Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

August 21, 2019

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

RE: **Notice of Exempt Modification for T-Mobile:**
827050 - T-Mobile Site ID: CT11058C
699 Old Main Street, Rocky Hill, CT 06067
Latitude: 41° 40′ 5.77″ / Longitude: -72° 38′ 16.93″

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 148-foot mount on the existing 151-foot Monopole Tower, located at 699 Old Main Street, Rocky Hill, CT. The tower is owned by Crown Castle and the property is owned by the Town of Rocky Hill. T-Mobile now intends to replace six (6) existing antennas with three (3) new 1900/2100 MHz antennas and three (3) new 600/700 MHz antennas. The new antennas will be installed at the 148-ft level of the tower.

Planned Modifications:
Tower:

Remove:
(6) 1 5/8" Coax

Remove and Replace:
(3) LNX 6515DS-A1M Antenna **(REMOVE)** - (3) RFS-APXVAARR24_43-U-NA20 Antenna 600/700 MHz **(REPLACE)**

(3) AIR21 KRC118023-1_B2P_B4A Antenna **(REMOVE)** – (3) AIR32_B66A_B2A Antenna 1900/2100 MHz **(REPLACE)**

(3) RRUS11 B12 **(REMOVE) –** (3) Radio 4449 B71/B12 **(REPLACE)**

Install New:
(3) 1 5/8" Hybrid Fiber Line

Existing to Remain:
(6) 1 5/8" Coax
(1) Fiber line
(3) AIR21 KRC118023-1_B2A_B4P Antenna 1900/2100 MHz
(3) TMA

Ground:

Upgrade to existing ground cabinet. (Internally)
Upgrade existing breakers.

The facility was approved by the Town of Rocky Hill Planning and Zoning Commission on December 16, 1998. in Application Number 98-9.3 on November 10, 1998. The approval was given without 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 John Mehr, Town Manager, as the municipality and property owner, Kim Ricci, Town Planner, and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification 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 Communication Commission safety standard.
5. The proposed modifications 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-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Anne Marie Zsamba.

Sincerely,

Anne Marie Zsamba
Real Estate Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
(201) 236-9224
AnneMarie.Zsamba@crowncastle.com

Attachments

cc:

John Mehr, Town Manager
Town of Rocky Hill
761 Old Main Street
Rocky Hill, CT 06067
860-258-2700

Kim Ricci, Town Planner
Town of Rocky Hill
761 Old Main Street
Rocky Hill, CT 06067
860-258-2761

Crown Castle, Tower Owner

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
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:ONHA (585) 445-5896
RICHARD ZAJAC
CROWN CASTLE
300 MERIDIAN CENTRE
ROCHESTER, NY 14618
UNITED STATES US

SHIP DATE: 14AUG19
ACTWGT: 2.00 LB
CAD: 104924194/INET4160

BILL SENDER

TO **JOHN MEHR, TOWN MANAGER**
TOWN OF ROCKY HILL
761 OLD MAIN STREET

ROCKY HILL CT 06067
(860) 258-2700
INV:
PO:
REF: 1734.7680
DEPT:

567J3/E9E7/05A2

FedEx Express

J192019062401uv

THU - 15 AUG 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7759 8195 1711**

XE BDLA

06067
BDL
CT-US

After printing this label:
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Exhibit A

Original Facility Approval

CT11-058

Town of Rocky Hill

699 OLD MAIN STREET • PO BOX 657 • ROCKY HILL, CT 06067 • FAX (860) 258-7638

CERTIFIED

December 18, 1998

Mr. Thomas Gilligan
Omnipoint Communications, Inc.
100 Filley St.
Bloomfield, CT 06002

Ms. Barbara Gilbert Interium Town Manager
Town of Rocky Hill
699 Old Main St.
Rocky Hill, CT 06067

RE: Site Plan Application, 150' monopole Antenna, 699 Old Main Street

Dear Mr. Gilligan and Ms. Gilbert,

The Rocky Hill Planning and Zoning Commission at their regular meeting of December 16, 1998 voted to approve the aforementioned application. The applicants at the meeting indicated that the fenced-in area could be screened with shrubs and that the antenna could be painted, etc. to better blend with the environment. Please contact the undersigned with your intentions for screening.

Please prepare and submit two (2) sets of the final plans for the Commission's signature. One set of plans is to conform with the enclosed Map Requirements, and the other can be mylar for filing with the Planning and Engineering Departments. The plans are to have signature blocks for the Commission. In addition, there is a $10.00 per sheet recording fee (one set only) due and payable to the Town of Rocky Hill. Upon receipt of the signed plans and the recording fee, Staff will gladly record the plans with the Town Clerk.

Should you have any questions, please do not hesitate to contact this office at 860-258-2761 or 860-258-2766.

Sincerely,

Kimberley A. Ricci, Town Planner/Assistant ZEO

KAR/mn

cc: Police Chief
Fire Chief

Exhibit B

Property Card

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Map ID: 6852	Class: Municipal Comrcl	Card: 1 of 7	Printed: April 22, 2019

CURRENT OWNER

ROCKY HILL TOWN OF
MUNICIPAL COMPLEX
761 OLD MAIN STREET
ROCKY HILL CT 06067

GENERAL INFORMATION

Living Units	
Neighborhood	C
Alternate Id	007389
Vol / Pg	
District	
Zoning	R-20
Class	EXEMPT

Property Notes

10-045-002 12/07/2012

Land Information

Type		Size	Influence Factors	Influence %	Value
Primary	AC	8.5600			3,046,000

Total Acres: 8.56
Spot: Location:

Assessment Information

	Assessed	Appraised	Cost	Income	Market
Land	2,132,200	3,046,000	3,046,000	3,046,000	0
Building	6,736,520	9,623,600	9,623,600	2,670,400	0
Total	8,868,720	12,669,600	12,669,600	5,716,400	0

Value Flag COST APPROACH
Gross Building:

Manual Override Reason
Base Date of Value 10/01/2018
Effective Date of Value 10/01/2018

Entrance Information

Date	ID	Entry Code	Source
10/01/14	CL	Office Review Change	From Conversion
10/09/12	ST	Measured + 1visit	From Conversion
05/23/07	ST	Reval Inspection	Owner

Permit Information

Date Issued	Number	Price	Purpose		% Complete
01/29/19	2019-170	1,000	EL	Installing A Double Duplex Outlet A	
01/16/19	2019-228	20,000	CM	Sprint To Replace Three (3) Anten	
12/20/18	2019-214	20,000	CM	Verizon To Replace Six (6) Antenn	
12/13/18	2019-207	5,000	MS	"Build Two Non Load Bearing Wall	
11/19/18	2019-183	24,963	WIN	Replacement Of Windows On The	

Sales/Ownership History

Transfer Date	Price	Type	Validity	Deed Reference	Deed Type	Grantee
			No Consideration		No Consideration	ROCKY HILL TOWN OF

Inspection Witnessed By _____

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 1 of 7	Printed: April 22, 2019

Building Information

Year Built/Eff Year	1965 /
Building #	1
Structure Type	Office Bldg L/R 1-4s
Identical Units	1
Total Units	1
Grade	C+
# Covered Parking	
# Uncovered Parking	
DBA	TOWN HALL/COMMUNITY

Building Other Features

Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units
1	Porch, Open		189	1		1
1	Porch, Enclosed		54	1		1
1	Porch, Enclosed		60	1		1
1	Elevator Hydraulic Pasngı		2,500	100	2	2

Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units

Interior/Exterior Information

Line	Level From	To	Int Fin	Area	Perim	Use Type	Wall Height	Ext Walls	Construction	Partitions	Heating	Cooling	Plumbing	Physical	Functional
1	01	01		28,902	680	Offices	12	Brick & Con	Fire Resistant	Normal	Hot Air	Central	Normal	5	3
2	02	02		18,196	540	Offices	12	Brick & Con	Fire Resistant	Normal	Hot Air	Central	Normal	4	3

Interior/Exterior Valuation Detail

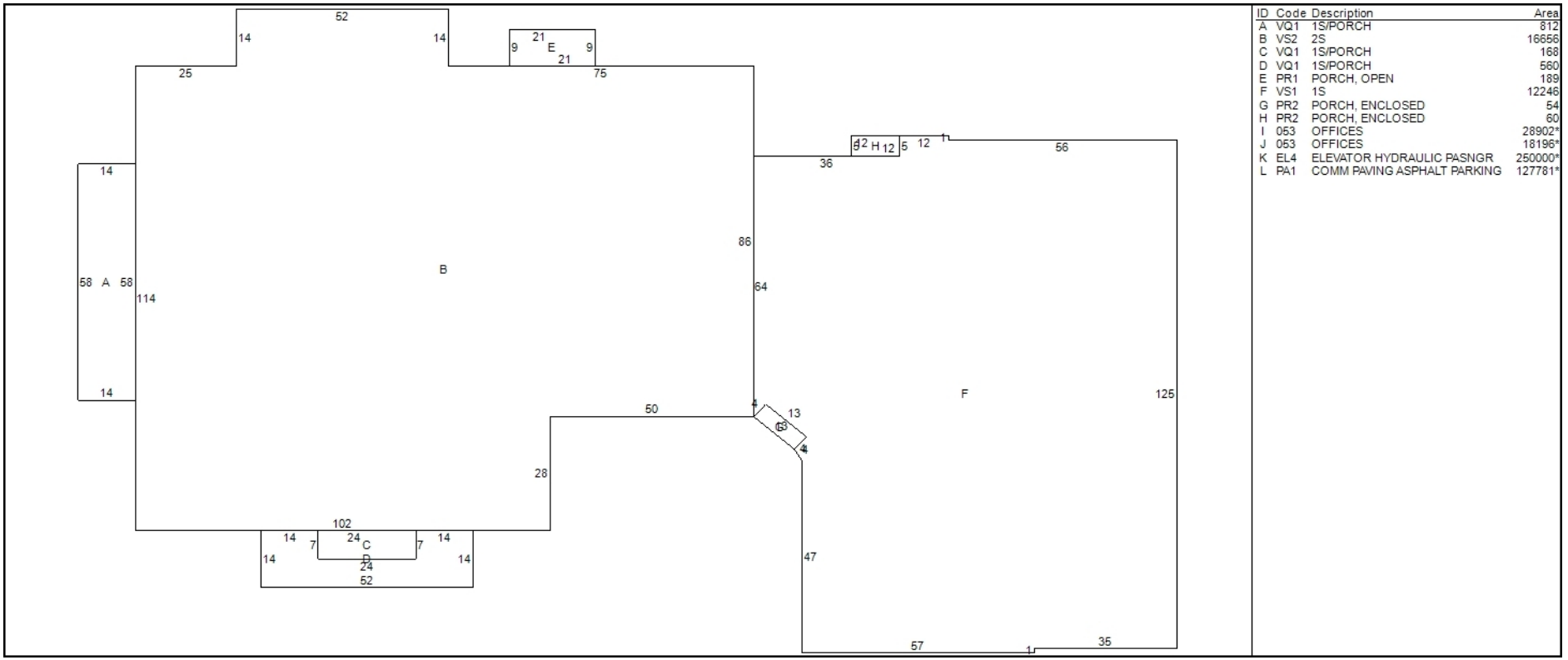
Line	Area	Use Type	% Good	% Complete	Use Value/RCNLD
1	28,902	Offices	60		2,551,590
2	18,196	Offices	60		1,332,170

Outbuilding Data

Line	Type	Yr Blt	Meas1	Meas2	Qty	Area	Grade	Phy Fun	Value
1	Asph Pav	2002			1	127,781	C	G	175,700

tyler clt division **COMMERCIAL PROPERTY RECORD CARD** 2018 **TOWN OF ROCKY HILL**

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 1 of 7	Printed: April 22, 2019



ID	Code	Description	Area
A	VQ1	1S/PORCH	812
B	VS2	2S	16656
C	VQ1	1S/PORCH	168
D	VQ1	1S/PORCH	560
E	PR1	PORCH, OPEN	189
F	VS1	1S	12246
G	PR2	PORCH, ENCLOSED	54
H	PR2	PORCH, ENCLOSED	60
I	053	OFFICES	28902*
J	053	OFFICES	18196*
K	EL4	ELEVATOR HYDRAULIC PASNGR	250000*
L	PA1	COMM PAVING ASPHALT PARKING	127781*

Addtional Property Photos

10-045-001 12/07/2012

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 1 of 7	Printed: April 22, 2019

Income Detail (Includes all Buildings on Parcel)

Use Grp	Mod Type	Inc Mod	Model Description	Units	Net Area	Income Rate	Econ Adjust	Potential Gross Income	Vac Model	Vac Adj	Additional Income	Effective Gross Income	Expense Model %	Expense Adj %	Expense Adj	Other Expenses	Total Expenses	Net Operating Income
00	S	1	Shell Income Use Grou	0	53,448						0							
04	S	1	Office Low Rise 1-3 Sto	0	52,930	18.00		952,740	10		0	857,466	30			257,240	257,240	600,226

Apartment Detail - Building 1 of 7

Line	Use Type	Per Bldg	Beds	Baths	Units	Rent	Income

Building Cost Detail - Building 1 of 7

Total Gross Building Area	47,098
Replace, Cost New Less Depr	3,883,760
Percent Complete	100
Number of Identical Units	1
Economic Condition Factor	
Final Building Value	3,883,760
Value per SF	82.46

Notes - Building 1 of 7

Income Summary (Includes all Building on Parcel)

Total Net Income	600,226
Capitalization Rate	0.105000
Sub total	5,716,440
Residual Land Value	
Final Income Value	5,716,440
Total Gross Rent Area	52,930
Total Gross Building Area	106,378

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Map ID: 6852	Class: Municipal Comrcl	Card: 2 of 7	Printed: April 22, 2019

CURRENT OWNER

ROCKY HILL TOWN OF
MUNICIPAL COMPLEX
761 OLD MAIN STREET
ROCKY HILL CT 06067

GENERAL INFORMATION

Living Units	
Neighborhood	C
Alternate Id	007389
Vol / Pg	
District	
Zoning	R-20
Class	EXEMPT

Property Notes

Land Information

Type		Size	Influence Factors	Influence %	Value
Primary	AC	8.5600			3,046,000

Total Acres: 8.56
Spot: Location:

Assessment Information

	Assessed	Appraised	Cost	Income	Market
Land	2,132,200	3,046,000	3,046,000	3,046,000	0
Building	6,736,520	9,623,600	9,623,600	2,670,400	0
Total	8,868,720	12,669,600	12,669,600	5,716,400	0

Value Flag COST APPROACH
Gross Building:

Manual Override Reason
Base Date of Value 10/01/2018
Effective Date of Value 10/01/2018

Entrance Information

Date	ID	Entry Code	Source
10/01/14	CL	Office Review Change	From Conversion
10/09/12	ST	Measured + 1visit	From Conversion
05/23/07	ST	Reval Inspection	Owner

Permit Information

Date Issued	Number	Price	Purpose		% Complete
01/29/19	2019-170	1,000	EL	Installing A Double Duplex Outlet A	
01/16/19	2019-228	20,000	CM	Sprint To Replace Three (3) Anten	
12/20/18	2019-214	20,000	CM	Verizon To Replace Six (6) Antenn	
12/13/18	2019-207	5,000	MS	"Build Two Non Load Bearing Wall	
11/19/18	2019-183	24,963	WIN	Replacement Of Windows On The	

Sales/Ownership History

Transfer Date	Price	Type	Validity	Deed Reference	Deed Type	Grantee
			No Consideration		No Consideration	ROCKY HILL TOWN OF

Inspection Witnessed By _____

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 2 of 7	Printed: April 22, 2019

Building Information

Year Built/Eff Year	1954 /
Building #	2
Structure Type	Police/Fire Station
Identical Units	1
Total Units	1
Grade	C+
# Covered Parking	
# Uncovered Parking	
DBA	POLICE

Building Other Features

Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units
1	Porch, Open		45	1		1
1	Elevator Hydraulic Pasngı		2,500	100	2	1

Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units

Interior/Exterior Information

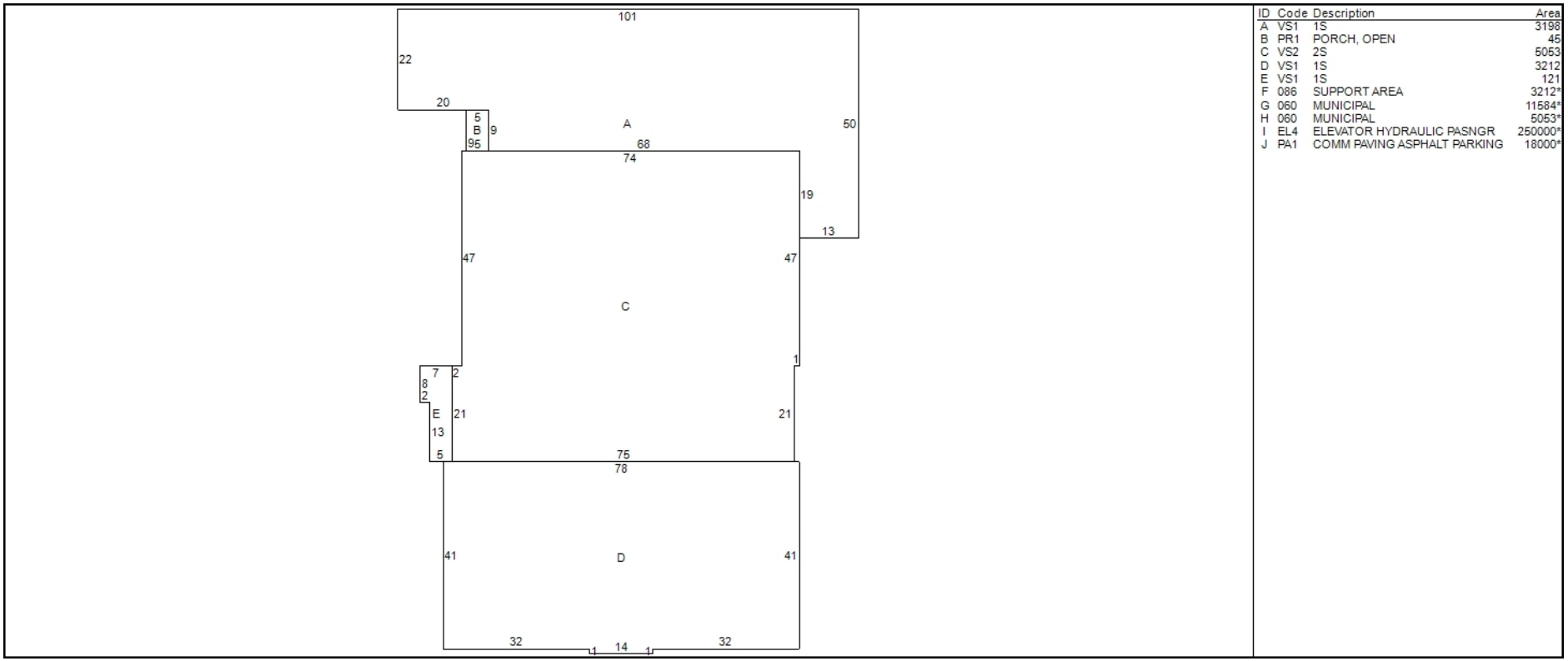
Line	Level From	To	Int Fin	Area	Perim	Use Type	Wall Height	Ext Walls	Construction	Partitions	Heating	Cooling	Plumbing	Physical	Functional
1	B1	B1		3,212	226	Support Area	12	Brick & Con	Wood Frame/Joist/B	Normal	Hot Air	Central	Normal	4	3
2	01	01		11,584	430	Municipal	12	Brick & Con	Wood Frame/Joist/B	Normal	Hot Air	Central	Normal	4	3
3	02	02		5,053	284	Municipal	12	Brick & Con	Wood Frame/Joist/B	Normal	Hot Air	Central	Normal	4	3

Interior/Exterior Valuation Detail

Line	Area	Use Type	% Good	% Complete	Use Value/RCNLD
1	3,212	Support Area	60		179,870
2	11,584	Municipal	60		897,350
3	5,053	Municipal	60		380,000

Outbuilding Data

Line	Type	Yr Blt	Meas1	Meas2	Qty	Area	Grade	Phy Fun	Value
1	Asph Pav	1970			1	18,000	C	G	24,750



ID	Code	Description	Area
A	VS1	1S	3198
B	PR1	PORCH, OPEN	45
C	VS2	2S	5053
D	VS1	1S	3212
E	VS1	1S	121
F	086	SUPPORT AREA	3212*
G	060	MUNICIPAL	11584*
H	060	MUNICIPAL	5053*
I	EL4	ELEVATOR HYDRAULIC PASNGR	250000*
J	PA1	COMM PAVING ASPHALT PARKING	18000*

Addtional Property Photos

10-045-001 12/07/2012

10-045-002 12/07/2012

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 2 of 7	Printed: April 22, 2019

Income Detail (Includes all Buildings on Parcel)

Use Grp	Mod Type	Inc Mod	Model Description	Units	Net Area	Income Rate	Econ Adjust	Potential Gross Income	Vac Model	Vac Adj	Additional Income	Effective Gross Income	Expense Model %	Expense Adj %	Expense Adj	Other Expenses	Total Expenses	Net Operating Income
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04	S	1	Office Low Rise 1-3 Sto	0	52,930	18.00		952,740	10		0	857,466	30			257,240	257,240	600,226

Apartment Detail - Building 2 of 7

Line	Use Type	Per Bldg	Beds	Baths	Units	Rent	Income

Building Cost Detail - Building 2 of 7

Total Gross Building Area	19,849
Replace, Cost New Less Depr	1,457,220
Percent Complete	100
Number of Identical Units	1
Economic Condition Factor	
Final Building Value	1,457,220
Value per SF	73.42

Notes - Building 2 of 7

Income Summary (Includes all Building on Parcel)

Total Net Income	600,226
Capitalization Rate	0.105000
Sub total	5,716,440
Residual Land Value	
Final Income Value	5,716,440
Total Gross Rent Area	52,930
Total Gross Building Area	106,378

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Map ID: 6852	Class: Municipal Comrcl	Card: 3 of 7	Printed: April 22, 2019

CURRENT OWNER

ROCKY HILL TOWN OF
MUNICIPAL COMPLEX
761 OLD MAIN STREET
ROCKY HILL CT 06067

GENERAL INFORMATION

Living Units	
Neighborhood	C
Alternate Id	007389
Vol / Pg	
District	
Zoning	R-20
Class	EXEMPT

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10-045-001 12/07/2012

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12/13/18	2019-207	5,000	MS	"Build Two Non Load Bearing Wall	
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Sales/Ownership History

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			No Consideration		No Consideration	ROCKY HILL TOWN OF

Inspection Witnessed By _____

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 3 of 7	Printed: April 22, 2019

Building Information

Year Built/Eff Year	1962 /
Building #	3
Structure Type	Police/Fire Station
Identical Units	1
Total Units	1
Grade	C+
# Covered Parking	
# Uncovered Parking	
DBA	FIRE STATION 1

Building Other Features

Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units	Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units
1	Porch, Open		80	1		1							
1	Porch, Open		30	1		1							

Interior/Exterior Information

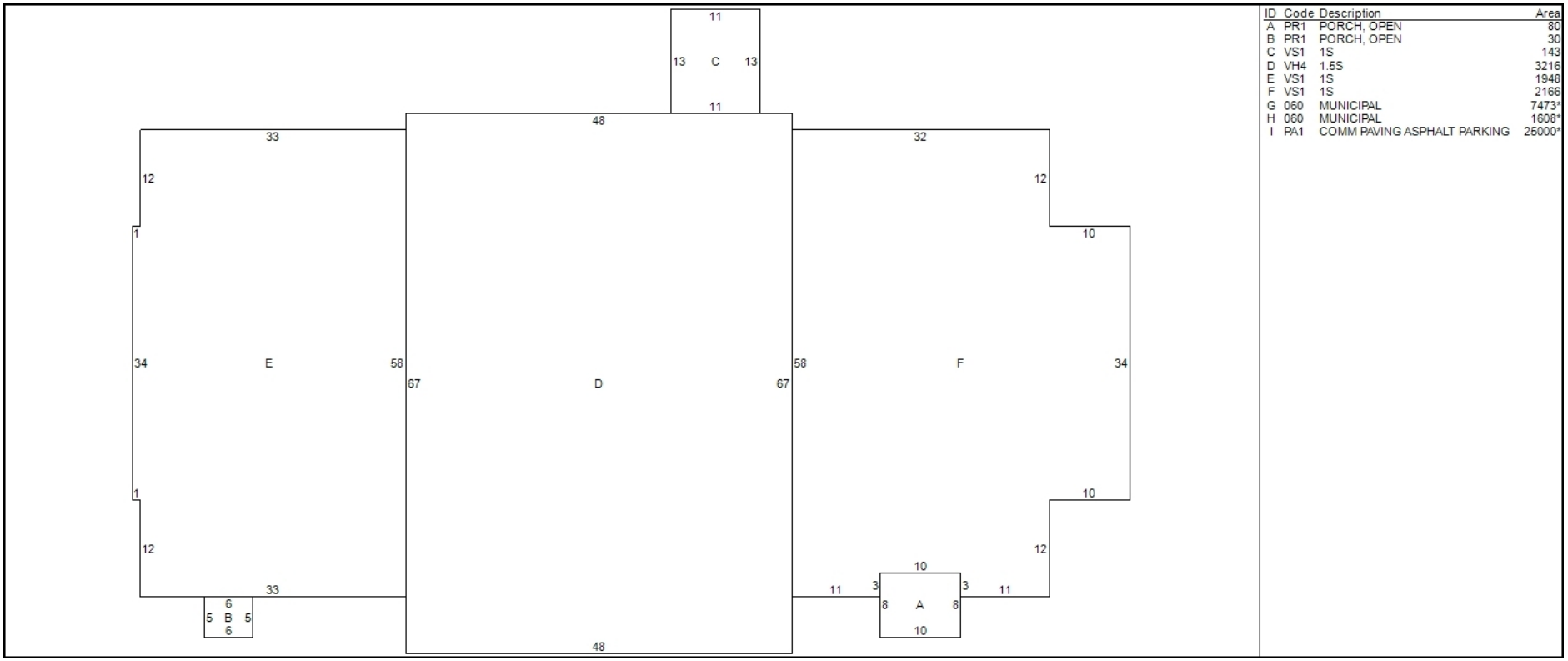
Line	Level From	To	Int Fin	Area	Perim	Use Type	Wall Height	Ext Walls	Construction	Partitions	Heating	Cooling	Plumbing	Physical	Functional
1	01	01		7,473	346	Municipal	12	Brick & Con	Fire Resistant	Normal	Hot Air	Central	Normal	5	3
2	02	02		1,608	160	Municipal	12	Brick & Con	Fire Resistant	Normal	Hot Air	Central	Normal	5	3

Interior/Exterior Valuation Detail

Line	Area	Use Type	% Good	% Complete	Use Value/RCNLD
1	7,473	Municipal	60		688,130
2	1,608	Municipal	60		146,050

Outbuilding Data

Line	Type	Yr Blt	Meas1	Meas2	Qty	Area	Grade	Phy Fun	Value
1	Asph Pav	1962			1	25,000	C	A	30,940



ID	Code	Description	Area
A	PR1	PORCH, OPEN	80
B	PR1	PORCH, OPEN	30
C	VS1	1S	143
D	VH4	1.5S	3216
E	VS1	1S	1948
F	VS1	1S	2166
G	060	MUNICIPAL	7473*
H	060	MUNICIPAL	1608*
I	PA1	COMM PAVING ASPHALT PARKING	25000*

Addtional Property Photos

10-045-002 12/07/2012

10-045-003 11/05/2012

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 3 of 7	Printed: April 22, 2019

Income Detail (Includes all Buildings on Parcel)

Use Grp	Mod Type	Inc Mod	Model Description	Units	Net Area	Income Rate	Econ Adjust	Potential Gross Income	Vac Model	Vac Adj	Additional Income	Effective Gross Income	Expense Model %	Expense Adj %	Expense Adj	Other Expenses	Total Expenses	Net Operating Income
00	S	1	Shell Income Use Grou	0	53,448						0							
04	S	1	Office Low Rise 1-3 Sto	0	52,930	18.00		952,740	10		0	857,466	30			257,240	257,240	600,226

Apartment Detail - Building 3 of 7

Line	Use Type	Per Bldg	Beds	Baths	Units	Rent	Income

Building Cost Detail - Building 3 of 7

Total Gross Building Area	9,081
Replace, Cost New Less Depr	834,180
Percent Complete	100
Number of Identical Units	1
Economic Condition Factor	
Final Building Value	834,180
Value per SF	91.86

Notes - Building 3 of 7

Income Summary (Includes all Building on Parcel)

Total Net Income	600,226
Capitalization Rate	0.105000
Sub total	5,716,440
Residual Land Value	
Final Income Value	5,716,440
Total Gross Rent Area	52,930
Total Gross Building Area	106,378

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Map ID: 6852	Class: Municipal Comrcl	Card: 4 of 7	Printed: April 22, 2019

CURRENT OWNER

ROCKY HILL TOWN OF
MUNICIPAL COMPLEX
761 OLD MAIN STREET
ROCKY HILL CT 06067

GENERAL INFORMATION

Living Units	
Neighborhood	C
Alternate Id	007389
Vol / Pg	
District	
Zoning	R-20
Class	EXEMPT

Property Notes

Land Information

Type		Size	Influence Factors	Influence %	Value
Primary	AC	8.5600			3,046,000

Total Acres: 8.56
Spot: Location:

Assessment Information

	Assessed	Appraised	Cost	Income	Market
Land	2,132,200	3,046,000	3,046,000	3,046,000	0
Building	6,736,520	9,623,600	9,623,600	2,670,400	0
Total	8,868,720	12,669,600	12,669,600	5,716,400	0

Manual Override Reason
Base Date of Value 10/01/2018
Value Flag COST APPROACH **Effective Date of Value** 10/01/2018
Gross Building:

Entrance Information

Date	ID	Entry Code	Source
10/01/14	CL	Office Review Change	From Conversion
10/09/12	ST	Measured + 1visit	From Conversion
05/23/07	ST	Reval Inspection	Owner

Permit Information

Date Issued	Number	Price	Purpose		% Complete
01/29/19	2019-170	1,000	EL	Installing A Double Duplex Outlet A	
01/16/19	2019-228	20,000	CM	Sprint To Replace Three (3) Anten	
12/20/18	2019-214	20,000	CM	Verizon To Replace Six (6) Antenn	
12/13/18	2019-207	5,000	MS	"Build Two Non Load Bearing Wall	
11/19/18	2019-183	24,963	WIN	Replacement Of Windows On The	

Sales/Ownership History

Transfer Date	Price	Type	Validity	Deed Reference	Deed Type	Grantee
			No Consideration		No Consideration	ROCKY HILL TOWN OF

Inspection Witnessed By _____

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 4 of 7	Printed: April 22, 2019

Building Information

Year Built/Eff Year	1801 /
Building #	4
Structure Type	Office Bldg H-R 5st
Identical Units	1
Total Units	1
Grade	C
# Covered Parking	
# Uncovered Parking	
DBA	HISTORICAL SOCIETY

Building Other Features

Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units	Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units

Interior/Exterior Information

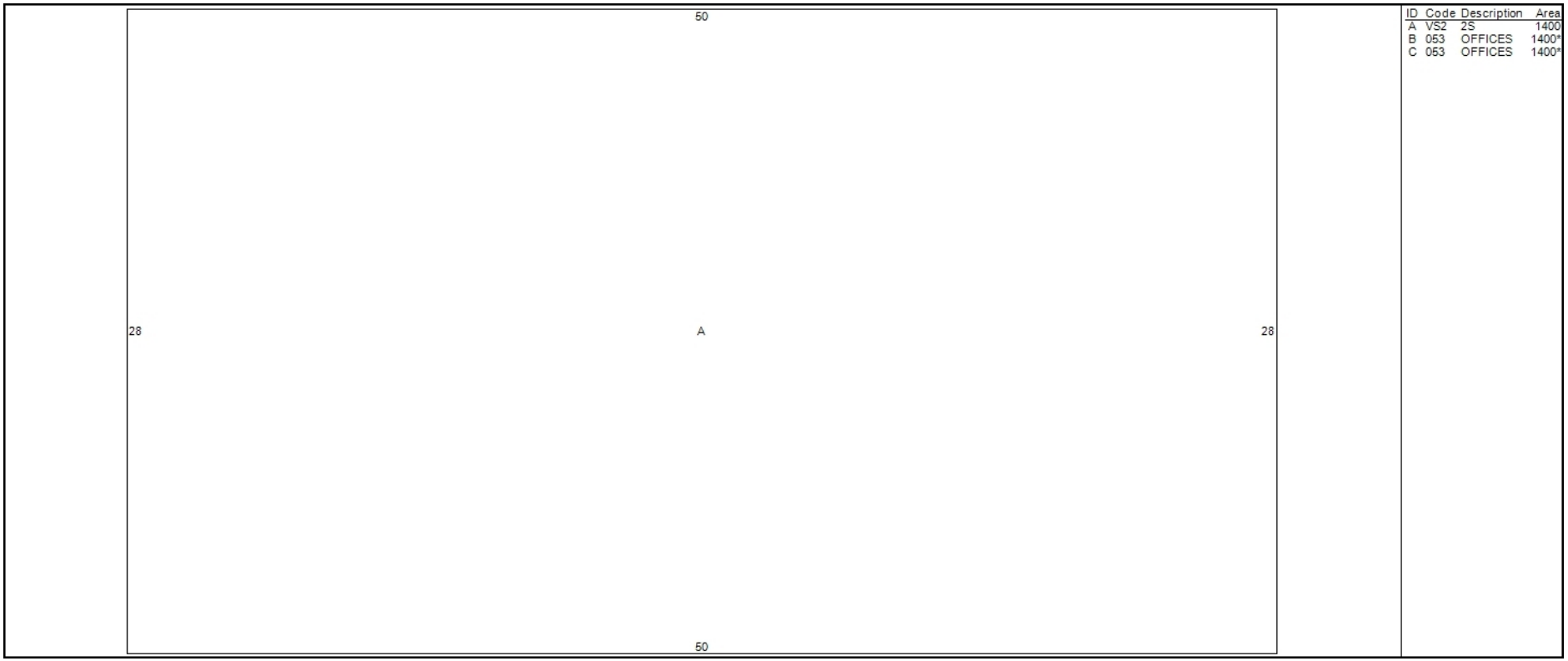
Line	Level From	To	Int Fin	Area	Perim	Use Type	Wall Height	Ext Walls	Construction	Partitions	Heating	Cooling	Plumbing	Physical	Functional
1	01	01		1,400	150	Offices	12	Brick & Con	Fire Resistant	Normal	Hot Water/St	None	Normal	5	3
2	02	02		1,400	150	Offices	12	Frame	Wood Frame/Joist/B	Normal	Hot Water/St	None	Normal	5	3

Interior/Exterior Valuation Detail

Line	Area	Use Type	% Good	% Complete	Use Value/RCNLD
1	1,400	Offices	60		132,280
2	1,400	Offices	60		99,340

Outbuilding Data

Line	Type	Yr Blt	Meas1	Meas2	Qty	Area	Grade	Phy Fun	Value



ID	Code	Description	Area
A	VS2	2S	1400
B	053	OFFICES	1400*
C	053	OFFICES	1400*

Addtional Property Photos

10-045-002 12/07/2012

10-045-003 11/05/2012

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 4 of 7	Printed: April 22, 2019

Income Detail (Includes all Buildings on Parcel)

Use Grp	Mod Type	Inc Mod	Model Description	Units	Net Area	Income Rate	Econ Adjust	Potential Gross Income	Vac Model	Vac Adj	Additional Income	Effective Gross Income	Expense Model %	Expense Adj %	Expense Adj	Other Expenses	Total Expenses	Net Operating Income
00	S	1	Shell Income Use Grou	0	53,448						0							
04	S	1	Office Low Rise 1-3 Sto	0	52,930	18.00		952,740	10		0	857,466	30			257,240	257,240	600,226

Apartment Detail - Building 4 of 7

Line	Use Type	Per Bldg	Beds	Baths	Units	Rent	Income

Building Cost Detail - Building 4 of 7

Total Gross Building Area	2,800
Replace, Cost New Less Depr	231,620
Percent Complete	100
Number of Identical Units	1
Economic Condition Factor	
Final Building Value	231,620
Value per SF	82.72

Notes - Building 4 of 7

Income Summary (Includes all Building on Parcel)

Total Net Income	600,226
Capitalization Rate	0.105000
Sub total	5,716,440
Residual Land Value	
Final Income Value	5,716,440
Total Gross Rent Area	52,930
Total Gross Building Area	106,378

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Map ID: 6852	Class: Municipal Comrcl	Card: 5 of 7	Printed: April 22, 2019

CURRENT OWNER

ROCKY HILL TOWN OF
MUNICIPAL COMPLEX
761 OLD MAIN STREET
ROCKY HILL CT 06067

GENERAL INFORMATION

Living Units	
Neighborhood	C
Alternate Id	007389
Vol / Pg	
District	
Zoning	R-20
Class	EXEMPT

Property Notes

10-045-002 12/07/2012

Land Information

Type		Size	Influence Factors	Influence %	Value
Primary	AC	8.5600			3,046,000

Total Acres: 8.56
Spot: Location:

Assessment Information

	Assessed	Appraised	Cost	Income	Market
Land	2,132,200	3,046,000	3,046,000	3,046,000	0
Building	6,736,520	9,623,600	9,623,600	2,670,400	0
Total	8,868,720	12,669,600	12,669,600	5,716,400	0

Value Flag COST APPROACH
Gross Building:

Manual Override Reason
Base Date of Value 10/01/2018
Effective Date of Value 10/01/2018

Entrance Information

Date	ID	Entry Code	Source
10/01/14	CL	Office Review Change	From Conversion
10/09/12	ST	Measured + 1visit	From Conversion
05/23/07	ST	Reval Inspection	Owner

Permit Information

Date Issued	Number	Price	Purpose		% Complete
01/29/19	2019-170	1,000	EL	Installing A Double Duplex Outlet A	
01/16/19	2019-228	20,000	CM	Sprint To Replace Three (3) Anten	
12/20/18	2019-214	20,000	CM	Verizon To Replace Six (6) Antenn	
12/13/18	2019-207	5,000	MS	"Build Two Non Load Bearing Wall	
11/19/18	2019-183	24,963	WIN	Replacement Of Windows On The	

Sales/Ownership History

Transfer Date	Price	Type	Validity	Deed Reference	Deed Type	Grantee
			No Consideration		No Consideration	ROCKY HILL TOWN OF

Inspection Witnessed By _____

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 5 of 7	Printed: April 22, 2019

Building Information

Year Built/Eff Year	1967 /
Building #	5
Structure Type	Library
Identical Units	1
Total Units	1
Grade	B
# Covered Parking	
# Uncovered Parking	
DBA	LIBRARY

Building Other Features

Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units
1	Porch, Open		120	1		1
1	Elevator Electric Pasngr		2,500	100	2	1

Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units

Interior/Exterior Information

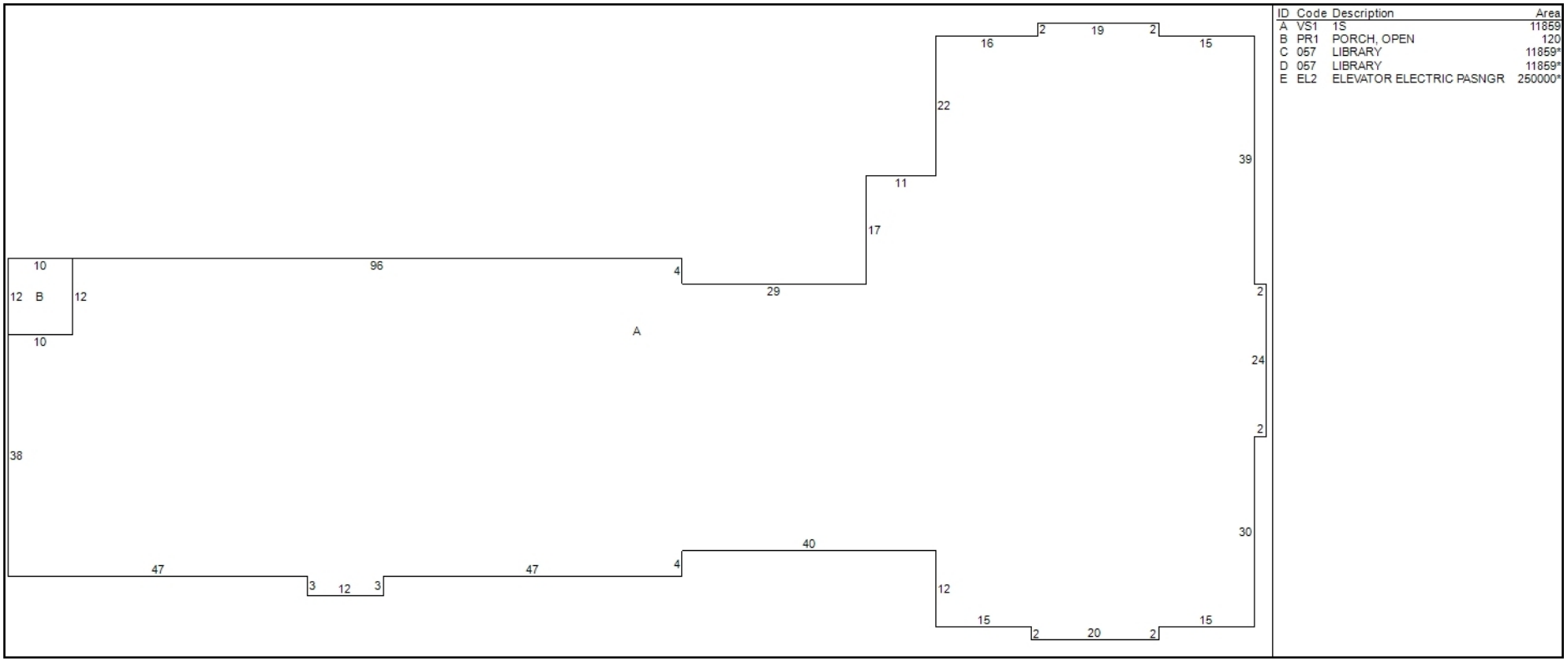
Line	Level From	To	Int Fin	Area	Perim	Use Type	Wall Height	Ext Walls	Construction	Partitions	Heating	Cooling	Plumbing	Physical	Functional
1	B1	B1		11,859	436	Library	12	Brick & Con	Fire Resistant	Normal	Hot Air	Central	Normal	4	3
2	01	01		11,859	436	Library	12	Brick & Con	Fire Resistant	Normal	Hot Air	Central	Normal	4	3

Interior/Exterior Valuation Detail

Line	Area	Use Type	% Good	% Complete	Use Value/RCNLD
1	11,859	Library	60		1,267,100
2	11,859	Library	60		1,346,600

Outbuilding Data

Line	Type	Yr Blt	Meas1	Meas2	Qty	Area	Grade	Phy Fun	Value



Addtional Property Photos

10-045-003 11/05/2012

10-045-004 12/07/2012

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 5 of 7	Printed: April 22, 2019

Income Detail (Includes all Buildings on Parcel)

Use Grp	Mod Type	Inc Mod	Model Description	Units	Net Area	Income Rate	Econ Adjust	Potential Gross Income	Vac Model	Vac Adj	Additional Income	Effective Gross Income	Expense Model %	Expense Adj %	Expense Adj	Other Expenses	Total Expenses	Net Operating Income
00	S	1	Shell Income Use Grou	0	53,448						0							
04	S	1	Office Low Rise 1-3 Sto	0	52,930	18.00		952,740	10		0	857,466	30			257,240	257,240	600,226

Apartment Detail - Building 5 of 7

Line	Use Type	Per Bldg	Beds	Baths	Units	Rent	Income

Building Cost Detail - Building 5 of 7

Total Gross Building Area	23,718
Replace, Cost New Less Depr	2,613,700
Percent Complete	100
Number of Identical Units	1
Economic Condition Factor	
Final Building Value	2,613,700
Value per SF	110.20

Notes - Building 5 of 7

Income Summary (Includes all Building on Parcel)

Total Net Income	600,226
Capitalization Rate	0.105000
Sub total	5,716,440
Residual Land Value	
Final Income Value	5,716,440
Total Gross Rent Area	52,930
Total Gross Building Area	106,378

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Map ID: 6852	Class: Municipal Comrcl	Card: 6 of 7	Printed: April 22, 2019

CURRENT OWNER

ROCKY HILL TOWN OF
MUNICIPAL COMPLEX
761 OLD MAIN STREET
ROCKY HILL CT 06067

GENERAL INFORMATION

Living Units	
Neighborhood	C
Alternate Id	007389
Vol / Pg	
District	
Zoning	R-20
Class	EXEMPT

Property Notes

10-045-003 11/05/2012

Land Information

Type		Size	Influence Factors	Influence %	Value
Primary	AC	8.5600			3,046,000

Total Acres: 8.56
Spot: Location:

Assessment Information

	Assessed	Appraised	Cost	Income	Market
Land	2,132,200	3,046,000	3,046,000	3,046,000	0
Building	6,736,520	9,623,600	9,623,600	2,670,400	0
Total	8,868,720	12,669,600	12,669,600	5,716,400	0

Value Flag COST APPROACH
Gross Building:

Manual Override Reason
Base Date of Value 10/01/2018
Effective Date of Value 10/01/2018

Entrance Information

Date	ID	Entry Code	Source
10/01/14	CL	Office Review Change	From Conversion
10/09/12	ST	Measured + 1visit	From Conversion
05/23/07	ST	Reval Inspection	Owner

Permit Information

Date Issued	Number	Price	Purpose		% Complete
01/29/19	2019-170	1,000	EL	Installing A Double Duplex Outlet A	
01/16/19	2019-228	20,000	CM	Sprint To Replace Three (3) Anten	
12/20/18	2019-214	20,000	CM	Verizon To Replace Six (6) Antenn	
12/13/18	2019-207	5,000	MS	"Build Two Non Load Bearing Wall	
11/19/18	2019-183	24,963	WIN	Replacement Of Windows On The	

Sales/Ownership History

Transfer Date	Price	Type	Validity	Deed Reference	Deed Type	Grantee
			No Consideration		No Consideration	ROCKY HILL TOWN OF

Inspection Witnessed By _____

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 6 of 7	Printed: April 22, 2019

Building Information

Year Built/Eff Year	1920 /
Building #	6
Structure Type	Office Bldg H-R 5st
Identical Units	1
Total Units	1
Grade	A
# Covered Parking	
# Uncovered Parking	
DBA	FIRE MUSEUM

Building Other Features

Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units	Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units

Interior/Exterior Information

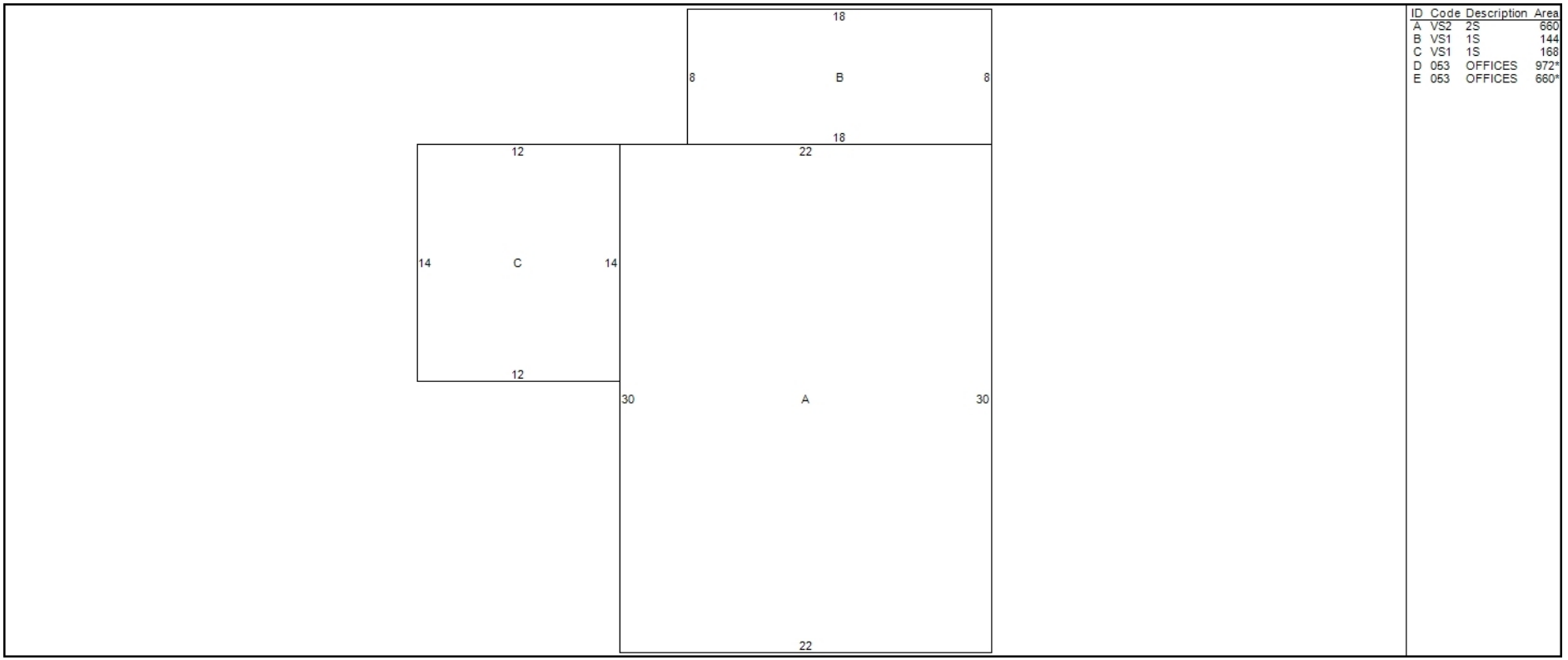
Line	Level From	To	Int Fin	Area	Perim	Use Type	Wall Height	Ext Walls	Construction	Partitions	Heating	Cooling	Plumbing	Physical	Functional
1	01	01		972	124	Offices	12	Brick & Con	Wood Frame/Joist/B	Normal	Electric	None	Normal	5	3
2	02	02		660	102	Offices	12	Brick & Con	Wood Frame/Joist/B	Normal	Electric	None	Normal	5	3

Interior/Exterior Valuation Detail

Line	Area	Use Type	% Good	% Complete	Use Value/RCNLD
1	972	Offices	60		128,880
2	660	Offices	60		88,390

Outbuilding Data

Line	Type	Yr Blt	Meas1	Meas2	Qty	Area	Grade	Phy Fun	Value



ID	Code	Description	Area
A	VS2	2S	660
B	VS1	1S	144
C	VS1	1S	168
D	053	OFFICES	972*
E	053	OFFICES	660*

Addtional Property Photos

10-045-004 12/07/2012

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 6 of 7	Printed: April 22, 2019

Income Detail (Includes all Buildings on Parcel)

Use Grp	Mod Type	Inc Mod	Model Description	Units	Net Area	Income Rate	Econ Adjust	Potential Gross Income	Vac Model	Vac Adj	Additional Income	Effective Gross Income	Expense Model %	Expense Adj %	Expense Adj	Other Expenses	Total Expenses	Net Operating Income
00	S	1	Shell Income Use Grou	0	53,448						0							
04	S	1	Office Low Rise 1-3 Sto	0	52,930	18.00		952,740	10		0	857,466	30			257,240	257,240	600,226

Apartment Detail - Building 6 of 7

Line	Use Type	Per Bldg	Beds	Baths	Units	Rent	Income

Building Cost Detail - Building 6 of 7

Total Gross Building Area	1,632
Replace, Cost New Less Depr	217,270
Percent Complete	100
Number of Identical Units	1
Economic Condition Factor	
Final Building Value	217,270
Value per SF	133.13

Notes - Building 6 of 7

Income Summary (Includes all Building on Parcel)

Total Net Income	600,226
Capitalization Rate	0.105000
Sub total	5,716,440
Residual Land Value	
Final Income Value	5,716,440
Total Gross Rent Area	52,930
Total Gross Building Area	106,378

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Map ID: 6852	Class: Municipal Comrcl	Card: 7 of 7	Printed: April 22, 2019

CURRENT OWNER

ROCKY HILL TOWN OF
MUNICIPAL COMPLEX
761 OLD MAIN STREET
ROCKY HILL CT 06067

GENERAL INFORMATION

Living Units	
Neighborhood	C
Alternate Id	007389
Vol / Pg	
District	
Zoning	R-20
Class	EXEMPT

Property Notes

Land Information

Type		Size	Influence Factors	Influence %	Value
Primary	AC	8.5600			3,046,000

Total Acres: 8.56
Spot: Location:

Assessment Information

	Assessed	Appraised	Cost	Income	Market
Land	2,132,200	3,046,000	3,046,000	3,046,000	0
Building	6,736,520	9,623,600	9,623,600	2,670,400	0
Total	8,868,720	12,669,600	12,669,600	5,716,400	0

Value Flag COST APPROACH
Gross Building:

Manual Override Reason
Base Date of Value 10/01/2018
Effective Date of Value 10/01/2018

Entrance Information

Date	ID	Entry Code	Source
10/01/14	CL	Office Review Change	From Conversion
10/09/12	ST	Measured + 1visit	From Conversion
05/23/07	ST	Reval Inspection	Owner

Permit Information

Date Issued	Number	Price	Purpose		% Complete
01/29/19	2019-170	1,000	EL	Installing A Double Duplex Outlet A	
01/16/19	2019-228	20,000	CM	Sprint To Replace Three (3) Anten	
12/20/18	2019-214	20,000	CM	Verizon To Replace Six (6) Antenn	
12/13/18	2019-207	5,000	MS	"Build Two Non Load Bearing Wall	
11/19/18	2019-183	24,963	WIN	Replacement Of Windows On The	

Sales/Ownership History

Transfer Date	Price	Type	Validity	Deed Reference	Deed Type	Grantee
			No Consideration		No Consideration	ROCKY HILL TOWN OF

Inspection Witnessed By _____

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET | **Parcel Id: 6852** | **Class: Municipal Comrcl** | Card: 7 of 7 | Printed: April 22, 2019

Building Information

Year Built/Eff Year	1918 /
Building #	7
Structure Type	Office Bldg H-R 5st
Identical Units	1
Total Units	1
Grade	C
# Covered Parking	
# Uncovered Parking	
DBA	673 OLD MAIN ST - KENNEDY HOUS

Building Other Features

Line	Type	+/-	Meas1	Meas2	# Stops	Ident Units
1	Porch, Enclosed		80	1		1
1	Porch, Open		256	1		1

Interior/Exterior Information

Line	Level From	To	Int Fin	Area	Perim	Use Type	Wall Height	Ext Walls	Construction	Partitions	Heating	Cooling	Plumbing	Physical	Functional
1	B1	B1		800	114	Support Area	12	Brick Venee	Wood Frame/Joist/B	Normal	Hot Water/St	None	Normal	5	3
2	01	01		800	114	Offices	12	Brick Venee	Wood Frame/Joist/B	Normal	Hot Water/St	None	Normal	5	3
3	02	02		600	98	Offices	12	Brick Venee	Wood Frame/Joist/B	Normal	Hot Water/St	None	Normal	5	3

Interior/Exterior Valuation Detail

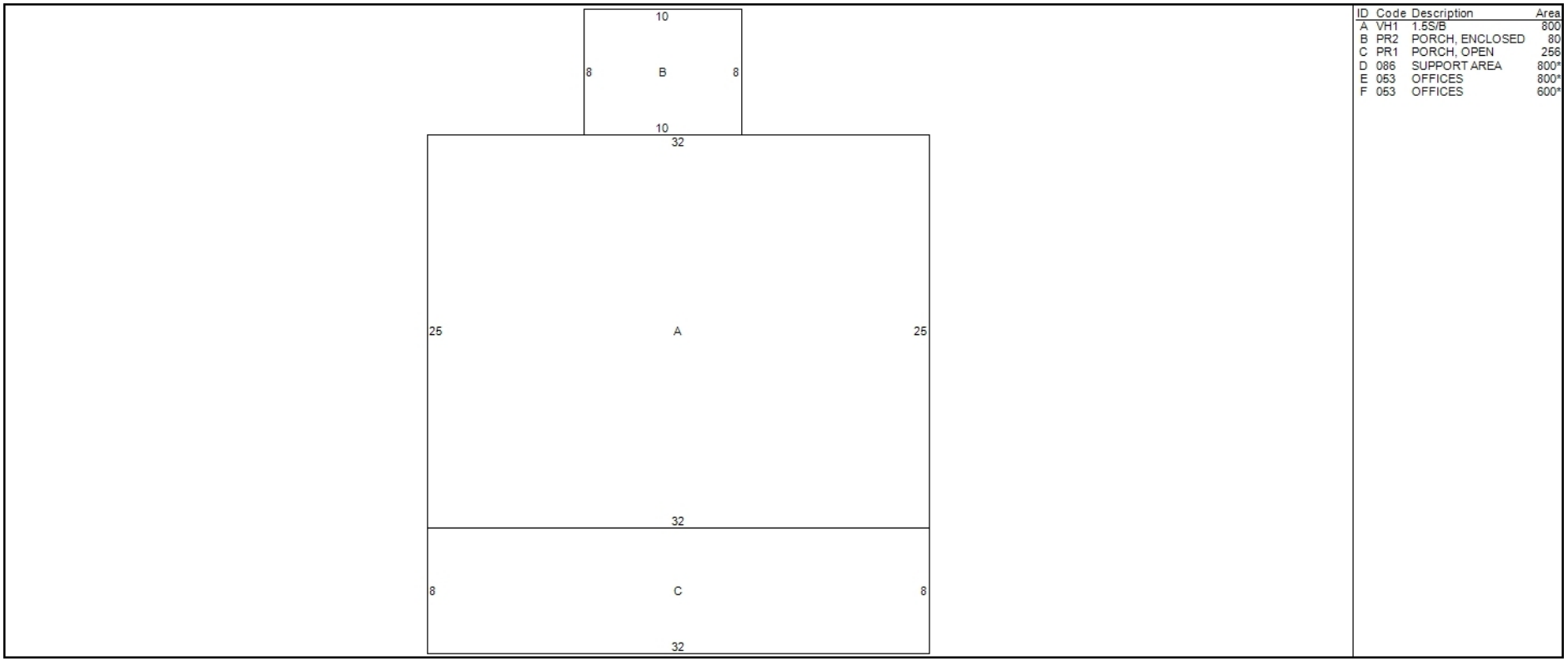
Line	Area	Use Type	% Good	% Complete	Use Value/RCNLD
1	800	Support Area	60		27,120
2	800	Offices	60		72,760
3	600	Offices	60		54,580

Outbuilding Data

Line	Type	Yr Blt	Meas1	Meas2	Qty	Area	Grade	Phy Fun	Value

tyler clt division **COMMERCIAL PROPERTY RECORD CARD** 2018 **TOWN OF ROCKY HILL**

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 7 of 7	Printed: April 22, 2019



ID	Code	Description	Area
A	VH1	1.5S/B	800
B	PR2	PORCH, ENCLOSED	80
C	PR1	PORCH, OPEN	256
D	086	SUPPORT AREA	800*
E	053	OFFICES	800*
F	053	OFFICES	600*

Addtional Property Photos

10-045-004 12/07/2012

10-045-006 12/07/2012

tyler clt division

COMMERCIAL PROPERTY RECORD CARD 2018

TOWN OF ROCKY HILL

Situs : 761 OLD MAIN STREET	Parcel Id: 6852	Class: Municipal Comrcl	Card: 7 of 7	Printed: April 22, 2019

Income Detail (Includes all Buildings on Parcel)

Use Grp	Mod Type	Inc Mod	Model Description	Units	Net Area	Income Rate	Econ Adjust	Potential Gross Income	Vac Model	Vac Adj	Additional Income	Effective Gross Income	Expense Model %	Expense Adj %	Expense Adj	Other Expenses	Total Expenses	Net Operating Income
00	S	1	Shell Income Use Grou	0	53,448						0							
04	S	1	Office Low Rise 1-3 Sto	0	52,930	18.00		952,740	10		0	857,466	30			257,240	257,240	600,226

Apartment Detail - Building 7 of 7

Line	Use Type	Per Bldg	Beds	Baths	Units	Rent	Income

Building Cost Detail - Building 7 of 7

Total Gross Building Area	2,200
Replace, Cost New Less Depr	154,460
Percent Complete	100
Number of Identical Units	1
Economic Condition Factor	
Final Building Value	154,460
Value per SF	70.21

Notes - Building 7 of 7

Income Summary (Includes all Building on Parcel)

Total Net Income	600,226
Capitalization Rate	0.105000
Sub total	5,716,440
Residual Land Value	
Final Income Value	5,716,440
Total Gross Rent Area	52,930
Total Gross Building Area	106,378


Library
Post Office
CHURCH ST
OLD MAIN ST
HARBOR VIEW DR
SILAS DEANE HWY
JOINERS RD
ESTHER RD
RIVERVIEW RD
WASHINGTON ST
GLASTONBURY AV
99
160

Exhibit C

Construction Drawings

SCOPE OF WORK

ITEMS TO BE INSTALLED ON EXISTING TOWER:

- REMOVE EXISTING ANTENNAS (TYP. OF 2 PER SECTOR, TOTAL OF 6)
- REMOVE EXISTING RADIO (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- REMOVE EXISTING (6) 1-5/8" COAX CABLES.

- INSTALL T-MOBILE ANTENNA (APXVAARR24_43-U-NA20) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL T-MOBILE ANTENNA (AIR32 KRD901146-1_B66A_B2A) (TYP OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL T-MOBILE RADIO (4449 B71+B12) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL T-MOBILE FIBER JUMPER CABLES (TYP. OF 2 FOR 2 SECTORS, TOTAL OF 4.).
- INSTALL T-MOBILE 6x12 HCS HYBRID CABLE (TOTAL OF 3).

ITEMS TO BE INSTALLED ON EXISTING EQUIPMENT PAD:

- REMOVE XMU & DU.
- REPLACE (1) DU WITH (1) BASE BAND 6630 FOR LTE.
- INSTALL (1) ERICSSON BASEBAND 6630 FOR FUTURE 5G N600.
- REPLACE (1) 60A-2P BREAKER WITH (1) 125A-2P BREAKER IN PPC CABINET.

ITEMS TO REMAIN:

- (3) ANTENNAS, (3) TMAS, (6) COAX CABLES, (1) HYBRID CABLE.

SITE ADDRESS:	699 OLD MAIN ST ROCKY HILL, CT 06067
LATITUDE (NAD 83):	N 41° 40' 5.77"
LONGITUDE (NAD 83):	W 72° 38' 16.93"
COUNTY:	HARTFORD
JURISDICTION:	T.B.D.
LANDLORD:	CROWN CASTLE INTERNATIONAL 500 W. CUMMINGS PARK, STE 3600 WOBURN, MA 01801
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	150.8'
RAD CENTER:	150'
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
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S-1	PROPOSED TOWER ELEVATION & ANTENNA LAYOUT PLAN
S-2	EQUIPMENT DETAILS
RF-1	ANTENNA INFORMATION CHART
RF-2	RF EQUIPMENT SCHEMATIC
E-1	ONE LINE DIAGRAM
G-1	GROUNDING RISER DIAGRAM

CROWN CASTLE SITE ID #: 827050
CROWN CASTLE SITE NAME: ROCKY HILL/RTE 160 1

ENGINEERING

2018 CONNECTICUT STATE BUILDING CODE
2018 AMENDMENT WITH 2015 INTERNATIONAL BUILDING CODE
2009 ICC/ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
2015 INTERNATIONAL MECHANICAL CODE
2015 INTERNATIONAL ENERGY CONSERVATION CODE
2017 NATIONAL ELECTRICAL CODE (NFPA 70 2017)
ANSI/TIA-222-G

NOTE:

ALL CONSTRUCTION ACTIVITIES ARE TO BE COMPLETED DIRECTLY THROUGH CROWN. CONTRACTOR MUST HAVE CONSTRUCTION PO AND NTP FROM CROWN DIRECT IN ORDER TO BEGIN. PRE-APPROVAL TO ENTER THE PROPERTY MUST BE OBTAINED. FOR ACCESS AUTHORIZATION, PLEASE CONTACT CROWN.

T··Mobile®

L600 PROJECT
SITE NUMBER: CT11058C

SITE NAME: ROCKY HILL/RTE 160 1

CROWN SITE NAME: ROCKY HILL/RTE 160 1

BU#: 827050

T-MOBILE RAN TEMPLATE: 67D92DB

VICINITY MAP

MERGE ONTO I-90 E. KEEP RIGHT TO CONTINUE ON GOVERNOR THOMAS E. DEWEY THRUWAY/NEW YORK STATE THRUWAY, FOLLOW SIGNS FOR I-87 S/NEW YORK/BOSTON. CONTINUE ONTO I-87 S/GOVERNOR THOMAS E. DEWEY THRUWAY/NEW YORK STATE THRUWAY. TAKE EXIT 21A TOWARD I-90 E/MASS TURNPIKE/BOSTON. CONTINUE ONTO NY-912M E. CONTINUE ONTO I-90 E. (ENTERING MASSACHUSETTS). TAKE EXIT 4 TO MERGE ONTO I-91 S TOWARD SPRINGFIELD. KEEP LEFT TO STAY ON I-91 S. TAKE EXIT 24 TO MERGE ONTO CT-99 S TOWARD ROCKY HILL CONTINUE ON CT-99 S. DRIVE TO OLD MAIN ST. MERGE ONTO CT-99 S. TURN LEFT ONTO PARSONAGE ST. TURN RIGHT ONTO OLD MAIN ST.
DESTINATION WILL BE ON THE RIGHT

GENERAL NOTES

1. 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.
2. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
3. HANDICAP REQUIREMENTS ARE NOT REQUIRED.
4. THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.
5. ALL NEW MATERIAL SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE. EQUIPMENT, ANTENNAS/RADIOS AND CABLES FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.
6. NO COMMERCIAL SIGNAGE IS PROPOSED.

CALL CONNECTICUT ONE CALL
(800) 922-4455
CALL 3 WORKING DAYS
BEFORE YOU DIG!

811

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
24058
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	JT
CHECKED BY:	DC

SUBMITTALS

1	08/19/19	ISSUED FOR CONSTRUCTION
0	07/18/19	ISSUED FOR PERMITTING

ROCKY HILL/RTE 160 1
CT11058C
ROCKY HILL/RTE 160 1
827050
699 OLD MAIN ST
ROCKY HILL, CT 06067

TITLE SHEET

T-1

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE; BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS, INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STD-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE" AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: T-MOBILE
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 20,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT BUNDLES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING, SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW " CT11058C".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (-)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
24055
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO: ERCC0004
DRAWN BY: JT
CHECKED BY: DC

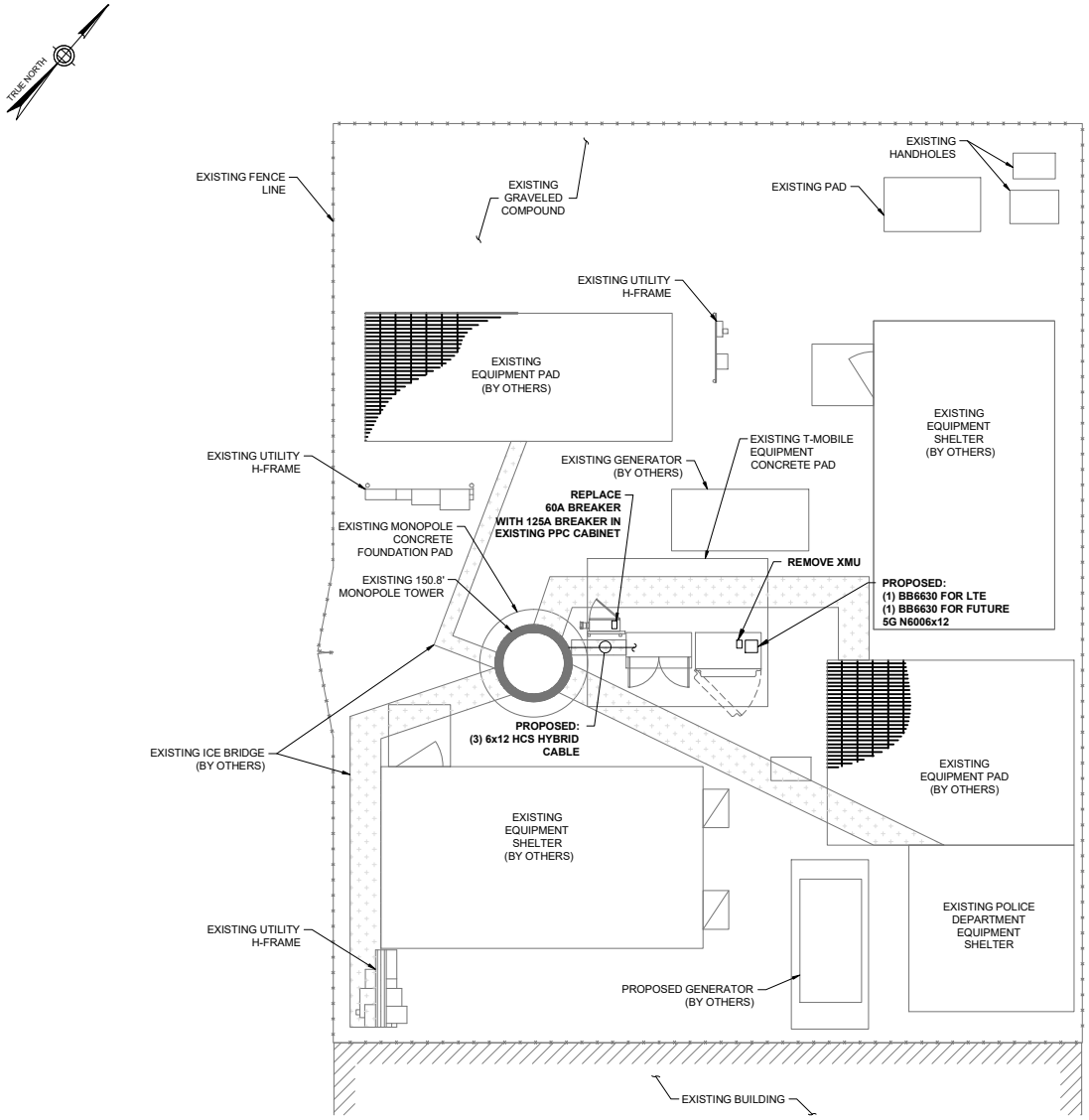
SUBMITTALS

1	08/19/19	ISSUED FOR CONSTRUCTION
0	07/18/19	ISSUED FOR PERMITTING

ROCKY HILL/RTE 160 1
CT11058C
ROCKY HILL/RTE 160 1
827050
699 OLD MAIN ST
ROCKY HILL, CT 06067

GENERAL NOTES

GN-1



NOTES:

1. PLAN BASED ON DRAWINGS BY CROWN CASTLE , CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.

1 SITE PLAN

SCALE: 1/4" = 1'-0"

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34955
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO: ERCC0004
DRAWN BY: JT
CHECKED BY: DC

SUBMITTALS

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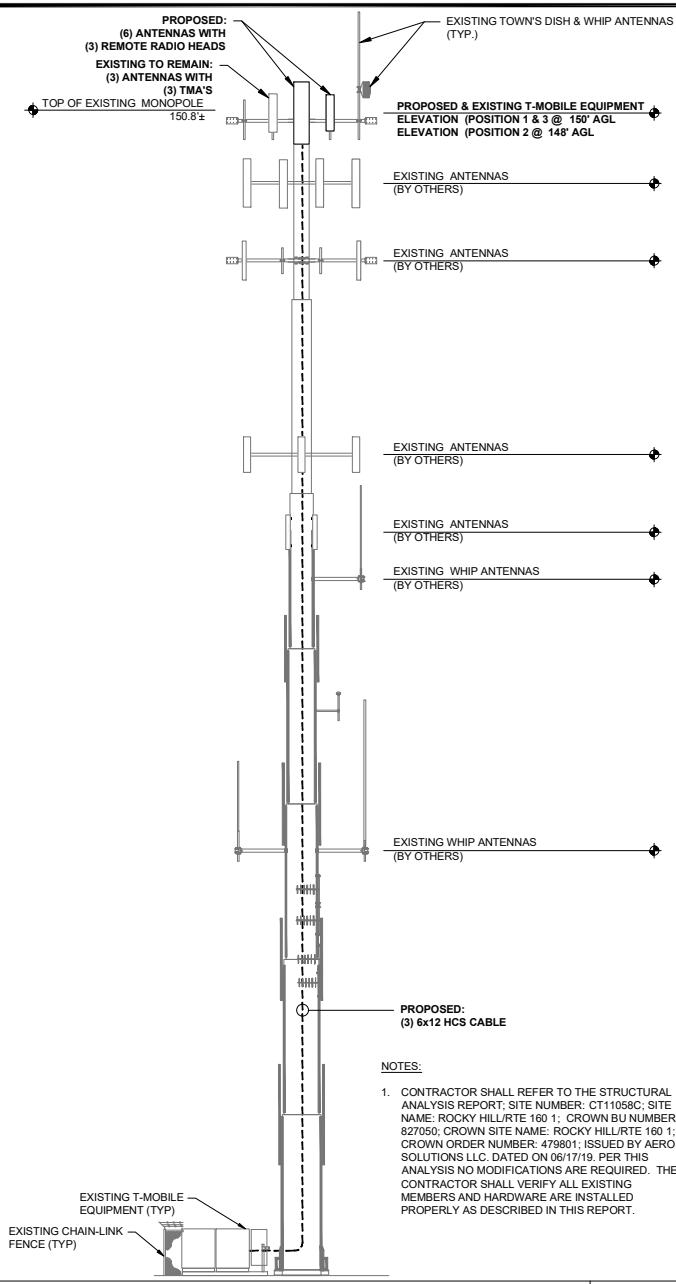
CT11058C
ROCKY HILL/RTE 160 1
827050
699 OLD MAIN ST
ROCKY HILL, CT 06067

SITE PLAN

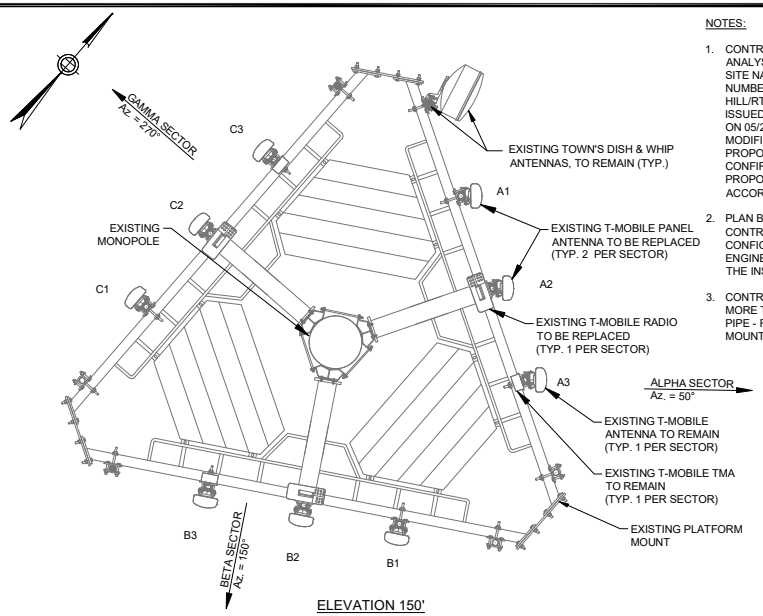
C-1



NOTES:

1. CONTRACTOR SHALL REFER TO THE STRUCTURAL ANALYSIS REPORT; SITE NUMBER: CT11058C; SITE NAME: ROCKY HILL/RTE 160 1; CROWN BU NUMBER: 827050; CROWN SITE NAME: ROCKY HILL/RTE 160 1; CROWN ORDER NUMBER: 479801; ISSUED BY AERO SOLUTIONS LLC. DATED ON 06/17/19. PER THIS ANALYSIS NO MODIFICATIONS ARE REQUIRED. THE CONTRACTOR SHALL VERIFY ALL EXISTING MEMBERS AND HARDWARE ARE INSTALLED PROPERLY AS DESCRIBED IN THIS REPORT.

1 TOWER ELEVATION — SCALE: 1/8" = 1'-0"

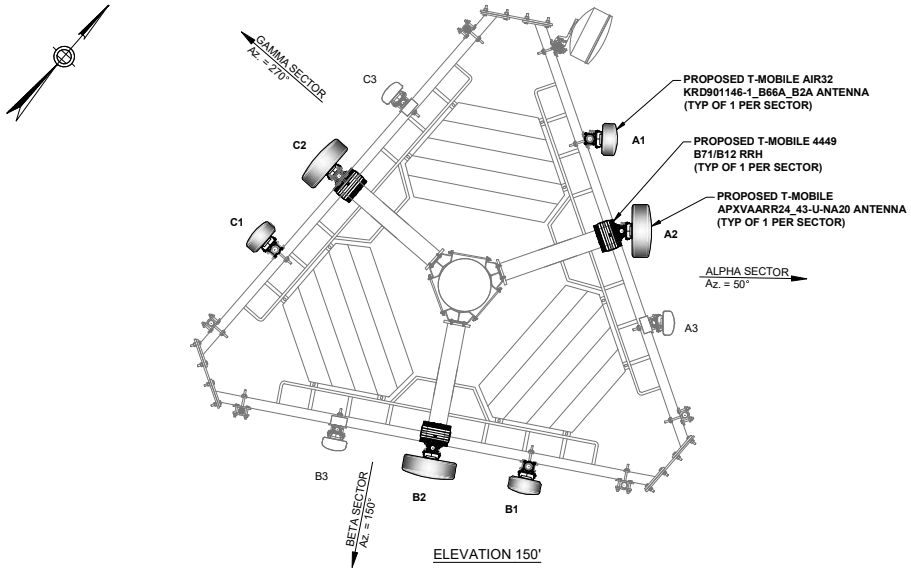


ELEVATION 150'

NOTES:

1. CONTRACTOR SHALL REFER TO THE MOUNT ANALYSIS REPORT; SITE NUMBER: CT11058C; SITE NAME: ROCKY HILL/RTE 160 1; CROWN BU NUMBER: 827050; CROWN SITE NAME: ROCKY HILL/RTE 160 1; CROWN ORDER NUMBER: 479801; ISSUED BY PAUL J FORD AND COMPANY, DATED ON 05/28/2019. PER THIS ANALYSIS NO MODIFICATIONS ARE REQUIRED FOR THE PROPOSED EQUIPMENT. CONTRACTOR SHALL CONFIRM ALL T-MOBILE EXISTING AND PROPOSED EQUIPMENT ARE INSTALLED IN ACCORDANCE WITH THIS REPORT.
2. PLAN BASED ON DRAWINGS BY CROWN CASTLE. CONTRACTOR TO VERIFY FINAL RF CONFIGURATION AND NOTIFY CARRIER AND ENGINEER W/ ANY DISCREPANCIES PRIOR TO THE INSTALLATION.
3. CONTRACTOR SHALL NOT EXCEED MOUNTING MORE THAN (2) RRHS PER ANTENNA MOUNTING PIPE - RELOCATE TO AN ADJACENT ANTENNA MOUNTING PIPE AS NEEDED.

2 EXISTING ANTENNA LAYOUT — SCALE: N.T.S.



ELEVATION 150'

3 PROPOSED ANTENNA LAYOUT — SCALE: N.T.S.

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34055
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO: ERCC0004
DRAWN BY: JT
CHECKED BY: DC

SUBMITTALS

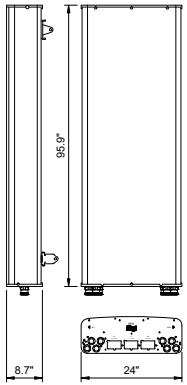
1	08/19/19	ISSUED FOR CONSTRUCTION
0	07/18/19	ISSUED FOR PERMITTING

ROCKY HILL/RTE 160 1
CT11058C
ROCKY HILL/RTE 160 1
827050
699 OLD MAIN ST
ROCKY HILL, CT 06067

PROPOSED TOWER ELEVATION & ANTENNA LAYOUT PLAN

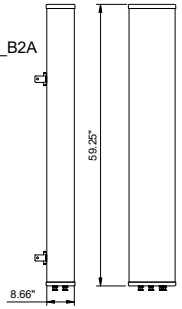
S-1

MANUFACTURER:	RFS
MODEL NO.:	APXVAARR24_43-U-NA20
COLOR:	LIGHT GRAY
DIMENSIONS (LxWxD):	95.9" x 24" x 8.7" 2436mm x 609mm x 222mm
WEIGHT (lbs):	58
CONNECTOR:	8 x 4.3-10 FEMALE AT BOTTOM + 6 AISG CONNECTORS (3 MALE/3 FEMALE)
SURVIVAL/RATED WIND VELOCITY (KM/H):	241 (150)



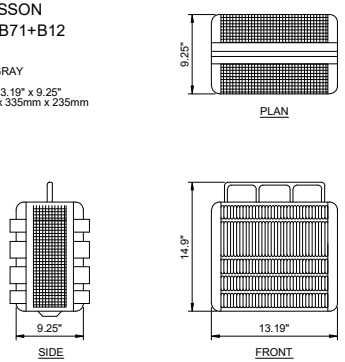
1 ANTENNA SPECIFICATIONS SCALE: N.T.S.

MANUFACTURER:	ERICSSON
MODEL NO.:	AIR32 KRD901146-1_B66A_B2A
COLOR:	LIGHT GRAY
DIMENSIONS (LxWxD):	59.25" x 12.87" x 8.66" 1505mm x 327mm x 220mm
WEIGHT (lbs):	153 69.4kg
CONNECTOR:	7/16 IEC-169-4 INSERT TYPE
CABLE CONNECTOR:	7/16 INSERT-TYPE ON BOTH ENDS
MAX. WIND LOAD:	@ 42m/s 900 N

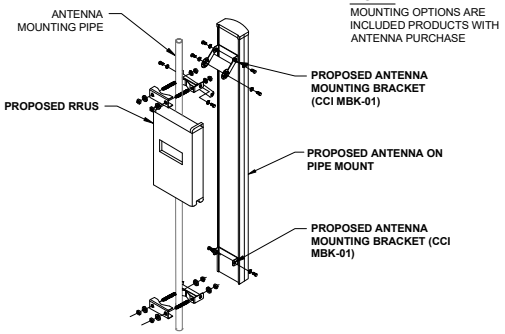


2 SCALE: N.T.S.

MANUFACTURER:	ERICSSON
MODEL NO.:	4449 B71+B12
COLOR:	LIGHT GRAY
DIMENSIONS (LxWxD):	14.9" x 13.19" x 9.25" 378mm x 335mm x 235mm
WEIGHT (lbs):	74

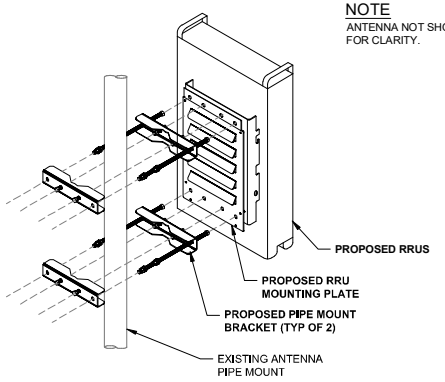


3 RRUS SPECIFICATIONS SCALE: N.T.S.



NOTE
MOUNTING OPTIONS ARE INCLUDED PRODUCTS WITH ANTENNA PURCHASE

4 ANTENNA MOUNTING DETAIL SCALE: N.T.S.



NOTE
ANTENNA NOT SHOWN FOR CLARITY.

5 RRU MOUNTING DETAIL SCALE: N.T.S.

6 DETAIL NOT USED SCALE: N.T.S.

7 DETAIL NOT USED SCALE: N.T.S.

8 DETAIL NOT USED SCALE: N.T.S.

9 DETAIL NOT USED SCALE: N.T.S.

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
21058
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO: ERCC0004
DRAWN BY: JT
CHECKED BY: DC

SUBMITTALS

1	08/19/19	ISSUED FOR CONSTRUCTION
0	07/18/19	ISSUED FOR PERMITTING

ROCKY HILL/RTE 160 1
CT11058C
ROCKY HILL/RTE 160 1
827050
699 OLD MAIN ST
ROCKY HILL, CT 06067

EQUIPMENT DETAILS

S-2

67D92DB - TOWER TOP EQUIPMENT SCHEDULE (RE: CT11058C_L600_5.2)														
ANTENNA NUMBER (FROM L TO R)	ANTENNA MODEL	ANTENNA AZIMUTH	MECH. TILT	ELEC. TILT	ANTENNA CENTERLINE FROM GROUND	TMA/RRUS MODEL	TMA/RRUS QUANTITY	COAX/HYBRID CABLE			JUMPERS		
								SIZE/TYPE	QUANTITY	LENGTH	TYPE	QTY	LENGTH
A1	**AIR32 KRD901146-1_B66A_B2A**	**50°**	**0°**	**2°**	**150'**	-	-	-	-	-	FIBER	4	15'
A2	**APXVAARR24_43-U-NA20**	**50°**	**0°**	**2°**	**148'**	**RADIO 4449 B71+B12**	**1**	**6x12 HCS**	**1**	**170'**	FIBER	2	15'
A3	AIR21 KRC118023-1_B2A_B4P	50°	0°	2°	150'	TWIN STYLE 1B-AWS TMA	1	1-5/8" COAX	2	170'	FIBER	2	15'
B1	**AIR32 KRD901146-1_B66A_B2A**	**150°**	**0°**	**2°**	**148'**	-	-	9X18 HCS FIBER	1	170'	FIBER	4	15'
B2	**APXVAARR24_43-U-NA20**	**150°**	**0°**	**2°**	**148'**	**RADIO 4449 B71+B12**	**1**	**6x12 HCS**	**1**	**170'**	FIBER	2	15'
B3	AIR21 KRC118023-1_B2A_B4P	150°	0°	2°	150'	TWIN STYLE 1B-AWS TMA	1	1-5/8" COAX	2	170'	FIBER	2	15'
C1	**AIR32 KRD901146-1_B66A_B2A**	**270°**	**0°**	**2°**	**150'**	-	-	-	-	-	FIBER	4	15'
C2	**APXVAARR24_43-U-NA20**	**270°**	**0°**	**2°**	**148'**	**RADIO 4449 B71+B12**	**1**	**6x12 HCS**	**1**	**170'**	FIBER	2	15'
C3	AIR21 KRC118023-1_B2A_B4P	270°	0°	2°	150'	TWIN STYLE 1B-AWS TMA	1	1-5/8" COAX	2	170'	FIBER	2	15'

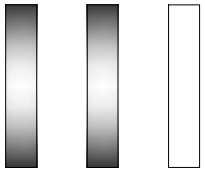
NOTES:

1. EQUIPMENT LISTED IN **BOLD**, DELINEATES THAT THE EQUIPMENT IS PROPOSED
2. * DENOTES THAT EQUIPMENT IS TO BE GROUND MOUNTED

1 EQUIPMENT INFORMATION CHART

SCALE: NONE

KEY
EXISTING
PROPOSED
KEY
ANTENNA POSITION AS VIEW FROM BEHIND



EQUIPMENT NOTES:

1. THE HYBRID CABLE LENGTH SHOW IS ONLY AN ESTIMATE AND SHOULD NOT BE USED FOR ORDERING MATERIALS. CONFIRM THE REQUIRED HYBRID CABLE LENGTH WITH T-MOBILE PRIOR TO ORDERING OR INSTALLATION.
2. THE CONTRACTOR SHALL TEST THE OPTICAL FIBER AFTER INSTALLATION IN ACCORDANCE WITH T-MOBILE STANDARDS AND SUPPLY THE RESULTS TO T-MOBILE.
3. THE CONTRACTOR SHALL CONFIRM THE TOWER TOP EQUIPMENT LIST ABOVE WITH THE FINAL T-MOBILE RFDS PRIOR TO INSTALLATION.
4. ALL EXISTING AND PROPOSED ANTENNA CABLES SHALL BE COLOR CODED PER T-MOBILE STANDARDS.
5. REFER TO EQUIPMENT INSTALLATION STANDARDS FOR ADDITIONAL INFORMATION.
6. REFER TO EQUIPMENT MANUFACTURER'S SPECIFICATION SHEETS FOR ADDITIONAL INFORMATION NOT LISTED ABOVE.

2 ANTENNA KEY

SCALE: NONE

67D92DB - TOWER LOADING SUMMARY				
EQUIPMENT TYPE	EXISTING QUANTITY	QUANTITY REMOVED	QUANTITY ADDED	TOTAL QUANTITY
PANEL ANTENNA	9	6	6	9
COAX CABLE	12	6	0	6
HYBRID CABLE	1	0	3	4
FIBER JUMPER	24	0	0	24
COAX JUMPER	0	0	0	0
TMA	3	0	0	3
RADIO	3	3	3	3

3 ANTENNA & CABLE SCHEDULE

SCALE: NONE

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
31058
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO: ERCC0004
DRAWN BY: JT
CHECKED BY: DC

SUBMITTALS

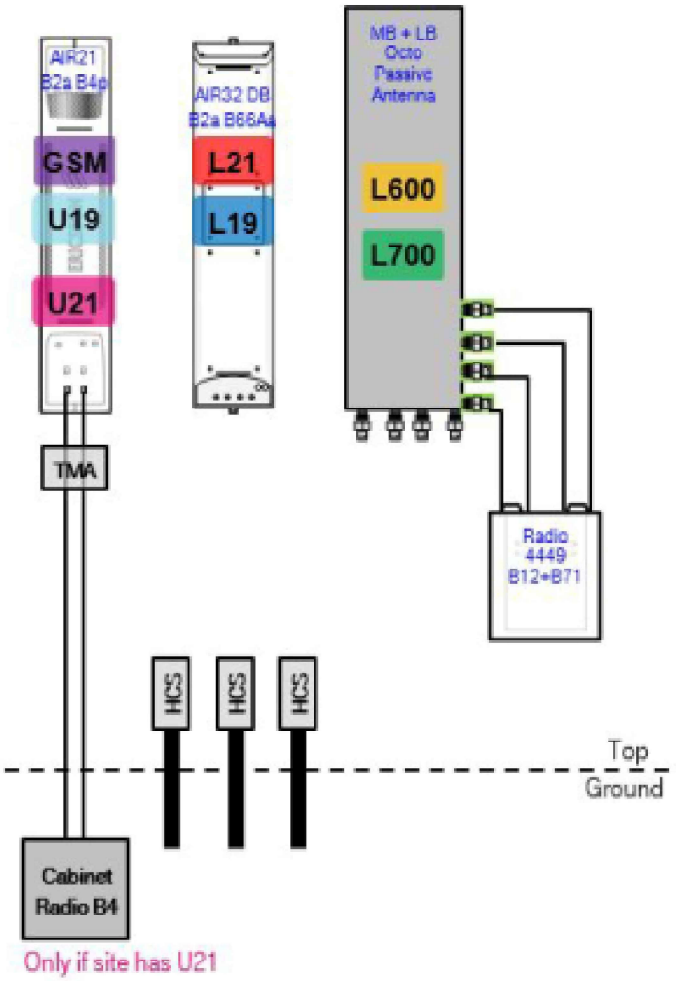
1	08/19/19	ISSUED FOR CONSTRUCTION
0	07/18/19	ISSUED FOR PERMITTING

ROCKY HILL/RTE 160 1
CT11058C
ROCKY HILL/RTE 160 1
827050
699 OLD MAIN ST
ROCKY HILL, CT 06067

ANTENNA INFORMATION CHART

RF-1

SITE CONFIGURATION: 67D92DB



1 RF EQUIPMENT SCHEMATIC

SCALE: NONE

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
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3 CORPORATE PARK DRIVE
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31055
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827050
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ROCKY HILL, CT 06067

RF EQUIPMENT SCHEMATIC

RF-2

ONE LINE DIAGRAM NOTES:

1. ELECTRICAL SERVICE SHALL BE 200A, 240/120V, 1Ø, 3W

2. FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT, REFER TO VENDOR PRINTS PROVIDED BY EQUIPMENT MANUFACTURER.

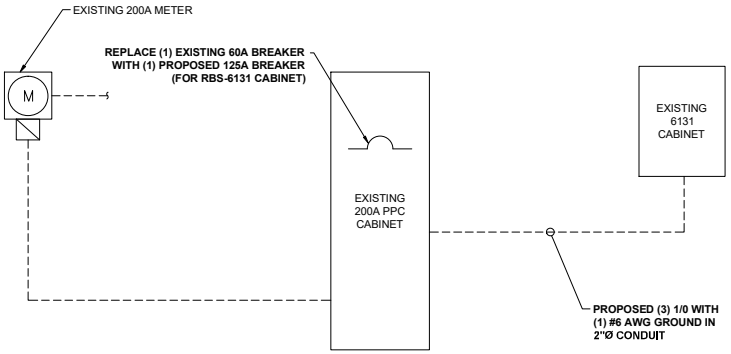
NOTES:

1. CONTRACTOR SHALL VERIFY AVAILABLE FAULT CURRENT WITH POWER COMPANY AND ENSURE ALL ELECTRICAL EQUIPMENT IS SUITABLE FOR AVAILABLE FAULT CURRENT.

2. CONTRACTOR SHALL COORDINATE UTILITY SERVICES WITH LOCAL UTILITY COMPANIES. VERIFY ALL REQUIREMENTS WITH UTILITY COMPANY STANDARDS.

3. ONE-LINE DIAGRAM IS SCHEMATIC ONLY AND NOT INDICATIVE OF ACTUAL EQUIPMENT LAYOUT.

4. CONTRACTOR SHALL LABEL METER SOCKET WITH SERVICE OWNER NAMEPLATE W/ 1/2" MINIMUM LETTERS.



1 ONE LINE DIAGRAM

SCALE: NONE

T-Mobile

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

CROWN CASTLE

3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065

JACOBS
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120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34155
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO: ERCC0004

DRAWN BY: JT

CHECKED BY: DC

SUBMITTALS

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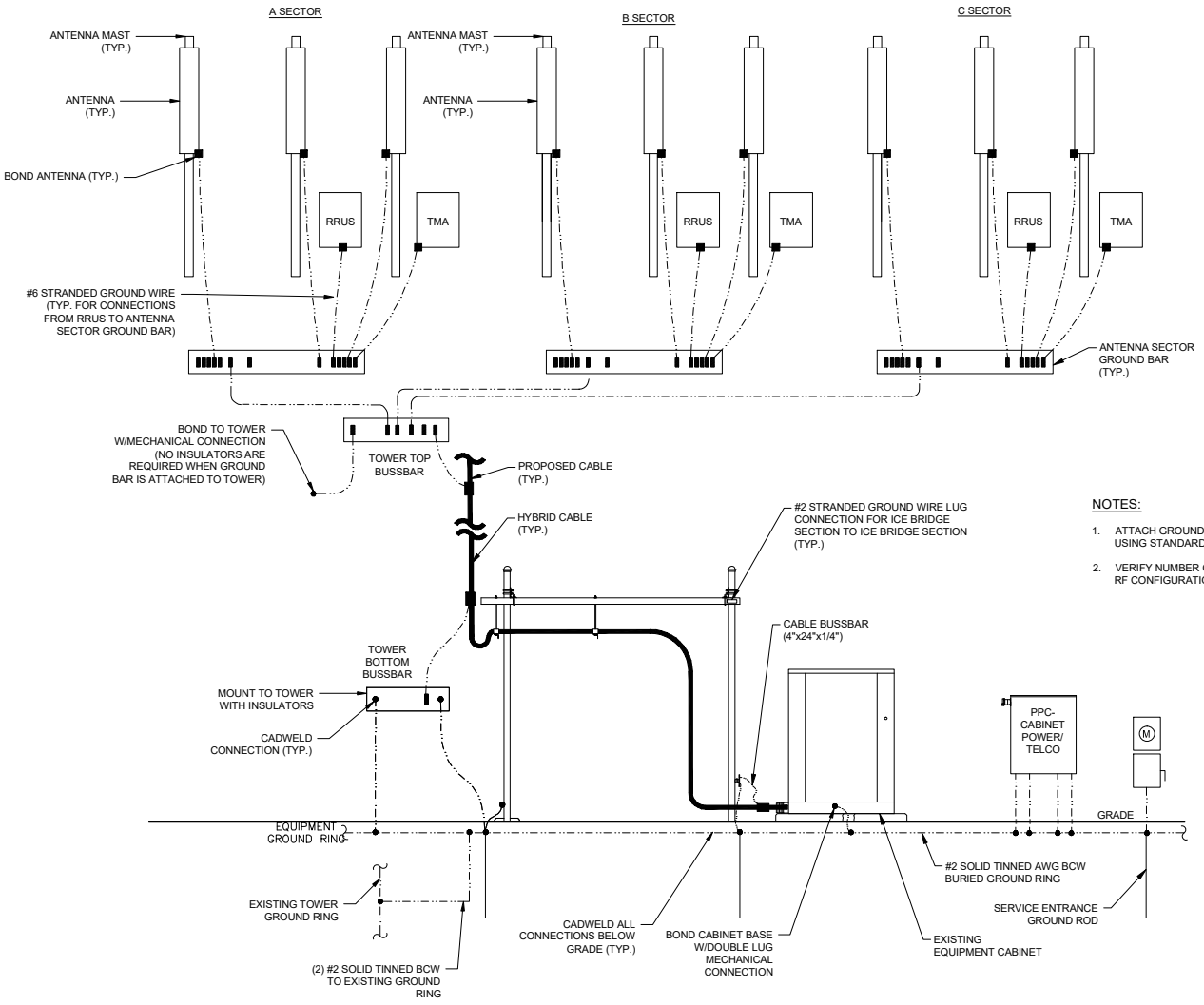
ROCKY HILL/RTE 160 1
CT11058C
ROCKY HILL/RTE 160 1
827050
699 OLD MAIN ST
ROCKY HILL, CT 06067

ONE LINE DIAGRAM

E-1



NOTES:

1. ATTACH GROUND BAR DIRECTLY TO THE TOWER USING STANDARD ADAPTER.
2. VERIFY NUMBER OF CABLES/TMAS PER T-MOBILE RF CONFIGURATION.

GROUNDING NOTES:

1. BELOW GROUND ALL GROUNDING CONDUCTORS TO BE #2 AWG SOLID TINNED BARE COPPER WIRE (BCW) U.O.N.
2. ABOVE GROUND ALL GROUNDING CONDUCTORS TO BE #2 AWG STRANDED INSULATED COPPER WIRE U.O.N.
3. PROVIDE BONDING AND GROUNDING CONDUCTORS WITH GREEN TYPE THWN INSULATION, U.O.N.
4. LEAVE 4' EXCESS GROUND WIRE COILED UP ABOVE GRADE. SEAL/WEATHERPROOF CONDUIT.

1 GROUNDING RISER DIAGRAM — SCALE: N.T.S.

T-MOBILE NORTHEAST LLC
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120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34555
LICENSED PROFESSIONAL ENGINEER

PROJECT NO: ERCC0004
DRAWN BY: JT
CHECKED BY: DC

SUBMITTALS

1	08/19/19	ISSUED FOR CONSTRUCTION
0	07/18/19	ISSUED FOR PERMITTING

ROCKY HILL/RTE 160 1
CT11058C
ROCKY HILL/RTE 160 1
827050
699 OLD MAIN ST
ROCKY HILL, CT 06067

GROUNDING RISER DIAGRAM

G-1

Exhibit D

Structural Analysis Report

Date: **June 17, 2019**

Denice Nicholson
Crown Castle
3 Corporate Dr
Clifton Park, NY 12065

Aero Solutions LLC
5555 Central Ave., Suite 100
Boulder, CO 80301
Phone: 720-304-6882

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11058C
	Carrier Site Name:	Rocky Hill/ Rte 160_1
Crown Castle Designation:	**Crown Castle BU Number:**	827050
	Crown Castle Site Name:	Rocky Hill/ Rte 160_1
	Crown Castle JDE Job Number:	559253
	Crown Castle Work Order Number:	1748315
	Crown Castle Order Number:	479801 Rev. 0
Engineering Firm Designation:	**Aero Solutions LLC Project Number:**	003-19-0046
Site Data:	**699 Old Main St., Rocky Hill, Hartford County, CT** **Latitude *41° 40' 5.77"*, Longitude *-72° 38' 16.93"*** **148.5 Foot - Monopole Tower**	

Dear Denice Nicholson,

Aero Solutions is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

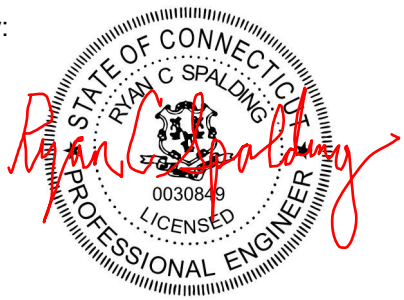
LC7: Proposed Equipment Configuration **Sufficient Capacity - 89.6%**

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 124 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Calculations Prepared by: Muhsen Sassi, Ph.D.

Respectfully submitted by:

Ryan Spalding
Structural Engineer
CT PE #30849
Expires: 01/31/2020



6.19.2019

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1) INTRODUCTION

This tower is a 148.5 ft Monopole tower designed by PIROD MANUFACTURES INC.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
148.0	149.0	3	Ericsson	AIR 32 B2A/B66AA w/ Mount Pipe	10	1-5/8
		3	Ericsson	RADIO 4449 B12/B71		
		3	Rfs Celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	Ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe		
		3	Ericsson	KRY 112 144/1		
	148.0	1	Tower Mounts	Platform Mount [LP 405-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
148.0	167.0	2	Dbspectra	DS4C06F36D-D	7	7/8
	154.0	1	Rfs Celwave	201-1N		
	152.0	1	Radiowaves	HPD2-4.7		
140.0	140.0	1	Andrew	LNX-6514DS-A1M w/ Mount Pipe	7 1	1-5/8 1-1/4
		5	Commscope	LNX-6514DS-A1M w/ Mount Pipe		
		6	Commscope	NNHH-65B-R4 w/ Mount Pipe		
		1	Raycap	RVZDC-6627-PF-48		
		1	Rfs Celwave	DB-T1-6Z-8AB-0Z		
		3	Samsung Telecommunications	RFV01U-D1A		
		3	Samsung Telecommunications	RFV01U-D2A		
		1	Tower Mounts	Platform Mount [LP 303-1]		
130.0	130.0	3	Alcatel Lucent	PCS 1900MHZ 4X45W-65MHZ	3	1-1/4

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
130.0	130.0	3	Alcatel Lucent	PCS 1900MHZ 4X45W-65MHZ	3 1	1-1/4 1-1/2
		6	Alcatel Lucent	RRH2X50-800		
		3	Commscope	NNVV-65B-R4 w/ Mount Pipe		
		3	Nokia	AAHC w/ Mount Pipe		
		1	Tower Mounts	Platform Mount [LP 405-1]		
105.0	105.0	1	Cci Antennas	HPA-65R-BUU-H6 w/ Mount Pipe	12 5 4	1-5/8 3/8 5/8
		2	Cci Antennas	HPA-65R-BUU-H8 w/ Mount Pipe		
		2	Cci Antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe		
		3	Ericsson	RRUS 11		
		3	Ericsson	RRUS 32		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 32 B66		
		3	Powerwave Technologies	1001940		
		3	Powerwave Technologies	7750.00 w/ Mount Pipe		
		6	Powerwave Technologies	LGP21401		
		6	Powerwave Technologies	LGP21903		
		1	Quintel Technology	QS66512-2 w/ Mount Pipe		
		2	Raycap	DC6-48-60-18-8F		
		1	Tower Mounts	Pipe Mount [PM 601-3]		
		1	Tower Mounts	Platform Mount [LP 303-1]		
		1	Tower Mounts	Side Arm Mount [SO 101-3]		
95.0	95.0	3	Rfs Celwave	APXV18-206516S-C	6	1-5/8
		1	Tower Mounts	Pipe Mount [PM 601-3]		
89.0	95.0	1	Rfs Celwave	1142-2C	1	1/2
	89.0	1	Tower Mounts	Side Arm Mount [SO 701-1]		
72.0	74.0	1	GPS	GPS_A	-	-
	72.0	1	Tower Mounts	Side Arm Mount [SO 701-1]		
54.0	64.0	1	Rfs Celwave	220-8N	2	7/8
	61.0	1	Rfs Celwave	201-1N		
	54.0	2	Tower Mounts	Side Arm Mount [SO 701-1]		
49.0	49.0	1	Decibel	DB436-C	1	7/8
		1	Tower Mounts	Pipe Mount [PM 601-1]		
45.0	45.0	1	Decibel	DB436-C	1	7/8
		1	Tower Mounts	Pipe Mount [PM 601-1]		
40.0	40.0	1	Decibel	DB436-C	1	7/8
		1	Tower Mounts	Pipe Mount [PM 601-1]		
37.0	37.0	1	Decibel	DB436-C	1	7/8
		1	Tower Mounts	Pipe Mount [PM 601-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Reports	French And Parrello,	3464587	CCISITES
Post-Modification Inspection	ETS, 129342, 3/13/2013	3774967	CCISITES
Post-Modification Inspection	TEP, 102048, 12/3/2010	3774968	CCISITES
Tower Foundation Drawings	PiRod, A-115401, 7/20/1999	3674483	CCISITES
Tower Manufacturer Drawings	PiRod, A-115401, 7/20/1999	3464619	CCISITES
Tower Proposed Reinforcement Design	PJF, 37513-1388, 05/20/2013	4424839	CCISITES
Post-Modification Inspection	ETS, 150012, 8/19/2015	5849862	CCISITES
Monopole Mapping	HighTower Solutions Inc., 7/21/2016	6388740	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Aero Solutions LLC should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
147.5 - 142.5	Pole	TP24x24x0.375	Pole	8.4%	Pass
142.5 - 137.5	Pole	TP24x24x0.375	Pole	16.2%	Pass
137.5 - 132.5	Pole	TP24x24x0.375	Pole	26.2%	Pass
132.5 - 127.5	Pole	TP24x24x0.375	Pole	38.1%	Pass
127.5 - 125	Pole	TP24x24x0.375	Pole	44.7%	Pass
125 - 120	Pole	TP30x30x0.375	Pole	38.5%	Pass
120 - 115	Pole	TP30x30x0.375	Pole	47.8%	Pass
115 - 110	Pole	TP30x30x0.375	Pole	57.4%	Pass
110 - 105	Pole	TP30x30x0.375	Pole	67.4%	Pass
105 - 100	Pole	TP30x30x0.375	Pole	80.0%	Pass
100 - 95	Pole	TP36x36x0.375	Pole	66.1%	Pass
95 - 94.25	Pole	TP36x36x0.375	Pole	67.6%	Pass
94.25 - 94	Pole + Reinf.	TP36x36x0.4938	Reinf. 6 Tension Rupture	55.9%	Pass
94 - 89	Pole + Reinf.	TP36x36x0.4938	Reinf. 6 Tension Rupture	64.1%	Pass
89 - 84	Pole + Reinf.	TP36x36x0.4938	Reinf. 6 Tension Rupture	72.7%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
84 - 80	Pole + Reinf.	TP36x36x0.4938	Reinf. 6 Tension Rupture	79.9%	Pass
80 - 79.75	Pole + Reinf.	TP42x42x0.575	Pole	47.9%	Pass
79.75 - 74.75	Pole + Reinf.	TP42x42x0.575	Pole	53.4%	Pass
74.75 - 69.75	Pole + Reinf.	TP42x42x0.575	Pole	59.3%	Pass
69.75 - 64.75	Pole + Reinf.	TP42x42x0.575	Pole	65.4%	Pass
64.75 - 60	Pole + Reinf.	TP42x42x0.575	Pole	71.4%	Pass
60 - 59.75	Pole + Reinf.	TP48x48x0.6125	Pole	52.3%	Pass
59.75 - 54.75	Pole + Reinf.	TP48x48x0.6125	Pole	57.1%	Pass
54.75 - 49.75	Pole + Reinf.	TP48x48x0.6125	Pole	62.1%	Pass
49.75 - 44.75	Pole + Reinf.	TP48x48x0.6125	Pole	67.3%	Pass
44.75 - 40	Pole + Reinf.	TP48x48x0.6125	Pole	72.4%	Pass
40 - 39.75	Pole + Reinf.	TP54x54x0.65	Pole	54.7%	Pass
39.75 - 34.75	Pole + Reinf.	TP54x54x0.65	Pole	58.9%	Pass
34.75 - 29.75	Pole + Reinf.	TP54x54x0.65	Pole	63.2%	Pass
29.75 - 24.75	Pole + Reinf.	TP54x54x0.65	Pole	67.6%	Pass
24.75 - 20	Pole + Reinf.	TP54x54x0.65	Pole	71.8%	Pass
20 - 19.75	Pole + Reinf.	TP60x60x0.7375	Pole	55.8%	Pass
19.75 - 19	Pole + Reinf.	TP60x60x0.7375	Pole	56.3%	Pass
19 - 18.75	Pole + Reinf.	TP60x60x0.7375	Pole	56.5%	Pass
18.75 - 13.75	Pole + Reinf.	TP60x60x0.7375	Pole	60.1%	Pass
13.75 - 8.75	Pole + Reinf.	TP60x60x0.7375	Pole	63.7%	Pass
8.75 - 3.75	Pole + Reinf.	TP60x60x0.7375	Pole	67.5%	Pass
3.75 - 0	Pole + Reinf.	TP60x60x0.7375	Pole	70.3%	Pass
				Summary	
			Pole	80.0%	Pass
			Reinforcement	79.9%	Pass
			Overall	80.0%	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Connection	125	43.0	Pass
1	Flange Connection	100	81.0	Pass
1	Flange Connection	80	59.6	Pass
1	Flange Connection	60	74.1	Pass
1	Flange Connection	40	86.7	Pass
1	Flange Connection	20	88.6	Pass
1	Anchor Rods	0	89.6	Pass
1	Base Plate	0	71.0	Pass
1	Base Foundation	0	72.1	Pass
1	Base Foundation Soil Interaction	0	20.7	Pass

Structure Rating (max from all components) =	89.6%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity listed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

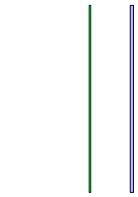
TNXTOWER OUTPUT

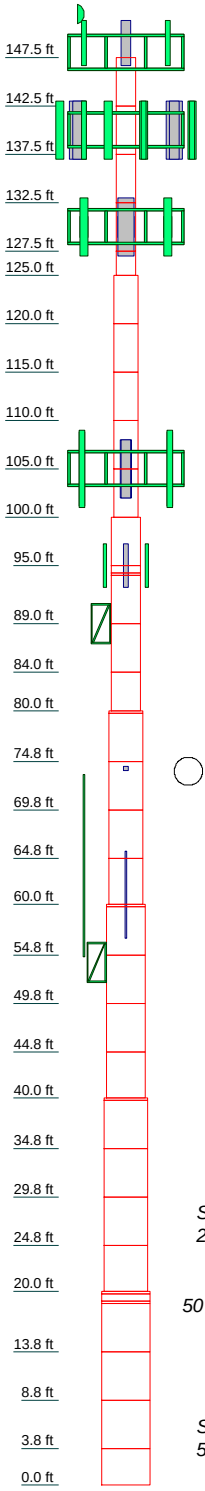
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

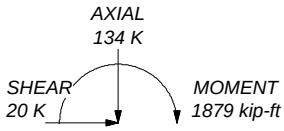
TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-H Standard.
2. Tower designed for a 124 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.70 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.0000 ft
7. TIA-222-H Annex S

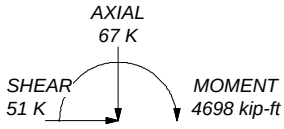




ALL REACTIONS ARE FACTORED



TORQUE 20 kip-ft
50 mph WIND - 1.7000 in ICE



TORQUE 39 kip-ft
REACTIONS - 124 mph WIND

Section	Size	Length (ft)	Grade	Weight (K)
1	P60.0x0.375	5.0000	A53-B-42	0.5
2	P54.0x0.375	5.0000		0.5
3	P54.0x0.375	5.0000		0.5
4	P54.0x0.375	5.0000		0.5
5	P54.0x0.375	5.0000		0.2
6	P54.0x0.375	5.0000		0.6
7	P54.0x0.375	5.0000		0.6
8	P54.0x0.375	5.0000		0.6
9	P54.0x0.375	5.0000		0.6
10	P54.0x0.375	5.0000		0.6
11	P54.0x0.375	5.0000		0.7
12	P54.0x0.375	5.0000		0.1
14	P54.0x0.375	5.0000		0.9
15	P54.0x0.375	5.0000		0.9
16	P54.0x0.375	5.0000		0.7
17	P54.0x0.375	5.0000		1.2
18	P54.0x0.375	5.0000		0
19	P52.0x0.375	5.0000		1.2
20	P52.0x0.375	5.0000		1.2
21	P52.0x0.375	5.0000		1.2
22	P52.0x0.375	5.0000		1
23	P52.0x0.375	5.0000		1.5
24	P52.0x0.375	5.0000		1.5
25	P52.0x0.375	5.0000		1.5
26	P52.0x0.375	5.0000		1.4
27	P52.0x0.375	5.0000		1
28	P52.0x0.375	5.0000		1.8
29	P52.0x0.375	5.0000		1.8
30	P52.0x0.375	5.0000		1.8
31	P52.0x0.375	5.0000		1.7
32	P52.0x0.375	5.0000		1
35	P52.0x0.375	5.0000		2.6
36	P52.0x0.375	5.0000		2.6
37	P52.0x0.375	5.0000		2.6
38	P52.0x0.375	3.7500		2.0
				37.3

Aero Solutions LLC
5555 Central Ave., Suite 100
Boulder, CO 80301
Phone: Phone: 720-304-6882
FAX: FAX: 720-304-6883

Job:	***Rocky Hill- Rte 160_1(BU#827050)***		
Project:	***Aero#003-19-0046***		
Client: Crown Castle International		Drawn by: M.Sassi	App'd:
Code: TIA-222-H		Date: 06/19/19	Scale: NTS
Path:			Dwg No. E-1

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower base elevation above sea level: 97.0000 ft.
Basic wind speed of 124 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.0000 ft.
Nominal ice thickness of 1.7000 in.
Ice thickness is considered to increase with height.
Ice density of 56.00 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
				Pole With Shroud Or No Appurtenances
				Outside and Inside Corner Radii Are Known

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	147.5000-142.5000	5.0000	P24x0.375	A53-B-42 (42 ksi)	
L2	142.5000-137.5000	5.0000	P24x0.375	A53-B-42 (42 ksi)	
L3	137.5000-132.5000	5.0000	P24x0.375	A53-B-42 (42 ksi)	
L4	132.5000-127.5000	5.0000	P24x0.375	A53-B-42 (42 ksi)	
L5	127.5000-125.0000	2.5000	P24x0.375	A53-B-42 (42 ksi)	
L6	125.0000-120.0000	5.0000	P30x0.375	A53-B-42 (42 ksi)	
L7	120.0000-115.0000	5.0000	P30x0.375	A53-B-42 (42 ksi)	
L8	115.0000-110.0000	5.0000	P30x0.375	A53-B-42 (42 ksi)	
L9	110.0000-105.0000	5.0000	P30x0.375	A53-B-42 (42 ksi)	
L10	105.0000-100.0000	5.0000	P30x0.375	A53-B-42 (42 ksi)	
L11	100.0000-95.0000	5.0000	P36x0.375	A53-B-42 (42 ksi)	
L12	95.0000-94.2500	0.7500	P36x0.375	A53-B-42 (42 ksi)	
L13	94.2500-94.0000	0.2500	P36x0.49375	A53-B-42 (42 ksi)	
L14	94.0000-89.0000	5.0000	P36x0.49375	A53-B-42 (42 ksi)	
L15	89.0000-84.0000	5.0000	P36x0.49375	A53-B-42 (42 ksi)	
L16	84.0000-80.0000	4.0000	P36x0.49375	A53-B-42 (42 ksi)	
L17	80.0000-79.7500	0.2500	P42x0.575	A53-B-42 (42 ksi)	
L18	79.7500-74.7500	5.0000	P42x0.575	A53-B-42 (42 ksi)	
L19	74.7500-69.7500	5.0000	P42x0.575	A53-B-42 (42 ksi)	
L20	69.7500-64.7500	5.0000	P42x0.575	A53-B-42 (42 ksi)	
L21	64.7500-60.0000	4.7500	P42x0.575	A53-B-42 (42 ksi)	
L22	60.0000-59.7500	0.2500	P48x0.6125	A53-B-42 (42 ksi)	
L23	59.7500-54.7500	5.0000	P48x0.6125	A53-B-42 (42 ksi)	
L24	54.7500-49.7500	5.0000	P48x0.6125	A53-B-42 (42 ksi)	
L25	49.7500-44.7500	5.0000	P48x0.6125	A53-B-42 (42 ksi)	
L26	44.7500-40.0000	4.7500	P48x0.6125	A53-B-42 (42 ksi)	
L27	40.0000-39.7500	0.2500	P54x0.65	A53-B-42 (42 ksi)	
L28	39.7500-34.7500	5.0000	P54x0.65	A53-B-42 (42 ksi)	
L29	34.7500-29.7500	5.0000	P54x0.65	A53-B-42 (42 ksi)	
L30	29.7500-24.7500	5.0000	P54x0.65	A53-B-42 (42 ksi)	
L31	24.7500-20.0000	4.7500	P54x0.65	A53-B-42	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L32	20.0000-19.7500	0.2500	P60x0.7375	(42 ksi) A53-B-42 (42 ksi)	
L33	19.7500-19.0000	0.7500	P60x0.7375	A53-B-42 (42 ksi)	
L34	19.0000-18.7500	0.2500	P60x0.7375	A53-B-42 (42 ksi)	
L35	18.7500-13.7500	5.0000	P60x0.7375	A53-B-42 (42 ksi)	
L36	13.7500-8.7500	5.0000	P60x0.7375	A53-B-42 (42 ksi)	
L37	8.7500-3.7500	5.0000	P60x0.7375	A53-B-42 (42 ksi)	
L38	3.7500-0.0000	3.7500	P60x0.7375	A53-B-42 (42 ksi)	

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 147.5000-142.5000				1	1	1			
L2 142.5000-137.5000				1	1	1			
L3 137.5000-132.5000				1	1	1			
L4 132.5000-127.5000				1	1	1			
L5 127.5000-125.0000				1	1	1			
L6 125.0000-120.0000				1	1	1			
L7 120.0000-115.0000				1	1	1			
L8 115.0000-110.0000				1	1	1			
L9 110.0000-105.0000				1	1	1			
L10 105.0000-100.0000				1	1	1			
L11 100.0000-95.0000				1	1	1			
L12 95.0000-94.2500				1	1	1			
L13				1	1	0.979915			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
94.2500-94.0000									
L14				1	1	0.979915			
94.0000-89.0000									
L15				1	1	0.979915			
89.0000-84.0000									
L16				1	1	0.979915			
84.0000-80.0000									
L17				1	1	0.976046			
80.0000-79.7500									
L18				1	1	0.976046			
79.7500-74.7500									
L19				1	1	0.976046			
74.7500-69.7500									
L20				1	1	0.976046			
69.7500-64.7500									
L21				1	1	0.976046			
64.7500-60.0000									
L22				1	1	0.971735			
60.0000-59.7500									
L23				1	1	0.971735			
59.7500-54.7500									
L24				1	1	0.971735			
54.7500-49.7500									
L25				1	1	0.971735			
49.7500-44.7500									
L26				1	1	0.971735			
44.7500-40.0000									
L27				1	1	0.970011			
40.0000-39.7500									
L28				1	1	0.970011			
39.7500-34.7500									
L29				1	1	0.970011			
34.7500-29.7500									
L30				1	1	0.970011			
29.7500-24.7500									
L31				1	1	0.970011			
24.7500-20.0000									
L32				1	1	1.13064			
20.0000-19.7500									

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L33 19.7500-19.0000				1	1	1.13064			
L34 19.0000-18.7500				1	1	1.13064			
L35 18.7500-13.7500				1	1	1.13064			
L36 13.7500-8.7500				1	1	1.13064			
L37 8.7500-3.7500				1	1	1.13064			
L38 3.7500-0.0000				1	1	1.13064			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
2" Solid Rod Reinforcing	C	No	No	CaAa (Out Of Face)	42.5000 - 37.5000	1	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.6000	0.00
2" Solid Rod Reinforcing	C	No	No	CaAa (Out Of Face)	22.5000 - 17.5000	1	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00
**********									
1 1/4" Flat Reinforcement	C	No	No	CaAa (Out Of Face)	60.0000 - 0.0000	2	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00
1" Flat Reinforcement	C	No	No	CaAa (Out Of Face)	80.0000 - 60.0000	2	No Ice	0.1667	0.00
							1/2" Ice	0.2778	0.00
							1" Ice	0.3889	0.00
							2" Ice	0.6111	0.00
3/4" Flat Reinforcement	C	No	No	CaAa (Out Of Face)	95.0000 - 80.0000	2	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00
**********									
*****148*******									
HCS 6X12 4AWG(1-5/8)	C	No	No	CaAa (Out Of Face)	147.5000 - 0.0000	3	No Ice	0.1660	0.00
							1/2" Ice	0.2660	0.00
							1" Ice	0.3660	0.01
							2" Ice	0.5660	0.01
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	C	No	No	Inside Pole	147.5000 - 0.0000	1	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
FLC 158-50J(1-5/8)	C	No	No	Inside Pole	147.5000 - 0.0000	6	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00
AVA5-50(7/8)	C	No	No	CaAa (Out Of Face)	147.5000 - 0.0000	2	No Ice	0.1102	0.00
							1/2" Ice	0.2102	0.00
							1" Ice	0.3102	0.00
							2" Ice	0.5102	0.01
AVA5-50FX(7/8)	C	No	No	CaAa (Out Of Face)	147.5000 - 0.0000	4	No Ice	0.1102	0.00
							1/2" Ice	0.2102	0.00
							1" Ice	0.3102	0.00
							2" Ice	0.5102	0.01
LCF78-50A(7/8)	C	No	No	CaAa (Out Of Face)	147.5000 - 0.0000	1	No Ice	0.1090	0.00
							1/2" Ice	0.2090	0.00
							1" Ice	0.3090	0.00
							2" Ice	0.5090	0.01
**140*									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	140.0000 - 0.0000	6	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00
HB158-1-08U8-S8J 18(1-5/8)	C	No	No	CaAa (Out Of Face)	105.0000 - 0.0000	1	No Ice	0.1980	0.00
							1/2" Ice	0.2980	0.00
							1" Ice	0.3980	0.00
							2" Ice	0.5980	0.01
HB114-U6S12-XXX -LI(1-1/4)	C	No	No	CaAa (Out Of Face)	105.0000 - 0.0000	1	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.01
HB114-U6S12-XXX -LI(1-1/4)	C	No	No	Inside Pole	140.0000 - 105.0000	2	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00
***130**									
HB114-1-08U4-M5 F(1-1/4)	C	No	No	Inside Pole	130.0000 - 0.0000	3	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00
MLC6C-06C-008R-008R(1-1/2)	C	No	No	Inside Pole	130.0000 - 0.0000	1	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00
**105*									
LDF2-50(3/8)	C	No	No	CaAa (Out Of Face)	105.0000 - 0.0000	2	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.01
100266(3/8)	C	No	No	CaAa (Out Of Face)	105.0000 - 0.0000	1	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.01
FB-L98-002-XXX(3 /8)	C	No	No	CaAa (Out Of Face)	105.0000 - 0.0000	2	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.01
WR-VG82ST-BRD A(5/8)	C	No	No	CaAa (Out Of Face)	105.0000 - 0.0000	4	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.01
LDF7-50A(1-5/8)	C	No	No	CaAa (Out	105.0000 -	12	No Ice	0.1980	0.00

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
				Of Face)	0.0000		1/2" Ice	0.2980	0.00
							1" Ice	0.3980	0.00
							2" Ice	0.5980	0.01
***95**									
LDF7-50A(1-5/8)	C	No	No	CaAa (Out Of Face)	95.0000 - 0.0000	6	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.01
*89**									
LDF4-50A(1/2)	C	No	No	Inside Pole	89.0000 - 0.0000	1	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00
**54*									
LCF78-50A(7/8)	C	No	No	Inside Pole	54.0000 - 0.0000	2	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00
***49**									
LCF78-50A(7/8)	C	No	No	Inside Pole	49.0000 - 0.0000	1	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00
***45**									
LCF78-50A(7/8)	C	No	No	Inside Pole	45.0000 - 0.0000	1	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00
***40**									
LCF78-50A(7/8)	C	No	No	Inside Pole	40.0000 - 0.0000	1	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00
**37*									
LCF78-50A(7/8)	C	No	No	Inside Pole	37.0000 - 0.0000	1	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
							2" Ice	0.0000	0.00

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	147.5000-142.500	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.341	0.08
L2	142.5000-137.500	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.341	0.10
L3	137.5000-132.500	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.341	0.12
L4	132.5000-127.500	A	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.341	0.13
L5	127.5000-125.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	3.170	0.07
L6	125.0000-120.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.341	0.15
L7	120.0000-115.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.341	0.15
L8	115.0000-110.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.341	0.15
L9	110.0000-105.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.341	0.15
L10	105.0000-100.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	19.211	0.20
L11	100.0000-95.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	19.211	0.20
L12	95.0000-94.2500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.882	0.03
L13	94.2500-94.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.961	0.01
L14	94.0000-89.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	19.211	0.23
L15	89.0000-84.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	19.211	0.23
L16	84.0000-80.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	15.369	0.18
L17	80.0000-79.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.044	0.01
L18	79.7500-74.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	20.878	0.23
L19	74.7500-69.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	20.878	0.23
L20	69.7500-64.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	20.878	0.23
L21	64.7500-60.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	19.834	0.22
L22	60.0000-59.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.961	0.01
L23	59.7500-54.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	19.211	0.23
L24	54.7500-49.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.000	19.211	0.23
L25	49.7500-44.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	19.211	0.23
L26	44.7500-40.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	18.250	0.22
L27	40.0000-39.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.961	0.01
L28	39.7500-34.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	19.211	0.24
L29	34.7500-29.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	19.211	0.24
L30	29.7500-24.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	19.211	0.24
L31	24.7500-20.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	18.250	0.23
L32	20.0000-19.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.961	0.01
L33	19.7500-19.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.882	0.04
L34	19.0000-18.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.961	0.01
L35	18.7500-13.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	19.211	0.24
L36	13.7500-8.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	19.211	0.24
L37	8.7500-3.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	19.211	0.24
L38	3.7500-0.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	14.408	0.18

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	147.5000-142.500	A	1.971	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	26.053	0.47
L2	142.5000-137.500	A	1.964	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	25.984	0.49
L3	137.5000-132.500	A	1.957	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	25.913	0.51

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L4	132.5000-127.500	A	1.950	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	25.839	0.52
L5	127.5000-125.000	A	1.944	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	12.891	0.27
L6	125.0000-120.000	A	1.938	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	25.724	0.53
L7	120.0000-115.000	A	1.930	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	25.643	0.53
L8	115.0000-110.000	A	1.922	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	25.559	0.53
L9	110.0000-105.000	A	1.913	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	25.472	0.52
L10	105.0000-100.000	A	1.904	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	63.003	1.47
L11	100.0000-95.0000	A	1.895	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	62.785	1.46
L12	95.0000-94.2500	A	1.889	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	9.398	0.26
L13	94.2500-94.0000	A	1.888	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	3.132	0.09
L14	94.0000-89.0000	A	1.883	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	62.509	1.75
L15	89.0000-84.0000	A	1.872	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	62.266	1.74
L16	84.0000-80.0000	A	1.862	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	49.630	1.38
L17	80.0000-79.7500	A	1.857	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	3.386	0.09
L18	79.7500-74.7500	A	1.851	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	67.562	1.71
L19	74.7500-69.7500	A	1.839	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	67.251	1.70
L20	69.7500-64.7500	A	1.825	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	66.919	1.69
L21	64.7500-60.0000	A	1.812	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	63.245	1.59
L22	60.0000-59.7500	A	1.804	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	3.036	0.08
L23	59.7500-54.7500	A	1.796	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	60.526	1.66
L24	54.7500-49.7500	A	1.780	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	60.150	1.64
L25	49.7500-44.7500	A	1.762	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	59.740	1.63
L26	44.7500-40.0000	A	1.743	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	57.451	1.53
L27	40.0000-39.7500	A	1.732	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	3.063	0.08
L28	39.7500-34.7500	A	1.721	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	59.761	1.59
L29	34.7500-29.7500	A	1.696	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	58.221	1.56
L30	29.7500-24.7500	A	1.668	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	57.570	1.53
L31	24.7500-20.0000	A	1.635	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	53.980	1.42
L32	20.0000-19.7500	A	1.616	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	2.819	0.07
L33	19.7500-19.0000	A	1.612	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	8.442	0.22
L34	19.0000-18.7500	A	1.608	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	2.809	0.07
L35	18.7500-13.7500	A	1.584	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	55.637	1.44
L36	13.7500-8.7500	A	1.527	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	54.322	1.38
L37	8.7500-3.7500	A	1.439	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	52.318	1.29
L38	3.7500-0.0000	A	1.276	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	36.422	0.84

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	147.5000-142.5000	-5.3397	3.0829	-6.7647	3.9056
L2	142.5000-137.5000	-5.3397	3.0829	-6.7596	3.9026
L3	137.5000-132.5000	-5.3397	3.0829	-6.7543	3.8996
L4	132.5000-127.5000	-5.3397	3.0829	-6.7488	3.8964
L5	127.5000-125.0000	-5.3397	3.0829	-6.7446	3.8940
L6	125.0000-120.0000	-5.9513	3.4360	-7.8327	4.5222
L7	120.0000-115.0000	-5.9513	3.4360	-7.8245	4.5175

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L8	115.0000-110.0000	-5.9513	3.4360	-7.8158	4.5125
L9	110.0000-105.0000	-5.9513	3.4360	-7.8068	4.5072
L10	105.0000-100.0000	-9.3429	5.3941	-10.2423	5.9134
L11	100.0000-95.0000	-10.6154	6.1288	-11.8375	6.8344
L12	95.0000-94.2500	-10.6154	6.1288	-11.8324	6.8314
L13	94.2500-94.0000	-10.6154	6.1288	-11.8315	6.8309
L14	94.0000-89.0000	-10.6154	6.1288	-11.8267	6.8281
L15	89.0000-84.0000	-10.6154	6.1288	-11.8171	6.8226
L16	84.0000-80.0000	-10.6154	6.1288	-11.8080	6.8173
L17	80.0000-79.7500	-12.1007	6.9864	-13.5971	7.8503
L18	79.7500-74.7500	-12.1007	6.9864	-13.5901	7.8462
L19	74.7500-69.7500	-12.1007	6.9864	-13.5761	7.8381
L20	69.7500-64.7500	-12.1007	6.9864	-13.5610	7.8295
L21	64.7500-60.0000	-12.1007	6.9864	-13.5452	7.8203
L22	60.0000-59.7500	-12.7933	7.3862	-14.5853	8.4208
L23	59.7500-54.7500	-12.7933	7.3862	-14.5734	8.4139
L24	54.7500-49.7500	-12.7933	7.3862	-14.5490	8.3999
L25	49.7500-44.7500	-12.7933	7.3862	-14.5221	8.3844
L26	44.7500-40.0000	-12.7933	7.3862	-14.5787	8.4170
L27	40.0000-39.7500	-13.7325	7.9285	-15.9168	9.1895
L28	39.7500-34.7500	-13.7325	7.9285	-15.7927	9.1179
L29	34.7500-29.7500	-13.7325	7.9285	-15.6628	9.0429
L30	29.7500-24.7500	-13.7325	7.9285	-15.6096	9.0122
L31	24.7500-20.0000	-13.7325	7.9285	-15.5475	8.9763
L32	20.0000-19.7500	-14.5894	8.4232	-16.6459	9.6105
L33	19.7500-19.0000	-14.5894	8.4232	-16.6367	9.6052
L34	19.0000-18.7500	-14.5894	8.4232	-16.6272	9.5997
L35	18.7500-13.7500	-14.5894	8.4232	-16.5728	9.5683
L36	13.7500-8.7500	-14.5894	8.4232	-16.4397	9.4915
L37	8.7500-3.7500	-14.5894	8.4232	-16.2285	9.3695
L38	3.7500-0.0000	-14.5894	8.4232	-15.8030	9.1238

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft ft ft	°	ft		ft^2	ft^2	K
148									
DS4C06F36D-D	A	From Leg	4.0000 0.00 19.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice	5.8200 7.7933 9.7833	5.8200 7.7933 9.7833	0.05 0.09 0.15

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	13.8133	13.8133	0.29
DS4C06F36D-D	C	From Leg	4.0000 0.00 19.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.8200 7.7933 9.7833 13.8133	5.8200 7.7933 9.7833 13.8133	0.05 0.09 0.15 0.29
201-1N	B	From Leg	4.0000 0.00 6.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.4890 2.4082 3.3440 4.7512	1.4890 2.4082 3.3440 4.7512	0.01 0.02 0.04 0.09
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3292 6.7751 7.2137 8.1168	5.6424 6.4259 7.1313 8.5907	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3292 6.7751 7.2137 8.1168	5.6424 6.4259 7.1313 8.5907	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3292 6.7751 7.2137 8.1168	5.6424 6.4259 7.1313 8.5907	0.11 0.17 0.23 0.38
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	20.4801 21.2306 21.9900 23.4441	11.0240 12.5496 14.0992 16.4509	0.16 0.30 0.44 0.78
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	20.4801 21.2306 21.9900 23.4441	11.0240 12.5496 14.0992 16.4509	0.16 0.30 0.44 0.78
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	20.4801 21.2306 21.9900 23.4441	11.0240 12.5496 14.0992 16.4509	0.16 0.30 0.44 0.78
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.7474 7.2017 7.6475 8.5651	6.0700 6.8671 7.5828 9.0629	0.15 0.21 0.28 0.44
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.7474 7.2017 7.6475 8.5651	6.0700 6.8671 7.5828 9.0629	0.15 0.21 0.28 0.44
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.7474 7.2017 7.6475 8.5651	6.0700 6.8671 7.5828 9.0629	0.15 0.21 0.28 0.44
KRY 112 144/1	A	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.1750 0.2343 0.3009 0.4565	0.01 0.01 0.02 0.03
KRY 112 144/1	B	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.1750 0.2343 0.3009 0.4565	0.01 0.01 0.02 0.03
KRY 112 144/1	C	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.1750 0.2343 0.3009 0.4565	0.01 0.01 0.02 0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RADIO 4449 B12/B71	A	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	1.1524 1.2905 1.4361 1.7494	0.08 0.09 0.11 0.16
RADIO 4449 B12/B71	B	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	1.1524 1.2905 1.4361 1.7494	0.08 0.09 0.11 0.16
RADIO 4449 B12/B71	C	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	1.1524 1.2905 1.4361 1.7494	0.08 0.09 0.11 0.16
Platform Mount [LP 405-1]	C	None		0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice	20.8000 28.1000 35.4000 50.0000	20.8000 28.1000 35.4000 50.0000	1.80 2.07 2.33 2.86
**********140**********									
(2) LNX-6514DS-A1M w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	140.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.4106 8.9745 9.5048 10.5853	7.0817 8.2729 9.1847 11.0232	0.06 0.13 0.21 0.39
(2) LNX-6514DS-A1M w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	140.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.4106 8.9745 9.5048 10.5853	7.0817 8.2729 9.1847 11.0232	0.06 0.13 0.21 0.39
LNX-6514DS-A1M w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	140.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.4106 8.9745 9.5048 10.5853	7.0817 8.2729 9.1847 11.0232	0.06 0.13 0.21 0.39
LNX-6514DS-A1M w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	140.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.4106 8.9745 9.5048 10.5853	7.0817 8.2729 9.1847 11.0232	0.06 0.13 0.21 0.39
(2) NNHH-65B-R4 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	140.0000	No Ice 1/2" Ice 1" Ice 2" Ice	12.5086 13.1075 13.6715 14.8221	7.4125 8.5976 9.4965 11.3279	0.10 0.19 0.29 0.52
(2) NNHH-65B-R4 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	140.0000	No Ice 1/2" Ice 1" Ice 2" Ice	12.5086 13.1075 13.6715 14.8221	7.4125 8.5976 9.4965 11.3279	0.10 0.19 0.29 0.52
(2) NNHH-65B-R4 w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	140.0000	No Ice 1/2" Ice 1" Ice 2" Ice	12.5086 13.1075 13.6715 14.8221	7.4125 8.5976 9.4965 11.3279	0.10 0.19 0.29 0.52
(2) RFV01U-D2A	A	From Leg	4.0000 0.00 0.00	0.0000	140.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.0000 1.1445 1.2840 1.5851	0.07 0.09 0.11 0.15
RFV01U-D2A	B	From Leg	4.0000 0.00 0.00	0.0000	140.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.0000 1.1445 1.2840 1.5851	0.07 0.09 0.11 0.15
RFV01U-D1A	B	From Leg	4.0000 0.00 0.00	0.0000	140.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.0000 1.3926 1.5426	0.08 0.10 0.12

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	0.0000	1.8648	0.18
RVZDC-6627-PF-48	A	From Leg	4.0000 0.00 0.00	0.0000	140.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.0000 2.7270 2.9472 3.4168	0.03 0.06 0.10 0.18
DB-T1-6Z-8AB-0Z	B	From Leg	4.0000 0.00 0.00	0.0000	140.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.0000 2.1926 2.3926 2.8148	0.04 0.08 0.12 0.21
(2) RFV01U-D1A	C	From Leg	4.0000 0.00 0.00	0.0000	140.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.0000 1.3926 1.5426 1.8648	0.08 0.10 0.12 0.18
Platform Mount [LP 303-1]	C	None		0.0000	140.0000	No Ice 1/2" Ice 1" Ice 2" Ice	14.6600 18.8700 23.0800 31.5000	14.6600 18.8700 23.0800 31.5000	1.25 1.48 1.71 2.18
**********130**********									
AAHC w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	130.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.4091 4.7270 5.0553 5.7429	2.6915 3.0786 3.4862 4.3595	0.12 0.16 0.20 0.31
AAHC w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	130.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.4091 4.7270 5.0553 5.7429	2.6915 3.0786 3.4862 4.3595	0.12 0.16 0.20 0.31
AAHC w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	130.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.4091 4.7270 5.0553 5.7429	2.6915 3.0786 3.4862 4.3595	0.12 0.16 0.20 0.31
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	130.0000	No Ice 1/2" Ice 1" Ice 2" Ice	12.5086 13.1075 13.6715 14.8221	7.4125 8.5976 9.4965 11.3279	0.10 0.19 0.29 0.52
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	130.0000	No Ice 1/2" Ice 1" Ice 2" Ice	12.5086 13.1075 13.6715 14.8221	7.4125 8.5976 9.4965 11.3279	0.10 0.19 0.29 0.52
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	130.0000	No Ice 1/2" Ice 1" Ice 2" Ice	12.5086 13.1075 13.6715 14.8221	7.4125 8.5976 9.4965 11.3279	0.10 0.19 0.29 0.52
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.0000 0.00 0.00	0.0000	130.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.0000 2.4407 2.6507 3.0929	0.06 0.08 0.11 0.17
PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.0000 0.00 0.00	0.0000	130.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.0000 2.4407 2.6507 3.0929	0.06 0.08 0.11 0.17
PCS 1900MHZ 4X45W-65MHZ	C	From Leg	4.0000 0.00 0.00	0.0000	130.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.0000 2.4407 2.6507 3.0929	0.06 0.08 0.11 0.17
(2) RRH2X50-800	A	From Leg	4.0000 0.00	0.0000	130.0000	No Ice 1/2" Ice	0.0000 0.0000	0.0000 1.4275	0.05 0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	0.0000	1.5803	0.09
						2" Ice	0.0000	1.9081	0.14
(2) RRH2X50-800	B	From Leg	4.0000	0.0000	130.0000	No Ice	0.0000	0.0000	0.05
			0.00			1/2" Ice	0.0000	1.4275	0.07
			0.00			1" Ice	0.0000	1.5803	0.09
						2" Ice	0.0000	1.9081	0.14
(2) RRH2X50-800	C	From Leg	4.0000	0.0000	130.0000	No Ice	0.0000	0.0000	0.05
			0.00			1/2" Ice	0.0000	1.4275	0.07
			0.00			1" Ice	0.0000	1.5803	0.09
						2" Ice	0.0000	1.9081	0.14
Platform Mount [LP 405-1]	C	None		0.0000	130.0000	No Ice	20.8000	20.8000	1.80
						1/2" Ice	28.0900	28.0900	2.07
						1" Ice	35.3800	35.3800	2.33
						2" Ice	49.9600	49.9600	2.86
**********105**********									
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.0000	0.0000	105.0000	No Ice	9.8953	8.1125	0.08
			0.00			1/2" Ice	10.4700	9.3041	0.16
			0.00			1" Ice	11.0098	10.2095	0.25
						2" Ice	12.1119	12.0135	0.46
HPA-65R-BUU-H8 w/ Mount Pipe	B	From Leg	4.0000	0.0000	105.0000	No Ice	13.2134	9.5823	0.10
			0.00			1/2" Ice	13.8986	11.0517	0.20
			0.00			1" Ice	14.5871	12.4963	0.30
						2" Ice	15.9095	14.7516	0.55
QS66512-2 w/ Mount Pipe	A	From Leg	4.0000	0.0000	105.0000	No Ice	8.3708	8.4625	0.14
			0.00			1/2" Ice	8.9314	9.6573	0.21
			0.00			1" Ice	9.4571	10.5478	0.30
						2" Ice	10.5310	12.3523	0.49
HPA-65R-BUU-H8 w/ Mount Pipe	C	From Leg	4.0000	0.0000	105.0000	No Ice	13.2134	9.5823	0.10
			0.00			1/2" Ice	13.8986	11.0517	0.20
			0.00			1" Ice	14.5871	12.4963	0.30
						2" Ice	15.9095	14.7516	0.55
TPA-65R-LCUUUU-H8 w/ Mount Pipe	B	From Leg	4.0000	0.0000	105.0000	No Ice	13.5353	10.9597	0.11
			0.00			1/2" Ice	14.2380	12.4861	0.22
			0.00			1" Ice	14.9495	14.0367	0.33
						2" Ice	16.3081	16.3910	0.59
TPA-65R-LCUUUU-H8 w/ Mount Pipe	C	From Leg	4.0000	0.0000	105.0000	No Ice	13.5353	10.9597	0.11
			0.00			1/2" Ice	14.2380	12.4861	0.22
			0.00			1" Ice	14.9495	14.0367	0.33
						2" Ice	16.3081	16.3910	0.59
(2) LGP21401	A	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.01
			0.00			1/2" Ice	0.0000	0.0000	0.02
			0.00			1" Ice	0.0000	0.3475	0.03
						2" Ice	0.0000	0.5208	0.05
(2) LGP21401	B	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.01
			0.00			1/2" Ice	0.0000	0.0000	0.02
			0.00			1" Ice	0.0000	0.3475	0.03
						2" Ice	0.0000	0.5208	0.05
(2) LGP21401	C	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.01
			0.00			1/2" Ice	0.0000	0.0000	0.02
			0.00			1" Ice	0.0000	0.3475	0.03
						2" Ice	0.0000	0.5208	0.05
RRUS 11	A	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.05
			0.00			1/2" Ice	0.0000	0.0000	0.07
			0.00			1" Ice	0.0000	1.4897	0.10
						2" Ice	0.0000	1.8326	0.15
RRUS 11	B	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	0.0000	0.0000	0.07
			0.00			1" Ice	0.0000	1.4897	0.10
						2" Ice	0.0000	1.8326	0.15
RRUS 11	C	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.05
			0.00			1/2" Ice	0.0000	0.0000	0.07
			0.00			1" Ice	0.0000	1.4897	0.10
						2" Ice	0.0000	1.8326	0.15
DC6-48-60-18-8F	A	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.02
			0.00			1/2" Ice	0.0000	0.0000	0.04
			0.00			1" Ice	0.0000	2.6037	0.07
						2" Ice	0.0000	3.0370	0.13
DC6-48-60-18-8F	A	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.02
			0.00			1/2" Ice	0.0000	0.0000	0.04
			0.00			1" Ice	0.0000	2.6037	0.07
						2" Ice	0.0000	3.0370	0.13
(2) LGP21903	A	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.01
			0.00			1/2" Ice	0.0000	0.0000	0.01
			0.00			1" Ice	0.0000	0.2756	0.02
						2" Ice	0.0000	0.4234	0.03
(2) LGP21903	B	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.01
			0.00			1/2" Ice	0.0000	0.0000	0.01
			0.00			1" Ice	0.0000	0.2756	0.02
						2" Ice	0.0000	0.4234	0.03
(2) LGP21903	C	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.01
			0.00			1/2" Ice	0.0000	0.0000	0.01
			0.00			1" Ice	0.0000	0.2756	0.02
						2" Ice	0.0000	0.4234	0.03
RRUS 32 B2	A	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.05
			0.00			1/2" Ice	0.0000	0.0000	0.07
			0.00			1" Ice	0.0000	2.0493	0.10
						2" Ice	0.0000	2.4585	0.16
RRUS 32 B2	B	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.05
			0.00			1/2" Ice	0.0000	0.0000	0.07
			0.00			1" Ice	0.0000	2.0493	0.10
						2" Ice	0.0000	2.4585	0.16
RRUS 32 B2	C	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.05
			0.00			1/2" Ice	0.0000	0.0000	0.07
			0.00			1" Ice	0.0000	2.0493	0.10
						2" Ice	0.0000	2.4585	0.16
RRUS 32 B66	A	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.05
			0.00			1/2" Ice	0.0000	0.0000	0.07
			0.00			1" Ice	0.0000	2.0493	0.10
						2" Ice	0.0000	2.4585	0.16
RRUS 32 B66	B	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.05
			0.00			1/2" Ice	0.0000	0.0000	0.07
			0.00			1" Ice	0.0000	2.0493	0.10
						2" Ice	0.0000	2.4585	0.16
RRUS 32 B66	C	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.05
			0.00			1/2" Ice	0.0000	0.0000	0.07
			0.00			1" Ice	0.0000	2.0493	0.10
						2" Ice	0.0000	2.4585	0.16
1001940	A	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.00
			0.00			1/2" Ice	0.0000	0.0000	0.00
			0.00			1" Ice	0.0000	0.1778	0.01
						2" Ice	0.0000	0.3045	0.01
1001940	B	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.00
			0.00			1/2" Ice	0.0000	0.0000	0.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	0.0000	0.1778	0.01
						2" Ice	0.0000	0.3045	0.01
1001940	C	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.00
			0.00			1/2" Ice	0.0000	0.0000	0.00
			0.00			1" Ice	0.0000	0.1778	0.01
						2" Ice	0.0000	0.3045	0.01
RRUS 32	A	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.06
			0.00			1/2" Ice	0.0000	0.0000	0.08
			0.00			1" Ice	0.0000	2.1658	0.10
						2" Ice	0.0000	2.5829	0.16
RRUS 32	B	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.06
			0.00			1/2" Ice	0.0000	0.0000	0.08
			0.00			1" Ice	0.0000	2.1658	0.10
						2" Ice	0.0000	2.5829	0.16
RRUS 32	C	From Leg	4.0000	0.0000	105.0000	No Ice	0.0000	0.0000	0.06
			0.00			1/2" Ice	0.0000	0.0000	0.08
			0.00			1" Ice	0.0000	2.1658	0.10
						2" Ice	0.0000	2.5829	0.16
Platform Mount [LP 303-1]	C	None		0.0000	105.0000	No Ice	14.6600	14.6600	1.25
						1/2" Ice	18.8700	18.8700	1.48
						1" Ice	23.0800	23.0800	1.71
						2" Ice	31.5000	31.5000	2.18
Pipe Mount [PM 601-3]	C	None		0.0000	105.0000	No Ice	4.3900	4.3900	0.20
						1/2" Ice	5.4800	5.4800	0.24
						1" Ice	6.5700	6.5700	0.28
						2" Ice	8.7500	8.7500	0.36
**********95**********									
APXV18-206516S-C	A	From Leg	1.0000	0.0000	95.0000	No Ice	3.6211	2.0078	0.02
			0.00			1/2" Ice	3.9653	2.3318	0.04
			0.00			1" Ice	4.3034	2.6631	0.06
						2" Ice	4.9940	3.3479	0.13
APXV18-206516S-C	B	From Leg	1.0000	0.0000	95.0000	No Ice	3.6211	2.0078	0.02
			0.00			1/2" Ice	3.9653	2.3318	0.04
			0.00			1" Ice	4.3034	2.6631	0.06
						2" Ice	4.9940	3.3479	0.13
APXV18-206516S-C	C	From Leg	1.0000	0.0000	95.0000	No Ice	3.6211	2.0078	0.02
			0.00			1/2" Ice	3.9653	2.3318	0.04
			0.00			1" Ice	4.3034	2.6631	0.06
						2" Ice	4.9940	3.3479	0.13
Pipe Mount [PM 601-3]	C	None		0.0000	95.0000	No Ice	4.3900	4.3900	0.20
						1/2" Ice	5.4800	5.4800	0.24
						1" Ice	6.5700	6.5700	0.28
						2" Ice	8.7500	8.7500	0.36
**********89**********									
1142-2C	C	From Leg	6.0000	0.0000	89.0000	No Ice	2.0916	2.0916	0.02
			0.00			1/2" Ice	3.3738	3.3738	0.04
			6.00			1" Ice	4.6726	4.6726	0.07
						2" Ice	7.3203	7.3203	0.14
Side Arm Mount [SO 701-1]	C	From Leg	1.5000	0.0000	89.0000	No Ice	0.8500	1.6700	0.07
			0.00			1/2" Ice	1.1400	2.3400	0.08
			0.00			1" Ice	1.4300	3.0100	0.09
						2" Ice	2.0100	4.3500	0.12
**********72**********									
GPS_A	A	From Leg	3.0000	0.0000	72.0000	No Ice	0.2550	0.2550	0.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	0.3205	0.3205	0.00
			2.00			1" Ice	0.3934	0.3934	0.01
						2" Ice	0.5614	0.5614	0.02
Side Arm Mount [SO 701-1]	A	From Leg	1.5000	0.0000	72.0000	No Ice	0.8500	1.6700	0.07
			0.00			1/2" Ice	1.1400	2.3400	0.08
			0.00			1" Ice	1.4300	3.0100	0.09
						2" Ice	2.0100	4.3500	0.12
54									
201-1N	A	From Leg	3.0000	30.0000	54.0000	No Ice	1.4890	1.4890	0.01
			0.00			1/2" Ice	2.4082	2.4082	0.02
			7.00			1" Ice	3.3440	3.3440	0.04
						2" Ice	4.7512	4.7512	0.09
220-8N	C	From Leg	3.0000	30.0000	54.0000	No Ice	5.1792	5.1792	0.02
			0.00			1/2" Ice	7.0938	7.0938	0.06
			10.00			1" Ice	9.0250	9.0250	0.11
						2" Ice	12.9375	12.9375	0.24
Side Arm Mount [SO 701-1]	A	From Leg	1.5000	0.0000	54.0000	No Ice	0.8500	1.6700	0.07
			0.00			1/2" Ice	1.1400	2.3400	0.08
			0.00			1" Ice	1.4300	3.0100	0.09
						2" Ice	2.0100	4.3500	0.12
Side Arm Mount [SO 701-1]	C	From Leg	1.5000	0.0000	54.0000	No Ice	0.8500	1.6700	0.07
			0.00			1/2" Ice	1.1400	2.3400	0.08
			0.00			1" Ice	1.4300	3.0100	0.09
						2" Ice	2.0100	4.3500	0.12
**********49**********									
DB436-C	A	From Leg	1.0000	-60.0000	49.0000	No Ice	0.4500	0.4500	0.01
			0.00			1/2" Ice	0.8100	0.8100	0.01
			0.00			1" Ice	1.1700	1.1700	0.01
						2" Ice	1.8900	1.8900	0.02
Pipe Mount [PM 601-1]	A	From Leg	0.5000	0.0000	49.0000	No Ice	3.0000	0.9000	0.07
			0.00			1/2" Ice	3.7400	1.1200	0.08
			0.00			1" Ice	4.4800	1.3400	0.09
						2" Ice	5.9600	1.7800	0.12
**********45**********									
DB436-C	A	From Leg	1.0000	-60.0000	45.0000	No Ice	0.4500	0.4500	0.01
			0.00			1/2" Ice	0.8100	0.8100	0.01
			0.00			1" Ice	1.1700	1.1700	0.01
						2" Ice	1.8900	1.8900	0.02
Pipe Mount [PM 601-1]	A	From Leg	0.5000	0.0000	45.0000	No Ice	3.0000	0.9000	0.07
			0.00			1/2" Ice	3.7400	1.1200	0.08
			0.00			1" Ice	4.4800	1.3400	0.09
						2" Ice	5.9600	1.7800	0.12
**********40**********									
DB436-C	A	From Leg	1.0000	-60.0000	40.0000	No Ice	0.4500	0.4500	0.01
			0.00			1/2" Ice	0.8100	0.8100	0.01
			0.00			1" Ice	1.1700	1.1700	0.01
						2" Ice	1.8900	1.8900	0.02
Pipe Mount [PM 601-1]	A	From Leg	0.5000	0.0000	40.0000	No Ice	3.0000	0.9000	0.07
			0.00			1/2" Ice	3.7400	1.1200	0.08
			0.00			1" Ice	4.4800	1.3400	0.09
						2" Ice	5.9600	1.7800	0.12
**********37**********									
DB436-C	A	From Leg	1.0000	-60.0000	37.0000	No Ice	0.4500	0.4500	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Pipe Mount [PM 601-1]	A	From Leg	0.00 0.00 0.5000 0.00 0.00	0.0000	37.0000	1/2" Ice 1" Ice 2" Ice No Ice 1/2" Ice 1" Ice 2" Ice	0.8100 1.1700 1.8900 3.0000 3.7400 4.4800 5.9600	0.8100 1.1700 1.8900 0.9000 1.1200 1.3400 1.7800	0.01 0.01 0.02 0.07 0.08 0.09 0.12
**********									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
HPD2-4.7	C	Paraboloid w/o Radome	From Leg	4.0000 0.00 4.00	16.0000		148.0000	2.0417	No Ice 1/2" Ice 1" Ice 2" Ice	3.2700 3.5500 3.8200 4.3600	0.03 0.05 0.06 0.10

Tower Pressures - No Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 147.5000-142.5000	145.0000	1.369	48.45	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000		100.00	0.000	0.000
					C	0.000	10.000		100.00	0.000	6.341
L2 142.5000-137.5000	140.0000	1.359	48.09	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000		100.00	0.000	0.000
					C	0.000	10.000		100.00	0.000	6.341
L3 137.5000-132.5000	135.0000	1.348	47.73	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000		100.00	0.000	0.000
					C	0.000	10.000		100.00	0.000	6.341
L4 132.5000-127.5000	130.0000	1.337	47.35	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
					B	0.000	10.000		100.00	0.000	0.000
					C	0.000	10.000		100.00	0.000	6.341
L5 127.5000-125.0000	126.2500	1.329	47.06	5.000	A	0.000	5.000	5.000	100.00	0.000	0.000
					B	0.000	5.000		100.00	0.000	0.000
					C	0.000	5.000		100.00	0.000	3.170
L6 125.0000-120.	122.5000	1.321	46.76	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
					B	0.000	12.500		100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
0000					C	0.000	12.500		100.00	0.000	6.341
L7	117.5000	1.309	46.35	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
120.0000-115.					B	0.000	12.500		100.00	0.000	0.000
0000					C	0.000	12.500		100.00	0.000	6.341
L8	112.5000	1.297	45.93	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
115.0000-110.					B	0.000	12.500		100.00	0.000	0.000
0000					C	0.000	12.500		100.00	0.000	6.341
L9	107.5000	1.285	45.49	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
110.0000-105.					B	0.000	12.500		100.00	0.000	0.000
0000					C	0.000	12.500		100.00	0.000	6.341
L10	102.5000	1.272	45.04	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
105.0000-100.					B	0.000	12.500		100.00	0.000	0.000
0000					C	0.000	12.500		100.00	0.000	19.211
L11	97.5000	1.259	44.56	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
100.0000-95.0					B	0.000	15.000		100.00	0.000	0.000
000					C	0.000	15.000		100.00	0.000	19.211
L12	94.6250	1.251	44.29	2.250	A	0.000	2.250	2.250	100.00	0.000	0.000
95.0000-94.25					B	0.000	2.250		100.00	0.000	0.000
00					C	0.000	2.250		100.00	0.000	2.882
L13	94.1250	1.25	44.24	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
94.2500-94.00					B	0.000	0.750		100.00	0.000	0.000
00					C	0.000	0.750		100.00	0.000	0.961
L14	91.5000	1.242	43.97	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
94.0000-89.00					B	0.000	15.000		100.00	0.000	0.000
00					C	0.000	15.000		100.00	0.000	19.211
L15	86.5000	1.228	43.46	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
89.0000-84.00					B	0.000	15.000		100.00	0.000	0.000
00					C	0.000	15.000		100.00	0.000	19.211
L16	82.0000	1.214	42.97	12.000	A	0.000	12.000	12.000	100.00	0.000	0.000
84.0000-80.00					B	0.000	12.000		100.00	0.000	0.000
00					C	0.000	12.000		100.00	0.000	15.369
L17	79.8750	1.207	42.73	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
80.0000-79.75					B	0.000	0.875		100.00	0.000	0.000
00					C	0.000	0.875		100.00	0.000	1.044
L18	77.2500	1.199	42.43	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
79.7500-74.75					B	0.000	17.500		100.00	0.000	0.000
00					C	0.000	17.500		100.00	0.000	20.878
L19	72.2500	1.182	41.84	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
74.7500-69.75					B	0.000	17.500		100.00	0.000	0.000
00					C	0.000	17.500		100.00	0.000	20.878
L20	67.2500	1.164	41.21	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
69.7500-64.75					B	0.000	17.500		100.00	0.000	0.000
00					C	0.000	17.500		100.00	0.000	20.878
L21	62.3750	1.146	40.57	16.625	A	0.000	16.625	16.625	100.00	0.000	0.000
64.7500-60.00					B	0.000	16.625		100.00	0.000	0.000
00					C	0.000	16.625		100.00	0.000	19.834
L22	59.8750	1.136	40.22	1.000	A	0.000	1.000	1.000	100.00	0.000	0.000
60.0000-59.75					B	0.000	1.000		100.00	0.000	0.000
00					C	0.000	1.000		100.00	0.000	0.961
L23	57.2500	1.125	39.84	20.000	A	0.000	20.000	20.000	100.00	0.000	0.000
59.7500-54.75					B	0.000	20.000		100.00	0.000	0.000
00					C	0.000	20.000		100.00	0.000	19.211
L24	52.2500	1.104	39.08	20.000	A	0.000	20.000	20.000	100.00	0.000	0.000
54.7500-49.75					B	0.000	20.000		100.00	0.000	0.000
00					C	0.000	20.000		100.00	0.000	19.211
L25	47.2500	1.081	38.26	20.000	A	0.000	20.000	20.000	100.00	0.000	0.000
49.7500-44.75					B	0.000	20.000		100.00	0.000	0.000
00					C	0.000	20.000		100.00	0.000	19.211
L26	42.3750	1.056	37.39	19.000	A	0.000	19.000	19.000	100.00	0.000	0.000
44.7500-40.00					B	0.000	19.000		100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
00					C	0.000	19.000		100.00	0.000	18.250
L27	39.8750	1.043	36.92	1.125	A	0.000	1.125	1.125	100.00	0.000	0.000
40.0000-39.75					B	0.000	1.125		100.00	0.000	0.000
00					C	0.000	1.125		100.00	0.000	0.961
L28	37.2500	1.028	36.39	22.500	A	0.000	22.500	22.500	100.00	0.000	0.000
39.7500-34.75					B	0.000	22.500		100.00	0.000	0.000
00					C	0.000	22.500		100.00	0.000	19.211
L29	32.2500	0.997	35.31	22.500	A	0.000	22.500	22.500	100.00	0.000	0.000
34.7500-29.75					B	0.000	22.500		100.00	0.000	0.000
00					C	0.000	22.500		100.00	0.000	19.211
L30	27.2500	0.963	34.08	22.500	A	0.000	22.500	22.500	100.00	0.000	0.000
29.7500-24.75					B	0.000	22.500		100.00	0.000	0.000
00					C	0.000	22.500		100.00	0.000	19.211
L31	22.3750	0.923	32.69	21.375	A	0.000	21.375	21.375	100.00	0.000	0.000
24.7500-20.00					B	0.000	21.375		100.00	0.000	0.000
00					C	0.000	21.375		100.00	0.000	18.250
L32	19.8750	0.901	31.88	1.250	A	0.000	1.250	1.250	100.00	0.000	0.000
20.0000-19.75					B	0.000	1.250		100.00	0.000	0.000
00					C	0.000	1.250		100.00	0.000	0.961
L33	19.3750	0.896	31.71	3.750	A	0.000	3.750	3.750	100.00	0.000	0.000
19.7500-19.00					B	0.000	3.750		100.00	0.000	0.000
00					C	0.000	3.750		100.00	0.000	2.882
L34	18.8750	0.891	31.54	1.250	A	0.000	1.250	1.250	100.00	0.000	0.000
19.0000-18.75					B	0.000	1.250		100.00	0.000	0.000
00					C	0.000	1.250		100.00	0.000	0.961
L35	16.2500	0.863	30.56	25.000	A	0.000	25.000	25.000	100.00	0.000	0.000
18.7500-13.75					B	0.000	25.000		100.00	0.000	0.000
00					C	0.000	25.000		100.00	0.000	19.211
L36	11.2500	0.85	30.09	25.000	A	0.000	25.000	25.000	100.00	0.000	0.000
13.7500-8.750					B	0.000	25.000		100.00	0.000	0.000
0					C	0.000	25.000		100.00	0.000	19.211
L37	6.2500	0.85	30.09	25.000	A	0.000	25.000	25.000	100.00	0.000	0.000
8.7500-3.7500					B	0.000	25.000		100.00	0.000	0.000
					C	0.000	25.000		100.00	0.000	19.211
L38	1.8750	0.85	30.09	18.750	A	0.000	18.750	18.750	100.00	0.000	0.000
3.7500-0.0000					B	0.000	18.750		100.00	0.000	0.000
					C	0.000	18.750		100.00	0.000	14.408

Tower Pressure - With Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	145.0000	1.369	7.88	1.9712	11.643	A	0.000	11.643	11.643	100.00	0.000	0.000
147.5000-142.50						B	0.000	11.643		100.00	0.000	0.000
00						C	0.000	11.643		100.00	0.000	26.053
L2	140.0000	1.359	7.82	1.9643	11.637	A	0.000	11.637	11.637	100.00	0.000	0.000
142.5000-137.50						B	0.000	11.637		100.00	0.000	0.000
00						C	0.000	11.637		100.00	0.000	25.984
L3	135.0000	1.348	7.76	1.9572	11.631	A	0.000	11.631	11.631	100.00	0.000	0.000
137.5000-132.50						B	0.000	11.631		100.00	0.000	0.000
00						C	0.000	11.631		100.00	0.000	25.913
L4	130.0000	1.337	7.70	1.9498	11.625	A	0.000	11.625	11.625	100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
132.5000-127.5000						B	0.000	11.625		100.00	0.000	0.000
						C	0.000	11.625		100.00	0.000	25.839
L5 127.5000-125.0000	126.2500	1.329	7.65	1.9441	5.810	A	0.000	5.810	5.810	100.00	0.000	0.000
						B	0.000	5.810		100.00	0.000	0.000
						C	0.000	5.810		100.00	0.000	12.891
L6 125.0000-120.0000	122.5000	1.321	7.60	1.9383	14.115	A	0.000	14.115	14.115	100.00	0.000	0.000
						B	0.000	14.115		100.00	0.000	0.000
						C	0.000	14.115		100.00	0.000	25.724
L7 120.0000-115.0000	117.5000	1.309	7.54	1.9302	14.108	A	0.000	14.108	14.108	100.00	0.000	0.000
						B	0.000	14.108		100.00	0.000	0.000
						C	0.000	14.108		100.00	0.000	25.643
L8 115.0000-110.0000	112.5000	1.297	7.47	1.9218	14.102	A	0.000	14.102	14.102	100.00	0.000	0.000
						B	0.000	14.102		100.00	0.000	0.000
						C	0.000	14.102		100.00	0.000	25.559
L9 110.0000-105.0000	107.5000	1.285	7.40	1.9131	14.094	A	0.000	14.094	14.094	100.00	0.000	0.000
						B	0.000	14.094		100.00	0.000	0.000
						C	0.000	14.094		100.00	0.000	25.472
L10 105.0000-100.0000	102.5000	1.272	7.32	1.9040	14.087	A	0.000	14.087	14.087	100.00	0.000	0.000
						B	0.000	14.087		100.00	0.000	0.000
						C	0.000	14.087		100.00	0.000	63.003
L11 100.0000-95.0000	97.5000	1.259	7.25	1.8945	16.579	A	0.000	16.579	16.579	100.00	0.000	0.000
						B	0.000	16.579		100.00	0.000	0.000
						C	0.000	16.579		100.00	0.000	62.785
L12 95.0000-94.2500	94.6250	1.251	7.20	1.8889	2.486	A	0.000	2.486	2.486	100.00	0.000	0.000
						B	0.000	2.486		100.00	0.000	0.000
						C	0.000	2.486		100.00	0.000	9.398
L13 94.2500-94.0000	94.1250	1.25	7.19	1.8879	0.829	A	0.000	0.829	0.829	100.00	0.000	0.000
						B	0.000	0.829		100.00	0.000	0.000
						C	0.000	0.829		100.00	0.000	3.132
L14 94.0000-89.0000	91.5000	1.242	7.15	1.8825	16.569	A	0.000	16.569	16.569	100.00	0.000	0.000
						B	0.000	16.569		100.00	0.000	0.000
						C	0.000	16.569		100.00	0.000	62.509
L15 89.0000-84.0000	86.5000	1.228	7.07	1.8720	16.560	A	0.000	16.560	16.560	100.00	0.000	0.000
						B	0.000	16.560		100.00	0.000	0.000
						C	0.000	16.560		100.00	0.000	62.266
L16 84.0000-80.0000	82.0000	1.214	6.99	1.8620	13.241	A	0.000	13.241	13.241	100.00	0.000	0.000
						B	0.000	13.241		100.00	0.000	0.000
						C	0.000	13.241		100.00	0.000	49.630
L17 80.0000-79.7500	79.8750	1.207	6.95	1.8571	0.952	A	0.000	0.952	0.952	100.00	0.000	0.000
						B	0.000	0.952		100.00	0.000	0.000
						C	0.000	0.952		100.00	0.000	3.386
L18 79.7500-74.7500	77.2500	1.199	6.90	1.8509	19.042	A	0.000	19.042	19.042	100.00	0.000	0.000
						B	0.000	19.042		100.00	0.000	0.000
						C	0.000	19.042		100.00	0.000	67.562
L19 74.7500-69.7500	72.2500	1.182	6.80	1.8386	19.032	A	0.000	19.032	19.032	100.00	0.000	0.000
						B	0.000	19.032		100.00	0.000	0.000
						C	0.000	19.032		100.00	0.000	67.251
L20 69.7500-64.7500	67.2500	1.164	6.70	1.8254	19.021	A	0.000	19.021	19.021	100.00	0.000	0.000
						B	0.000	19.021		100.00	0.000	0.000
						C	0.000	19.021		100.00	0.000	66.919
L21 64.7500-60.0000	62.3750	1.146	6.60	1.8118	18.059	A	0.000	18.059	18.059	100.00	0.000	0.000
						B	0.000	18.059		100.00	0.000	0.000
						C	0.000	18.059		100.00	0.000	63.245
L22 60.0000-59.7500	59.8750	1.136	6.54	1.8044	1.075	A	0.000	1.075	1.075	100.00	0.000	0.000
						B	0.000	1.075		100.00	0.000	0.000
						C	0.000	1.075		100.00	0.000	3.036
L23 59.7500-54.7500	57.2500	1.125	6.48	1.7963	21.497	A	0.000	21.497	21.497	100.00	0.000	0.000
						B	0.000	21.497		100.00	0.000	0.000
						C	0.000	21.497		100.00	0.000	60.526
L24	52.2500	1.104	6.35	1.7799	21.483	A	0.000	21.483	21.483	100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
54.7500-49.7500						B	0.000	21.483		100.00	0.000	0.000
						C	0.000	21.483		100.00	0.000	60.150
L25	47.2500	1.081	6.22	1.7621	21.468	A	0.000	21.468	21.468	100.00	0.000	0.000
49.7500-44.7500						B	0.000	21.468		100.00	0.000	0.000
						C	0.000	21.468		100.00	0.000	59.740
L26	42.3750	1.056	6.08	1.7430	20.380	A	0.000	20.380	20.380	100.00	0.000	0.000
44.7500-40.0000						B	0.000	20.380		100.00	0.000	0.000
						C	0.000	20.380		100.00	0.000	57.451
L27	39.8750	1.043	6.00	1.7325	1.197	A	0.000	1.197	1.197	100.00	0.000	0.000
40.0000-39.7500						B	0.000	1.197		100.00	0.000	0.000
						C	0.000	1.197		100.00	0.000	3.063
L28	37.2500	1.028	5.92	1.7207	23.934	A	0.000	23.934	23.934	100.00	0.000	0.000
39.7500-34.7500						B	0.000	23.934		100.00	0.000	0.000
						C	0.000	23.934		100.00	0.000	59.761
L29	32.2500	0.997	5.74	1.6961	23.913	A	0.000	23.913	23.913	100.00	0.000	0.000
34.7500-29.7500						B	0.000	23.913		100.00	0.000	0.000
						C	0.000	23.913		100.00	0.000	58.221
L30	27.2500	0.963	5.54	1.6678	23.890	A	0.000	23.890	23.890	100.00	0.000	0.000
29.7500-24.7500						B	0.000	23.890		100.00	0.000	0.000
						C	0.000	23.890		100.00	0.000	57.570
L31	22.3750	0.923	5.32	1.6352	22.670	A	0.000	22.670	22.670	100.00	0.000	0.000
24.7500-20.0000						B	0.000	22.670		100.00	0.000	0.000
						C	0.000	22.670		100.00	0.000	53.980
L32	19.8750	0.901	5.18	1.6160	1.317	A	0.000	1.317	1.317	100.00	0.000	0.000
20.0000-19.7500						B	0.000	1.317		100.00	0.000	0.000
						C	0.000	1.317		100.00	0.000	2.819
L33	19.3750	0.896	5.16	1.6118	3.951	A	0.000	3.951	3.951	100.00	0.000	0.000
19.7500-19.0000						B	0.000	3.951		100.00	0.000	0.000
						C	0.000	3.951		100.00	0.000	8.442
L34	18.8750	0.891	5.13	1.6076	1.317	A	0.000	1.317	1.317	100.00	0.000	0.000
19.0000-18.7500						B	0.000	1.317		100.00	0.000	0.000
						C	0.000	1.317		100.00	0.000	2.809
L35	16.2500	0.863	4.97	1.5837	26.320	A	0.000	26.320	26.320	100.00	0.000	0.000
18.7500-13.7500						B	0.000	26.320		100.00	0.000	0.000
						C	0.000	26.320		100.00	0.000	55.637
L36	11.2500	0.85	4.89	1.5266	26.272	A	0.000	26.272	26.272	100.00	0.000	0.000
13.7500-8.7500						B	0.000	26.272		100.00	0.000	0.000
						C	0.000	26.272		100.00	0.000	54.322
L37	6.2500	0.85	4.89	1.4394	26.200	A	0.000	26.200	26.200	100.00	0.000	0.000
8.7500-3.7500						B	0.000	26.200		100.00	0.000	0.000
						C	0.000	26.200		100.00	0.000	52.318
L38	1.8750	0.85	4.89	1.2761	19.548	A	0.000	19.548	19.548	100.00	0.000	0.000
3.7500-0.0000						B	0.000	19.548		100.00	0.000	0.000
						C	0.000	19.548		100.00	0.000	36.422

Tower Pressure - Service

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	145.0000	1.369	10.15	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
147.5000-142.					B	0.000	10.000		100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
5000					C	0.000	10.000		100.00	0.000	6.341
L2	140.0000	1.359	10.07	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
142.5000-137.					B	0.000	10.000		100.00	0.000	0.000
5000					C	0.000	10.000		100.00	0.000	6.341
L3	135.0000	1.348	10.00	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
137.5000-132.					B	0.000	10.000		100.00	0.000	0.000
5000					C	0.000	10.000		100.00	0.000	6.341
L4	130.0000	1.337	9.92	10.000	A	0.000	10.000	10.000	100.00	0.000	0.000
132.5000-127.					B	0.000	10.000		100.00	0.000	0.000
5000					C	0.000	10.000		100.00	0.000	6.341
L5	126.2500	1.329	9.86	5.000	A	0.000	5.000	5.000	100.00	0.000	0.000
127.5000-125.					B	0.000	5.000		100.00	0.000	0.000
0000					C	0.000	5.000		100.00	0.000	3.170
L6	122.5000	1.321	9.80	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
125.0000-120.					B	0.000	12.500		100.00	0.000	0.000
0000					C	0.000	12.500		100.00	0.000	6.341
L7	117.5000	1.309	9.71	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
120.0000-115.					B	0.000	12.500		100.00	0.000	0.000
0000					C	0.000	12.500		100.00	0.000	6.341
L8	112.5000	1.297	9.62	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
115.0000-110.					B	0.000	12.500		100.00	0.000	0.000
0000					C	0.000	12.500		100.00	0.000	6.341
L9	107.5000	1.285	9.53	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
110.0000-105.					B	0.000	12.500		100.00	0.000	0.000
0000					C	0.000	12.500		100.00	0.000	6.341
L10	102.5000	1.272	9.43	12.500	A	0.000	12.500	12.500	100.00	0.000	0.000
105.0000-100.					B	0.000	12.500		100.00	0.000	0.000
0000					C	0.000	12.500		100.00	0.000	19.211
L11	97.5000	1.259	9.34	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
100.0000-95.0					B	0.000	15.000		100.00	0.000	0.000
000					C	0.000	15.000		100.00	0.000	19.211
L12	94.6250	1.251	9.28	2.250	A	0.000	2.250	2.250	100.00	0.000	0.000
95.0000-94.25					B	0.000	2.250		100.00	0.000	0.000
00					C	0.000	2.250		100.00	0.000	2.882
L13	94.1250	1.25	9.27	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
94.2500-94.00					B	0.000	0.750		100.00	0.000	0.000
00					C	0.000	0.750		100.00	0.000	0.961
L14	91.5000	1.242	9.21	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
94.0000-89.00					B	0.000	15.000		100.00	0.000	0.000
00					C	0.000	15.000		100.00	0.000	19.211
L15	86.5000	1.228	9.10	15.000	A	0.000	15.000	15.000	100.00	0.000	0.000
89.0000-84.00					B	0.000	15.000		100.00	0.000	0.000
00					C	0.000	15.000		100.00	0.000	19.211
L16	82.0000	1.214	9.00	12.000	A	0.000	12.000	12.000	100.00	0.000	0.000
84.0000-80.00					B	0.000	12.000		100.00	0.000	0.000
00					C	0.000	12.000		100.00	0.000	15.369
L17	79.8750	1.207	8.95	0.875	A	0.000	0.875	0.875	100.00	0.000	0.000
80.0000-79.75					B	0.000	0.875		100.00	0.000	0.000
00					C	0.000	0.875		100.00	0.000	1.044
L18	77.2500	1.199	8.89	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
79.7500-74.75					B	0.000	17.500		100.00	0.000	0.000
00					C	0.000	17.500		100.00	0.000	20.878
L19	72.2500	1.182	8.76	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
74.7500-69.75					B	0.000	17.500		100.00	0.000	0.000
00					C	0.000	17.500		100.00	0.000	20.878
L20	67.2500	1.164	8.63	17.500	A	0.000	17.500	17.500	100.00	0.000	0.000
69.7500-64.75					B	0.000	17.500		100.00	0.000	0.000
00					C	0.000	17.500		100.00	0.000	20.878
L21	62.3750	1.146	8.50	16.625	A	0.000	16.625	16.625	100.00	0.000	0.000
64.7500-60.00					B	0.000	16.625		100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
00					C	0.000	16.625		100.00	0.000	19.834
L22	59.8750	1.136	8.42	1.000	A	0.000	1.000	1.000	100.00	0.000	0.000
60.0000-59.75					B	0.000	1.000		100.00	0.000	0.000
00					C	0.000	1.000		100.00	0.000	0.961
L23	57.2500	1.125	8.35	20.000	A	0.000	20.000	20.000	100.00	0.000	0.000
59.7500-54.75					B	0.000	20.000		100.00	0.000	0.000
00					C	0.000	20.000		100.00	0.000	19.211
L24	52.2500	1.104	8.19	20.000	A	0.000	20.000	20.000	100.00	0.000	0.000
54.7500-49.75					B	0.000	20.000		100.00	0.000	0.000
00					C	0.000	20.000		100.00	0.000	19.211
L25	47.2500	1.081	8.02	20.000	A	0.000	20.000	20.000	100.00	0.000	0.000
49.7500-44.75					B	0.000	20.000		100.00	0.000	0.000
00					C	0.000	20.000		100.00	0.000	19.211
L26	42.3750	1.056	7.83	19.000	A	0.000	19.000	19.000	100.00	0.000	0.000
44.7500-40.00					B	0.000	19.000		100.00	0.000	0.000
00					C	0.000	19.000		100.00	0.000	18.250
L27	39.8750	1.043	7.73	1.125	A	0.000	1.125	1.125	100.00	0.000	0.000
40.0000-39.75					B	0.000	1.125		100.00	0.000	0.000
00					C	0.000	1.125		100.00	0.000	0.961
L28	37.2500	1.028	7.62	22.500	A	0.000	22.500	22.500	100.00	0.000	0.000
39.7500-34.75					B	0.000	22.500		100.00	0.000	0.000
00					C	0.000	22.500		100.00	0.000	19.211
L29	32.2500	0.997	7.40	22.500	A	0.000	22.500	22.500	100.00	0.000	0.000
34.7500-29.75					B	0.000	22.500		100.00	0.000	0.000
00					C	0.000	22.500		100.00	0.000	19.211
L30	27.2500	0.963	7.14	22.500	A	0.000	22.500	22.500	100.00	0.000	0.000
29.7500-24.75					B	0.000	22.500		100.00	0.000	0.000
00					C	0.000	22.500		100.00	0.000	19.211
L31	22.3750	0.923	6.85	21.375	A	0.000	21.375	21.375	100.00	0.000	0.000
24.7500-20.00					B	0.000	21.375		100.00	0.000	0.000
00					C	0.000	21.375		100.00	0.000	18.250
L32	19.8750	0.901	6.68	1.250	A	0.000	1.250	1.250	100.00	0.000	0.000
20.0000-19.75					B	0.000	1.250		100.00	0.000	0.000
00					C	0.000	1.250		100.00	0.000	0.961
L33	19.3750	0.896	6.64	3.750	A	0.000	3.750	3.750	100.00	0.000	0.000
19.7500-19.00					B	0.000	3.750		100.00	0.000	0.000
00					C	0.000	3.750		100.00	0.000	2.882
L34	18.8750	0.891	6.61	1.250	A	0.000	1.250	1.250	100.00	0.000	0.000
19.0000-18.75					B	0.000	1.250		100.00	0.000	0.000
00					C	0.000	1.250		100.00	0.000	0.961
L35	16.2500	0.863	6.40	25.000	A	0.000	25.000	25.000	100.00	0.000	0.000
18.7500-13.75					B	0.000	25.000		100.00	0.000	0.000
00					C	0.000	25.000		100.00	0.000	19.211
L36	11.2500	0.85	6.30	25.000	A	0.000	25.000	25.000	100.00	0.000	0.000
13.7500-8.750					B	0.000	25.000		100.00	0.000	0.000
0					C	0.000	25.000		100.00	0.000	19.211
L37	6.2500	0.85	6.30	25.000	A	0.000	25.000	25.000	100.00	0.000	0.000
8.7500-3.7500					B	0.000	25.000		100.00	0.000	0.000
					C	0.000	25.000		100.00	0.000	19.211
L38	1.8750	0.85	6.30	18.750	A	0.000	18.750	18.750	100.00	0.000	0.000
3.7500-0.0000					B	0.000	18.750		100.00	0.000	0.000
					C	0.000	18.750		100.00	0.000	14.408

Load Combinations

Comb. No.	Description

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	147.5 - 142.5	Pole	Max Tension	26	0.00	-0.00	0.00
			Max. Compression	26	-11.00	1.81	0.02
			Max. Mx	8	-4.35	-52.02	0.70

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-4.36	-1.11	51.04
			Max. Vy	8	6.79	-52.02	0.70
			Max. Vx	2	-6.63	-1.11	51.04
			Max. Torque	16			-1.70
L2	142.5 - 137.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.85	1.42	-0.03
			Max. Mx	8	-7.91	-100.82	1.02
			Max. My	2	-7.93	-1.99	98.92
			Max. Vy	8	12.69	-100.82	1.02
			Max. Vx	2	-12.54	-1.99	98.92
			Max. Torque	14			-1.94
L3	137.5 - 132.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-23.26	1.90	-0.30
			Max. Mx	8	-8.60	-165.93	1.36
			Max. My	2	-8.62	-2.71	163.28
			Max. Vy	8	13.37	-165.93	1.36
			Max. Vx	2	-13.22	-2.71	163.28
			Max. Torque	12			-2.23
L4	132.5 - 127.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.87	2.39	-0.57
			Max. Mx	8	-12.66	-241.66	1.71
			Max. My	2	-12.68	-3.44	238.26
			Max. Vy	8	16.94	-241.66	1.71
			Max. Vx	2	-16.78	-3.44	238.26
			Max. Torque	12			-2.56
L5	127.5 - 125	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.59	2.64	-0.71
			Max. Mx	8	-13.04	-284.38	1.88
			Max. My	2	-13.06	-3.80	280.59
			Max. Vy	8	17.26	-284.38	1.88
			Max. Vx	2	-17.11	-3.80	280.59
			Max. Torque	12			-2.72
L6	125 - 120	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.24	3.25	-1.04
			Max. Mx	8	-13.92	-372.45	2.22
			Max. My	2	-13.94	-4.51	367.90
			Max. Vy	8	18.00	-372.45	2.22
			Max. Vx	2	-17.84	-4.51	367.90
			Max. Torque	12			-3.13
L7	120 - 115	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.89	3.85	-1.37
			Max. Mx	8	-14.82	-464.16	2.56
			Max. My	2	-14.84	-5.23	458.86
			Max. Vy	8	18.72	-464.16	2.56
			Max. Vx	2	-18.56	-5.23	458.86
			Max. Torque	12			-3.53
L8	115 - 110	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.54	4.45	-1.71
			Max. Mx	8	-15.73	-559.42	2.89
			Max. My	2	-15.74	-5.94	553.37
			Max. Vy	8	19.42	-559.42	2.89
			Max. Vx	2	-19.26	-5.94	553.37
			Max. Torque	12			-3.93
L9	110 - 105	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.18	5.05	-2.04
			Max. Mx	8	-16.65	-658.13	3.23
			Max. My	2	-16.67	-6.65	651.32
			Max. Vy	8	20.10	-658.13	3.23
			Max. Vx	2	-19.94	-6.65	651.32
			Max. Torque	12			-4.32
L10	105 - 100	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-50.54	6.73	-2.62
			Max. Mx	8	-20.92	-779.74	3.88
			Max. My	2	-20.95	-7.30	771.68
			Max. Vy	8	25.00	-779.74	3.88
			Max. Vx	2	-24.67	-7.30	771.68
			Max. Torque	12			-5.89
L11	100 - 95	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.33	8.71	-3.75
			Max. Mx	8	-22.04	-907.93	4.16
			Max. My	2	-22.07	-7.91	898.32
			Max. Vy	8	26.36	-907.93	4.16
			Max. Vx	2	-26.04	-7.91	898.32
			Max. Torque	12			-7.29
L12	95 - 94.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.56	9.06	-3.96
			Max. Mx	8	-22.50	-928.13	4.20
			Max. My	2	-22.53	-8.00	918.29
			Max. Vy	8	27.10	-928.13	4.20
			Max. Vx	2	-26.77	-8.00	918.29
			Max. Torque	12			-7.50
L13	94.25 - 94	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.73	9.18	-4.02
			Max. Mx	8	-22.58	-934.91	4.21
			Max. My	2	-22.60	-8.03	924.99
			Max. Vy	8	27.16	-934.91	4.21
			Max. Vx	2	-26.84	-8.03	924.99
			Max. Torque	12			-7.57
L14	94 - 89	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.06	11.54	-5.37
			Max. Mx	8	-23.97	-1073.88	4.47
			Max. My	2	-23.99	-8.60	1062.43
			Max. Vy	8	28.52	-1073.88	4.47
			Max. Vx	2	-28.20	-8.60	1062.43
			Max. Torque	12			-8.96
L15	89 - 84	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.64	15.11	-7.42
			Max. Mx	8	-25.48	-1220.58	4.45
			Max. My	2	-25.50	-8.76	1207.85
			Max. Vy	8	30.00	-1220.58	4.45
			Max. Vx	2	-29.70	-8.76	1207.85
			Max. Torque	12			-11.36
L16	84 - 80	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.28	16.97	-8.48
			Max. Mx	8	-26.63	-1342.44	4.59
			Max. My	2	-26.65	-9.15	1328.56
			Max. Vy	8	31.03	-1342.44	4.59
			Max. Vx	2	-30.73	-9.15	1328.56
			Max. Torque	12			-12.45
L17	80 - 79.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.47	17.10	-8.56
			Max. Mx	8	-26.73	-1350.19	4.60
			Max. My	2	-26.75	-9.17	1336.24
			Max. Vy	8	31.10	-1350.19	4.60
			Max. Vx	2	-30.79	-9.17	1336.24
			Max. Torque	12			-12.53
L18	79.75 - 74.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.22	19.77	-10.09
			Max. Mx	8	-28.51	-1509.08	4.75
			Max. My	2	-28.52	-9.62	1493.72
			Max. Vy	8	32.57	-1509.08	4.75
			Max. Vx	2	-32.26	-9.62	1493.72

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	12			-14.23
L19	74.75 - 69.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.10	22.41	-11.07
			Max. Mx	8	-30.38	-1675.41	5.14
			Max. My	2	-30.40	-10.07	1658.81
			Max. Vy	8	34.08	-1675.41	5.14
			Max. Vx	2	-33.74	-10.07	1658.81
			Max. Torque	12			-15.76
L20	69.75 - 64.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.81	25.03	-12.57
			Max. Mx	8	-32.20	-1849.01	5.29
			Max. My	2	-32.22	-10.51	1830.81
			Max. Vy	8	35.47	-1849.01	5.29
			Max. Vx	2	-35.13	-10.51	1830.81
			Max. Torque	12			-17.41
L21	64.75 - 60	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.32	27.49	-13.98
			Max. Mx	8	-33.94	-2020.26	5.43
			Max. My	2	-33.96	-10.94	2000.54
			Max. Vy	8	36.76	-2020.26	5.43
			Max. Vx	2	-36.41	-10.94	2000.54
			Max. Torque	12			-18.96
L22	60 - 59.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.53	27.64	-14.07
			Max. Mx	8	-34.06	-2029.44	5.44
			Max. My	2	-34.07	-10.96	2009.64
			Max. Vy	8	36.81	-2029.44	5.44
			Max. Vx	2	-36.47	-10.96	2009.64
			Max. Torque	12			-19.04
L23	59.75 - 54.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-83.59	30.55	-15.73
			Max. Mx	8	-36.18	-2216.57	5.56
			Max. My	2	-36.20	-11.36	2195.19
			Max. Vy	8	38.16	-2216.57	5.56
			Max. Vx	2	-37.82	-11.36	2195.19
			Max. Torque	12			-20.72
L24	54.75 - 49.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.18	34.77	-17.31
			Max. Mx	8	-38.50	-2414.54	5.73
			Max. My	2	-38.52	-11.39	2391.96
			Max. Vy	8	39.89	-2414.54	5.73
			Max. Vx	2	-39.53	-11.39	2391.96
			Max. Torque	12			-23.49
L25	49.75 - 44.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.49	37.60	-18.20
			Max. Mx	8	-40.84	-2617.05	6.21
			Max. My	2	-40.84	-11.71	2593.64
			Max. Vy	8	41.26	-2617.05	6.21
			Max. Vx	2	-41.08	-11.71	2593.64
			Max. Torque	12			-24.96
L26	44.75 - 40	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-96.28	40.24	-19.72
			Max. Mx	8	-42.90	-2815.44	6.26
			Max. My	2	-42.91	-12.02	2791.29
			Max. Vy	8	42.41	-2815.44	6.26
			Max. Vx	2	-42.23	-12.02	2791.29
			Max. Torque	12			-26.45
L27	40 - 39.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-96.64	40.40	-19.44
			Max. Mx	8	-43.13	-2826.04	6.48
			Max. My	2	-43.13	-12.04	2802.10

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	8	42.52	-2826.04	6.48
			Max. Vx	2	-42.43	-12.04	2802.10
			Max. Torque	12			-26.47
L28	39.75 - 34.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-101.16	43.45	-20.80
			Max. Mx	8	-45.71	-3041.58	6.74
			Max. My	2	-45.72	-12.33	3017.74
			Max. Vy	8	43.84	-3041.58	6.74
			Max. Vx	2	-43.83	-12.33	3017.74
			Max. Torque	12			-28.12
L29	34.75 - 29.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-105.50	46.45	-22.52
			Max. Mx	8	-48.23	-3263.44	6.76
			Max. My	2	-48.23	-12.62	3239.69
			Max. Vy	8	45.05	-3263.44	6.76
			Max. Vx	2	-45.04	-12.62	3239.69
			Max. Torque	12			-29.79
L30	29.75 - 24.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-109.81	49.38	-24.21
			Max. Mx	8	-50.76	-3491.18	6.79
			Max. My	2	-50.76	-12.91	3467.51
			Max. Vy	8	46.20	-3491.18	6.79
			Max. Vx	2	-46.19	-12.91	3467.51
			Max. Torque	12			-31.41
L31	24.75 - 20	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-113.85	52.08	-25.76
			Max. Mx	8	-53.17	-3712.67	6.81
			Max. My	2	-53.17	-13.18	3689.09
			Max. Vy	8	47.22	-3712.67	6.81
			Max. Vx	2	-47.21	-13.18	3689.09
			Max. Torque	12			-32.89
L32	20 - 19.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-114.12	52.24	-25.85
			Max. Mx	8	-53.36	-3724.46	6.81
			Max. My	2	-53.36	-13.20	3700.89
			Max. Vy	8	47.27	-3724.46	6.81
			Max. Vx	2	-47.26	-13.20	3700.89
			Max. Torque	12			-32.97
L33	19.75 - 19	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-114.91	52.70	-26.12
			Max. Mx	8	-53.88	-3759.91	6.81
			Max. My	2	-53.88	-13.23	3736.36
			Max. Vy	8	47.44	-3759.91	6.81
			Max. Vx	2	-47.43	-13.23	3736.36
			Max. Torque	12			-33.22
L34	19 - 18.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-115.17	52.86	-26.21
			Max. Mx	8	-54.06	-3771.76	6.81
			Max. My	2	-54.06	-13.25	3748.21
			Max. Vy	8	47.49	-3771.76	6.81
			Max. Vx	2	-47.48	-13.25	3748.21
			Max. Torque	12			-33.31
L35	18.75 - 13.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-120.43	55.83	-27.93
			Max. Mx	8	-57.58	-4011.54	6.81
			Max. My	2	-57.58	-13.49	3988.11
			Max. Vy	8	48.58	-4011.54	6.81
			Max. Vx	2	-48.57	-13.49	3988.11
			Max. Torque	12			-34.92
L36	13.75 - 8.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-125.60	58.67	-29.57

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-61.12	-4256.64	6.81
			Max. My	14	-61.12	13.12	-4233.41
			Max. Vy	8	49.63	-4256.64	6.81
			Max. Vx	2	-49.62	-13.74	4233.33
			Max. Torque	12			-36.51
L37	8.75 - 3.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-130.65	61.32	-31.10
			Max. Mx	8	-64.66	-4506.92	6.81
			Max. My	14	-64.66	13.60	-4484.10
			Max. Vy	8	50.65	-4506.92	6.81
			Max. Vx	2	-50.65	-14.00	4483.72
			Max. Torque	12			-38.10
L38	3.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-134.25	63.02	-32.08
			Max. Mx	20	-67.32	4698.11	-0.65
			Max. My	14	-67.32	13.95	-4675.46
			Max. Vy	8	51.42	-4697.97	6.81
			Max. Vx	2	-51.41	-14.19	4674.87
			Max. Torque	12			-39.29

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	134.25	-0.00	0.00
	Max. H_x	21	50.50	51.30	0.03
	Max. H_z	2	67.33	-0.12	51.39
	Max. M_x	2	4674.87	-0.12	51.39
	Max. M_z	8	4697.97	-51.40	0.04
	Max. Torsion	24	39.19	25.69	44.48
	Min. Vert	9	50.50	-51.40	0.04
	Min. H_x	9	50.50	-51.40	0.04
	Min. H_z	14	67.33	0.02	-51.37
	Min. M_x	14	-4675.46	0.02	-51.37
	Min. M_z	20	-4698.11	51.30	0.03
	Min. Torsion	12	-39.29	-25.81	-44.45

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	56.11	-0.00	0.00	1.98	6.22	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	67.33	0.12	-51.39	-4674.87	-14.19	-34.43
0.9 Dead+1.0 Wind 0 deg - No Ice	50.50	0.12	-51.39	-4648.12	-15.93	-34.42
1.2 Dead+1.0 Wind 30 deg - No Ice	67.33	25.82	-44.47	-4044.13	-2366.09	-20.39
0.9 Dead+1.0 Wind 30 deg - No Ice	50.50	25.82	-44.47	-4021.09	-2354.04	-20.38
1.2 Dead+1.0 Wind 60 deg - No	67.33	44.54	-25.67	-2334.28	-4072.54	-1.24

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Ice						
0.9 Dead+1.0 Wind 60 deg - No Ice	50.50	44.54	-25.67	-2321.23	-4050.52	-1.23
1.2 Dead+1.0 Wind 90 deg - No Ice	67.33	51.40	-0.04	-6.82	-4697.97	18.19
0.9 Dead+1.0 Wind 90 deg - No Ice	50.50	51.40	-0.04	-7.34	-4672.30	18.19
1.2 Dead+1.0 Wind 120 deg - No Ice	67.33	44.58	25.61	2324.49	-4077.00	33.02
0.9 Dead+1.0 Wind 120 deg - No Ice	50.50	44.58	25.61	2310.35	-4054.94	33.02
1.2 Dead+1.0 Wind 150 deg - No Ice	67.33	25.81	44.45	4042.80	-2359.80	39.29
0.9 Dead+1.0 Wind 150 deg - No Ice	50.50	25.81	44.45	4018.59	-2347.81	39.28
1.2 Dead+1.0 Wind 180 deg - No Ice	67.33	-0.02	51.37	4675.46	13.95	34.64
0.9 Dead+1.0 Wind 180 deg - No Ice	50.50	-0.02	51.37	4647.52	11.96	34.63
1.2 Dead+1.0 Wind 210 deg - No Ice	67.33	-25.61	44.49	4052.29	2348.48	21.12
0.9 Dead+1.0 Wind 210 deg - No Ice	50.50	-25.61	44.49	4027.98	2332.83	21.11
1.2 Dead+1.0 Wind 240 deg - No Ice	67.33	-44.41	25.69	2342.41	4068.64	1.69
0.9 Dead+1.0 Wind 240 deg - No Ice	50.50	-44.41	25.69	2328.09	4042.90	1.68
1.2 Dead+1.0 Wind 270 deg - No Ice	67.33	-51.30	-0.03	0.65	4698.11	-18.30
0.9 Dead+1.0 Wind 270 deg - No Ice	50.50	-51.30	-0.03	0.05	4668.68	-18.30
1.2 Dead+1.0 Wind 300 deg - No Ice	67.33	-44.41	-25.72	-2338.11	4065.79	-33.22
0.9 Dead+1.0 Wind 300 deg - No Ice	50.50	-44.41	-25.72	-2325.03	4040.09	-33.22
1.2 Dead+1.0 Wind 330 deg - No Ice	67.33	-25.69	-44.48	-4041.97	2356.37	-39.19
0.9 Dead+1.0 Wind 330 deg - No Ice	50.50	-25.69	-44.48	-4018.94	2340.68	-39.18
1.2 Dead+1.0 Ice+1.0 Temp	134.25	0.00	-0.00	32.08	63.02	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	134.25	0.03	-20.34	-1771.09	57.66	-17.37
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	134.25	10.20	-17.61	-1528.84	-848.15	-10.46
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	134.25	17.63	-10.16	-869.50	-1507.67	-0.83
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	134.25	20.35	-0.01	29.52	-1749.07	9.01
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	134.25	17.64	10.15	929.54	-1508.15	16.50
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	134.25	10.20	17.60	1591.17	-845.83	19.63
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	134.25	-0.00	20.33	1834.38	65.07	17.41
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	134.25	-10.15	17.61	1593.85	966.96	10.62
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	134.25	-17.60	10.17	934.49	1629.58	0.93
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	134.25	-20.33	-0.01	32.25	1871.89	-9.03
1.2 Dead+1.0 Wind 300	134.25	-17.60	-10.18	-869.46	1628.41	-16.54

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	134.25	-10.17	-17.61	-1527.83	967.84	-19.60
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	56.11	0.03	-10.77	-974.44	1.80	-7.23
Dead+Wind 30 deg - Service	56.11	5.41	-9.32	-842.75	-489.19	-4.28
Dead+Wind 60 deg - Service	56.11	9.33	-5.38	-485.80	-845.44	-0.26
Dead+Wind 90 deg - Service	56.11	10.77	-0.01	0.09	-976.01	3.82
Dead+Wind 120 deg - Service	56.11	9.34	5.36	486.80	-846.38	6.94
Dead+Wind 150 deg - Service	56.11	5.41	9.31	845.52	-487.88	8.25
Dead+Wind 180 deg - Service	56.11	-0.00	10.76	977.58	7.66	7.27
Dead+Wind 210 deg - Service	56.11	-5.36	9.32	847.49	495.03	4.43
Dead+Wind 240 deg - Service	56.11	-9.30	5.38	490.51	854.11	0.35
Dead+Wind 270 deg - Service	56.11	-10.75	-0.01	1.65	985.52	-3.84
Dead+Wind 300 deg - Service	56.11	-9.30	-5.39	-486.60	853.54	-6.97
Dead+Wind 330 deg - Service	56.11	-5.38	-9.32	-842.31	496.68	-8.22

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-56.11	0.00	0.00	56.11	-0.00	0.000%
2	0.12	-67.33	-51.39	-0.12	67.33	51.39	0.000%
3	0.12	-50.50	-51.39	-0.12	50.50	51.39	0.000%
4	25.82	-67.33	-44.47	-25.82	67.33	44.47	0.000%
5	25.82	-50.50	-44.47	-25.82	50.50	44.47	0.000%
6	44.54	-67.33	-25.67	-44.54	67.33	25.67	0.000%
7	44.54	-50.50	-25.67	-44.54	50.50	25.67	0.000%
8	51.40	-67.33	-0.04	-51.40	67.33	0.04	0.000%
9	51.40	-50.50	-0.04	-51.40	50.50	0.04	0.000%
10	44.58	-67.33	25.61	-44.58	67.33	-25.61	0.000%
11	44.58	-50.50	25.61	-44.58	50.50	-25.61	0.000%
12	25.81	-67.33	44.45	-25.81	67.33	-44.45	0.000%
13	25.81	-50.50	44.45	-25.81	50.50	-44.45	0.000%
14	-0.02	-67.33	51.37	0.02	67.33	-51.37	0.000%
15	-0.02	-50.50	51.37	0.02	50.50	-51.37	0.000%
16	-25.61	-67.33	44.49	25.61	67.33	-44.49	0.000%
17	-25.61	-50.50	44.49	25.61	50.50	-44.49	0.000%
18	-44.41	-67.33	25.69	44.41	67.33	-25.69	0.000%
19	-44.41	-50.50	25.69	44.41	50.50	-25.69	0.000%
20	-51.30	-67.33	-0.03	51.30	67.33	0.03	0.000%
21	-51.30	-50.50	-0.03	51.30	50.50	0.03	0.000%
22	-44.41	-67.33	-25.72	44.41	67.33	25.72	0.000%
23	-44.41	-50.50	-25.72	44.41	50.50	25.72	0.000%
24	-25.69	-67.33	-44.48	25.69	67.33	44.48	0.000%
25	-25.69	-50.50	-44.48	25.69	50.50	44.48	0.000%
26	0.00	-134.25	0.00	-0.00	134.25	0.00	0.000%
27	0.03	-134.25	-20.34	-0.03	134.25	20.34	0.000%
28	10.20	-134.25	-17.61	-10.20	134.25	17.61	0.000%
29	17.63	-134.25	-10.16	-17.63	134.25	10.16	0.000%
30	20.35	-134.25	-0.01	-20.35	134.25	0.01	0.000%
31	17.64	-134.25	10.15	-17.64	134.25	-10.15	0.000%
32	10.20	-134.25	17.60	-10.20	134.25	-17.60	0.000%
33	-0.00	-134.25	20.33	0.00	134.25	-20.33	0.000%
34	-10.15	-134.25	17.61	10.15	134.25	-17.61	0.000%
35	-17.60	-134.25	10.17	17.60	134.25	-10.17	0.000%
36	-20.33	-134.25	-0.01	20.33	134.25	0.01	0.000%
37	-17.60	-134.25	-10.18	17.60	134.25	10.18	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
38	-10.17	-134.25	-17.61	10.17	134.25	17.61	0.000%
39	0.03	-56.11	-10.77	-0.03	56.11	10.77	0.000%
40	5.41	-56.11	-9.32	-5.41	56.11	9.32	0.000%
41	9.33	-56.11	-5.38	-9.33	56.11	5.38	0.000%
42	10.77	-56.11	-0.01	-10.77	56.11	0.01	0.000%
43	9.34	-56.11	5.36	-9.34	56.11	-5.36	0.000%
44	5.41	-56.11	9.31	-5.41	56.11	-9.31	0.000%
45	-0.00	-56.11	10.76	0.00	56.11	-10.76	0.000%
46	-5.36	-56.11	9.32	5.36	56.11	-9.32	0.000%
47	-9.30	-56.11	5.38	9.30	56.11	-5.38	0.000%
48	-10.75	-56.11	-0.01	10.75	56.11	0.01	0.000%
49	-9.30	-56.11	-5.39	9.30	56.11	5.39	0.000%
50	-5.38	-56.11	-9.32	5.38	56.11	9.32	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	17	0.00000001	0.00005091
3	Yes	16	0.00000001	0.00011674
4	Yes	17	0.00000001	0.00006924
5	Yes	17	0.00000001	0.00005112
6	Yes	17	0.00000001	0.00007771
7	Yes	17	0.00000001	0.00005743
8	Yes	16	0.00000001	0.00008055
9	Yes	16	0.00000001	0.00006210
10	Yes	17	0.00000001	0.00011036
11	Yes	17	0.00000001	0.00008251
12	Yes	17	0.00000001	0.00007326
13	Yes	17	0.00000001	0.00005463
14	Yes	17	0.00000001	0.00005273
15	Yes	16	0.00000001	0.00012085
16	Yes	17	0.00000001	0.00009640
17	Yes	17	0.00000001	0.00007170
18	Yes	17	0.00000001	0.00007566
19	Yes	17	0.00000001	0.00005578
20	Yes	16	0.00000001	0.00008263
21	Yes	17	0.00000001	0.00002101
22	Yes	17	0.00000001	0.00006924
23	Yes	17	0.00000001	0.00005136
24	Yes	17	0.00000001	0.00011717
25	Yes	17	0.00000001	0.00008772
26	Yes	13	0.00000001	0.00010426
27	Yes	17	0.00000001	0.00006591
28	Yes	17	0.00000001	0.00006673
29	Yes	17	0.00000001	0.00006607
30	Yes	17	0.00000001	0.00006150
31	Yes	17	0.00000001	0.00007282
32	Yes	17	0.00000001	0.00007169
33	Yes	17	0.00000001	0.00006823
34	Yes	17	0.00000001	0.00007466
35	Yes	17	0.00000001	0.00007206
36	Yes	17	0.00000001	0.00006576
37	Yes	17	0.00000001	0.00007244
38	Yes	17	0.00000001	0.00007663

39	Yes	14	0.00000001	0.00007078
40	Yes	13	0.00000001	0.00011002
41	Yes	13	0.00000001	0.00008072
42	Yes	13	0.00000001	0.00010154
43	Yes	14	0.00000001	0.00008262
44	Yes	14	0.00000001	0.00007587
45	Yes	14	0.00000001	0.00007188
46	Yes	14	0.00000001	0.00006117
47	Yes	13	0.00000001	0.00007733
48	Yes	13	0.00000001	0.00010352
49	Yes	14	0.00000001	0.00006440
50	Yes	14	0.00000001	0.00009434

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
L1	147.5 - 142.5	12.887	48	0.8603	0.0106
L2	142.5 - 137.5	11.988	48	0.8546	0.0103
L3	137.5 - 132.5	11.099	48	0.8434	0.0099
L4	132.5 - 127.5	10.226	48	0.8230	0.0095
L5	127.5 - 125	9.379	48	0.7923	0.0090
L6	125 - 120	8.969	48	0.7722	0.0088
L7	120 - 115	8.173	48	0.7469	0.0085
L8	115 - 110	7.407	48	0.7146	0.0081
L9	110 - 105	6.679	48	0.6752	0.0077
L10	105 - 100	5.996	48	0.6282	0.0073
L11	100 - 95	5.366	48	0.5727	0.0068
L12	95 - 94.25	4.786	48	0.5353	0.0064
L13	94.25 - 94	4.702	48	0.5291	0.0063
L14	94 - 89	4.674	48	0.5275	0.0063
L15	89 - 84	4.139	48	0.4933	0.0059
L16	84 - 80	3.643	48	0.4541	0.0054
L17	80 - 79.75	3.277	48	0.4190	0.0050
L18	79.75 - 74.75	3.255	48	0.4178	0.0050
L19	74.75 - 69.75	2.831	48	0.3914	0.0047
L20	69.75 - 64.75	2.436	48	0.3619	0.0043
L21	64.75 - 60	2.074	48	0.3293	0.0039
L22	60 - 59.75	1.763	48	0.2953	0.0035
L23	59.75 - 54.75	1.748	48	0.2941	0.0035
L24	54.75 - 49.75	1.453	48	0.2694	0.0032
L25	49.75 - 44.75	1.184	48	0.2425	0.0028
L26	44.75 - 40	0.946	48	0.2132	0.0025
L27	40 - 39.75	0.748	48	0.1832	0.0021
L28	39.75 - 34.75	0.739	48	0.1821	0.0021
L29	34.75 - 29.75	0.560	48	0.1596	0.0018
L30	29.75 - 24.75	0.405	48	0.1354	0.0015
L31	24.75 - 20	0.277	48	0.1094	0.0012
L32	20 - 19.75	0.181	48	0.0831	0.0009
L33	19.75 - 19	0.177	48	0.0822	0.0009
L34	19 - 18.75	0.164	48	0.0794	0.0009
L35	18.75 - 13.75	0.160	48	0.0785	0.0009
L36	13.75 - 8.75	0.088	48	0.0592	0.0007
L37	8.75 - 3.75	0.036	48	0.0388	0.0004
L38	3.75 - 0	0.007	48	0.0171	0.0002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.0000	HPD2-4.7	48	12.887	0.8603	0.0106	34705
148.0000	DS4C06F36D-D	48	12.887	0.8603	0.0106	34705
140.0000	(2) LNX-6514DS-A1M w/ Mount Pipe	48	11.542	0.8500	0.0101	24174
130.0000	AAHC w/ Mount Pipe	48	9.798	0.8095	0.0093	9178
105.0000	HPA-65R-BUU-H6 w/ Mount Pipe	48	5.996	0.6282	0.0073	5611
95.0000	APXV18-206516S-C	48	4.786	0.5353	0.0064	7789
89.0000	1142-2C	48	4.139	0.4933	0.0059	7806
72.0000	GPS_A	48	2.610	0.3754	0.0045	9667
54.0000	201-1N	48	1.411	0.2655	0.0031	10961
49.0000	DB436-C	48	1.147	0.2384	0.0028	10070
45.0000	DB436-C	48	0.957	0.2149	0.0025	9443
40.0000	DB436-C	48	0.748	0.1832	0.0021	10586
37.0000	DB436-C	48	0.637	0.1700	0.0020	12185

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147.5 - 142.5	61.626	8	4.1207	0.0504
L2	142.5 - 137.5	57.326	8	4.0946	0.0491
L3	137.5 - 132.5	53.066	8	4.0412	0.0474
L4	132.5 - 127.5	48.885	8	3.9438	0.0454
L5	127.5 - 125	44.830	8	3.7960	0.0430
L6	125 - 120	42.869	8	3.6997	0.0417
L7	120 - 115	39.058	8	3.5778	0.0403
L8	115 - 110	35.392	8	3.4226	0.0387
L9	110 - 105	31.906	8	3.2326	0.0368
L10	105 - 100	28.638	8	3.0065	0.0348
L11	100 - 95	25.627	8	2.7397	0.0322
L12	95 - 94.25	22.851	8	2.5595	0.0304
L13	94.25 - 94	22.451	8	2.5301	0.0301
L14	94 - 89	22.319	8	2.5225	0.0300
L15	89 - 84	19.762	8	2.3580	0.0282
L16	84 - 80	17.390	8	2.1700	0.0260
L17	80 - 79.75	15.642	8	2.0021	0.0239
L18	79.75 - 74.75	15.537	8	1.9961	0.0239
L19	74.75 - 69.75	13.512	8	1.8695	0.0223
L20	69.75 - 64.75	11.627	8	1.7285	0.0206
L21	64.75 - 60	9.898	8	1.5724	0.0187
L22	60 - 59.75	8.414	8	1.4096	0.0167
L23	59.75 - 54.75	8.340	8	1.4040	0.0166
L24	54.75 - 49.75	6.931	8	1.2860	0.0152
L25	49.75 - 44.75	5.651	8	1.1573	0.0136
L26	44.75 - 40	4.511	8	1.0176	0.0118
L27	40 - 39.75	3.569	8	0.8742	0.0101
L28	39.75 - 34.75	3.523	8	0.8690	0.0100
L29	34.75 - 29.75	2.669	8	0.7614	0.0087
L30	29.75 - 24.75	1.932	8	0.6457	0.0073
L31	24.75 - 20	1.320	8	0.5218	0.0059
L32	20 - 19.75	0.862	8	0.3962	0.0044
L33	19.75 - 19	0.842	8	0.3919	0.0044

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L34	19 - 18.75	0.781	8	0.3786	0.0042
L35	18.75 - 13.75	0.761	8	0.3742	0.0042
L36	13.75 - 8.75	0.417	8	0.2824	0.0031
L37	8.75 - 3.75	0.172	8	0.1848	0.0020
L38	3.75 - 0	0.032	20	0.0814	0.0009

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.0000	HPD2-4.7	8	61.626	4.1207	0.0504	7471
148.0000	DS4C06F36D-D	8	61.626	4.1207	0.0504	7471
140.0000	(2) LNX-6514DS-A1M w/ Mount Pipe	8	55.189	4.0728	0.0483	5146
130.0000	AAHC w/ Mount Pipe	8	46.837	3.8790	0.0443	1927
105.0000	HPA-65R-BUU-H6 w/ Mount Pipe	8	28.638	3.0065	0.0348	1172
95.0000	APXV18-206516S-C	8	22.851	2.5595	0.0304	1627
89.0000	1142-2C	8	19.762	2.3580	0.0282	1632
72.0000	GPS_A	8	12.457	1.7929	0.0214	2023
54.0000	201-1N	8	6.730	1.2672	0.0149	2295
49.0000	DB436-C	8	5.470	1.1378	0.0133	2109
45.0000	DB436-C	8	4.564	1.0255	0.0119	1978
40.0000	DB436-C	8	3.569	0.8742	0.0101	2218
37.0000	DB436-C	8	3.040	0.8111	0.0093	2553

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	147.5 - 142.5 (1)	P24x0.375	5.0000	0.0000	0.0	27.8325	-4.35	1052.07	0.004
L2	142.5 - 137.5 (2)	P24x0.375	5.0000	0.0000	0.0	27.8325	-7.91	1052.07	0.008
L3	137.5 - 132.5 (3)	P24x0.375	5.0000	0.0000	0.0	27.8325	-8.60	1052.07	0.008
L4	132.5 - 127.5 (4)	P24x0.375	5.0000	0.0000	0.0	27.8325	-12.66	1052.07	0.012
L5	127.5 - 125 (5)	P24x0.375	2.5000	0.0000	0.0	27.8325	-13.04	1052.07	0.012
L6	125 - 120 (6)	P30x0.375	5.0000	0.0000	0.0	34.9011	-13.92	1311.06	0.011
L7	120 - 115 (7)	P30x0.375	5.0000	0.0000	0.0	34.9011	-14.82	1311.06	0.011
L8	115 - 110 (8)	P30x0.375	5.0000	0.0000	0.0	34.9011	-15.73	1311.06	0.012
L9	110 - 105 (9)	P30x0.375	5.0000	0.0000	0.0	34.9011	-16.65	1311.06	0.013
L10	105 - 100 (10)	P30x0.375	5.0000	0.0000	0.0	34.9011	-20.92	1311.06	0.016
L11	100 - 95 (11)	P36x0.375	5.0000	0.0000	0.0	41.9697	-22.04	1490.10	0.015
L12	95 - 94.25 (12)	P36x0.375	0.7500	0.0000	0.0	41.9697	-22.50	1490.10	0.015
L13	94.25 - 94 (13)	P36x0.49375	0.2500	0.0000	0.0	55.0759	-22.58	2081.87	0.011

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L14	94 - 89 (14)	P36x0.49375	5.0000	0.0000	0.0	55.0759	-23.97	2081.87	0.012
L15	89 - 84 (15)	P36x0.49375	5.0000	0.0000	0.0	55.0759	-25.48	2081.87	0.012
L16	84 - 80 (16)	P36x0.49375	4.0000	0.0000	0.0	55.0759	-26.63	2081.87	0.013
L17	80 - 79.75 (17)	P42x0.575	0.2500	0.0000	0.0	74.8308	-26.73	2828.60	0.009
L18	79.75 - 74.75 (18)	P42x0.575	5.0000	0.0000	0.0	74.8308	-28.51	2828.60	0.010
L19	74.75 - 69.75 (19)	P42x0.575	5.0000	0.0000	0.0	74.8308	-30.38	2828.60	0.011
L20	69.75 - 64.75 (20)	P42x0.575	5.0000	0.0000	0.0	74.8308	-32.20	2828.60	0.011
L21	64.75 - 60 (21)	P42x0.575	4.7500	0.0000	0.0	74.8308	-33.94	2828.60	0.012
L22	60 - 59.75 (22)	P48x0.6125	0.2500	0.0000	0.0	91.1842	-34.06	3446.76	0.010
L23	59.75 - 54.75 (23)	P48x0.6125	5.0000	0.0000	0.0	91.1842	-36.18	3446.76	0.010
L24	54.75 - 49.75 (24)	P48x0.6125	5.0000	0.0000	0.0	91.1842	-38.50	3446.76	0.011
L25	49.75 - 44.75 (25)	P48x0.6125	5.0000	0.0000	0.0	91.1842	-40.84	3446.76	0.012
L26	44.75 - 40 (26)	P48x0.6125	4.7500	0.0000	0.0	91.1842	-42.90	3446.76	0.012
L27	40 - 39.75 (27)	P54x0.65	0.2500	0.0000	0.0	108.9430	-43.13	4042.52	0.011
L28	39.75 - 34.75 (28)	P54x0.65	5.0000	0.0000	0.0	108.9430	-45.71	4042.52	0.011
L29	34.75 - 29.75 (29)	P54x0.65	5.0000	0.0000	0.0	108.9430	-48.23	4042.52	0.012
L30	29.75 - 24.75 (30)	P54x0.65	5.0000	0.0000	0.0	108.9430	-50.76	4042.52	0.013
L31	24.75 - 20 (31)	P54x0.65	4.7500	0.0000	0.0	108.9430	-53.17	4042.52	0.013
L32	20 - 19.75 (32)	P60x0.7375	0.2500	0.0000	0.0	137.3070	-53.36	5129.61	0.010
L33	19.75 - 19 (33)	P60x0.7375	0.7500	0.0000	0.0	137.3070	-53.88	5129.61	0.011
L34	19 - 18.75 (34)	P60x0.7375	0.2500	0.0000	0.0	137.3070	-54.06	5129.61	0.011
L35	18.75 - 13.75 (35)	P60x0.7375	5.0000	0.0000	0.0	137.3070	-57.58	5129.61	0.011
L36	13.75 - 8.75 (36)	P60x0.7375	5.0000	0.0000	0.0	137.3070	-61.12	5129.61	0.012
L37	8.75 - 3.75 (37)	P60x0.7375	5.0000	0.0000	0.0	137.3070	-64.66	5129.61	0.013
L38	3.75 - 0 (38)	P60x0.7375	3.7500	0.0000	0.0	137.3070	-67.32	5129.61	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	147.5 - 142.5 (1)	P24x0.375	52.06	623.72	0.083	0.00	623.72	0.000
L2	142.5 - 137.5 (2)	P24x0.375	100.81	623.72	0.162	0.00	623.72	0.000
L3	137.5 - 132.5 (3)	P24x0.375	165.94	623.72	0.266	0.00	623.72	0.000
L4	132.5 - 127.5	P24x0.375	241.67	623.72	0.387	0.00	623.72	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	(4)							
L5	127.5 - 125 (5)	P24x0.375	284.38	623.72	0.456	0.00	623.72	0.000
L6	125 - 120 (6)	P30x0.375	372.45	947.86	0.393	0.00	947.86	0.000
L7	120 - 115 (7)	P30x0.375	464.17	947.86	0.490	0.00	947.86	0.000
L8	115 - 110 (8)	P30x0.375	559.43	947.86	0.590	0.00	947.86	0.000
L9	110 - 105 (9)	P30x0.375	658.13	947.86	0.694	0.00	947.86	0.000
L10	105 - 100 (10)	P30x0.375	779.75	947.86	0.823	0.00	947.86	0.000
L11	100 - 95 (11)	P36x0.375	907.93	1338.81	0.678	0.00	1338.81	0.000
L12	95 - 94.25 (12)	P36x0.375	928.14	1338.81	0.693	0.00	1338.81	0.000
L13	94.25 - 94 (13)	P36x0.49375	934.92	1816.96	0.515	0.00	1816.96	0.000
L14	94 - 89 (14)	P36x0.49375	1073.89	1816.96	0.591	0.00	1816.96	0.000
L15	89 - 84 (15)	P36x0.49375	1220.59	1816.96	0.672	0.00	1816.96	0.000
L16	84 - 80 (16)	P36x0.49375	1342.45	1816.96	0.739	0.00	1816.96	0.000
L17	80 - 79.75 (17)	P42x0.575	1350.20	2879.41	0.469	0.00	2879.41	0.000
L18	79.75 - 74.75 (18)	P42x0.575	1509.08	2879.41	0.524	0.00	2879.41	0.000
L19	74.75 - 69.75 (19)	P42x0.575	1675.43	2879.41	0.582	0.00	2879.41	0.000
L20	69.75 - 64.75 (20)	P42x0.575	1849.02	2879.41	0.642	0.00	2879.41	0.000
L21	64.75 - 60 (21)	P42x0.575	2020.27	2879.41	0.702	0.00	2879.41	0.000
L22	60 - 59.75 (22)	P48x0.6125	2029.45	3972.72	0.511	0.00	3972.72	0.000
L23	59.75 - 54.75 (23)	P48x0.6125	2216.57	3972.72	0.558	0.00	3972.72	0.000
L24	54.75 - 49.75 (24)	P48x0.6125	2414.55	3972.72	0.608	0.00	3972.72	0.000
L25	49.75 - 44.75 (25)	P48x0.6125	2617.05	3972.72	0.659	0.00	3972.72	0.000
L26	44.75 - 40 (26)	P48x0.6125	2815.44	3972.72	0.709	0.00	3972.72	0.000
L27	40 - 39.75 (27)	P54x0.65	2826.05	5300.68	0.533	0.00	5300.68	0.000
L28	39.75 - 34.75 (28)	P54x0.65	3041.59	5300.68	0.574	0.00	5300.68	0.000
L29	34.75 - 29.75 (29)	P54x0.65	3263.45	5300.68	0.616	0.00	5300.68	0.000
L30	29.75 - 24.75 (30)	P54x0.65	3491.18	5300.68	0.659	0.00	5300.68	0.000
L31	24.75 - 20 (31)	P54x0.65	3712.68	5300.68	0.700	0.00	5300.68	0.000
L32	20 - 19.75 (32)	P60x0.7375	3724.46	7442.32	0.500	0.00	7442.32	0.000
L33	19.75 - 19 (33)	P60x0.7375	3759.92	7442.32	0.505	0.00	7442.32	0.000
L34	19 - 18.75 (34)	P60x0.7375	3771.77	7442.32	0.507	0.00	7442.32	0.000
L35	18.75 - 13.75 (35)	P60x0.7375	4011.55	7442.32	0.539	0.00	7442.32	0.000
L36	13.75 - 8.75 (36)	P60x0.7375	4256.65	7442.32	0.572	0.00	7442.32	0.000
L37	8.75 - 3.75 (37)	P60x0.7375	4506.93	7442.32	0.606	0.00	7442.32	0.000
L38	3.75 - 0 (38)	P60x0.7375	4698.11	7442.32	0.631	0.00	7442.32	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	147.5 - 142.5 (1)	P24x0.375	6.78	315.62	0.021	0.60	655.57	0.001
L2	142.5 - 137.5 (2)	P24x0.375	12.69	315.62	0.040	0.61	655.57	0.001

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L3	137.5 - 132.5 (3)	P24x0.375	13.37	315.62	0.042	0.21	655.57	0.000
L4	132.5 - 127.5 (4)	P24x0.375	16.94	315.62	0.054	0.37	655.57	0.001
L5	127.5 - 125 (5)	P24x0.375	17.26	315.62	0.055	0.45	655.57	0.001
L6	125 - 120 (6)	P30x0.375	18.00	395.78	0.045	0.65	994.73	0.001
L7	120 - 115 (7)	P30x0.375	18.72	395.78	0.047	0.86	994.73	0.001
L8	115 - 110 (8)	P30x0.375	19.42	395.78	0.049	1.05	994.73	0.001
L9	110 - 105 (9)	P30x0.375	20.10	395.78	0.051	1.25	994.73	0.001
L10	105 - 100 (10)	P30x0.375	25.00	395.78	0.063	2.60	994.73	0.003
L11	100 - 95 (11)	P36x0.375	26.36	454.19	0.058	3.31	1094.28	0.003
L12	95 - 94.25 (12)	P36x0.375	27.10	454.19	0.060	3.41	1094.28	0.003
L13	94.25 - 94 (13)	P36x0.49375	27.16	624.56	0.043	3.45	1949.66	0.002
L14	94 - 89 (14)	P36x0.49375	28.52	624.56	0.046	4.14	1949.66	0.002
L15	89 - 84 (15)	P36x0.49375	30.00	624.56	0.048	5.34	1949.66	0.003
L16	84 - 80 (16)	P36x0.49375	31.03	624.56	0.050	5.88	1949.66	0.003
L17	80 - 79.75 (17)	P42x0.575	31.10	848.58	0.037	5.93	3090.55	0.002
L18	79.75 - 74.75 (18)	P42x0.575	32.57	848.58	0.038	6.78	3090.55	0.002
L19	74.75 - 69.75 (19)	P42x0.575	34.08	848.58	0.040	7.31	3090.55	0.002
L20	69.75 - 64.75 (20)	P42x0.575	35.47	848.58	0.042	8.14	3090.55	0.003
L21	64.75 - 60 (21)	P42x0.575	36.76	848.58	0.043	8.91	3090.55	0.003
L22	60 - 59.75 (22)	P48x0.6125	36.81	1034.03	0.036	8.95	4306.69	0.002
L23	59.75 - 54.75 (23)	P48x0.6125	38.16	1034.03	0.037	9.79	4306.69	0.002
L24	54.75 - 49.75 (24)	P48x0.6125	39.89	1034.03	0.039	10.74	4306.69	0.002
L25	49.75 - 44.75 (25)	P48x0.6125	41.26	1034.03	0.040	11.25	4306.69	0.003
L26	44.75 - 40 (26)	P48x0.6125	42.41	1034.03	0.041	12.00	4306.69	0.003
L27	40 - 39.75 (27)	P54x0.65	42.52	1235.41	0.034	12.00	5711.98	0.002
L28	39.75 - 34.75 (28)	P54x0.65	43.84	1235.41	0.035	12.60	5711.98	0.002
L29	34.75 - 29.75 (29)	P54x0.65	45.05	1235.41	0.036	13.44	5711.98	0.002
L30	29.75 - 24.75 (30)	P54x0.65	46.20	1235.41	0.037	14.25	5711.98	0.002
L31	24.75 - 20 (31)	P54x0.65	47.22	1235.41	0.038	14.98	5711.98	0.003
L32	20 - 19.75 (32)	P60x0.7375	47.27	1557.06	0.030	15.03	8112.68	0.002
L33	19.75 - 19 (33)	P60x0.7375	47.44	1557.06	0.030	15.15	8112.68	0.002
L34	19 - 18.75 (34)	P60x0.7375	47.49	1557.06	0.031	15.19	8112.68	0.002
L35	18.75 - 13.75 (35)	P60x0.7375	48.58	1557.06	0.031	16.00	8112.68	0.002
L36	13.75 - 8.75 (36)	P60x0.7375	49.63	1557.06	0.032	16.79	8112.68	0.002
L37	8.75 - 3.75 (37)	P60x0.7375	50.65	1557.06	0.033	17.59	8112.68	0.002
L38	3.75 - 0 (38)	P60x0.7375	51.32	1557.06	0.033	18.30	8112.68	0.002

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	147.5 - 142.5 (1)	0.004	0.083	0.000	0.021	0.001	0.088	1.050	4.8.2
L2	142.5 - 137.5 (2)	0.008	0.162	0.000	0.040	0.001	0.171	1.050	4.8.2
L3	137.5 - 132.5 (3)	0.008	0.266	0.000	0.042	0.000	0.276	1.050	4.8.2
L4	132.5 - 127.5 (4)	0.012	0.387	0.000	0.054	0.001	0.402	1.050	4.8.2
L5	127.5 - 125 (5)	0.012	0.456	0.000	0.055	0.001	0.471	1.050	4.8.2
L6	125 - 120 (6)	0.011	0.393	0.000	0.045	0.001	0.406	1.050	4.8.2
L7	120 - 115 (7)	0.011	0.490	0.000	0.047	0.001	0.503	1.050	4.8.2
L8	115 - 110 (8)	0.012	0.590	0.000	0.049	0.001	0.605	1.050	4.8.2
L9	110 - 105 (9)	0.013	0.694	0.000	0.051	0.001	0.710	1.050	4.8.2
L10	105 - 100 (10)	0.016	0.823	0.000	0.063	0.003	0.843	1.050	4.8.2
L11	100 - 95 (11)	0.015	0.678	0.000	0.058	0.003	0.697	1.050	4.8.2
L12	95 - 94.25 (12)	0.015	0.693	0.000	0.060	0.003	0.712	1.050	4.8.2
L13	94.25 - 94 (13)	0.011	0.515	0.000	0.043	0.002	0.527	1.050	4.8.2
L14	94 - 89 (14)	0.012	0.591	0.000	0.046	0.002	0.605	1.050	4.8.2
L15	89 - 84 (15)	0.012	0.672	0.000	0.048	0.003	0.687	1.050	4.8.2
L16	84 - 80 (16)	0.013	0.739	0.000	0.050	0.003	0.754	1.050	4.8.2
L17	80 - 79.75 (17)	0.009	0.469	0.000	0.037	0.002	0.480	1.050	4.8.2
L18	79.75 - 74.75 (18)	0.010	0.524	0.000	0.038	0.002	0.536	1.050	4.8.2
L19	74.75 - 69.75 (19)	0.011	0.582	0.000	0.040	0.002	0.594	1.050	4.8.2
L20	69.75 - 64.75 (20)	0.011	0.642	0.000	0.042	0.003	0.656	1.050	4.8.2
L21	64.75 - 60 (21)	0.012	0.702	0.000	0.043	0.003	0.716	1.050	4.8.2
L22	60 - 59.75 (22)	0.010	0.511	0.000	0.036	0.002	0.522	1.050	4.8.2
L23	59.75 - 54.75 (23)	0.010	0.558	0.000	0.037	0.002	0.570	1.050	4.8.2
L24	54.75 - 49.75 (24)	0.011	0.608	0.000	0.039	0.002	0.621	1.050	4.8.2
L25	49.75 - 44.75 (25)	0.012	0.659	0.000	0.040	0.003	0.672	1.050	4.8.2
L26	44.75 - 40 (26)	0.012	0.709	0.000	0.041	0.003	0.723	1.050	4.8.2
L27	40 - 39.75 (27)	0.011	0.533	0.000	0.034	0.002	0.545	1.050	4.8.2
L28	39.75 - 34.75 (28)	0.011	0.574	0.000	0.035	0.002	0.587	1.050	4.8.2
L29	34.75 - 29.75 (29)	0.012	0.616	0.000	0.036	0.002	0.629	1.050	4.8.2
L30	29.75 - 24.75 (30)	0.013	0.659	0.000	0.037	0.002	0.673	1.050	4.8.2
L31	24.75 - 20 (31)	0.013	0.700	0.000	0.038	0.003	0.715	1.050	4.8.2
L32	20 - 19.75 (32)	0.010	0.500	0.000	0.030	0.002	0.512	1.050	4.8.2
L33	19.75 - 19 (33)	0.011	0.505	0.000	0.030	0.002	0.517	1.050	4.8.2
L34	19 - 18.75 (34)	0.011	0.507	0.000	0.031	0.002	0.518	1.050	4.8.2
L35	18.75 - 13.75 (35)	0.011	0.539	0.000	0.031	0.002	0.551	1.050	4.8.2
L36	13.75 - 8.75 (36)	0.012	0.572	0.000	0.032	0.002	0.585	1.050	4.8.2
L37	8.75 - 3.75 (37)	0.013	0.606	0.000	0.033	0.002	0.619	1.050	4.8.2
L38	3.75 - 0 (38)	0.013	0.631	0.000	0.033	0.002	0.646	1.050	4.8.2

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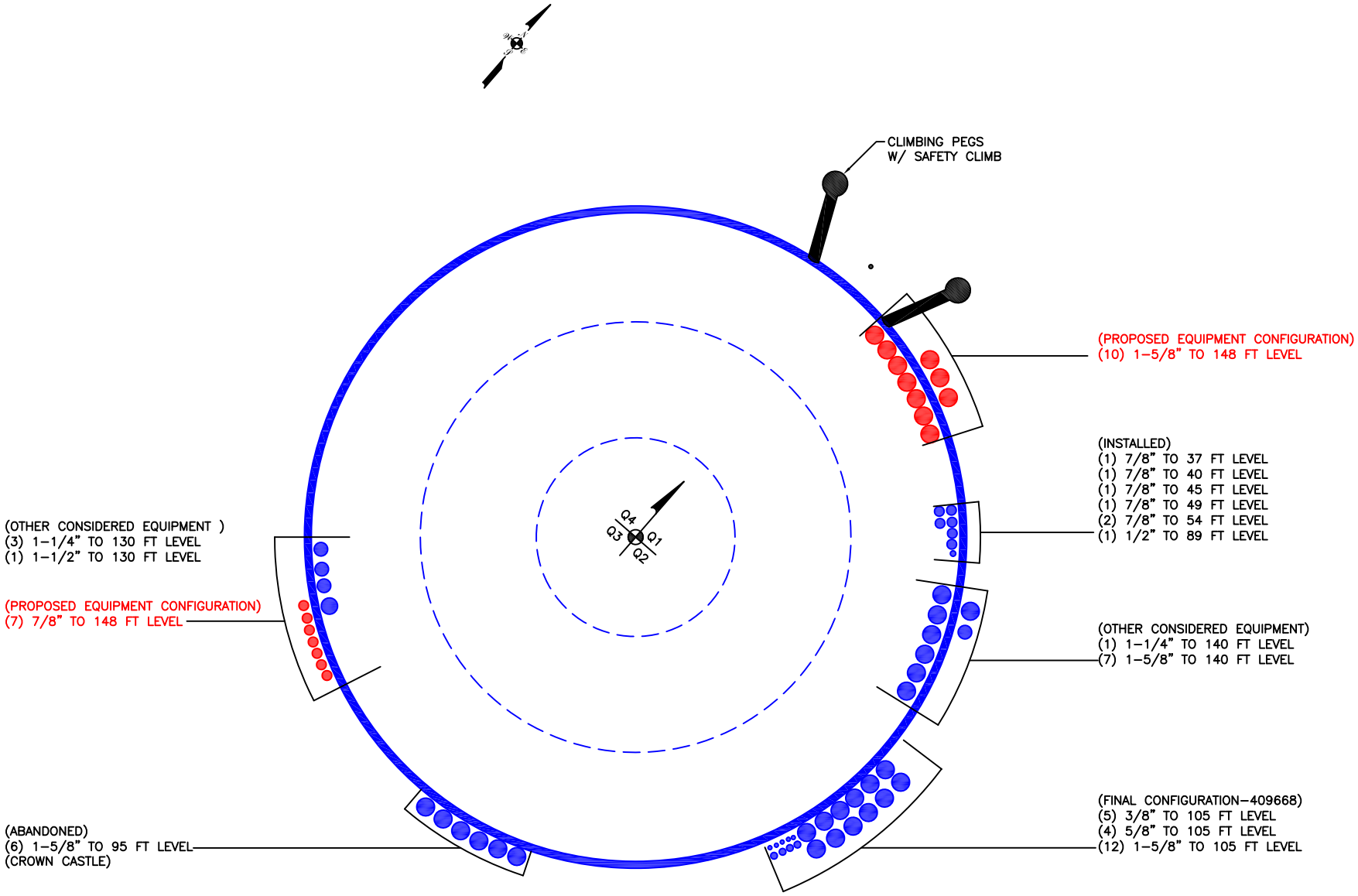
APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 827050 TOWER ID:C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 827050

Work Order:

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	147.5	22.5		0	24	24	0.375		A53-B-42
2	125	25		0	30.00	30	0.375		A53-B-42
3	100	20		0	36.00	36	0.375		A53-B-42
4	80	20		0	42.00	42	0.375		A53-B-42
5	60	20		0	48.00	48	0.375		A53-B-42
6	40	20		0	54.00	54	0.375		A53-B-42
7	20	20		0	60.00	60	0.375		A53-B-42

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	19	plate	CCI-AFP-085125	4	50	140	230	320														
2	0	20	plate	CCI-AFP-085125	4	320	142	232	322														
3	20	40	plate	CCI-AFP-085125	4	52	142	232	322														
4	40	60	plate	CCI-AFP-065125	4	48	138	228	318														
5	60	80	plate	CCI-AFP-060100	4	48	138	228	318														
6	80	94.25	plate	CCI-AFP-040075	4	48	138	228	318														
7	19	20	plate	CCI-AFP-085125	4	50	140	230	320														
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	8.5	1.25	10.625	0.625	51.000	51.000	17.000	9.063	1.1875	A572-65
2	8.5	1.25	10.625	0.625	51.000	51.000	17.000	9.063	1.1875	A572-65
3	8.5	1.25	10.625	0.625	51.000	51.000	17.000	9.063	1.1875	A572-65
4	6.5	1.25	8.125	0.625	42.000	42.000	19.000	6.563	1.1875	A572-65
5	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
6	4	0.75	3	0.375	18.000	18.000	16.000	2.063	1.1875	A572-65
7	8.5	1.25	10.625	0.625	51.000	51.000	17.000	9.063	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	147.5 - 142.5	5		0	24.000	24.000	0.375	A53-B-42	1.000
2	142.5 - 137.5	5		0	24.000	24.000	0.375	A53-B-42	1.000
3	137.5 - 132.5	5		0	24.000	24.000	0.375	A53-B-42	1.000
4	132.5 - 127.5	5		0	24.000	24.000	0.375	A53-B-42	1.000
5	127.5 - 125	2.5	0	0	24.000	24.000	0.375	A53-B-42	1.000
6	125 - 120	5		0	30.000	30.000	0.375	A53-B-42	1.000
7	120 - 115	5		0	30.000	30.000	0.375	A53-B-42	1.000
8	115 - 110	5		0	30.000	30.000	0.375	A53-B-42	1.000
9	110 - 105	5		0	30.000	30.000	0.375	A53-B-42	1.000
10	105 - 100	5	0	0	30.000	30.000	0.375	A53-B-42	1.000
11	100 - 95	5		0	36.000	36.000	0.375	A53-B-42	1.000
12	95 - 94.25	0.75		0	36.000	36.000	0.375	A53-B-42	1.000
13	94.25 - 94	0.25		0	36.000	36.000	0.49375	A53-B-42	0.980
14	94 - 89	5		0	36.000	36.000	0.49375	A53-B-42	0.980
15	89 - 84	5		0	36.000	36.000	0.49375	A53-B-42	0.980
16	84 - 80	4	0	0	36.000	36.000	0.49375	A53-B-42	0.980
17	80 - 79.75	0.25		0	42.000	42.000	0.575	A53-B-42	0.976
18	79.75 - 74.75	5		0	42.000	42.000	0.575	A53-B-42	0.976
19	74.75 - 69.75	5		0	42.000	42.000	0.575	A53-B-42	0.976
20	69.75 - 64.75	5		0	42.000	42.000	0.575	A53-B-42	0.976
21	64.75 - 60	4.75	0	0	42.000	42.000	0.575	A53-B-42	0.976
22	60 - 59.75	0.25		0	48.000	48.000	0.6125	A53-B-42	0.972
23	59.75 - 54.75	5		0	48.000	48.000	0.6125	A53-B-42	0.972
24	54.75 - 49.75	5		0	48.000	48.000	0.6125	A53-B-42	0.972
25	49.75 - 44.75	5		0	48.000	48.000	0.6125	A53-B-42	0.972
26	44.75 - 40	4.75	0	0	48.000	48.000	0.6125	A53-B-42	0.972
27	40 - 39.75	0.25		0	54.000	54.000	0.65	A53-B-42	0.970
28	39.75 - 34.75	5		0	54.000	54.000	0.65	A53-B-42	0.970
29	34.75 - 29.75	5		0	54.000	54.000	0.65	A53-B-42	0.970
30	29.75 - 24.75	5		0	54.000	54.000	0.65	A53-B-42	0.970
31	24.75 - 20	4.75	0	0	54.000	54.000	0.65	A53-B-42	0.970
32	20 - 19.75	0.25		0	60.000	60.000	0.7375	A53-B-42	1.131
33	19.75 - 19	0.75		0	60.000	60.000	0.7375	A53-B-42	1.131
34	19 - 18.75	0.25		0	60.000	60.000	0.7375	A53-B-42	1.131
35	18.75 - 13.75	5		0	60.000	60.000	0.7375	A53-B-42	1.131
36	13.75 - 8.75	5		0	60.000	60.000	0.7375	A53-B-42	1.131
37	8.75 - 3.75	5		0	60.000	60.000	0.7375	A53-B-42	1.131
38	3.75 - 0	3.75		0	60.000	60.000	0.7375	A53-B-42	1.131

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	147.5 - 142.5	4.35	52.06	6.78
2	142.5 - 137.5	7.91	100.83	12.69
3	137.5 - 132.5	8.60	165.94	13.37
4	132.5 - 127.5	12.66	241.67	16.94
5	127.5 - 125	13.04	284.38	17.26
6	125 - 120	13.92	372.45	18.00
7	120 - 115	14.82	464.17	18.72
8	115 - 110	15.73	559.43	19.42
9	110 - 105	16.65	658.13	20.10
10	105 - 100	20.92	779.75	25.00
11	100 - 95	22.04	907.93	26.36
12	95 - 94.25	22.50	928.14	27.10
13	94.25 - 94	22.58	934.91	27.16
14	94 - 89	23.97	1073.89	28.52
15	89 - 84	25.48	1220.59	30.00
16	84 - 80	26.63	1342.45	31.03
17	80 - 79.75	26.73	1350.20	31.10
18	79.75 - 74.75	28.51	1509.08	32.57
19	74.75 - 69.75	30.38	1675.42	34.08
20	69.75 - 64.75	32.20	1849.02	35.47
21	64.75 - 60	33.94	2020.27	36.76
22	60 - 59.75	34.06	2029.45	36.81
23	59.75 - 54.75	36.18	2216.57	38.16
24	54.75 - 49.75	38.50	2414.55	39.89
25	49.75 - 44.75	40.84	2617.05	41.26
26	44.75 - 40	42.90	2815.44	42.41
27	40 - 39.75	43.13	2826.05	42.52
28	39.75 - 34.75	45.71	3041.59	43.84
29	34.75 - 29.75	48.23	3263.45	45.05
30	29.75 - 24.75	50.76	3491.18	46.20
31	24.75 - 20	53.17	3712.67	47.22
32	20 - 19.75	53.36	3724.46	47.27
33	19.75 - 19	53.88	3759.92	47.44
34	19 - 18.75	54.06	3771.76	47.49
35	18.75 - 13.75	57.58	4011.55	48.58
36	13.75 - 8.75	61.12	4256.65	49.63
37	8.75 - 3.75	64.66	4506.93	50.65
38	3.75 - 0	67.32	4698.11	51.32

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
147.5 - 142.5	Pole	TP24x24x0.375	Pole	8.4%	Pass
142.5 - 137.5	Pole	TP24x24x0.375	Pole	16.2%	Pass
137.5 - 132.5	Pole	TP24x24x0.375	Pole	26.2%	Pass
132.5 - 127.5	Pole	TP24x24x0.375	Pole	38.1%	Pass
127.5 - 125	Pole	TP24x24x0.375	Pole	44.7%	Pass
125 - 120	Pole	TP30x30x0.375	Pole	38.5%	Pass
120 - 115	Pole	TP30x30x0.375	Pole	47.8%	Pass
115 - 110	Pole	TP30x30x0.375	Pole	57.4%	Pass
110 - 105	Pole	TP30x30x0.375	Pole	67.4%	Pass
105 - 100	Pole	TP30x30x0.375	Pole	80.0%	Pass
100 - 95	Pole	TP36x36x0.375	Pole	66.1%	Pass
95 - 94.25	Pole	TP36x36x0.375	Pole	67.6%	Pass
94.25 - 94	Pole + Reinf.	TP36x36x0.4938	Reinf. 6 Tension Rupture	55.9%	Pass
94 - 89	Pole + Reinf.	TP36x36x0.4938	Reinf. 6 Tension Rupture	64.1%	Pass
89 - 84	Pole + Reinf.	TP36x36x0.4938	Reinf. 6 Tension Rupture	72.7%	Pass
84 - 80	Pole + Reinf.	TP36x36x0.4938	Reinf. 6 Tension Rupture	79.9%	Pass
80 - 79.75	Pole + Reinf.	TP42x42x0.575	Pole	47.9%	Pass
79.75 - 74.75	Pole + Reinf.	TP42x42x0.575	Pole	53.4%	Pass
74.75 - 69.75	Pole + Reinf.	TP42x42x0.575	Pole	59.3%	Pass
69.75 - 64.75	Pole + Reinf.	TP42x42x0.575	Pole	65.4%	Pass
64.75 - 60	Pole + Reinf.	TP42x42x0.575	Pole	71.4%	Pass
60 - 59.75	Pole + Reinf.	TP48x48x0.6125	Pole	52.3%	Pass
59.75 - 54.75	Pole + Reinf.	TP48x48x0.6125	Pole	57.1%	Pass
54.75 - 49.75	Pole + Reinf.	TP48x48x0.6125	Pole	62.1%	Pass
49.75 - 44.75	Pole + Reinf.	TP48x48x0.6125	Pole	67.3%	Pass
44.75 - 40	Pole + Reinf.	TP48x48x0.6125	Pole	72.4%	Pass
40 - 39.75	Pole + Reinf.	TP54x54x0.65	Pole	54.7%	Pass
39.75 - 34.75	Pole + Reinf.	TP54x54x0.65	Pole	58.9%	Pass
34.75 - 29.75	Pole + Reinf.	TP54x54x0.65	Pole	63.2%	Pass
29.75 - 24.75	Pole + Reinf.	TP54x54x0.65	Pole	67.6%	Pass
24.75 - 20	Pole + Reinf.	TP54x54x0.65	Pole	71.8%	Pass
20 - 19.75	Pole + Reinf.	TP60x60x0.7375	Pole	55.8%	Pass
19.75 - 19	Pole + Reinf.	TP60x60x0.7375	Pole	56.3%	Pass
19 - 18.75	Pole + Reinf.	TP60x60x0.7375	Pole	56.5%	Pass
18.75 - 13.75	Pole + Reinf.	TP60x60x0.7375	Pole	60.1%	Pass
13.75 - 8.75	Pole + Reinf.	TP60x60x0.7375	Pole	63.7%	Pass
8.75 - 3.75	Pole + Reinf.	TP60x60x0.7375	Pole	67.5%	Pass
3.75 - 0	Pole + Reinf.	TP60x60x0.7375	Pole	70.3%	Pass
				Summary	
			Pole	80.0%	Pass
			Reinforcement	79.9%	Pass
			Overall	80.0%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*							
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7
147.5 - 142.5	1942	n/a	1942	27.83	n/a	27.83	8.4%							
142.5 - 137.5	1942	n/a	1942	27.83	n/a	27.83	16.2%							
137.5 - 132.5	1942	n/a	1942	27.83	n/a	27.83	26.2%							
132.5 - 127.5	1942	n/a	1942	27.83	n/a	27.83	38.1%							
127.5 - 125	1942	n/a	1942	27.83	n/a	27.83	44.7%							
125 - 120	3829	n/a	3829	34.90	n/a	34.90	38.5%							
120 - 115	3829	n/a	3829	34.90	n/a	34.90	47.8%							
115 - 110	3829	n/a	3829	34.90	n/a	34.90	57.4%							
110 - 105	3829	n/a	3829	34.90	n/a	34.90	67.4%							
105 - 100	3829	n/a	3829	34.90	n/a	34.90	80.0%							
100 - 95	6659	n/a	6659	41.97	n/a	41.97	66.1%							
95 - 94.25	6659	n/a	6659	41.97	n/a	41.97	67.6%							
94.25 - 94	6659	2034	8693	41.97	12.00	53.97	52.1%						55.9%	
94 - 89	6659	2034	8693	41.97	12.00	53.97	59.7%						64.1%	
89 - 84	6659	2034	8693	41.97	12.00	53.97	67.8%						72.7%	
84 - 80	6659	2034	8693	41.97	12.00	53.97	74.5%						79.9%	
80 - 79.75	10622	5584	16206	49.04	24.00	73.04	47.9%					44.0%		
79.75 - 74.75	10622	5584	16206	49.04	24.00	73.04	53.4%					49.1%		
74.75 - 69.75	10622	5584	16206	49.04	24.00	73.04	59.3%					54.5%		
69.75 - 64.75	10622	5584	16206	49.04	24.00	73.04	65.4%					60.1%		
64.75 - 60	10622	5584	16206	49.04	24.00	73.04	71.4%					65.6%		
60 - 59.75	15908	9913	25821	56.11	32.50	88.61	52.3%				46.6%			
59.75 - 54.75	15908	9913	25821	56.11	32.50	88.61	57.1%				50.9%			
54.75 - 49.75	15908	9913	25821	56.11	32.50	88.61	62.1%				55.4%			
49.75 - 44.75	15908	9913	25821	56.11	32.50	88.61	67.3%				60.0%			
44.75 - 40	15908	9913	25821	56.11	32.50	88.61	72.4%				64.5%			
40 - 39.75	22710	16347	39057	63.18	42.50	105.68	54.7%			45.7%				
39.75 - 34.75	22710	16347	39057	63.18	42.50	105.68	58.9%			49.1%				
34.75 - 29.75	22710	16347	39057	63.18	42.50	105.68	63.2%			52.7%				
29.75 - 24.75	22710	16347	39057	63.18	42.50	105.68	67.6%			56.4%				
24.75 - 20	22710	16347	39057	63.18	42.50	105.68	71.8%			59.9%				
20 - 19.75	31635	29368	61003	70.24	85.00	155.24	55.8%		39.9%					45.7%
19.75 - 19	31635	29368	61003	70.24	85.00	155.24	56.3%		40.2%					46.2%
19 - 18.75	31635	29368	61003	70.24	85.00	155.24	56.5%	46.3%	40.4%					
18.75 - 13.75	31635	29368	61003	70.24	85.00	155.24	60.1%	49.3%	42.9%					
13.75 - 8.75	31635	29368	61003	70.24	85.00	155.24	63.7%	52.3%	45.6%					
8.75 - 3.75	31635	29368	61003	70.24	85.00	155.24	67.5%	55.4%	48.2%					
3.75 - 0	31635	29368	61003	70.24	85.00	155.24	70.3%	57.7%	50.3%					

Note: Section capacity checked in 5 degree increments.
Rating per TIA-222-H Section 15.5.

Monopole Flange Plate Connection

Elevation = 125 ft.

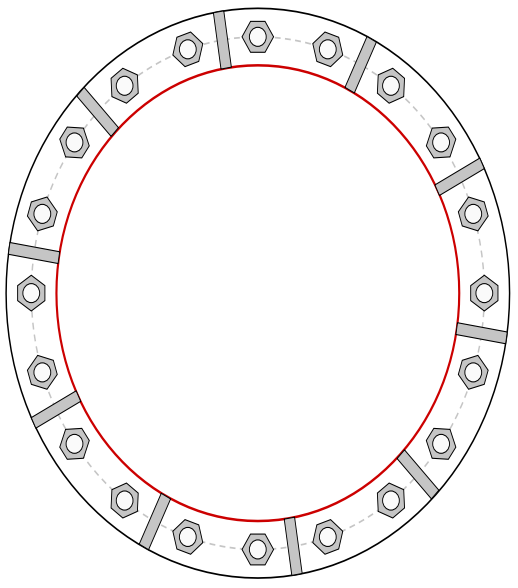
BU #	827050
Site Name	Rocky Hill/ Rte 160_1
Order #	479801 Rev. 0

TIA-222 Revision	H

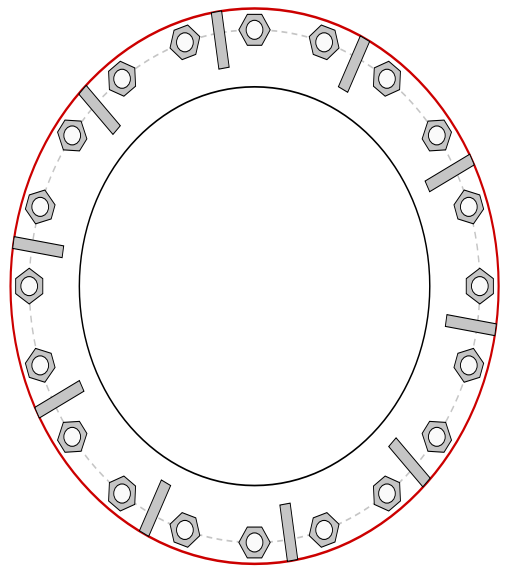
Applied Loads	
Moment (kip-ft)	284.38
Axial Force (kips)	13.04
Shear Force (kips)	17.26

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(20) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 27" BC

Top Plate Data

30" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(10) 5"H x 3"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Top Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

21" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

(10) 5"H x 3"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Bottom Pole Data

30" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	24.61	
Allowable (kips)	54.52	
Stress Rating:	**43.0%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Top Stiffener Capacity

Horizontal Weld:	**Pirod OK**
Vertical Weld:	**Pirod OK**
Plate Flexure+Shear:	**Pirod OK**
Plate Tension+Shear:	**Pirod OK**
Plate Compression:	**Pirod OK**

Top Pole Capacity

Punching Shear:	**Pirod OK**

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Bottom Stiffener Capacity

Horizontal Weld:	**Pirod OK**
Vertical Weld:	**Pirod OK**
Plate Flexure+Shear:	**Pirod OK**
Plate Tension+Shear:	**Pirod OK**
Plate Compression:	**Pirod OK**

Bottom Pole Capacity

Punching Shear:	**Pirod OK**

Monopole Flange Plate Connection

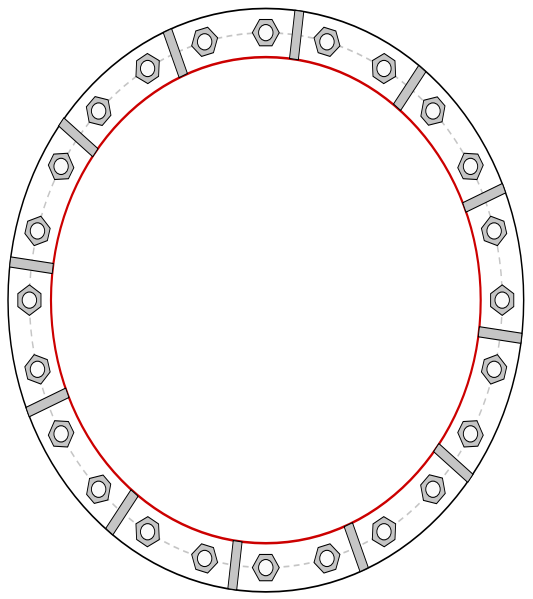
Elevation = 100 ft.

BU #	827050
Site Name	Rocky Hill/ Rte 160_1
Order #	479801 Rev. 0
TIA-222 Revision	H

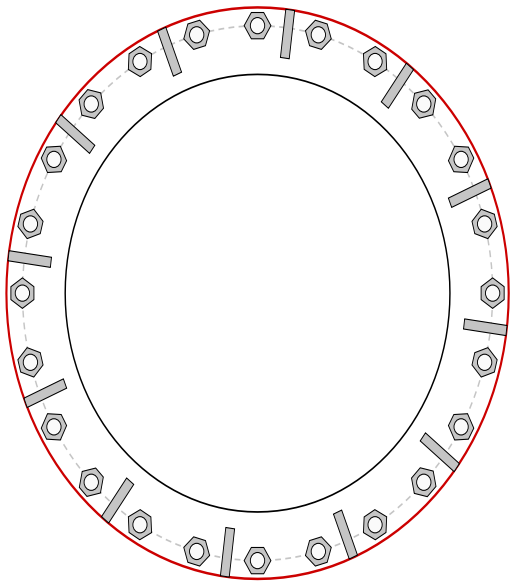
Applied Loads	
Moment (kip-ft)	779.75
Axial Force (kips)	20.92
Shear Force (kips)	25.00

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(24) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 33" BC

Top Plate Data

36" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(12) 5"H x 3"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Top Pole Data

30" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

27" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

(12) 5"H x 3"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Bottom Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	46.37	
Allowable (kips)	54.52	
Stress Rating:	**81.0%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Top Stiffener Capacity

Horizontal Weld:	**Pirod OK**
Vertical Weld:	**Pirod OK**
Plate Flexure+Shear:	**Pirod OK**
Plate Tension+Shear:	**Pirod OK**
Plate Compression:	**Pirod OK**

Top Pole Capacity

Punching Shear:	**Pirod OK**

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Bottom Stiffener Capacity

Horizontal Weld:	**Pirod OK**
Vertical Weld:	**Pirod OK**
Plate Flexure+Shear:	**Pirod OK**
Plate Tension+Shear:	**Pirod OK**
Plate Compression:	**Pirod OK**

Bottom Pole Capacity

Punching Shear:	**Pirod OK**

Flange Bolt Information for TIA/EIA-222-H

AeroSolutions LLC
Optimizing Your Tower Infrastructure

Site Information	
ID #:	827050
Name:	Rocky Hill- Rte 160_1
App. #:	

Flange Height:	80	ft

System Reactions		
Moment:	1342.5	kip-ft
Axial:	26.6	kip
Shear:	31.0	kip

Pole Geometry		
Upper Pole OD:	36.00	in
Upper Pole Thick:	0.3750	in
Lower Pole OD:	42.00	in
Lower Pole Thick:	0.3750	in
Flange Plate OD:	42.00	in

Design Information	
TIA Code:	H
ASIF:	1.00
Failure At:	100%

Outer Bolt Group Data

Quantity:	28	
Diameter:	1	in
Material:	A325	
Bolt Circle:	39.00	in
Bolt Group Area:	21.99	in²
Bolt Group MOIx:	4181	in⁴

Reactions Seen by Outer Bolt Group

Moment:	506.0	kip-ft
Axial:	26.6	kip
Shear:	31.0	kip

Outer Bolt Capacity Check

Max Tension:	21.3	kip
Design Tension	54.5	kip
Max Shear:	1.1	kip
Design Shear	31.8	kip
Bolt Capacity	**39.1%**	Pass

Inner Bolt Group Data

Quantity:		
Diameter:		in
Material:		
Bolt Circle:		in
Bolt Group Area:	0.00	in²
Bolt Group MOIx:	0	in⁴

Reactions Seen by Inner Bolt Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

Inner Bolt Capacity Check

Max Tension:	0.0	kip
Design Tension	0.0	kip
Max Shear:	0.0	kip
Design Shear	0.0	kip
Bolt Capacity	**0.0%**	

Bridge Stiffener #1 Data

Quantity:	4	
Type:	Write In	
Circle:	48.00	in
Individual Area:	6.00	in²
BS #1 Group Area:	24.00	in²
BS #1 Group MOIx:	6912	in⁴

Reactions Seen by BS #1 Group

Moment:	836.5	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

BS #1 Capacity Check

Max Tension:	209.1	kip
Max Compression:	209.1	kip
Design Axial	351.0	kip
Max Shear:	0.0	kip
Design Shear	210.6	kip
Bolt Capacity	**59.6%**	Pass

BS #1 Upper Weld Capacity

Eccentricity (ex):	6.000	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

BS #1 Lower Weld Capacity

Eccentricity (ex):	3.000	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

Bridge Stiffener #2 Data

Quantity:		
Type:		
Circle:	0.00	in
Individual Area:	0.00	in²
BS #2 Group Area:	0.00	in²
BS #2 Group MOIx:	0	in⁴

Reactions Seen by BS #2 Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

BS #2 Capacity Check

Max Tension:	0.0	kip
Max Compression:	0.0	kip
Design Axial	0.0	kip
Max Shear:	0.0	kip
Design Shear	0.0	kip
Bolt Capacity	**0.0%**	

BS #2 Upper Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

BS #2 Lower Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

Bridge Stiffener #3 Data

Quantity:		
Type:		
Circle:	0.00	in
Individual Area:	0.00	in²
BS #3 Group Area:	0.00	in²
BS #3 Group MOIx:	0	in⁴

Reactions Seen by BS #3 Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

BS #3 Capacity Check

Max Tension:	0.0	kip
Max Compression:	0.0	kip
Design Axial	0.0	kip
Max Shear:	0.0	kip
Design Shear	0.0	kip
Bolt Capacity	**0.0%**	

BS #3 Upper Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

BS #3 Lower Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

Rev.4.1

Monopole Flange Plate Connection

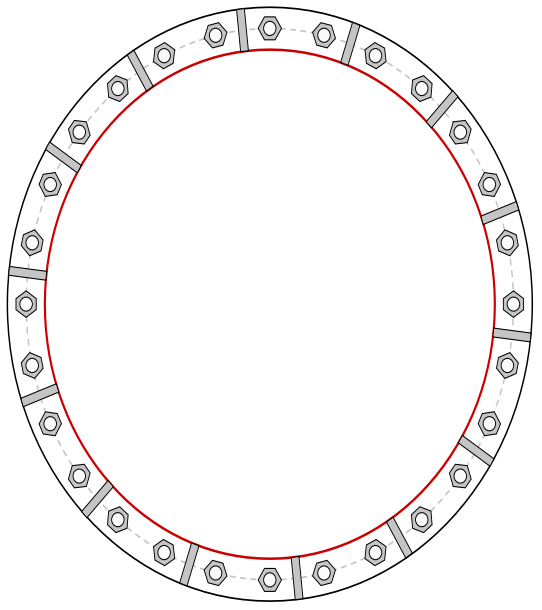
Elevation = 80 ft.

BU #	827050
Site Name	Rocky Hill/ Rte 160_1
Order #	479801 Rev. 0
TIA-222 Revision	H

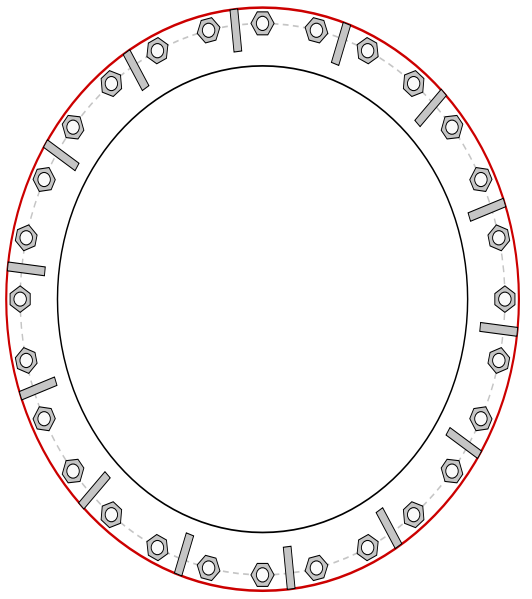
Applied Loads	
Moment (kip-ft)	506.00
Axial Force (kips)	26.63
Shear Force (kips)	31.80

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(28) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 39" BC

Top Plate Data

42" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(14) 5"H x 3"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Top Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

33" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

(14) 5"H x 3"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Bottom Pole Data

42" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	21.29	
Allowable (kips)	54.51	
Stress Rating:	**37.2%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Top Stiffener Capacity

Horizontal Weld:	**Pirod OK**
Vertical Weld:	**Pirod OK**
Plate Flexure+Shear:	**Pirod OK**
Plate Tension+Shear:	**Pirod OK**
Plate Compression:	**Pirod OK**

Top Pole Capacity

Punching Shear:	**Pirod OK**

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Bottom Stiffener Capacity

Horizontal Weld:	**Pirod OK**
Vertical Weld:	**Pirod OK**
Plate Flexure+Shear:	**Pirod OK**
Plate Tension+Shear:	**Pirod OK**
Plate Compression:	**Pirod OK**

Bottom Pole Capacity

Punching Shear:	**Pirod OK**

Flange Bolt Information for TIA/EIA-222-H

AeroSolutions LLC
Optimizing Your Tower Infrastructure

Site Information	
ID #:	827050
Name:	Rocky Hill- Rte 160_1
App. #:	

Flange Height:	60	ft

System Reactions		
Moment:	2020.3	kip-ft
Axial:	33.9	kip
Shear:	36.8	kip

Pole Geometry		
Upper Pole OD:	42.00	in
Upper Pole Thick:	0.3750	in
Lower Pole OD:	48.00	in
Lower Pole Thick:	0.3750	in
Flange Plate OD:	42.00	in

Design Information	
TIA Code:	H
ASIF:	1.00
Failure At:	100%

Outer Bolt Group Data

Quantity:	32	
Diameter:	1	in
Material:	A325	
Bolt Circle:	45.00	in
Bolt Group Area:	25.13	in²
Bolt Group MOIx:	6362	in⁴

Reactions Seen by Outer Bolt Group

Moment:	850.6	kip-ft
Axial:	33.9	kip
Shear:	36.8	kip

Outer Bolt Capacity Check

Max Tension:	27.3	kip
Design Tension	54.5	kip
Max Shear:	1.1	kip
Design Shear	31.8	kip
Bolt Capacity	**50.1%**	Pass

Inner Bolt Group Data

Quantity:		
Diameter:		in
Material:		
Bolt Circle:		in
Bolt Group Area:	0.00	in²
Bolt Group MOIx:	0	in⁴

Reactions Seen by Inner Bolt Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

Inner Bolt Capacity Check

Max Tension:	0.0	kip
Design Tension	0.0	kip
Max Shear:	0.0	kip
Design Shear	0.0	kip
Bolt Capacity	**0.0%**	

Bridge Stiffener #1 Data

Quantity:	4	
Type:	Write In	
Circle:	54.00	in
Individual Area:	6.00	in²
BS #1 Group Area:	24.00	in²
BS #1 Group MOIx:	8748	in⁴

Reactions Seen by BS #1 Group

Moment:	1169.7	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

BS #1 Capacity Check

Max Tension:	259.9	kip
Max Compression:	259.9	kip
Design Axial	351.0	kip
Max Shear:	0.0	kip
Design Shear	210.6	kip
Bolt Capacity	**74.1%**	Pass

BS #1 Upper Weld Capacity

Eccentricity (ex):	6.000	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

BS #1 Lower Weld Capacity

Eccentricity (ex):	3.000	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

Bridge Stiffener #2 Data

Quantity:		
Type:		
Circle:	0.00	in
Individual Area:	0.00	in²
BS #2 Group Area:	0.00	in²
BS #2 Group MOIx:	0	in⁴

Reactions Seen by BS #2 Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

BS #2 Capacity Check

Max Tension:	0.0	kip
Max Compression:	0.0	kip
Design Axial	0.0	kip
Max Shear:	0.0	kip
Design Shear	0.0	kip
Bolt Capacity	**0.0%**	

BS #2 Upper Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

BS #2 Lower Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

Bridge Stiffener #3 Data

Quantity:		
Type:		
Circle:	0.00	in
Individual Area:	0.00	in²
BS #3 Group Area:	0.00	in²
BS #3 Group MOIx:	0	in⁴

Reactions Seen by BS #3 Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

BS #3 Capacity Check

Max Tension:	0.0	kip
Max Compression:	0.0	kip
Design Axial	0.0	kip
Max Shear:	0.0	kip
Design Shear	0.0	kip
Bolt Capacity	**0.0%**	

BS #3 Upper Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

BS #3 Lower Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

Rev.4.1

Monopole Flange Plate Connection

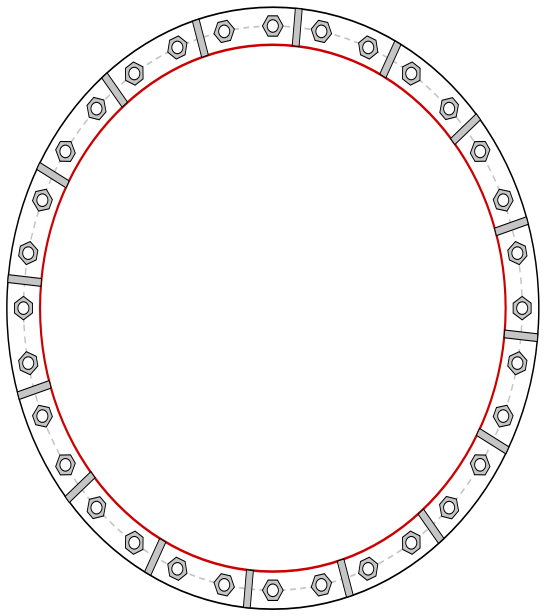
Elevation = 60 ft.

BU #	827050
Site Name	Rocky Hill/ Rte 160_1
Order #	479801 Rev. 0
TIA-222 Revision	H

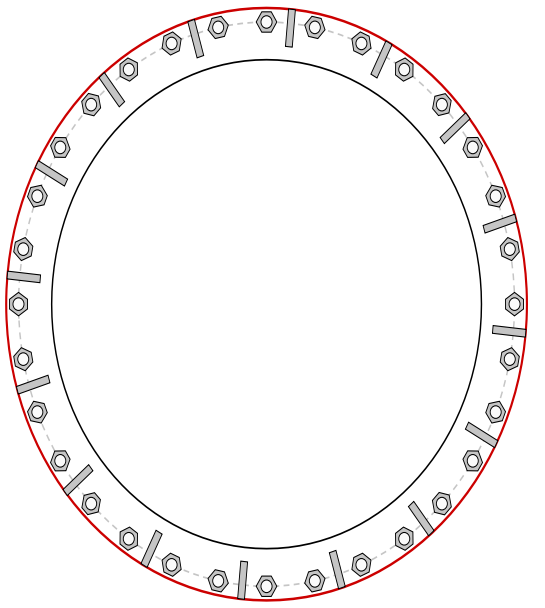
Applied Loads	
Moment (kip-ft)	850.60
Axial Force (kips)	33.94
Shear Force (kips)	36.80

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(32) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 45" BC

Top Plate Data

48" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(16) 5"H x 3"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Top Pole Data

42" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

39" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

(16) 5"H x 3"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Bottom Pole Data

48" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	27.29	
Allowable (kips)	54.51	
Stress Rating:	**47.7%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Top Stiffener Capacity

Horizontal Weld:	**Pirod OK**
Vertical Weld:	**Pirod OK**
Plate Flexure+Shear:	**Pirod OK**
Plate Tension+Shear:	**Pirod OK**
Plate Compression:	**Pirod OK**

Top Pole Capacity

Punching Shear:	**Pirod OK**

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Bottom Stiffener Capacity

Horizontal Weld:	**Pirod OK**
Vertical Weld:	**Pirod OK**
Plate Flexure+Shear:	**Pirod OK**
Plate Tension+Shear:	**Pirod OK**
Plate Compression:	**Pirod OK**

Bottom Pole Capacity

Punching Shear:	**Pirod OK**

Flange Bolt Information for TIA/EIA-222-H

AeroSolutions LLC
Optimizing Your Tower Infrastructure

Site Information	
ID #:	827050
Name:	Rocky Hill- Rte 160_1
App. #:	

Flange Height:	40	ft

System Reactions		
Moment:	2815.4	kip-ft
Axial:	42.9	kip
Shear:	42.4	kip

Pole Geometry		
Upper Pole OD:	48.00	in
Upper Pole Thick:	0.3750	in
Lower Pole OD:	54.00	in
Lower Pole Thick:	0.3750	in
Flange Plate OD:	42.00	in

Design Information	
TIA Code:	H
ASIF:	1.00
Failure At:	100%

Outer Bolt Group Data

Quantity:	36	
Diameter:	1	in
Material:	A325	
Bolt Circle:	51.00	in
Bolt Group Area:	28.27	in^2
Bolt Group MOIx:	9193	in^4

Reactions Seen by Outer Bolt Group

Moment:	1294.5	kip-ft
Axial:	42.9	kip
Shear:	42.4	kip

Outer Bolt Capacity Check

Max Tension:	32.7	kip
Design Tension	54.5	kip
Max Shear:	1.2	kip
Design Shear	31.8	kip
Bolt Capacity	**59.9%**	Pass

Inner Bolt Group Data

Quantity:		
Diameter:		in
Material:		
Bolt Circle:		in
Bolt Group Area:	0.00	in^2
Bolt Group MOIx:	0	in^4

Reactions Seen by Inner Bolt Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

Inner Bolt Capacity Check

Max Tension:	0.0	kip
Design Tension	0.0	kip
Max Shear:	0.0	kip
Design Shear	0.0	kip
Bolt Capacity	**0.0%**	

Bridge Stiffener #1 Data

Quantity:	4	
Type:	Write In	
Circle:	60.00	in
Individual Area:	6.00	in^2
BS #1 Group Area:	24.00	in^2
BS #1 Group MOIx:	10800	in^4

Reactions Seen by BS #1 Group

Moment:	1520.9	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

BS #1 Capacity Check

Max Tension:	304.2	kip
Max Compression:	304.2	kip
Design Axial	351.0	kip
Max Shear:	0.0	kip
Design Shear	210.6	kip
Bolt Capacity	**86.7%**	Pass

BS #1 Upper Weld Capacity

Eccentricity (ex):	6.000	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

BS #1 Lower Weld Capacity

Eccentricity (ex):	3.000	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

Bridge Stiffener #2 Data

Quantity:		
Type:		
Circle:	0.00	in
Individual Area:	0.00	in^2
BS #2 Group Area:	0.00	in^2
BS #2 Group MOIx:	0	in^4

Reactions Seen by BS #2 Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

BS #2 Capacity Check

Max Tension:	0.0	kip
Max Compression:	0.0	kip
Design Axial	0.0	kip
Max Shear:	0.0	kip
Design Shear	0.0	kip
Bolt Capacity	**0.0%**	

BS #2 Upper Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

BS #2 Lower Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

Bridge Stiffener #3 Data

Quantity:		
Type:		
Circle:	0.00	in
Individual Area:	0.00	in^2
BS #3 Group Area:	0.00	in^2
BS #3 Group MOIx:	0	in^4

Reactions Seen by BS #3 Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

BS #3 Capacity Check

Max Tension:	0.0	kip
Max Compression:	0.0	kip
Design Axial	0.0	kip
Max Shear:	0.0	kip
Design Shear	0.0	kip
Bolt Capacity	**0.0%**	

BS #3 Upper Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

BS #3 Lower Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

Rev.4.1

Monopole Flange Plate Connection

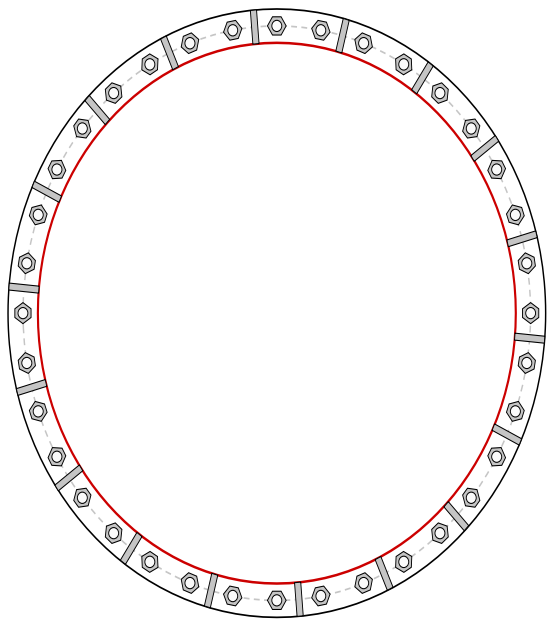
Elevation = 40 ft.

BU #	827050
Site Name	Rocky Hill/ Rte 160_1
Order #	479801 Rev. 0
TIA-222 Revision	H

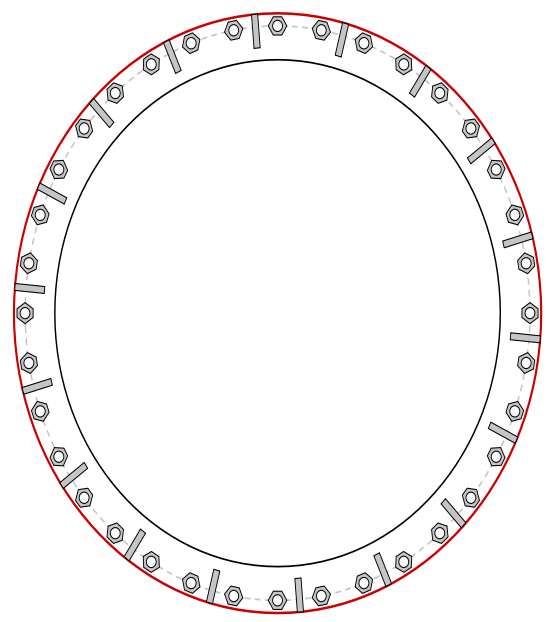
Applied Loads	
Moment (kip-ft)	1294.50
Axial Force (kips)	42.90
Shear Force (kips)	42.41

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(36) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 51" BC

Top Plate Data

54" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(18) 5"H x 3"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Top Pole Data

48" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

45" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

(18) 5"H x 3"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Bottom Pole Data

54" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	32.65	
Allowable (kips)	54.51	
Stress Rating:	**57.0%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Top Stiffener Capacity

Horizontal Weld:	**Pirod OK**
Vertical Weld:	**Pirod OK**
Plate Flexure+Shear:	**Pirod OK**
Plate Tension+Shear:	**Pirod OK**
Plate Compression:	**Pirod OK**

Top Pole Capacity

Punching Shear:	**Pirod OK**

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Bottom Stiffener Capacity

Horizontal Weld:	**Pirod OK**
Vertical Weld:	**Pirod OK**
Plate Flexure+Shear:	**Pirod OK**
Plate Tension+Shear:	**Pirod OK**
Plate Compression:	**Pirod OK**

Bottom Pole Capacity

Punching Shear:	**Pirod OK**

Flange Bolt Information for TIA/EIA-222-H

AeroSolutions LLC
Optimizing Your Tower Infrastructure

Site Information	
ID #:	827050
Name:	Rocky Hill- Rte 160_1
App. #:	

Flange Height:	20	ft

System Reactions		
Moment:	3712.7	kip-ft
Axial:	53.2	kip
Shear:	47.2	kip

Pole Geometry		
Upper Pole OD:	54.00	in
Upper Pole Thick:	0.3750	in
Lower Pole OD:	60.00	in
Lower Pole Thick:	0.3750	in
Flange Plate OD:	42.00	in

Design Information	
TIA Code:	H
ASIF:	1.00
Failure At:	100%

Outer Bolt Group Data

Quantity:	48	
Diameter:	1	in
Material:	A325	
Bolt Circle:	57.00	in
Bolt Group Area:	37.70	in^2
Bolt Group MOIx:	15311	in^4

Reactions Seen by Outer Bolt Group

Moment:	2003.0	kip-ft
Axial:	53.2	kip
Shear:	47.2	kip

Outer Bolt Capacity Check

Max Tension:	34.0	kip
Design Tension	54.5	kip
Max Shear:	1.0	kip
Design Shear	31.8	kip
Bolt Capacity	**62.5%**	Pass

Inner Bolt Group Data

Quantity:		
Diameter:		in
Material:		
Bolt Circle:		in
Bolt Group Area:	0.00	in^2
Bolt Group MOIx:	0	in^4

Reactions Seen by Inner Bolt Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

Inner Bolt Capacity Check

Max Tension:	0.0	kip
Design Tension	0.0	kip
Max Shear:	0.0	kip
Design Shear	0.0	kip
Bolt Capacity	**0.0%**	

Bridge Stiffener #1 Data

Quantity:	4	
Type:	Write In	
Circle:	66.00	in
Individual Area:	6.00	in^2
BS #1 Group Area:	24.00	in^2
BS #1 Group MOIx:	13068	in^4

Reactions Seen by BS #1 Group

Moment:	1709.6	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

BS #1 Capacity Check

Max Tension:	310.8	kip
Max Compression:	310.8	kip
Design Axial	351.0	kip
Max Shear:	0.0	kip
Design Shear	210.6	kip
Bolt Capacity	**88.6%**	Pass

BS #1 Upper Weld Capacity

Eccentricity (ex):	6.000	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

BS #1 Lower Weld Capacity

Eccentricity (ex):	3.000	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

Bridge Stiffener #2 Data

Quantity:		
Type:		
Circle:	0.00	in
Individual Area:	0.00	in^2
BS #2 Group Area:	0.00	in^2
BS #2 Group MOIx:	0	in^4

Reactions Seen by BS #2 Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

BS #2 Capacity Check

Max Tension:	0.0	kip
Max Compression:	0.0	kip
Design Axial	0.0	kip
Max Shear:	0.0	kip
Design Shear	0.0	kip
Bolt Capacity	**0.0%**	

BS #2 Upper Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

BS #2 Lower Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

Bridge Stiffener #3 Data

Quantity:		
Type:		
Circle:	0.00	in
Individual Area:	0.00	in^2
BS #3 Group Area:	0.00	in^2
BS #3 Group MOIx:	0	in^4

Reactions Seen by BS #3 Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

BS #3 Capacity Check

Max Tension:	0.0	kip
Max Compression:	0.0	kip
Design Axial	0.0	kip
Max Shear:	0.0	kip
Design Shear	0.0	kip
Bolt Capacity	**0.0%**	

BS #3 Upper Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

BS #3 Lower Weld Capacity

Eccentricity (ex):	N/A	in
Weld Length (l):	N/A	in
Weld Factor (a):	N/A	
Weld Size (D):	N/A	16TH
Weld Coef. (C):	N/A	
Electrode Coef. (C_1):	N/A	
Weld Capacity:	**N/A**	

Rev.4.1

Monopole Flange Plate Connection

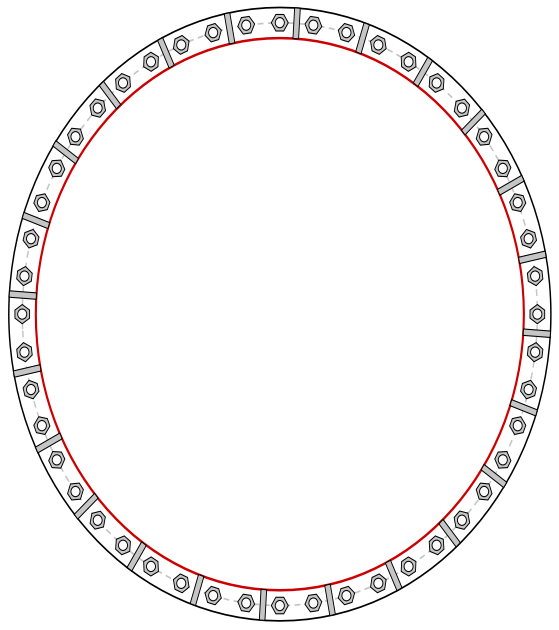
Elevation = 20 ft.

BU #	827050
Site Name	Rocky Hill/ Rte 160_1
Order #	479801 Rev. 0
TIA-222 Revision	H

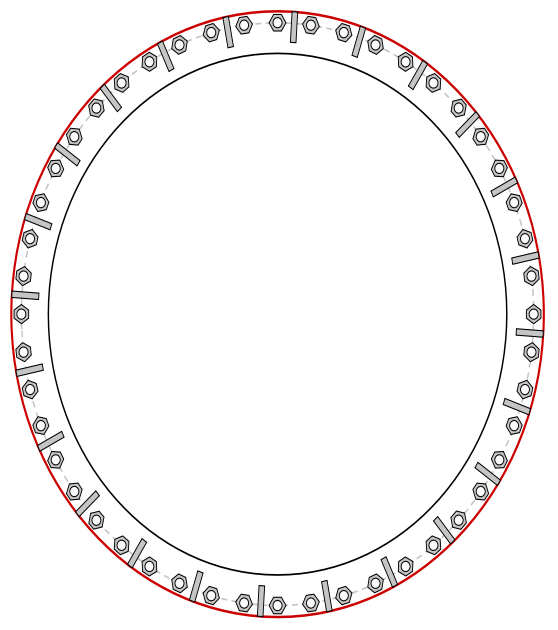
Applied Loads	
Moment (kip-ft)	2003.00
Axial Force (kips)	53.20
Shear Force (kips)	47.20

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(48) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 57" BC

Top Plate Data

60" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(24) 5"H x 3"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Top Pole Data

54" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

51" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

(24) 5"H x 3"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Bottom Pole Data

60" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	34.03	
Allowable (kips)	54.52	
Stress Rating:	**59.4%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Top Stiffener Capacity

Horizontal Weld:	**Pirod OK**
Vertical Weld:	**Pirod OK**
Plate Flexure+Shear:	**Pirod OK**
Plate Tension+Shear:	**Pirod OK**
Plate Compression:	**Pirod OK**

Top Pole Capacity

Punching Shear:	**Pirod OK**

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Bottom Stiffener Capacity

Horizontal Weld:	**Pirod OK**
Vertical Weld:	**Pirod OK**
Plate Flexure+Shear:	**Pirod OK**
Plate Tension+Shear:	**Pirod OK**
Plate Compression:	**Pirod OK**

Bottom Pole Capacity

Punching Shear:	**Pirod OK**

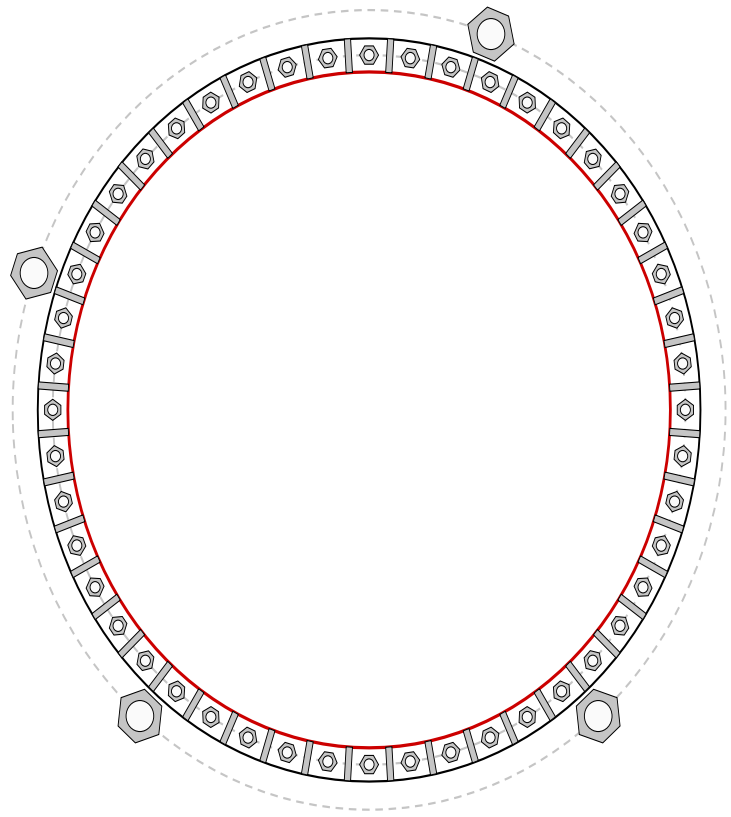
Monopole Base Plate Connection

Site Info	
BU #	827050
Site Name	Rocky Hill/ Rte 160_1
Order #	479801 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	4698.11
Axial Force (kips)	67.32
Shear Force (kips)	51.32

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (48) 1" ø bolts (A687 N; Fy=105 ksi, Fu=125 ksi) on 63" BC

GROUP 2: (4) 2-1/4" ø bolts (Williams R71 N; Fy=100 ksi, Fu=103 ksi) on 71" BC

pos. (deg): 70, 160, 230, 310

Base Plate Data

66" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Stiffener Data

(48) 5"H x 3"W x 0.625"T, Notch: 0.5"
plate: Fy= 40 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" fillet
vert. weld: 0.375" fillet

Pole Data

60" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

GROUP 1:		
Pu_c = 45.86	ϕPn_c = 63.63	**Stress Rating**
Vu = 0.64	ϕVn = 19.09	**68.7%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_t = 369.29	ϕPn_t = 380.84	**Stress Rating**
Vu = 5.18	ϕVn = 229.42	**89.6%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	5.1	(Shear)
Allowable Stress (ksi):	21.6	
Stress Rating:	**22.5%**	**Pass**

Stiffener Summary

Horizontal Weld:	**61.2%**	**Pass**
Vertical Weld:	**41.5%**	**Pass**
Plate Flexure+Shear:	**33.1%**	**Pass**
Plate Tension+Shear:	**50.7%**	**Pass**
Plate Compression:	**71.0%**	**Pass**

Pole Summary

Punching Shear:	**25.2%**	**Pass**

Drilled Pier Foundation

BU # :	827050
Site Name:	Rocky Hill/ Rte 160_1
Order Number:	479801 Rev. 0

TIA-222 Revison:	H
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	4698.11	
Axial Force (kips)	67.32	
Shear Force (kips)	51.32	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	36	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 36' below grade		
Pier Diameter	7	ft
Rebar Quantity	28	
Rebar Size	9	
Clear Cover to Ties	3	in
Tie Size	5	
Rebar Quantity	4	
Rebar Size	18	
Rebar Cage Diameter	71	in

Analysis Results		
Soil Lateral Capacity	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	7.30	-
Soil Safety Factor	6.13	-
Max Moment (kip-ft)	5014.59	-
Rating*	*20.7%*	-
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	205.64	-
End Bearing (kips)	4683.35	-
Weight of Concrete (kips)	165.24	-
Total Capacity (kips)	4888.99	-
Axial (kips)	232.56	-
Rating*	*4.5%*	-
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	7.10	-
Critical Moment (kip-ft)	5014.21	-
Critical Moment Capacity	6623.47	-
Rating*	*72.1%*	-

Soil Interaction Rating*	**20.7%**
Structural Foundation Rating*	**72.1%**

Check Limitation	
Apply TIA-222-H Section 15.5:	☑
N/A	☐

*Rating per TIA-222-H Section 15.5

Soil Profile			
Groundwater Depth	5.6	ft	# of Layers: 10

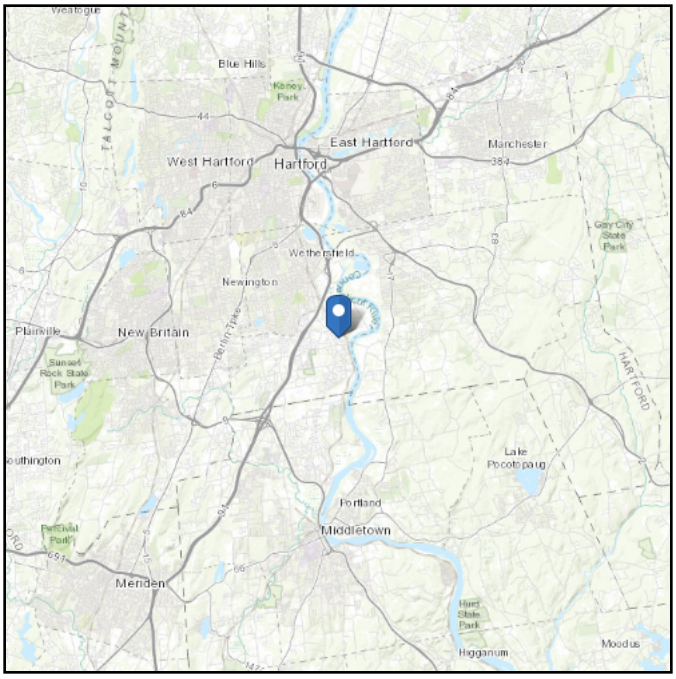
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3.5	3.5	125	150			0.000	0.000				11	Cohesionless
2	3.5	4	0.5	117	150	1	31	0.462	0.462				12	Cohesionless
3	4	5.6	1.6	124	150	1	35	0.717	0.717				40	Cohesionless
4	5.6	6	0.4	62	87.6	1	35	0.830	0.830				39	Cohesionless
5	6	8	2	58	87.6	1	33	0.888	0.888				18	Cohesionless
6	8	10	2	56	87.6	1	32	0.911	0.911				14	Cohesionless
7	10	15	5	53	87.6	1	29	0.29	0.29				4	Cohesionless
8	15	30	15	43	87.6	0.5		0.28	0.28				3	Cohesive
9	30	34	4	54	87.6		31	0.29	0.29				3	Cohesionless
10	34	36	2	93	87.6	20	33	0.20	0.20			162.2592	2	Cohesionless

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 97.46 ft (NAVD 88)
Latitude: 41.668269
Longitude: -72.638036



Wind

Results:

Wind Speed:	124 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	93 Vmph
100-year MRI	101 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Fri Jun 14 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

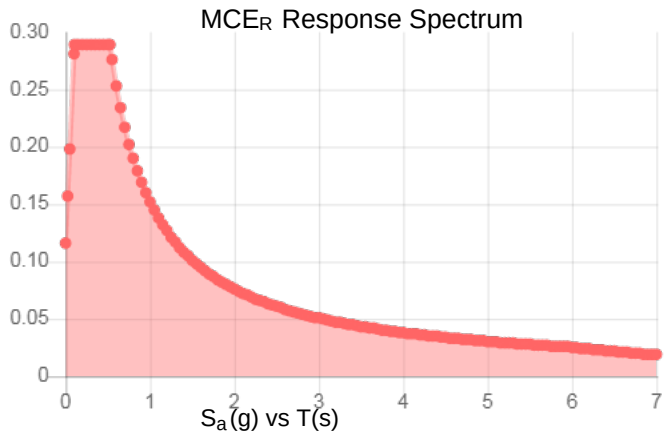
Seismic

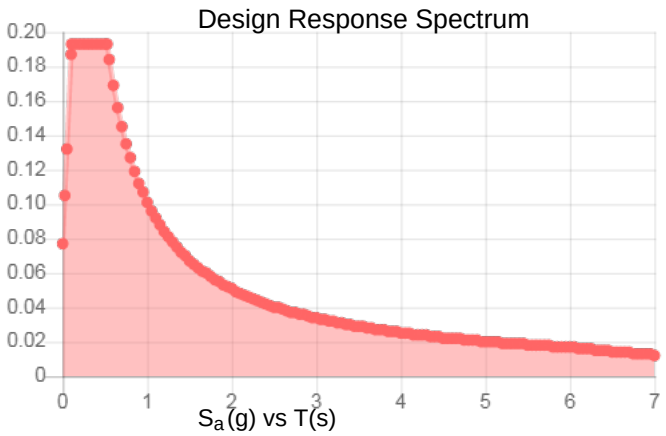
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.181	S_{DS} :	0.193
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.091
S_{MS} :	0.289	PGA_M :	0.146
S_{M1} :	0.152	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Fri Jun 14 2019

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri Jun 14 2019

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit E

Mount Analysis

PAUL J. FORD & COMPANY

Date: May 28, 2019

Charles McGuirt
Crown Castle
3530 Toringdon Way
Charlotte, NC 28277

Paul J Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
614.221.6679

Subject:	**Mount Analysis Report**	
Carrier Designation:	***T-Mobile* Equipment Change-out**	
	Carrier Site Number:	CT11058C
	Carrier Site Name:	Rocky Hill / Rte 160_1
Crown Castle Designation:	**Crown Castle BU Number:**	827050
	Crown Castle Site Name:	Rocky Hill / Rte 160_1
	Crown Castle JDE Job Number:	559253
	Crown Castle Purchase Order Number:	1384202
	Crown Castle Order Number:	479801 Rev. 0
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	A37519-1569.002.7190
Site Data:	**699 Old Main St., Rocky Hill, Hartford County, CT** **Latitude 41.668269°, Longitude -72.638036°**	
Structure Information:	**Tower Height & Type:**	**147.5 Foot Monopole**
	Mount Elevation:	**148 Foot**
	Mount Type:	**(1) 16.5 Foot Platform**

Dear Charles Mcguirt,

Paul J Ford and Company is pleased to submit this "Mount Analysis Report" to determine the structural integrity of the T-Mobile antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point is not part of this document.

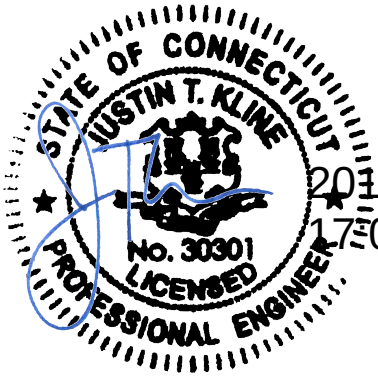
The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

16.5' Platform **SUFFICIENT**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Burak Gul

Respectfully submitted by:



2019.05.29
17:03:22-04'00'

Deepesh Savla, P.E.
Project Manager
DSavla@pauljford.com

TABLE OF CONTENTS

1) INTRODUCTION

The existing mount under consideration is (1) 16.5' Platform mount mapped by RKS on 4/3/2019.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	2 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.181
Seismic S_1:	0.063
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
148	149	3	Ericsson	Ericsson AIR 21 B2A B4P	(1) 16.5' Platform
		3	Ericsson	AIR 32 B2A/B66AA	
		3	RFS/Celwave	APXVAARR24_43-U-NA20	
		3	Ericsson	KRY 112 144/1	
		3	Ericsson	RADIO 4449 B12/B71	

Table 2 - Other Considered Loading

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
148	167	2	DBSPECTRA	DS4C06F36D-D	(1) 16.5' Platform
	154	1	RFS CELWAVE	201-1N	
	152	1	RADIOWAVES	HPD2-4.7	

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Mount Mapping	RKS File #: 37519-1569 Dated: 4/3/2019	8352877	RKS
Order	ID: 479801 Rev. 0 Dated: 5/24/2019	-	CCISites

3.1) Analysis Method

RISA-3D (version 17.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision C).

3.2) Assumptions

1) *The analysis of the existing tower or the effect of the mount attachment to the tower is not within the current scope of work.*
2) *The antenna mounting system was properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications and all bolts are tightened as specified by the manufacturer and AISC requirements.*
3) *The configuration of antennas, mounts, and other appurtenances are as specified in Table 1.*
4) *All member connections have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report. All U-Bolt connections have been properly tightened. This analysis will be required to be revised if the existing conditions in the field differ from those shown in the above referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.*
5) *Steel grades are as follows, unless noted otherwise:*
   - *a) Channel, Solid Round, Angle, Plate, Unistrut* — *ASTM A36 (GR 36)*
   - *b) Pipe* — *ASTM A53 (GR 35)*
   - *c) HSS (Rectangular)* — *ASTM 500 (GR B-46)*
   - *d) HSS (Round)* — *ASTM 500 (GR B-42)*
   - *e) Threaded Rods* — *ASTM F1554 (GR 36)*
   - *f) Connection Bolts* — *ASTM A325*
   - *g) U-Bolts* — *SAE J429 (GR 2)*
6) *Proposed equipment is to be installed in the locations specified in Appendix A. Any changes to the proposed equipment locations will render this report invalid.*
7) *The following discrepancies were found between the referenced mapping and the mount centerline per the referenced Order:*
   a. *Mapping shows a mount centerline of 150.5' while the order has a mount centerline of 148'. The order form took precedence and mount was modeled with a centerline of 148'.*

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J Ford and Company should be notified to determine the effect on the structural integrity of the mount.

4) ANALYSIS RESULTS

Table 4- Mount Component Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Face Horizontals	148	79.0	Pass
1	Bracing Members		52.7	Pass
1	Grating Support Members		53.1	Pass
1	Standoff Members		53.2	Pass
1	Corner Plates		25.5	Pass
1	Mount Pipes		76.0	Pass
1	Mount to Tower Connection		88.8	Pass

Mount Rating (max from all components) =	88.8%

Notes:
1) See additional documentation in “Appendix C – Software Analysis Output” for calculations supporting the % capacity consumed.

4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING MOUNTS BY PAUL J. FORD AND COMPANY

1) It is the responsibility of the client to ensure that the information provided to Paul J. Ford and Company is accurate and complete. Paul J. Ford and Company will rely on the accuracy and completeness of such information in performing or furnishing services under this project.

2) If the existing conditions are not as represented on the referenced drawings and/or documents, Paul J. Ford and Company should be contacted immediately to evaluate the significance of the deviation.

3) The mount has been analyzed according to the minimum design loads recommended by the Reference Standard. If additional design loads are required, Paul J. Ford and Company should be made aware of this prior to the start of the project.

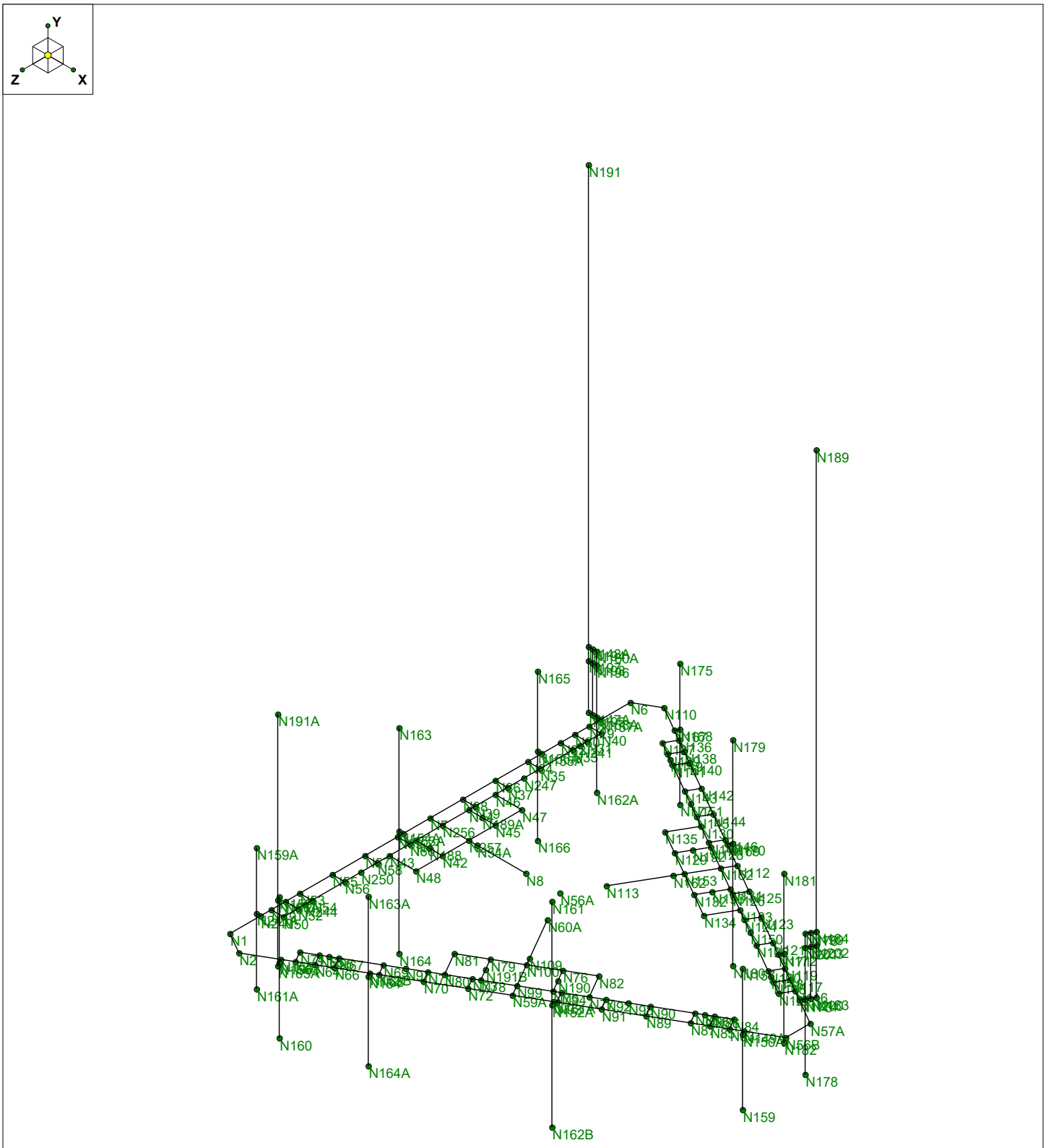
4) The standard of care for all Professional Engineering Services performed or furnished by Paul J. Ford and Company under this project will be the skill and care used by members of the Consultant's profession practicing under similar circumstances at the same time and in the same locality.

5) All Services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Paul J. Ford and Company is not responsible for the conclusions, opinions and/or recommendations made by others based on the information supplied herein.

****

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Paul J. Ford and Company	Rocky Hill/Rte 160_1 / 827050	SK - 1
DBG		May 29, 2019 at 9:35 AM
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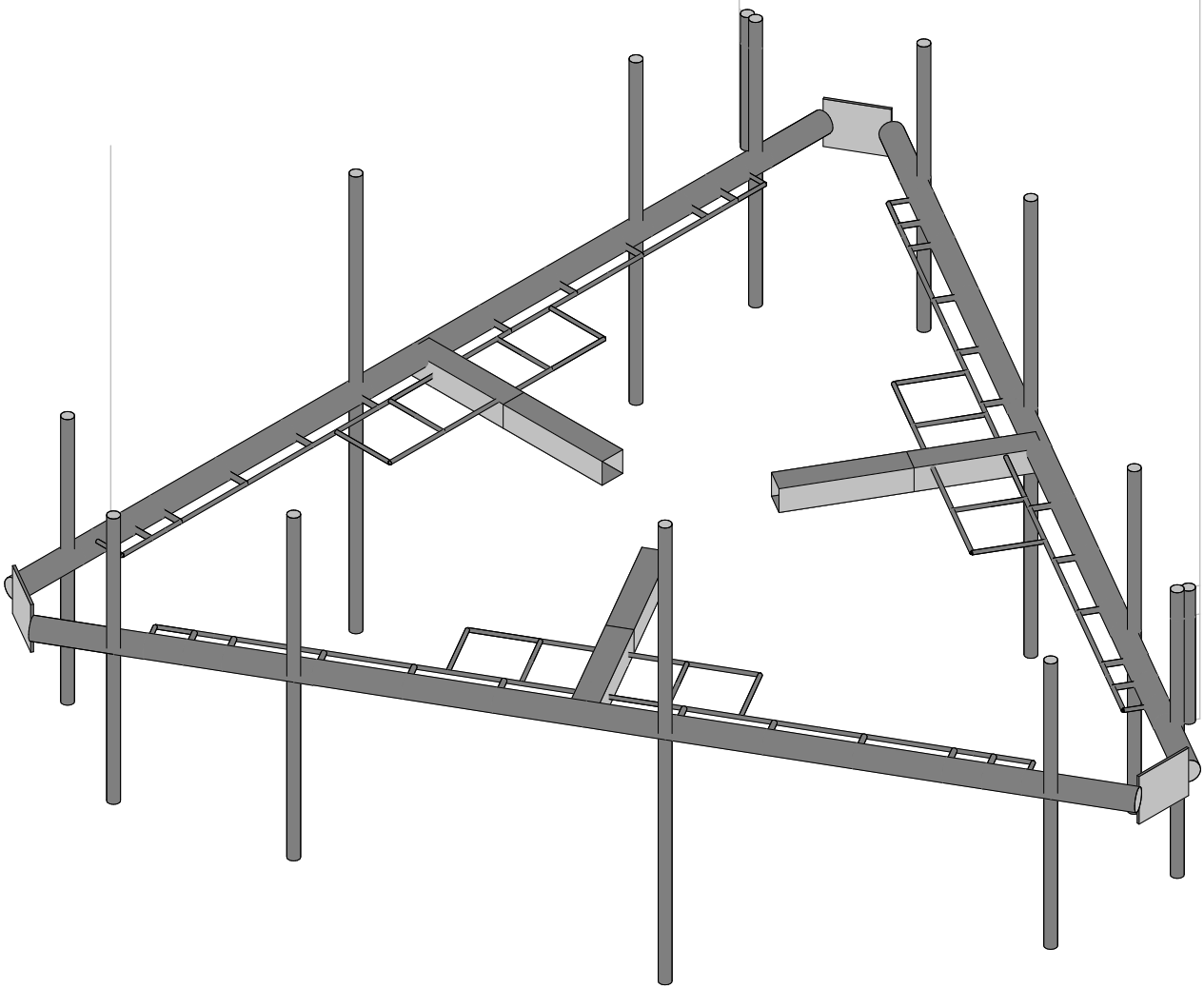

Envelope Only Solution

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DBG		May 29, 2019 at 9:36 AM
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APPENDIX B

SOFTWARE INPUT CALCULATION

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

Project # 37519-1569.002.7190
By DBG

Date: 05/28/19

Analysis 30 degrees

v1.2, Effective 4/18/19

Mount Loading per TIA-222-H

Structure Information

Mount Type =	3 Sectors	
Mount Elev, z =	148	ft
Ground Elev, z_s =	97	ft
Wind Speed =	125	mph
Ice Wind Speed =	50	mph
Ice Thickness =	2	in
Exposure Cat =	C	
Structure Class =	II	
Topographic Cat =	1	
Crest Height =	0	ft

Velocity Pressure Coefficients

z_g =	900	ft	
a =	9.50		
K_{zmin} =	0.85		
K_z =	1.37		Calculated Value
Ke =	1.00		Ground Elevation Factor
K_z =	1.37		Velocity Press Coef (Section 2.6.5.2)
K_{zt} =	1.00		Topographic Factor (Section 2.6.6.4)
Gh =	1.00		Gust Effect Factor (Section 2.6.7)
K_d =	0.95		Wind Dir Probability Factor (Table 2-2)
K_a =	0.90		Shielding factor (Section 16.6)
q_z=	46.84	psf	Velocity Pressure (Section 2.6.9.6)

Ice Loading

Ii =	1.00		Ice Importance Factor (Table 2-3)
Iwi =	1.00		Wind Ice Importance Factor (Table 2-3)
q_z=	8.36	psf	Ice Velocity Pressure (Section 2.6.9.6)
K_{iz} =	1.16		Ice Escalation Factor (Section 2.6.8)
T_{iz} =	2.32	in	Factored Ice Thickness (Section 2.6.8)
h =	1.00	in	Bar Grating Height
W_i =	15.51	psf	Grating Ice Weight

Wind Pressures

Pressure =	46.843	psf
Ice Pressure =	8.357	psf

Antenna Attachment Labels & Elevations (inches with Respect to Bottom of Member)

Face	Label	Top Elev (in)	Bot Elev (in)	Length, in	Face	Label	Top Elev (in)	Bot Elev (in)	Length, in	Face	Label	Top Elev (in)	Bot Elev (in)	Length, in	Face	Label	Top Elev (in)	Bot Elev (in)
A	A1	58.0	30	60.0	B	B1	58.0	30	60.0	C	C1	58.0	30	60.0	D			
A	A2	82.0	46.1	96.0	B	B2	82.0	46.1	96.0	C	C2	82.0	46.1	96.0	D			
A	A3	66.3	33.7	72.0	B	B3	66.3	33.7	72.0	C	C3	66.3	33.7	72.0	D			
A (2)	A1	44.5	43.5	60.0	B (2)	B1	44.5	43.5	60.0	C (2)	C1	44.5	43.5	60.0	D			
A (2)	A2	65.5	62.5	96.0	B (2)	B2	65.5	62.5	96.0	C (2)	C2	65.5	62.5	96.0	D			
A	A5	116.4	116.3	232.8	B	B4	48.5	47.5	107.0	C	C5	116.4	116.3	232.8	D			
A					B (2)	B4	72.3	71.8	107.0	C					D			
A					B					C					D			
A					B					C					D			
A					B					C					D			

Antennas

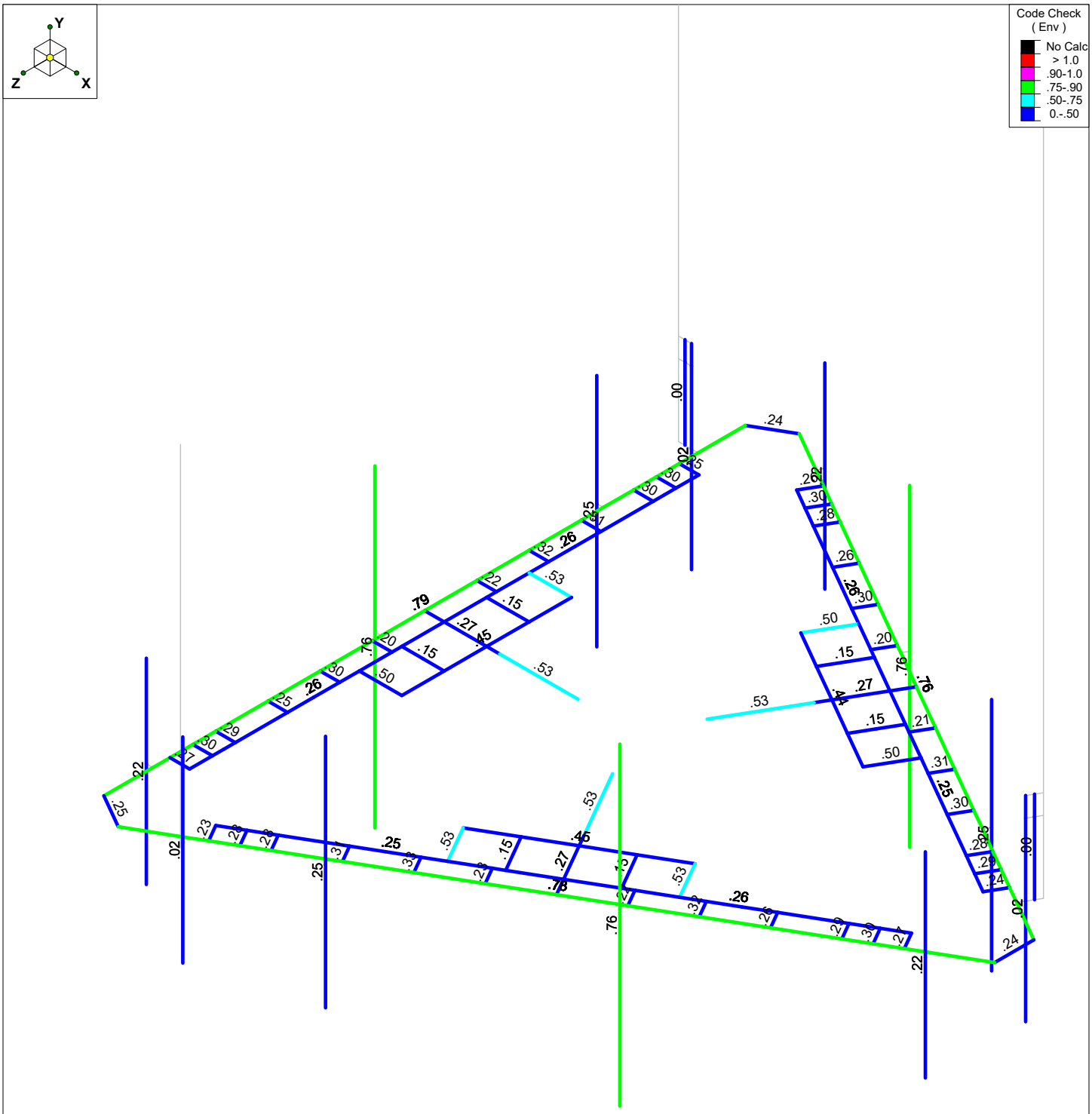
Item	Manufacturer	Antenna	Height (in)	Width (in)	Depth (in)	Flat or Round	Weight (lbs)	Antenna Attachment Locations					
								Label	Label	Label	Label	Label	Label
1	ERICSSON	ERICSSON AIR 21 B2A B4P	56	12.1	7.87	Flat	91.5	A1	B1	C1			
2	ERICSSON	AIR 32 B2A/B66AA	56.6	12.9	8.7	Flat	132.2	A3	B3	C3			
3	RFS CELWAVE	APXVAARR24_43-U-NA20	95.9	24	8.7	Flat	128	A2	B2	C2			
4	ERICSSON AMPLIFIERS	ERICSSON KRY 112 144/1	6.93	6.1	2.8	Flat	11	A1(2)	B1(2)	C1(2)			
5	ERICSSON	RADIO 4449 B12/B71	15	13.2	9.3	Flat	74	A2(2)	B2(2)	C2(2)			
6	RFS CELWAVE	201-1N	107.64	1.66	1.66	Round	6	B4(2)					
7	CUSTOM	OMNI WEIGHT	0.5	0.5	0.5	Flat	50	A5	C5				
8													
9													
10													
11													
12													
13													
14													
15													

Dishes

Item	Manufacturer	Microwave Dish	Dia (in)	Dish Type	Weight (lbs)	Dish Attachment Locations					
						Label	Label	Label	Label	Label	Label
1											
2	RADIOWAVES	HPD2-4.7NS	29	Paraboloid w/ Shroud (HP)	48	B4					

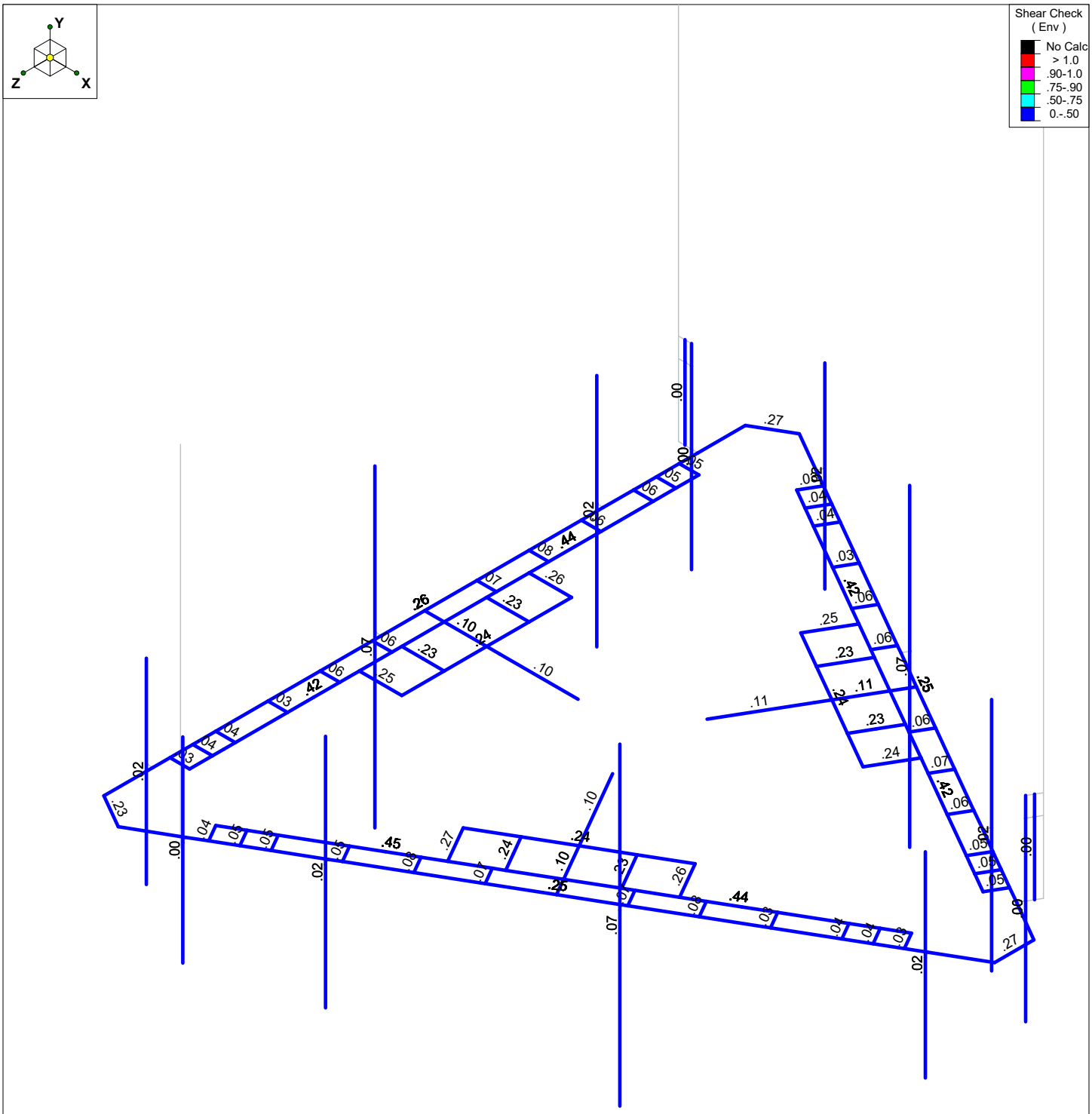
APPENDIX C

SOFTWARE ANALYSIS OUTPUT



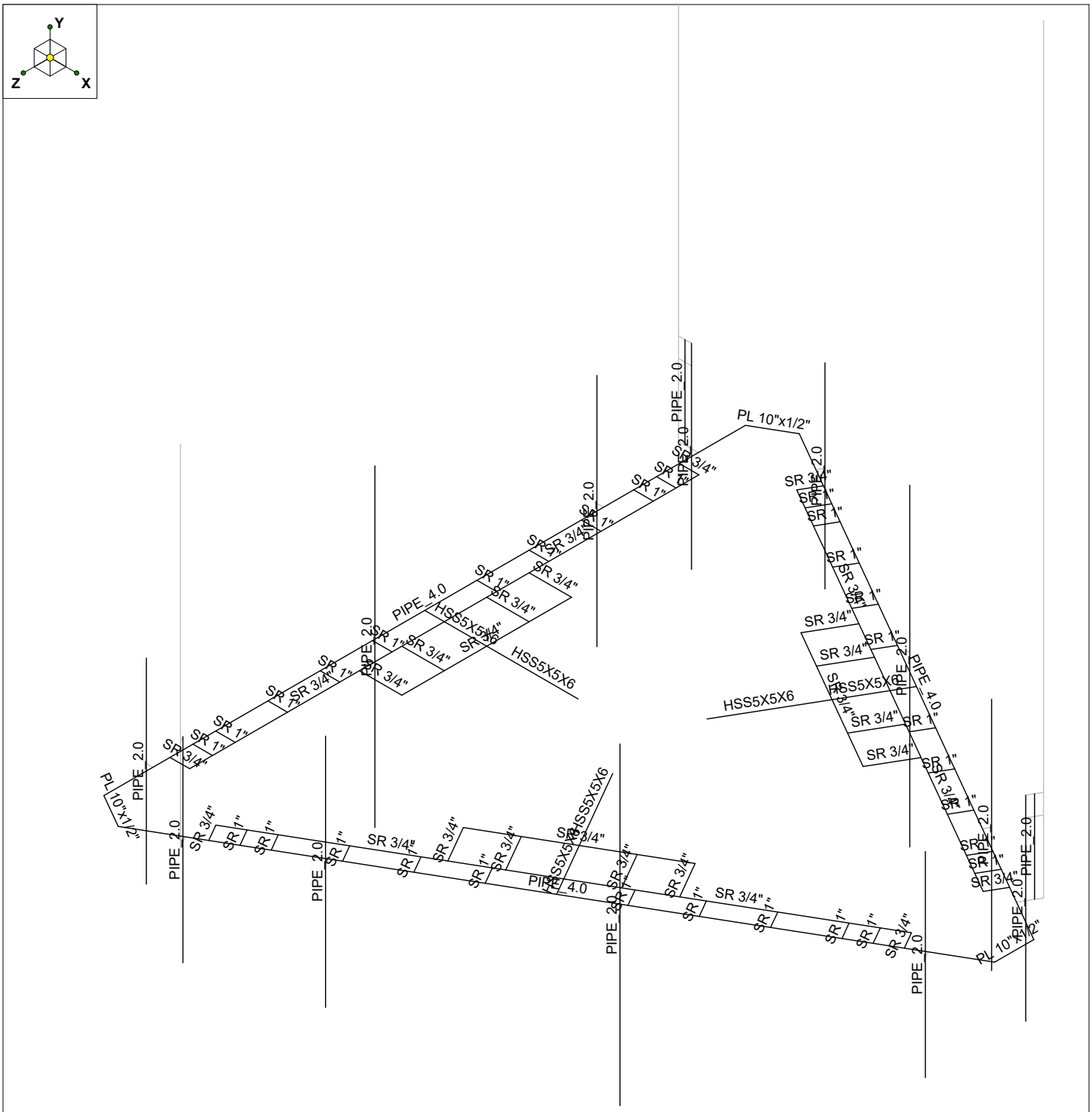
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Paul J. Ford and Company	Rocky Hill/Rte 160_1 / 827050	SK - 3
DBG		May 29, 2019 at 9:37 AM
37519-1569.002.7190		37519-1569.002.7190_Wind Load....



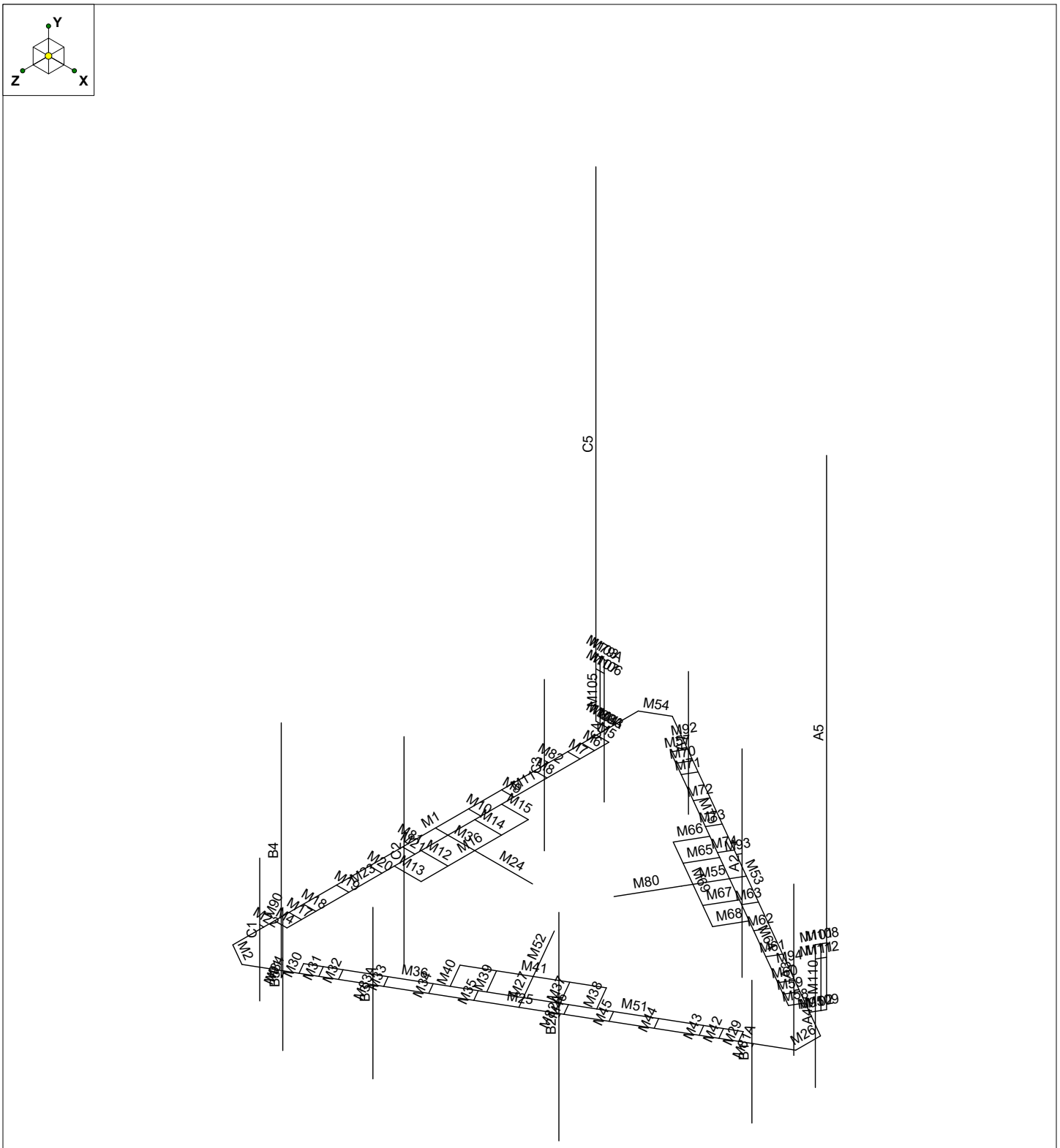
Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Paul J. Ford and Company	Rocky Hill/Rte 160_1 / 827050	SK - 4
DBG		May 29, 2019 at 9:37 AM
37519-1569.002.7190		37519-1569.002.7190_Wind Load....



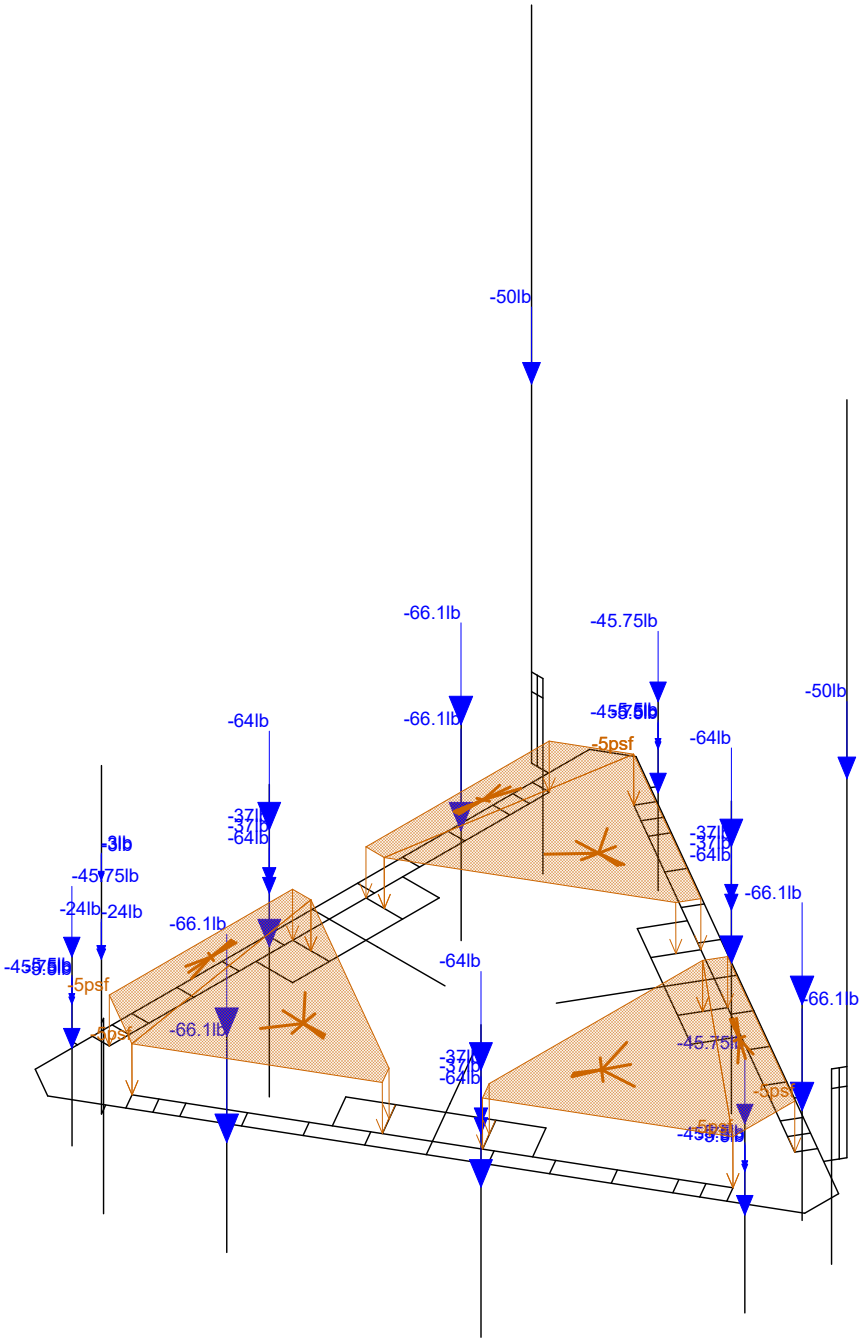
Envelope Only Solution

Paul J. Ford and Company	Rocky Hill/Rte 160_1 / 827050	SK - 5
DBG		May 29, 2019 at 9:37 AM
37519-1569.002.7190		37519-1569.002.7190_Wind Load....



Envelope Only Solution

Paul J. Ford and Company	Rocky Hill/Rte 160_1 / 827050	SK - 6
DBG		May 29, 2019 at 9:37 AM
37519-1569.002.7190		37519-1569.002.7190_Wind Load....



Loads: BLC 1, Dead
Envelope Only Solution

Paul J. Ford and Company	Rocky Hill/Rte 160_1 / 827050	SK - 7
DBG		May 29, 2019 at 9:37 AM
37519-1569.002.7190		37519-1569.002.7190_Wind Load....

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	No
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-05
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Occupancy Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

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

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N6	N1			PIPE 4.0	None	None	A53 Gr. B ...	Typical
2	M2	N1	N2			PL 10"x1/2"	Beam	Wide Flange	A36 Gr.36	Typical
3	M3	N7	N54A			HSS5X5X6	None	None	A500 Gr.46	Typical
4	M4	N49	N50			SR 3/4"	None	None	A36 Gr.36	Typical
5	M5	N29	N40			SR 3/4"	None	None	A36 Gr.36	Typical
6	M6	N30	N31			SR 1"	None	None	A36 Gr.36	Typical
7	M7	N32	N33			SR 1"	None	None	A36 Gr.36	Typical
8	M8	N34	N35			SR 1"	None	None	A36 Gr.36	Typical
9	M9	N36	N37			SR 1"	None	None	A36 Gr.36	Typical
10	M10	N38	N39			SR 1"	None	None	A36 Gr.36	Typical
11	M11	N40	N256			SR 3/4"	None	None	A36 Gr.36	Typical
12	M12	N41	N42			SR 3/4"	None	None	A36 Gr.36	Typical
13	M13	N43	N48			SR 3/4"	None	None	A36 Gr.36	Typical
14	M14	N44	N45			SR 3/4"	None	None	A36 Gr.36	Typical
15	M15	N46	N47			SR 3/4"	None	None	A36 Gr.36	Typical
16	M16	N47	N48			SR 3/4"	None	None	A36 Gr.36	Typical
17	M17	N51	N52			SR 1"	None	None	A36 Gr.36	Typical
18	M18	N53	N54			SR 1"	None	None	A36 Gr.36	Typical
19	M19	N55	N56			SR 1"	None	None	A36 Gr.36	Typical
20	M20	N57	N58			SR 1"	None	None	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
21	M21	N59	N60			SR 1"	None	None	A36 Gr.36	Typical
22	M22	N240	N241A			RIGID	None	None	RIGID	Typical
23	M23	N256	N50			SR 3/4"	None	None	A36 Gr.36	Typical
24	M24	N54A	N8			HSS5X5X6	None	None	A500 Gr.46	Typical
25	M25	N2	N56B			PIPE_4.0	None	None	A53 Gr. B ...	Typical
26	M26	N56B	N57A			PL 10"x1/2"	Beam	Wide Flange	A36 Gr.36	Typical
27	M27	N59A	N109			HSS5X5X6	None	None	A500 Gr.46	Typical
28	M29	N83	N84			SR 3/4"	None	None	A36 Gr.36	Typical
29	M30	N63	N74			SR 3/4"	None	None	A36 Gr.36	Typical
30	M31	N64	N65			SR 1"	None	None	A36 Gr.36	Typical
31	M32	N66	N67			SR 1"	None	None	A36 Gr.36	Typical
32	M33	N68	N69			SR 1"	None	None	A36 Gr.36	Typical
33	M34	N70	N71			SR 1"	None	None	A36 Gr.36	Typical
34	M35	N72	N73			SR 1"	None	None	A36 Gr.36	Typical
35	M36	N74	N99			SR 3/4"	None	None	A36 Gr.36	Typical
36	M37	N75	N76			SR 3/4"	None	None	A36 Gr.36	Typical
37	M38	N77	N82			SR 3/4"	None	None	A36 Gr.36	Typical
38	M39	N78	N79			SR 3/4"	None	None	A36 Gr.36	Typical
39	M40	N80	N81			SR 3/4"	None	None	A36 Gr.36	Typical
40	M41	N81	N82			SR 3/4"	None	None	A36 Gr.36	Typical
41	M42	N85	N86			SR 1"	None	None	A36 Gr.36	Typical
42	M43	N87	N88			SR 1"	None	None	A36 Gr.36	Typical
43	M44	N89	N90			SR 1"	None	None	A36 Gr.36	Typical
44	M45	N91	N92			SR 1"	None	None	A36 Gr.36	Typical
45	M46	N93	N94			SR 1"	None	None	A36 Gr.36	Typical
46	M51	N99	N84			SR 3/4"	None	None	A36 Gr.36	Typical
47	M52	N109	N60A			HSS5X5X6	None	None	A500 Gr.46	Typical
48	M53	N57A	N110			PIPE_4.0	None	None	A53 Gr. B ...	Typical
49	M54	N110	N6			PL 10"x1/2"	Beam	Wide Flange	A36 Gr.36	Typical
50	M55	N112	N162			HSS5X5X6	None	None	A500 Gr.46	Typical
51	M57	N136	N137			SR 3/4"	None	None	A36 Gr.36	Typical
52	M58	N116	N127			SR 3/4"	None	None	A36 Gr.36	Typical
53	M59	N117	N118			SR 1"	None	None	A36 Gr.36	Typical
54	M60	N119	N120			SR 1"	None	None	A36 Gr.36	Typical
55	M61	N121	N122			SR 1"	None	None	A36 Gr.36	Typical
56	M62	N123	N124			SR 1"	None	None	A36 Gr.36	Typical
57	M63	N125	N126			SR 1"	None	None	A36 Gr.36	Typical
58	M64	N127	N152			SR 3/4"	None	None	A36 Gr.36	Typical
59	M65	N128	N129			SR 3/4"	None	None	A36 Gr.36	Typical
60	M66	N130	N135			SR 3/4"	None	None	A36 Gr.36	Typical
61	M67	N131	N132			SR 3/4"	None	None	A36 Gr.36	Typical
62	M68	N133	N134			SR 3/4"	None	None	A36 Gr.36	Typical
63	M69	N134	N135			SR 3/4"	None	None	A36 Gr.36	Typical
64	M70	N138	N139			SR 1"	None	None	A36 Gr.36	Typical
65	M71	N140	N141			SR 1"	None	None	A36 Gr.36	Typical
66	M72	N142	N143			SR 1"	None	None	A36 Gr.36	Typical
67	M73	N144	N145			SR 1"	None	None	A36 Gr.36	Typical
68	M74	N146	N147			SR 1"	None	None	A36 Gr.36	Typical
69	M79	N152	N137			SR 3/4"	None	None	A36 Gr.36	Typical
70	M80	N162	N113			HSS5X5X6	None	None	A500 Gr.46	Typical
71	M81	N153A	N154A			RIGID	None	None	RIGID	Typical
72	M82	N155A	N156A			RIGID	None	None	RIGID	Typical
73	M83	N157A	N158A			RIGID	None	None	RIGID	Typical
74	C4	N162A	N160A			PIPE_2.0	None	None	A53 Gr. B ...	Typical
75	C3	N166	N165			PIPE_2.0	None	None	A53 Gr. B ...	Typical
76	C2	N164	N163			PIPE_2.0	None	None	A53 Gr. B ...	Typical
77	C1	N161A	N159A			PIPE_2.0	None	None	A53 Gr. B ...	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
78	M79A	N160A	N194			RIGID	None	None	RIGID	Typical
79	M80A	N158A	N195			RIGID	None	None	RIGID	Typical
80	M81A	N149A	N150A			RIGID	None	None	RIGID	Typical
81	M82A	N151A	N152A			RIGID	None	None	RIGID	Typical
82	M83A	N153B	N154			RIGID	None	None	RIGID	Typical
83	M84	N155	N156			RIGID	None	None	RIGID	Typical
84	B5	N160	N158			PIPE_2.0	None	None	A53 Gr. B ...	Typical
85	B3	N164A	N163A			PIPE_2.0	None	None	A53 Gr. B ...	Typical
86	B2	N162B	N161			PIPE_2.0	None	None	A53 Gr. B ...	Typical
87	B1	N159	N157			PIPE_2.0	None	None	A53 Gr. B ...	Typical
88	M90	N158	N166A			RIGID	None	None	RIGID	Typical
89	M91	N156	N165A			RIGID	None	None	RIGID	Typical
90	M92	N167	N168			RIGID	None	None	RIGID	Typical
91	M93	N169	N170			RIGID	None	None	RIGID	Typical
92	M94	N171	N172			RIGID	None	None	RIGID	Typical
93	M95	N173	N174			RIGID	None	None	RIGID	Typical
94	A4	N178	N176			PIPE_2.0	None	None	A53 Gr. B ...	Typical
95	A3	N182	N181			PIPE_2.0	None	None	A53 Gr. B ...	Typical
96	A2	N180	N179			PIPE_2.0	None	None	A53 Gr. B ...	Typical
97	A1	N177	N175			PIPE_2.0	None	None	A53 Gr. B ...	Typical
98	M101	N176	N199			RIGID	None	None	RIGID	Typical
99	M102	N174	N200			RIGID	None	None	RIGID	Typical
100	A5	N183	N189			RIGID	None	None	RIGID	Typical
101	C5	N147A	N191			RIGID	None	None	RIGID	Typical
102	B4	N165A	N191A			RIGID	None	None	RIGID	Typical
103	M103	N194	N148A			RIGID	None	None	RIGID	Typical
104	M104	N195	N147A			RIGID	None	None	RIGID	Typical
105	M105	N195	N194			PIPE_2.0	None	None	A53 Gr. B ...	Typical
106	M106	N196	N198			RIGID	None	None	RIGID	Typical
107	M107	N198	N197			RIGID	None	None	RIGID	Typical
108	M108	N199	N184			RIGID	None	None	RIGID	Typical
109	M109	N200	N183			RIGID	None	None	RIGID	Typical
110	M110	N200	N199			PIPE_2.0	None	None	A53 Gr. B ...	Typical
111	M111	N201	N203			RIGID	None	None	RIGID	Typical
112	M112	N203	N202			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes	** NA **			None
2	M2						Yes				None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8						Yes	** NA **			None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	M12						Yes	** NA **			None
13	M13						Yes	** NA **			None
14	M14						Yes	** NA **			None
15	M15						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
18	M18						Yes	** NA **			None
19	M19						Yes	** NA **			None
20	M20						Yes	** NA **			None
21	M21						Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes				None
27	M27						Yes	** NA **			None
28	M29						Yes	** NA **			None
29	M30						Yes	** NA **			None
30	M31						Yes	** NA **			None
31	M32						Yes	** NA **			None
32	M33						Yes	** NA **			None
33	M34						Yes	** NA **			None
34	M35						Yes	** NA **			None
35	M36						Yes	** NA **			None
36	M37						Yes	** NA **			None
37	M38						Yes	** NA **			None
38	M39						Yes	** NA **			None
39	M40						Yes	** NA **			None
40	M41						Yes	** NA **			None
41	M42						Yes	** NA **			None
42	M43						Yes	** NA **			None
43	M44						Yes	** NA **			None
44	M45						Yes	** NA **			None
45	M46						Yes	** NA **			None
46	M51						Yes	** NA **			None
47	M52						Yes	** NA **			None
48	M53						Yes	** NA **			None
49	M54						Yes				None
50	M55						Yes	** NA **			None
51	M57						Yes	** NA **			None
52	M58						Yes	** NA **			None
53	M59						Yes	** NA **			None
54	M60						Yes	** NA **			None
55	M61						Yes	** NA **			None
56	M62						Yes	** NA **			None
57	M63						Yes	** NA **			None
58	M64						Yes	** NA **			None
59	M65						Yes	** NA **			None
60	M66						Yes	** NA **			None
61	M67						Yes	** NA **			None
62	M68						Yes	** NA **			None
63	M69						Yes	** NA **			None
64	M70						Yes	** NA **			None
65	M71						Yes	** NA **			None
66	M72						Yes	** NA **			None
67	M73						Yes	** NA **			None
68	M74						Yes	** NA **			None
69	M79						Yes	** NA **			None
70	M80						Yes	** NA **			None
71	M81						Yes	** NA **			None
72	M82						Yes	** NA **			None
73	M83						Yes	** NA **			None
74	C4						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
75	C3						Yes	** NA **			None
76	C2						Yes	** NA **			None
77	C1						Yes	** NA **			None
78	M79A						Yes	** NA **			None
79	M80A						Yes	** NA **			None
80	M81A						Yes	** NA **			None
81	M82A						Yes	** NA **			None
82	M83A						Yes	** NA **			None
83	M84						Yes	** NA **			None
84	B5						Yes	** NA **			None
85	B3						Yes	** NA **			None
86	B2						Yes	** NA **			None
87	B1						Yes	** NA **			None
88	M90						Yes	** NA **			None
89	M91						Yes	** NA **			None
90	M92						Yes	** NA **			None
91	M93						Yes	** NA **			None
92	M94						Yes	** NA **			None
93	M95						Yes	** NA **			None
94	A4						Yes	** NA **			None
95	A3						Yes	** NA **			None
96	A2						Yes	** NA **			None
97	A1						Yes	** NA **			None
98	M101						Yes	** NA **			None
99	M102						Yes	** NA **			None
100	A5						Yes	** NA **			None
101	C5						Yes	** NA **			None
102	B4						Yes	** NA **			None
103	M103						Yes	** NA **			None
104	M104						Yes	** NA **			None
105	M105						Yes	** NA **			None
106	M106						Yes	** NA **			None
107	M107						Yes	** NA **			None
108	M108						Yes	** NA **			None
109	M109						Yes	** NA **			None
110	M110						Yes	** NA **			None
111	M111						Yes	** NA **			None
112	M112						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	PIPE 4.0	196.5			Lbyy						Lateral
2	M2	PL 10"x1/2"	12			Lbyy						Lateral
3	M3	HSS5X5X6	23			Lbyy						Lateral
4	M4	SR 3/4"	6			Lbyy						Lateral
5	M5	SR 3/4"	6			Lbyy						Lateral
6	M6	SR 1"	6			Lbyy						Lateral
7	M7	SR 1"	6			Lbyy						Lateral
8	M8	SR 1"	6			Lbyy						Lateral
9	M9	SR 1"	6			Lbyy						Lateral
10	M10	SR 1"	6			Lbyy						Lateral
11	M11	SR 3/4"	78	16	16	Lbyy						Lateral
12	M12	SR 3/4"	13			Lbyy						Lateral
13	M13	SR 3/4"	13			Lbyy						Lateral
14	M14	SR 3/4"	13			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
15	M15	SR 3/4"	13			Lbyy						Lateral
16	M16	SR 3/4"	52			Lbyy						Lateral
17	M17	SR 1"	6			Lbyy						Lateral
18	M18	SR 1"	6			Lbyy						Lateral
19	M19	SR 1"	6			Lbyy						Lateral
20	M20	SR 1"	6			Lbyy						Lateral
21	M21	SR 1"	6			Lbyy						Lateral
22	M23	SR 3/4"	78	16	16	Lbyy						Lateral
23	M24	HSS5X5X6	24			Lbyy						Lateral
24	M25	PIPE_4.0	196.541			Lbyy						Lateral
25	M26	PL 10"x1/2"	12			Lbyy						Lateral
26	M27	HSS5X5X6	22.965			Lbyy						Lateral
27	M29	SR 3/4"	5.993			Lbyy						Lateral
28	M30	SR 3/4"	5.937			Lbyy						Lateral
29	M31	SR 1"	5.939			Lbyy						Lateral
30	M32	SR 1"	5.942			Lbyy						Lateral
31	M33	SR 1"	5.947			Lbyy						Lateral
32	M34	SR 1"	5.953			Lbyy						Lateral
33	M35	SR 1"	5.959			Lbyy						Lateral
34	M36	SR 3/4"	78	16	16	Lbyy						Lateral
35	M37	SR 3/4"	13			Lbyy						Lateral
36	M38	SR 3/4"	13			Lbyy						Lateral
37	M39	SR 3/4"	13			Lbyy						Lateral
38	M40	SR 3/4"	13			Lbyy						Lateral
39	M41	SR 3/4"	52			Lbyy						Lateral
40	M42	SR 1"	5.99			Lbyy						Lateral
41	M43	SR 1"	5.988			Lbyy						Lateral
42	M44	SR 1"	5.982			Lbyy						Lateral
43	M45	SR 1"	5.976			Lbyy						Lateral
44	M46	SR 1"	5.97			Lbyy						Lateral
45	M51	SR 3/4"	78	16	16	Lbyy						Lateral
46	M52	HSS5X5X6	24			Lbyy						Lateral
47	M53	PIPE_4.0	196.541			Lbyy						Lateral
48	M54	PL 10"x1/2"	12.082			Lbyy						Lateral
49	M55	HSS5X5X6	22.965			Lbyy						Lateral
50	M57	SR 3/4"	5.993			Lbyy						Lateral
51	M58	SR 3/4"	5.937			Lbyy						Lateral
52	M59	SR 1"	5.939			Lbyy						Lateral
53	M60	SR 1"	5.942			Lbyy						Lateral
54	M61	SR 1"	5.947			Lbyy						Lateral
55	M62	SR 1"	5.953			Lbyy						Lateral
56	M63	SR 1"	5.959			Lbyy						Lateral
57	M64	SR 3/4"	78	16	16	Lbyy						Lateral
58	M65	SR 3/4"	13			Lbyy						Lateral
59	M66	SR 3/4"	13			Lbyy						Lateral
60	M67	SR 3/4"	13			Lbyy						Lateral
61	M68	SR 3/4"	13			Lbyy						Lateral
62	M69	SR 3/4"	52			Lbyy						Lateral
63	M70	SR 1"	5.99			Lbyy						Lateral
64	M71	SR 1"	5.988			Lbyy						Lateral
65	M72	SR 1"	5.982			Lbyy						Lateral
66	M73	SR 1"	5.976			Lbyy						Lateral
67	M74	SR 1"	5.97			Lbyy						Lateral
68	M79	SR 3/4"	78	16	16	Lbyy						Lateral
69	M80	HSS5X5X6	24			Lbyy						Lateral
70	C4	PIPE_2.0	60									Lateral
71	C3	PIPE_2.0	72									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
72	C2	PIPE_2.0	96									Lateral
73	C1	PIPE_2.0	60									Lateral
74	B5	PIPE_2.0	60									Lateral
75	B3	PIPE_2.0	72									Lateral
76	B2	PIPE_2.0	96									Lateral
77	B1	PIPE_2.0	60									Lateral
78	A4	PIPE_2.0	60									Lateral
79	A3	PIPE_2.0	72									Lateral
80	A2	PIPE_2.0	96									Lateral
81	A1	PIPE_2.0	60									Lateral
82	M105	PIPE_2.0	28									Lateral
83	M110	PIPE_2.0	28									Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	None		-1.1			38		6	
2	Live	None							6	
3	Wind 0	None					76	172		
4	Wind 30	None					76	172		
5	Wind 60	None					76	172		
6	Wind 90	None					76	172		
7	Wind 120	None					76	172		
8	Wind 150	None					76	172		
9	Ice Load	None					38	86	6	
10	Ice 0	None					76	172		
11	Ice 30	None					76	172		
12	Ice 60	None					76	172		
13	Ice 90	None					76	172		
14	Ice 120	None					76	172		
15	Ice 150	None					76	172		
16	Lm	None				1				
17	Lv	None					1			
18	BLC 1 Transient Area...	None						100		
19	BLC 2 Transient Area...	None						98		
20	BLC 9 Transient Area...	None						100		

Load Combinations

	Description	Solve	PD..	SR..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact...
1	1.4 D	Yes	Y		1	1.4																			
2	1.2 D + 1....	Yes	Y		1	1.2	2	1.6																	
3	1.2 D + 1....	Yes	Y		1	1.2	3	1																	
4	1.2 D + 1....	Yes	Y		1	1.2	4	1																	
5	1.2 D + 1....	Yes	Y		1	1.2	5	1																	
6	1.2 D + 1....	Yes	Y		1	1.2	6	1																	
7	1.2 D + 1....	Yes	Y		1	1.2	7	1																	
8	1.2 D + 1....	Yes	Y		1	1.2	8	1																	
9	1.2 D + 1....	Yes	Y		1	1.2	3	-1																	
10	1.2 D + 1....	Yes	Y		1	1.2	4	-1																	
11	1.2 D + 1....	Yes	Y		1	1.2	5	-1																	
12	1.2 D + 1....	Yes	Y		1	1.2	6	-1																	
13	1.2 D + 1....	Yes	Y		1	1.2	7	-1																	
14	1.2 D + 1....	Yes	Y		1	1.2	8	-1																	
15	1.2 D + 1....	Yes	Y		1	1.2	9	1	10	1															
16	1.2 D + 1....	Yes	Y		1	1.2	9	1	11	1															

Load Combinations (Continued)

	Description	Solve	PD..	SR..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..
17	1.2 D + 1....	Yes	Y		1	1.2	9	1	12	1														
18	1.2 D + 1....	Yes	Y		1	1.2	9	1	13	1														
19	1.2 D + 1....	Yes	Y		1	1.2	9	1	14	1														
20	1.2 D + 1....	Yes	Y		1	1.2	9	1	15	1														
21	1.2 D + 1....	Yes	Y		1	1.2	9	1	10	-1														
22	1.2 D + 1....	Yes	Y		1	1.2	9	1	11	-1														
23	1.2 D + 1....	Yes	Y		1	1.2	9	1	12	-1														
24	1.2 D + 1....	Yes	Y		1	1.2	9	1	13	-1														
25	1.2 D + 1....	Yes	Y		1	1.2	9	1	14	-1														
26	1.2 D + 1....	Yes	Y		1	1.2	9	1	15	-1														
27	1.2 D + 1....	Yes	Y		1	1.2	3	.058	16	1.5														
28	1.2 D + 1....	Yes	Y		1	1.2	4	.058	16	1.5														
29	1.2 D + 1....	Yes	Y		1	1.2	5	.058	16	1.5														
30	1.2 D + 1....	Yes	Y		1	1.2	6	.058	16	1.5														
31	1.2 D + 1....	Yes	Y		1	1.2	7	.058	16	1.5														
32	1.2 D + 1....	Yes	Y		1	1.2	8	.058	16	1.5														
33	1.2 D + 1....	Yes	Y		1	1.2	3	-.058	16	1.5														
34	1.2 D + 1....	Yes	Y		1	1.2	4	-.058	16	1.5														
35	1.2 D + 1....	Yes	Y		1	1.2	5	-.058	16	1.5														
36	1.2 D + 1....	Yes	Y		1	1.2	6	-.058	16	1.5														
37	1.2 D + 1....	Yes	Y		1	1.2	7	-.058	16	1.5														
38	1.2 D + 1....	Yes	Y		1	1.2	8	-.058	16	1.5														
39	1.2 D + 1....	Yes	Y		1	1.2	17	1.5																

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1	N8	max	2144.263	12	4293.097	23	2628.974	4	21.836	3	84.443	14	-.378	6
2		min	-2146.988	6	885.764	5	-2628.052	10	-24.757	33	-84.564	8	-213.034	24
3	N60A	max	2713.916	12	4381.3	19	2580.619	3	-1.092	3	81.177	12	112.171	19
4		min	-2712.174	6	844.992	14	-2577.914	9	-186.16	21	-81.032	6	-11.487	13
5	N113	max	2660.076	12	4297.469	15	2519.673	3	186.688	15	79.304	6	107.695	17
6		min	-2659.08	6	814.782	9	-2522.435	9	-6.195	9	-79.412	12	-6.211	11
7	Totals:	max	7518.255	12	12466.517	24	7314.403	3						
8		min	-7518.242	6	3758.349	6	-7314.454	9						

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

	Member	Shape	Code Check	Loc[in]	LC	She..	Loc[in]	...	LC	phi*Pnc [l...	phi*Pnt [lb]	phi*Mn y-...	phi*Mn ...	Cb	Eqn
1	M1	PIPE_4.0	.790	98.25	23	.260	98.25		12	39545.31	93240	127.575	127.575	1....	H1-1b
2	M25	PIPE_4.0	.780	98.27	20	.252	100....		8	39531.214	93240	127.575	127.575	1....	H1-1b
3	M53	PIPE_4.0	.761	98.27	17	.247	100....		4	39531.214	93240	127.575	127.575	1....	H1-1b
4	B2	PIPE_2.0	.760	52	7	.065	52		7	14916.096	32130	22.459	22.459	3....	H1-1b
5	A2	PIPE_2.0	.760	52	3	.065	52		3	14916.096	32130	22.459	22.459	1....	H1-1b
6	C2	PIPE_2.0	.759	52	11	.065	52		11	14916.096	32130	22.459	22.459	3....	H1-1b
7	M52	HSS5X...	.532	24	22	.102	24	z	6	253044.2...	255852	438.84	438.84	1....	H1-1b
8	M40	SR 3/4"	.531	0	2	.266	0		2	11113.589	14313.866	2.147	2.147	2....	H1-1b
9	M15	SR 3/4"	.527	0	2	.263	0		2	11113.589	14313.866	2.147	2.147	2....	H1-1b
10	M24	HSS5X...	.527	24	22	.096	24	z	14	253044.2...	255852	438.84	438.84	1....	H1-1b
11	M80	HSS5X...	.527	24	17	.107	24	z	8	253044.2...	255852	438.84	438.84	1....	H1-1b
12	M38	SR 3/4"	.526	0	2	.264	0		2	11113.589	14313.866	2.147	2.147	2....	H1-1b
13	M66	SR 3/4"	.502	0	2	.248	0		2	11113.589	14313.866	2.147	2.147	2....	H1-1b
14	M13	SR 3/4"	.499	0	2	.246	0		2	11113.589	14313.866	2.147	2.147	2....	H1-1b
15	M68	SR 3/4"	.496	0	2	.242	0		2	11113.589	14313.866	2.147	2.147	2....	H1-1b
16	M16	SR 3/4"	.450	26	2	.239	39		2	1297.659	14313.866	2.147	2.147	1....	H1-1b
17	M41	SR 3/4"	.449	26	2	.235	13		2	1297.659	14313.866	2.147	2.147	1....	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	She...	Loc[in]	...	LC	phi*Pnc [l...	phi*Pnt [lb]	phi*Mn y-...	phi*Mn ...	Cb	Eqn
18	M69	SR 3/4"	.444	26	2	.237	39		2	1297.659	14313.866	2.147	2.147	1....	H1-1b
19	M34	SR 1"	.328	0	9	.078	0		2	24698.489	25446.895	5.089	5.089	1....	H1-1b
20	M45	SR 1"	.323	0	2	.077	0		2	24692.776	25446.895	5.089	5.089	1....	H1-1b
21	M9	SR 1"	.323	0	2	.077	0		2	24686.84	25446.895	5.089	5.089	1....	H1-1b
22	M62	SR 1"	.311	0	5	.067	5.953		5	24698.489	25446.895	5.089	5.089	1....	H1-1b
23	M8	SR 1"	.307	0	7	.058	6		13	24686.84	25446.895	5.089	5.089	1....	H1-1b
24	M33	SR 1"	.307	0	3	.051	5.947		9	24699.914	25446.895	5.089	5.089	1....	H1-1b
25	M73	SR 1"	.305	0	2	.064	0		2	24692.776	25446.895	5.089	5.089	1....	H1-1b
26	M42	SR 1"	.304	0	12	.038	5.99		6	24689.284	25446.895	5.089	5.089	1....	H1-1b
27	M17	SR 1"	.303	0	4	.038	6		4	24686.84	25446.895	5.089	5.089	1....	H1-1b
28	M20	SR 1"	.303	0	2	.062	0		2	24686.84	25446.895	5.089	5.089	1....	H1-1b
29	M61	SR 1"	.300	0	11	.057	5.947		5	24699.914	25446.895	5.089	5.089	1....	H1-1b
30	M6	SR 1"	.299	0	14	.051	6		14	24686.84	25446.895	5.089	5.089	1....	H1-1b
31	M70	SR 1"	.299	0	8	.038	5.99		14	24689.284	25446.895	5.089	5.089	1....	H1-1b
32	M7	SR 1"	.296	0	8	.055	6		13	24686.84	25446.895	5.089	5.089	1....	H1-1b
33	M43	SR 1"	.289	0	12	.037	5.988		6	24689.911	25446.895	5.089	5.089	1....	H1-1b
34	M18	SR 1"	.286	0	4	.037	6		4	24686.84	25446.895	5.089	5.089	1.7	H1-1b
35	M59	SR 1"	.286	0	6	.050	5.939		6	24701.96	25446.895	5.089	5.089	1....	H1-1b
36	M32	SR 1"	.285	0	4	.049	5.942		10	24701.337	25446.895	5.089	5.089	1....	H1-1b
37	M71	SR 1"	.285	0	8	.037	5.988		14	24689.911	25446.895	5.089	5.089	1....	H1-1b
38	M60	SR 1"	.284	0	12	.054	5.942		5	24701.337	25446.895	5.089	5.089	1....	H1-1b
39	M31	SR 1"	.281	0	4	.046	5.939		10	24701.96	25446.895	5.089	5.089	2....	H1-1b
40	M55	HSS5X...	.268	22.965	17	.106	22.9...	z	8	253280.1...	255852	438.84	438.84	1....	H1-1b
41	M27	HSS5X...	.267	22.965	21	.101	22.9...	z	6	253280.1...	255852	438.84	438.84	1....	H1-1b
42	M4	SR 3/4"	.267	0	4	.029	6		10	13562.687	14313.866	2.147	2.147	1....	H1-1b
43	M3	HSS5X...	.267	23	25	.095	23	z	14	253272.2...	255852	438.84	438.84	1....	H1-1b
44	M29	SR 3/4"	.266	0	12	.031	5.993		6	13564.462	14313.866	2.147	2.147	2....	H1-1b
45	M51	SR 3/4"	.262	64.188	12	.442	31.6...		2	9756.123	14313.866	2.147	2.147	1	H1-1b
46	M11	SR 3/4"	.262	13.813	8	.444	46.3...		2	9756.123	14313.866	2.147	2.147	1	H1-1b
47	M57	SR 3/4"	.262	0	8	.031	5.993		14	13564.462	14313.866	2.147	2.147	2....	H1-1b
48	M44	SR 1"	.261	0	12	.033	5.982		7	24691.344	25446.895	5.089	5.089	1....	H1-1b
49	M23	SR 3/4"	.261	64.187	4	.417	31.6...		2	9756.123	14313.866	2.147	2.147	1	H1-1b
50	M79	SR 3/4"	.258	64.188	8	.421	31.6...		2	9756.123	14313.866	2.147	2.147	1	H1-1b
51	M72	SR 1"	.256	0	8	.032	5.982		3	24691.344	25446.895	5.089	5.089	1....	H1-1b
52	M19	SR 1"	.255	0	4	.030	6		11	24686.84	25446.895	5.089	5.089	1....	H1-1b
53	M2	PL 10"x...	.255	12	13	.229	0	y	13	112586.2...	162000	20.25	404.327	1....	H1-1b
54	M5	SR 3/4"	.254	0	14	.047	6		14	13562.687	14313.866	2.147	2.147	1....	H1-1b
55	M36	SR 3/4"	.253	61.75	3	.447	46.3...		2	9756.123	14313.866	2.147	2.147	2....	H1-1b
56	A3	PIPE_2.0	.251	38.25	5	.022	37.5		5	20866.733	32130	22.459	22.459	2....	H1-1b
57	C3	PIPE_2.0	.251	38.25	13	.022	37.5		13	20866.733	32130	22.459	22.459	2....	H1-1b
58	B3	PIPE_2.0	.250	38.25	9	.022	37.5		9	20866.733	32130	22.459	22.459	1....	H1-1b
59	M64	SR 3/4"	.250	13.813	12	.416	46.3...		2	9756.123	14313.866	2.147	2.147	1	H1-1b
60	M26	PL 10"x...	.242	12	9	.272	0	y	10	112586.2...	162000	20.25	399.415	1....	H1-1b
61	M54	PL 10"x...	.242	12.082	5	.269	0	y	6	112028.2...	162000	20.25	400.479	1....	H1-1b
62	M58	SR 3/4"	.241	0	6	.047	5.937		6	13578.066	14313.866	2.147	2.147	1....	H1-1b
63	M30	SR 3/4"	.231	0	10	.038	5.937		10	13578.066	14313.866	2.147	2.147	1....	H1-1b
64	M35	SR 1"	.228	0	9	.067	0		2	24697.062	25446.895	5.089	5.089	1....	H1-1b
65	M10	SR 1"	.219	0	13	.066	0		2	24686.84	25446.895	5.089	5.089	1....	H1-1b
66	M46	SR 1"	.217	0	2	.067	0		2	24694.206	25446.895	5.089	5.089	1....	H1-1b
67	B1	PIPE_2.0	.216	32.5	7	.022	32.5		7	23808.54	32130	22.459	22.459	2....	H1-1b
68	A1	PIPE_2.0	.216	32.5	3	.022	32.5		3	23808.54	32130	22.459	22.459	1....	H1-1b
69	C1	PIPE_2.0	.215	32.5	11	.022	32.5		11	23808.54	32130	22.459	22.459	2....	H1-1b
70	M63	SR 1"	.215	0	5	.056	0		2	24697.062	25446.895	5.089	5.089	1....	H1-1b
71	M74	SR 1"	.203	0	2	.059	0		2	24694.206	25446.895	5.089	5.089	1....	H1-1b
72	M21	SR 1"	.200	0	2	.058	0		2	24686.84	25446.895	5.089	5.089	1....	H1-1b
73	M67	SR 3/4"	.153	0	2	.228	0		2	11113.589	14313.866	2.147	2.147	1....	H1-1b
74	M12	SR 3/4"	.153	0	2	.230	0		2	11113.589	14313.866	2.147	2.147	1....	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	She...	Loc[in] ...		LC	phi*Pnc [l...	phi*Pnt [lb]	phi*Mn y-...	phi*Mn ...	Cb	Eqn
75	M65	SR 3/4"	.152	0	2	.230	0		2	11113.589	14313.866	2.147	2.147	1....	H1-1b
76	M14	SR 3/4"	.150	0	2	.234	0		2	11113.589	14313.866	2.147	2.147	1....	H1-1b
77	M39	SR 3/4"	.150	0	2	.235	0		2	11113.589	14313.866	2.147	2.147	1....	H1-1b
78	M37	SR 3/4"	.148	0	2	.233	0		2	11113.589	14313.866	2.147	2.147	1....	H1-1b
79	C4	PIPE_2.0	.021	31.875	13	.003	31.8...		13	23808.54	32130	22.459	22.459	1....	H1-1b
80	A4	PIPE_2.0	.021	31.875	5	.003	31.8...		5	23808.54	32130	22.459	22.459	1....	H1-1b
81	B5	PIPE_2.0	.021	31.875	9	.003	31.8...		9	23808.54	32130	22.459	22.459	1....	H1-1b
82	M105	PIPE_2.0	.001	0	9	.001	0		14	30099.609	32130	22.459	22.459	1	H1-1b
83	M110	PIPE_2.0	.001	0	13	.001	0		14	30099.609	32130	22.459	22.459	1....	H1-1b

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250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

Project # A37519-1569.002.7190
By DBG
Date: 05/29/19
v0.1, Effective 07/10/18

MOUNT TO TOWER CONNECTION CHECKS

REACTIONS

Px=	2.581	Kip
Py=	4.381	Kip
(Axial)Pz=	2.714	Kip
Mx=	112.171	Kip-in
My=	81.177	Kip-in
(Torque)Mz=	186.16	Kip-in

Number of Bolts	=	4	
Plate Size	b=	9	in
	d=	9	in
Edge distance for Bolts	=	1	in
Bolt group centroid y-coordinate, Yc		4.5	in
Bolt group centroid x-coordinate, Xc		4.5	in
Load eccentricity in x-direction, ex		0	in
Load eccentricity in y-direction, ey		0	in
Total Moment including load eccentricity ΣMx=		112.17	Kips-in
Total Moment including load eccentricity ΣMy=		81.177	Kips-in
Total Moment including load eccentricity ΣMz=		186.16	Kips-in

WELD CHECKS

Standoff Member Type		Square	
Width	=	5	in
Depth (only for square members)	=	5	in
Assumed Weld Size	=	0.3750	
Total Forces in X direction =		3.051	kips
Total Forces in Y direction =		3.231	kips
Total Forces in Z direction =		5.94	kips
Resultant	=	7.41	kips
Φ*Fw (Kip/in)/16" weld =		1.392	
Capacity used		88.78%	

BOLT CHECKS

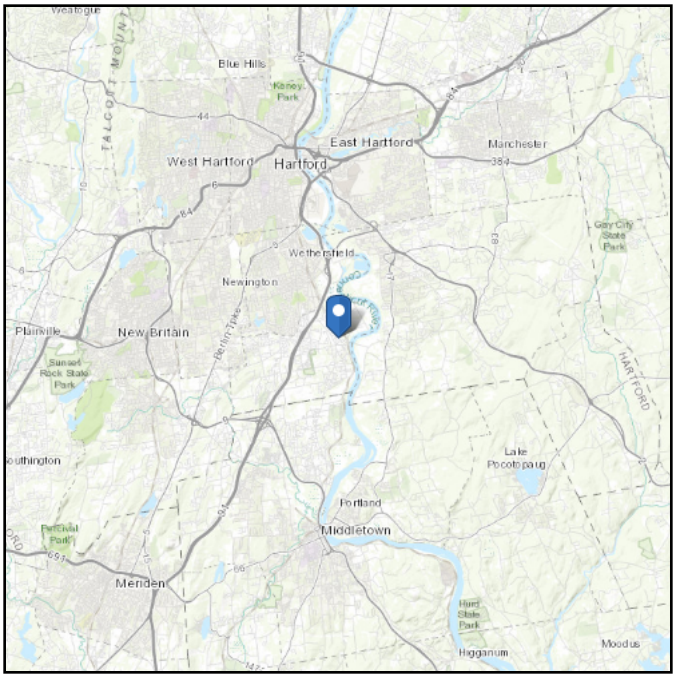
Tension Reaction	14.49	kip
Shear Reaction	10.64	kip
Bolt Type	A325N	
Bolt Diameter	0.75	in
Tensile Strength	29.8	kips
Shear Strength	17.9	kips
Reduced Tensile Strength	21.0	kips
Tensile Capacity Used	68.9%	
Shear Capacity Used	59.5%	

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 97.46 ft (NAVD 88)
Latitude: 41.668269
Longitude: -72.638036



Wind

Results:

Wind Speed:	124 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	93 Vmph
100-year MRI	101 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Fri May 24 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

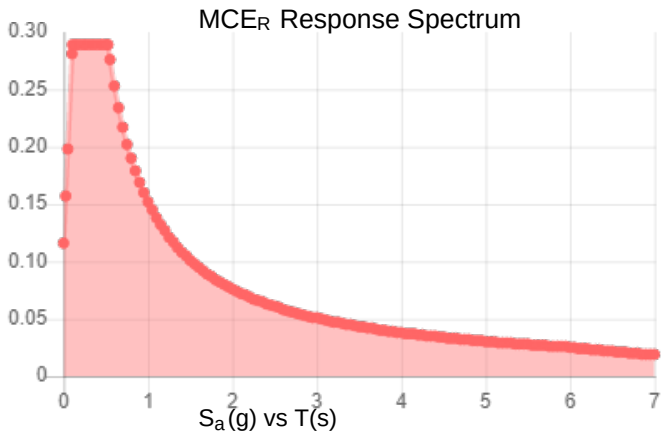
Seismic

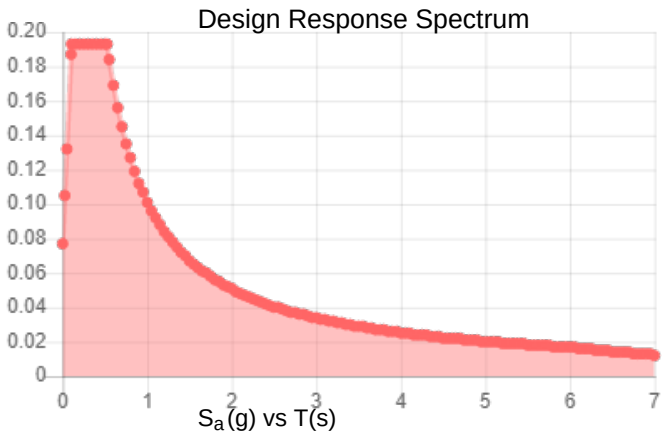
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.181	S_{DS} :	0.193
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.091
S_{MS} :	0.289	PGA_M :	0.146
S_{M1} :	0.152	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Fri May 24 2019

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri May 24 2019

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit F

Power Density/RF Emissions Report

Transcom Engineering, Inc.

Wireless Network Design and Deployment

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11058C

Rocky Hill_Rte 160_1
699 Old Main St
Rocky Hill, CT 06067

June 13, 2019

Transcom Engineering Project Number: 737001-0158

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**22.70 %**

June 13, 2019

T-MOBILE
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 6009

Emissions Analysis for Site: **CT11058C – Rocky Hill_Rte 160_1**

Transcom Engineering, Inc ("Transcom") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **699 Old Main St, Rocky Hill, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **699 Old Main St, Rocky Hill, 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.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

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

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

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	2	60
GSM	1900 MHz (PCS)	1	15
UMTS	2100 MHz (AWS)	1	40
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Ericsson AIR32 B66A / B2A	150
A	2	Ericsson AIR21 B2A/B4P	150
A	3	RFS APXVAARR24_43-U-NA20	148
B	1	Ericsson AIR32 B66A / B2A	150
B	2	Ericsson AIR21 B2A/B4P	150
B	3	RFS APXVAARR24_43-U-NA20	148
C	1	Ericsson AIR32 B66A / B2A	150
C	2	Ericsson AIR21 B2A/B4P	150
C	3	RFS APXVAARR24_43-U-NA20	148

Table 2: Antenna Data

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

Cable losses were factored in the calculations for this site. Since all **2100 MHz (AWS) UMTS** radios are ground mounted the following cable loss values were used. For each ground mounted **2100 MHz (AWS) UMTS** radio there was **1.80 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **170 feet** of **1-5/8"** coax.

RESULTS

Per the calculations completed for the proposed T-MOBILE configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85 / 15.85	6	280	10,768.57	1.87
Antenna A2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	2	55	1,611.73	0.28
Antenna A3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.03
						Sector A Composite MPE%	**3.18**
Antenna B1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85 / 15.85	6	280	10,768.57	1.87
Antenna B2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	2	55	1,611.73	0.28
Antenna B3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.03
						Sector B Composite MPE%	**3.18**
Antenna C1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85 / 15.85	6	280	10,768.57	1.87
Antenna C2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	2	55	1,611.73	0.28
Antenna C3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.03
						Sector C Composite MPE%	**3.18**

Table 3: T-MOBILE Emissions Levels

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

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**3.18 %**
Rocky Hill PD	0.96 %
Rocky Hill FD	0.02 %
Rocky Hill PW	0.08 %
Rocky Hill Hotline	0.36 %
Rocky Hill Intercity	0.39 %
RAFS	0.30 %
Wethersfield	0.74 %
Sprint	3.33 %
MetroPCS	1.54 %
AT&T	6.33 %
Verizon Wireless	4.83 %
Nextel	0.64 %
Site Total MPE %:	**22.70 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	3.18 %
T-MOBILE Sector B Total:	3.18 %
T-MOBILE Sector C Total:	3.18 %
Site Total:	22.70 %

Table 5: Site MPE Summary

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

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) LTE	4	1,538.37	150	10.67	1900 MHz (PCS)	1000	1.07%
T-Mobile 2100 MHz (AWS) LTE	2	2,307.55	150	8.00	2100 MHz (AWS)	1000	0.80%
T-Mobile 1900 MHz (PCS) GSM	1	583.57	150	1.01	1900 MHz (PCS)	1000	0.10%
T-Mobile 2100 MHz (AWS) UMTS	1	1,028.16	150	1.78	2100 MHz (AWS)	1000	0.18%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	148	2.81	600 MHz	400	0.70%
T-Mobile 700 MHz LTE	2	432.54	148	1.54	700 MHz	467	0.33%
						Total:	**3.18%**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

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

The anticipated maximum composite contributions from the 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:	3.18 %
Sector B:	3.18 %
Sector C:	3.18 %
T-MOBILE Maximum Total (per sector):	3.18 %
Site Total:	22.70 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **22.70 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

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