6	0.0	407.9
10.00		1.00	0.85	17.879	19.67	304.76	1.000	0.000	2.00	7.140	7.14	224.7	0.0	404.4
12.00		1.00	0.85	17.879	19.67	302.10	1.000	0.000	2.00	7.078	7.08	222.7	0.0	400.8
14.00		1.00	0.85	17.879	19.67	299.44	1.000	0.000	2.00	7.016	7.02	220.8	0.0	397.3
14.17	RB5	1.00	0.85	17.879	19.67	299.21	1.000	0.000	0.17	0.593	0.59	18.7	0.0	33.6
16.00		1.00	0.86	18.100	19.91	298.60	1.000	0.000	1.83	6.360	6.36	202.6	0.0	360.1
17.50	RT4	1.00	0.88	18.445	20.29	299.40	1.000	0.000	1.50	5.174	5.17	168.0	0.0	293.0
18.00		1.00	0.88	18.554	20.41	299.61	1.000	0.000	0.50	1.717	1.72	56.1	0.0	97.2
20.00		1.00	0.90	18.971	20.87	300.21	1.000	0.000	2.00	6.829	6.83	228.0	0.0	386.6
20.50	RT1 RT2 RB6	1.00	0.91	19.069	20.98	300.31	1.000	0.000	0.50	1.698	1.70	57.0	0.0	96.1
22.00		1.00	0.92	19.355	21.29	300.47	1.000	0.000	1.50	5.070	5.07	172.7	0.0	287.0
24.00		1.00	0.94	19.713	21.68	300.44	1.000	0.000	2.00	6.705	6.71	232.6	0.0	379.5
26.00		1.00	0.95	20.048	22.05	300.16	1.000	0.000	2.00	6.643	6.64	234.4	0.0	376.0
28.00		1.00	0.97	20.363	22.40	299.67	1.000	0.000	2.00	6.581	6.58	235.9	0.0	372.4
30.00		1.00	0.98	20.661	22.73	298.99	1.000	0.000	2.00	6.519	6.52	237.0	0.0	368.9
32.00		1.00	1.00	20.944	23.04	298.15	1.000	0.000	2.00	6.457	6.46	238.0	0.0	365.3
34.00		1.00	1.01	21.213	23.33	297.15	1.000	0.000	2.00	6.395	6.39	238.7	0.0	361.8
36.00		1.00	1.02	21.470	23.62	296.03	1.000	0.000	2.00	6.332	6.33	239.3	0.0	358.2
37.00	RT6	1.00	1.03	21.594	23.75	295.42	1.000	0.000	1.00	3.143	3.14	119.4	0.0	177.8
38.00		1.00	1.03	21.715	23.89	294.78	1.000	0.000	1.00	3.127	3.13	119.5	0.0	176.9
40.00		1.00	1.04	21.951	24.15	293.43	1.000	0.000	2.00	6.208	6.21	239.8	0.0	351.1
42.00		1.00	1.05	22.178	24.40	291.97	1.000	0.000	2.00	6.146	6.15	239.9	0.0	347.6
43.36	RB7	1.00	1.06	22.327	24.56	290.93	1.000	0.000	1.36	4.144	4.14	162.8	0.0	234.3
43.50	Bot - Section 2	1.00	1.06	22.342	24.58	290.82	1.000	0.000	0.14	0.425	0.42	16.7	0.0	24.0
44.00		1.00	1.06	22.396	24.64	290.43	1.000	0.000	0.50	1.542	1.54	60.8	0.0	158.5
46.00		1.00	1.07	22.607	24.87	288.80	1.000	0.000	2.00	6.130	6.13	243.9	0.0	629.8
48.00		1.00	1.08	22.810	25.09	287.08	1.000	0.000	2.00	6.068	6.07	243.6	0.0	623.3
48.50	Top - Section 1	1.00	1.09	22.860	25.15	286.64	1.000	0.000	0.50	1.507	1.51	60.6	0.0	154.8
50.00	Appurtenance(s)	1.00	1.09	23.007	25.31	290.54	1.000	0.000	1.50	4.498	4.50	182.1	0.0	212.3
52.00		1.00	1.10	23.198	25.52	288.71	1.000	0.000	2.00	5.943	5.94	242.7	0.0	280.5
52.50	RB8	1.00	1.11	23.244	25.57	288.24	1.000	0.000	0.50	1.476	1.48	60.4	0.0	69.7
54.00		1.00	1.11	23.383	25.72	286.82	1.000	0.000	1.50	4.405	4.41	181.3	0.0	207.9
54.17	RT3 RT5	1.00	1.11	23.398	25.74	286.65	1.000	0.000	0.17	0.497	0.50	20.5	0.0	23.5
56.00		1.00	1.12	23.562	25.92	284.86	1.000	0.000	1.83	5.322	5.32	220.7	0.0	251.1
58.00		1.00	1.13	23.737	26.11	282.85	1.000	0.000	2.00	5.757	5.76	240.5	0.0	271.6
60.00		1.00	1.14	23.907	26.30	280.78	1.000	0.000	2.00	5.695	5.69	239.6	0.0	268.7
62.00		1.00	1.14	24.073	26.48	278.66	1.000	0.000	2.00	5.633	5.63	238.6	0.0	265.7
64.00		1.00	1.15	24.234	26.66	276.49	1.000	0.000	2.00	5.571	5.57	237.6	0.0	262.7
64.17	RB9	1.00	1.15	24.248	26.67	276.30	1.000	0.000	0.17	0.471	0.47	20.1	0.0	22.2
66.00		1.00	1.16	24.392	26.83	274.28	1.000	0.000	1.83	5.038	5.04	216.3	0.0	237.6
68.00		1.00	1.17	24.545	27.00	272.02	1.000	0.000	2.00	5.446	5.45	235.3	0.0	256.8
69.50	RT7	1.00	1.17	24.658	27.12	270.30	1.000	0.000	1.50	4.044	4.04	175.5	0.0	190.7
70.00	RT8 RB10	1.00	1.17	24.696	27.17	269.72	1.000	0.000	0.50	1.340	1.34	58.3	0.0	63.2

Wind Loading - Shaft

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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72.00	1.00	1.18	24.843	27.33	267.38	1.000	0.000	2.00	5.322	5.32	232.7	0.0	250.9
74.00	1.00	1.19	24.986	27.48	265.01	1.000	0.000	2.00	5.260	5.26	231.3	0.0	247.9
76.00	1.00	1.19	25.127	27.64	262.60	1.000	0.000	2.00	5.198	5.20	229.9	0.0	245.0
76.71 RB11	1.00	1.20	25.176	27.69	261.73	1.000	0.000	0.71	1.830	1.83	81.1	0.0	86.3
76.84 Bot - Section 3	1.00	1.20	25.185	27.70	261.58	1.000	0.000	0.13	0.326	0.33	14.4	0.0	15.3
78.00	1.00	1.20	25.265	27.79	260.15	1.000	0.000	1.16	3.030	3.03	134.7	0.0	254.9
80.00	1.00	1.21	25.400	27.94	257.67	1.000	0.000	2.00	5.160	5.16	230.7	0.0	434.0
80.17 RT9	1.00	1.21	25.411	27.95	257.46	1.000	0.000	0.17	0.436	0.44	19.5	0.0	36.6
81.17 Top - Section 2	1.00	1.21	25.478	28.03	256.20	1.000	0.000	1.00	2.554	2.55	114.5	0.0	214.8
82.00	1.00	1.21	25.532	28.09	259.58	1.000	0.000	0.83	2.108	2.11	94.7	0.0	79.6
84.00	1.00	1.22	25.662	28.23	257.05	1.000	0.000	2.00	5.036	5.04	227.4	0.0	190.2
85.92 RB12	1.00	1.23	25.784	28.36	254.59	1.002 *	0.000	1.92	4.776	4.78	217.1	0.0	180.4
86.00	1.00	1.23	25.789	28.37	254.49	1.003 *	0.000	0.08	0.198	0.20	9.0	0.0	7.5
87.50 RT10	1.00	1.23	25.884	28.47	252.55	1.005 *	0.000	1.50	3.689	3.71	168.9	0.0	139.3
88.00	1.00	1.23	25.915	28.51	251.90	1.007 *	0.000	0.50	1.222	1.23	56.1	0.0	46.2
90.00 RT11	1.00	1.24	26.037	28.64	249.28	1.009 *	0.000	2.00	4.849	4.89	224.3	0.0	183.1
92.00	1.00	1.24	26.158	28.77	246.64	1.000	0.000	2.00	4.787	4.79	220.4	0.0	180.8
94.00	1.00	1.25	26.277	28.90	243.97	1.000	0.000	2.00	4.725	4.73	218.5	0.0	178.4
96.00	1.00	1.25	26.394	29.03	241.27	1.000	0.000	2.00	4.663	4.66	216.6	0.0	176.0
98.00	1.00	1.26	26.509	29.16	238.55	1.000	0.000	2.00	4.601	4.60	214.7	0.0	173.7
100.00 RT12	1.00	1.27	26.621	29.28	235.81	1.000	0.000	2.00	4.539	4.54	212.7	0.0	171.3
102.00	1.00	1.27	26.733	29.41	233.05	1.000	0.000	2.00	4.477	4.48	210.6	0.0	168.9
104.00	1.00	1.28	26.842	29.53	230.26	1.000	0.000	2.00	4.415	4.41	208.6	0.0	166.6
106.00	1.00	1.28	26.950	29.65	227.45	1.000	0.000	2.00	4.352	4.35	206.4	0.0	164.2
108.00	1.00	1.29	27.056	29.76	224.63	1.000	0.000	2.00	4.290	4.29	204.3	0.0	161.8
110.00	1.00	1.29	27.161	29.88	221.78	1.000	0.000	2.00	4.228	4.23	202.1	0.0	159.5
111.21 Bot - Section 4	1.00	1.29	27.224	29.95	220.04	1.000	0.000	1.21	2.535	2.53	121.5	0.0	95.6
112.00	1.00	1.30	27.264	29.99	218.91	1.000	0.000	0.79	1.657	1.66	79.5	0.0	108.5
114.00	1.00	1.30	27.366	30.10	216.02	1.000	0.000	2.00	4.169	4.17	200.8	0.0	272.9
114.80 Top - Section 3	1.00	1.30	27.406	30.15	214.87	1.000	0.000	0.80	1.643	1.64	79.3	0.0	107.6
115.00 Appurtenance(s)	1.00	1.30	27.416	30.16	218.01	1.000	0.000	0.20	0.418	0.42	20.2	0.0	11.8
116.00	1.00	1.31	27.466	30.21	216.56	1.000	0.000	1.00	2.046	2.05	98.9	0.0	58.0
118.00	1.00	1.31	27.565	30.32	213.64	1.000	0.000	2.00	4.044	4.04	196.2	0.0	114.6
120.00	1.00	1.32	27.663	30.43	210.71	1.000	0.000	2.00	3.982	3.98	193.9	0.0	112.9
122.00	1.00	1.32	27.760	30.54	207.76	1.000	0.000	2.00	3.920	3.92	191.5	0.0	111.1
124.00	1.00	1.32	27.855	30.64	204.79	1.000	0.000	2.00	3.858	3.86	189.1	0.0	109.3
126.00 Appurtenance(s)	1.00	1.33	27.949	30.74	201.80	1.000	0.000	2.00	3.796	3.80	186.7	0.0	107.5
128.00	1.00	1.33	28.042	30.85	198.80	1.000	0.000	2.00	3.734	3.73	184.3	0.0	105.8
130.00	1.00	1.34	28.133	30.95	195.79	1.000	0.000	2.00	3.672	3.67	181.8	0.0	104.0
132.00	1.00	1.34	28.224	31.05	192.76	1.000	0.000	2.00	3.610	3.61	179.3	0.0	102.2
134.00	1.00	1.35	28.313	31.14	189.71	1.000	0.000	2.00	3.548	3.55	176.8	0.0	100.4
136.00	1.00	1.35	28.402	31.24	186.65	1.000	0.000	2.00	3.485	3.49	174.2	0.0	98.7
138.00 Appurtenance(s)	1.00	1.35	28.489	31.34	183.58	1.000	0.000	2.00	3.423	3.42	171.6	0.0	96.9
140.00	1.00	1.36	28.576	31.43	180.49	1.000	0.000	2.00	3.361	3.36	169.0	0.0	95.1
142.00	1.00	1.36	28.661	31.53	177.39	1.000	0.000	2.00	3.299	3.30	166.4	0.0	93.3
144.00	1.00	1.37	28.746	31.62	174.27	1.000	0.000	2.00	3.237	3.24	163.8	0.0	91.6
146.00	1.00	1.37	28.829	31.71	171.14	1.000	0.000	2.00	3.175	3.17	161.1	0.0	89.8
148.00	1.00	1.37	28.912	31.80	168.00	1.000	0.000	2.00	3.113	3.11	158.4	0.0	88.0
150.00 Appurtenance(s)	1.00	1.38	28.994	31.89	164.85	1.000	0.000	2.00	3.051	3.05	155.7	0.0	86.2

* Cf Adjusted by Linear Load Ra Effect

Totals:	150.00	16,223.3	19,428.4
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Discrete Appurtenance Forces

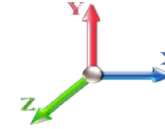
Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 28

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	150.00	10' Dipole	1	29.195	32.114	1.00	1.00	3.76	36.00	0.000	5.000	193.20	0.00	965.99
2	150.00	18' Omni	1	29.352	32.287	1.00	1.00	5.40	66.00	0.000	9.000	278.96	0.00	2510.62
3	150.00	10' Omni	1	29.195	32.114	1.00	1.00	3.00	30.00	0.000	5.000	154.15	0.00	770.74
4	150.00	Low Profile Platform-flat	1	28.994	31.893	1.00	1.00	34.00	1440.00	0.000	0.000	1734.99	0.00	0.00
5	150.00	3' Yagi	1	28.994	31.893	1.00	1.00	2.98	12.00	0.000	0.000	152.07	0.00	0.00
6	138.00	P65-17-XLH-RR	2	28.489	31.338	0.64	0.80	14.64	141.60	0.000	0.000	734.23	0.00	0.00
7	138.00	Low Profile Platform-flat	1	28.489	31.338	1.00	1.00	34.00	1440.00	0.000	0.000	1704.80	0.00	0.00
8	138.00	SBNH-1D6565C	1	28.489	31.338	0.67	0.80	7.71	79.32	0.000	0.000	386.48	0.00	0.00
9	138.00	7770.00	6	28.489	31.338	0.62	0.80	20.33	252.00	0.000	0.000	1019.27	0.00	0.00
10	138.00	RRUS-12 1900 MHz	3	28.489	31.338	0.40	0.80	3.24	216.00	0.000	0.000	162.46	0.00	0.00
11	138.00	TT19-08BP111-001	6	28.489	31.338	0.54	0.80	2.06	115.20	0.000	0.000	103.20	0.00	0.00
12	138.00	RRUS-11 700MHz	6	28.489	31.338	0.40	0.80	6.05	367.20	0.000	0.000	303.25	0.00	0.00
13	138.00	LGP 21901	6	28.489	31.338	0.54	0.80	0.74	39.60	0.000	0.000	37.09	0.00	0.00
14	138.00	DC6-48-60-18-8F	1	28.489	31.338	0.80	0.80	0.74	38.16	0.000	0.000	36.90	0.00	0.00
15	126.00	APXVSP18-C-A20	3	27.949	30.744	0.69	0.80	16.55	205.20	0.000	0.000	814.25	0.00	0.00
16	126.00	ACU-A20-N	4	27.949	30.744	0.40	0.80	0.22	4.80	0.000	0.000	11.02	0.00	0.00
17	126.00	800MHz Filter	3	27.949	30.744	0.54	0.80	1.25	31.68	0.000	0.000	61.70	0.00	0.00
18	126.00	TD-RRH8x20-25	3	27.949	30.744	0.40	0.80	4.86	252.00	0.000	0.000	239.06	0.00	0.00
19	126.00	800 MHz	3	27.949	30.744	0.40	0.80	2.99	190.80	0.000	0.000	146.98	0.00	0.00
20	126.00	1900MHz	3	27.949	30.744	0.40	0.80	4.56	158.40	0.000	0.000	224.31	0.00	0.00
21	126.00	APXVTM14-C-120	3	27.949	30.744	0.62	0.80	11.87	201.60	0.000	0.000	583.81	0.00	0.00
22	126.00	Low Profile Platform-flat	1	27.949	30.744	1.00	1.00	34.00	1440.00	0.000	0.000	1672.46	0.00	0.00
23	115.00	F4P-12W	1	27.416	30.158	1.00	1.00	63.31	3720.00	0.000	0.000	3054.89	0.00	0.00
24	115.00	F4P-HRK12	1	27.416	30.158	1.00	1.00	7.57	608.40	0.000	0.000	365.27	0.00	0.00
25	115.00	AIR32	4	27.416	30.158	0.73	0.80	18.92	634.56	0.000	0.000	912.73	0.00	0.00
26	115.00	APXVAARR24_43-U-NA2	4	27.416	30.158	0.65	0.80	52.46	475.20	0.000	0.000	2531.45	0.00	0.00
27	115.00	APX16DWV-16DWVS-E-A	4	27.416	30.158	0.62	0.80	16.37	195.36	0.000	0.000	789.98	0.00	0.00
28	115.00	KRY 112 489/2	4	27.416	30.158	0.40	0.80	1.02	73.92	0.000	0.000	49.41	0.00	0.00
29	115.00	Radio 4449 B71 + B12	4	27.416	30.158	0.54	0.80	3.54	336.00	0.000	0.000	170.70	0.00	0.00
30	100.00	742 213	3	26.621	29.284	0.78	1.00	11.98	79.20	0.000	0.000	561.35	0.00	0.00
31	100.00	Flush Mount	1	26.621	29.284	1.00	1.00	5.00	420.00	0.000	0.000	234.27	0.00	0.00
32	50.00	GPS	1	23.007	25.308	1.00	1.00	0.01	1.20	0.000	0.000	0.40	0.00	0.00
33	50.00	Standoff	1	23.007	25.308	1.00	1.00	1.50	60.00	0.000	0.000	60.74	0.00	0.00
34	20.50	Splice Plate	2	19.069	20.976	0.94	1.00	7.20	662.40	0.000	0.000	241.66	0.00	0.00

Totals: 14,023.80

19,727.46

Total Applied Force Summary

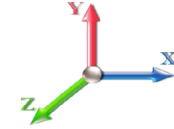
Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 28

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
2.00		232.49	497.02	0.00	0.00
4.00		230.54	493.47	0.00	0.00
6.00		228.59	489.92	0.00	0.00
8.00		226.63	486.37	0.00	0.00
10.00		224.68	482.82	0.00	0.00
12.00		222.72	479.27	0.00	0.00
14.00		220.77	475.72	0.00	0.00
14.17		18.68	40.27	0.00	0.00
16.00		202.61	431.90	0.00	0.00
17.50		167.98	351.80	0.00	0.00
18.00		56.07	116.82	0.00	0.00
20.00		228.02	465.07	0.00	0.00
20.50	(2) attachments	298.64	778.11	0.00	0.00
22.00		172.70	345.81	0.00	0.00
24.00		232.63	457.97	0.00	0.00
26.00		234.39	454.42	0.00	0.00
28.00		235.85	450.87	0.00	0.00
30.00		237.05	447.32	0.00	0.00
32.00		238.00	443.77	0.00	0.00
34.00		238.74	440.22	0.00	0.00
36.00		239.28	436.67	0.00	0.00
37.00		119.45	217.00	0.00	0.00
38.00		119.53	216.12	0.00	0.00
40.00		239.85	429.57	0.00	0.00
42.00		239.90	426.02	0.00	0.00
43.36		162.84	287.67	0.00	0.00
43.50		16.71	29.52	0.00	0.00
44.00		60.79	178.09	0.00	0.00
46.00		243.89	708.29	0.00	0.00
48.00		243.59	701.78	0.00	0.00
48.50		60.64	174.43	0.00	0.00
50.00	(2) attachments	243.29	332.36	0.00	0.00
52.00		242.65	358.95	0.00	0.00
52.50		60.39	89.28	0.00	0.00
54.00		181.29	266.72	0.00	0.00
54.17		20.47	30.12	0.00	0.00
56.00		220.71	322.91	0.00	0.00
58.00		240.51	350.08	0.00	0.00
60.00		239.62	347.12	0.00	0.00
62.00		238.65	344.16	0.00	0.00
64.00		237.60	341.20	0.00	0.00
64.17		20.09	28.87	0.00	0.00
66.00		216.27	309.38	0.00	0.00
68.00		235.29	335.28	0.00	0.00
69.50		175.51	249.52	0.00	0.00
70.00		58.25	82.80	0.00	0.00

Total Applied Force Summary

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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72.00		232.70	329.37	0.00	0.00
74.00		231.32	326.41	0.00	0.00
76.00		229.87	323.45	0.00	0.00
76.71		81.10	114.11	0.00	0.00
76.84		14.44	20.32	0.00	0.00
78.00		134.73	300.55	0.00	0.00
80.00		230.67	512.49	0.00	0.00
80.17		19.49	43.32	0.00	0.00
81.17		114.53	254.02	0.00	0.00
82.00		94.73	112.20	0.00	0.00
84.00		227.44	268.68	0.00	0.00
85.92		217.06	255.71	0.00	0.00
86.00		9.01	10.61	0.00	0.00
87.50		168.90	198.19	0.00	0.00
88.00		56.12	65.77	0.00	0.00
90.00		224.30	261.58	0.00	0.00
92.00		220.40	259.22	0.00	0.00
94.00		218.53	256.85	0.00	0.00
96.00		216.61	254.48	0.00	0.00
98.00		214.66	252.12	0.00	0.00
100.00	(4) attachments	1008.28	748.95	0.00	0.00
102.00		210.63	232.41	0.00	0.00
104.00		208.56	230.04	0.00	0.00
106.00		206.45	227.67	0.00	0.00
108.00		204.30	225.31	0.00	0.00
110.00		202.12	222.94	0.00	0.00
111.21		121.46	134.10	0.00	0.00
112.00		79.50	133.46	0.00	0.00
114.00		200.78	336.41	0.00	0.00
114.80		79.26	132.85	0.00	0.00
115.00	(22) attachments	7894.59	6061.74	0.00	0.00
116.00		98.88	78.64	0.00	0.00
118.00		196.22	155.96	0.00	0.00
120.00		193.89	154.18	0.00	0.00
122.00		191.53	152.41	0.00	0.00
124.00		189.14	150.63	0.00	0.00
126.00	(23) attachments	3940.31	2633.34	0.00	0.00
128.00		184.28	140.21	0.00	0.00
130.00		181.81	138.44	0.00	0.00
132.00		179.31	136.66	0.00	0.00
134.00		176.78	134.89	0.00	0.00
136.00		174.23	133.11	0.00	0.00
138.00	(32) attachments	4659.32	2820.42	0.00	0.00
140.00		169.05	97.52	0.00	0.00
142.00		166.42	95.75	0.00	0.00
144.00		163.77	93.97	0.00	0.00
146.00		161.09	92.20	0.00	0.00
148.00		158.39	90.42	0.00	0.00
150.00	(5) attachments	2669.02	1672.65	0.00	4247.35
	Totals:	35,950.72	38,299.60	0.00	4,247.35

Linear Appurtenance Segment Forces (Factored)

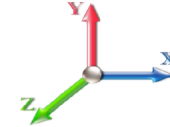
Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 28

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
2.00	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.051	0.000	17.879	0.00	0.00
4.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.068	0.000	17.879	0.00	0.00
6.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.069	0.000	17.879	0.00	0.00
8.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.069	0.000	17.879	0.00	0.00
10.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.070	0.000	17.879	0.00	0.00
12.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.071	0.000	17.879	0.00	0.00
14.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.071	0.000	17.879	0.00	0.00
14.17	1.5" Reinforcing Plate	Yes	0.17	0.000	3.00	0.04	0.00	0.072	0.000	17.879	0.00	0.00
16.00	1.5" Reinforcing Plate	Yes	1.83	0.000	3.00	0.46	0.00	0.072	0.000	18.100	0.00	0.00
17.50	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.072	0.000	18.445	0.00	0.00
18.00	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.13	0.00	0.073	0.000	18.554	0.00	0.00
20.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.073	0.000	18.971	0.00	0.00
20.50	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.13	0.00	0.074	0.000	19.069	0.00	0.00
22.00	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.074	0.000	19.355	0.00	0.00
24.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.075	0.000	19.713	0.00	0.00
26.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.075	0.000	20.048	0.00	0.00
28.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.076	0.000	20.363	0.00	0.00
30.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.077	0.000	20.661	0.00	0.00
32.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.077	0.000	20.944	0.00	0.00
34.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.078	0.000	21.213	0.00	0.00
36.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.079	0.000	21.470	0.00	0.00
37.00	1.5" Reinforcing Plate	Yes	1.00	0.000	3.00	0.25	0.00	0.080	0.000	21.594	0.00	0.00
38.00	1.25" Reinforcing	Yes	1.00	0.000	2.50	0.21	0.00	0.067	0.000	21.715	0.00	0.00
40.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	0.42	0.00	0.067	0.000	21.951	0.00	0.00
42.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	0.42	0.00	0.068	0.000	22.178	0.00	0.00
43.36	1.25" Reinforcing	Yes	1.36	0.000	2.50	0.28	0.00	0.068	0.000	22.327	0.00	0.00
43.50	1.5" Reinforcing Plate	Yes	0.10	0.000	3.00	0.03	0.00	0.078	0.000	22.342	0.00	0.00
43.50	1.25" Reinforcing	Yes	0.04	0.000	2.50	0.01	0.00	0.078	0.000	22.342	0.00	0.00
44.00	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.13	0.00	0.082	0.000	22.396	0.00	0.00
46.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.083	0.000	22.607	0.00	0.00
48.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.084	0.000	22.810	0.00	0.00
48.50	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.13	0.00	0.084	0.000	22.860	0.00	0.00
50.00	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.083	0.000	23.007	0.00	0.00
52.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.084	0.000	23.198	0.00	0.00
52.50	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.13	0.00	0.085	0.000	23.244	0.00	0.00
54.00	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.085	0.000	23.383	0.00	0.00
54.17	1.5" Reinforcing Plate	Yes	0.17	0.000	3.00	0.04	0.00	0.086	0.000	23.398	0.00	0.00
56.00	1.5" Reinforcing Plate	Yes	1.83	0.000	3.00	0.46	0.00	0.086	0.000	23.562	0.00	0.00
58.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.087	0.000	23.737	0.00	0.00
60.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.088	0.000	23.907	0.00	0.00
62.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.089	0.000	24.073	0.00	0.00
64.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.090	0.000	24.234	0.00	0.00
64.17	1.5" Reinforcing Plate	Yes	0.17	0.000	3.00	0.04	0.00	0.090	0.000	24.248	0.00	0.00
66.00	1.5" Reinforcing Plate	Yes	1.83	0.000	3.00	0.46	0.00	0.091	0.000	24.392	0.00	0.00
68.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.092	0.000	24.545	0.00	0.00
69.50	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.093	0.000	24.658	0.00	0.00
70.00	1.25" Reinforcing	Yes	0.50	0.000	2.50	0.10	0.00	0.078	0.000	24.696	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

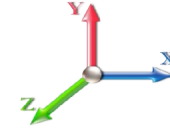
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Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 28

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
72.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	0.42	0.00	0.078	0.000	24.843	0.00	0.00
74.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	0.42	0.00	0.079	0.000	24.986	0.00	0.00
76.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	0.42	0.00	0.080	0.000	25.127	0.00	0.00
76.71	1.5" Reinforcing Plate	Yes	0.01	0.000	3.00	0.00	0.00	0.081	0.000	25.176	0.00	0.00
76.71	1.25" Reinforcing	Yes	0.70	0.000	2.50	0.15	0.00	0.081	0.000	25.176	0.00	0.00
76.84	1.5" Reinforcing Plate	Yes	0.13	0.000	3.00	0.03	0.00	0.097	0.000	25.185	0.00	0.00
78.00	1.5" Reinforcing Plate	Yes	1.16	0.000	3.00	0.29	0.00	0.098	0.000	25.265	0.00	0.00
80.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.099	0.000	25.400	0.00	0.00
80.17	1.5" Reinforcing Plate	Yes	0.17	0.000	3.00	0.04	0.00	0.099	0.000	25.411	0.00	0.00
81.17	1.5" Reinforcing Plate	Yes	1.00	0.000	3.00	0.25	0.00	0.100	0.000	25.478	0.00	0.00
82.00	1.5" Reinforcing Plate	Yes	0.83	0.000	3.00	0.21	0.00	0.098	0.000	25.532	0.00	0.00
84.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.099	0.000	25.662	0.00	0.00
85.92	1.5" Reinforcing Plate	Yes	1.92	0.000	3.00	0.48	0.00	0.101	1.002	25.784	0.00	0.00
86.00	1.5" Reinforcing Plate	Yes	0.08	0.000	3.00	0.02	0.00	0.101	1.003	25.789	0.00	0.00
87.50	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.102	1.005	25.884	0.00	0.00
88.00	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.13	0.00	0.102	1.007	25.915	0.00	0.00
90.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.103	1.009	26.037	0.00	0.00
Totals:											0.0	0.0

Calculated Forces

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

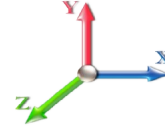


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Load Case: 1.2D + 1.6W 93 mph Wind

Iterations 28

Dead Load Factor 1.20
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-38.27	-35.99	0.00	-3762.5	0.00	3762.57	3406.69	1703.35	5989.16	2957.82	0.00	0.000	0.000	0.737
2.00	-37.71	-35.82	0.00	-3690.6	0.00	3690.60	3390.81	1695.40	5910.44	2918.95	0.02	-0.102	0.000	0.730
4.00	-37.15	-35.65	0.00	-3618.9	0.00	3618.96	3374.70	1687.35	5831.83	2880.12	0.09	-0.205	0.000	0.723
6.00	-36.60	-35.49	0.00	-3547.6	0.00	3547.65	3358.38	1679.19	5753.31	2841.35	0.19	-0.307	0.000	0.715
8.00	-36.05	-35.32	0.00	-3476.6	0.00	3476.68	3341.83	1670.92	5674.92	2802.63	0.35	-0.410	0.000	0.708
10.00	-35.50	-35.16	0.00	-3406.0	0.00	3406.03	3325.07	1662.53	5596.65	2763.98	0.54	-0.513	0.000	0.701
12.00	-34.96	-35.00	0.00	-3335.7	0.00	3335.71	3308.08	1654.04	5518.52	2725.39	0.78	-0.616	0.000	0.693
14.00	-34.46	-34.80	0.00	-3265.7	0.00	3265.72	3290.88	1645.44	5440.53	2686.87	1.06	-0.720	0.000	0.686
14.17	-34.39	-34.81	0.00	-3259.8	0.00	3259.80	3289.41	1644.70	5433.91	2683.60	1.08	-0.728	0.000	0.624
16.00	-33.91	-34.65	0.00	-3196.1	0.00	3196.10	3273.46	1636.73	5362.70	2648.44	1.38	-0.815	0.000	0.618
17.50	-33.53	-34.51	0.00	-3144.1	0.00	3144.12	3260.25	1630.12	5304.43	2619.66	1.65	-0.886	0.000	0.674
18.00	-33.38	-34.49	0.00	-3126.8	0.00	3126.87	3255.82	1627.91	5285.03	2610.08	1.74	-0.912	0.000	0.672
20.00	-32.88	-34.29	0.00	-3057.9	0.00	3057.90	3237.96	1618.98	5207.54	2571.81	2.14	-1.016	0.000	0.664
20.50	-32.08	-34.00	0.00	-3040.7	0.00	3040.76	3233.46	1616.73	5188.20	2562.26	2.25	-1.042	0.000	0.540
22.00	-31.69	-33.86	0.00	-2989.7	0.00	2989.76	3219.87	1609.94	5130.24	2533.63	2.59	-1.106	0.000	0.535
24.00	-31.19	-33.67	0.00	-2922.0	0.00	2922.04	3201.57	1600.79	5053.13	2495.55	3.07	-1.191	0.000	0.528
26.00	-30.69	-33.47	0.00	-2854.7	0.00	2854.70	3183.05	1591.53	4976.22	2457.57	3.59	-1.276	0.000	0.521
28.00	-30.20	-33.27	0.00	-2787.7	0.00	2787.77	3164.31	1582.16	4899.54	2419.70	4.14	-1.360	0.000	0.513
30.00	-29.71	-33.06	0.00	-2721.2	0.00	2721.24	3145.35	1572.68	4823.07	2381.93	4.73	-1.445	0.000	0.506
32.00	-29.22	-32.86	0.00	-2655.1	0.00	2655.12	3126.18	1563.09	4746.84	2344.29	5.35	-1.529	0.000	0.499
34.00	-28.74	-32.65	0.00	-2589.4	0.00	2589.40	3106.78	1553.39	4670.86	2306.76	6.01	-1.613	0.000	0.491
36.00	-28.27	-32.43	0.00	-2524.1	0.00	2524.11	3087.16	1543.58	4595.12	2269.36	6.71	-1.697	0.000	0.484
37.00	-28.03	-32.33	0.00	-2491.6	0.00	2491.69	3077.27	1538.63	4557.36	2250.71	7.07	-1.740	0.000	0.666
38.00	-27.77	-32.24	0.00	-2459.3	0.00	2459.36	3067.32	1533.66	4519.66	2232.09	7.44	-1.798	0.000	0.661
40.00	-27.28	-32.04	0.00	-2394.8	0.00	2394.88	3047.27	1523.63	4444.46	2194.95	8.22	-1.914	0.000	0.652
42.00	-26.81	-31.83	0.00	-2330.7	0.00	2330.79	3026.99	1513.49	4369.56	2157.96	9.04	-2.031	0.000	0.642
43.36	-26.51	-31.68	0.00	-2287.5	0.00	2287.50	3013.08	1506.54	4318.79	2132.89	9.63	-2.110	0.000	0.455
43.50	-26.47	-31.67	0.00	-2283.0	0.00	2283.06	3011.64	1505.82	4313.57	2130.31	9.69	-2.116	0.000	0.455
44.00	-26.27	-31.63	0.00	-2267.2	0.00	2267.23	3006.49	1503.25	4294.94	2121.11	9.92	-2.137	0.000	0.444
46.00	-25.52	-31.39	0.00	-2203.9	0.00	2203.98	2985.78	1492.89	4220.63	2084.41	10.83	-2.218	0.000	0.436
48.00	-24.80	-31.14	0.00	-2141.2	0.00	2141.20	2964.84	1482.42	4146.63	2047.87	11.78	-2.299	0.000	0.428
48.50	-24.61	-31.09	0.00	-2125.6	0.00	2125.63	2330.75	1165.37	3323.66	1641.43	12.02	-2.319	0.000	0.469
50.00	-24.25	-30.87	0.00	-2078.9	0.00	2078.99	2320.40	1160.20	3282.84	1621.27	12.76	-2.380	0.000	0.484
52.00	-23.87	-30.63	0.00	-2017.2	0.00	2017.26	2306.40	1153.20	3228.50	1594.43	13.77	-2.464	0.000	0.474
52.50	-23.77	-30.58	0.00	-2001.9	0.00	2001.94	2302.87	1151.43	3214.93	1587.73	14.03	-2.485	0.000	0.390
54.00	-23.49	-30.40	0.00	-1956.0	0.00	1956.07	2292.19	1146.09	3174.27	1567.65	14.82	-2.536	0.000	0.384
54.17	-23.44	-30.40	0.00	-1950.9	0.00	1950.91	2290.97	1145.49	3169.67	1565.38	14.91	-2.542	0.000	0.522
56.00	-23.08	-30.20	0.00	-1895.2	0.00	1895.28	2277.76	1138.88	3120.17	1540.93	15.90	-2.628	0.000	0.512
58.00	-22.69	-29.98	0.00	-1834.8	0.00	1834.89	2263.10	1131.55	3066.20	1514.28	17.02	-2.721	0.000	0.501
60.00	-22.31	-29.76	0.00	-1774.9	0.00	1774.93	2248.23	1124.12	3012.38	1487.70	18.18	-2.813	0.000	0.490
62.00	-21.93	-29.54	0.00	-1715.4	0.00	1715.42	2233.14	1116.57	2958.71	1461.20	19.38	-2.904	0.000	0.478
64.00	-21.58	-29.30	0.00	-1656.3	0.00	1656.34	2217.83	1108.92	2905.21	1434.77	20.61	-2.995	0.000	0.467
64.17	-21.53	-29.29	0.00	-1651.3	0.00	1651.36	2216.52	1108.26	2900.67	1432.53	20.72	-3.003	0.000	0.357
66.00	-21.20	-29.08	0.00	-1597.7	0.00	1597.76	2202.30	1101.15	2851.88	1408.44	21.88	-3.066	0.000	0.348
68.00	-20.85	-28.85	0.00	-1539.5	0.00	1539.59	2186.55	1093.28	2798.74	1382.19	23.18	-3.133	0.000	0.339
69.50	-20.59	-28.68	0.00	-1496.3	0.00	1496.31	2174.60	1087.30	2759.01	1362.57	24.17	-3.184	0.000	0.459
70.00	-20.48	-28.63	0.00	-1481.9	0.00	1481.98	2170.58	1085.29	2745.79	1356.04	24.51	-3.207	0.000	0.456
72.00	-20.12	-28.42	0.00	-1424.7	0.00	1424.71	2154.39	1077.20	2693.05	1329.99	25.87	-3.299	0.000	0.443

Calculated Forces

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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74.00	-19.77	-28.20	0.00	-1367.8	0.00	1367.88	2137.99	1068.99	2640.51	1304.05	27.27	-3.390	0.000	0.431
76.00	-19.43	-27.97	0.00	-1311.4	0.00	1311.48	2121.36	1060.68	2588.21	1278.22	28.71	-3.479	0.000	0.418
76.71	-19.31	-27.89	0.00	-1291.6	0.00	1291.63	2115.40	1057.70	2569.69	1269.07	29.23	-3.511	0.000	0.313
76.84	-19.28	-27.88	0.00	-1288.0	0.00	1288.09	2114.34	1057.17	2566.39	1267.45	29.32	-3.515	0.000	0.312
78.00	-18.96	-27.74	0.00	-1255.6	0.00	1255.66	2104.51	1052.26	2536.13	1252.50	30.18	-3.554	0.000	0.300
80.00	-18.45	-27.49	0.00	-1200.1	0.00	1200.18	2087.45	1043.72	2484.30	1226.90	31.69	-3.618	0.000	0.290
80.17	-18.40	-27.48	0.00	-1195.5	0.00	1195.51	2085.98	1042.99	2479.91	1224.73	31.81	-3.623	0.000	0.389
81.17	-18.13	-27.36	0.00	-1168.0	0.00	1168.03	1538.24	769.12	1857.13	917.17	32.58	-3.666	0.000	0.428
82.00	-18.00	-27.28	0.00	-1145.3	0.00	1145.32	1534.07	767.04	1842.56	909.97	33.22	-3.701	0.000	0.449
84.00	-17.70	-27.06	0.00	-1090.7	0.00	1090.77	1523.87	761.94	1807.49	892.65	34.79	-3.789	0.000	0.432
85.92	-17.44	-26.84	0.00	-1038.8	0.00	1038.82	1513.87	756.94	1773.86	876.04	36.33	-3.873	0.000	0.317
86.00	-17.42	-26.84	0.00	-1036.6	0.00	1036.67	1513.45	756.73	1772.46	875.35	36.39	-3.875	0.000	0.317
87.50	-17.22	-26.66	0.00	-996.42	0.00	996.42	1505.49	752.75	1746.23	862.40	37.62	-3.924	0.000	0.395
88.00	-17.13	-26.62	0.00	-983.09	0.00	983.09	1502.81	751.41	1737.49	858.08	38.03	-3.945	0.000	0.391
90.00	-16.84	-26.41	0.00	-929.85	0.00	929.85	1491.95	745.98	1702.59	840.84	39.70	-4.026	0.000	0.582
92.00	-16.54	-26.20	0.00	-877.03	0.00	877.03	1480.87	740.44	1667.76	823.65	41.41	-4.148	0.000	0.556
94.00	-16.25	-26.00	0.00	-824.63	0.00	824.63	1469.57	734.79	1633.03	806.49	43.17	-4.267	0.000	0.531
96.00	-15.96	-25.80	0.00	-772.63	0.00	772.63	1458.05	729.03	1598.39	789.39	44.98	-4.383	0.000	0.504
98.00	-15.68	-25.59	0.00	-721.03	0.00	721.03	1446.32	723.16	1563.86	772.33	46.84	-4.495	0.000	0.478
100.00	-14.96	-24.56	0.00	-669.85	0.00	669.85	1434.36	717.18	1529.45	755.34	48.75	-4.602	0.000	0.450
102.00	-14.68	-24.37	0.00	-620.73	0.00	620.73	1422.18	711.09	1495.16	738.41	50.69	-4.705	0.000	0.852
104.00	-14.39	-24.19	0.00	-572.00	0.00	572.00	1409.79	704.89	1461.02	721.54	52.71	-4.904	0.000	0.804
106.00	-14.10	-24.01	0.00	-523.62	0.00	523.62	1397.17	698.58	1427.02	704.75	54.80	-5.095	0.000	0.754
108.00	-13.82	-23.83	0.00	-475.61	0.00	475.61	1384.33	692.17	1393.17	688.04	56.97	-5.276	0.000	0.702
110.00	-13.57	-23.64	0.00	-427.95	0.00	427.95	1371.28	685.64	1359.50	671.40	59.22	-5.448	0.000	0.648
111.21	-13.41	-23.52	0.00	-399.27	0.00	399.27	1363.25	681.63	1339.15	661.36	60.61	-5.547	0.000	0.615
112.00	-13.24	-23.46	0.00	-380.76	0.00	380.76	1358.00	679.00	1326.00	654.86	61.53	-5.610	0.000	0.592
114.00	-12.89	-23.25	0.00	-333.85	0.00	333.85	1344.51	672.26	1292.68	638.41	63.91	-5.758	0.000	0.534
114.80	-12.75	-23.16	0.00	-315.33	0.00	315.33	898.25	449.12	876.91	433.07	64.88	-5.815	0.000	0.745
115.00	-7.51	-14.70	0.00	-310.62	0.00	310.62	897.59	448.79	874.90	432.08	65.12	-5.829	0.000	0.728
116.00	-7.41	-14.61	0.00	-295.93	0.00	295.93	894.32	447.16	865.01	427.20	66.35	-5.914	0.000	0.702
118.00	-7.23	-14.42	0.00	-266.71	0.00	266.71	887.61	443.81	845.23	417.43	68.86	-6.075	0.000	0.648
120.00	-7.06	-14.23	0.00	-237.88	0.00	237.88	880.69	440.34	825.45	407.66	71.44	-6.227	0.000	0.593
122.00	-6.90	-14.03	0.00	-209.43	0.00	209.43	873.54	436.77	805.67	397.89	74.07	-6.368	0.000	0.535
124.00	-6.74	-13.84	0.00	-181.36	0.00	181.36	866.18	433.09	785.90	388.13	76.76	-6.497	0.000	0.476
126.00	-4.56	-9.64	0.00	-153.67	0.00	153.67	858.60	429.30	766.16	378.38	79.50	-6.613	0.000	0.412
128.00	-4.42	-9.45	0.00	-134.39	0.00	134.39	850.80	425.40	746.46	368.65	82.29	-6.718	0.000	0.370
130.00	-4.29	-9.26	0.00	-115.50	0.00	115.50	842.77	421.39	726.80	358.94	85.12	-6.814	0.000	0.327
132.00	-4.17	-9.07	0.00	-96.99	0.00	96.99	834.53	417.27	707.19	349.25	87.99	-6.900	0.000	0.283
134.00	-4.04	-8.88	0.00	-78.85	0.00	78.85	826.07	413.04	687.65	339.60	90.89	-6.975	0.000	0.238
136.00	-3.92	-8.70	0.00	-61.09	0.00	61.09	817.39	408.69	668.18	329.99	93.82	-7.037	0.000	0.190
138.00	-1.69	-3.73	0.00	-43.70	0.00	43.70	808.49	404.24	648.79	320.41	96.77	-7.087	0.000	0.139
140.00	-1.62	-3.55	0.00	-36.25	0.00	36.25	799.37	399.68	629.50	310.89	99.74	-7.127	0.000	0.119
142.00	-1.54	-3.37	0.00	-29.15	0.00	29.15	790.03	395.01	610.32	301.41	102.72	-7.162	0.000	0.099
144.00	-1.47	-3.20	0.00	-22.41	0.00	22.41	780.47	390.24	591.24	291.99	105.72	-7.190	0.000	0.079
146.00	-1.39	-3.03	0.00	-16.02	0.00	16.02	770.69	385.35	572.29	282.63	108.73	-7.213	0.000	0.059
148.00	-1.32	-2.86	0.00	-9.96	0.00	9.96	760.69	380.35	553.47	273.34	111.75	-7.230	0.000	0.038
150.00	0.00	-2.67	0.00	-4.25	0.00	4.25	750.48	375.24	534.80	264.12	114.77	-7.239	0.000	0.016

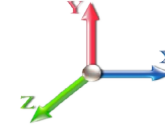
Wind Loading - Shaft

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 27

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1 RB2 RB3 RB4	1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
2.00		1.00	0.85	5.168	5.68	0.00	1.200	1.511	2.00	7.892	9.47	53.8	172.8	591.3
4.00		1.00	0.85	5.168	5.68	0.00	1.200	1.620	2.00	7.866	9.44	53.7	184.1	599.1
6.00		1.00	0.85	5.168	5.68	0.00	1.200	1.687	2.00	7.826	9.39	53.4	190.4	601.9
8.00		1.00	0.85	5.168	5.68	0.00	1.200	1.736	2.00	7.781	9.34	53.1	194.6	602.5
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.775	2.00	7.732	9.28	52.7	197.5	601.9
12.00		1.00	0.85	5.168	5.68	0.00	1.200	1.808	2.00	7.680	9.22	52.4	199.6	600.4
14.00		1.00	0.85	5.168	5.68	0.00	1.200	1.836	2.00	7.628	9.15	52.0	201.1	598.4
14.17	RB5	1.00	0.85	5.168	5.68	0.00	1.200	1.838	0.17	0.646	0.77	4.4	17.1	50.7
16.00		1.00	0.86	5.232	5.76	0.00	1.200	1.860	1.83	6.928	8.31	47.8	185.0	545.1
17.50	RT4	1.00	0.88	5.331	5.86	0.00	1.200	1.877	1.50	5.644	6.77	39.7	152.1	445.0
18.00		1.00	0.88	5.363	5.90	0.00	1.200	1.882	0.50	1.874	2.25	13.3	50.7	147.9
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.902	2.00	7.463	8.96	54.0	203.4	590.0
20.50	RT1 RT2 RB6	1.00	0.91	5.512	6.06	0.00	1.200	1.907	0.50	1.857	2.23	13.5	50.9	147.0
22.00		1.00	0.92	5.595	6.15	0.00	1.200	1.921	1.50	5.550	6.66	41.0	152.7	439.7
24.00		1.00	0.94	5.698	6.27	0.00	1.200	1.937	2.00	7.351	8.82	55.3	203.7	583.2
26.00		1.00	0.95	5.795	6.37	0.00	1.200	1.953	2.00	7.294	8.75	55.8	203.6	579.5
28.00		1.00	0.97	5.886	6.47	0.00	1.200	1.967	2.00	7.237	8.68	56.2	203.3	575.7
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.981	2.00	7.179	8.61	56.6	203.0	571.8
32.00		1.00	1.00	6.054	6.66	0.00	1.200	1.994	2.00	7.121	8.55	56.9	202.5	567.8
34.00		1.00	1.01	6.132	6.74	0.00	1.200	2.006	2.00	7.063	8.48	57.2	201.9	563.7
36.00		1.00	1.02	6.206	6.83	0.00	1.200	2.017	2.00	7.005	8.41	57.4	201.2	559.4
37.00	RT6	1.00	1.03	6.242	6.87	0.00	1.200	2.023	1.00	3.480	4.18	28.7	100.4	278.2
38.00		1.00	1.03	6.277	6.90	0.00	1.200	2.028	1.00	3.465	4.16	28.7	100.2	277.1
40.00		1.00	1.04	6.345	6.98	0.00	1.200	2.039	2.00	6.888	8.27	57.7	199.7	550.8
42.00		1.00	1.05	6.410	7.05	0.00	1.200	2.049	2.00	6.829	8.19	57.8	198.8	546.3
43.36	RB7	1.00	1.06	6.454	7.10	0.00	1.200	2.055	1.36	4.610	5.53	39.3	134.7	369.0
43.50	Bot - Section 2	1.00	1.06	6.458	7.10	0.00	1.200	2.056	0.14	0.473	0.57	4.0	13.9	37.9
44.00		1.00	1.06	6.474	7.12	0.00	1.200	2.058	0.50	1.714	2.06	14.6	50.3	208.8
46.00		1.00	1.07	6.534	7.19	0.00	1.200	2.068	2.00	6.819	8.18	58.8	200.2	830.0
48.00		1.00	1.08	6.593	7.25	0.00	1.200	2.076	2.00	6.760	8.11	58.8	199.1	822.5
48.50	Top - Section 1	1.00	1.09	6.608	7.27	0.00	1.200	2.079	0.50	1.680	2.02	14.7	49.7	204.5
50.00	Appurtenance(s)	1.00	1.09	6.650	7.32	0.00	1.200	2.085	1.50	5.019	6.02	44.1	148.5	360.9
52.00		1.00	1.10	6.705	7.38	0.00	1.200	2.093	2.00	6.641	7.97	58.8	196.9	477.4
52.50	RB8	1.00	1.11	6.719	7.39	0.00	1.200	2.095	0.50	1.651	1.98	14.6	49.2	118.8
54.00		1.00	1.11	6.759	7.43	0.00	1.200	2.101	1.50	4.930	5.92	44.0	146.8	354.7
54.17	RT3 RT5	1.00	1.11	6.763	7.44	0.00	1.200	2.102	0.17	0.557	0.67	5.0	16.6	40.1
56.00		1.00	1.12	6.811	7.49	0.00	1.200	2.109	1.83	5.965	7.16	53.6	178.0	429.1
58.00		1.00	1.13	6.861	7.55	0.00	1.200	2.116	2.00	6.462	7.75	58.5	193.3	464.9
60.00		1.00	1.14	6.910	7.60	0.00	1.200	2.123	2.00	6.403	7.68	58.4	192.0	460.7
62.00		1.00	1.14	6.958	7.65	0.00	1.200	2.130	2.00	6.343	7.61	58.3	190.7	456.4
64.00		1.00	1.15	7.005	7.71	0.00	1.200	2.137	2.00	6.283	7.54	58.1	189.3	452.1
64.17	RB9	1.00	1.15	7.009	7.71	0.00	1.200	2.138	0.17	0.531	0.64	4.9	16.1	38.3
66.00		1.00	1.16	7.050	7.76	0.00	1.200	2.144	1.83	5.692	6.83	53.0	172.0	409.5
68.00		1.00	1.17	7.095	7.80	0.00	1.200	2.150	2.00	6.163	7.40	57.7	186.5	443.4
69.50	RT7	1.00	1.17	7.128	7.84	0.00	1.200	2.155	1.50	4.583	5.50	43.1	139.1	329.8
70.00	RT8 RB10	1.00	1.17	7.138	7.85	0.00	1.200	2.156	0.50	1.520	1.82	14.3	46.3	109.5

Wind Loading - Shaft

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 20



72.00	1.00	1.18	7.181	7.90	0.00	1.200	2.162	2.00	6.043	7.25	57.3	183.6	434.5	
74.00	1.00	1.19	7.222	7.94	0.00	1.200	2.168	2.00	5.983	7.18	57.0	182.1	430.1	
76.00	1.00	1.19	7.263	7.99	0.00	1.200	2.174	2.00	5.923	7.11	56.8	180.6	425.6	
76.71 RB11	1.00	1.20	7.277	8.00	0.00	1.200	2.176	0.71	2.088	2.51	20.1	63.9	150.2	
76.84 Bot - Section 3	1.00	1.20	7.280	8.01	0.00	1.200	2.176	0.13	0.372	0.45	3.6	11.4	26.7	
78.00	1.00	1.20	7.303	8.03	0.00	1.200	2.180	1.16	3.453	4.14	33.3	105.8	360.7	
80.00	1.00	1.21	7.342	8.08	0.00	1.200	2.185	2.00	5.888	7.07	57.1	180.4	614.4	
80.17 RT9	1.00	1.21	7.345	8.08	0.00	1.200	2.186	0.17	0.498	0.60	4.8	15.3	52.0	
81.17 Top - Section 2	1.00	1.21	7.364	8.10	0.00	1.200	2.188	1.00	2.919	3.50	28.4	89.7	304.5	
82.00	1.00	1.21	7.380	8.12	0.00	1.200	2.191	0.83	2.411	2.89	23.5	74.2	153.8	
84.00	1.00	1.22	7.418	8.16	0.00	1.200	2.196	2.00	5.768	6.92	56.5	177.2	367.4	
85.92 RB12	1.00	1.23	7.453	8.20	0.00	1.202 *	2.201	1.92	5.480	6.59	54.0	168.6	349.0	
86.00	1.00	1.23	7.454	8.20	0.00	1.204 *	2.201	0.08	0.227	0.27	2.2	7.0	14.5	
87.50 RT10	1.00	1.23	7.482	8.23	0.00	1.206 *	2.205	1.50	4.241	5.11	42.1	130.8	270.1	
88.00	1.00	1.23	7.491	8.24	0.00	1.208 *	2.206	0.50	1.406	1.70	14.0	43.5	89.6	
90.00 RT11	1.00	1.24	7.526	8.28	0.00	1.211 *	2.211	2.00	5.586	6.77	56.0	172.3	355.5	
92.00	1.00	1.24	7.561	8.32	0.00	1.200	2.216	2.00	5.526	6.63	55.2	170.7	351.4	
94.00	1.00	1.25	7.595	8.35	0.00	1.200	2.221	2.00	5.465	6.56	54.8	169.0	347.4	
96.00	1.00	1.25	7.629	8.39	0.00	1.200	2.225	2.00	5.405	6.49	54.4	167.3	343.3	
98.00	1.00	1.26	7.662	8.43	0.00	1.200	2.230	2.00	5.344	6.41	54.1	165.6	339.2	
100.00 RT12	1.00	1.27	7.695	8.46	0.00	1.200	2.234	2.00	5.284	6.34	53.7	163.9	335.2	
102.00	1.00	1.27	7.727	8.50	0.00	1.200	2.239	2.00	5.223	6.27	53.3	162.1	331.0	
104.00	1.00	1.28	7.759	8.53	0.00	1.200	2.243	2.00	5.162	6.19	52.9	160.4	326.9	
106.00	1.00	1.28	7.790	8.57	0.00	1.200	2.248	2.00	5.102	6.12	52.5	158.6	322.8	
108.00	1.00	1.29	7.821	8.60	0.00	1.200	2.252	2.00	5.041	6.05	52.0	156.8	318.6	
110.00	1.00	1.29	7.851	8.64	0.00	1.200	2.256	2.00	4.980	5.98	51.6	155.0	314.5	
111.21 Bot - Section 4	1.00	1.29	7.869	8.66	0.00	1.200	2.258	1.21	2.992	3.59	31.1	93.4	189.0	
112.00	1.00	1.30	7.881	8.67	0.00	1.200	2.260	0.79	1.953	2.34	20.3	61.1	169.6	
114.00	1.00	1.30	7.910	8.70	0.00	1.200	2.264	2.00	4.923	5.91	51.4	153.6	426.5	
114.80 Top - Section 3	1.00	1.30	7.922	8.71	0.00	1.200	2.266	0.80	1.944	2.33	20.3	60.9	168.5	
115.00 Appurtenance(s)	1.00	1.30	7.925	8.72	0.00	1.200	2.266	0.20	0.495	0.59	5.2	15.5	27.4	
116.00	1.00	1.31	7.939	8.73	0.00	1.200	2.268	1.00	2.424	2.91	25.4	75.9	133.9	
118.00	1.00	1.31	7.968	8.76	0.00	1.200	2.272	2.00	4.802	5.76	50.5	149.9	264.6	
120.00	1.00	1.32	7.996	8.80	0.00	1.200	2.276	2.00	4.741	5.69	50.0	148.1	261.0	
122.00	1.00	1.32	8.024	8.83	0.00	1.200	2.279	2.00	4.680	5.62	49.6	146.2	257.3	
124.00	1.00	1.32	8.051	8.86	0.00	1.200	2.283	2.00	4.619	5.54	49.1	144.3	253.7	
126.00 Appurtenance(s)	1.00	1.33	8.079	8.89	0.00	1.200	2.287	2.00	4.558	5.47	48.6	142.5	250.0	
128.00	1.00	1.33	8.105	8.92	0.00	1.200	2.290	2.00	4.497	5.40	48.1	140.6	246.3	
130.00	1.00	1.34	8.132	8.95	0.00	1.200	2.294	2.00	4.436	5.32	47.6	138.7	242.7	
132.00	1.00	1.34	8.158	8.97	0.00	1.200	2.297	2.00	4.375	5.25	47.1	136.8	239.0	
134.00	1.00	1.35	8.184	9.00	0.00	1.200	2.301	2.00	4.314	5.18	46.6	134.8	235.3	
136.00	1.00	1.35	8.210	9.03	0.00	1.200	2.304	2.00	4.254	5.10	46.1	132.9	231.6	
138.00 Appurtenance(s)	1.00	1.35	8.235	9.06	0.00	1.200	2.308	2.00	4.193	5.03	45.6	131.0	227.9	
140.00	1.00	1.36	8.260	9.09	0.00	1.200	2.311	2.00	4.132	4.96	45.0	129.0	224.1	
142.00	1.00	1.36	8.285	9.11	0.00	1.200	2.314	2.00	4.070	4.88	44.5	127.1	220.4	
144.00	1.00	1.37	8.309	9.14	0.00	1.200	2.317	2.00	4.009	4.81	44.0	125.1	216.7	
146.00	1.00	1.37	8.333	9.17	0.00	1.200	2.321	2.00	3.948	4.74	43.4	123.1	212.9	
148.00	1.00	1.37	8.357	9.19	0.00	1.200	2.324	2.00	3.887	4.66	42.9	121.1	209.2	
150.00 Appurtenance(s)	1.00	1.38	8.381	9.22	0.00	1.200	2.327	2.00	3.826	4.59	42.3	119.1	205.4	
							Totals:	150.00				4,015.5	32,474.6	

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

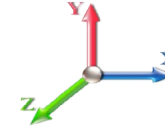
Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 27

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	150.00	10' Dipole	1	8.439	9.283	1.00	1.00	11.76	152.78	0.000	5.000	109.17	0.00	545.83	
2	150.00	18' Omni	1	8.484	9.333	1.00	1.00	13.93	208.22	0.000	9.000	130.04	0.00	1170.40	
3	150.00	10' Omni	1	8.439	9.283	1.00	1.00	7.81	109.71	0.000	5.000	72.48	0.00	362.41	
4	150.00	Low Profile Platform-flat	1	8.381	9.219	1.00	1.00	71.98	2536.17	0.000	0.000	663.53	0.00	0.00	
5	150.00	3' Yagi	1	8.381	9.219	1.00	1.00	11.35	106.32	0.000	0.000	104.64	0.00	0.00	
6	138.00	P65-17-XLH-RR	2	8.235	9.058	0.66	0.80	20.87	590.41	0.000	0.000	189.06	0.00	0.00	
7	138.00	Low Profile Platform-flat	1	8.235	9.058	1.00	1.00	71.66	2524.58	0.000	0.000	649.12	0.00	0.00	
8	138.00	SBNH-1D6565C	1	8.235	9.058	0.70	0.80	10.97	317.39	0.000	0.000	99.41	0.00	0.00	
9	138.00	7770.00	6	8.235	9.058	0.65	0.80	27.07	1622.53	0.000	0.000	245.20	0.00	0.00	
10	138.00	RRUS-12 1900 MHz	3	8.235	9.058	0.40	0.80	4.95	447.15	0.000	0.000	44.82	0.00	0.00	
11	138.00	TT19-08BP111-001	6	8.235	9.058	0.54	0.80	4.58	240.97	0.000	0.000	41.48	0.00	0.00	
12	138.00	RRUS-11 700MHz	6	8.235	9.058	0.40	0.80	8.06	844.58	0.000	0.000	72.99	0.00	0.00	
13	138.00	LGP 21901	6	8.235	9.058	0.54	0.80	2.30	87.41	0.000	0.000	20.88	0.00	0.00	
14	138.00	DC6-48-60-18-8F	1	8.235	9.058	0.80	0.80	1.20	102.21	0.000	0.000	10.86	0.00	0.00	
15	126.00	APXVSP18-C-A20	3	8.079	8.886	0.70	0.80	24.67	736.16	0.000	0.000	219.22	0.00	0.00	
16	126.00	ACU-A20-N	4	8.079	8.886	0.40	0.80	0.85	22.12	0.000	0.000	7.52	0.00	0.00	
17	126.00	800MHz Filter	3	8.079	8.886	0.54	0.80	2.62	86.03	0.000	0.000	23.26	0.00	0.00	
18	126.00	TD-RRH8x20-25	3	8.079	8.886	0.40	0.80	6.21	598.41	0.000	0.000	55.16	0.00	0.00	
19	126.00	800 MHz	3	8.079	8.886	0.40	0.80	4.79	418.23	0.000	0.000	42.53	0.00	0.00	
20	126.00	1900MHz	3	8.079	8.886	0.40	0.80	6.75	493.91	0.000	0.000	59.94	0.00	0.00	
21	126.00	APXVTM14-C-120	3	8.079	8.886	0.66	0.80	15.46	760.21	0.000	0.000	137.35	0.00	0.00	
22	126.00	Low Profile Platform-flat	1	8.079	8.886	1.00	1.00	71.32	2512.04	0.000	0.000	633.78	0.00	0.00	
23	115.00	F4P-12W	1	7.925	8.717	1.00	1.00	166.60	6812.67	0.000	0.000	1452.28	0.00	0.00	
24	115.00	F4P-HRK12	1	7.925	8.717	1.00	1.00	19.92	1140.75	0.000	0.000	173.65	0.00	0.00	
25	115.00	AIR32	4	7.925	8.717	0.74	0.80	23.53	1407.65	0.000	0.000	205.08	0.00	0.00	
26	115.00	APXVAARR24_43-U-NA2	4	7.925	8.717	0.66	0.80	60.09	2514.81	0.000	0.000	523.84	0.00	0.00	
27	115.00	APX16DWV-16DWVS-E-A	4	7.925	8.717	0.64	0.80	24.34	669.30	0.000	0.000	212.19	0.00	0.00	
28	115.00	KRY 112 489/2	4	7.925	8.717	0.40	0.80	2.29	145.54	0.000	0.000	19.96	0.00	0.00	
29	115.00	Radio 4449 B71 + B12	4	7.925	8.717	0.54	0.80	5.14	798.37	0.000	0.000	44.81	0.00	0.00	
30	100.00	742 213	3	7.695	8.464	0.84	1.00	17.22	641.37	0.000	0.000	145.72	0.00	0.00	
31	100.00	Flush Mount	1	7.695	8.464	1.00	1.00	9.47	695.39	0.000	0.000	80.15	0.00	0.00	
32	50.00	GPS	1	6.650	7.315	1.00	1.00	0.01	2.28	0.000	0.000	0.08	0.00	0.00	
33	50.00	Standoff	1	6.650	7.315	1.00	1.00	3.58	139.24	0.000	0.000	26.22	0.00	0.00	
34	20.50	Splice Plate	2	5.512	6.063	0.96	1.00	9.83	1419.46	0.000	0.000	59.59	0.00	0.00	
Totals:									31,904.37						6,576.03

Total Applied Force Summary

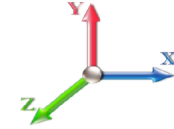
Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 27

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
2.00		53.84	676.91	0.00	0.00
4.00		53.66	688.14	0.00	0.00
6.00		53.39	691.61	0.00	0.00
8.00		53.08	692.74	0.00	0.00
10.00		52.74	692.53	0.00	0.00
12.00		52.39	691.43	0.00	0.00
14.00		52.03	689.72	0.00	0.00
14.17		4.40	58.47	0.00	0.00
16.00		47.84	628.95	0.00	0.00
17.50		39.72	513.90	0.00	0.00
18.00		13.27	170.91	0.00	0.00
20.00		54.02	682.12	0.00	0.00
20.50	(2) attachments	73.09	1589.47	0.00	0.00
22.00		40.98	508.94	0.00	0.00
24.00		55.29	675.73	0.00	0.00
26.00		55.79	672.25	0.00	0.00
28.00		56.23	668.63	0.00	0.00
30.00		56.59	664.87	0.00	0.00
32.00		56.91	660.99	0.00	0.00
34.00		57.17	657.00	0.00	0.00
36.00		57.38	652.93	0.00	0.00
37.00		28.67	324.98	0.00	0.00
38.00		28.71	323.49	0.00	0.00
40.00		57.69	643.61	0.00	0.00
42.00		57.79	639.30	0.00	0.00
43.36		39.27	432.32	0.00	0.00
43.50		4.03	44.45	0.00	0.00
44.00		14.64	232.26	0.00	0.00
46.00		58.82	924.11	0.00	0.00
48.00		58.83	916.67	0.00	0.00
48.50		14.66	228.09	0.00	0.00
50.00	(2) attachments	70.37	573.12	0.00	0.00
52.00		58.78	571.84	0.00	0.00
52.50		14.64	142.43	0.00	0.00
54.00		43.99	425.58	0.00	0.00
54.17		4.97	48.12	0.00	0.00
56.00		53.63	515.70	0.00	0.00
58.00		58.53	559.61	0.00	0.00
60.00		58.40	555.46	0.00	0.00
62.00		58.26	551.27	0.00	0.00
64.00		58.10	547.04	0.00	0.00
64.17		4.91	46.35	0.00	0.00
66.00		52.97	496.53	0.00	0.00
68.00		57.72	538.50	0.00	0.00
69.50		43.12	401.17	0.00	0.00
70.00		14.32	133.03	0.00	0.00

Total Applied Force Summary

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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72.00		57.28	528.89	0.00	0.00
74.00		57.04	524.51	0.00	0.00
76.00		56.78	520.12	0.00	0.00
76.71		20.06	183.75	0.00	0.00
76.84		3.57	32.80	0.00	0.00
78.00		33.28	416.29	0.00	0.00
80.00		57.07	710.01	0.00	0.00
80.17		4.83	60.09	0.00	0.00
81.17		28.37	352.34	0.00	0.00
82.00		23.49	193.55	0.00	0.00
84.00		56.47	463.18	0.00	0.00
85.92		54.00	441.01	0.00	0.00
86.00		2.24	18.33	0.00	0.00
87.50		42.09	342.02	0.00	0.00
88.00		14.00	113.61	0.00	0.00
90.00		56.02	451.40	0.00	0.00
92.00		55.15	429.89	0.00	0.00
94.00		54.80	425.84	0.00	0.00
96.00		54.43	421.78	0.00	0.00
98.00		54.05	417.70	0.00	0.00
100.00	(4) attachments	279.54	1750.38	0.00	0.00
102.00		53.27	394.53	0.00	0.00
104.00		52.87	390.41	0.00	0.00
106.00		52.46	386.27	0.00	0.00
108.00		52.04	382.13	0.00	0.00
110.00		51.61	377.96	0.00	0.00
111.21		31.07	227.48	0.00	0.00
112.00		20.32	194.58	0.00	0.00
114.00		51.41	490.01	0.00	0.00
114.80		20.33	193.74	0.00	0.00
115.00	(22) attachments	2636.99	13522.92	0.00	0.00
116.00		25.40	154.53	0.00	0.00
118.00		50.50	305.89	0.00	0.00
120.00		50.04	302.27	0.00	0.00
122.00		49.57	298.63	0.00	0.00
124.00		49.09	294.98	0.00	0.00
126.00	(23) attachments	1227.37	5918.42	0.00	0.00
128.00		48.12	280.79	0.00	0.00
130.00		47.62	277.11	0.00	0.00
132.00		47.12	273.42	0.00	0.00
134.00		46.61	269.73	0.00	0.00
136.00		46.09	266.02	0.00	0.00
138.00	(32) attachments	1419.40	7039.53	0.00	0.00
140.00		45.05	226.54	0.00	0.00
142.00		44.51	222.81	0.00	0.00
144.00		43.97	219.07	0.00	0.00
146.00		43.43	215.32	0.00	0.00
148.00		42.88	211.56	0.00	0.00
150.00	(5) attachments	1122.19	3320.99	0.00	2078.64
	Totals:	10,591.49	69,898.40	0.00	2,078.64

Linear Appurtenance Segment Forces (Factored)

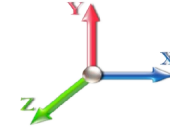
Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 27

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
2.00	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.75	0.00	0.051	0.000	5.168	0.00	7.11
4.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.04	0.00	0.068	0.000	5.168	0.00	10.56
6.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.06	0.00	0.069	0.000	5.168	0.00	11.26
8.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.08	0.00	0.069	0.000	5.168	0.00	11.79
10.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.09	0.00	0.070	0.000	5.168	0.00	12.21
12.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.10	0.00	0.071	0.000	5.168	0.00	12.58
14.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.11	0.00	0.071	0.000	5.168	0.00	12.89
14.17	1.5" Reinforcing Plate	Yes	0.17	0.000	3.00	0.09	0.00	0.072	0.000	5.168	0.00	1.10
16.00	1.5" Reinforcing Plate	Yes	1.83	0.000	3.00	1.02	0.00	0.072	0.000	5.232	0.00	12.05
17.50	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.84	0.00	0.072	0.000	5.331	0.00	10.02
18.00	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.28	0.00	0.073	0.000	5.363	0.00	3.36
20.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.13	0.00	0.073	0.000	5.483	0.00	13.66
20.50	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.28	0.00	0.074	0.000	5.512	0.00	3.43
22.00	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.86	0.00	0.074	0.000	5.595	0.00	10.40
24.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.15	0.00	0.075	0.000	5.698	0.00	14.07
26.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.15	0.00	0.075	0.000	5.795	0.00	14.25
28.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.16	0.00	0.076	0.000	5.886	0.00	14.42
30.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.16	0.00	0.077	0.000	5.972	0.00	14.59
32.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.16	0.00	0.077	0.000	6.054	0.00	14.74
34.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.17	0.00	0.078	0.000	6.132	0.00	14.89
36.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.17	0.00	0.079	0.000	6.206	0.00	15.03
37.00	1.5" Reinforcing Plate	Yes	1.00	0.000	3.00	0.59	0.00	0.080	0.000	6.242	0.00	7.55
38.00	1.25" Reinforcing	Yes	1.00	0.000	2.50	0.55	0.00	0.067	0.000	6.277	0.00	7.13
40.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	1.10	0.00	0.067	0.000	6.345	0.00	14.38
42.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	1.10	0.00	0.068	0.000	6.410	0.00	14.50
43.36	1.25" Reinforcing	Yes	1.36	0.000	2.50	0.75	0.00	0.068	0.000	6.454	0.00	9.91
43.50	1.5" Reinforcing Plate	Yes	0.10	0.000	3.00	0.06	0.00	0.078	0.000	6.458	0.00	0.78
43.50	1.25" Reinforcing	Yes	0.04	0.000	2.50	0.02	0.00	0.078	0.000	6.458	0.00	0.29
44.00	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.30	0.00	0.082	0.000	6.474	0.00	3.88
46.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.19	0.00	0.083	0.000	6.534	0.00	15.64
48.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.19	0.00	0.084	0.000	6.593	0.00	15.75
48.50	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.30	0.00	0.084	0.000	6.608	0.00	3.95
50.00	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.90	0.00	0.083	0.000	6.650	0.00	11.90
52.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.20	0.00	0.084	0.000	6.705	0.00	15.96
52.50	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.30	0.00	0.085	0.000	6.719	0.00	4.00
54.00	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.90	0.00	0.085	0.000	6.759	0.00	12.05
54.17	1.5" Reinforcing Plate	Yes	0.17	0.000	3.00	0.10	0.00	0.086	0.000	6.763	0.00	1.37
56.00	1.5" Reinforcing Plate	Yes	1.83	0.000	3.00	1.10	0.00	0.086	0.000	6.811	0.00	14.79
58.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.21	0.00	0.087	0.000	6.861	0.00	16.25
60.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.21	0.00	0.088	0.000	6.910	0.00	16.34
62.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.21	0.00	0.089	0.000	6.958	0.00	16.43
64.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.21	0.00	0.090	0.000	7.005	0.00	16.52
64.17	1.5" Reinforcing Plate	Yes	0.17	0.000	3.00	0.10	0.00	0.090	0.000	7.009	0.00	1.40
66.00	1.5" Reinforcing Plate	Yes	1.83	0.000	3.00	1.11	0.00	0.091	0.000	7.050	0.00	15.19
68.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.22	0.00	0.092	0.000	7.095	0.00	16.69
69.50	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.91	0.00	0.093	0.000	7.128	0.00	12.56
70.00	1.25" Reinforcing	Yes	0.50	0.000	2.50	0.28	0.00	0.078	0.000	7.138	0.00	3.95

Linear Appurtenance Segment Forces (Factored)

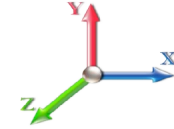
Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 27

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
72.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	1.14	0.00	0.078	0.000	7.181	0.00	15.89
74.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	1.14	0.00	0.079	0.000	7.222	0.00	15.96
76.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	1.14	0.00	0.080	0.000	7.263	0.00	16.04
76.71	1.5" Reinforcing Plate	Yes	0.01	0.000	3.00	0.01	0.00	0.081	0.000	7.277	0.00	0.09
76.71	1.25" Reinforcing	Yes	0.70	0.000	2.50	0.40	0.00	0.081	0.000	7.277	0.00	5.62
76.84	1.5" Reinforcing Plate	Yes	0.13	0.000	3.00	0.08	0.00	0.097	0.000	7.280	0.00	1.08
78.00	1.5" Reinforcing Plate	Yes	1.16	0.000	3.00	0.71	0.00	0.098	0.000	7.303	0.00	9.93
80.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.23	0.00	0.099	0.000	7.342	0.00	17.14
80.17	1.5" Reinforcing Plate	Yes	0.17	0.000	3.00	0.10	0.00	0.099	0.000	7.345	0.00	1.46
81.17	1.5" Reinforcing Plate	Yes	1.00	0.000	3.00	0.61	0.00	0.100	0.000	7.364	0.00	8.59
82.00	1.5" Reinforcing Plate	Yes	0.83	0.000	3.00	0.51	0.00	0.098	0.000	7.380	0.00	7.14
84.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.23	0.00	0.099	0.000	7.418	0.00	17.28
85.92	1.5" Reinforcing Plate	Yes	1.92	0.000	3.00	1.18	0.00	0.101	1.002	7.453	0.00	16.65
86.00	1.5" Reinforcing Plate	Yes	0.08	0.000	3.00	0.05	0.00	0.101	1.003	7.454	0.00	0.69
87.50	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.93	0.00	0.102	1.005	7.482	0.00	13.05
88.00	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.31	0.00	0.102	1.007	7.491	0.00	4.35
90.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	1.24	0.00	0.103	1.009	7.526	0.00	17.48
Totals:											0.0	672.0

Calculated Forces

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

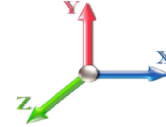


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 27

Dead Load Factor 1.20
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-69.90	-10.61	0.00	-1221.5	0.00	1221.54	3406.69	1703.35	5989.16	2957.82	0.00	0.000	0.000	0.247
2.00	-69.21	-10.60	0.00	-1200.3	0.00	1200.32	3390.81	1695.40	5910.44	2918.95	0.01	-0.033	0.000	0.245
4.00	-68.52	-10.58	0.00	-1179.1	0.00	1179.12	3374.70	1687.35	5831.83	2880.12	0.03	-0.067	0.000	0.243
6.00	-67.82	-10.57	0.00	-1157.9	0.00	1157.96	3358.38	1679.19	5753.31	2841.35	0.06	-0.100	0.000	0.241
8.00	-67.12	-10.55	0.00	-1136.8	0.00	1136.82	3341.83	1670.92	5674.92	2802.63	0.11	-0.134	0.000	0.239
10.00	-66.42	-10.54	0.00	-1115.7	0.00	1115.72	3325.07	1662.53	5596.65	2763.98	0.18	-0.167	0.000	0.237
12.00	-65.73	-10.52	0.00	-1094.6	0.00	1094.64	3308.08	1654.04	5518.52	2725.39	0.25	-0.201	0.000	0.235
14.00	-65.03	-10.49	0.00	-1073.6	0.00	1073.60	3290.88	1645.44	5440.53	2686.87	0.34	-0.235	0.000	0.232
14.17	-64.97	-10.50	0.00	-1071.8	0.00	1071.82	3289.41	1644.70	5433.91	2683.60	0.35	-0.238	0.000	0.212
16.00	-64.34	-10.48	0.00	-1052.6	0.00	1052.60	3273.46	1636.73	5362.70	2648.44	0.45	-0.266	0.000	0.210
17.50	-63.82	-10.46	0.00	-1036.8	0.00	1036.88	3260.25	1630.12	5304.43	2619.66	0.54	-0.290	0.000	0.230
18.00	-63.65	-10.47	0.00	-1031.6	0.00	1031.65	3255.82	1627.91	5285.03	2610.08	0.57	-0.298	0.000	0.229
20.00	-62.96	-10.43	0.00	-1010.7	0.00	1010.72	3237.96	1618.98	5207.54	2571.81	0.70	-0.333	0.000	0.227
20.50	-61.37	-10.36	0.00	-1005.5	0.00	1005.50	3233.46	1616.73	5188.20	2562.26	0.74	-0.342	0.000	0.186
22.00	-60.86	-10.35	0.00	-989.96	0.00	989.96	3219.87	1609.94	5130.24	2533.63	0.85	-0.363	0.000	0.184
24.00	-60.18	-10.32	0.00	-969.26	0.00	969.26	3201.57	1600.79	5053.13	2495.55	1.00	-0.391	0.000	0.182
26.00	-59.50	-10.29	0.00	-948.63	0.00	948.63	3183.05	1591.53	4976.22	2457.57	1.17	-0.419	0.000	0.180
28.00	-58.83	-10.25	0.00	-928.06	0.00	928.06	3164.31	1582.16	4899.54	2419.70	1.36	-0.447	0.000	0.178
30.00	-58.16	-10.22	0.00	-907.56	0.00	907.56	3145.35	1572.68	4823.07	2381.93	1.55	-0.475	0.000	0.176
32.00	-57.49	-10.19	0.00	-887.12	0.00	887.12	3126.18	1563.09	4746.84	2344.29	1.75	-0.503	0.000	0.173
34.00	-56.83	-10.15	0.00	-866.75	0.00	866.75	3106.78	1553.39	4670.86	2306.76	1.97	-0.531	0.000	0.171
36.00	-56.17	-10.11	0.00	-846.45	0.00	846.45	3087.16	1543.58	4595.12	2269.36	2.20	-0.560	0.000	0.169
37.00	-55.85	-10.09	0.00	-836.34	0.00	836.34	3077.27	1538.63	4557.36	2250.71	2.32	-0.574	0.000	0.233
38.00	-55.52	-10.09	0.00	-826.25	0.00	826.25	3067.32	1533.66	4519.66	2232.09	2.44	-0.593	0.000	0.231
40.00	-54.87	-10.06	0.00	-806.07	0.00	806.07	3047.27	1523.63	4444.46	2194.95	2.70	-0.633	0.000	0.228
42.00	-54.22	-10.03	0.00	-785.95	0.00	785.95	3026.99	1513.49	4369.56	2157.96	2.97	-0.672	0.000	0.225
43.36	-53.79	-10.00	0.00	-772.31	0.00	772.31	3013.08	1506.54	4318.79	2132.89	3.17	-0.698	0.000	0.160
43.50	-53.74	-10.00	0.00	-770.92	0.00	770.92	3011.64	1505.82	4313.57	2130.31	3.19	-0.700	0.000	0.160
44.00	-53.51	-9.99	0.00	-765.92	0.00	765.92	3006.49	1503.25	4294.94	2121.11	3.26	-0.707	0.000	0.156
46.00	-52.58	-9.95	0.00	-745.93	0.00	745.93	2985.78	1492.89	4220.63	2084.41	3.56	-0.735	0.000	0.154
48.00	-51.66	-9.89	0.00	-726.03	0.00	726.03	2964.84	1482.42	4146.63	2047.87	3.88	-0.762	0.000	0.151
48.50	-51.43	-9.89	0.00	-721.08	0.00	721.08	2330.75	1165.37	3323.66	1641.43	3.96	-0.769	0.000	0.166
50.00	-50.85	-9.83	0.00	-706.25	0.00	706.25	2320.40	1160.20	3282.84	1621.27	4.20	-0.790	0.000	0.172
52.00	-50.28	-9.78	0.00	-686.59	0.00	686.59	2306.40	1153.20	3228.50	1594.43	4.54	-0.818	0.000	0.168
52.50	-50.14	-9.78	0.00	-681.70	0.00	681.70	2302.87	1151.43	3214.93	1587.73	4.63	-0.825	0.000	0.139
54.00	-49.71	-9.73	0.00	-667.03	0.00	667.03	2292.19	1146.09	3174.27	1567.65	4.89	-0.843	0.000	0.137
54.17	-49.66	-9.74	0.00	-665.38	0.00	665.38	2290.97	1145.49	3169.67	1565.38	4.92	-0.845	0.000	0.186
56.00	-49.14	-9.71	0.00	-647.55	0.00	647.55	2277.76	1138.88	3120.17	1540.93	5.25	-0.874	0.000	0.183
58.00	-48.58	-9.67	0.00	-628.14	0.00	628.14	2263.10	1131.55	3066.20	1514.28	5.62	-0.906	0.000	0.179
60.00	-48.02	-9.63	0.00	-608.81	0.00	608.81	2248.23	1124.12	3012.38	1487.70	6.01	-0.938	0.000	0.175
62.00	-47.46	-9.58	0.00	-589.56	0.00	589.56	2233.14	1116.57	2958.71	1461.20	6.41	-0.969	0.000	0.172
64.00	-46.91	-9.53	0.00	-570.39	0.00	570.39	2217.83	1108.92	2905.21	1434.77	6.82	-1.000	0.000	0.168
64.17	-46.86	-9.53	0.00	-568.77	0.00	568.77	2216.52	1108.26	2900.67	1432.53	6.85	-1.003	0.000	0.128
66.00	-46.36	-9.49	0.00	-551.33	0.00	551.33	2202.30	1101.15	2851.88	1408.44	7.24	-1.025	0.000	0.126
68.00	-45.82	-9.44	0.00	-532.34	0.00	532.34	2186.55	1093.28	2798.74	1382.19	7.68	-1.048	0.000	0.123
69.50	-45.42	-9.40	0.00	-518.19	0.00	518.19	2174.60	1087.30	2759.01	1362.57	8.01	-1.066	0.000	0.166
70.00	-45.28	-9.40	0.00	-513.49	0.00	513.49	2170.58	1085.29	2745.79	1356.04	8.12	-1.074	0.000	0.165
72.00	-44.75	-9.36	0.00	-494.69	0.00	494.69	2154.39	1077.20	2693.05	1329.99	8.58	-1.105	0.000	0.161

Calculated Forces

Structure: CT46134-A-SBA **Code:** EIA/TIA-222-G 8/21/2018
Site Name: Granby-n. Granby **Exposure:** C
Height: 150.00 (ft) **Crest Height:** 0.00
Base Elev: 0.000 (ft) **Site Class:** D - Stiff Soil
Gh: 1.1 **Topography:** 1 **Struct Class:** II **Page:** 27



74.00	-44.22	-9.31	0.00	-475.98	0.00	475.98	2137.99	1068.99	2640.51	1304.05	9.05	-1.137	0.000	0.157
76.00	-43.70	-9.26	0.00	-457.35	0.00	457.35	2121.36	1060.68	2588.21	1278.22	9.53	-1.168	0.000	0.153
76.71	-43.52	-9.24	0.00	-450.78	0.00	450.78	2115.40	1057.70	2569.69	1269.07	9.71	-1.179	0.000	0.115
76.84	-43.48	-9.24	0.00	-449.61	0.00	449.61	2114.34	1057.17	2566.39	1267.45	9.74	-1.181	0.000	0.114
78.00	-43.06	-9.22	0.00	-438.86	0.00	438.86	2104.51	1052.26	2536.13	1252.50	10.03	-1.194	0.000	0.110
80.00	-42.35	-9.15	0.00	-420.43	0.00	420.43	2087.45	1043.72	2484.30	1226.90	10.53	-1.217	0.000	0.107
80.17	-42.29	-9.15	0.00	-418.87	0.00	418.87	2085.98	1042.99	2479.91	1224.73	10.57	-1.218	0.000	0.143
81.17	-41.94	-9.13	0.00	-409.72	0.00	409.72	1538.24	769.12	1857.13	917.17	10.83	-1.233	0.000	0.158
82.00	-41.74	-9.11	0.00	-402.14	0.00	402.14	1534.07	767.04	1842.56	909.97	11.05	-1.246	0.000	0.166
84.00	-41.28	-9.07	0.00	-383.91	0.00	383.91	1523.87	761.94	1807.49	892.65	11.58	-1.277	0.000	0.160
85.92	-40.83	-9.02	0.00	-366.50	0.00	366.50	1513.87	756.94	1773.86	876.04	12.10	-1.306	0.000	0.118
86.00	-40.81	-9.02	0.00	-365.78	0.00	365.78	1513.45	756.73	1772.46	875.35	12.12	-1.307	0.000	0.118
87.50	-40.47	-8.98	0.00	-352.25	0.00	352.25	1505.49	752.75	1746.23	862.40	12.53	-1.324	0.000	0.148
88.00	-40.35	-8.98	0.00	-347.76	0.00	347.76	1502.81	751.41	1737.49	858.08	12.67	-1.332	0.000	0.146
90.00	-39.90	-8.93	0.00	-329.81	0.00	329.81	1491.95	745.98	1702.59	840.84	13.23	-1.360	0.000	0.218
92.00	-39.46	-8.90	0.00	-311.94	0.00	311.94	1480.87	740.44	1667.76	823.65	13.81	-1.404	0.000	0.210
94.00	-39.03	-8.86	0.00	-294.14	0.00	294.14	1469.57	734.79	1633.03	806.49	14.41	-1.446	0.000	0.201
96.00	-38.61	-8.82	0.00	-276.42	0.00	276.42	1458.05	729.03	1598.39	789.39	15.03	-1.488	0.000	0.192
98.00	-38.18	-8.78	0.00	-258.77	0.00	258.77	1446.32	723.16	1563.86	772.33	15.66	-1.528	0.000	0.183
100.00	-36.44	-8.48	0.00	-241.21	0.00	241.21	1434.36	717.18	1529.45	755.34	16.31	-1.566	0.000	0.173
102.00	-36.04	-8.45	0.00	-224.24	0.00	224.24	1422.18	711.09	1495.16	738.41	16.97	-1.603	0.000	0.329
104.00	-35.64	-8.43	0.00	-207.34	0.00	207.34	1409.79	704.89	1461.02	721.54	17.66	-1.675	0.000	0.313
106.00	-35.24	-8.41	0.00	-190.47	0.00	190.47	1397.17	698.58	1427.02	704.75	18.37	-1.745	0.000	0.296
108.00	-34.85	-8.39	0.00	-173.65	0.00	173.65	1384.33	692.17	1393.17	688.04	19.12	-1.811	0.000	0.278
110.00	-34.47	-8.35	0.00	-156.88	0.00	156.88	1371.28	685.64	1359.50	671.40	19.89	-1.873	0.000	0.259
111.21	-34.24	-8.33	0.00	-146.75	0.00	146.75	1363.25	681.63	1339.15	661.36	20.37	-1.910	0.000	0.247
112.00	-34.04	-8.33	0.00	-140.19	0.00	140.19	1358.00	679.00	1326.00	654.86	20.69	-1.933	0.000	0.239
114.00	-33.55	-8.28	0.00	-123.54	0.00	123.54	1344.51	672.26	1292.68	638.41	21.51	-1.988	0.000	0.219
114.80	-33.35	-8.26	0.00	-116.94	0.00	116.94	898.25	449.12	876.91	433.07	21.85	-2.009	0.000	0.307
115.00	-19.93	-5.16	0.00	-115.26	0.00	115.26	897.59	448.79	874.90	432.08	21.93	-2.014	0.000	0.289
116.00	-19.77	-5.14	0.00	-110.10	0.00	110.10	894.32	447.16	865.01	427.20	22.36	-2.045	0.000	0.280
118.00	-19.46	-5.10	0.00	-99.82	0.00	99.82	887.61	443.81	845.23	417.43	23.23	-2.106	0.000	0.261
120.00	-19.16	-5.06	0.00	-89.62	0.00	89.62	880.69	440.34	825.45	407.66	24.12	-2.163	0.000	0.242
122.00	-18.85	-5.01	0.00	-79.50	0.00	79.50	873.54	436.77	805.67	397.89	25.04	-2.216	0.000	0.222
124.00	-18.56	-4.97	0.00	-69.47	0.00	69.47	866.18	433.09	785.90	388.13	25.98	-2.265	0.000	0.201
126.00	-12.69	-3.52	0.00	-59.53	0.00	59.53	858.60	429.30	766.16	378.38	26.94	-2.310	0.000	0.172
128.00	-12.41	-3.46	0.00	-52.50	0.00	52.50	850.80	425.40	746.46	368.65	27.91	-2.351	0.000	0.157
130.00	-12.13	-3.41	0.00	-45.57	0.00	45.57	842.77	421.39	726.80	358.94	28.91	-2.388	0.000	0.141
132.00	-11.86	-3.36	0.00	-38.74	0.00	38.74	834.53	417.27	707.19	349.25	29.91	-2.422	0.000	0.125
134.00	-11.59	-3.31	0.00	-32.02	0.00	32.02	826.07	413.04	687.65	339.60	30.93	-2.453	0.000	0.108
136.00	-11.33	-3.26	0.00	-25.40	0.00	25.40	817.39	408.69	668.18	329.99	31.97	-2.478	0.000	0.091
138.00	-4.35	-1.53	0.00	-18.89	0.00	18.89	808.49	404.24	648.79	320.41	33.01	-2.499	0.000	0.064
140.00	-4.13	-1.48	0.00	-15.82	0.00	15.82	799.37	399.68	629.50	310.89	34.06	-2.517	0.000	0.056
142.00	-3.91	-1.43	0.00	-12.86	0.00	12.86	790.03	395.01	610.32	301.41	35.12	-2.532	0.000	0.048
144.00	-3.69	-1.37	0.00	-10.01	0.00	10.01	780.47	390.24	591.24	291.99	36.18	-2.545	0.000	0.039
146.00	-3.48	-1.32	0.00	-7.26	0.00	7.26	770.69	385.35	572.29	282.63	37.25	-2.555	0.000	0.030
148.00	-3.27	-1.27	0.00	-4.62	0.00	4.62	760.69	380.35	553.47	273.34	38.32	-2.562	0.000	0.021
150.00	0.00	-1.12	0.00	-2.08	0.00	2.08	750.48	375.24	534.80	264.12	39.40	-2.567	0.000	0.008

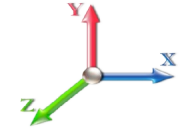
Seismic Segment Forces (Factored)

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E					Iterations 24
Gust Response Factor	1.10			Sds 0.19	Ss 0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1 0.10	S1 0.07
Wind Load Factor	0.00	Structure Frequency	0.24	SA 0.03	Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1 RB2 RB3 RB4	0.00	0.00	0.00	0.00	0.00	
2.00		348.80	0.00	0.01	0.01	4.05	
4.00		345.84	0.00	0.03	0.01	6.54	
6.00		342.88	0.00	0.04	0.02	8.20	
8.00		339.93	0.01	0.05	0.03	9.34	
10.00		336.97	0.01	0.05	0.03	10.14	
12.00		334.01	0.01	0.06	0.03	10.70	
14.00		331.05	0.02	0.06	0.04	11.09	
14.17	RB5	28.00	0.02	0.06	0.04	0.94	
16.00		300.09	0.02	0.06	0.04	10.37	
17.50	RT4	244.13	0.03	0.07	0.04	8.60	
18.00		81.01	0.03	0.07	0.04	2.87	
20.00		322.18	0.03	0.07	0.04	11.61	
20.50	RT1 RT2 RB6	632.08	0.04	0.07	0.04	22.87	
22.00		239.14	0.04	0.07	0.04	8.74	
24.00		316.26	0.05	0.07	0.04	11.70	
26.00		313.30	0.06	0.07	0.04	11.71	
28.00		310.34	0.07	0.07	0.04	11.72	
30.00		307.38	0.08	0.07	0.04	11.72	
32.00		304.43	0.09	0.07	0.04	11.72	
34.00		301.47	0.10	0.07	0.04	11.72	
36.00		298.51	0.11	0.07	0.04	11.72	
37.00	RT6	148.14	0.11	0.07	0.04	5.85	
38.00		147.41	0.12	0.07	0.03	5.85	
40.00		292.59	0.13	0.07	0.03	11.73	
42.00		289.63	0.15	0.07	0.03	11.71	
43.36	RB7	195.26	0.16	0.07	0.03	7.94	
43.50	Bot - Section 2	20.02	0.16	0.07	0.03	0.81	
44.00		132.06	0.16	0.07	0.03	5.38	
46.00		524.85	0.18	0.07	0.03	21.53	
48.00		519.43	0.19	0.06	0.02	21.37	
48.50	Top - Section 1	129.01	0.20	0.06	0.02	5.31	
50.00	Appurtenance(s)	227.92	0.21	0.06	0.02	9.37	
52.00		233.74	0.23	0.06	0.02	9.55	
52.50	RB8	58.05	0.23	0.06	0.02	2.37	
54.00		173.23	0.24	0.06	0.02	6.99	
54.17	RT3 RT5	19.54	0.25	0.06	0.02	0.79	
56.00		209.27	0.26	0.05	0.02	8.26	
58.00		226.35	0.28	0.05	0.01	8.65	
60.00		223.88	0.30	0.04	0.01	8.16	
62.00		221.42	0.32	0.04	0.01	7.55	
64.00		218.95	0.34	0.03	0.01	6.80	
64.17	RB9	18.50	0.35	0.03	0.01	0.57	
66.00		197.99	0.37	0.03	0.01	5.41	
68.00		214.02	0.39	0.02	0.01	4.89	
69.50	RT7	158.90	0.41	0.02	0.01	3.02	

Seismic Segment Forces (Factored)

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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70.00	RT8 RB10	52.66	0.41	0.01	0.01	0.93
72.00		209.09	0.44	0.01	0.01	2.45
74.00		206.62	0.46	0.00	0.01	1.08
76.00		204.16	0.49	-0.01	0.01	-0.33
76.71	RB11	71.88	0.49	-0.01	0.01	-0.29
76.84	Bot - Section 3	12.79	0.50	-0.01	0.01	-0.06
78.00		212.43	0.51	-0.02	0.01	-1.83
80.00		361.69	0.54	-0.03	0.01	-5.60
80.17	RT9	30.54	0.54	-0.03	0.01	-0.49
81.17	Top - Section 2	178.99	0.55	-0.04	0.01	-3.47
82.00		66.36	0.56	-0.04	0.01	-1.46
84.00		158.52	0.59	-0.05	0.01	-4.43
85.92	RB12	150.32	0.62	-0.06	0.02	-4.95
86.00		6.22	0.62	-0.06	0.02	-0.21
87.50	RT10	116.12	0.64	-0.07	0.02	-4.24
88.00		38.46	0.65	-0.07	0.02	-1.44
90.00	RT11	152.60	0.68	-0.08	0.03	-6.25
92.00		150.63	0.71	-0.09	0.03	-6.55
94.00		148.66	0.74	-0.10	0.04	-6.71
96.00		146.69	0.77	-0.11	0.05	-6.72
98.00		144.71	0.81	-0.11	0.06	-6.61
100.00	RT12	558.74	0.84	-0.12	0.07	-24.95
102.00		140.77	0.87	-0.12	0.08	-6.03
104.00		138.80	0.91	-0.12	0.09	-5.58
106.00		136.82	0.94	-0.12	0.11	-5.03
108.00		134.85	0.98	-0.11	0.12	-4.39
110.00		132.88	1.02	-0.11	0.14	-3.67
111.21	Bot - Section 4	79.65	1.04	-0.10	0.15	-1.93
112.00		90.40	1.05	-0.09	0.16	-1.98
114.00		227.44	1.09	-0.07	0.18	-3.51
114.80	Top - Section 3	89.63	1.11	-0.07	0.19	-1.13
115.00	Appurtenance(s)	5046.0	1.11	-0.06	0.19	-60.10
116.00		48.33	1.13	-0.05	0.21	-0.40
118.00		95.54	1.17	-0.02	0.23	-0.02
120.00		94.06	1.21	0.01	0.26	0.80
122.00		92.58	1.25	0.06	0.29	1.67
124.00		91.10	1.29	0.11	0.33	2.58
126.00	Appurtenance(s)	2160.0	1.33	0.17	0.37	84.96
128.00		88.15	1.38	0.24	0.41	4.51
130.00		86.67	1.42	0.32	0.45	5.53
132.00		85.19	1.46	0.42	0.50	6.58
134.00		83.71	1.51	0.52	0.55	7.66
136.00		82.23	1.55	0.64	0.61	8.76
138.00	Appurtenance(s)	2321.6	1.60	0.78	0.67	284.17
140.00		79.27	1.65	0.93	0.73	11.03
142.00		77.79	1.69	1.10	0.81	12.19
144.00		76.31	1.74	1.29	0.88	13.36
146.00		74.83	1.79	1.50	0.96	14.55
148.00		73.35	1.84	1.73	1.05	15.74
150.00	Appurtenance(s)	1391.8	1.89	1.98	1.14	327.89
Totals:		27,876.8				1,014.0

Total Wind: 35,950.7

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

Calculated Forces

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E

Iterations 24

Gust Response Factor 1.10

Sds 0.19

Ss 0.18

Dead Load Factor 1.20

Seismic Load Factor 1.00

Sd1 0.10

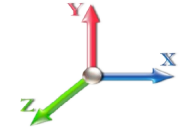
S1 0.07

Wind Load Factor 0.00

Structure Frequency 0.24

SA 0.03

Seismic Importance Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-38.30	-1.19	0.00	-132.66	0.00	132.66	3406.69	1703.35	5989.16	2957.82	0.00	0.00	0.00	0.031
2.00	-37.80	-1.19	0.00	-130.27	0.00	130.27	3390.81	1695.40	5910.44	2918.95	0.00	0.00	0.00	0.031
4.00	-37.31	-1.19	0.00	-127.89	0.00	127.89	3374.70	1687.35	5831.83	2880.12	0.00	-0.01	-0.01	0.030
6.00	-36.82	-1.18	0.00	-125.51	0.00	125.51	3358.38	1679.19	5753.31	2841.35	0.01	-0.01	-0.01	0.030
8.00	-36.33	-1.17	0.00	-123.15	0.00	123.15	3341.83	1670.92	5674.92	2802.63	0.01	-0.01	-0.01	0.030
10.00	-35.85	-1.17	0.00	-120.80	0.00	120.80	3325.07	1662.53	5596.65	2763.98	0.02	-0.02	-0.02	0.029
12.00	-35.37	-1.16	0.00	-118.47	0.00	118.47	3308.08	1654.04	5518.52	2725.39	0.03	-0.02	-0.02	0.029
14.00	-34.89	-1.15	0.00	-116.15	0.00	116.15	3290.88	1645.44	5440.53	2686.87	0.04	-0.03	-0.03	0.029
14.17	-34.85	-1.15	0.00	-115.96	0.00	115.96	3289.41	1644.70	5433.91	2683.60	0.04	-0.03	-0.03	0.026
16.00	-34.42	-1.14	0.00	-113.86	0.00	113.86	3273.46	1636.73	5362.70	2648.44	0.05	-0.03	-0.03	0.026
17.50	-34.07	-1.13	0.00	-112.15	0.00	112.15	3260.25	1630.12	5304.43	2619.66	0.06	-0.03	-0.03	0.029
18.00	-33.95	-1.13	0.00	-111.58	0.00	111.58	3255.82	1627.91	5285.03	2610.08	0.06	-0.03	-0.03	0.029
20.00	-33.49	-1.12	0.00	-109.32	0.00	109.32	3237.96	1618.98	5207.54	2571.81	0.08	-0.04	-0.04	0.028
20.50	-32.71	-1.10	0.00	-108.76	0.00	108.76	3233.46	1616.73	5188.20	2562.26	0.08	-0.04	-0.04	0.024
22.00	-32.36	-1.09	0.00	-107.12	0.00	107.12	3219.87	1609.94	5130.24	2533.63	0.09	-0.04	-0.04	0.024
24.00	-31.91	-1.08	0.00	-104.94	0.00	104.94	3201.57	1600.79	5053.13	2495.55	0.11	-0.04	-0.04	0.023
26.00	-31.45	-1.07	0.00	-102.78	0.00	102.78	3183.05	1591.53	4976.22	2457.57	0.13	-0.05	-0.05	0.023
28.00	-31.00	-1.06	0.00	-100.64	0.00	100.64	3164.31	1582.16	4899.54	2419.70	0.15	-0.05	-0.05	0.023
30.00	-30.55	-1.05	0.00	-98.53	0.00	98.53	3145.35	1572.68	4823.07	2381.93	0.17	-0.05	-0.05	0.023
32.00	-30.11	-1.04	0.00	-96.43	0.00	96.43	3126.18	1563.09	4746.84	2344.29	0.19	-0.05	-0.05	0.022
34.00	-29.67	-1.03	0.00	-94.36	0.00	94.36	3106.78	1553.39	4670.86	2306.76	0.21	-0.06	-0.06	0.022
36.00	-29.23	-1.02	0.00	-92.30	0.00	92.30	3087.16	1543.58	4595.12	2269.36	0.24	-0.06	-0.06	0.022
37.00	-29.02	-1.01	0.00	-91.29	0.00	91.29	3077.27	1538.63	4557.36	2250.71	0.25	-0.06	-0.06	0.030
38.00	-28.80	-1.01	0.00	-90.28	0.00	90.28	3067.32	1533.66	4519.66	2232.09	0.26	-0.06	-0.06	0.030
40.00	-28.37	-1.00	0.00	-88.26	0.00	88.26	3047.27	1523.63	4444.46	2194.95	0.29	-0.07	-0.07	0.029
42.00	-27.94	-0.99	0.00	-86.27	0.00	86.27	3026.99	1513.49	4369.56	2157.96	0.32	-0.07	-0.07	0.029
43.36	-27.66	-0.98	0.00	-84.93	0.00	84.93	3013.08	1506.54	4318.79	2132.89	0.34	-0.08	-0.08	0.021
43.50	-27.63	-0.98	0.00	-84.79	0.00	84.79	3011.64	1505.82	4313.57	2130.31	0.35	-0.08	-0.08	0.021
44.00	-27.45	-0.97	0.00	-84.31	0.00	84.31	3006.49	1503.25	4294.94	2121.11	0.35	-0.08	-0.08	0.020
46.00	-26.74	-0.95	0.00	-82.36	0.00	82.36	2985.78	1492.89	4220.63	2084.41	0.39	-0.08	-0.08	0.020
48.00	-26.04	-0.93	0.00	-80.46	0.00	80.46	2964.84	1482.42	4146.63	2047.87	0.42	-0.08	-0.08	0.020
48.50	-25.86	-0.93	0.00	-79.99	0.00	79.99	2330.75	1165.37	3323.66	1641.43	0.43	-0.08	-0.08	0.022
50.00	-25.53	-0.92	0.00	-78.60	0.00	78.60	2320.40	1160.20	3282.84	1621.27	0.46	-0.09	-0.09	0.022
52.00	-25.17	-0.91	0.00	-76.77	0.00	76.77	2306.40	1153.20	3228.50	1594.43	0.49	-0.09	-0.09	0.022
52.50	-25.08	-0.91	0.00	-76.32	0.00	76.32	2302.87	1151.43	3214.93	1587.73	0.50	-0.09	-0.09	0.018
54.00	-24.82	-0.90	0.00	-74.96	0.00	74.96	2292.19	1146.09	3174.27	1567.65	0.53	-0.09	-0.09	0.018
54.17	-24.79	-0.90	0.00	-74.81	0.00	74.81	2290.97	1145.49	3169.67	1565.38	0.53	-0.09	-0.09	0.025
56.00	-24.46	-0.89	0.00	-73.16	0.00	73.16	2277.76	1138.88	3120.17	1540.93	0.57	-0.10	-0.10	0.024
58.00	-24.11	-0.88	0.00	-71.38	0.00	71.38	2263.10	1131.55	3066.20	1514.28	0.61	-0.10	-0.10	0.024
60.00	-23.77	-0.88	0.00	-69.61	0.00	69.61	2248.23	1124.12	3012.38	1487.70	0.65	-0.10	-0.10	0.024
62.00	-23.42	-0.87	0.00	-67.86	0.00	67.86	2233.14	1116.57	2958.71	1461.20	0.70	-0.11	-0.11	0.023
64.00	-23.08	-0.86	0.00	-66.12	0.00	66.12	2217.83	1108.92	2905.21	1434.77	0.74	-0.11	-0.11	0.023
64.17	-23.05	-0.86	0.00	-65.98	0.00	65.98	2216.52	1108.26	2900.67	1432.53	0.75	-0.11	-0.11	0.017
66.00	-22.74	-0.86	0.00	-64.40	0.00	64.40	2202.30	1101.15	2851.88	1408.44	0.79	-0.11	-0.11	0.017
68.00	-22.41	-0.85	0.00	-62.68	0.00	62.68	2186.55	1093.28	2798.74	1382.19	0.84	-0.12	-0.12	0.017
69.50	-22.16	-0.85	0.00	-61.40	0.00	61.40	2174.60	1087.30	2759.01	1362.57	0.87	-0.12	-0.12	0.023
70.00	-22.07	-0.85	0.00	-60.98	0.00	60.98	2170.58	1085.29	2745.79	1356.04	0.89	-0.12	-0.12	0.023

Calculated Forces

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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72.00	-21.75	-0.85	0.00	-59.27	0.00	59.27	2154.39	1077.20	2693.05	1329.99	0.94	-0.12	0.023
74.00	-21.42	-0.85	0.00	-57.58	0.00	57.58	2137.99	1068.99	2640.51	1304.05	0.99	-0.13	0.022
76.00	-21.10	-0.85	0.00	-55.88	0.00	55.88	2121.36	1060.68	2588.21	1278.22	1.04	-0.13	0.022
76.71	-20.98	-0.85	0.00	-55.28	0.00	55.28	2115.40	1057.70	2569.69	1269.07	1.06	-0.13	0.016
76.84	-20.96	-0.85	0.00	-55.17	0.00	55.17	2114.34	1057.17	2566.39	1267.45	1.06	-0.13	0.016
78.00	-20.66	-0.85	0.00	-54.18	0.00	54.18	2104.51	1052.26	2536.13	1252.50	1.10	-0.13	0.016
80.00	-20.15	-0.85	0.00	-52.49	0.00	52.49	2087.45	1043.72	2484.30	1226.90	1.15	-0.14	0.016
80.17	-20.10	-0.85	0.00	-52.34	0.00	52.34	2085.98	1042.99	2479.91	1224.73	1.16	-0.14	0.021
81.17	-19.85	-0.85	0.00	-51.49	0.00	51.49	1538.24	769.12	1857.13	917.17	1.19	-0.14	0.023
82.00	-19.74	-0.85	0.00	-50.79	0.00	50.79	1534.07	767.04	1842.56	909.97	1.21	-0.14	0.024
84.00	-19.47	-0.85	0.00	-49.09	0.00	49.09	1523.87	761.94	1807.49	892.65	1.27	-0.14	0.024
85.92	-19.21	-0.85	0.00	-47.46	0.00	47.46	1513.87	756.94	1773.86	876.04	1.33	-0.15	0.018
86.00	-19.20	-0.85	0.00	-47.39	0.00	47.39	1513.45	756.73	1772.46	875.35	1.33	-0.15	0.018
87.50	-19.01	-0.85	0.00	-46.12	0.00	46.12	1505.49	752.75	1746.23	862.40	1.38	-0.15	0.023
88.00	-18.94	-0.85	0.00	-45.69	0.00	45.69	1502.81	751.41	1737.49	858.08	1.39	-0.15	0.022
90.00	-18.68	-0.85	0.00	-43.99	0.00	43.99	1491.95	745.98	1702.59	840.84	1.46	-0.15	0.034
92.00	-18.42	-0.85	0.00	-42.29	0.00	42.29	1480.87	740.44	1667.76	823.65	1.52	-0.16	0.033
94.00	-18.16	-0.85	0.00	-40.58	0.00	40.58	1469.57	734.79	1633.03	806.49	1.59	-0.17	0.032
96.00	-17.91	-0.86	0.00	-38.87	0.00	38.87	1458.05	729.03	1598.39	789.39	1.66	-0.17	0.032
98.00	-17.65	-0.86	0.00	-37.16	0.00	37.16	1446.32	723.16	1563.86	772.33	1.73	-0.18	0.031
100.00	-16.91	-0.86	0.00	-35.45	0.00	35.45	1434.36	717.18	1529.45	755.34	1.81	-0.18	0.030
102.00	-16.67	-0.86	0.00	-33.74	0.00	33.74	1422.18	711.09	1495.16	738.41	1.89	-0.19	0.057
104.00	-16.44	-0.86	0.00	-32.02	0.00	32.02	1409.79	704.89	1461.02	721.54	1.97	-0.20	0.056
106.00	-16.22	-0.86	0.00	-30.30	0.00	30.30	1397.17	698.58	1427.02	704.75	2.06	-0.21	0.055
108.00	-15.99	-0.86	0.00	-28.58	0.00	28.58	1384.33	692.17	1393.17	688.04	2.15	-0.22	0.053
110.00	-15.77	-0.87	0.00	-26.85	0.00	26.85	1371.28	685.64	1359.50	671.40	2.24	-0.23	0.051
111.21	-15.63	-0.87	0.00	-25.80	0.00	25.80	1363.25	681.63	1339.15	661.36	2.30	-0.24	0.050
112.00	-15.50	-0.87	0.00	-25.12	0.00	25.12	1358.00	679.00	1326.00	654.86	2.34	-0.24	0.050
114.00	-15.16	-0.87	0.00	-23.38	0.00	23.38	1344.51	672.26	1292.68	638.41	2.44	-0.25	0.048
114.80	-15.03	-0.87	0.00	-22.69	0.00	22.69	898.25	449.12	876.91	433.07	2.49	-0.26	0.069
115.00	-8.97	-0.84	0.00	-22.52	0.00	22.52	897.59	448.79	874.90	432.08	2.50	-0.26	0.062
116.00	-8.89	-0.84	0.00	-21.67	0.00	21.67	894.32	447.16	865.01	427.20	2.55	-0.26	0.061
118.00	-8.73	-0.84	0.00	-19.99	0.00	19.99	887.61	443.81	845.23	417.43	2.66	-0.28	0.058
120.00	-8.58	-0.84	0.00	-18.30	0.00	18.30	880.69	440.34	825.45	407.66	2.78	-0.29	0.055
122.00	-8.43	-0.84	0.00	-16.61	0.00	16.61	873.54	436.77	805.67	397.89	2.90	-0.30	0.051
124.00	-8.28	-0.84	0.00	-14.93	0.00	14.93	866.18	433.09	785.90	388.13	3.03	-0.31	0.048
126.00	-5.64	-0.74	0.00	-13.24	0.00	13.24	858.60	429.30	766.16	378.38	3.16	-0.32	0.042
128.00	-5.50	-0.74	0.00	-11.76	0.00	11.76	850.80	425.40	746.46	368.65	3.30	-0.33	0.038
130.00	-5.36	-0.73	0.00	-10.28	0.00	10.28	842.77	421.39	726.80	358.94	3.44	-0.34	0.035
132.00	-5.23	-0.73	0.00	-8.81	0.00	8.81	834.53	417.27	707.19	349.25	3.58	-0.34	0.032
134.00	-5.09	-0.72	0.00	-7.36	0.00	7.36	826.07	413.04	687.65	339.60	3.72	-0.35	0.028
136.00	-4.96	-0.71	0.00	-5.92	0.00	5.92	817.39	408.69	668.18	329.99	3.87	-0.36	0.024
138.00	-2.14	-0.41	0.00	-4.50	0.00	4.50	808.49	404.24	648.79	320.41	4.02	-0.36	0.017
140.00	-2.04	-0.40	0.00	-3.69	0.00	3.69	799.37	399.68	629.50	310.89	4.18	-0.37	0.014
142.00	-1.95	-0.38	0.00	-2.90	0.00	2.90	790.03	395.01	610.32	301.41	4.33	-0.37	0.012
144.00	-1.85	-0.37	0.00	-2.13	0.00	2.13	780.47	390.24	591.24	291.99	4.48	-0.37	0.010
146.00	-1.76	-0.36	0.00	-1.39	0.00	1.39	770.69	385.35	572.29	282.63	4.64	-0.37	0.007
148.00	-1.67	-0.34	0.00	-0.68	0.00	0.68	760.69	380.35	553.47	273.34	4.80	-0.37	0.005
150.00	0.00	-0.33	0.00	0.00	0.00	0.00	750.48	375.24	534.80	264.12	4.95	-0.38	0.000

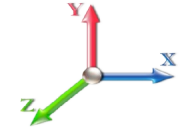
Seismic Segment Forces (Factored)

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E					Iterations 24
Gust Response Factor	1.10			Sds	0.19
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10
Wind Load Factor	0.00	Structure Frequency	0.24	SA	0.03
				Seismic Importance Factor	1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1 RB2 RB3 RB4	0.00	0.00	0.00	0.00	0.00	
2.00		348.80	0.00	0.01	0.01	4.05	
4.00		345.84	0.00	0.03	0.01	6.54	
6.00		342.88	0.00	0.04	0.02	8.20	
8.00		339.93	0.01	0.05	0.03	9.34	
10.00		336.97	0.01	0.05	0.03	10.14	
12.00		334.01	0.01	0.06	0.03	10.70	
14.00		331.05	0.02	0.06	0.04	11.09	
14.17	RB5	28.00	0.02	0.06	0.04	0.94	
16.00		300.09	0.02	0.06	0.04	10.37	
17.50	RT4	244.13	0.03	0.07	0.04	8.60	
18.00		81.01	0.03	0.07	0.04	2.87	
20.00		322.18	0.03	0.07	0.04	11.61	
20.50	RT1 RT2 RB6	632.08	0.04	0.07	0.04	22.87	
22.00		239.14	0.04	0.07	0.04	8.74	
24.00		316.26	0.05	0.07	0.04	11.70	
26.00		313.30	0.06	0.07	0.04	11.71	
28.00		310.34	0.07	0.07	0.04	11.72	
30.00		307.38	0.08	0.07	0.04	11.72	
32.00		304.43	0.09	0.07	0.04	11.72	
34.00		301.47	0.10	0.07	0.04	11.72	
36.00		298.51	0.11	0.07	0.04	11.72	
37.00	RT6	148.14	0.11	0.07	0.04	5.85	
38.00		147.41	0.12	0.07	0.03	5.85	
40.00		292.59	0.13	0.07	0.03	11.73	
42.00		289.63	0.15	0.07	0.03	11.71	
43.36	RB7	195.26	0.16	0.07	0.03	7.94	
43.50	Bot - Section 2	20.02	0.16	0.07	0.03	0.81	
44.00		132.06	0.16	0.07	0.03	5.38	
46.00		524.85	0.18	0.07	0.03	21.53	
48.00		519.43	0.19	0.06	0.02	21.37	
48.50	Top - Section 1	129.01	0.20	0.06	0.02	5.31	
50.00	Appurtenance(s)	227.92	0.21	0.06	0.02	9.37	
52.00		233.74	0.23	0.06	0.02	9.55	
52.50	RB8	58.05	0.23	0.06	0.02	2.37	
54.00		173.23	0.24	0.06	0.02	6.99	
54.17	RT3 RT5	19.54	0.25	0.06	0.02	0.79	
56.00		209.27	0.26	0.05	0.02	8.26	
58.00		226.35	0.28	0.05	0.01	8.65	
60.00		223.88	0.30	0.04	0.01	8.16	
62.00		221.42	0.32	0.04	0.01	7.55	
64.00		218.95	0.34	0.03	0.01	6.80	
64.17	RB9	18.50	0.35	0.03	0.01	0.57	
66.00		197.99	0.37	0.03	0.01	5.41	
68.00		214.02	0.39	0.02	0.01	4.89	
69.50	RT7	158.90	0.41	0.02	0.01	3.02	

Seismic Segment Forces (Factored)

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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70.00	RT8 RB10	52.66	0.41	0.01	0.01	0.93
72.00		209.09	0.44	0.01	0.01	2.45
74.00		206.62	0.46	0.00	0.01	1.08
76.00		204.16	0.49	-0.01	0.01	-0.33
76.71	RB11	71.88	0.49	-0.01	0.01	-0.29
76.84	Bot - Section 3	12.79	0.50	-0.01	0.01	-0.06
78.00		212.43	0.51	-0.02	0.01	-1.83
80.00		361.69	0.54	-0.03	0.01	-5.60
80.17	RT9	30.54	0.54	-0.03	0.01	-0.49
81.17	Top - Section 2	178.99	0.55	-0.04	0.01	-3.47
82.00		66.36	0.56	-0.04	0.01	-1.46
84.00		158.52	0.59	-0.05	0.01	-4.43
85.92	RB12	150.32	0.62	-0.06	0.02	-4.95
86.00		6.22	0.62	-0.06	0.02	-0.21
87.50	RT10	116.12	0.64	-0.07	0.02	-4.24
88.00		38.46	0.65	-0.07	0.02	-1.44
90.00	RT11	152.60	0.68	-0.08	0.03	-6.25
92.00		150.63	0.71	-0.09	0.03	-6.55
94.00		148.66	0.74	-0.10	0.04	-6.71
96.00		146.69	0.77	-0.11	0.05	-6.72
98.00		144.71	0.81	-0.11	0.06	-6.61
100.00	RT12	558.74	0.84	-0.12	0.07	-24.95
102.00		140.77	0.87	-0.12	0.08	-6.03
104.00		138.80	0.91	-0.12	0.09	-5.58
106.00		136.82	0.94	-0.12	0.11	-5.03
108.00		134.85	0.98	-0.11	0.12	-4.39
110.00		132.88	1.02	-0.11	0.14	-3.67
111.21	Bot - Section 4	79.65	1.04	-0.10	0.15	-1.93
112.00		90.40	1.05	-0.09	0.16	-1.98
114.00		227.44	1.09	-0.07	0.18	-3.51
114.80	Top - Section 3	89.63	1.11	-0.07	0.19	-1.13
115.00	Appurtenance(s)	5046.0	1.11	-0.06	0.19	-60.10
116.00		48.33	1.13	-0.05	0.21	-0.40
118.00		95.54	1.17	-0.02	0.23	-0.02
120.00		94.06	1.21	0.01	0.26	0.80
122.00		92.58	1.25	0.06	0.29	1.67
124.00		91.10	1.29	0.11	0.33	2.58
126.00	Appurtenance(s)	2160.0	1.33	0.17	0.37	84.96
128.00		88.15	1.38	0.24	0.41	4.51
130.00		86.67	1.42	0.32	0.45	5.53
132.00		85.19	1.46	0.42	0.50	6.58
134.00		83.71	1.51	0.52	0.55	7.66
136.00		82.23	1.55	0.64	0.61	8.76
138.00	Appurtenance(s)	2321.6	1.60	0.78	0.67	284.17
140.00		79.27	1.65	0.93	0.73	11.03
142.00		77.79	1.69	1.10	0.81	12.19
144.00		76.31	1.74	1.29	0.88	13.36
146.00		74.83	1.79	1.50	0.96	14.55
148.00		73.35	1.84	1.73	1.05	15.74
150.00	Appurtenance(s)	1391.8	1.89	1.98	1.14	327.89
Totals:		27,876.8				1,014.0

Total Wind: 35,950.7

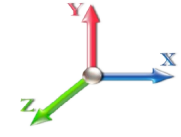
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.0E								Iterations 24
Gust Response Factor 1.10				Sds 0.19				Ss 0.18
Dead Load Factor 0.90		Seismic Load Factor 1.00		Sd1 0.10		S1 0.07		
Wind Load Factor 0.00		Structure Frequency 0.24		SA 0.03		Seismic Importance Factor 1.00		



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-28.72	-1.19	0.00	-131.27	0.00	131.27	3406.69	1703.35	5989.16	2957.82	0.00	0.00	0.00	0.029
2.00	-28.35	-1.19	0.00	-128.88	0.00	128.88	3390.81	1695.40	5910.44	2918.95	0.00	0.00	0.00	0.029
4.00	-27.98	-1.19	0.00	-126.50	0.00	126.50	3374.70	1687.35	5831.83	2880.12	0.00	-0.01	-0.01	0.029
6.00	-27.61	-1.18	0.00	-124.12	0.00	124.12	3358.38	1679.19	5753.31	2841.35	0.01	-0.01	-0.01	0.029
8.00	-27.25	-1.17	0.00	-121.76	0.00	121.76	3341.83	1670.92	5674.92	2802.63	0.01	-0.01	-0.01	0.028
10.00	-26.89	-1.16	0.00	-119.42	0.00	119.42	3325.07	1662.53	5596.65	2763.98	0.02	-0.02	-0.02	0.028
12.00	-26.53	-1.15	0.00	-117.09	0.00	117.09	3308.08	1654.04	5518.52	2725.39	0.03	-0.02	-0.02	0.028
14.00	-26.17	-1.14	0.00	-114.78	0.00	114.78	3290.88	1645.44	5440.53	2686.87	0.04	-0.03	-0.03	0.027
14.17	-26.14	-1.14	0.00	-114.59	0.00	114.59	3289.41	1644.70	5433.91	2683.60	0.04	-0.03	-0.03	0.025
16.00	-25.82	-1.13	0.00	-112.50	0.00	112.50	3273.46	1636.73	5362.70	2648.44	0.05	-0.03	-0.03	0.025
17.50	-25.55	-1.13	0.00	-110.79	0.00	110.79	3260.25	1630.12	5304.43	2619.66	0.06	-0.03	-0.03	0.027
18.00	-25.46	-1.12	0.00	-110.23	0.00	110.23	3255.82	1627.91	5285.03	2610.08	0.06	-0.03	-0.03	0.027
20.00	-25.12	-1.11	0.00	-107.98	0.00	107.98	3237.96	1618.98	5207.54	2571.81	0.08	-0.04	-0.04	0.027
20.50	-24.53	-1.09	0.00	-107.43	0.00	107.43	3233.46	1616.73	5188.20	2562.26	0.08	-0.04	-0.04	0.022
22.00	-24.27	-1.08	0.00	-105.79	0.00	105.79	3219.87	1609.94	5130.24	2533.63	0.09	-0.04	-0.04	0.022
24.00	-23.93	-1.07	0.00	-103.62	0.00	103.62	3201.57	1600.79	5053.13	2495.55	0.11	-0.04	-0.04	0.022
26.00	-23.59	-1.06	0.00	-101.48	0.00	101.48	3183.05	1591.53	4976.22	2457.57	0.13	-0.04	-0.04	0.022
28.00	-23.25	-1.05	0.00	-99.35	0.00	99.35	3164.31	1582.16	4899.54	2419.70	0.15	-0.05	-0.05	0.022
30.00	-22.92	-1.04	0.00	-97.25	0.00	97.25	3145.35	1572.68	4823.07	2381.93	0.17	-0.05	-0.05	0.021
32.00	-22.58	-1.03	0.00	-95.17	0.00	95.17	3126.18	1563.09	4746.84	2344.29	0.19	-0.05	-0.05	0.021
34.00	-22.25	-1.02	0.00	-93.11	0.00	93.11	3106.78	1553.39	4670.86	2306.76	0.21	-0.06	-0.06	0.021
36.00	-21.92	-1.01	0.00	-91.07	0.00	91.07	3087.16	1543.58	4595.12	2269.36	0.24	-0.06	-0.06	0.020
37.00	-21.76	-1.00	0.00	-90.06	0.00	90.06	3077.27	1538.63	4557.36	2250.71	0.25	-0.06	-0.06	0.028
38.00	-21.60	-1.00	0.00	-89.06	0.00	89.06	3067.32	1533.66	4519.66	2232.09	0.26	-0.06	-0.06	0.028
40.00	-21.28	-0.99	0.00	-87.06	0.00	87.06	3047.27	1523.63	4444.46	2194.95	0.29	-0.07	-0.07	0.028
42.00	-20.96	-0.98	0.00	-85.09	0.00	85.09	3026.99	1513.49	4369.56	2157.96	0.32	-0.07	-0.07	0.027
43.36	-20.74	-0.97	0.00	-83.76	0.00	83.76	3013.08	1506.54	4318.79	2132.89	0.34	-0.07	-0.07	0.020
43.50	-20.72	-0.97	0.00	-83.63	0.00	83.63	3011.64	1505.82	4313.57	2130.31	0.34	-0.08	-0.08	0.020
44.00	-20.59	-0.96	0.00	-83.14	0.00	83.14	3006.49	1503.25	4294.94	2121.11	0.35	-0.08	-0.08	0.019
46.00	-20.05	-0.94	0.00	-81.22	0.00	81.22	2985.78	1492.89	4220.63	2084.41	0.38	-0.08	-0.08	0.019
48.00	-19.53	-0.92	0.00	-79.33	0.00	79.33	2964.84	1482.42	4146.63	2047.87	0.42	-0.08	-0.08	0.019
48.50	-19.40	-0.92	0.00	-78.87	0.00	78.87	2330.75	1165.37	3323.66	1641.43	0.42	-0.08	-0.08	0.020
50.00	-19.15	-0.91	0.00	-77.50	0.00	77.50	2320.40	1160.20	3282.84	1621.27	0.45	-0.08	-0.08	0.021
52.00	-18.88	-0.90	0.00	-75.69	0.00	75.69	2306.40	1153.20	3228.50	1594.43	0.49	-0.09	-0.09	0.021
52.50	-18.81	-0.90	0.00	-75.24	0.00	75.24	2302.87	1151.43	3214.93	1587.73	0.50	-0.09	-0.09	0.017
54.00	-18.61	-0.89	0.00	-73.89	0.00	73.89	2292.19	1146.09	3174.27	1567.65	0.52	-0.09	-0.09	0.017
54.17	-18.59	-0.89	0.00	-73.74	0.00	73.74	2290.97	1145.49	3169.67	1565.38	0.53	-0.09	-0.09	0.023
56.00	-18.35	-0.88	0.00	-72.12	0.00	72.12	2277.76	1138.88	3120.17	1540.93	0.56	-0.09	-0.09	0.023
58.00	-18.08	-0.87	0.00	-70.36	0.00	70.36	2263.10	1131.55	3066.20	1514.28	0.60	-0.10	-0.10	0.022
60.00	-17.82	-0.87	0.00	-68.61	0.00	68.61	2248.23	1124.12	3012.38	1487.70	0.64	-0.10	-0.10	0.022
62.00	-17.57	-0.86	0.00	-66.88	0.00	66.88	2233.14	1116.57	2958.71	1461.20	0.69	-0.10	-0.10	0.022
64.00	-17.31	-0.85	0.00	-65.17	0.00	65.17	2217.83	1108.92	2905.21	1434.77	0.73	-0.11	-0.11	0.021
64.17	-17.29	-0.85	0.00	-65.02	0.00	65.02	2216.52	1108.26	2900.67	1432.53	0.74	-0.11	-0.11	0.016
66.00	-17.06	-0.85	0.00	-63.46	0.00	63.46	2202.30	1101.15	2851.88	1408.44	0.78	-0.11	-0.11	0.016
68.00	-16.81	-0.84	0.00	-61.77	0.00	61.77	2186.55	1093.28	2798.74	1382.19	0.83	-0.11	-0.11	0.016
69.50	-16.62	-0.84	0.00	-60.51	0.00	60.51	2174.60	1087.30	2759.01	1362.57	0.86	-0.12	-0.12	0.022
70.00	-16.56	-0.84	0.00	-60.09	0.00	60.09	2170.58	1085.29	2745.79	1356.04	0.87	-0.12	-0.12	0.022

Calculated Forces

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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72.00	-16.31	-0.84	0.00	-58.41	0.00	58.41	2154.39	1077.20	2693.05	1329.99	0.92	-0.12	0.021
74.00	-16.06	-0.84	0.00	-56.74	0.00	56.74	2137.99	1068.99	2640.51	1304.05	0.98	-0.12	0.021
76.00	-15.82	-0.84	0.00	-55.07	0.00	55.07	2121.36	1060.68	2588.21	1278.22	1.03	-0.13	0.021
76.71	-15.74	-0.84	0.00	-54.48	0.00	54.48	2115.40	1057.70	2569.69	1269.07	1.05	-0.13	0.015
76.84	-15.72	-0.84	0.00	-54.37	0.00	54.37	2114.34	1057.17	2566.39	1267.45	1.05	-0.13	0.015
78.00	-15.49	-0.84	0.00	-53.40	0.00	53.40	2104.51	1052.26	2536.13	1252.50	1.08	-0.13	0.015
80.00	-15.11	-0.84	0.00	-51.72	0.00	51.72	2087.45	1043.72	2484.30	1226.90	1.14	-0.13	0.015
80.17	-15.08	-0.84	0.00	-51.58	0.00	51.58	2085.98	1042.99	2479.91	1224.73	1.14	-0.13	0.020
81.17	-14.89	-0.84	0.00	-50.75	0.00	50.75	2085.98	1042.99	2479.91	1224.73	1.14	-0.13	0.020
81.17	-14.89	-0.84	0.00	-50.75	0.00	50.75	1538.24	769.12	1857.13	917.17	1.17	-0.14	0.022
82.00	-14.80	-0.84	0.00	-50.05	0.00	50.05	1534.07	767.04	1842.56	909.97	1.20	-0.14	0.023
84.00	-14.60	-0.84	0.00	-48.38	0.00	48.38	1523.87	761.94	1807.49	892.65	1.25	-0.14	0.022
85.92	-14.41	-0.84	0.00	-46.77	0.00	46.77	1513.87	756.94	1773.86	876.04	1.31	-0.15	0.017
86.00	-14.40	-0.84	0.00	-46.70	0.00	46.70	1513.45	756.73	1772.46	875.35	1.31	-0.15	0.017
87.50	-14.25	-0.84	0.00	-45.45	0.00	45.45	1505.49	752.75	1746.23	862.40	1.36	-0.15	0.021
88.00	-14.20	-0.84	0.00	-45.03	0.00	45.03	1502.81	751.41	1737.49	858.08	1.38	-0.15	0.021
90.00	-14.01	-0.84	0.00	-43.35	0.00	43.35	1491.95	745.98	1702.59	840.84	1.44	-0.15	0.032
92.00	-13.81	-0.84	0.00	-41.68	0.00	41.68	1480.87	740.44	1667.76	823.65	1.50	-0.16	0.031
94.00	-13.62	-0.84	0.00	-40.00	0.00	40.00	1469.57	734.79	1633.03	806.49	1.57	-0.16	0.030
96.00	-13.43	-0.84	0.00	-38.32	0.00	38.32	1458.05	729.03	1598.39	789.39	1.64	-0.17	0.030
98.00	-13.24	-0.84	0.00	-36.63	0.00	36.63	1446.32	723.16	1563.86	772.33	1.71	-0.18	0.029
100.00	-12.68	-0.84	0.00	-34.95	0.00	34.95	1434.36	717.18	1529.45	755.34	1.79	-0.18	0.028
102.00	-12.50	-0.84	0.00	-33.27	0.00	33.27	1422.18	711.09	1495.16	738.41	1.86	-0.19	0.054
104.00	-12.33	-0.84	0.00	-31.58	0.00	31.58	1409.79	704.89	1461.02	721.54	1.94	-0.20	0.053
106.00	-12.16	-0.85	0.00	-29.89	0.00	29.89	1397.17	698.58	1427.02	704.75	2.03	-0.21	0.051
108.00	-11.99	-0.85	0.00	-28.20	0.00	28.20	1384.33	692.17	1393.17	688.04	2.12	-0.22	0.050
110.00	-11.82	-0.85	0.00	-26.51	0.00	26.51	1371.28	685.64	1359.50	671.40	2.21	-0.23	0.048
111.21	-11.72	-0.85	0.00	-25.48	0.00	25.48	1363.25	681.63	1339.15	661.36	2.27	-0.23	0.047
112.00	-11.62	-0.85	0.00	-24.81	0.00	24.81	1358.00	679.00	1326.00	654.86	2.31	-0.24	0.046
114.00	-11.37	-0.85	0.00	-23.11	0.00	23.11	1344.51	672.26	1292.68	638.41	2.41	-0.25	0.045
114.80	-11.27	-0.85	0.00	-22.43	0.00	22.43	898.25	449.12	876.91	433.07	2.45	-0.25	0.064
115.00	-6.72	-0.83	0.00	-22.26	0.00	22.26	897.59	448.79	874.90	432.08	2.46	-0.25	0.059
116.00	-6.67	-0.83	0.00	-21.43	0.00	21.43	894.32	447.16	865.01	427.20	2.52	-0.26	0.058
118.00	-6.55	-0.83	0.00	-19.76	0.00	19.76	887.61	443.81	845.23	417.43	2.63	-0.27	0.055
120.00	-6.43	-0.83	0.00	-18.10	0.00	18.10	880.69	440.34	825.45	407.66	2.75	-0.28	0.052
122.00	-6.32	-0.83	0.00	-16.43	0.00	16.43	873.54	436.77	805.67	397.89	2.87	-0.29	0.049
124.00	-6.21	-0.83	0.00	-14.77	0.00	14.77	866.18	433.09	785.90	388.13	2.99	-0.30	0.045
126.00	-4.23	-0.73	0.00	-13.11	0.00	13.11	858.60	429.30	766.16	378.38	3.12	-0.31	0.040
128.00	-4.13	-0.73	0.00	-11.64	0.00	11.64	850.80	425.40	746.46	368.65	3.26	-0.32	0.036
130.00	-4.02	-0.72	0.00	-10.18	0.00	10.18	842.77	421.39	726.80	358.94	3.39	-0.33	0.033
132.00	-3.92	-0.72	0.00	-8.73	0.00	8.73	834.53	417.27	707.19	349.25	3.53	-0.34	0.030
134.00	-3.82	-0.71	0.00	-7.29	0.00	7.29	826.07	413.04	687.65	339.60	3.68	-0.35	0.026
136.00	-3.72	-0.70	0.00	-5.87	0.00	5.87	817.39	408.69	668.18	329.99	3.82	-0.35	0.022
138.00	-1.60	-0.40	0.00	-4.47	0.00	4.47	808.49	404.24	648.79	320.41	3.97	-0.36	0.016
140.00	-1.53	-0.39	0.00	-3.66	0.00	3.66	799.37	399.68	629.50	310.89	4.12	-0.36	0.014
142.00	-1.46	-0.38	0.00	-2.87	0.00	2.87	790.03	395.01	610.32	301.41	4.27	-0.36	0.011
144.00	-1.39	-0.37	0.00	-2.11	0.00	2.11	780.47	390.24	591.24	291.99	4.43	-0.37	0.009
146.00	-1.32	-0.35	0.00	-1.38	0.00	1.38	770.69	385.35	572.29	282.63	4.58	-0.37	0.007
148.00	-1.25	-0.34	0.00	-0.67	0.00	0.67	760.69	380.35	553.47	273.34	4.74	-0.37	0.004
150.00	0.00	-0.33	0.00	0.00	0.00	0.00	750.48	375.24	534.80	264.12	4.89	-0.37	0.000

Wind Loading - Shaft

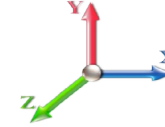
Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1 RB2 RB3 RB4	1.00	0.85	7.442	8.19	205.21	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
2.00		1.00	0.85	7.442	8.19	203.49	1.000	0.000	2.00	7.388	7.39	60.5	0.0	348.8
4.00		1.00	0.85	7.442	8.19	201.78	1.000	0.000	2.00	7.326	7.33	60.0	0.0	345.8
6.00		1.00	0.85	7.442	8.19	200.06	1.000	0.000	2.00	7.264	7.26	59.5	0.0	342.9
8.00		1.00	0.85	7.442	8.19	198.34	1.000	0.000	2.00	7.202	7.20	59.0	0.0	339.9
10.00		1.00	0.85	7.442	8.19	196.62	1.000	0.000	2.00	7.140	7.14	58.4	0.0	337.0
12.00		1.00	0.85	7.442	8.19	194.90	1.000	0.000	2.00	7.078	7.08	57.9	0.0	334.0
14.00		1.00	0.85	7.442	8.19	193.19	1.000	0.000	2.00	7.016	7.02	57.4	0.0	331.1
14.17	RB5	1.00	0.85	7.442	8.19	193.04	1.000	0.000	0.17	0.593	0.59	4.9	0.0	28.0
16.00		1.00	0.86	7.534	8.29	192.65	1.000	0.000	1.83	6.360	6.36	52.7	0.0	300.1
17.50	RT4	1.00	0.88	7.677	8.45	193.16	1.000	0.000	1.50	5.174	5.17	43.7	0.0	244.1
18.00		1.00	0.88	7.723	8.50	193.30	1.000	0.000	0.50	1.717	1.72	14.6	0.0	81.0
20.00		1.00	0.90	7.896	8.69	193.69	1.000	0.000	2.00	6.829	6.83	59.3	0.0	322.2
20.50	RT1 RT2 RB6	1.00	0.91	7.937	8.73	193.75	1.000	0.000	0.50	1.698	1.70	14.8	0.0	80.1
22.00		1.00	0.92	8.056	8.86	193.85	1.000	0.000	1.50	5.070	5.07	44.9	0.0	239.1
24.00		1.00	0.94	8.205	9.03	193.83	1.000	0.000	2.00	6.705	6.71	60.5	0.0	316.3
26.00		1.00	0.95	8.345	9.18	193.65	1.000	0.000	2.00	6.643	6.64	61.0	0.0	313.3
28.00		1.00	0.97	8.476	9.32	193.33	1.000	0.000	2.00	6.581	6.58	61.4	0.0	310.3
30.00		1.00	0.98	8.600	9.46	192.90	1.000	0.000	2.00	6.519	6.52	61.7	0.0	307.4
32.00		1.00	1.00	8.717	9.59	192.35	1.000	0.000	2.00	6.457	6.46	61.9	0.0	304.4
34.00		1.00	1.01	8.829	9.71	191.71	1.000	0.000	2.00	6.395	6.39	62.1	0.0	301.5
36.00		1.00	1.02	8.936	9.83	190.99	1.000	0.000	2.00	6.332	6.33	62.2	0.0	298.5
37.00	RT6	1.00	1.03	8.988	9.89	190.59	1.000	0.000	1.00	3.143	3.14	31.1	0.0	148.1
38.00		1.00	1.03	9.039	9.94	190.18	1.000	0.000	1.00	3.127	3.13	31.1	0.0	147.4
40.00		1.00	1.04	9.137	10.05	189.31	1.000	0.000	2.00	6.208	6.21	62.4	0.0	292.6
42.00		1.00	1.05	9.231	10.15	188.37	1.000	0.000	2.00	6.146	6.15	62.4	0.0	289.6
43.36	RB7	1.00	1.06	9.293	10.22	187.70	1.000	0.000	1.36	4.144	4.14	42.4	0.0	195.3
43.50	Bot - Section 2	1.00	1.06	9.300	10.23	187.63	1.000	0.000	0.14	0.425	0.42	4.3	0.0	20.0
44.00		1.00	1.06	9.322	10.25	187.37	1.000	0.000	0.50	1.542	1.54	15.8	0.0	132.1
46.00		1.00	1.07	9.410	10.35	186.32	1.000	0.000	2.00	6.130	6.13	63.4	0.0	524.9
48.00		1.00	1.08	9.494	10.44	185.22	1.000	0.000	2.00	6.068	6.07	63.4	0.0	519.4
48.50	Top - Section 1	1.00	1.09	9.515	10.47	184.93	1.000	0.000	0.50	1.507	1.51	15.8	0.0	129.0
50.00	Appurtenance(s)	1.00	1.09	9.576	10.53	187.45	1.000	0.000	1.50	4.498	4.50	47.4	0.0	176.9
52.00		1.00	1.10	9.656	10.62	186.27	1.000	0.000	2.00	5.943	5.94	63.1	0.0	233.7
52.50	RB8	1.00	1.11	9.675	10.64	185.96	1.000	0.000	0.50	1.476	1.48	15.7	0.0	58.1
54.00		1.00	1.11	9.733	10.71	185.04	1.000	0.000	1.50	4.405	4.41	47.2	0.0	173.2
54.17	RT3 RT5	1.00	1.11	9.739	10.71	184.94	1.000	0.000	0.17	0.497	0.50	5.3	0.0	19.5
56.00		1.00	1.12	9.807	10.79	183.78	1.000	0.000	1.83	5.322	5.32	57.4	0.0	209.3
58.00		1.00	1.13	9.880	10.87	182.48	1.000	0.000	2.00	5.757	5.76	62.6	0.0	226.3
60.00		1.00	1.14	9.951	10.95	181.15	1.000	0.000	2.00	5.695	5.69	62.3	0.0	223.9
62.00		1.00	1.14	10.020	11.02	179.78	1.000	0.000	2.00	5.633	5.63	62.1	0.0	221.4
64.00		1.00	1.15	10.087	11.10	178.38	1.000	0.000	2.00	5.571	5.57	61.8	0.0	219.0
64.17	RB9	1.00	1.15	10.093	11.10	178.26	1.000	0.000	0.17	0.471	0.47	5.2	0.0	18.5
66.00		1.00	1.16	10.153	11.17	176.95	1.000	0.000	1.83	5.038	5.04	56.3	0.0	198.0
68.00		1.00	1.17	10.217	11.24	175.50	1.000	0.000	2.00	5.446	5.45	61.2	0.0	214.0
69.50	RT7	1.00	1.17	10.264	11.29	174.39	1.000	0.000	1.50	4.044	4.04	45.7	0.0	158.9
70.00	RT8 RB10	1.00	1.17	10.279	11.31	174.01	1.000	0.000	0.50	1.340	1.34	15.2	0.0	52.7

Wind Loading - Shaft

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
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72.00	1.00	1.18	10.340	11.37	172.51	1.000	0.000	2.00	5.322	5.32	60.5	0.0	209.1
74.00	1.00	1.19	10.400	11.44	170.97	1.000	0.000	2.00	5.260	5.26	60.2	0.0	206.6
76.00	1.00	1.19	10.459	11.50	169.42	1.000	0.000	2.00	5.198	5.20	59.8	0.0	204.2
76.71 RB11	1.00	1.20	10.479	11.53	168.86	1.000	0.000	0.71	1.830	1.83	21.1	0.0	71.9
76.84 Bot - Section 3	1.00	1.20	10.483	11.53	168.76	1.000	0.000	0.13	0.326	0.33	3.8	0.0	12.8
78.00	1.00	1.20	10.516	11.57	167.84	1.000	0.000	1.16	3.030	3.03	35.0	0.0	212.4
80.00	1.00	1.21	10.572	11.63	166.24	1.000	0.000	2.00	5.160	5.16	60.0	0.0	361.7
80.17 RT9	1.00	1.21	10.577	11.63	166.10	1.000	0.000	0.17	0.436	0.44	5.1	0.0	30.5
81.17 Top - Section 2	1.00	1.21	10.605	11.67	165.29	1.000	0.000	1.00	2.554	2.55	29.8	0.0	179.0
82.00	1.00	1.21	10.627	11.69	167.47	1.000	0.000	0.83	2.108	2.11	24.6	0.0	66.4
84.00	1.00	1.22	10.681	11.75	165.84	1.000	0.000	2.00	5.036	5.04	59.2	0.0	158.5
85.92 RB12	1.00	1.23	10.732	11.81	164.25	1.002 *	0.000	1.92	4.776	4.78	56.5	0.0	150.3
86.00	1.00	1.23	10.734	11.81	164.18	1.003 *	0.000	0.08	0.198	0.20	2.3	0.0	6.2
87.50 RT10	1.00	1.23	10.774	11.85	162.93	1.005 *	0.000	1.50	3.689	3.71	43.9	0.0	116.1
88.00	1.00	1.23	10.787	11.87	162.51	1.007 *	0.000	0.50	1.222	1.23	14.6	0.0	38.5
90.00 RT11	1.00	1.24	10.838	11.92	160.83	1.009 *	0.000	2.00	4.849	4.89	58.4	0.0	152.6
92.00	1.00	1.24	10.888	11.98	159.12	1.000	0.000	2.00	4.787	4.79	57.3	0.0	150.6
94.00	1.00	1.25	10.937	12.03	157.40	1.000	0.000	2.00	4.725	4.73	56.8	0.0	148.7
96.00	1.00	1.25	10.986	12.08	155.66	1.000	0.000	2.00	4.663	4.66	56.4	0.0	146.7
98.00	1.00	1.26	11.034	12.14	153.91	1.000	0.000	2.00	4.601	4.60	55.8	0.0	144.7
100.00 RT12	1.00	1.27	11.081	12.19	152.14	1.000	0.000	2.00	4.539	4.54	55.3	0.0	142.7
102.00	1.00	1.27	11.127	12.24	150.35	1.000	0.000	2.00	4.477	4.48	54.8	0.0	140.8
104.00	1.00	1.28	11.173	12.29	148.56	1.000	0.000	2.00	4.415	4.41	54.3	0.0	138.8
106.00	1.00	1.28	11.218	12.34	146.74	1.000	0.000	2.00	4.352	4.35	53.7	0.0	136.8
108.00	1.00	1.29	11.262	12.39	144.92	1.000	0.000	2.00	4.290	4.29	53.1	0.0	134.9
110.00	1.00	1.29	11.305	12.44	143.08	1.000	0.000	2.00	4.228	4.23	52.6	0.0	132.9
111.21 Bot - Section 4	1.00	1.29	11.331	12.46	141.96	1.000	0.000	1.21	2.535	2.53	31.6	0.0	79.7
112.00	1.00	1.30	11.348	12.48	141.23	1.000	0.000	0.79	1.657	1.66	20.7	0.0	90.4
114.00	1.00	1.30	11.391	12.53	139.37	1.000	0.000	2.00	4.169	4.17	52.2	0.0	227.4
114.80 Top - Section 3	1.00	1.30	11.407	12.55	138.63	1.000	0.000	0.80	1.643	1.64	20.6	0.0	89.6
115.00 Appurtenance(s)	1.00	1.30	11.412	12.55	140.65	1.000	0.000	0.20	0.418	0.42	5.2	0.0	9.9
116.00	1.00	1.31	11.432	12.58	139.71	1.000	0.000	1.00	2.046	2.05	25.7	0.0	48.3
118.00	1.00	1.31	11.474	12.62	137.83	1.000	0.000	2.00	4.044	4.04	51.0	0.0	95.5
120.00	1.00	1.32	11.514	12.67	135.94	1.000	0.000	2.00	3.982	3.98	50.4	0.0	94.1
122.00	1.00	1.32	11.554	12.71	134.04	1.000	0.000	2.00	3.920	3.92	49.8	0.0	92.6
124.00	1.00	1.32	11.594	12.75	132.12	1.000	0.000	2.00	3.858	3.86	49.2	0.0	91.1
126.00 Appurtenance(s)	1.00	1.33	11.633	12.80	130.20	1.000	0.000	2.00	3.796	3.80	48.6	0.0	89.6
128.00	1.00	1.33	11.672	12.84	128.26	1.000	0.000	2.00	3.734	3.73	47.9	0.0	88.1
130.00	1.00	1.34	11.710	12.88	126.31	1.000	0.000	2.00	3.672	3.67	47.3	0.0	86.7
132.00	1.00	1.34	11.748	12.92	124.36	1.000	0.000	2.00	3.610	3.61	46.6	0.0	85.2
134.00	1.00	1.35	11.785	12.96	122.39	1.000	0.000	2.00	3.548	3.55	46.0	0.0	83.7
136.00	1.00	1.35	11.822	13.00	120.42	1.000	0.000	2.00	3.485	3.49	45.3	0.0	82.2
138.00 Appurtenance(s)	1.00	1.35	11.858	13.04	118.44	1.000	0.000	2.00	3.423	3.42	44.7	0.0	80.7
140.00	1.00	1.36	11.894	13.08	116.44	1.000	0.000	2.00	3.361	3.36	44.0	0.0	79.3
142.00	1.00	1.36	11.930	13.12	114.44	1.000	0.000	2.00	3.299	3.30	43.3	0.0	77.8
144.00	1.00	1.37	11.965	13.16	112.43	1.000	0.000	2.00	3.237	3.24	42.6	0.0	76.3
146.00	1.00	1.37	12.000	13.20	110.41	1.000	0.000	2.00	3.175	3.17	41.9	0.0	74.8
148.00	1.00	1.37	12.034	13.24	108.39	1.000	0.000	2.00	3.113	3.11	41.2	0.0	73.4
150.00 Appurtenance(s)	1.00	1.38	12.068	13.27	106.35	1.000	0.000	2.00	3.051	3.05	40.5	0.0	71.9
Totals:								150.00	4,220.4	16,190.3			

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

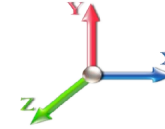
Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	150.00	10' Dipole	1	12.152	13.367	1.00	1.00	3.76	30.00	0.000	5.000	50.26	0.00	251.30
2	150.00	18' Omni	1	12.217	13.439	1.00	1.00	5.40	55.00	0.000	9.000	72.57	0.00	653.13
3	150.00	10' Omni	1	12.152	13.367	1.00	1.00	3.00	25.00	0.000	5.000	40.10	0.00	200.50
4	150.00	Low Profile Platform-flat	1	12.068	13.275	1.00	1.00	34.00	1200.00	0.000	0.000	451.35	0.00	0.00
5	150.00	3' Yagi	1	12.068	13.275	1.00	1.00	2.98	10.00	0.000	0.000	39.56	0.00	0.00
6	138.00	P65-17-XLH-RR	2	11.858	13.044	0.64	0.80	14.64	118.00	0.000	0.000	191.01	0.00	0.00
7	138.00	Low Profile Platform-flat	1	11.858	13.044	1.00	1.00	34.00	1200.00	0.000	0.000	443.50	0.00	0.00
8	138.00	SBNH-1D6565C	1	11.858	13.044	0.67	0.80	7.71	66.10	0.000	0.000	100.54	0.00	0.00
9	138.00	7770.00	6	11.858	13.044	0.62	0.80	20.33	210.00	0.000	0.000	265.16	0.00	0.00
10	138.00	RRUS-12 1900 MHz	3	11.858	13.044	0.40	0.80	3.24	180.00	0.000	0.000	42.26	0.00	0.00
11	138.00	TT19-08BP111-001	6	11.858	13.044	0.54	0.80	2.06	96.00	0.000	0.000	26.85	0.00	0.00
12	138.00	RRUS-11 700MHz	6	11.858	13.044	0.40	0.80	6.05	306.00	0.000	0.000	78.89	0.00	0.00
13	138.00	LGP 21901	6	11.858	13.044	0.54	0.80	0.74	33.00	0.000	0.000	9.65	0.00	0.00
14	138.00	DC6-48-60-18-8F	1	11.858	13.044	0.80	0.80	0.74	31.80	0.000	0.000	9.60	0.00	0.00
15	126.00	APXVSP18-C-A20	3	11.633	12.797	0.69	0.80	16.55	171.00	0.000	0.000	211.82	0.00	0.00
16	126.00	ACU-A20-N	4	11.633	12.797	0.40	0.80	0.22	4.00	0.000	0.000	2.87	0.00	0.00
17	126.00	800MHz Filter	3	11.633	12.797	0.54	0.80	1.25	26.40	0.000	0.000	16.05	0.00	0.00
18	126.00	TD-RRH8x20-25	3	11.633	12.797	0.40	0.80	4.86	210.00	0.000	0.000	62.19	0.00	0.00
19	126.00	800 MHz	3	11.633	12.797	0.40	0.80	2.99	159.00	0.000	0.000	38.24	0.00	0.00
20	126.00	1900MHz	3	11.633	12.797	0.40	0.80	4.56	132.00	0.000	0.000	58.35	0.00	0.00
21	126.00	APXVTM14-C-120	3	11.633	12.797	0.62	0.80	11.87	168.00	0.000	0.000	151.88	0.00	0.00
22	126.00	Low Profile Platform-flat	1	11.633	12.797	1.00	1.00	34.00	1200.00	0.000	0.000	435.08	0.00	0.00
23	115.00	F4P-12W	1	11.412	12.553	1.00	1.00	63.31	3100.00	0.000	0.000	794.72	0.00	0.00
24	115.00	F4P-HRK12	1	11.412	12.553	1.00	1.00	7.57	507.00	0.000	0.000	95.02	0.00	0.00
25	115.00	AIR32	4	11.412	12.553	0.73	0.80	18.92	528.80	0.000	0.000	237.44	0.00	0.00
26	115.00	APXVAARR24_43-U-NA2	4	11.412	12.553	0.65	0.80	52.46	396.00	0.000	0.000	658.55	0.00	0.00
27	115.00	APX16DWV-16DWVS-E-A	4	11.412	12.553	0.62	0.80	16.37	162.80	0.000	0.000	205.51	0.00	0.00
28	115.00	KRY 112 489/2	4	11.412	12.553	0.40	0.80	1.02	61.60	0.000	0.000	12.85	0.00	0.00
29	115.00	Radio 4449 B71 + B12	4	11.412	12.553	0.54	0.80	3.54	280.00	0.000	0.000	44.41	0.00	0.00
30	100.00	742 213	3	11.081	12.189	0.78	1.00	11.98	66.00	0.000	0.000	146.03	0.00	0.00
31	100.00	Flush Mount	1	11.081	12.189	1.00	1.00	5.00	350.00	0.000	0.000	60.94	0.00	0.00
32	50.00	GPS	1	9.576	10.534	1.00	1.00	0.01	1.00	0.000	0.000	0.11	0.00	0.00
33	50.00	Standoff	1	9.576	10.534	1.00	1.00	1.50	50.00	0.000	0.000	15.80	0.00	0.00
34	20.50	Splice Plate	2	7.937	8.731	0.94	1.00	7.20	552.00	0.000	0.000	62.87	0.00	0.00

Totals: 11,686.50

5,132.01

Total Applied Force Summary

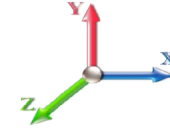
Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
2.00		60.48	414.18	0.00	0.00
4.00		59.97	411.23	0.00	0.00
6.00		59.47	408.27	0.00	0.00
8.00		58.96	405.31	0.00	0.00
10.00		58.45	402.35	0.00	0.00
12.00		57.94	399.39	0.00	0.00
14.00		57.43	396.43	0.00	0.00
14.17		4.86	33.56	0.00	0.00
16.00		52.71	359.92	0.00	0.00
17.50		43.70	293.17	0.00	0.00
18.00		14.59	97.35	0.00	0.00
20.00		59.32	387.56	0.00	0.00
20.50	(2) attachments	77.69	648.43	0.00	0.00
22.00		44.93	288.17	0.00	0.00
24.00		60.52	381.64	0.00	0.00
26.00		60.98	378.68	0.00	0.00
28.00		61.36	375.73	0.00	0.00
30.00		61.67	372.77	0.00	0.00
32.00		61.91	369.81	0.00	0.00
34.00		62.11	366.85	0.00	0.00
36.00		62.25	363.89	0.00	0.00
37.00		31.07	180.84	0.00	0.00
38.00		31.09	180.10	0.00	0.00
40.00		62.40	357.98	0.00	0.00
42.00		62.41	355.02	0.00	0.00
43.36		42.36	239.72	0.00	0.00
43.50		4.35	24.60	0.00	0.00
44.00		15.81	148.41	0.00	0.00
46.00		63.45	590.24	0.00	0.00
48.00		63.37	584.82	0.00	0.00
48.50		15.78	145.36	0.00	0.00
50.00	(2) attachments	63.29	276.96	0.00	0.00
52.00		63.13	299.13	0.00	0.00
52.50		15.71	74.40	0.00	0.00
54.00		47.16	222.26	0.00	0.00
54.17		5.32	25.10	0.00	0.00
56.00		57.42	269.09	0.00	0.00
58.00		62.57	291.73	0.00	0.00
60.00		62.34	289.27	0.00	0.00
62.00		62.08	286.80	0.00	0.00
64.00		61.81	284.33	0.00	0.00
64.17		5.23	24.05	0.00	0.00
66.00		56.26	257.81	0.00	0.00
68.00		61.21	279.40	0.00	0.00
69.50		45.66	207.94	0.00	0.00
70.00		15.15	69.00	0.00	0.00

Total Applied Force Summary

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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72.00	60.54	274.47	0.00	0.00
74.00	60.18	272.01	0.00	0.00
76.00	59.80	269.54	0.00	0.00
76.71	21.10	95.09	0.00	0.00
76.84	3.76	16.93	0.00	0.00
78.00	35.05	250.46	0.00	0.00
80.00	60.01	427.08	0.00	0.00
80.17	5.07	36.10	0.00	0.00
81.17	29.79	211.69	0.00	0.00
82.00	24.64	93.50	0.00	0.00
84.00	59.17	223.90	0.00	0.00
85.92	56.47	213.09	0.00	0.00
86.00	2.34	8.84	0.00	0.00
87.50	43.94	165.15	0.00	0.00
88.00	14.60	54.80	0.00	0.00
90.00	58.35	217.99	0.00	0.00
92.00	57.34	216.01	0.00	0.00
94.00	56.85	214.04	0.00	0.00
96.00	56.35	212.07	0.00	0.00
98.00	55.84	210.10	0.00	0.00
100.00	(4) attachments	262.30	624.13	0.00
102.00		54.79	193.67	0.00
104.00		54.25	191.70	0.00
106.00		53.71	189.73	0.00
108.00		53.15	187.76	0.00
110.00		52.58	185.78	0.00
111.21		31.60	111.75	0.00
112.00		20.68	111.21	0.00
114.00		52.23	280.34	0.00
114.80		20.62	110.71	0.00
115.00	(22) attachments	2053.74	5051.45	0.00
116.00		25.72	65.54	0.00
118.00		51.05	129.97	0.00
120.00		50.44	128.49	0.00
122.00		49.83	127.01	0.00
124.00		49.20	125.53	0.00
126.00	(23) attachments	1025.05	2194.45	0.00
128.00		47.94	116.85	0.00
130.00		47.30	115.37	0.00
132.00		46.65	113.89	0.00
134.00		45.99	112.41	0.00
136.00		45.32	110.93	0.00
138.00	(32) attachments	1212.10	2350.35	0.00
140.00		43.98	81.27	0.00
142.00		43.29	79.79	0.00
144.00		42.60	78.31	0.00
146.00		41.91	76.83	0.00
148.00		41.20	75.35	0.00
150.00	(5) attachments	694.34	1393.87	0.00
	Totals:	9,352.43	31,916.33	0.00
				1,104.93

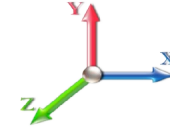
Linear Appurtenance Segment Forces (Factored)

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind	Iterations 26
Dead Load Factor 1.00	
Wind Load Factor 1.00	



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
2.00	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.051	0.000	7.442	0.00	0.00
4.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.068	0.000	7.442	0.00	0.00
6.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.069	0.000	7.442	0.00	0.00
8.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.069	0.000	7.442	0.00	0.00
10.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.070	0.000	7.442	0.00	0.00
12.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.071	0.000	7.442	0.00	0.00
14.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.071	0.000	7.442	0.00	0.00
14.17	1.5" Reinforcing Plate	Yes	0.17	0.000	3.00	0.04	0.00	0.072	0.000	7.442	0.00	0.00
16.00	1.5" Reinforcing Plate	Yes	1.83	0.000	3.00	0.46	0.00	0.072	0.000	7.534	0.00	0.00
17.50	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.072	0.000	7.677	0.00	0.00
18.00	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.13	0.00	0.073	0.000	7.723	0.00	0.00
20.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.073	0.000	7.896	0.00	0.00
20.50	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.13	0.00	0.074	0.000	7.937	0.00	0.00
22.00	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.074	0.000	8.056	0.00	0.00
24.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.075	0.000	8.205	0.00	0.00
26.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.075	0.000	8.345	0.00	0.00
28.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.076	0.000	8.476	0.00	0.00
30.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.077	0.000	8.600	0.00	0.00
32.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.077	0.000	8.717	0.00	0.00
34.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.078	0.000	8.829	0.00	0.00
36.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.079	0.000	8.936	0.00	0.00
37.00	1.5" Reinforcing Plate	Yes	1.00	0.000	3.00	0.25	0.00	0.080	0.000	8.988	0.00	0.00
38.00	1.25" Reinforcing	Yes	1.00	0.000	2.50	0.21	0.00	0.067	0.000	9.039	0.00	0.00
40.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	0.42	0.00	0.067	0.000	9.137	0.00	0.00
42.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	0.42	0.00	0.068	0.000	9.231	0.00	0.00
43.36	1.25" Reinforcing	Yes	1.36	0.000	2.50	0.28	0.00	0.068	0.000	9.293	0.00	0.00
43.50	1.5" Reinforcing Plate	Yes	0.10	0.000	3.00	0.03	0.00	0.078	0.000	9.300	0.00	0.00
43.50	1.25" Reinforcing	Yes	0.04	0.000	2.50	0.01	0.00	0.078	0.000	9.300	0.00	0.00
44.00	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.13	0.00	0.082	0.000	9.322	0.00	0.00
46.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.083	0.000	9.410	0.00	0.00
48.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.084	0.000	9.494	0.00	0.00
48.50	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.13	0.00	0.084	0.000	9.515	0.00	0.00
50.00	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.083	0.000	9.576	0.00	0.00
52.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.084	0.000	9.656	0.00	0.00
52.50	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.13	0.00	0.085	0.000	9.675	0.00	0.00
54.00	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.085	0.000	9.733	0.00	0.00
54.17	1.5" Reinforcing Plate	Yes	0.17	0.000	3.00	0.04	0.00	0.086	0.000	9.739	0.00	0.00
56.00	1.5" Reinforcing Plate	Yes	1.83	0.000	3.00	0.46	0.00	0.086	0.000	9.807	0.00	0.00
58.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.087	0.000	9.880	0.00	0.00
60.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.088	0.000	9.951	0.00	0.00
62.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.089	0.000	10.020	0.00	0.00
64.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.090	0.000	10.087	0.00	0.00
64.17	1.5" Reinforcing Plate	Yes	0.17	0.000	3.00	0.04	0.00	0.090	0.000	10.093	0.00	0.00
66.00	1.5" Reinforcing Plate	Yes	1.83	0.000	3.00	0.46	0.00	0.091	0.000	10.153	0.00	0.00
68.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.092	0.000	10.217	0.00	0.00
69.50	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.093	0.000	10.264	0.00	0.00
70.00	1.25" Reinforcing	Yes	0.50	0.000	2.50	0.10	0.00	0.078	0.000	10.279	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

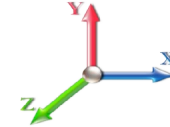
Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
72.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	0.42	0.00	0.078	0.000	10.340	0.00	0.00
74.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	0.42	0.00	0.079	0.000	10.400	0.00	0.00
76.00	1.25" Reinforcing	Yes	2.00	0.000	2.50	0.42	0.00	0.080	0.000	10.459	0.00	0.00
76.71	1.5" Reinforcing Plate	Yes	0.01	0.000	3.00	0.00	0.00	0.081	0.000	10.479	0.00	0.00
76.71	1.25" Reinforcing	Yes	0.70	0.000	2.50	0.15	0.00	0.081	0.000	10.479	0.00	0.00
76.84	1.5" Reinforcing Plate	Yes	0.13	0.000	3.00	0.03	0.00	0.097	0.000	10.483	0.00	0.00
78.00	1.5" Reinforcing Plate	Yes	1.16	0.000	3.00	0.29	0.00	0.098	0.000	10.516	0.00	0.00
80.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.099	0.000	10.572	0.00	0.00
80.17	1.5" Reinforcing Plate	Yes	0.17	0.000	3.00	0.04	0.00	0.099	0.000	10.577	0.00	0.00
81.17	1.5" Reinforcing Plate	Yes	1.00	0.000	3.00	0.25	0.00	0.100	0.000	10.605	0.00	0.00
82.00	1.5" Reinforcing Plate	Yes	0.83	0.000	3.00	0.21	0.00	0.098	0.000	10.627	0.00	0.00
84.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.099	0.000	10.681	0.00	0.00
85.92	1.5" Reinforcing Plate	Yes	1.92	0.000	3.00	0.48	0.00	0.101	1.002	10.732	0.00	0.00
86.00	1.5" Reinforcing Plate	Yes	0.08	0.000	3.00	0.02	0.00	0.101	1.003	10.734	0.00	0.00
87.50	1.5" Reinforcing Plate	Yes	1.50	0.000	3.00	0.38	0.00	0.102	1.005	10.774	0.00	0.00
88.00	1.5" Reinforcing Plate	Yes	0.50	0.000	3.00	0.13	0.00	0.102	1.007	10.787	0.00	0.00
90.00	1.5" Reinforcing Plate	Yes	2.00	0.000	3.00	0.50	0.00	0.103	1.009	10.838	0.00	0.00
Totals:											0.0	0.0

Calculated Forces

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

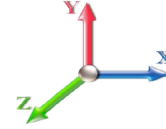


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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 26

Dead Load Factor 1.00
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-31.91	-9.36	0.00	-974.05	0.00	974.05	3406.69	1703.35	5989.16	2957.82	0.00	0.000	0.000	0.194
2.00	-31.50	-9.31	0.00	-955.33	0.00	955.33	3390.81	1695.40	5910.44	2918.95	0.01	-0.026	0.000	0.192
4.00	-31.08	-9.27	0.00	-936.71	0.00	936.71	3374.70	1687.35	5831.83	2880.12	0.02	-0.053	0.000	0.190
6.00	-30.67	-9.22	0.00	-918.18	0.00	918.18	3358.38	1679.19	5753.31	2841.35	0.05	-0.079	0.000	0.188
8.00	-30.26	-9.18	0.00	-899.74	0.00	899.74	3341.83	1670.92	5674.92	2802.63	0.09	-0.106	0.000	0.186
10.00	-29.85	-9.13	0.00	-881.39	0.00	881.39	3325.07	1662.53	5596.65	2763.98	0.14	-0.133	0.000	0.184
12.00	-29.45	-9.08	0.00	-863.13	0.00	863.13	3308.08	1654.04	5518.52	2725.39	0.20	-0.159	0.000	0.182
14.00	-29.05	-9.03	0.00	-844.96	0.00	844.96	3290.88	1645.44	5440.53	2686.87	0.27	-0.186	0.000	0.180
14.17	-29.01	-9.03	0.00	-843.42	0.00	843.42	3289.41	1644.70	5433.91	2683.60	0.28	-0.189	0.000	0.164
16.00	-28.65	-8.99	0.00	-826.89	0.00	826.89	3273.46	1636.73	5362.70	2648.44	0.36	-0.211	0.000	0.162
17.50	-28.36	-8.95	0.00	-813.40	0.00	813.40	3260.25	1630.12	5304.43	2619.66	0.43	-0.229	0.000	0.177
18.00	-28.26	-8.95	0.00	-808.93	0.00	808.93	3255.82	1627.91	5285.03	2610.08	0.45	-0.236	0.000	0.176
20.00	-27.87	-8.89	0.00	-791.04	0.00	791.04	3237.96	1618.98	5207.54	2571.81	0.56	-0.263	0.000	0.174
20.50	-27.22	-8.82	0.00	-786.59	0.00	786.59	3233.46	1616.73	5188.20	2562.26	0.58	-0.270	0.000	0.142
22.00	-26.93	-8.78	0.00	-773.36	0.00	773.36	3219.87	1609.94	5130.24	2533.63	0.67	-0.286	0.000	0.141
24.00	-26.54	-8.73	0.00	-755.80	0.00	755.80	3201.57	1600.79	5053.13	2495.55	0.80	-0.308	0.000	0.139
26.00	-26.16	-8.67	0.00	-738.35	0.00	738.35	3183.05	1591.53	4976.22	2457.57	0.93	-0.330	0.000	0.137
28.00	-25.78	-8.62	0.00	-721.00	0.00	721.00	3164.31	1582.16	4899.54	2419.70	1.07	-0.352	0.000	0.135
30.00	-25.41	-8.57	0.00	-703.76	0.00	703.76	3145.35	1572.68	4823.07	2381.93	1.22	-0.374	0.000	0.133
32.00	-25.03	-8.51	0.00	-686.62	0.00	686.62	3126.18	1563.09	4746.84	2344.29	1.39	-0.396	0.000	0.131
34.00	-24.66	-8.46	0.00	-669.60	0.00	669.60	3106.78	1553.39	4670.86	2306.76	1.56	-0.417	0.000	0.129
36.00	-24.30	-8.40	0.00	-652.69	0.00	652.69	3087.16	1543.58	4595.12	2269.36	1.74	-0.439	0.000	0.127
37.00	-24.11	-8.37	0.00	-644.29	0.00	644.29	3077.27	1538.63	4557.36	2250.71	1.83	-0.450	0.000	0.175
38.00	-23.93	-8.35	0.00	-635.92	0.00	635.92	3067.32	1533.66	4519.66	2232.09	1.92	-0.465	0.000	0.174
40.00	-23.57	-8.30	0.00	-619.22	0.00	619.22	3047.27	1523.63	4444.46	2194.95	2.13	-0.495	0.000	0.172
42.00	-23.21	-8.24	0.00	-602.63	0.00	602.63	3026.99	1513.49	4369.56	2157.96	2.34	-0.525	0.000	0.169
43.36	-22.97	-8.20	0.00	-591.42	0.00	591.42	3013.08	1506.54	4318.79	2132.89	2.49	-0.546	0.000	0.120
43.50	-22.95	-8.20	0.00	-590.27	0.00	590.27	3011.64	1505.82	4313.57	2130.31	2.51	-0.547	0.000	0.120
44.00	-22.80	-8.18	0.00	-586.18	0.00	586.18	3006.49	1503.25	4294.94	2121.11	2.57	-0.553	0.000	0.117
46.00	-22.20	-8.12	0.00	-569.81	0.00	569.81	2985.78	1492.89	4220.63	2084.41	2.80	-0.574	0.000	0.115
48.00	-21.62	-8.06	0.00	-553.56	0.00	553.56	2964.84	1482.42	4146.63	2047.87	3.05	-0.595	0.000	0.113
48.50	-21.47	-8.05	0.00	-549.53	0.00	549.53	2330.75	1165.37	3323.66	1641.43	3.11	-0.600	0.000	0.123
50.00	-21.19	-7.99	0.00	-537.46	0.00	537.46	2320.40	1160.20	3282.84	1621.27	3.30	-0.616	0.000	0.128
52.00	-20.89	-7.93	0.00	-521.49	0.00	521.49	2306.40	1153.20	3228.50	1594.43	3.56	-0.637	0.000	0.125
52.50	-20.82	-7.91	0.00	-517.53	0.00	517.53	2302.87	1151.43	3214.93	1587.73	3.63	-0.643	0.000	0.103
54.00	-20.59	-7.86	0.00	-505.66	0.00	505.66	2292.19	1146.09	3174.27	1567.65	3.83	-0.656	0.000	0.101
54.17	-20.57	-7.86	0.00	-504.32	0.00	504.32	2290.97	1145.49	3169.67	1565.38	3.86	-0.658	0.000	0.138
56.00	-20.29	-7.81	0.00	-489.93	0.00	489.93	2277.76	1138.88	3120.17	1540.93	4.11	-0.680	0.000	0.135
58.00	-20.00	-7.75	0.00	-474.31	0.00	474.31	2263.10	1131.55	3066.20	1514.28	4.40	-0.704	0.000	0.132
60.00	-19.71	-7.70	0.00	-458.80	0.00	458.80	2248.23	1124.12	3012.38	1487.70	4.70	-0.728	0.000	0.129
62.00	-19.42	-7.64	0.00	-443.41	0.00	443.41	2233.14	1116.57	2958.71	1461.20	5.01	-0.751	0.000	0.126
64.00	-19.13	-7.58	0.00	-428.13	0.00	428.13	2217.83	1108.92	2905.21	1434.77	5.33	-0.775	0.000	0.123
64.17	-19.11	-7.57	0.00	-426.85	0.00	426.85	2216.52	1108.26	2900.67	1432.53	5.36	-0.777	0.000	0.094
66.00	-18.85	-7.52	0.00	-412.99	0.00	412.99	2202.30	1101.15	2851.88	1408.44	5.66	-0.793	0.000	0.092
68.00	-18.57	-7.46	0.00	-397.95	0.00	397.95	2186.55	1093.28	2798.74	1382.19	6.00	-0.810	0.000	0.089
69.50	-18.36	-7.41	0.00	-386.76	0.00	386.76	2174.60	1087.30	2759.01	1362.57	6.26	-0.823	0.000	0.121
70.00	-18.29	-7.40	0.00	-383.05	0.00	383.05	2170.58	1085.29	2745.79	1356.04	6.34	-0.829	0.000	0.120
72.00	-18.01	-7.35	0.00	-368.24	0.00	368.24	2154.39	1077.20	2693.05	1329.99	6.69	-0.853	0.000	0.117

Calculated Forces

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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74.00	-17.74	-7.29	0.00	-353.55	0.00	353.55	2137.99	1068.99	2640.51	1304.05	7.06	-0.877	0.000	0.114
76.00	-17.47	-7.23	0.00	-338.98	0.00	338.98	2121.36	1060.68	2588.21	1278.22	7.43	-0.900	0.000	0.110
76.71	-17.37	-7.21	0.00	-333.84	0.00	333.84	2115.40	1057.70	2569.69	1269.07	7.56	-0.908	0.000	0.083
76.84	-17.36	-7.21	0.00	-332.93	0.00	332.93	2114.34	1057.17	2566.39	1267.45	7.59	-0.909	0.000	0.082
78.00	-17.10	-7.17	0.00	-324.55	0.00	324.55	2104.51	1052.26	2536.13	1252.50	7.81	-0.919	0.000	0.079
80.00	-16.68	-7.11	0.00	-310.21	0.00	310.21	2087.45	1043.72	2484.30	1226.90	8.20	-0.936	0.000	0.077
80.17	-16.64	-7.10	0.00	-309.00	0.00	309.00	2085.98	1042.99	2479.91	1224.73	8.23	-0.937	0.000	0.103
81.17	-16.43	-7.07	0.00	-301.90	0.00	301.90	1538.24	769.12	1857.13	917.17	8.43	-0.948	0.000	0.113
82.00	-16.33	-7.05	0.00	-296.03	0.00	296.03	1534.07	767.04	1842.56	909.97	8.60	-0.957	0.000	0.119
84.00	-16.11	-6.99	0.00	-281.92	0.00	281.92	1523.87	761.94	1807.49	892.65	9.00	-0.980	0.000	0.114
85.92	-15.89	-6.94	0.00	-268.50	0.00	268.50	1513.87	756.94	1773.86	876.04	9.40	-1.001	0.000	0.084
86.00	-15.88	-6.94	0.00	-267.94	0.00	267.94	1513.45	756.73	1772.46	875.35	9.42	-1.002	0.000	0.084
87.50	-15.72	-6.89	0.00	-257.54	0.00	257.54	1505.49	752.75	1746.23	862.40	9.73	-1.015	0.000	0.105
88.00	-15.66	-6.88	0.00	-254.09	0.00	254.09	1502.81	751.41	1737.49	858.08	9.84	-1.020	0.000	0.104
90.00	-15.44	-6.82	0.00	-240.33	0.00	240.33	1491.95	745.98	1702.59	840.84	10.27	-1.041	0.000	0.154
92.00	-15.22	-6.77	0.00	-226.68	0.00	226.68	1480.87	740.44	1667.76	823.65	10.71	-1.073	0.000	0.148
94.00	-15.01	-6.72	0.00	-213.14	0.00	213.14	1469.57	734.79	1633.03	806.49	11.17	-1.103	0.000	0.141
96.00	-14.79	-6.67	0.00	-199.70	0.00	199.70	1458.05	729.03	1598.39	789.39	11.64	-1.133	0.000	0.134
98.00	-14.58	-6.61	0.00	-186.37	0.00	186.37	1446.32	723.16	1563.86	772.33	12.12	-1.162	0.000	0.127
100.00	-13.96	-6.34	0.00	-173.14	0.00	173.14	1434.36	717.18	1529.45	755.34	12.61	-1.190	0.000	0.120
102.00	-13.76	-6.30	0.00	-160.45	0.00	160.45	1422.18	711.09	1495.16	738.41	13.12	-1.217	0.000	0.227
104.00	-13.57	-6.25	0.00	-147.86	0.00	147.86	1409.79	704.89	1461.02	721.54	13.64	-1.268	0.000	0.215
106.00	-13.37	-6.20	0.00	-135.36	0.00	135.36	1397.17	698.58	1427.02	704.75	14.18	-1.317	0.000	0.202
108.00	-13.18	-6.16	0.00	-122.96	0.00	122.96	1384.33	692.17	1393.17	688.04	14.74	-1.364	0.000	0.188
110.00	-12.99	-6.11	0.00	-110.65	0.00	110.65	1371.28	685.64	1359.50	671.40	15.32	-1.409	0.000	0.174
111.21	-12.88	-6.08	0.00	-103.24	0.00	103.24	1363.25	681.63	1339.15	661.36	15.69	-1.434	0.000	0.166
112.00	-12.77	-6.06	0.00	-98.46	0.00	98.46	1358.00	679.00	1326.00	654.86	15.92	-1.451	0.000	0.160
114.00	-12.49	-6.01	0.00	-86.34	0.00	86.34	1344.51	672.26	1292.68	638.41	16.54	-1.489	0.000	0.145
114.80	-12.37	-5.98	0.00	-81.55	0.00	81.55	898.25	449.12	876.91	433.07	16.79	-1.503	0.000	0.202
115.00	-7.38	-3.80	0.00	-80.34	0.00	80.34	897.59	448.79	874.90	432.08	16.85	-1.507	0.000	0.194
116.00	-7.31	-3.78	0.00	-76.54	0.00	76.54	894.32	447.16	865.01	427.20	17.17	-1.529	0.000	0.187
118.00	-7.18	-3.73	0.00	-68.98	0.00	68.98	887.61	443.81	845.23	417.43	17.82	-1.571	0.000	0.173
120.00	-7.05	-3.68	0.00	-61.53	0.00	61.53	880.69	440.34	825.45	407.66	18.49	-1.610	0.000	0.159
122.00	-6.92	-3.63	0.00	-54.17	0.00	54.17	873.54	436.77	805.67	397.89	19.17	-1.647	0.000	0.144
124.00	-6.80	-3.58	0.00	-46.92	0.00	46.92	866.18	433.09	785.90	388.13	19.87	-1.680	0.000	0.129
126.00	-4.63	-2.49	0.00	-39.76	0.00	39.76	858.60	429.30	766.16	378.38	20.58	-1.710	0.000	0.111
128.00	-4.52	-2.44	0.00	-34.77	0.00	34.77	850.80	425.40	746.46	368.65	21.30	-1.737	0.000	0.100
130.00	-4.40	-2.39	0.00	-29.89	0.00	29.89	842.77	421.39	726.80	358.94	22.03	-1.762	0.000	0.089
132.00	-4.29	-2.35	0.00	-25.10	0.00	25.10	834.53	417.27	707.19	349.25	22.78	-1.784	0.000	0.077
134.00	-4.18	-2.30	0.00	-20.41	0.00	20.41	826.07	413.04	687.65	339.60	23.53	-1.804	0.000	0.065
136.00	-4.07	-2.25	0.00	-15.81	0.00	15.81	817.39	408.69	668.18	329.99	24.29	-1.820	0.000	0.053
138.00	-1.76	-0.96	0.00	-11.31	0.00	11.31	808.49	404.24	648.79	320.41	25.05	-1.833	0.000	0.037
140.00	-1.68	-0.92	0.00	-9.38	0.00	9.38	799.37	399.68	629.50	310.89	25.82	-1.843	0.000	0.032
142.00	-1.60	-0.87	0.00	-7.55	0.00	7.55	790.03	395.01	610.32	301.41	26.60	-1.852	0.000	0.027
144.00	-1.52	-0.83	0.00	-5.80	0.00	5.80	780.47	390.24	591.24	291.99	27.38	-1.859	0.000	0.022
146.00	-1.44	-0.78	0.00	-4.15	0.00	4.15	770.69	385.35	572.29	282.63	28.16	-1.865	0.000	0.017
148.00	-1.37	-0.74	0.00	-2.58	0.00	2.58	760.69	380.35	553.47	273.34	28.94	-1.870	0.000	0.011
150.00	0.00	-0.69	0.00	-1.10	0.00	1.10	750.48	375.24	534.80	264.12	29.72	-1.872	0.000	0.004

Final Analysis Summary

Structure: CT46134-A-SBA	Code: EIA/TIA-222-G	8/21/2018
Site Name: Granby-n. Granby	Exposure: C	
Height: 150.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 45

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 93 mph Wind	36.0	0.00	38.27	0.00	0.00	3762.57
1.2D + 1.0Di + 1.0Wi 50 mph Wind	10.6	0.00	69.90	0.00	0.00	1221.54
1.2D + 1.0E	1.2	0.00	38.30	0.00	0.00	132.66
0.9D + 1.0E	1.2	0.00	28.72	0.00	0.00	131.27
1.0D + 1.0W 60 mph Wind	9.4	0.00	31.91	0.00	0.00	974.05

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 93 mph Wind	-14.68	-24.37	0.00	-620.73	0.00	-620.73	1422.18	711.09	1495.16	738.41	102.00	0.852
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-36.04	-8.45	0.00	-224.24	0.00	-224.24	1422.18	711.09	1495.16	738.41	102.00	0.329
1.2D + 1.0E	-15.03	-0.87	0.00	-22.69	0.00	-22.69	898.25	449.12	876.91	433.07	114.80	0.069
0.9D + 1.0E	-11.27	-0.85	0.00	-22.43	0.00	-22.43	898.25	449.12	876.91	433.07	114.80	0.064
1.0D + 1.0W 60 mph Wind	-13.76	-6.30	0.00	-160.45	0.00	-160.45	1422.18	711.09	1495.16	738.41	102.00	0.227

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Lower Termination				Upper Termination				Max Member			
			VQ/I (lb/in)	Vu (kips)	phi Vn (kips)	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	Pu (kips)	phi Pn (kips)	phi Tn (kips)	Ratio
0.0	20.5	(2) PLT-6.5x1.5(31mm Hole)	-309.9	-4.65	37.1	322.4	37.1	9	12	330.9	37.1	9	11	335.55	429.2	386.10	0.869
0.0	20.5	(1) PLT-7.25"x1.25(1.25hole)	282.5	5.09	37.1	334.5	37.1	10	13	253.5	37.1	7	13	334.48	499.7	450.00	0.743
0.0	54.2	(2) PLT-7.25"x1.25(1.25hole)	-472.1	-8.50	37.1	355.7	37.1	10	13	233.5	37.1	7	13	423.24	499.7	450.00	0.941
0.0	17.5	(2) LNP-LP6X125-B-20T	-230.7	-5.54	25.3	273.2	25.3	11	0	234.9	25.3	10	10	273.21	395.0	365.63	0.747
14.2	54.2	(1) PLT-7.25"x1.25(1.25hole)	472.1	8.50	37.1	305.9	37.1	9	13	233.5	37.1	7	13	423.24	499.7	450.00	0.941
20.5	37.0	(3) PLT-5.75x1.5(31mm Hole)	315.8	5.68	37.1	318.3	37.1	9	11	292.1	37.1	8	11	318.32	376.1	331.26	0.961
43.4	69.5	(3) PLT-5.75x1.5(31mm Hole)	412.2	7.42	37.1	280.7	37.1	8	11	201.0	37.1	6	9	305.11	376.1	331.26	0.921
52.5	70.0	(3) LNP-LP6X100-G-20TC	305.0	7.32	25.3	155.7	25.3	7	8	189.4	25.3			209.25	297.8	292.50	0.715
64.2	80.2	(3) PLT-6"x1-1/4"(1.25" Hole)	-395.6	-7.12	37.1	184.2	37.1	5	11	157.2	37.1	5	11	239.92	413.6	356.25	0.673
70.0	87.5	(3) LNP-LP6X100-G-20CT	350.4	8.41	25.3	189.4	25.3			120.6	25.3	5	8	189.40	297.8	292.50	0.648
76.7	90.0	(3) PLT-4.75x1.5(31mm Hole)	424.0	10.18	37.1	159.3	37.1	5	8	179.1	37.1	5	7	209.73	303.1	258.13	0.812
85.9	100.0	(3) PLT-5"x1-1/4"(1.25"Hole)	-603.0	-14.47	37.1	130.4	37.1	4	9	193.3	37.1	6	9	242.58	329.1	281.25	0.863



Monopole Mat Foundation Design

Date

8/10/2018

Customer Name:	T-Mobile	EIA/TIA Standard:	EIA-222-G
Site Name:		Structure Height (Ft.):	150
Site Number:	CT46134-A-SBA	Engineer Name:	M. Baker
Engr. Number:	56904	Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations

Structure Type:

Monopole

Analysis or Design?

Analysis

Base Reactions (Factored):

Axial Load (Kips):	38.3	Shear Force (Kips):	36.0
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3762.6

Allowable overstress %: 5.0%

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	6.0	Depth of Base BG (ft.):	11.0
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	3.00
Length of Pad (ft.):	19	Width of Pad (ft.):	19
Final Length of pad (ft)	19.0	Final width of pad (ft):	19.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0

Material Properties and Rebar Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	36	Tie Spacing (in):	11.5	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	26	Qty. of Rebar in Pad (W):	26	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	18	Qty. of Rebar in Pad (W):	18	

Apply 1.35 factor for e/w Per G: 1.00

Soil Design Parameters:

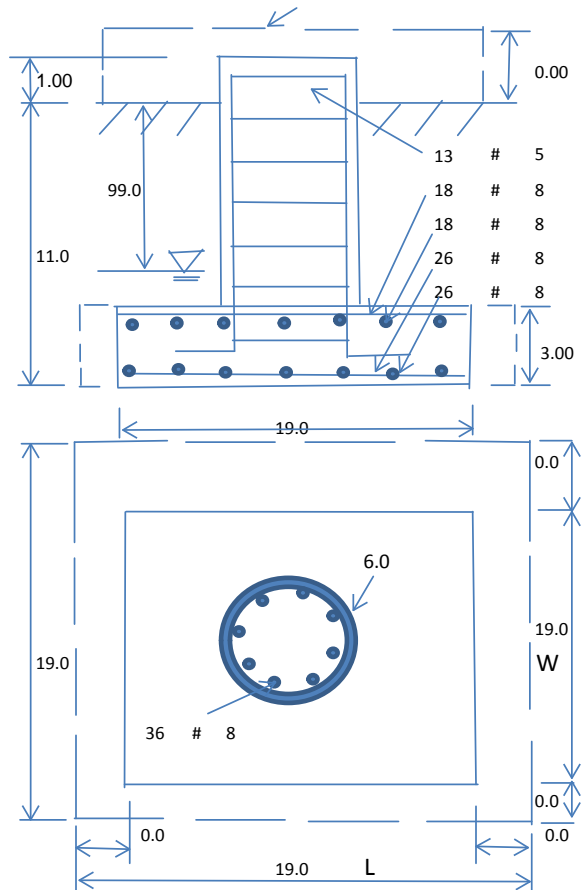
Soil Unit Weight (pcf):	110.0	Soil Buoyant Weight:	37.6	Pcf
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	12000	Ultimate Skin Friction:	0	Psf
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No	
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00	
		Angle from Top of Pad:	30	
		Angle from Bottm of Pad:	25	
		Angle from Bottm of Pad:	25	

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	2661.81	Total Dry Soil Weight (Kips):	292.80
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	292.80	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1337.47	Total Dry Concrete Weight (Kips):	200.62
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	200.62	Total Vertical Load on Base (Kips):	531.69

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	8623	<	Allowable Factored Soil Bearing (psf):	9000	0.96	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	4582.3	>	Design Factored Momont (kips-ft):	3728	0.81	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.23					OK!



Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00

Load/
Capacity
Ratio**(1) Concrete Pier:**

Vertical Steel Rebar Area (sq. in./each):	0.79	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	4078.9	> Design Factored Moment (Mu, Kips-Ft)	4076.3	0.99	OK!
Calculated Shear Capacity (Kips):	572.6	> Design Factored Shear (Kips):	36.0	0.06	OK!
Calculated Tension Capacity (Tn, Kips):	1535.8	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7148.1	> Design Factored Axial Load (Pu Kips):	38.3	0.01	OK!
Moment & Axial Strength Combination:	1.00	OK! Check Tie Spacing (Design/Required):		0.9583	OK!
Pier Reinforcement Ratio:	0.007	Reinforcement Ratio is satisfied per ACI			

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	703.0	> One-Way Factored Shear (L-D. Kips):	309.8	0.44	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	703.0	> One-Way Factored Shear (W-D., Kips)	309.8	0.44	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	571.8	> One-Way Factored Shear (C-C, Kips):	280.3	0.49	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0028	OK! Lower Steel Pad Reinf. Ratio (W-Direc	0.0028		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	2930.5	> Moment at Bottom (L-Dir. K-Ft):	1228.4	0.42	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	2930.5	> Moment at Bottom (W-Dir. K-Ft):	1228.4	0.42	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	4114.5	> Moment at Bottom (C-C Dir. K-Ft):	1737.2	0.42	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0019	OK! Upper Steel Reinf. Ratio (W-Dir.):	0.0019		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	2044.5	> Moment at the top (L-Dir K-Ft):	521.2	0.25	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	2044.5	> Moment at the top (W-Dir K-Ft):	521.2	0.25	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	2877.0	> Moment at the top (C-C Dir. K-Ft):	491.8	0.17	OK!

(3).Check Punching Shear Capacity due to Moment in the Pier:

Moment transferred by punching shear:	1500.9	k-ft.	Max. factored shear stress $v_{u,CD}$:	7.2	Psi
Max. factored shear stress $v_{u,AB}$:	12.7	Psi	Factored shear Strength ϕv_n :	189.7	Psi
Max. factored shear stress v_u :	12.7	Psi	Check Usage of Punching Shear Capacity:	0.07	OK!

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 150' EEI MONOPOLE TOWER

PROPOSED CARRIER: T-MOBILE

SITE: CT46134-A-SBA / GRANBY-N. GRANBY

COORDINATES (LATITUDE: 41.953583°, LONGITUDE: -72.793722°)

CONSTRUCTION CLASS

TES HAS DETERMINED THIS AS A
CLASS III CONSTRUCTION PROJECT
PER ANSI/ASSE A10.48

COMPLETE FABRICATION DRAWINGS FOR ALL MATERIALS REQUIRED FOR
THIS PROJECT ARE AVAILABLE FROM TOWER ENGINEERING SOLUTIONS
(TES). PLEASE CONTACT TES FOR MORE INFORMATION.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BOM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-1	TOWER PROFILE	0
A-2	INSTALLATION OF NEW ANCHOR ROD DETAILS	0
A-3	REINFORCEMENT ASSEMBLY	0
A-4	REINFORCEMENT ASSEMBLY	0
A-5	REINFORCEMENT ASSEMBLY	0
A-LP-CC	SPLICE CONNECTION PLATE INSTALLATION DETAILS (TYPE CC)	0
SPEC-1	NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE	0
SPEC-2	NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE	0

NOTE:

- THE MODIFICATION DRAWINGS ARE BASED ON THE
TES PROJECT NO. 56122, DATED 7/13/2018.



Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607



5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
56904

CUSTOMER SITE NO:
CT46134-A-SBA
CUSTOMER SITE NAME:
GRANBY-N. GRANBY
15 NORTH GRANBY ROAD
GRANBY, CT 06035



JRL
8/23/18

DRAWN BY: JRL CHECKED BY: MB/HMA

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	JRL	08/23/18

SHEET TITLE:

TITLE SHEET

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SHEET NUMBER: T-1 REV #: 0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	LENGTH	SHEET LIST (INSTALLATION)	SHEET LIST (FABRICATE)	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
MATERIAL & HARDWARE									
3	3	LP6X100-G-20TC	6" x 1.00" Flat Bar, 20 ft. Long, Standard, Connection Type C with Termination at the bottom	20'-0"	A-4	LP6X100-G-20TC	412.0	1236.0	Galvanized
3	3	LP6X100-G-20CT	6" x 1.00" Flat Bar, 20 ft. Long, Standard, Connection Type C with Termination at top	20'-0"	A-5	LP6X100-G-20CT	503.4	1510.2	Galvanized
3	3	CPL-C	Link Plate Cover, PL 3/8" x 3 1/4" x 1'- 6 13/16", A572, Grade 50	---	A-5	F-C	6.6	19.8	Galvanized
2	2	R71-14	Williams 1 3/4" Dia. All-thread Rod (150 ksi) X 11 Ft. Long	11.00	A-2	---	99.7	199.3	Galvanized
4	4	R73-14	Williams 1 3/4" Dia. R73 Hex Nuts	---	A-2	---	---	---	Galvanized
4	4	PLW-2	PL 1 1/4" X 3 1/2" FLAT WASHER, A572 Grade 65	---	A-2	F-A	2.3	9.0	Galvanized
126	133	HB16-2	Lindapter 5/8" Type HB Hollo-Bolt (HCF)	---	A-3, A-4, A-5	---	---	---	Galvanized
6	8	HB20-3	Lindapter 3/4" Type HB Hollo-Bolt (HCF)	---	A-5	---	---	---	Galvanized
3	6	SHIM-M16-2	3/16" Thick Shim For HB16-2 Hollo-Bolt	---	---	FC	0.2	0.6	Galvanized
3	6	SHIM-M16-3	1/8" Thick Shim For HB16-2 Hollo-Bolt	---	---	FC	0.2	0.9	Galvanized
Following Items are Non-standard Parts									
1	1	LP6X100-BR4.0-20T	6" x 1.00" Flat Bar, Base Section with 4.0" Offset, Right Side, 20 ft. Long, Termination at Top	20'-0"	A-3	F-1	496.2	496.2	Galvanized
1	1	LP6X100-BL4.0-20T	6" x 1.00" Flat Bar, Base Section with 4.0" Offset, Left Side, 20 ft. Long, Termination at Top	20'-0"	A-3	F-2	496.2	496.2	Galvanized
16	18	2NG2036	M20 X 95 NEXGEN2 BLIND BOLT ASSEMBLY	---	A-3	---	---	---	Galvanized
2	2	---	LANCO /HENRY 287 WHITE ACRYLIC ELASTOMERIC COATING AND SEALER OR EQUIV (GALLON)	---	---	---	---	---	PROVIDED BY CONTRACTOR
1	1	SCBRK-1	L 3 1/2" X 3" X 3/8" X 3" A36 BOLT ON SAFETY CLIMB BRACKET/ATTACHMENT	---	A-1	F-4	2.1	2.1	Galvanized
2	2	SCGB-1	L 3" X 3" X 1/4" X 3" A36 BOLT ON SAFETY CLIMB GUIDE BRACKET/ATTACHMENT	---	A-1	F-4	1.1	2.2	Galvanized
2	2	6100515	SAFETY CLIMB CABLE GUIDE W/ HARDWARE L-STYLE	---	A-1	---	---	---	
<p align="center">ALL LPXXXX and RLPXXXX PARTS ARE AVAILABLE FROM METROSITE, LLC. 180 IND PARK BLVD COMMERCE, GA 30529 OFFICE: (706) 335-7045 FAX: (706) 335-7056</p>									
<p align="center">NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.</p>									
							TOTAL WEIGHT (LBS) =	3972.6	

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Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607



5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
56904

CUSTOMER SITE NO:
CT46134-A-SBA
CUSTOMER SITE NAME:
GRANBY-N. GRANBY
15 NORTH GRANBY ROAD
GRANBY, CT 06035



JRL
8/25/18

DRAWN BY: JRL CHECKED BY: MB/HMA

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	JRL	08/23/18

SHEET TITLE:
BILL OF MATERIALS

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SHEET NUMBER: **BOM** REV #: **0**

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-G, ANSI/ASSE A10.48, 2016 CONNECTICUT STATE BUILDING CODE, AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER TIA-1019-A, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.

FABRICATION

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
4. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
5. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
4. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
5. HB HOLLO-BOLT SHALL BE INSTALLED PER ICC ESR-3330 INSTRUCTIONS.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2012 SECTION 1705 - TABLE 1705.2.2 FOR STEEL CONSTRUCTION AND TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

POST INSTALLED EPOXY INJECTED ANCHOR BOLTS:

1. CONCRETE MUST BE A MINIMUM OF 28 DAYS OLD.
2. FOLLOW MANUFACTURER'S REQUIREMENTS FOR CURE TIME VS. AMBIENT TEMPERATURE.
3. DRILL HOLE TO REQUIRED DIAMETER AND DEPTH. ALL WATER, DIRT, OIL, DEBRIS, GREASE OR DUST MUST BE REMOVED FROM EACH CORE HOLE. FOLLOW MANUFACTURER'S RECOMMENDATION FOR CORRECT TYPE OF CORE BIT. AVOID DAMAGING EXISTING REINFORCING STEEL OR OTHER EMBEDDED ITEMS. NOTIFY TES ENGINEERING IF VOIDS IN THE CONCRETE, REINFORCING STEEL OR OTHER EMBEDDED ITEMS ARE ENCOUNTERED. STOP CORING IMMEDIATELY IF THIS OCCURS.
4. A HOLE ROUGHENING DEVICE FROM EITHER HILTI OR ALLFASTENERS SHALL BE USED WITH ALL HOLES. FOLLOW ALL MANUFACTURER'S RECOMMENDED CORING AND INSTALLATION INSTRUCTIONS.
5. AFTER CORING AND ROUGHENING, FLUSH EACH HOLE WITH RUNNING WATER TO REMOVE ANY SLURRY OR DEBRIS. REMOVE ALL WATER FROM THE HOLE BY MECHANICAL PUMPING.
6. BRUSH EACH HOLE WITH AN APPROPRIATE SIZED NYLON BRUSH AND FLUSH WITH RUNNING WATER A SECOND TIME. REMOVE ALL WATER FROM THE HOLE.
7. AFTER THE SECOND WATER FLUSH BRUSH THE HOLE AGAIN WITH THE APPROPRIATE SIZED NYLON BRUSH.
8. BLOW EACH HOLE WITH COMPRESSED AIR TWO TIMES MINIMUM.
9. CONFIRM THAT EACH HOLE IS PROPERLY ROUGHED AND DRY.
10. NO EPOXY INJECTION SHALL TAKE PLACE IN RAINY CONDITIONS.
11. EPOXY SHOULD BE VISIBLE AT THE TOP OF THE CORE HOLE AFTER INSTALLATION.
12. CONTRACTOR TO SUPPLY ONE PHOTO OF EACH ROUGHED AND CLEANED HOLE IN CLOSEOUT PHOTO PACKAGE.

TABLE 8.2 NUT ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT PRETENSIONING^{a,b}

BOLT LENGTH ^c	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 ^d	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS ^d
NOT MORE THAN 4d _b	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN 4d _b BUT NOT MORE THAN 8d _b	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN 8d _b BUT NOT MORE THAN 12d _b	2/3 TURN	5/6 TURN	1 TURN

^a NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

^b APPLICABLE ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

^c WHEN THE BOLT LENGTH EXCEEDS 12d_b, THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

^d BEVELED WASHER NOT USED.

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004
RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. HB12 HOLLO BOLT: 59 FT-LBS
2. HB16 HOLLO BOLT: 140 FT-LBS
3. HB20 HOLLO BOLT: 221 FT-LBS
4. M20 AJAX BOLT: 280 FT-LBS.

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

1. CONTRACTOR'S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
2. HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
3. CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
4. CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
5. ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASE, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
6. FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
7. CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE-FIGHTING DUTIES.
8. ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
9. IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
10. PLEASE REPORT ANY FIELD ISSUE TO TES @ 972-483-0607.



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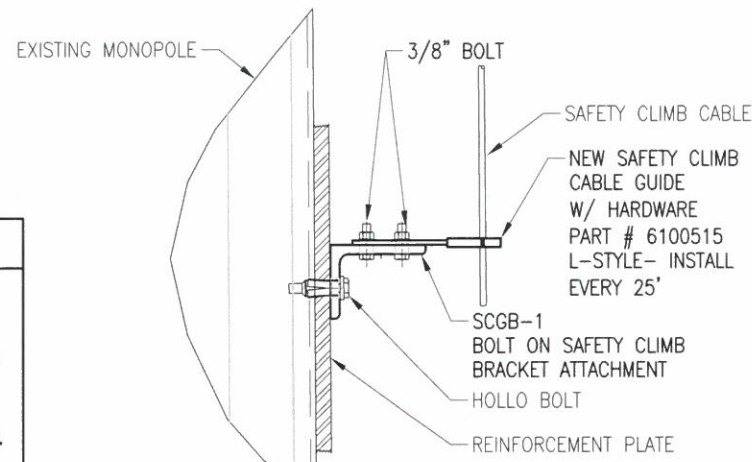
SHEET NUMBER: **GN-1** | REV #: **0**

NOTES:

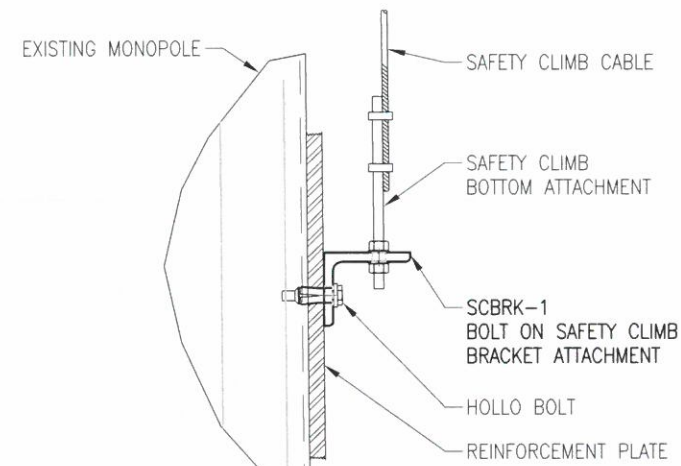
- TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE MONOPOLE AND ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
- TEMPORARY RELOCATION OF EXISTING EQUIPMENT AROUND THE FOUNDATION MAY BE REQUIRED DURING CONSTRUCTION.

SCOPE OF WORK

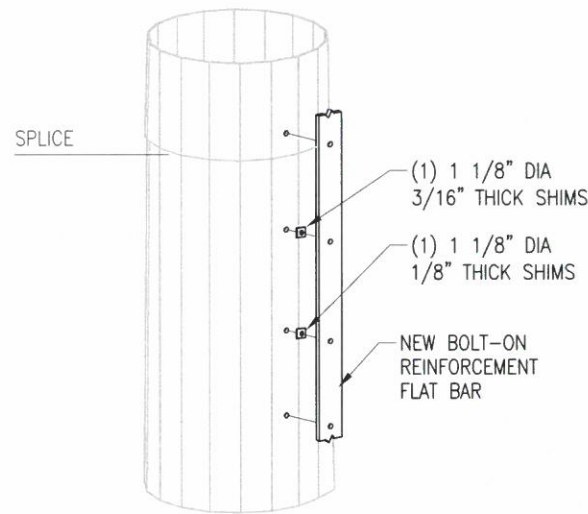
- INSTALLATION OF NEW ANCHOR RODS, SEE SHEET A-2 FOR DETAILS.
- INSTALL (1) LP6X100-BR4.0-20T & (1) LP6X100-BL4.0-20T FLAT BAR REINFORCEMENTS FROM 0'-10 1/2" TO 20'-10 1/2" ELEV. SEE SHEET A-3 FOR DETAILS.
- INSTALL (3) LP6X100-G-20TC FLAT BAR REINFORCEMENTS FROM 50'-0" TO 70'-0" ELEV. SEE SHEET A-4 FOR DETAILS.
- INSTALL (3) LP6X100-G-20CT FLAT BAR REINFORCEMENTS FROM 70'-0" TO 90'-0" ELEV. SEE SHEET A-5 FOR DETAILS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.



BOLT ON CABLE GUIDE BRACKET INSTALLATION

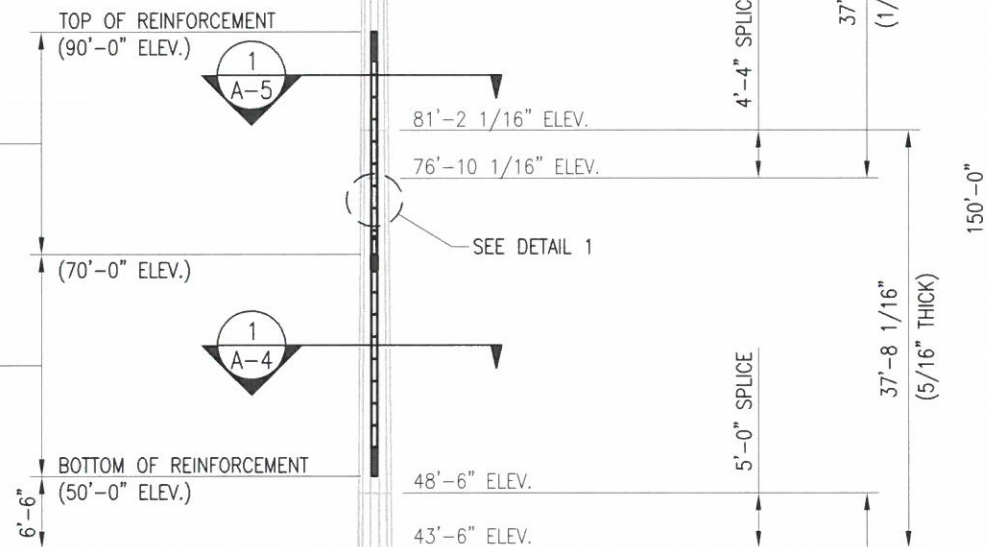


BOLT ON SAFETY CLIMB BRACKET INSTALLATION



DETAIL 1 SHIMS INSTALLATION DETAIL

EXISTING 12-SIDED MONOPOLE
REFERENCE ENGINEERED ENDEAVORS INC
JOB #3934 DWG #GS51005
DATED 06/26/98



ELEVATION VIEW



FOUNDATION COATING NOTES:

- THE COATING MATERIALS SHALL BE LANCO WHITE ACRYLIC ELASTOMERIC COATING AND SEALER, OR HYDRO ARMOR COATING.
- THE COATING CAN BE PLACED AT LEAST (2) DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR FOUNDATION REINFORCEMENT, AND MINIMUM (4) DAYS FOR NEW FOUNDATION CONSTRUCTION.
- THE CONCRETE SURFACE SHALL BE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE COATING.
- THE COATING SHALL BE APPLIED TO ALL THE SURFACES OF THE CONCRETE ABOVE THE GROUND AND 6" BELOW THE GRADE SURFACE IF APPLICABLE.
- MINIMUM 30 MILS COATING IS REQUIRED.
- APPLY COLD GALVANIZE AT LEAST 2'-3' ABOVE FOUNDATION.



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CUSTOMER SITE NO:

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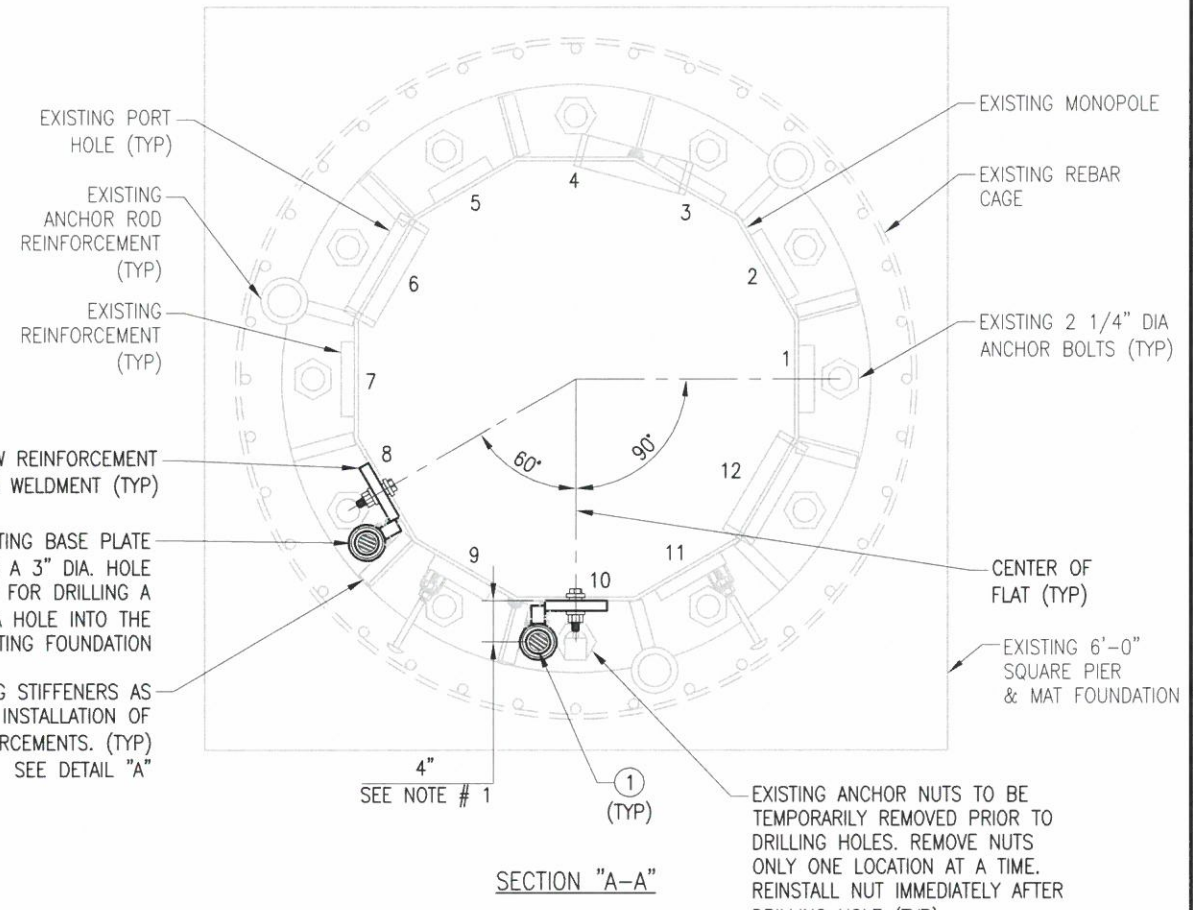
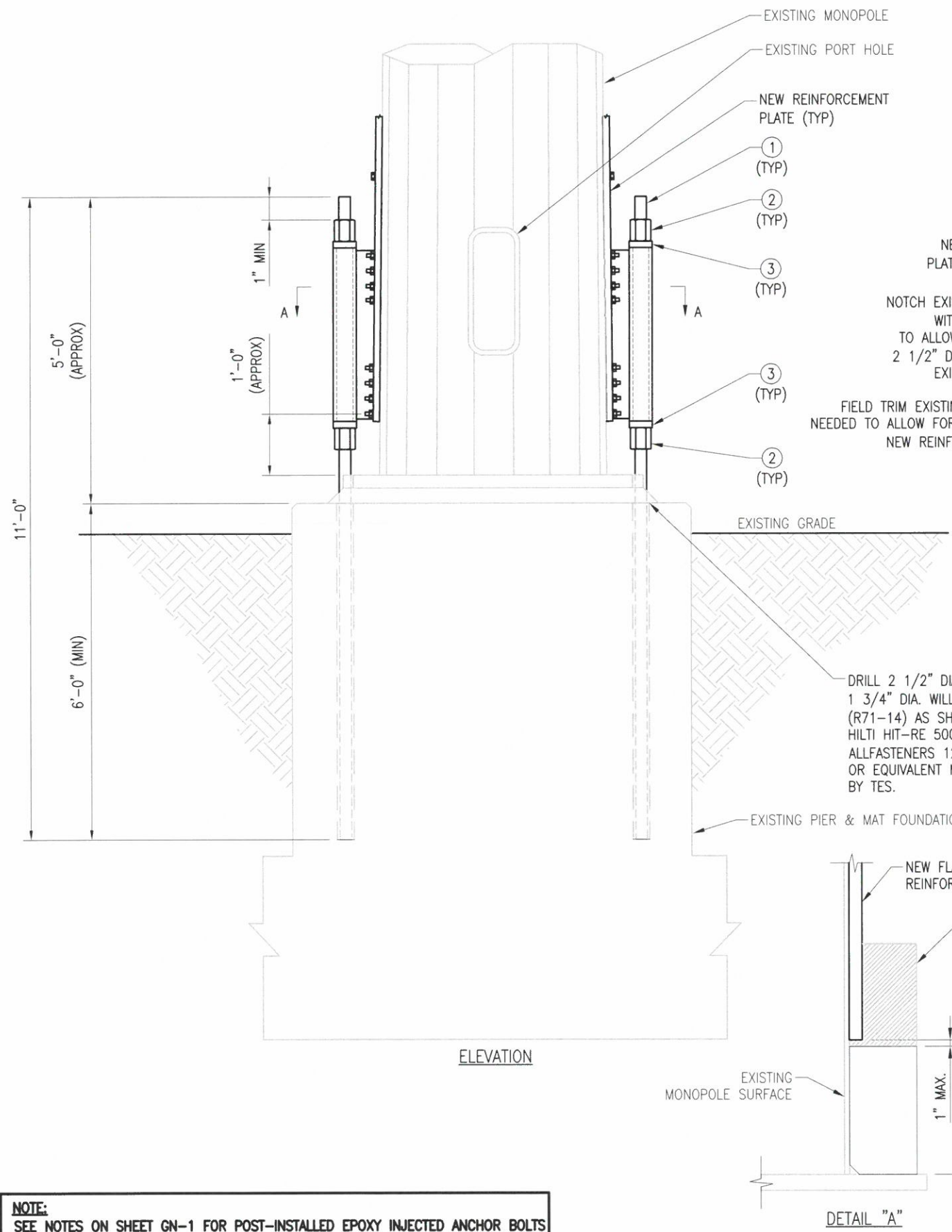
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SHEET TITLE:
TOWER PROFILE

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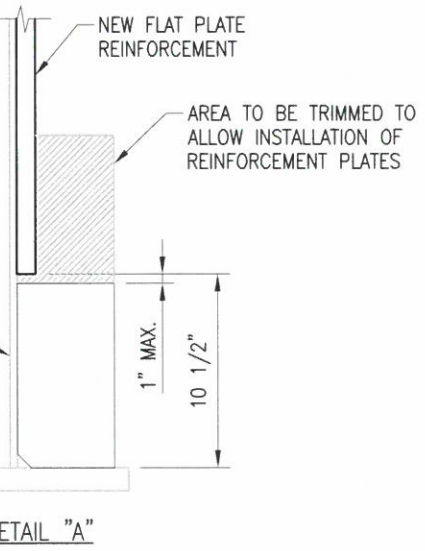
US PATENT 9714520



NOTCH EXISTING BASE PLATE WITH A 3" DIA. HOLE TO ALLOW FOR DRILLING A 2 1/2" DIA HOLE INTO THE EXISTING FOUNDATION

FIELD TRIM EXISTING STIFFENERS AS NEEDED TO ALLOW FOR INSTALLATION OF NEW REINFORCEMENTS. (TYP) SEE DETAIL "A"

DRILL 2 1/2" DIA. HOLE TO ACCOMMODATE 1 3/4" DIA. WILLIAMS ALL-THREAD ROD (R71-14) AS SHOWN. GROUT USING HILTI HIT-RE 500 V3 EPOXY OR ALLFASTENERS 12AF35LVE EPOXY (TYP) OR EQUIVALENT MATERIAL APPROVED BY TES.



INSTALLATION NOTES:

1. USE WELDED PLATE REINFORCEMENT WELDMENT ASSEMBLY TO SET THE POSITION OF THE ALL-THREAD ROD.
2. DRILL NEW 2 1/2" DIA. HOLES INTO EXISTING FOUNDATION FOR ALL-THREAD ROD.
3. INSTALL REINFORCEMENT BRACKET AND CONFIRM FIT WITH MONOPOLE REINFORCEMENT PLATES.
4. TIGHTEN NUTS ON THE ALL-THREAD ROD LOCKING IT INTO POSITION.
5. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND PER MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND EXPOSED AREAS.
6. DRILLING CONTRACTOR TO EXERCISE EXTREME CARE TO AVOID DAMAGING THE EXISTING REINFORCING TIES IN THE CONCRETE PIER. IF REBAR IS ENCOUNTERED IN THE CONCRETE WHILE DRILLING, CONTRACTOR TO STOP DRILLING AND INFORM TES FOR SOLUTION.
7. CONTRACTOR PLEASE NOTE-WHILE DRILLING PREPARE TO DRILL THROUGH ANCHOR BOLT TEMPLATE.
8. INSTALLATION TORQUE FOR HOLLO BOLTS-SEE SHEET GN-1. IT IS REQUIRED THAT THE CONTRACTOR TAKE PHOTOS OF THE INSTALLED TORQUE FOR VERIFICATION OF PROPER INSTALLATION.

FIELD NOTE:

REFERENCE THE "FIELD HOT WORK PLAN NOTES" ON GN-1 SHEET FOR ALL FIELD CUTTING AND WELDING.

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	2	R71-14	11'-0" WILLIAMS 1 3/4" DIA. ALL-THREAD ROD (150 KSI)
2	4	R73-14	1 3/4" NUT (WILLIAMS R73-14) (TYP)
3	4	PLW-2	PL 1 1/4" X 3 1/2" FLAT WASHER, A572-65

NOTE: SEE NOTES ON SHEET GN-1 FOR POST-INSTALLED EPOXY INJECTED ANCHOR BOLTS



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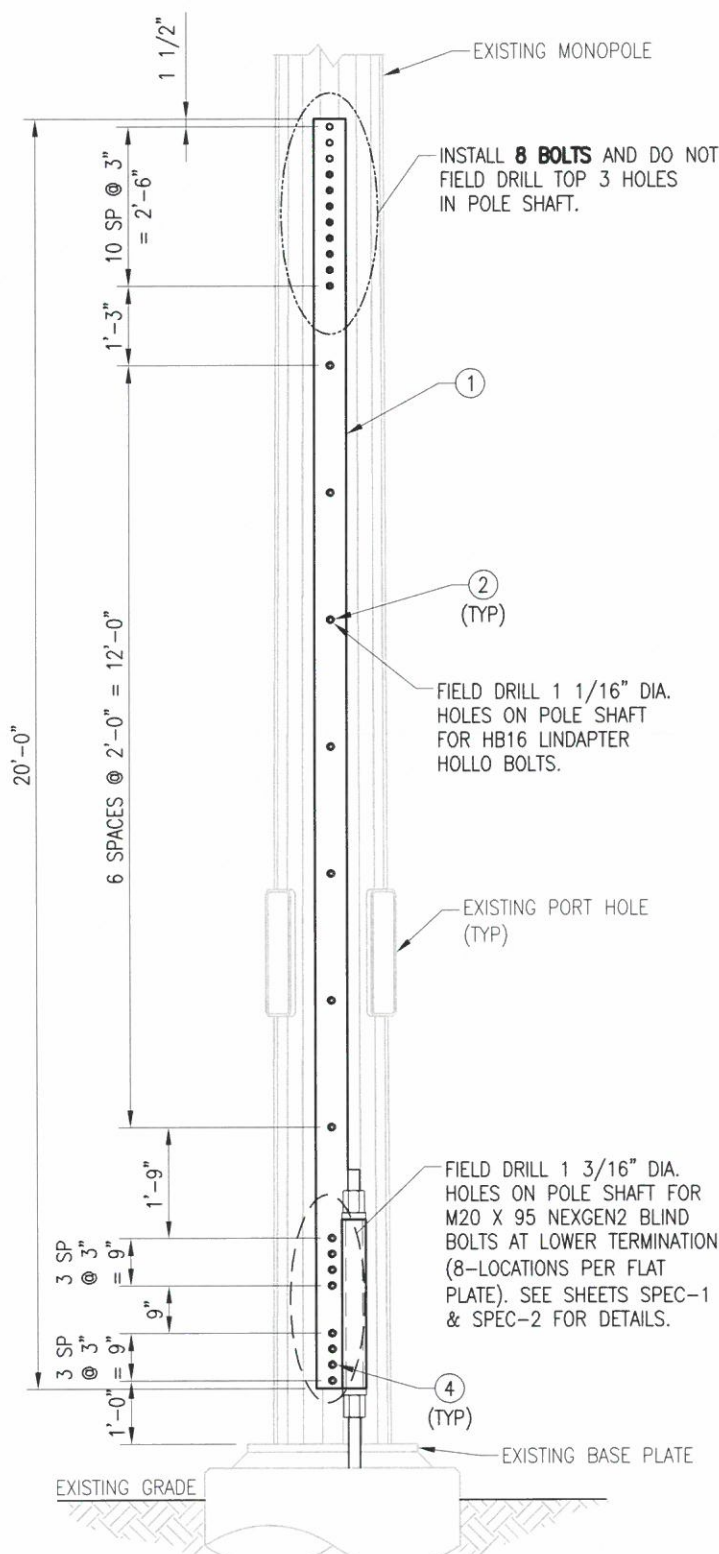
SHEET TITLE:

INSTALLATION OF NEW ANCHOR ROD DETAILS

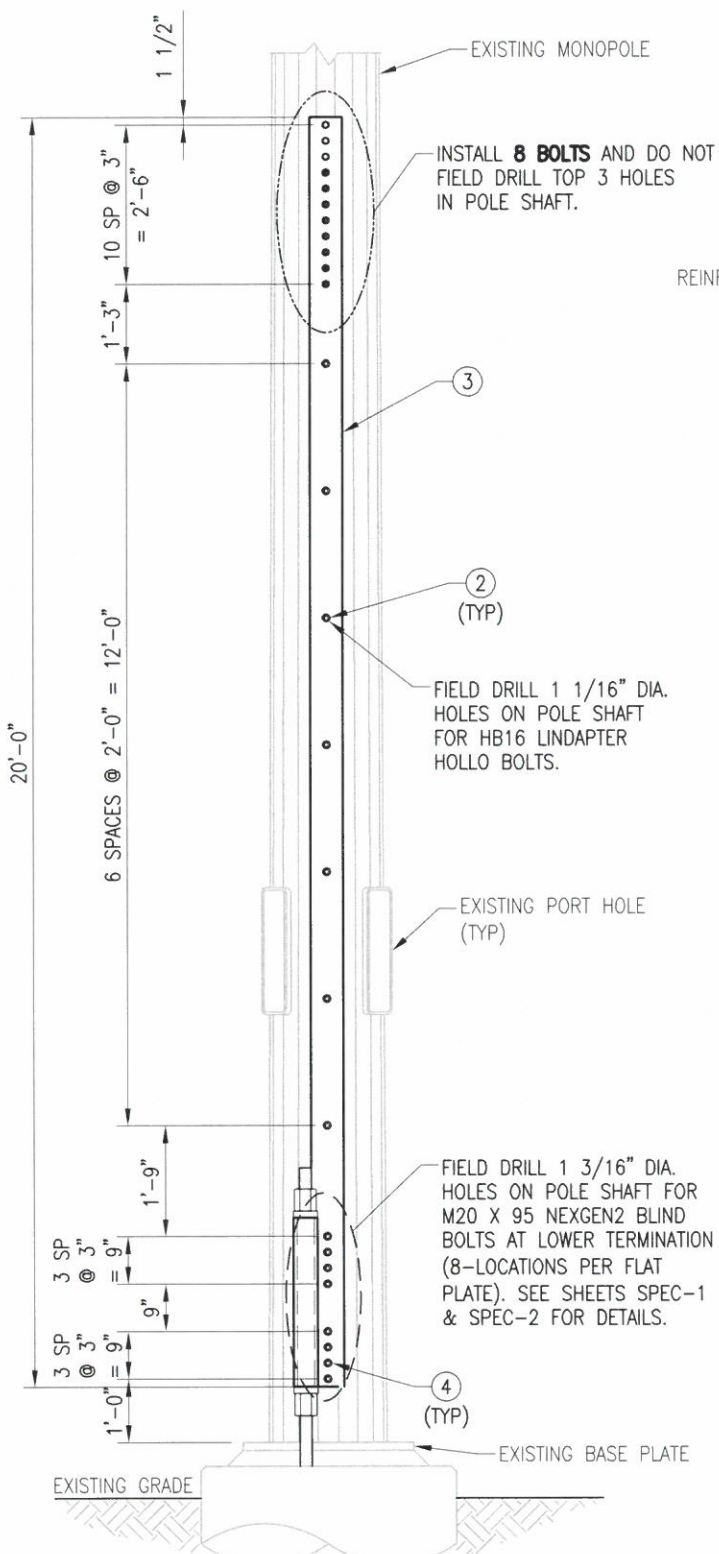
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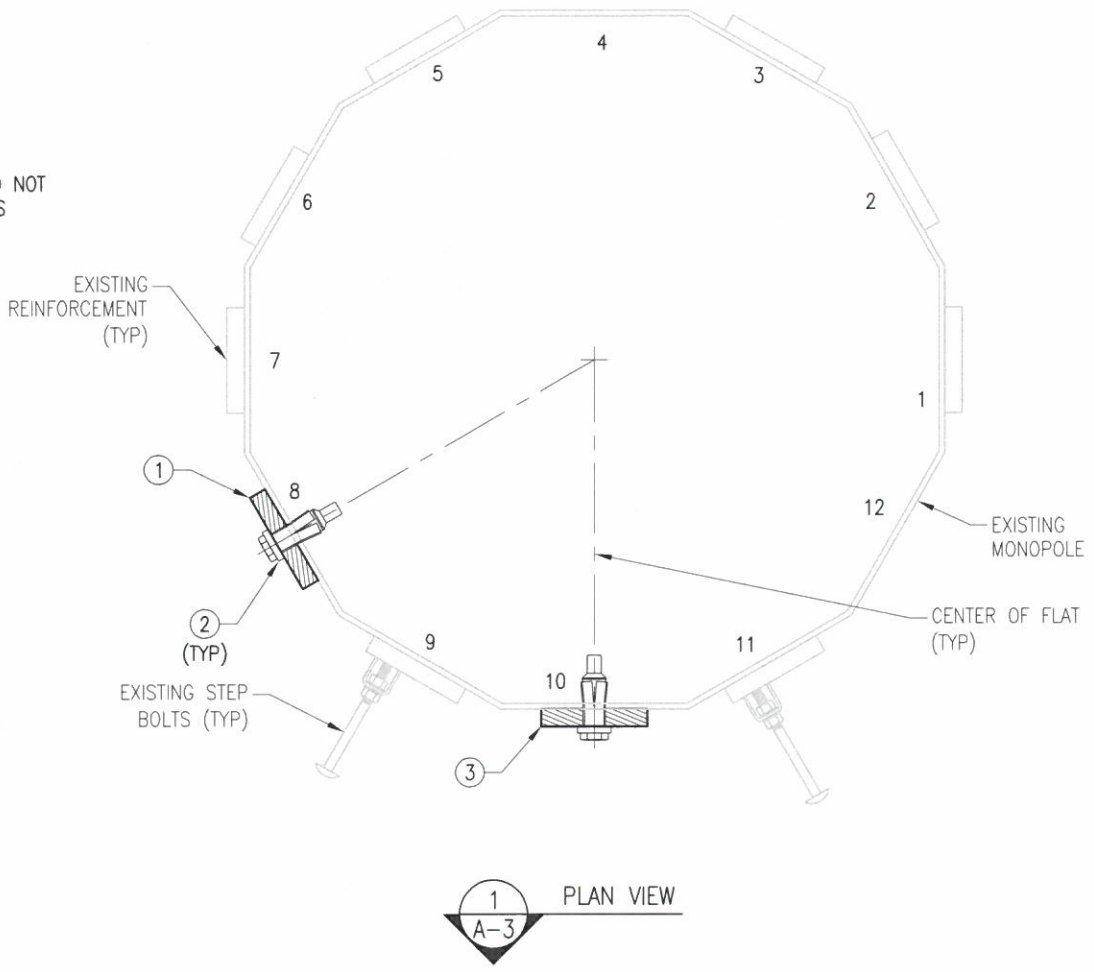
US PATENT 9714520



ELEVATION VIEW
REFER TO PLAN VIEW
(0'-10 1/2" TO 20'-10 1/2" ELEV.)
(FLAT #8)



ELEVATION VIEW
REFER TO PLAN VIEW
(0'-10 1/2" TO 20'-10 1/2" ELEV.)
(FLAT #10)



- NOTES:
1. REFER TO SHEET A-2 FOR FLAT BAR ORIENTATION.
 2. INSTALLATION TORQUE FOR HOLLO/AJAX-BOLTS: SEE SHEET GN-1

ITEM NO.	QTY.	PART NO.	DESCRIPTION (BASE SECTION)
1	1	LP6X100-BR4.0-20T	PL 1" X 6" X 20'-0" A572-65 WELDMENT
2	30	HB16-2	LINDAPTER 5/8" TYPE HB HOLLO-BOLT (HCF)
3	1	LP6X100-BL4.0-20T	PL 1" X 6" X 20'-0" A572-65 WELDMENT
4	16	2NG2036	M20 X 95 NEXGEN2 BLIND BOLT ASSEMBLY



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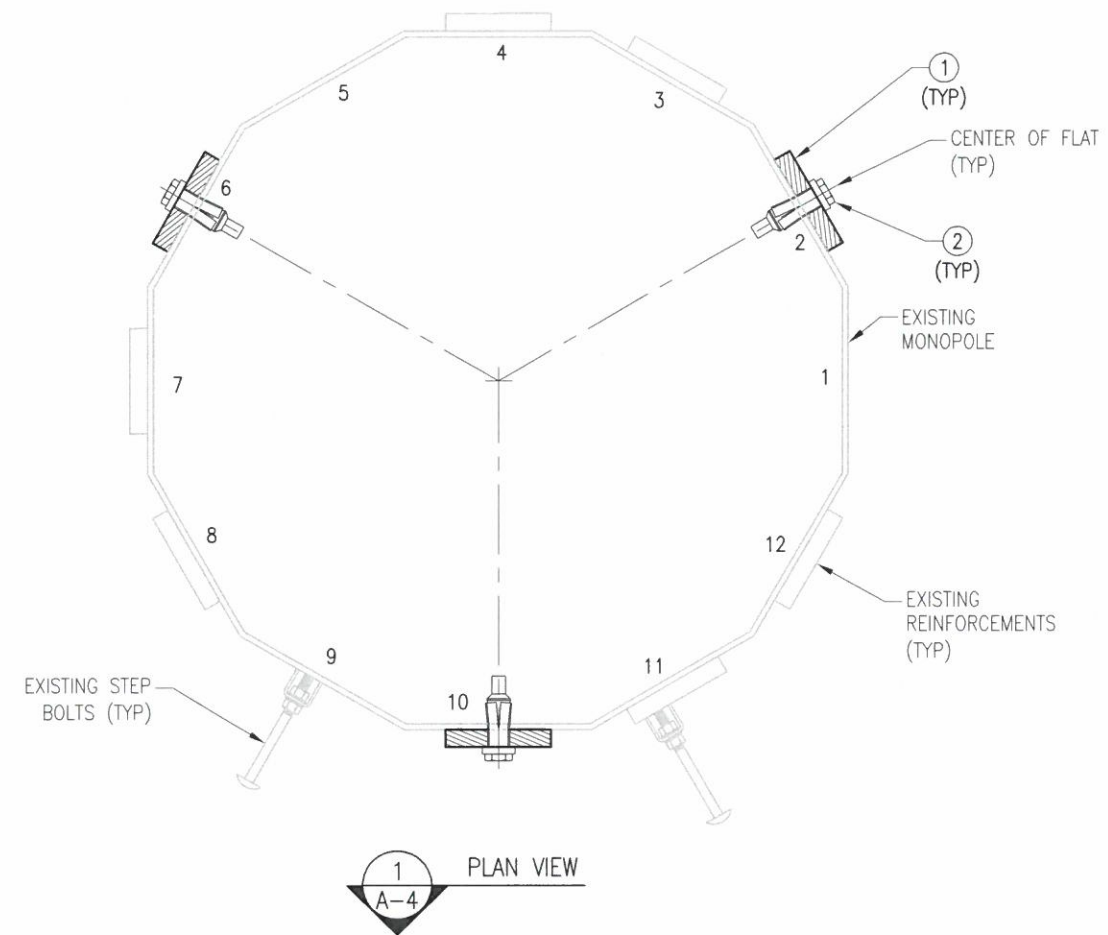
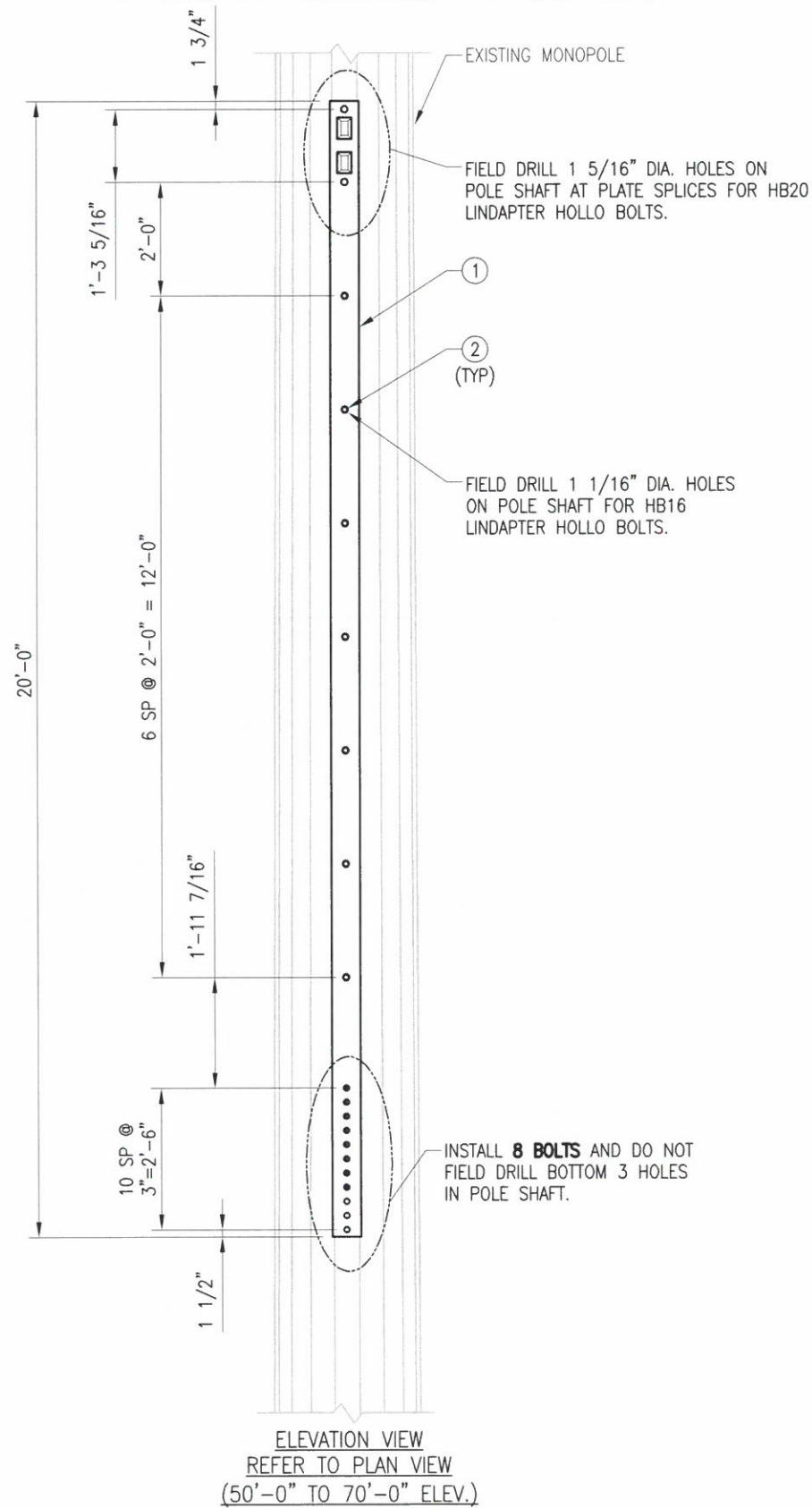
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SHEET NUMBER: A-3 REV #: 0

US PATENT 9,546,497 B2



- NOTES:
- REFER TO SHEET A-2 FOR FLAT BAR ORIENTATION.
 - INSTALLATION TORQUE FOR HOLLO/AJAX-BOLTS: SEE SHEET GN-1

ITEM NO.	QTY.	PART NO.	DESCRIPTION (PER SECTION)
1	3	LP6X100-G-20TC	PL 1" X 6" X 20'-0" A572-65 WELDMENT
2	45	HB16-2	LINDAPTER TYPE HB HOLLO-BOLT (HDG)



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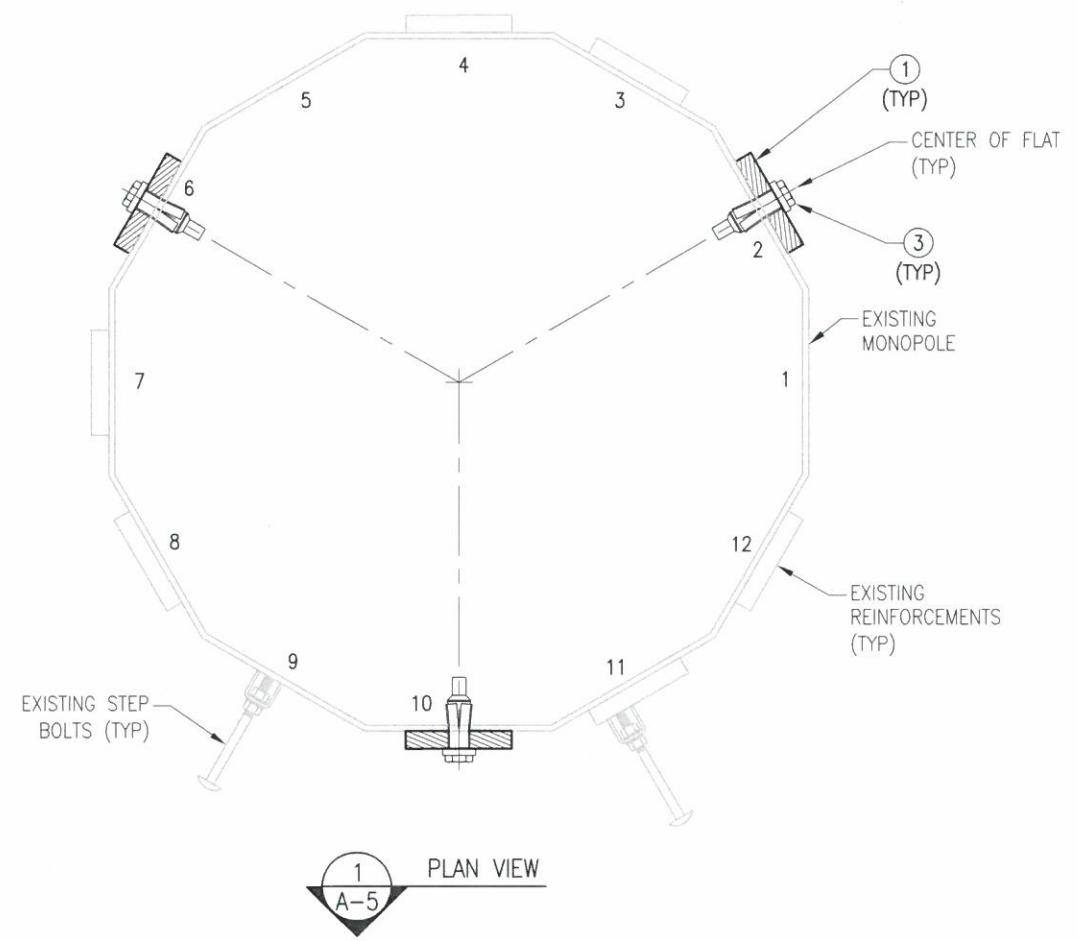
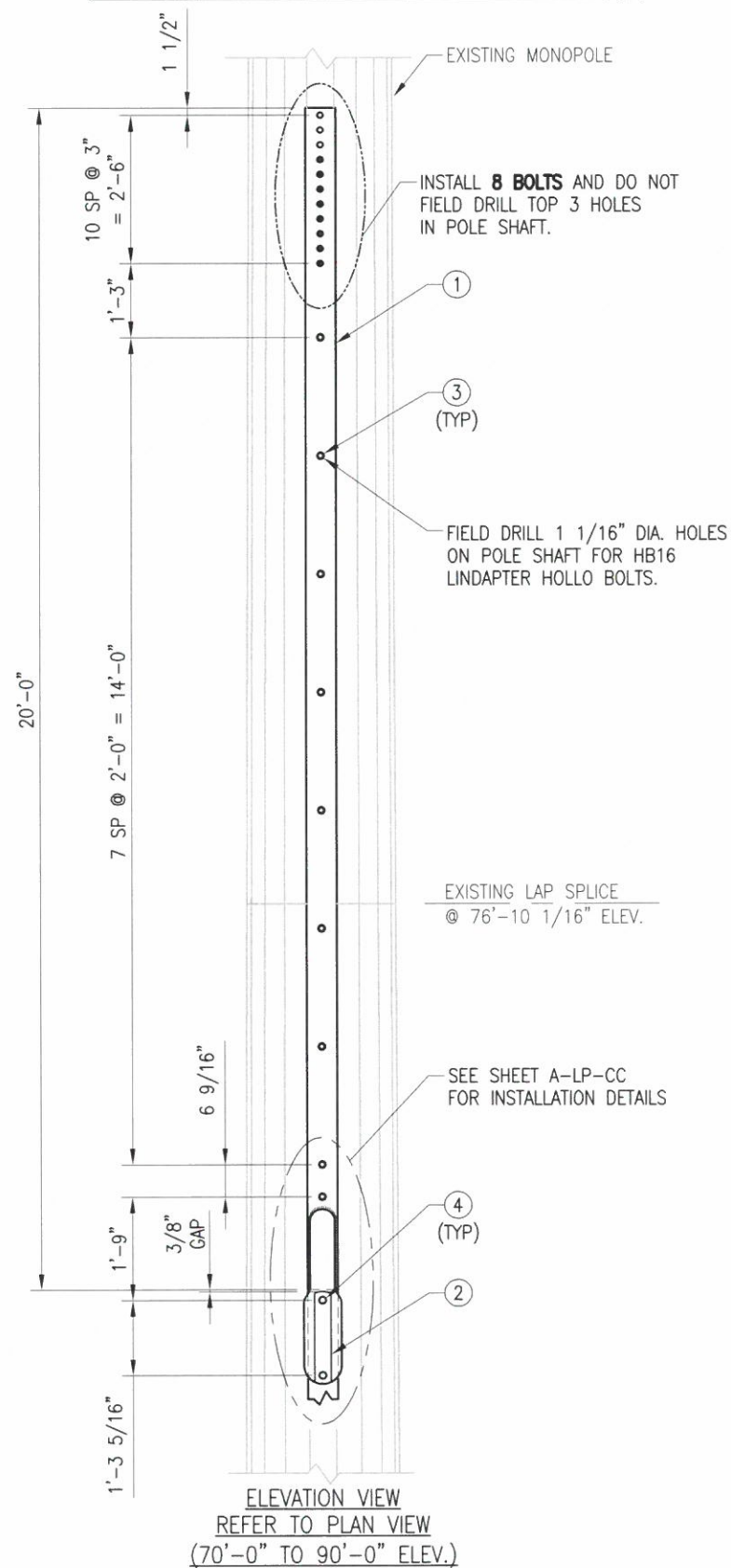
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SHEET NUMBER:
A-4

REV #:
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US PATENT 9,546,497 B2



- NOTES:**
1. REFER TO SHEET A-2 FOR FLAT BAR ORIENTATION.
 2. REFER TO SHEET A-1 FOR SHIM IF REQUIRED.
 3. INSTALLATION TORQUE FOR HOLLO/AJAX-BOLTS: SEE SHEET GN-1.

ITEM NO.	QTY.	PART NO.	DESCRIPTION (PER SECTION)
1	3	LP6X100-G-20CT	PL 1" X 6" X 20'-0" A572-65 WELDMENT
2	3	CPL-C	SPLICE CONNECTION COVER PLATE
3	51	HB16-2	LINDAPTER 5/8" TYPE HB HOLLO-BOLT (HCF)
4	6	HB20-3	LINDAPTER 3/4" TYPE HB HOLLO-BOLT (HCF)



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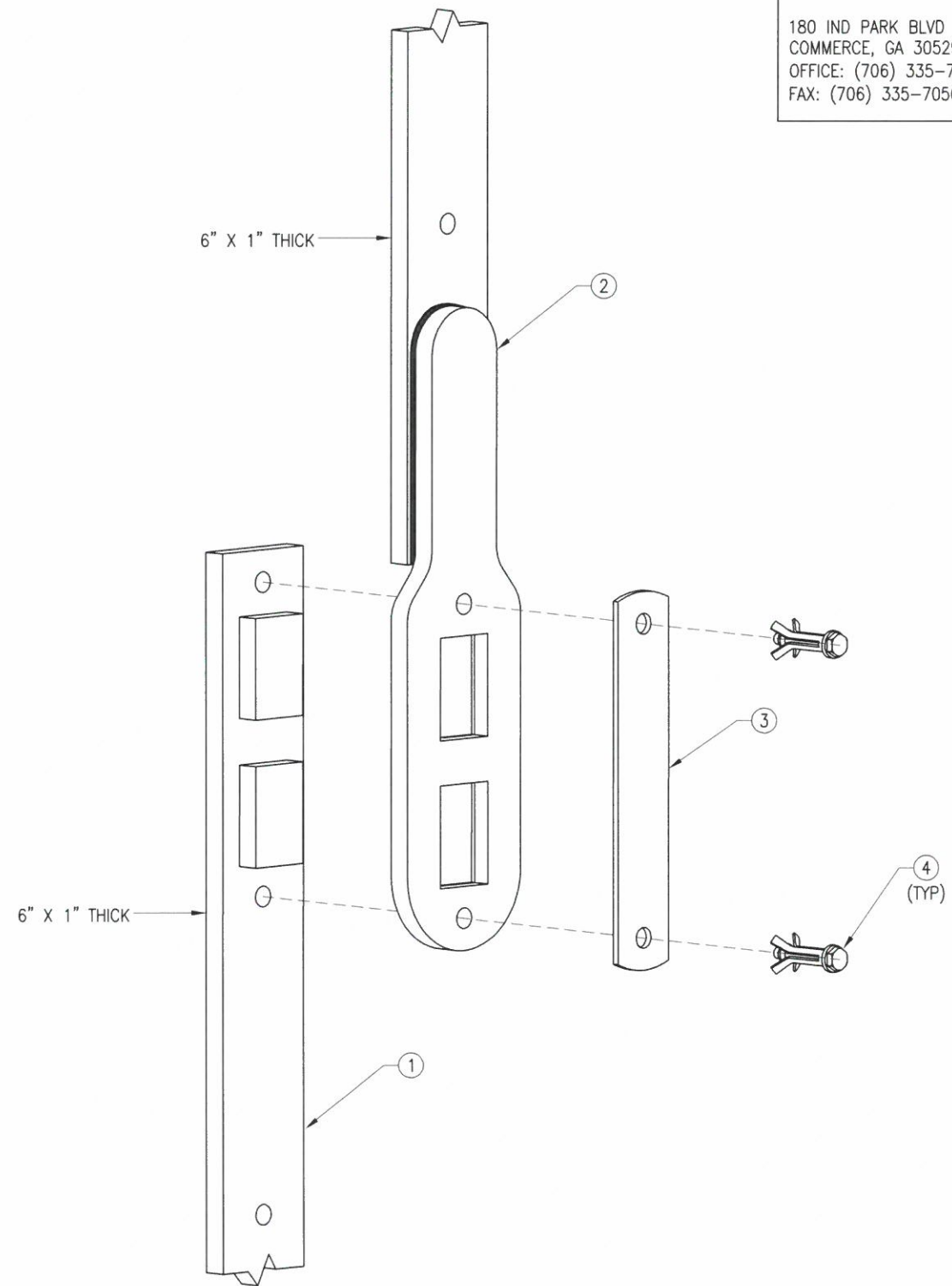
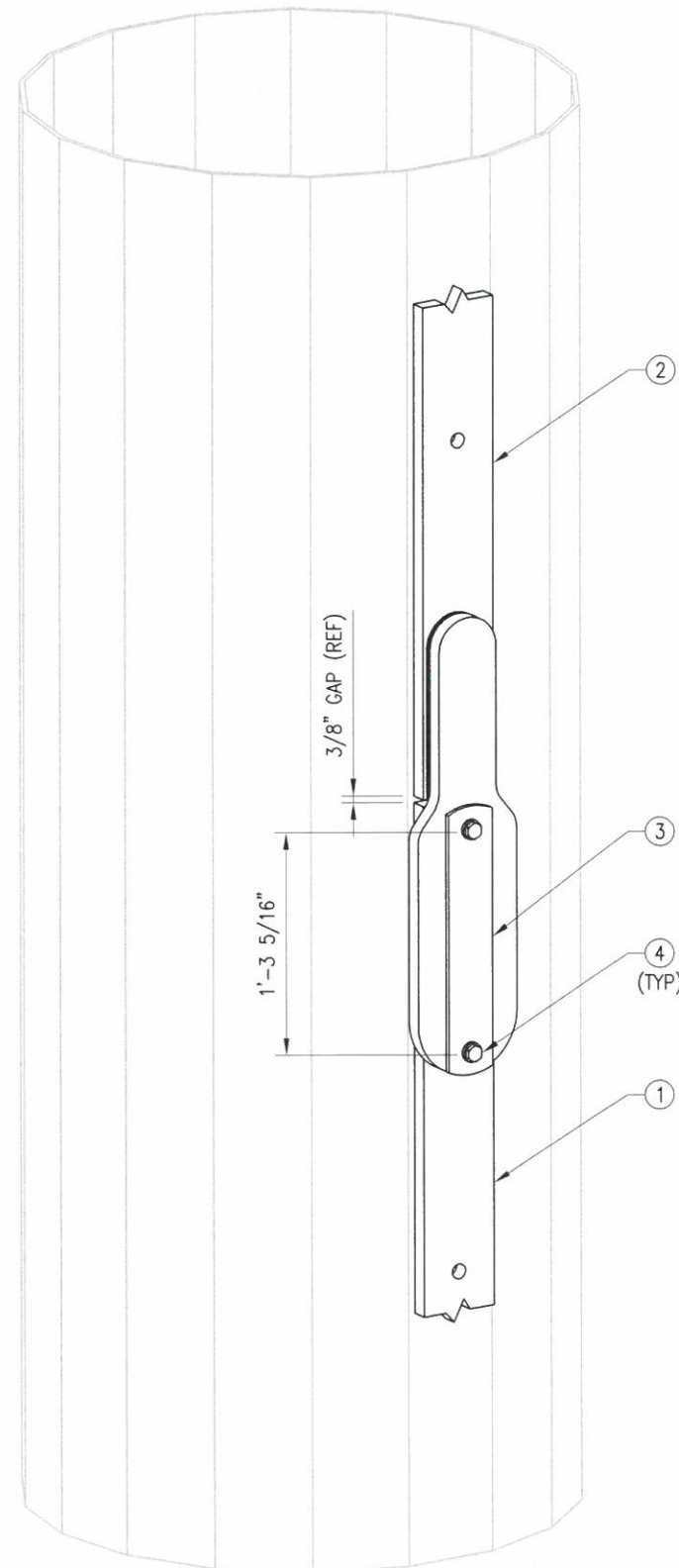
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US PATENT 9,546,497 B2



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 IRVING, TX 75038
 PHONE: (972) 483-0607



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SHEET TITLE:
 SPLICE CONNECTION
 PLATE INSTALLATION
 DETAILS (TYPE CC)

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SHEET NUMBER: A-LP-CC
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FIELD NOTE:
 INSTALLATION TORQUE FOR THE (2) HB20-3 BOLTS AT SPLICE: 221 FT-LBS.

ITEM NO.	QTY.	MATERIAL PART NO.	DESCRIPTION
1	-	LP6X100-X-XXX	PL 1" X 6" PLATE WELDMENT
2	-	LP6X100-X-XXX	PL 1" X 6" PLATE WELDMENT
3	1	CPL-C	KEY PLATE COVER PLATE
4	2	HB20-3	LINDAPTER 3/4" TYPE HB HOLLOW-BOLT (HCF)



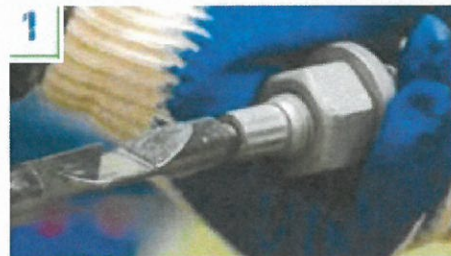
NEXGEN2

BLIND BOLT ASSEMBLY



INSTALLATION GUIDE

PRE-INSTALL BOLT ON INSTALL TOOL:



1 Thread the installation tool tip into the splined end of the bolt.

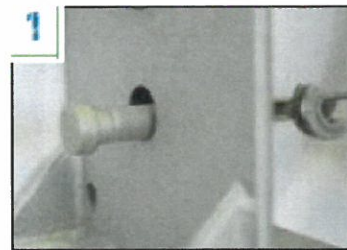


2 Remove the nut, the face washer and the spring shear sleeve and slide along the handle of the tool.

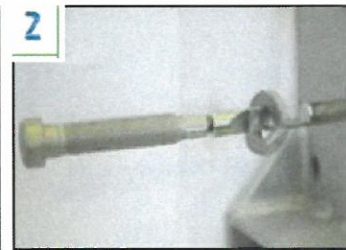


3 Move the collapsible washer to the correct location on the tool and fold in place.

INSTALLATION:



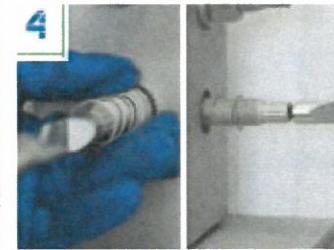
1 Install the bolt into the hole followed by the collapsible washer.



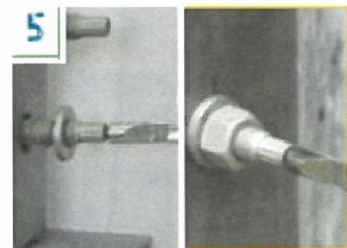
2 Rotate the tool 180°.



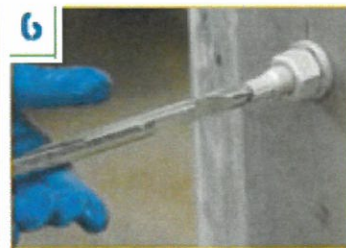
3 Pulling back, rock the tool side-to-side to engage the collapsible washer.



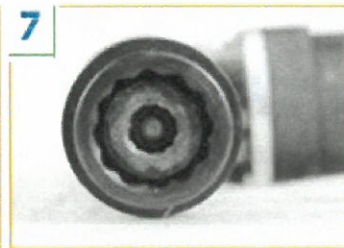
4 Engage the spring shear sleeve into the shear plane.



5 Slide the face washer forward and move the nut up to fasten to the bolt. Tighten the nut snug tight at this point.



6 Remove the tool by unscrewing it from bolt (counterclockwise).



7 Using the shear wrench engage the outer socket with the splined end of the bolt. Press the trigger until correct tension has been achieved (the bolt spline separates from the bolt).



8 Press the small trigger on the shear wrench to eject the bolt spline. The application is now complete.

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Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607



5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
56904

CUSTOMER SITE NO:
CT46134-A-SBA
CUSTOMER SITE NAME:
GRANBY-N. GRANBY
15 NORTH GRANBY ROAD
GRANBY, CT 06035



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REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	JRL	08/23/18

SHEET TITLE:
NEXGEN2 BLIND BOLT
ASSEMBLY INSTALLATION
GUIDE

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 (800)-487-SITE

TES JOB NO:
 56904

CUSTOMER SITE NO:
 CT46134-A-SBA
 CUSTOMER SITE NAME:
 GRANBY-N. GRANBY
 15 NORTH GRANBY ROAD
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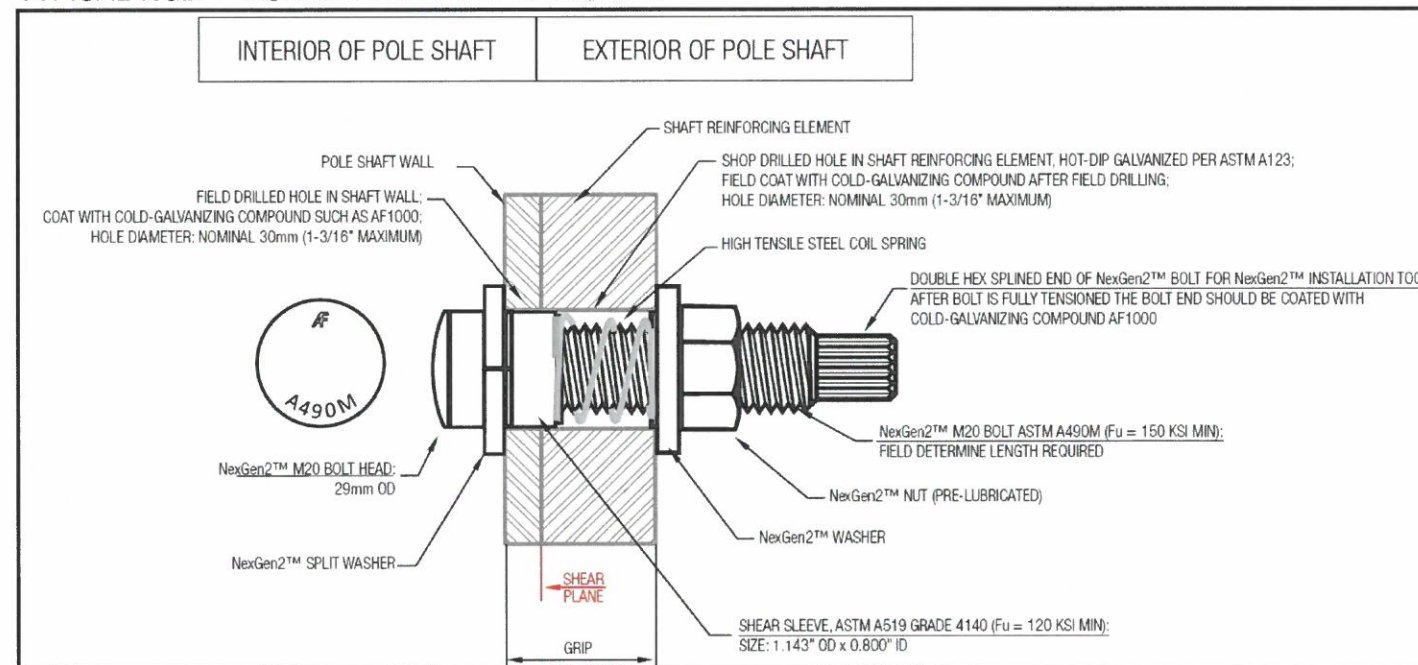
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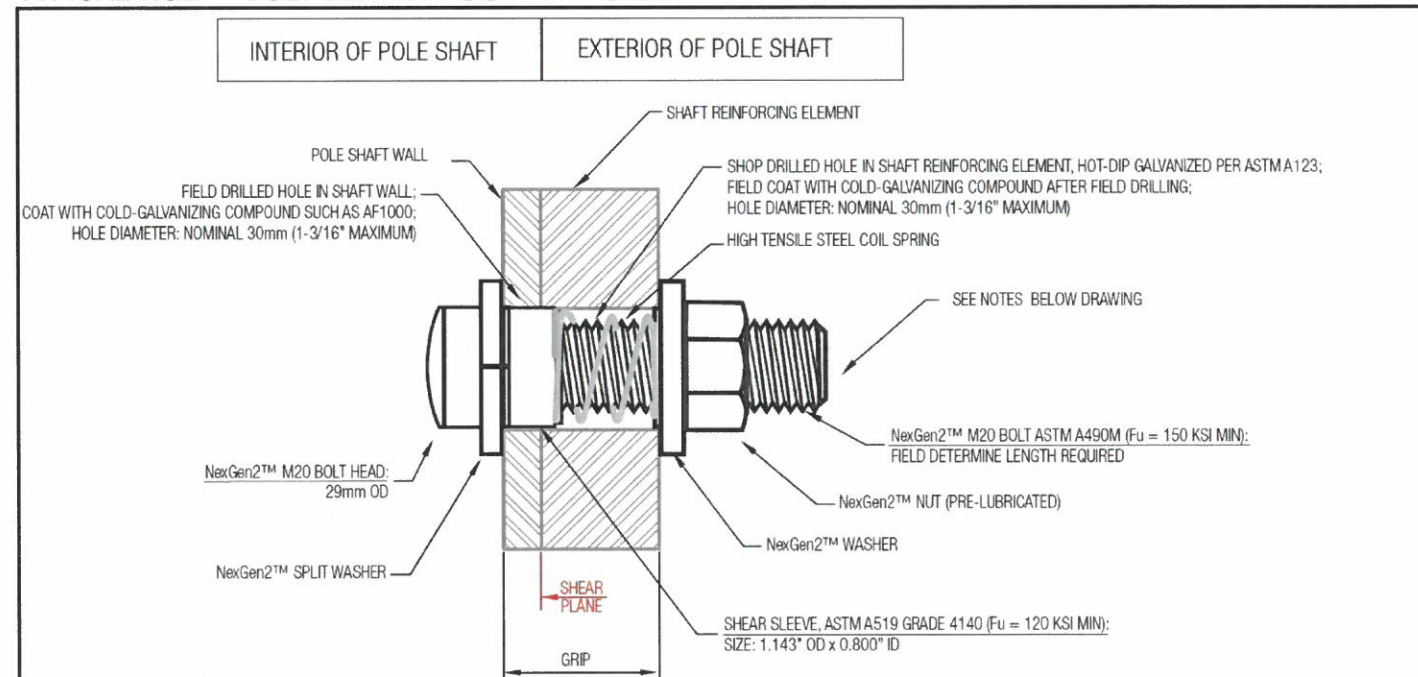
SHEET NUMBER: SPEC-2 REV #: 0



TYPICAL NG2™ BOLT DETAIL: **PRE-TENSION**



TYPICAL NG2™ BOLT DETAIL: **POST-TENSION**



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SITE NAME: GRANBY/RT 20

T-MOBILE E911 ADDRESS: 15 NORTH GRANBY ROAD (RT. 20) GRANBY, CT 06035
 SBA BUSINESS ADDRESS: 15 NORTH GRANBY ROAD GRANBY, CT 06035

SITE NUMBER: CT11281B

PROJECT: T-MOBILE L600

CONFIGURATION: 4SEC-67D94DB_1xAIR+1QP+1OP

T-MOBILE TECHNICIAN SITE SAFETY NOTES	
LOCATION	SPECIAL RESTRICTIONS
ANTENNA/TMA	
SECTOR A:	ACCESS NOT PERMITTED
SECTOR B:	ACCESS NOT PERMITTED
SECTOR C:	ACCESS NOT PERMITTED
SECTOR D:	ACCESS NOT PERMITTED
GPS/LMU:	UNRESTRICTED*
	(*CAUTION: OSHA-APPROVED PORTABLE 8' STEP-LADDER REQUIRED)
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

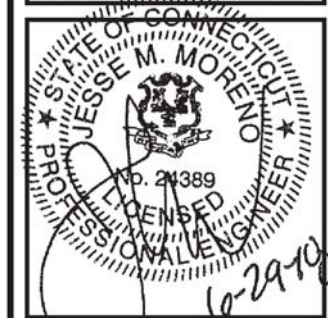
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T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002



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 134 FLANDERS ROAD, SUITE 125
 WESTBOROUGH, MA 01581 TEL: (508) 251-0720

ProTerra
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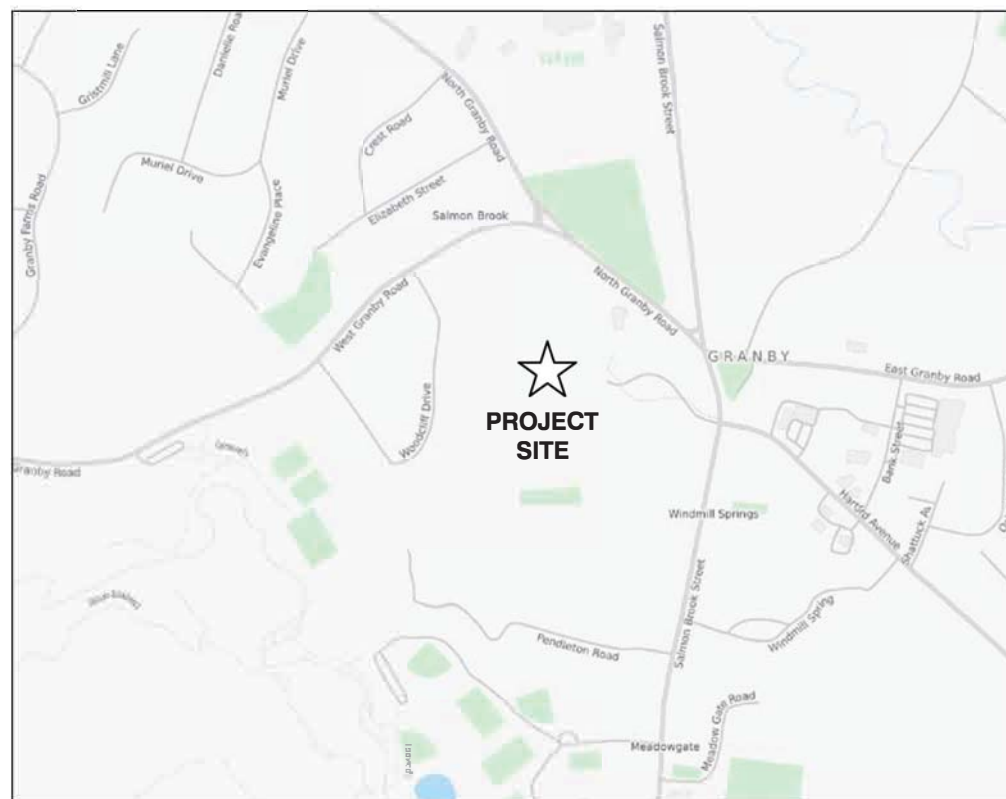
SHEET NUMBER

GENERAL NOTES

- THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE NORTHEAST, LLC. 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.
- 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.
- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE NORTHEAST, LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SPECIAL CONSTRUCTION NOTES

- TOWER OWNER SHALL PROVIDE GLOBAL STRUCTURAL STABILITY ANALYSIS OF EXISTING/PROPOSED ANTENNA SUPPORT STRUCTURE. GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE ALL REQUIRED STRUCTURAL MODIFICATIONS, RE-BUNDLING OF COAXIAL CABLES OR OTHER SPECIAL MODIFICATIONS AS OUTLINED THEREIN.
- PROTERRA DESIGN GROUP ASSUMES THAT THE MONOPOLE IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTION ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NO DETERIORATION TO ITS MEMBER CAPACITIES.



PROJECT INFORMATION

SCOPE OF WORK: UNMANNED TELECOMMUNICATIONS FACILITY T-MOBILE EQUIPMENT MODERNIZATION

ZONING JURISDICTION: **SPECIAL ZONING NOTE (ELIGIBLE FACILITY REQUEST):** BASED ON INFORMATION PROVIDED BY T-MOBILE REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST, EXPEDITED REVIEW AND LIMITED/PARTIAL ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW OR ADMINISTRATIVE REVIEW).

T-MOBILE E911 ADDRESS: 15 NORTH GRANBY ROAD (RT. 20) GRANBY, CT 06035
 SBA BUSINESS ADDRESS: 15 NORTH GRANBY ROAD GRANBY, CT 06035
 LATITUDE: 41° 57' 12.90" N (41.9536°) (FROM SBA RECORD)
 LONGITUDE: 72° 47' 37.40" W (-72.7937°) (FROM SBA RECORD)
 JURISDICTION: TOWN OF GRANBY / CT SITING COUNCIL
 BUILDING CODE: 2016 CONNECTICUT STATE BUILDING CODE WITH AMENDMENTS. (IBC 2012 BASED)
 ELECTRICAL CODE: 2014 NATIONAL ELECTRICAL CODE WITH AMENDMENTS

CURRENT USE: TELECOMMUNICATIONS FACILITY
 PROPOSED USE: TELECOMMUNICATIONS FACILITY
 TOWER OWNER: SBA 2012 TC ASSETS, LLC
 SBA SITE ID: CT46134-A
 SBA SITE NAME: GRANBY-N. GRANBY
 SBA REGIONAL SITE MANAGER: STEPHEN ROTH (860) 539-4920

APPROVALS

PROJECT MANAGER	DATE
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING / SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE

DIG SAFE SYSTEM
 (MA, ME, NH, RI, VT):
 1-888-344-7233

CALL BEFORE YOU DIG
 (CT): 1-800-922-4455

UNDERGROUND SERVICE ALERT

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & ELEVATION PLAN	1
A-2	EXISTING & PROPOSED ANTENNA PLAN	1
A-3	DETAILS	1
A-4	DETAILS	1
E-1	ONE-LINE DIAGRAM & GROUNDING DETAILS	1

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) LIGHTNING 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) 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 SURCIRTS 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 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 THE BRIDGE AND THE TOWER 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 – SBA COMMUNICATIONS CORP.
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – T-MOBILE
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 THE 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 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 = 35 KSI). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH UMS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE 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.

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), STEEL CONSTRUCTION MANUAL, 14TH EDITION;

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

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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	REF	REFERENCE
AWG	AMERICAN WIRE GAUGE	G.C.	GENERAL CONTRACTOR	REQ	REQUIRED
BTCW	BARE TINNED SOLID COPPER WIRE	GRC	GALVANIZED RIGID CONDUIT	RF	RADIO FREQUENCY
BGR	BURIED GROUND RING	MGB	MASTER GROUND BAR	TBD	TO BE DETERMINED
BTS	BASE TRANSCEIVER STATION	MIN	MINIMUM	TBR	TO BE REMOVED
EXISTING	EXISTING OR (E)	PROPOSED	NEW OR (P)	TBRR	TO BE REMOVED AND REPLACED
EGB	EQUIPMENT GROUND BAR	N.T.S.	NOT TO SCALE	TYP	TYPICAL
EGR	EQUIPMENT GROUND RING	RAD	RADIATION CENTERLINE (ANTENNA)	VIF	VERIFY IN FIELD
		RAN	RADIO ACCESS NETWORK		

T-Mobile

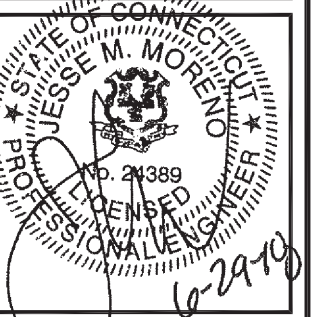
T-MOBILE NORTHEAST LLC
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BLOOMFIELD, CT 06002



SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581 TEL: (508) 251-0720

ProTerra
DESIGN GROUP, LLC

4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph: (413) 320-4918



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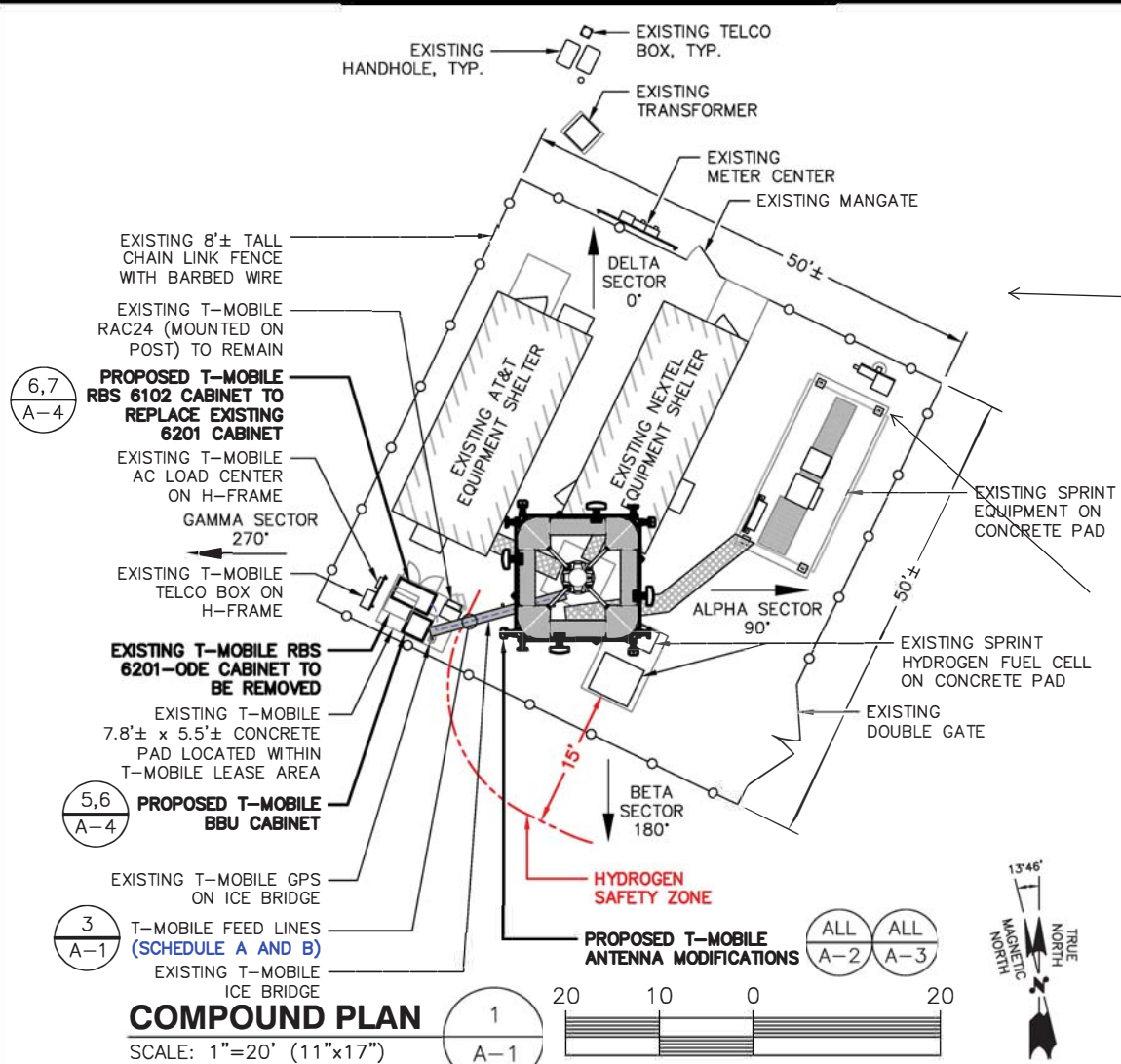
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GRANBY, CT 06035

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-1



SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION
A	REMOVE EXISTING: (6) 1-5/8" COAX	MONOPOLE TO RAD
B	PROPOSED: (14) 1-1/4" COAX TO 115' RAD, (4) 1-1/4" HYBRID TO 115' RAD	UP INSIDE MONOPOLE TO RAD

NOTE: EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER

T-MOBILE FEED LINES (REFER TO SBA-PROVIDED STRUCTURAL ANALYSIS FOR SPECIAL FEEDLINE INSTALLATION REQUIREMENTS, STACKING, BUNDLING, SHIELDING, MOUNTING AND RELOCATION OF EXISTING OR PROPOSED FEEDLINES)

COMPOUND PLAN
SCALE: 1"=20' (11"x17")
1"=10' (22"x34")



IMAGE SOURCE: PROTERRA 04/30/18

EQUIPMENT PHOTO DETAIL
SCALE: N.T.S.



IMAGE SOURCE: PROTERRA 04/30/18

FEEDLINE PHOTO DETAIL AT TOWER BASE
SCALE: N.T.S.



IMAGE SOURCE: PROTERRA 04/30/18

PARTIAL ELEVATION PHOTO DETAIL
SCALE: N.T.S.

T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

SBA

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581 TEL: (508) 251-0720

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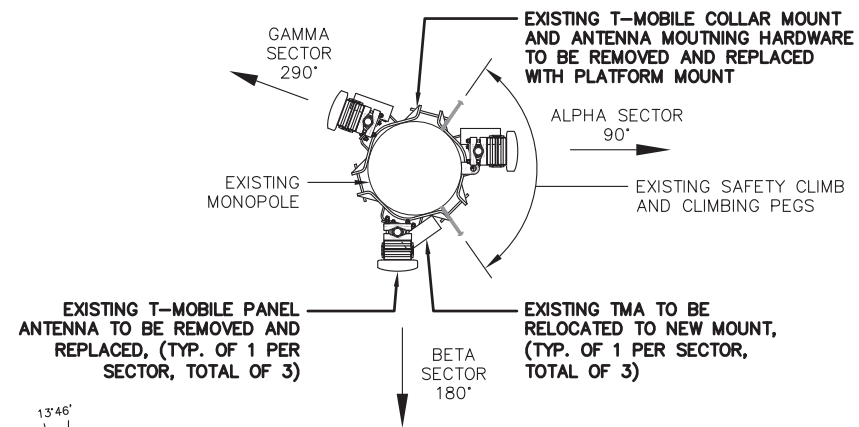
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SITE NAME:
GRANBY/RT 20
SITE ADDRESS:
15 NORTH GRANBY ROAD
GRANBY, CT 06035

SHEET TITLE
COMPOUND & ELEVATION PLAN

SHEET NUMBER
A-1

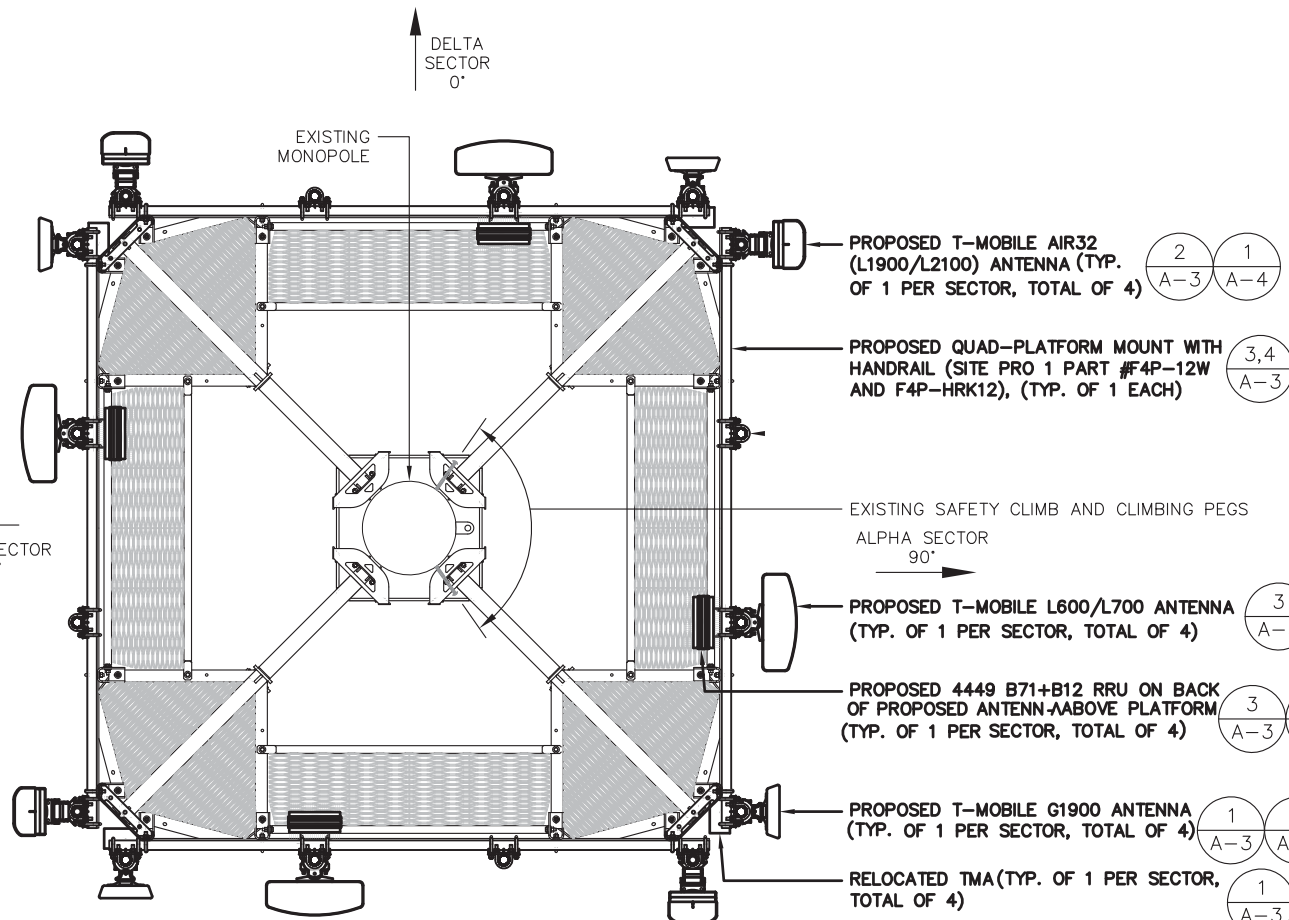
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

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



EXISTING ANTENNA PLAN
 SCALE: N.T.S.

1
A-2



PROPOSED ANTENNA PLAN
 SCALE: N.T.S.

2
A-2

- EXISTING T-MOBILE PANEL ANTENNA AND TMA (TYP. OF 1 EACH PER SECTOR, TOTAL OF 3 EACH) AND EXISTING COLLAR MOUNT AND MOUNTING HARDWARE TO BE REMOVED AND REPLACED
- PROPOSED T-MOBILE L600/L700 ANTENNA (TYP. OF 1 PER SECTOR, TOTAL OF 4)
- PROPOSED 4449 B71+B12 RRU ON BACK OF PROPOSED ANTENNA ABOVE PLATFORM (TYP. OF 1 PER SECTOR, TOTAL OF 4)
- PROPOSED HANDRAIL KIT (SITE PRO 1 PART #F4P-HRK12)
- RELOCATED TMA TYP. OF 1 PER SECTOR, TOTAL OF 4
- PROPOSED T-MOBILE G1900 ANTENNA (TYP. OF 1 PER SECTOR, TOTAL OF 4)
- PROPOSED QUAD-PLATFORM MOUNT (SITE PRO 1 PART #F4P-12W)
- PROPOSED T-MOBILE AIR32 (L1900/L2100) ANTENNA (TYP. OF 1 PER SECTOR, TOTAL OF 4)

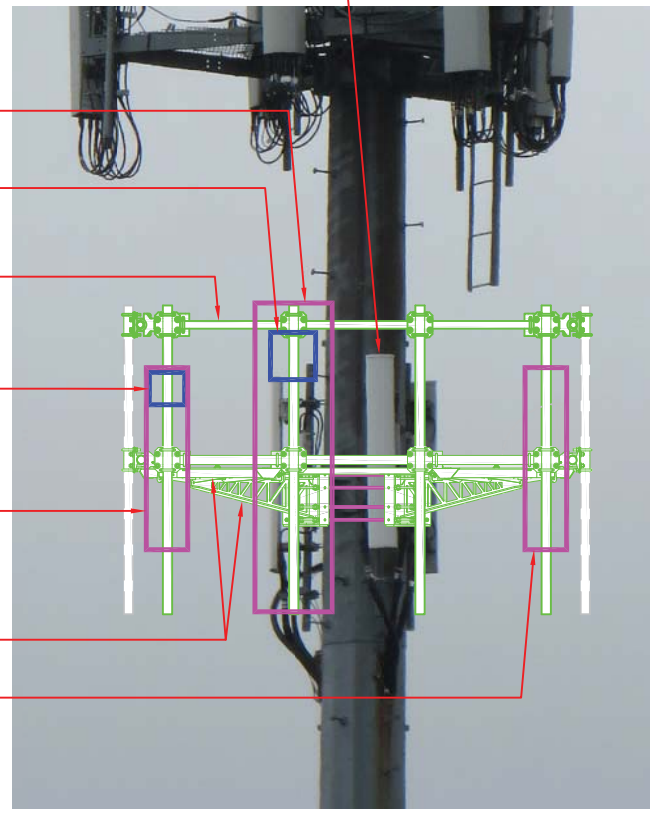


IMAGE SOURCE: PROTERRA 04/30/18
 NOTE: ONLY ONE SECTOR SHOWN FOR CLARITY

ANTENNA PHOTO DETAIL
 SCALE: N.T.S.

3
A-2

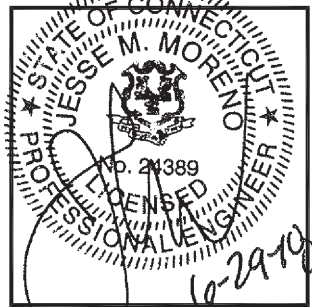
T-Mobile
T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002

SBA

SBA COMMUNICATIONS CORP.
 134 FLANDERS ROAD, SUITE 125
 WESTBOROUGH, MA 01581 TEL: (508) 251-0720

ProTerra
 DESIGN GROUP, LLC

4 Bay Road, Building A
 Suite 200
 Hadley, MA 01035 Ph: (413) 320-4918



CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

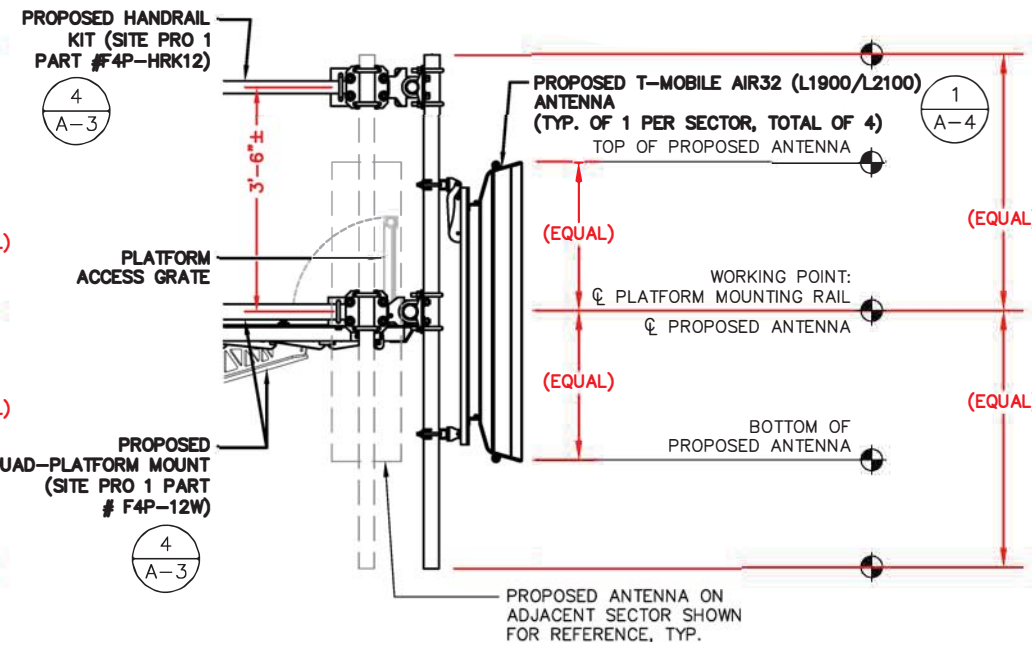
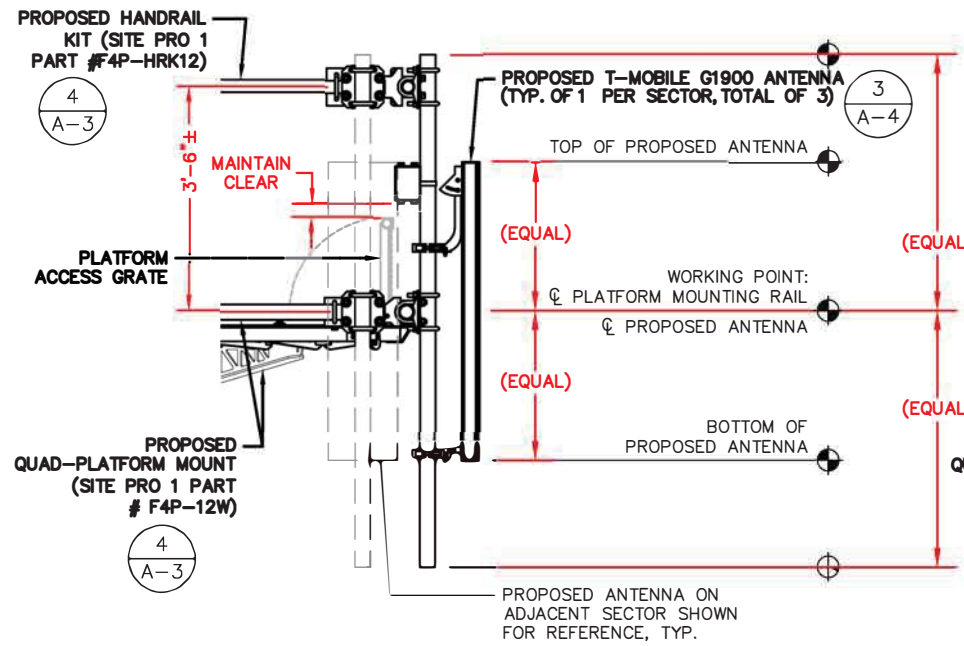
SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	06/29/18	CONSTRUCTION REVISED	JEB
0	05/24/18	ISSUED FOR CONSTRUCTION	JEB

SITE NUMBER:
CT11281B
 SITE NAME:
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 SITE ADDRESS:
 15 NORTH GRANBY ROAD
 GRANBY, CT 06035

SHEET TITLE
EXISTING & PROPOSED ANTENNA PLAN

SHEET NUMBER
A-2



SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED, TOWER STRUCTURAL ANALYSIS, SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

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

PROPOSED G1900 ANTENNA MOUNTING DETAIL

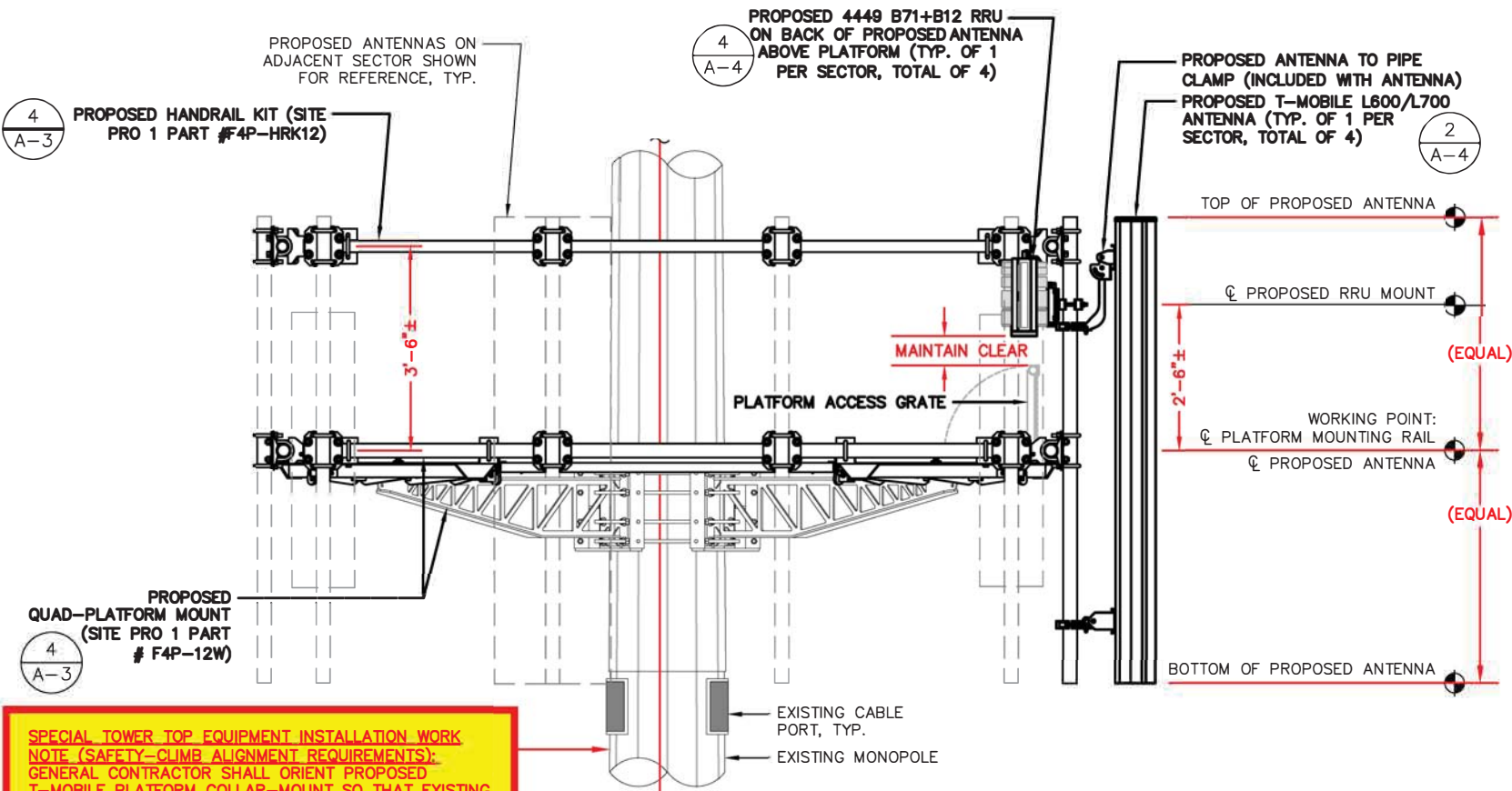
1
A-3

SCALE: N.T.S.

PROPOSED AIR32 L1900/L2100 ANTENNA MOUNTING DETAIL

2
A-3

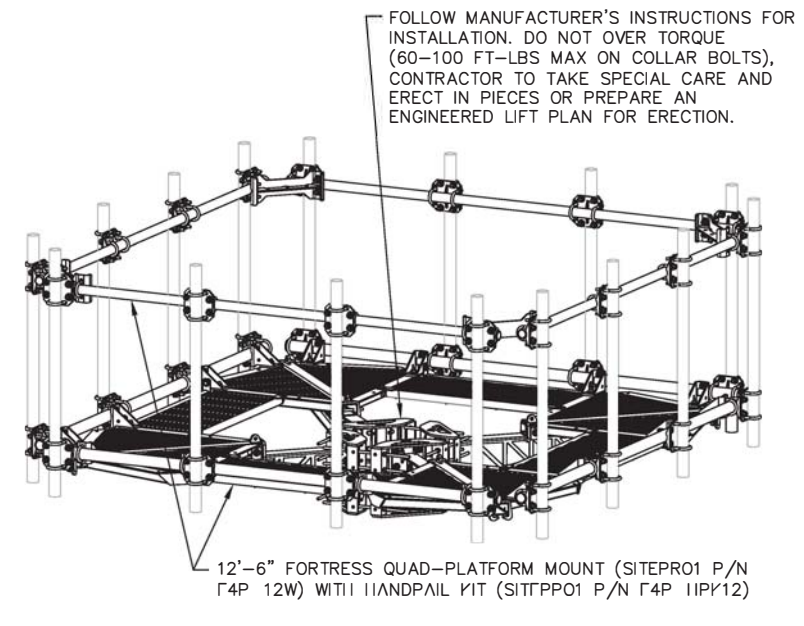
SCALE: N.T.S.



PROPOSED L600/L700/U2100 ANTENNA AND PLATFORM MOUNTING DETAIL

3
A-3

SCALE: N.T.S.



SECTOR FRAME DETAIL

4
A-3

SCALE: N.T.S.

SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS):
 GENERAL CONTRACTOR SHALL ORIENT PROPOSED T-MOBILE PLATFORM COLLAR-MOUNT SO THAT EXISTING SAFETY CLIMB CABLE IS NOT OBSTRUCTED/RE-ROUTED FROM VERTICAL ALIGNMENT AND IS NOT IN PHYSICAL CONTACT WITH PROPOSED COLLAR-MOUNT HARDWARE. GENERAL CONTRACTOR SHALL INSTALL NEW OR ADDITIONAL SAFETY-CLIMB CABLE GUIDES IF ADDITIONAL CLEARANCE IS REQUIRED. ADDITIONAL CABLE GUIDES SHALL BE ATTACHED SECURELY TO THE POLE USING MECHANICAL FASTENERS OR FIELD WELDED BY A CERTIFIED WELDING TECHNICIAN.



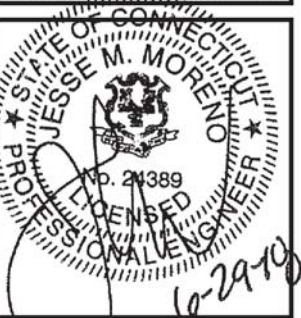
T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002



SBA COMMUNICATIONS CORP.
 134 FLANDERS ROAD, SUITE 125
 WESTBOROUGH, MA 01581 TEL: (508) 251-0720



4 Bay Road, Building A
 Suite 200
 Hadley, MA 01035 Ph: (413) 320-4918



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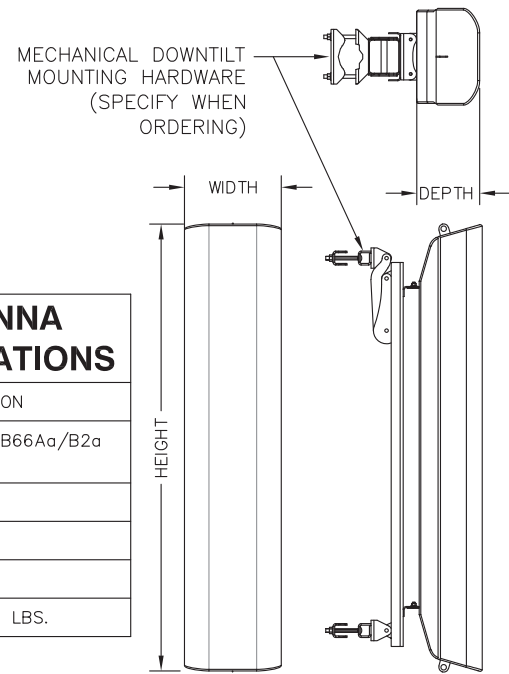
APPROVED BY: JMM/TEJ

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
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0	05/24/18	ISSUED FOR CONSTRUCTION	JEB

SITE NUMBER:
CT11281B
 SITE NAME:
GRANBY/RT 20
 SITE ADDRESS:
 15 NORTH GRANBY ROAD
 GRANBY, CT 06035

SHEET TITLE
DETAILS

SHEET NUMBER
A-3



AIR ANTENNA SPECIFICATIONS

MANUF.	ERICSSON
MODEL #	AIR32 B66Aa/B2a (Octa)
HEIGHT	56.6"
WIDTH	12.9"
DEPTH	8.7"
WEIGHT	132.2± LBS.

AIR32 ANTENNA DETAIL

SCALE: N.T.S.

1
A-4

G1900 ANTENNA SPECIFICATIONS

MANUF.	RFS
MODEL #	APX16DWV-16DWV-S-E-A20 (Quad)
HEIGHT	55.9"
WIDTH	13"
DEPTH	3.15"
WEIGHT	40.7± LBS.

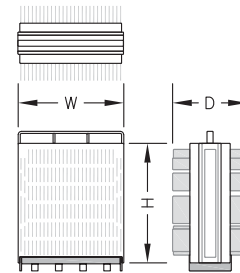
G1900 ANTENNA DETAIL

SCALE: N.T.S.

3
A-4

RRU SPECIFICATIONS

MANUF.	ERICSSON
MODEL #	4449 B71+B12
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	9.2"
WEIGHT	74± LBS.



REMOTE RADIO UNIT (RRU)

SCALE: N.T.S.

4
A-4

BBU SPECIFICATIONS

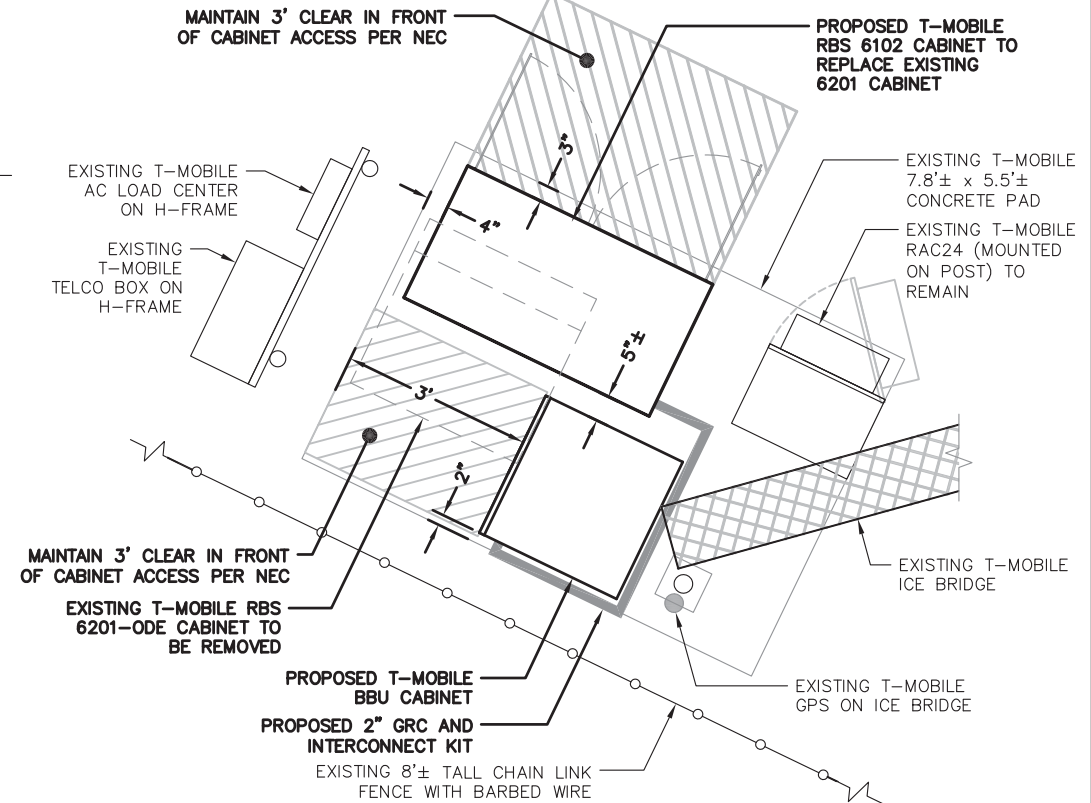
MANUF.	MFS DATA SERVICES
MODEL #	DUBBM-2ALM
HEIGHT (1) CABINET	29.67"
HEIGHT (3) CABINETS	89.01"
WIDTH	28.54"
DEPTH	28.54"

HILTI HDI 1/2" x 2" MINIMUM DEPTH SS 303 DROP-IN ANCHORS, (TYP. OF 4 MINIMUM IN SEISMIC ZONES 1-3)

PROPOSED BBU CABINET DETAIL

SCALE: N.T.S.

5
A-4



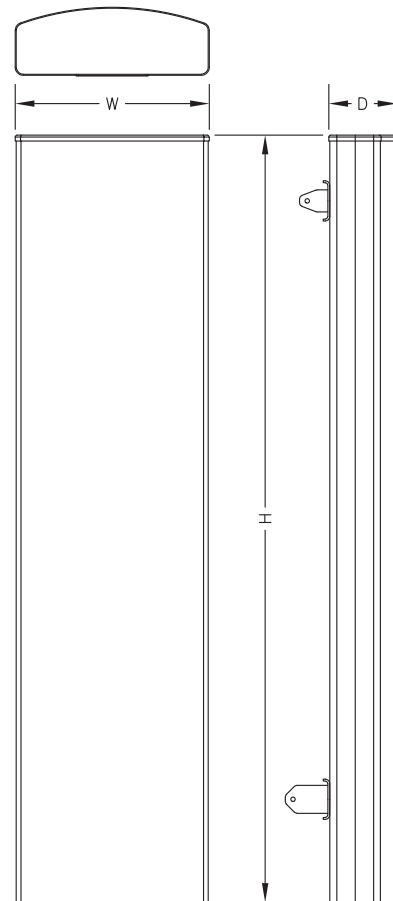
GROUND LEVEL EQUIPMENT PLAN

SCALE: 1"=3' (11"x17")
1"=1.5' (22"x34")

6
A-4

L600/L700 ANTENNA SPECIFICATIONS

MANUF.	RFS
MODEL #	APXVAARR24_43-U-NA20 (OCTA)
HEIGHT	95.9"
WIDTH	24"
DEPTH	8.7"
WEIGHT	128± LBS. (ANTENNA ONLY, WITHOUT MOUNTING HARDWARE)



L600/L700 ANTENNA DETAIL

SCALE: N.T.S.

2
A-4

RBS SPECIFICATIONS

MANUF.	ERICSSON
MODEL #	RBS 6102
HEIGHT	57.1"
WIDTH	51.2"
DEPTH	27.6"
WEIGHT	728± LBS. W/O BATTERIES
MAX WEIGHT	~1600 LBS.

ATTACH RBS CABINET TO BASE FRAME PER MANUFACTURER'S GUIDELINES RBS BASE FRAME (DIMENSIONS TBD). ANCHOR TO CONCRETE PAD WITH HILTI HDI 1/2" SS 303 DROP-IN ANCHORS (TYP. OF 8) OR EQUAL PER MANUFACTURER'S GUIDELINES

RBS 6102

SCALE: N.T.S.

7
A-4



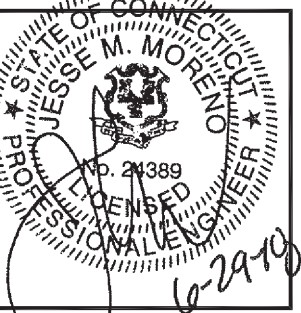
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002



SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581 TEL: (508) 251-0720



4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph: (413) 320-4918



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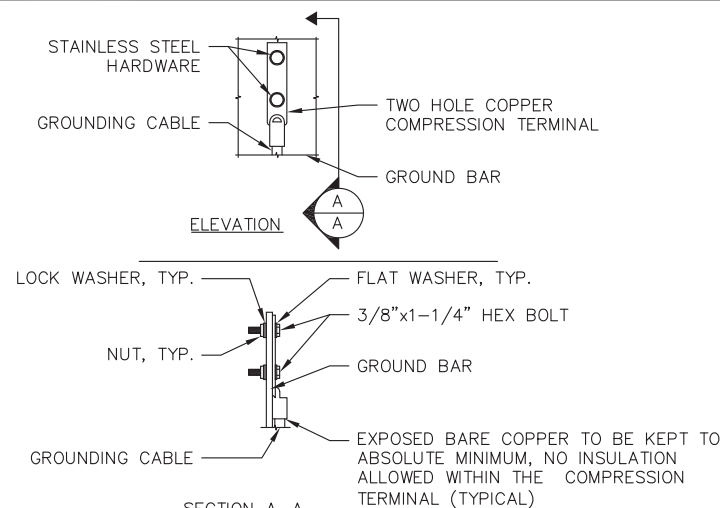
APPROVED BY: JMM/TEJ

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
1	06/29/18	CONSTRUCTION REVISED	JEB
0	05/24/18	ISSUED FOR CONSTRUCTION	JEB

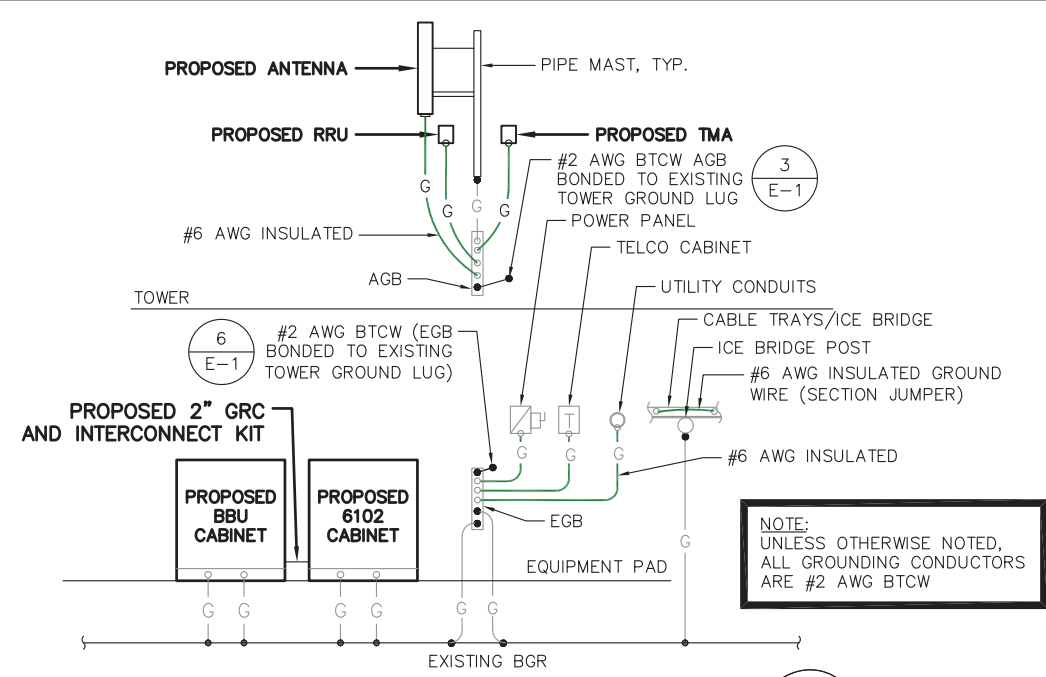
SITE NUMBER:
CT11281B
SITE NAME:
GRANBY/RT 20
SITE ADDRESS:
15 NORTH GRANBY ROAD
GRANBY, CT 06035

SHEET TITLE
DETAILS

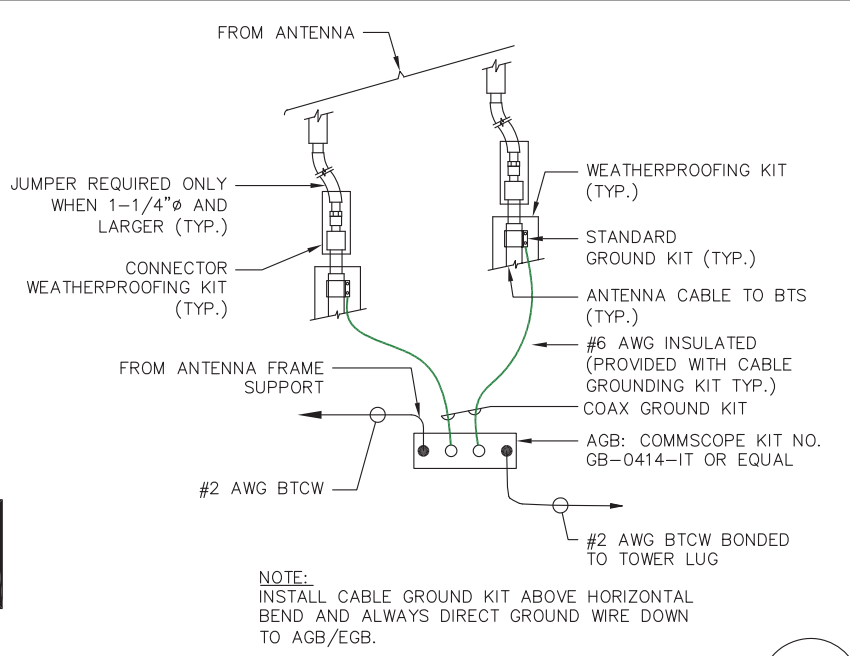
SHEET NUMBER
A-4



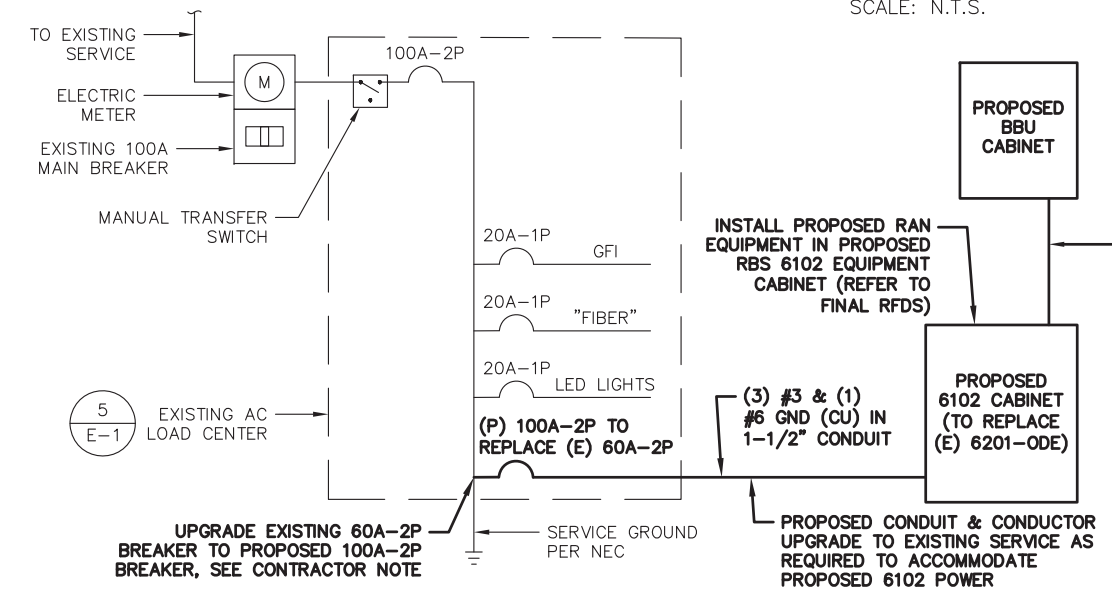
- NOTES:**
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 - OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
 - CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.



NOTE:
UNLESS OTHERWISE NOTED, ALL GROUNDING CONDUCTORS ARE #2 AWG BTCW

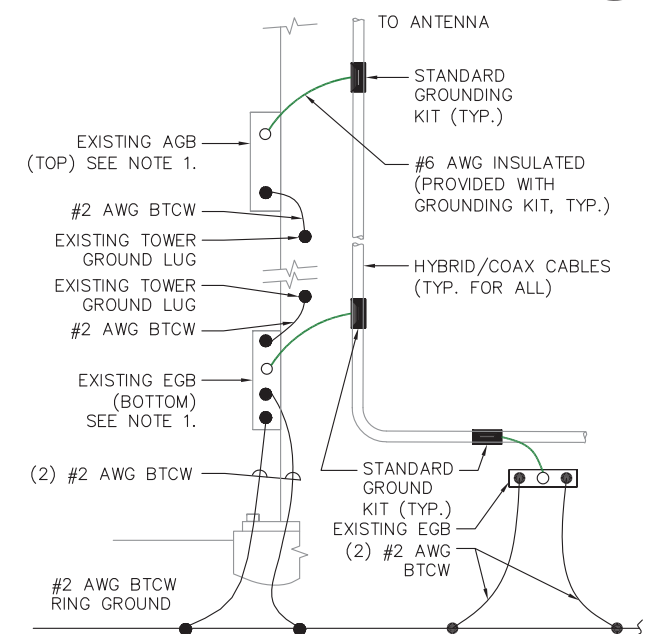


NOTE:
INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB.



INSTALL PROPOSED RAN EQUIPMENT IN PROPOSED RBS 6102 EQUIPMENT CABINET (REFER TO FINAL RFDS)

REMOVE EXISTING 60A-2P BREAKER FOR 6201-ODE CABINET. RE-USE SLOT FOR PROPOSED 100A-2P BREAKER FOR PROPOSED 6102 CABINET (OR INSTALL BLANKS)



NOTE:

- NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION, AND CONNECTION ORIENTATION. PROVIDE ADDITIONAL AGB/EGB AS REQUIRED.
- A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED

ELECTRICAL LEGEND

A	AMPERE
V	VOLT
KWH	KILOWATT - HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BTCW	BARE TINNED (SOLID) COPPER WIRE (#2 AWG, UNLESS NOTES OTHERWISE)
G	GROUND
MGB	MASTER GROUND BAR
AGB/EGB	EQUIPMENT GROUND BAR/ANTENNA GROUND BAR
C	GROUND COPPER WIRE, SIZE AS NOTED
—	EXPOSED WIRING
—	INSULATED GROUNDING CONDUCTOR (#6 AWG STRANDED, UNLESS NOTED OTHERWISE)
—	5/8"x10" COPPER CLAD STAINLESS STEEL GROUND ROD
—	EXOTHERMIC (CAD WELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION
PPC	POWER PROTECTION CABINET
⊗	OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

CONTRACTOR NOTE:
G.C. TO VERIFY THAT THE EXISTING CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.

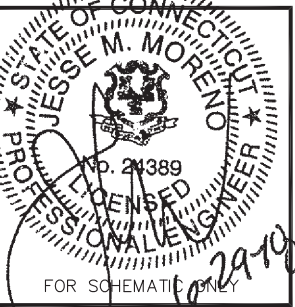
ELECTRICAL & GROUNDING NOTES:

- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) 2014 AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
- RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHN INSULATION AS REQUIRED BY NEC.
- RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
- RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
- GROUNDING SHALL COMPLY WITH NEC ART. 250.
- GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
- USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
- ALL GROUND CONNECTIONS TO BE BURNDY HYGROGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
- ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
- CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT).
- CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LYGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
- BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
- BOND ANTENNA EGB'S AND MGB TO WATER MAIN/GROUND RING.
- TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
- BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
- VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.

T-Mobile
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SHEET TITLE
ONE-LINE DIAGRAM & GROUNDING DETAILS

SHEET NUMBER
E-1