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Leonard A. Cohen  
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August 28, 2019

**VIA HAND DELIVERY**

Honorable Chairperson Loretta Taylor  
and Members of the Planning Board  
Town of Cortlandt, Town Hall  
1 Heady St  
Cortlandt Manor, NY 10567

Re: SBA 2012 TC Assets, LLC ("SBA")  
Special Use Permit No. 41-09  
Recertification of Special Use Permit  
Existing Wireless Telecommunications Facility  
Premises: 5742 Albany Post Rd., Cortlandt Manor, New York (SBL: 22.16, Block 4, Lot 3)

Dear Chairperson Taylor:

On behalf of our client, SBA 2012 TC Assets, LLC ("SBA"), enclosed please find SBA's application to recertify the special use permit for the existing tower facility ("Facility") located at 5742 Albany Post Road in the Town of Cortlandt (the "Premises"). The Facility is utilized by wireless carriers AT&T, Sprint, T-Mobile and Verizon to provide reliable wireless service to the community.

Existing Facility Background

Approximately fourteen (14) years ago, Sprint Spectrum Limited Partnership ("Sprint") received special use permit approval from the Zoning Board of Appeals ("ZBA") to develop a tower facility at the Premises. A copy of the original special use permit resolution, referred to by ZBA No. 12-05, is enclosed herewith as Exhibit B. As detailed on the enclosed drawings, the Facility consists of a 130' monopole with antennas collocated thereon, together with related equipment in a fenced compound at grade.

In September of 2008, Sprint sold the underlying ground lease and Facility to TowerCo Assets, LLC ("TowerCo") and in October of 2012, SBA purchased TowerCo whereby TowerCo and the Facility became part of SBA's portfolio. Recertification of the existing special use permit for the



Facility was applied for and obtained in 2010 by TowerCo and more recently in 2014 by SBA. Copies of the 2010 and 2014 recertification approval resolutions, ZBA Nos. 41-09 and 2014-26 respectively, are included hereto with Exhibit B.

Request for Recertification of the Special Use Permit

Pursuant to Section 277-18 of the Town's Development Code, it is required that prior to the five-year anniversary and all subsequent fifth anniversaries of the original granting of the special use permit, the holder of the special use permit for a telecommunication tower apply for recertification.<sup>1</sup>

Set forth below please find responses to the recertification criteria as follows:

1) **Name and Holder of the special use permit for the tower.**

The name and holder of the special use permit for the tower is SBA 2012 TC Assets, LLC.

2) **If applicable, the number or title of the special use permit.**

The original special use permit approval was granted under ZBA Case No. 12-05 and was renewed under ZBA Case No. 41-09 and renewed most recently under ZBA Case No. 2014-26.

3) **The date of original granting of the special use permit.**

The original special use permit was granted on April 20, 2005 and the recertifications of the special use permit were granted on December 16, 2009 and November 19, 2014. Please see Exhibit B for copies of the original special use permit and subsequent renewals.

4) **Whether the telecommunications tower has been moved, relocated, rebuilt, repaired or otherwise modified since the issuance of the special use permit.**

The underlying telecommunications tower has not been moved, relocated, rebuilt,

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<sup>1</sup> While the previous requests for recertification were made to the ZBA, this request for recertification is made to the Planning Board in compliance with the July 2017 amendment to Chapter 277, Telecommunications Towers, that changed the issuing authority to the Planning Board.

repaired or otherwise modified. To the best of our knowledge and belief, all existing carrier facilities remain unchanged and/or have received building permits for any modifications to their existing facilities on site.

- 5) **If the tower has been moved, relocated, rebuilt, repaired or otherwise modified, then whether the Board approved such action, and under what terms and conditions, and whether those terms and conditions were complied with and abided by.**

As noted above, to the best of our knowledge and belief, the telecommunications tower has not been moved, relocated, rebuilt, or repaired. To the best of our knowledge and belief, all existing carrier facilities remain unchanged and/or have received building permits for any modifications to their existing facilities on site.

- 6) **Any requests for waivers or relief of any kind whatsoever from the requirement to this chapter and any requirements for a special use permit.**

To the extent relevant, SBA respectfully requests waivers from other special use permit submission requirements typically associated with a new tower site considering the limited nature of the recertification for this Facility.

- 7) **That the telecommunications tower is in compliance with the special use permit and compliance with all applicable codes, laws, rules and regulations.**

To the best of SBA's knowledge, the tower continues to remain in full compliance with all applicable codes, laws, rules and regulations but for the issuance of the recertification requested herein. A copy of SBA's statement of compliance with Sections 277-18(4) and 277-18(5) is attached hereto as Exhibit C.

Please note that this special use permit recertification request constitutes an action exempt from the State Environmental Quality Review Act ("SEQRA") because this is a Type II Action. See 6 NYCRR Section 617.5(c)(26)(SEQRA Regulations). As such, no environmental assessment form or SEQRA action is required.



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Materials Submitted in Support of the Special Use Permit Recertification

Enclosed please find twelve (12) copies of the following documentation in support of SBA's application for recertification of the special use permit together with a check (#1106833) made payable to the Town of Cortlandt in the amount of \$2,500 representing the special use permit recertification fee:

- Exhibit A: Completed Planning Board application form, together with signed Proxy Statement from the property owner.
- Exhibit B: ZBA Resolution No. 12-05, dated April 20, 2005, granting the original installation of the telecommunication tower and equipment compound; ZBA Resolution No. 41-09, dated December 16, 2009, granting recertification of the special use permit for the tower facility; and ZBA Resolution No. 2014-26, dated November 19, 2014, granting recertification of the special use permit for the tower facility.
- Exhibit C: Statement of Compliance pursuant to Sections 277-18(4) and 277-18(5) of the Town's Development Code, dated July 30, 2019.
- Exhibit D: Structural Analysis Report dated April 10, 2019, prepared by Tower Engineering Solutions and signed by Kyle Wyant, P.E., demonstrating that the tower facility is structurally sound.

Also enclosed please find two (2) full size and twelve (12) half size construction drawings prepared by Network Building and Consulting, LLC, dated June 11, 2019 (the "Drawings") which we understand to have been recently submitted to the Town in connection with a building permit application for modifications to the Facility by AT&T. The Drawings and Structural Analysis Report confirm the existence of antenna operations by carriers AT&T, Sprint, Verizon and T-Mobile at the Premises. More specifically, pages 4 and 9 of the Structural Analysis Report list each carrier's location on the Facility as well as the quantity and model numbers of their respective equipment.

It is our further understanding that open building permits for T-Mobile (No. 20180887), AT&T (No. 20190151) and Verizon (No. 20181019) exist at the Premises.





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Conclusion

We respectfully submit that the foregoing information and attached documents demonstrate compliance with Section 277-18 of the Code, and thus, the recertification of SBA's Special Use Permit is warranted. Furthermore, considering the provisions of Federal Law and given the minor nature of this request for recertification, SBA respectfully requests relief from the Special Permit renewal requirements in accordance with Section 277-18(A)(6) or in the alternative that it be renewed indefinitely or at minimum for a five (5) year term.

We respectfully request that this matter be placed on the next Planning Board agenda for a hearing and favorable decision on the recertification of the special use permit for the existing tower Facility.

Should have any questions or required additional information in connection with the foregoing, please do not hesitate to contact the undersigned. Thank you in advance for your consideration of this request.

Very truly yours,

A handwritten signature in black ink, appearing to be 'L. Cohen', written over a horizontal line.

Leonard A. Cohen

Enclosures

cc: Mr. Michael Preziosi, P.E., Director DOTS  
Mr. Chris Kehoe, AICP, Dep. Director DOTS  
Ashley Masuda, SBA  
Lu'cia Chiocchio, Esq.  
Jeanene Chambliss

# EXHIBIT A



**CONFIRMATION OF ALL TAXES PAID:** \_\_\_\_\_

RECEIVER OF TAXES

DATE

STATE OF NEW YORK  
COUNTY OF WESTCHETER  
TOWN OF CORTLANDT

I William R. Reed hereby depose and say that the above statements and the statements contained in the papers submitted in association with this application are true.

SIGNATURE OF OWNER, APPLICANT, REPRESENTATIVE  

If signing on behalf of an entity\*: N/A

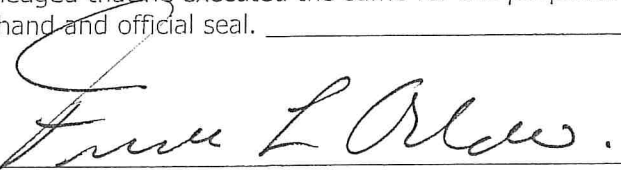
\_\_\_\_\_  
NAME TITLE

PLEASE PRINT  
NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

NOTARY PUBLIC  
STATE OF NEW YORK  
COUNTY OF WESTCHETER  
TOWN OF CORTLANDT

On this, the 25TH day of JUNE, 2019, before me a notary public, the undersigned personally appeared \_\_\_\_\_, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained. In witness hereof, I hereunto set my hand and official seal. \_\_\_\_\_  
Notary Public.

FREDERICK L. ORLANDO  
NOTARY PUBLIC, STATE OF NEW YORK  
Registration No. 01OR6267362  
Qualified in Orange County  
Commission Expires Aug 20 2020

  
NOTARY PUBLIC

\*If you are not the owner you need to fill out a separate "Owner Authorization" form.

**TOWN OF CORTLANDT**

DEPARTMENT OF TECHNICAL SERVICES

Code Enforcement Division

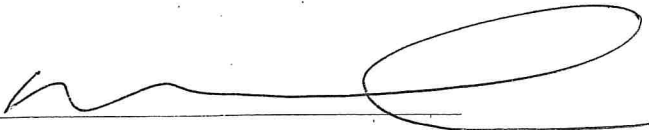
Town Hall, 1 Heady Street, Cortlandt Manor, NY 10567

914-734-1011 FAX 914-293-0991

<http://www.townofcortlandt.com> e-mail: [code@townofcortlandt.com](mailto:code@townofcortlandt.com)

PROXY STATEMENT

Reed Partners LP/William R. Reed \_\_\_\_\_ is the owner of the property located at  
5742 Albany Post Road \_\_\_\_\_ and has authorized SBA 2012 TC Assets, LLC \_\_\_\_\_  
to make the attached application for recertification of special use permit \_\_\_\_\_ and to represent  
them at all Board meetings.

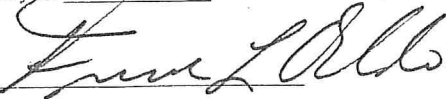


Signature of Owner

NOTARY:

Sworn to before me

this 25<sup>TH</sup> day of June 2019

Notary Public: 

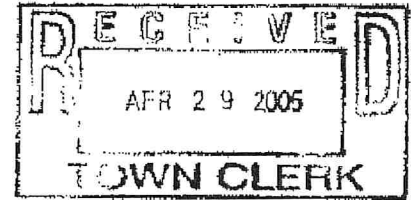
FREDERICK L. ORLANDO  
NOTARY PUBLIC, STATE OF NEW YORK  
Registration No. 01OR6267362  
Qualified in Orange County  
Commission Expires Aug 20 2020

# EXHIBIT B

## ZONING BOARD OF APPEALS

Town of Cortlandt  
Westchester County, New York

## DECISION &amp; ORDER



Name of Petitioner: **Sprint Spectrum, LP (Lessee)**  
Address: **5742 Albany Post Road**  
**Cortlandt Manor, NY 10567**

Case No. 12-05

Location of Property: **5742 Albany Post Road, Cortlandt Manor, NY 10567**Tax Map Designation: **Section 22.16 Block: 4 Lot: 3**Present Zoning: **HC**

Nature of Petition:

 Use Variance  Area Variance  280A Exception Special Permit  Interpretation

Describe Specific Request: **Special Use Permit for Wireless Telecommunication Tower/Facility pursuant to Local Law 4-98 entitled, "Telecommunication Tower Siting and Special Use Permit law for the Town of Cortlandt", and Local law 1-05 amending said aforementioned Local Law 4-98 on the above referenced property.**

## Board Members

Present: **Richard Becker** Absent: **James Selmarco**  
**Wal Man Chin**  
**David Douglas**  
**Charles P. Heady, Jr.**  
**John Mattis**  
**Ray Reber**

The above-referred to Petition, having been duly advertised in the Croton Cortlandt Gazette, the official newspaper of the Town of Cortlandt in the issue published on 2/8, 3/8, Town Board Resolution No. 153-88 having been complied with and the matter having duly come to be heard before a duly convened meeting of the Board on the following date, 2/16, 3/16, 4/20, at the Town Hall, 1 Heady Street, Cortlandt Manor, New York, and all of the facts, matters and evidence produced by the Petitioner, by the administrative official and by interested parties having been duly heard, received and considered, and a site inspection of the premises having been made, and due deliberation having been had, the following Decision and Order is hereby made:

This is an application for a Special Use Permit for the installation of a wireless telecommunications facility consisting of a 130' monopole, with 12 small panel antennas thereon at a maximum height of 132' 4", with related equipment cabinets at the base of the monopole, on the property located at 5742 Albany Post Road.

This application for a Special Use Permit is made under Town Code Chapter 277 ("Telecommunications Towers"), and specifically under Section 277-6 ("Special Use Permit Application and Other Requirements") which provides: "A. All applicants for a special use permit for a telecommunications tower shall comply with the requirements set forth in this section."

Chapter 277 ("Telecommunications Towers") was enacted by the Town Board in 1998 (as Local Law No. 4-1998). Section 277-4 provides: "The Town Board of the Town of Cortlandt is the officially designated agency or body of the community to whom applications for a special use permit for a telecommunications tower must be made... The Board may, at its discretion, delegate or designate other official agencies of the town to accept, review, analyze, evaluate and make recommendations to the (Town) Board.... Specifically, the Zoning Board of Appeals(ZBA) is intended to be the agency or body to whom the Board may refer an application."

Case No. 12-05

Page Two

Thereafter, in January 2005, by Local Law No. 1-05, the Town Board amended Local Law No. 4-98 to provide: "Local Law No. 4-98 be and hereby is amended in its entirety by deleting any reference to the Town Board of the Town of Cortlandt and substituting therefor the Zoning Board of Appeals of the Town of Cortlandt."

As a result, this Special Use Permit has come before this Board (being the first such application to be made to this Board).

Therefore, in connection with this Special Use Permit application, the Department of Technical Services ("DOTS") has made a review of the application to determine technical compliance with the requirements for a Special Use Permit application under Chapter 277, and has found that the Applicant has complied with same.

The owner of the property at 5742 Albany Post Road (in the HC Zoning District) is Reed Partners, L.P. The Lessee of that portion of the property (a 30' x 30' compound) to be used for the wireless telecommunications facility is Sprint Spectrum, L.P. (a nationally recognized owner/operator of wireless telecommunications facilities, such as the one proposed for this property).

It should be noted on this application:

1. A 130' tall monopole is proposed. Under Section 277-9, "the presumed maximum height shall be 140 ft." Therefore, the Applicant's monopole is within the maximum height of the Town Code.
2. This application also complies with Town Code Section 277-13 ("Lot size and setbacks"). Section 277-13(B) provides:  
"B. Telecommunications towers shall be located with a minimum setback from any property line a distance equal to 1/2 the height of the tower or the existing setback requirement of the underlying zoning district, whichever is greater. Further, any accessory structure shall be located so as to comply with the minimum setback requirements for the property on which it is situated."
3. The proposed 30' x 30' compound will be enclosed by a 7' high fence.
4. Town Code Section 277-8 ("Shared Use") provides:
  - A. Shared use of existing telecommunications towers shall be preferred by the Town...
  - B. An applicant intending to share use of an existing telecommunications tower or other tall structure shall be required to document the intent of the existing owner to share use.

Here, four other carriers can share use of the 130' monopole now, and two other carriers can share use of the 130' monopole in the future, as documented by the Applicant.

As a result of the foregoing, the Public Hearings held herein, and the Board's site visit during the "balloon test" on April 16, 2005, this Board hereby GRANTS the Special Use Permit for the wireless telecommunications facility (described in detail above) under the following conditions:



Case No. 12-05

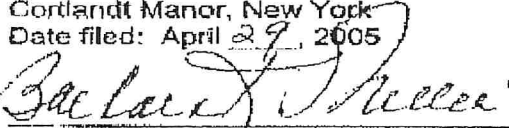
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1. The "collapse zone" data must be certified by the Applicant's Engineer and submitted to DOTS, and the collapse zone adequately described to the satisfaction of the DOTS Director prior to the issuance of a Building Permit
2. A Building Permit must be applied for, obtained and all conditions of the Building Permit met within one (1) year of the date of this Decision and Order.
3. The site must be cleaned up (car parts, debris, old airplane, etc.) to the satisfaction of the DOTS Director prior to the issuance of a Building Permit.
4. The property must be cleaned up by the Applicant and Property Owner of all construction debris to the satisfaction of the DOTS Director prior to the issuance of a Certificate of Occupancy for the Building Permit.

This requested Special Use Permit is a Type I Unlisted Action under SEQRA and under Local Law 1-2005, the Zoning Board of Appeals is declared Lead Agency. The Board, having reviewed the Environmental Assessment Form submitted, finds no adverse environmental impacts and issues a Negative Declaration. A copy of the Negative Declaration is attached hereto.

NOW THEREFORE, the Petition is granted and it is further ordered that in all other respects Petitioner comply with all of the rules, regulations and ordinances of the Town of Cortlandt and all other agencies having jurisdiction.

Adopted: April 20, 2005  
Cortlandt Manor, New York  
Date filed: April 29, 2005

  
Barbara K. Miller  
Acting Clerk, Zoning Board

  
John Mattis  
Chairman, Zoning Board

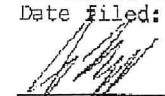



Case No. 41-09

Page Two

NOW THEREFORE, Petition is granted and it is further ordered that in all other respects Petitioner comply with all of the rules, regulations and ordinances of the Town of Cortlandt and all other agencies having jurisdiction.

Adopted: December 16, 2009  
Cortlandt Manor, New York  
Date filed: December 30, 2009

  
\_\_\_\_\_  
James M Flandreau  
Clerk, Zoning Board

  
\_\_\_\_\_  
John W. Mattis  
Chairman, Zoning Board

**NYS ENVIRONMENTAL QUALITY REVIEW (SEQR)**  
**NEGATIVE DECLARATION**  
**For an Unlisted Action**  
**Notice of determination on Non-Significance**

**ZBA Case No. 41-09**

This notice is issued pursuant to Part 617 of the implementing regulations pertaining to Article 8 (State Environmental Quality Review Act) of the Environmental Conservation Law.

The lead agency has determined that the proposed action described will not have a significant effect on the environment and that a Draft Environmental Impact Statement will not be prepared.

**Lead Agency:** The Lead Agency for the proposed action is the Town of Cortlandt Zoning Board of Appeals, Cortlandt Town Hall, 1 Heady Street, Cortlandt Manor, New York 10566. For further information, contact the Department of Technical Services, Code Enforcement Division, same address as stated above. Telephone No. 914-734-1010.

**Description of the Action:** ZBA 41-09 Special Use Permit for a recertification for a wireless telecommunications facility consisting of the installation of 6 panel antennas on existing monopole equipment compound at 5742 Albany Post Road, Cortlandt, NY 10567 pursuant to Sections 277-6 and 277-4 of the Town of Cortlandt Zoning Code.

**Reasons in Support of the Determination:** Based on the applicant's environmental assessment form, application documents, site inspections and the testimony and evidence heard by the Board and an analysis of the criteria stated in 617.11 (6NYCRR), the project will have no significant, adverse impact on the environment.

This Negative Declaration was adopted by the Town of Cortlandt Zoning Board of Appeals on December 16, 2009.



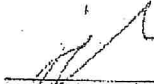
This is a Type II application under SEQRA. Therefore, no further compliance is required.

NOW THEREFORE, Petition is granted and it is further ordered that in all other respects Petitioner comply with all of the rules, regulations and ordinances of the Town of Cortlandt and all other agencies having jurisdiction.

Adopted: Nov. 19, 2014  
Cortlandt Manor, New York  
Date filed: Nov. 25, 2014.



Ken Hoch  
Clerk, Zoning Board



David Douglas  
Chairman, Zoning Board

# EXHIBIT C



SBA Communications Corporation  
8051 Congress Avenue  
Boca Raton, FL 33487-1307

T + 561.995.7670  
F + 561.995.7626

[sbasite.com](http://sbasite.com)

July 30, 2019

Town of Cortlandt  
1 Heady Street  
Cortlandt Manor, NY 10567

Re: Special Permit Recertification for Telecommunications Tower  
Telecommunication Tower - 5742 Albany Post Road

Dear Planning Board:

SBA 2012 TC Assets, LLC (SBA) is the owner of the telecommunications tower located at address 5742 Albany Post Road located in the Town of Cortlandt. The Special Use Permit for the cell tower requires recertification every five (5) years from the original issuance and all subsequent five (5) year anniversaries. The Town's Zoning Board of Appeals issued special use permit recertification for this site on December 30, 2009 (Case No. 41-09), and most recently on November 25, 2014 (Case No. 2014-26). SBA is currently in compliance with this recertification.

Please accept this letter and statement, per requirements of the Town's Code Chapter 277-18(4) and 277-18(5), that this tower has since not been moved, relocated, rebuilt, repaired, or otherwise modified.

Sincerely,

Ashley Masuda  
Zoning & Compliance Supervisor

561.322.7817 + T  
561.322.2852 + F



# EXHIBIT D



**Tower Engineering Solutions**

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

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## Structural Analysis Report

Existing 129 ft EEI Monopole

Customer Name: SBA Communications Corp

Customer Site Number: NY47416-A

Customer Site Name: Jim Reed Trucking

Carrier Name: AT&T (App#: 111896, v1)

Carrier Site ID / Name: NYCNNY5524 / Annsville

Site Location: 5742 Albany Post Road

Cortlandt Manor, New York

WESTCHESTER County

Latitude: 41.306778

Longitude: -73.928083

### Analysis Result:

Max Structural Usage: 96.8% [Pass]

Max Foundation Usage: 66.0% [Pass]

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

Report Prepared By: Vishnu Paidimarri



## Introduction

The purpose of this report is to summarize the analysis results on the 129 ft EEI Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

## Sources of Information

<b>Tower Drawings</b>	Tower Design prepared by EEI, job # 13532, dated 08/01/2005
<b>Foundation Drawing</b>	Foundation Design prepared by EEI, job # 13532, dated 08/04/2005
<b>Geotechnical Report</b>	Geotechnical Report prepared by ANS Consultants, job # AOB-281, dated 06/10/2005
<b>Modification Drawings</b>	N/A

## Analysis Criteria

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

<b>Wind Speed Used in the Analysis:</b>	Ultimate Design Wind Speed $V_{ult} = 115.0$ mph (3-Sec. Gust) Nominal Design Wind Speed $V_{asd} = 89.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	ANSI/TIA/EIA 222-G / 2015 IBC
<b>Exposure Category:</b>	C
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_s = 0.244, S_1 = 0.07$

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

## Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	130.0	3	RFS - APXVSP18-C-A20 - Panel	Low Profile Platform	(4) 1-1/4" hybrid fiber***	Sprint Nextel
2		3	RFS - APXVTM14-C-I20 - Panel			
3		3	ALU - 1900 MHz - RRU			
4		3	ALU - 800 MHz - RRU			
5		3	ALU - TD-RRH8x20-25 - RRU			
6		3	ALU - 800 MHz Filters**			
7		4	RFS - 4"x2"x3.5" RET**			
-	120.0	6	RFS ATM19801712-0 TMA	Low Profile Platform	(18) 1-5/8" (2) 2" Innerduct (3) 3/4" DC Power (3) 3/8" Fiber	AT&T
-		6	Andrew SBMH TMA			
-		1	Raycap DC6-48-60-18-8F ("Squid") - COVP			
-		2	Andrew DBXNH-8585A-R2M w/Mount Pipe - Panel			
-		3	Kathrein 742 264 - Panel			
-		4	Commscope NNHH-65A-R4 - Panel			
-		1	Commscope SBNH-1D6565C - Panel			
-		2	Commscope NNHH-65C-R4 - Panel			
-		3	Alcatel Lucent 9442 RRH 700 - RRH			
-		3	Nokia Airscale RRH 4T4R B5 160W AHCA - RRH			
-		3	Alcatel Lucent RRH 4x25-WCS-4R - RRH			
-		1	Raycap DC6-48-60-18-8F 32.8# - COVP			
18		107.0	1			
19	1		RFS MA0528-28AN*			
20	1		12"x12" TTA*			
21	106.0	3	Ericsson KRY 112 114 - TTA	(3) T-Arm	(1) 1 5/8" Fiber (1) 1 5/8" Fiber**	T-Mobile
22		4	Ericsson KRY112 89 - TMA**			
23		3	Ericsson S11B12 - RRU**			
24		3	Ericsson AIR21 B2A/B4P - Panel			
25		3	Ericsson AIR21 B4A/B2P - Panel			
26		3	RFS APXVF24-C-A20 - Panel**			
27	94.0	6	Commscope - SBNHH-1D45A - Panel	Low Profile Platform (RMQP-3XX)	(3) 1 1/4" Hybrid	Verizon
28		6	ALU - B13 RRH4X30-4R - RRU			
29		3	ALU - B25 RRH4x30-4R - RRU			
30		3	ALU - B66a-RRH4x45W-4R - RRU			
31		3	Raycap - RRFDC-3315-PF-48 - COVP			

\*variance/unleased equipment installed on tower at time of analysis

\*\*lease rights to install on tower

\*\*\*Coax installed outside the pole shaft in a single row

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
8	120.0	<del>3</del>	<del>Commscope NNHH 65C R4 Panel</del>	Low Profile Platform	(18) 1-5/8" Coax (2) 2" Innerduct (Housing (4) 3/4" DC power / (3) 3/8" Fiber cables)	AT&T
9		<del>6</del>	<del>Commscope NNHH 65A R4 Panel</del>			
10		<del>3</del>	<del>Kathrein 742 264 Panel</del>			
11		<del>6</del>	<del>RFS ATM19801712-0 TMA</del>			
12		<del>3</del>	<del>Alcatel Lucent RRH 4x25 WCS 4R TMA</del>			
13		<del>3</del>	<del>Nokia Airscale RRH 4T4R B5 160W AHCA RRU</del>			
14		<del>3</del>	<del>Alcatel Lucent 9442 RRH 700 RRU</del>			
15		<del>3</del>	<del>Nokia AHFIB 4T4R B25/B66 320W RRU</del>			
16		1	Raycap DC6-48-60-18-8F ("Squid") COVP			
17		1	Raycap DC6-48-60-18-8F 32.8# COVP			

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



## **Analysis Results**

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	96.8%	75.0%	67.0%
Pass/Fail	Pass	Pass	Pass

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	2470.6	24.2	55.1

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

## **Operational Condition (Rigidity):**

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 2.1504 degrees under the operational wind speed as specified in the Analysis Criteria.

## **Conclusions**

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

## Standard Conditions

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

## Usage Diagram - Max Ratio 96.81% at 53.0ft

**Structure:** NY47416-A-SBA  
**Site Name:** Jim Reed Trucking  
**Height:** 129.00 (ft)  
**Base Elev:** 1.000 (ft)

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

4/10/2019



**TES**

Tower Engineering Solutions

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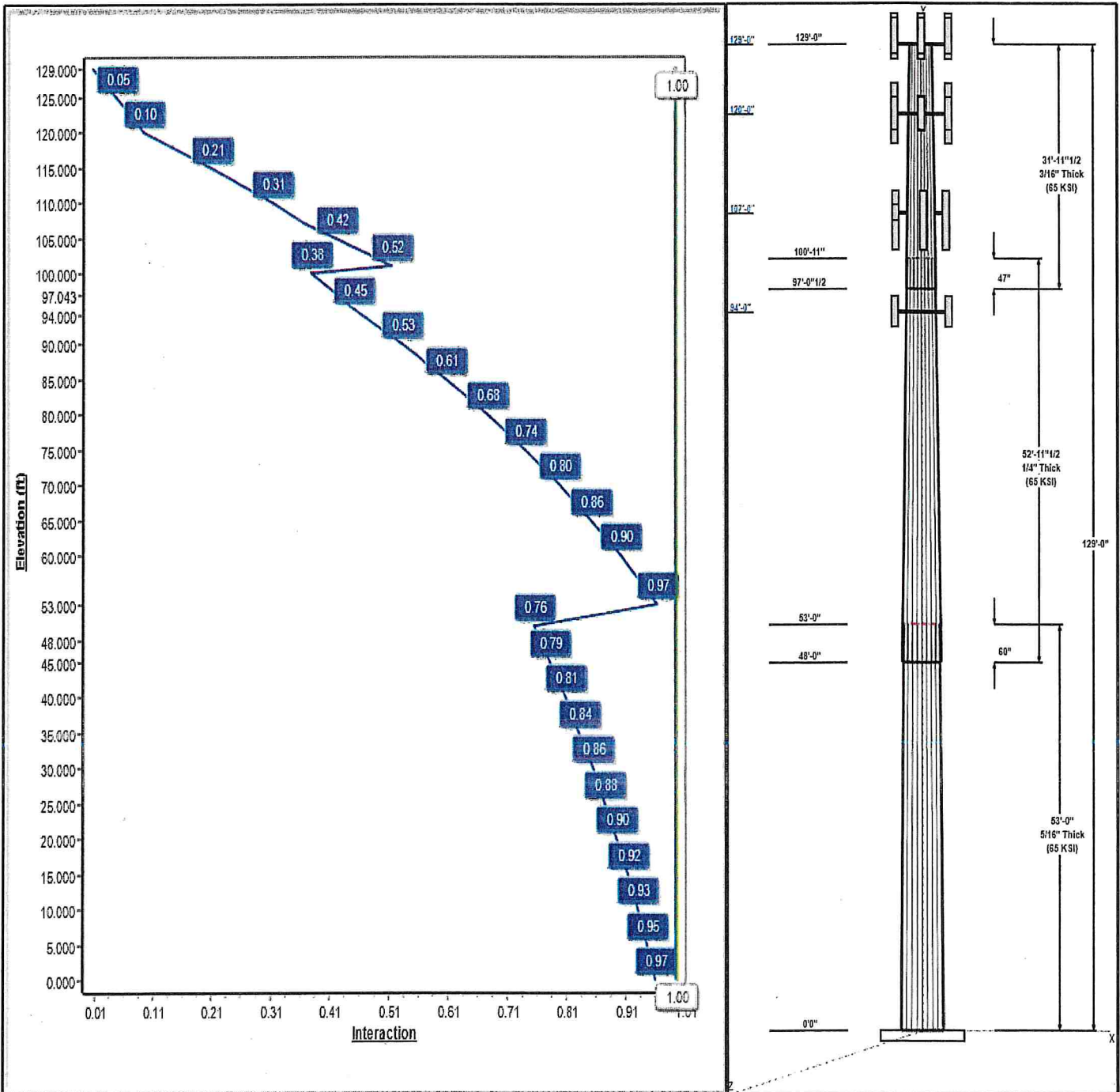
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.60

**Load Case : 1.2D + 1.6W 89 mph Wind**



**Iterations:** 25

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**Structure: NY47416-A-SBA**

Type: Tapered  
 Site Name: Jim Reed Trucking  
 Height: 129.00 (ft)  
 Base Elev: 1.00 (ft)

Base Shape: 18 Sided  
 Taper: 0.18508

4/10/2019

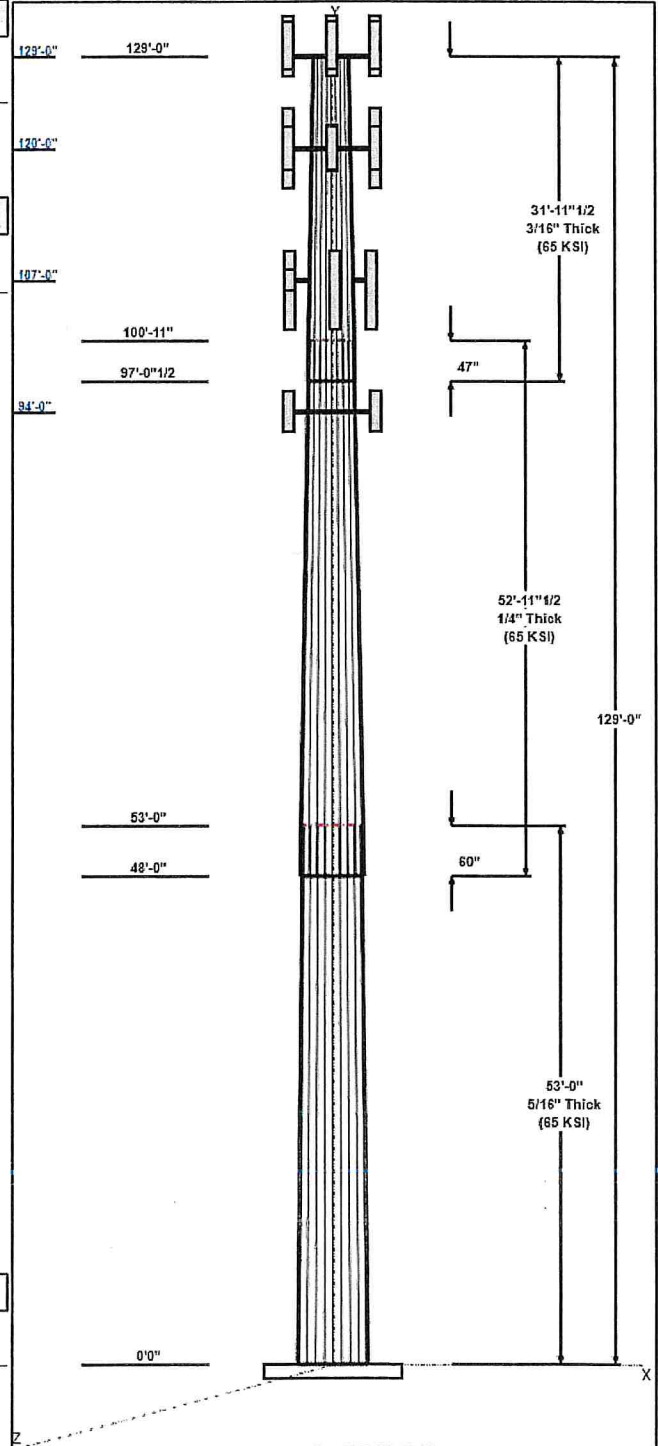
Page: 2



Shaft Properties							
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.00	34.19	44.00	0.313		0.18508	65
2	52.96	25.81	35.62	0.250	Slip	0.18508	65
3	31.96	21.00	26.91	0.188	Slip	0.18508	65

Discrete Appurtenances				
Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
129.00	129.00	3	800 MHz ESMR Filter	Sprint Nextel
129.00	129.00	4	ACU-A20-N	Sprint Nextel
129.00	130.00	1	Low Profile Platform-flat	Sprint Nextel
129.00	130.00	3	1900 MHz 4X45 RRH	Sprint Nextel
129.00	130.00	3	2X50W RRH w/o Filter	Sprint Nextel
129.00	130.00	3	TD-RRH8x20-25	Sprint Nextel
129.00	130.00	3	APXV9ERR18-C	Sprint Nextel
129.00	130.00	3	APXVTM14-C-I20	Sprint Nextel
120.00	120.00	3	Kathrein 742 264	AT&T
120.00	120.00	3	Commscope	AT&T
120.00	120.00	6	Commscope	AT&T
120.00	120.00	3	Alcatel Lucent 9442 RRH	AT&T
120.00	120.00	3	Nokia Airscale RRH 4T4R	AT&T
120.00	120.00	3	Alcatel Lucent RRH	AT&T
120.00	120.00	1	Raycap DC6-48-60-18-8F	AT&T
120.00	120.00	3	Nokia AHFIB 4T4R	AT&T
120.00	120.00	1	Low Profile Platform	AT&T
120.00	120.00	6	RFS ATM19801712-0 TMA	AT&T
120.00	120.00	1	Raycap DC6-48-60-18-8F	AT&T
107.00	107.00	1	IBR 1300	T-Mobile
107.00	107.00	1	MA0528-28AN	T-Mobile
107.00	107.00	1	TMA-T-DB78-DD-A	T-Mobile
107.00	106.00	3	KRY 112 144/1	T-Mobile
107.00	106.00	4	KRY 112 89/1	T-Mobile
107.00	106.00	3	S11B12	T-Mobile
107.00	106.00	3	AIR 21, 1.3M, B2A B4P	T-Mobile
107.00	106.00	3	AIR 21, 1.3M, B4A B2P	T-Mobile
107.00	106.00	3	APXVF24-C-A20	T-Mobile
107.00	106.00	3	T-Arm (Round)	T-Mobile
94.00	94.00	3	Raycap -	Verizon
94.00	94.00	6	ALU - B13 RRH4X30-4R -	Verizon
94.00	94.00	3	ALU - B25 RRH4x30-4R -	Verizon
94.00	94.00	1	Low Profile	Verizon
94.00	94.00	3	ALU -	Verizon
94.00	94.00	6	SBNHH-1D45A	Verizon

Linear Appurtenances				
Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	129.00	Outside	1-1/4" Coax	Sprint Nextel
0.00	120.00	Inside	1-5/8" Coax	AT&T
0.00	120.00	Inside	2" Innerduct	AT&T
0.00	120.00	Inside	3/4" DC Power	AT&T
0.00	120.00	Inside	3/8" Fiber	AT&T
0.00	107.00	Inside	1 5/8" Fiber	T-Mobile
0.00	107.00	Inside	1 5/8" Fiber	T-Mobile
0.00	107.00	Inside	1/2" Coax	T-Mobile



**Structure: NY47416-A-SBA**

**Type:** Tapered  
**Site Name:** Jim Reed Trucking  
**Height:** 129.00 (ft)  
**Base Elev:** 1.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.18508

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0.00	107.00	Inside	1/4" CAT5	T-Mobile
0.00	107.00	Inside	7/8" Coax	T-Mobile
0.00	107.00	Inside	7/8" Coax	T-Mobile
0.00	94.00	Inside	1 1/4" Hybrid	Verizon

**Anchor Bolts**

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

**Base Plate**

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.5000	59.0	60.0	Round

**Reactions**

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 89 mph Wind	2470.6	24.2	32.6
0.9D + 1.6W 89 mph Wind	2432.2	24.2	24.4
1.2D + 1.0Di + 1.0Wi 50 mph Wind	790.2	7.7	55.1
1.2D + 1.0E	223.7	2.0	32.7
0.9D + 1.0E	220.0	2.0	24.5
1.0D + 1.0W 60 mph Wind	696.4	6.9	27.2

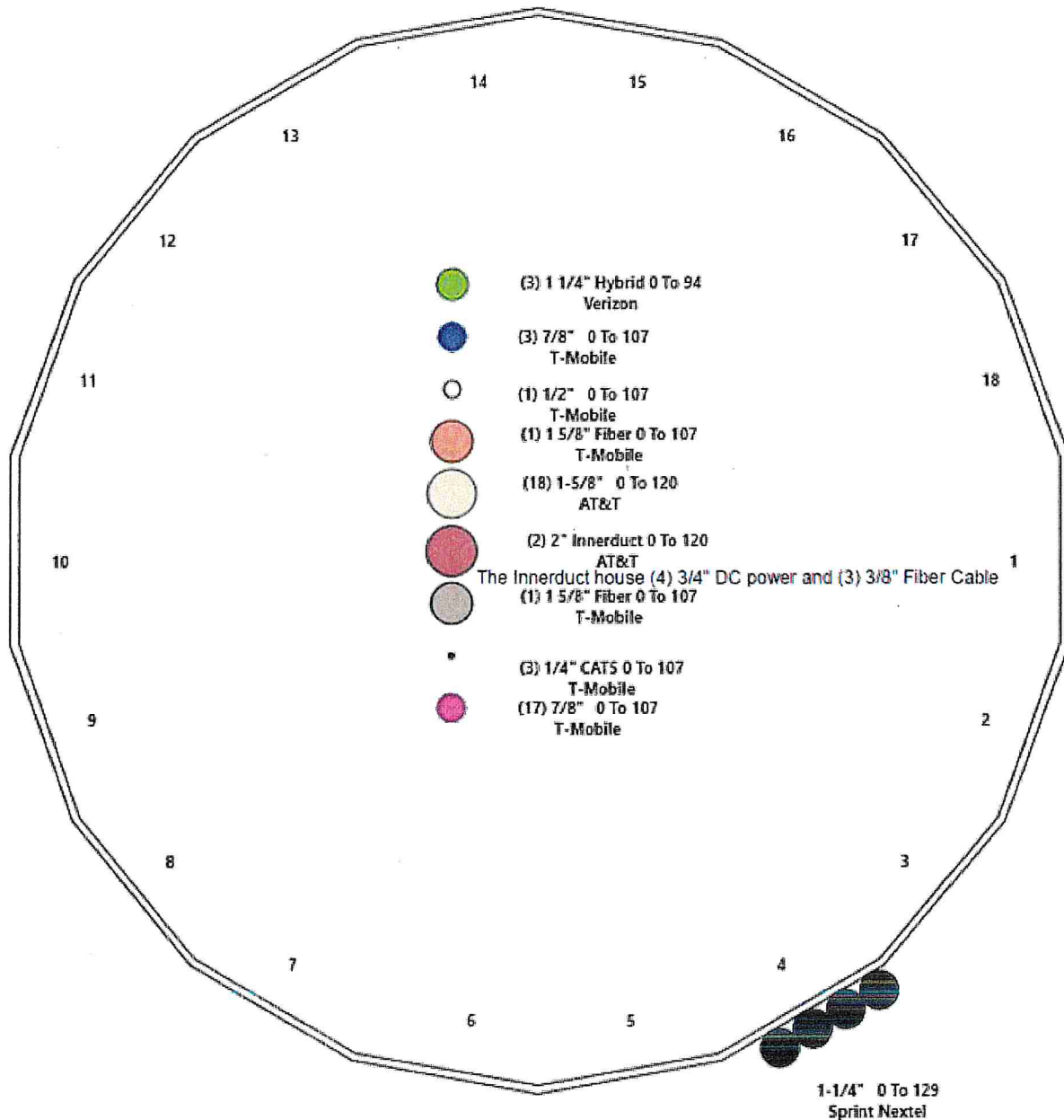
Structure: NY47416-A-SBA - Coax Line Placement

Type: Monopole  
 Site Name: Jim Reed Trucking  
 Height: 129.00 (ft)

4/10/2019



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## Shaft Properties

<b>Structure:</b> NY47416-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/10/2019
<b>Site Name:</b> Jim Reed Trucking	<b>Exposure:</b> C	
<b>Height:</b> 129.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 1.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.000	0.3125	65		0.00	6,937
2	18	52.960	0.2500	65	Slip	60.00	4,356
3	18	31.957	0.1875	65	Slip	47.00	1,538
<b>Total Shaft Weight:</b>							<b>12,832</b>

Bottom

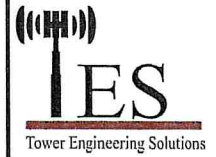
Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	44.00	0.00	43.33	10448.79	23.42	140.80	34.19	53.00	33.60	4872.62	17.88	109.4	0.185078
2	35.62	48.00	28.06	4434.58	23.71	142.47	25.81	100.96	20.28	1674.94	16.80	103.2	0.185078
3	26.91	97.04	15.91	1435.47	23.90	143.54	21.00	129.00	12.39	677.83	18.34	112.0	0.185078



## Load Summary

<b>Structure:</b> NY47416-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/10/2019
<b>Site Name:</b> Jim Reed Trucking	<b>Exposure:</b> C	
<b>Height:</b> 129.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 1.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	129.00	800 MHz ESMR Filter	3	10.00	0.42	0.50	32.50	0.740	0.50	0.00	0.00
2	129.00	ACU-A20-N	4	1.00	0.14	0.67	5.24	0.432	0.67	0.00	0.00
3	129.00	Low Profile Platform-flat	1	1200.00	25.00	1.00	2232.25	45.645	1.00	0.00	1.00
4	129.00	1900 MHz 4X45 RRH	3	60.00	2.71	0.67	139.61	3.956	0.67	0.00	1.00
5	129.00	2X50W RRH w/o Filter	3	53.00	2.40	0.67	115.88	3.503	0.67	0.00	1.00
6	129.00	TD-RRH8x20-25	3	70.00	4.05	0.67	178.57	4.851	0.67	0.00	1.00
7	129.00	APXV9ERR18-C	3	50.00	8.02	0.80	220.39	10.774	0.80	0.00	1.00
8	129.00	APXVTM14-C-I20	3	56.20	6.34	0.77	213.88	7.437	0.77	0.00	1.00
9	120.00	Kathrein 742 264	3	36.40	4.85	0.77	140.88	6.808	0.77	0.00	0.00
10	120.00	Commscope NNHH-65A-R4	3	68.30	9.10	0.73	286.70	10.306	0.73	0.00	0.00
11	120.00	Commscope NNHH-65C-R4	6	99.20	17.07	0.74	455.31	18.827	0.74	0.00	0.00
12	120.00	Alcatel Lucent 9442 RRH 700 RRH	3	44.00	3.53	0.67	115.64	4.939	0.67	0.00	0.00
13	120.00	Nokia Airscale RRH 4T4R B5 160W	3	36.80	1.28	0.67	84.97	1.756	0.67	0.00	0.00
14	120.00	Alcatel Lucent RRH 4x25-WCS-4R	3	70.00	3.16	0.67	157.05	3.894	0.67	0.00	0.00
15	120.00	Raycap DC6-48-60-18-8F 32.8#	1	32.80	0.92	1.00	83.72	2.068	1.00	0.00	0.00
16	120.00	Nokia AHFIB 4T4R B25/B66 320W	3	88.20	3.68	0.82	184.44	4.454	0.82	0.00	0.00
17	120.00	Low Profile Platform	1	1500.00	22.00	1.00	2781.09	39.286	1.00	0.00	0.00
18	120.00	RFS ATM19801712-0 TMA	6	19.00	1.12	0.50	49.17	1.868	0.50	0.00	0.00
19	120.00	Raycap DC6-48-60-18-8F ("Squid")	1	31.80	0.92	1.00	92.31	1.349	1.00	0.00	0.00
20	107.00	IBR 1300	1	8.90	0.67	1.00	26.20	1.006	1.00	0.00	0.00
21	107.00	MA0528-28AN	1	5.00	4.64	1.00	92.42	5.472	1.00	0.00	0.00
22	107.00	TMA-T-DB78-DD-A	1	36.40	1.43	1.00	73.53	1.939	1.00	0.00	0.00
23	107.00	KRY 112 144/1	3	11.00	0.41	0.50	21.43	0.870	0.50	0.00	-1.00
24	107.00	KRY 112 89/1	4	16.10	0.70	0.50	37.71	1.324	0.50	0.00	-1.00
25	107.00	S11B12	3	51.00	2.83	0.67	118.35	3.480	0.67	0.00	-1.00
26	107.00	AIR 21, 1.3M, B2A B4P	3	91.50	6.09	0.86	253.91	7.149	0.86	0.00	-1.00
27	107.00	AIR 21, 1.3M, B4A B2P	3	90.40	6.09	0.86	252.81	7.149	0.86	0.00	-1.00
28	107.00	APXVF24-C-A20	3	50.70	12.87	0.80	323.04	14.428	0.80	0.00	-1.00
29	107.00	T-Arm (Round)	3	350.00	8.00	0.80	586.43	14.755	0.80	0.00	-1.00
30	94.00	Raycap - RRFDC-3315-PF-48 -	3	32.00	3.02	0.67	111.92	3.701	0.84	0.00	0.00
31	94.00	ALU - B13 RRH4X30-4R - RRU	6	57.20	2.16	0.67	116.71	2.743	0.67	0.00	0.00
32	94.00	ALU - B25 RRH4x30-4R - RRU	3	51.00	2.14	0.67	106.17	2.721	0.67	0.00	0.00
33	94.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	2750.47	38.873	1.00	0.00	0.00
34	94.00	ALU - B66a-RRH4x45W-4R - RRU	3	59.00	2.54	0.67	138.50	3.200	0.67	0.00	0.00
35	94.00	SBNHH-1D45A	6	50.50	7.24	0.73	221.30	8.324	0.73	0.00	0.00
<b>Totals:</b>			<b>103</b>	<b>10,027.20</b>			<b>24,707.88</b>				

### Linear Appurtenances

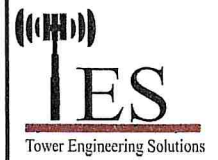
Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	129.00	(4) 1-1/4" Coax	1.55	Outside
0.00	120.00	(18) 1-5/8" Coax	0.00	Inside
0.00	120.00	(2) 2" Innerduct	0.00	Inside
0.00	120.00	(4) 3/4" DC Power	0.00	Inside
0.00	120.00	(3) 3/8" Fiber	0.00	Inside
0.00	107.00	(1) 1 5/8" Fiber	0.00	Inside

## Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
0.00	107.00	(1) 1 5/8" Fiber		0.00		Inside					
0.00	107.00	(1) 1/2" Coax		0.00		Inside					
0.00	107.00	(3) 1/4" CAT5		0.00		Inside					
0.00	107.00	(3) 7/8" Coax		0.00		Inside					
0.00	107.00	(17) 7/8" Coax		0.00		Inside					
0.00	94.00	(3) 1 1/4" Hybrid		0.00		Inside					

## Shaft Section Properties

Structure: NY47416-A-SBA	Code: EIA/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in <sup>3</sup> )	Weight (lb)
0.00		0.3125	44.000	43.331	10448.8	23.42	140.80	73.9	467.7	0.0
5.00		0.3125	43.075	42.413	9798.8	22.89	137.84	74.5	448.1	729.4
10.00		0.3125	42.149	41.495	9176.3	22.37	134.88	75.1	428.8	713.8
15.00		0.3125	41.224	40.577	8580.8	21.85	131.92	75.7	410.0	698.2
20.00		0.3125	40.298	39.660	8011.6	21.33	128.96	76.3	391.6	682.6
25.00		0.3125	39.373	38.742	7468.1	20.81	125.99	76.9	373.6	667.0
30.00		0.3125	38.448	37.824	6949.8	20.28	123.03	77.5	356.0	651.3
35.00		0.3125	37.522	36.906	6456.0	19.76	120.07	78.2	338.9	635.7
40.00		0.3125	36.597	35.988	5986.2	19.24	117.11	78.8	322.2	620.1
45.00		0.3125	35.672	35.070	5539.8	18.72	114.15	79.4	305.9	604.5
48.00	Bot - Section 2	0.3125	35.116	34.520	5282.9	18.40	112.37	79.8	296.3	355.2
50.00		0.3125	34.746	34.153	5116.1	18.19	111.19	80.0	290.0	423.7
53.00	Top - Section 1	0.2500	34.691	27.328	4095.5	23.06	138.76	0.0	0.0	627.1
55.00		0.2500	34.321	27.034	3964.9	22.80	137.28	74.6	227.5	185.0
60.00		0.2500	33.395	26.300	3650.5	22.14	133.58	75.4	215.3	453.7
65.00		0.2500	32.470	25.566	3353.2	21.49	129.88	76.1	203.4	441.2
70.00		0.2500	31.545	24.831	3072.5	20.84	126.18	76.9	191.8	428.7
75.00		0.2500	30.619	24.097	2807.9	20.19	122.48	77.7	180.6	416.2
80.00		0.2500	29.694	23.363	2559.0	19.53	118.78	78.4	169.7	403.7
85.00		0.2500	28.768	22.629	2325.2	18.88	115.07	79.2	159.2	391.2
90.00		0.2500	27.843	21.894	2106.1	18.23	111.37	80.0	149.0	378.8
94.00		0.2500	27.103	21.307	1941.1	17.71	108.41	80.6	141.1	294.0
95.00		0.2500	26.918	21.160	1901.2	17.57	107.67	80.7	139.1	72.3
97.04	Bot - Section 3	0.2500	26.539	20.860	1821.5	17.31	106.16	81.0	135.2	146.1
100.00		0.2500	25.992	20.426	1710.1	16.92	103.97	81.5	129.6	366.1
100.96	Top - Section 2	0.1875	26.190	15.474	1321.8	23.22	139.68	0.0	0.0	117.2
105.00		0.1875	25.442	15.029	1211.0	22.52	135.69	74.9	93.8	209.7
107.00		0.1875	25.072	14.809	1158.6	22.17	133.72	75.3	91.0	101.5
110.00		0.1875	24.516	14.478	1082.7	21.64	130.75	75.9	87.0	149.5
115.00		0.1875	23.591	13.928	963.8	20.77	125.82	77.0	80.5	241.6
120.00		0.1875	22.666	13.377	853.9	19.90	120.88	78.0	74.2	232.3
125.00		0.1875	21.740	12.826	752.8	19.03	115.95	79.0	68.2	222.9
129.00		0.1875	21.000	12.386	677.8	18.34	112.00	79.8	63.6	171.6
										<b>12831.8</b>



## Wind Loading - Shaft

Structure: NY47416-A-SBA	Code: EIA/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 89 mph Wind

Iterations 25

Dead Load Factor 1.20

Wind Load Factor 1.60



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	16.374	18.01	305.51	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	16.374	18.01	299.08	0.650	0.000	5.00	18.420	11.97	345.1	0.0	875.3
10.00		1.00	0.85	16.374	18.01	292.66	0.650	0.000	5.00	18.029	11.72	337.7	0.0	856.6
15.00		1.00	0.86	16.576	18.23	287.99	0.650	0.000	5.00	17.637	11.46	334.5	0.0	837.8
20.00		1.00	0.91	17.553	19.31	289.70	0.650	0.000	5.00	17.246	11.21	346.3	0.0	819.1
25.00		1.00	0.95	18.360	20.20	289.49	0.650	0.000	5.00	16.854	10.96	354.0	0.0	800.3
30.00		1.00	0.99	19.053	20.96	287.96	0.650	0.000	5.00	16.463	10.70	358.8	0.0	781.6
35.00		1.00	1.02	19.662	21.63	285.49	0.650	0.000	5.00	16.071	10.45	361.5	0.0	762.9
40.00		1.00	1.05	20.208	22.23	282.29	0.650	0.000	5.00	15.680	10.19	362.5	0.0	744.1
45.00		1.00	1.07	20.704	22.77	278.50	0.650	0.000	5.00	15.288	9.94	362.1	0.0	725.4
48.00 Bot - Section 2		1.00	1.09	20.981	23.08	276.00	0.650	0.000	3.00	8.985	5.84	215.7	0.0	426.2
50.00		1.00	1.10	21.158	23.27	274.24	0.650	0.000	2.00	5.996	3.90	145.1	0.0	508.4
53.00 Top - Section 1		1.00	1.11	21.415	23.56	271.49	0.650	0.000	3.00	8.877	5.77	217.5	0.0	752.5
55.00		1.00	1.12	21.579	23.74	273.56	0.650	0.000	2.00	5.840	3.80	144.2	0.0	222.0
60.00		1.00	1.14	21.971	24.17	268.59	0.650	0.000	5.00	14.325	9.31	360.1	0.0	544.5
65.00		1.00	1.16	22.339	24.57	263.33	0.650	0.000	5.00	13.934	9.06	356.1	0.0	529.5
70.00		1.00	1.18	22.685	24.95	257.80	0.650	0.000	5.00	13.542	8.80	351.4	0.0	514.5
75.00		1.00	1.19	23.012	25.31	252.03	0.650	0.000	5.00	13.151	8.55	346.2	0.0	499.5
80.00		1.00	1.21	23.323	25.66	246.06	0.650	0.000	5.00	12.759	8.29	340.4	0.0	484.5
85.00		1.00	1.23	23.619	25.98	239.90	0.650	0.000	5.00	12.368	8.04	334.2	0.0	469.5
90.00		1.00	1.24	23.901	26.29	233.57	0.650	0.000	5.00	11.976	7.78	327.5	0.0	454.5
94.00 Appurtenance(s)		1.00	1.25	24.119	26.53	228.39	0.650	0.000	4.00	9.299	6.04	256.6	0.0	352.8
95.00		1.00	1.25	24.172	26.59	227.08	0.650	0.000	1.00	2.286	1.49	63.2	0.0	86.7
97.04 Bot - Section 3		1.00	1.26	24.280	26.71	224.39	0.650	0.000	2.04	4.621	3.00	128.4	0.0	175.3
100.00		1.00	1.27	24.432	26.88	220.45	0.650	0.000	2.96	6.665	4.33	186.3	0.0	439.3
100.96 Top - Section 2		1.00	1.27	24.481	26.93	219.16	0.650	0.000	0.96	2.135	1.39	59.8	0.0	140.7
105.00		1.00	1.28	24.682	27.15	216.88	0.650	0.000	4.04	8.825	5.74	249.2	0.0	251.6
107.00 Appurtenance(s)		1.00	1.29	24.779	27.26	214.15	0.650	0.000	2.00	4.274	2.78	121.2	0.0	121.8
110.00		1.00	1.29	24.922	27.41	210.01	0.650	0.000	3.00	6.294	4.09	179.5	0.0	179.4
115.00		1.00	1.31	25.155	27.67	203.02	0.650	0.000	5.00	10.177	6.62	292.9	0.0	290.0
120.00 Appurtenance(s)		1.00	1.32	25.379	27.92	195.93	0.650	0.000	5.00	9.785	6.36	284.1	0.0	278.7
125.00		1.00	1.33	25.596	28.16	188.73	0.650	0.000	5.00	9.394	6.11	275.1	0.0	267.5
129.00 Appurtenance(s)		1.00	1.34	25.765	28.34	182.90	0.650	0.000	4.00	7.233	4.70	213.2	0.0	205.9
<b>Totals:</b>									<b>129.00</b>			<b>8,610.0</b>		<b>15,398.2</b>



## Discrete Appurtenance Forces

<b>Structure:</b> NY47416-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/10/2019
<b>Site Name:</b> Jim Reed Trucking	<b>Exposure:</b> C	
<b>Height:</b> 129.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 1.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		<b>Page:</b> 10



**Load Case:** 1.2D + 1.6W 89 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	129.00	APXV9ERR18-C	3	25.807	28.388	0.72	0.90	17.32	180.00	0.000	1.000	786.82	0.00	786.82
2	129.00	TD-RRH8x20-25	3	25.807	28.388	0.67	1.00	8.14	252.00	0.000	1.000	369.74	0.00	369.74
3	129.00	2X50W RRH w/o Filter	3	25.807	28.388	0.67	1.00	4.82	190.80	0.000	1.000	219.11	0.00	219.11
4	129.00	1900 MHz 4X45 RRH	3	25.807	28.388	0.67	1.00	5.45	216.00	0.000	1.000	247.41	0.00	247.41
5	129.00	Low Profile Platform-flat	1	25.807	28.388	1.00	1.00	25.00	1440.00	0.000	1.000	1135.50	0.00	1135.50
6	129.00	ACU-A20-N	4	25.765	28.342	0.67	1.00	0.38	4.80	0.000	0.000	17.01	0.00	0.00
7	129.00	800 MHz ESMR Filter	3	25.765	28.342	0.50	1.00	0.63	36.00	0.000	0.000	28.57	0.00	0.00
8	129.00	APXVTM14-C-I20	3	25.807	28.388	0.69	0.90	13.18	202.32	0.000	1.000	598.68	0.00	598.68
9	120.00	Alcatel Lucent 9442 RRH	3	25.379	27.917	0.54	0.80	5.68	158.40	0.000	0.000	253.54	0.00	0.00
10	120.00	Nokia Airscale RRH 4T4R	3	25.379	27.917	0.54	0.80	2.06	132.48	0.000	0.000	91.94	0.00	0.00
11	120.00	Alcatel Lucent RRH	3	25.379	27.917	0.54	0.80	5.08	252.00	0.000	0.000	226.97	0.00	0.00
12	120.00	Commscope	6	25.379	27.917	0.59	0.80	60.63	714.24	0.000	0.000	2708.28	0.00	0.00
13	120.00	Raycap DC6-48-60-18-8F	1	25.379	27.917	0.90	0.90	0.83	38.16	0.000	0.000	36.98	0.00	0.00
14	120.00	Raycap DC6-48-60-18-8F	1	25.379	27.917	0.90	0.90	0.83	39.36	0.000	0.000	36.98	0.00	0.00
15	120.00	Nokia AHFIB 4T4R	3	25.379	27.917	0.74	0.90	8.15	317.52	0.000	0.000	363.93	0.00	0.00
16	120.00	Low Profile Platform	1	25.379	27.917	1.00	1.00	22.00	1800.00	0.000	0.000	982.68	0.00	0.00
17	120.00	RFS ATM19801712-0	6	25.379	27.917	0.40	0.80	2.69	136.80	0.000	0.000	120.07	0.00	0.00
18	120.00	Commscope	3	25.379	27.917	0.58	0.80	15.94	245.88	0.000	0.000	712.14	0.00	0.00
19	120.00	Kathrein 742 264	3	25.379	27.917	0.62	0.80	8.96	131.04	0.000	0.000	400.34	0.00	0.00
20	107.00	KRY 112 89/1	4	24.730	27.204	0.40	0.80	1.12	77.28	0.000	-1.000	48.75	0.00	-48.75
21	107.00	IBR 1300	1	24.779	27.257	0.80	0.80	0.54	10.68	0.000	0.000	23.38	0.00	0.00
22	107.00	MA0528-28AN	1	24.779	27.257	0.80	0.80	3.71	6.00	0.000	0.000	161.88	0.00	0.00
23	107.00	KRY 112 144/1	3	24.730	27.204	0.40	0.80	0.49	39.60	0.000	-1.000	21.41	0.00	-21.41
24	107.00	TMA-T-DB78-DD-A	1	24.779	27.257	0.80	0.80	1.14	43.68	0.000	0.000	49.89	0.00	0.00
25	107.00	AIR 21, 1.3M, B2A B4P	3	24.730	27.204	0.69	0.80	12.57	329.40	0.000	-1.000	547.11	0.00	-547.11
26	107.00	AIR 21, 1.3M, B4A B2P	3	24.730	27.204	0.69	0.80	12.57	325.44	0.000	-1.000	547.11	0.00	-547.11
27	107.00	APXVF24-C-A20	3	24.730	27.204	0.64	0.80	24.71	182.52	0.000	-1.000	1075.54	0.00	-1075.54
28	107.00	T-Arm (Round)	3	24.730	27.204	0.64	0.80	15.36	1260.00	0.000	-1.000	668.55	0.00	-668.55
29	107.00	S11B12	3	24.730	27.204	0.54	0.80	4.55	183.60	0.000	-1.000	198.07	0.00	-198.07
30	94.00	ALU - B25 RRH4x30-4R -	3	24.119	26.531	0.54	0.80	3.44	183.60	0.000	0.000	146.07	0.00	0.00
31	94.00	Raycap -	3	24.119	26.531	0.54	0.80	4.86	115.20	0.000	0.000	206.14	0.00	0.00
32	94.00	ALU - B13 RRH4X30-4R -	6	24.119	26.531	0.54	0.80	6.95	411.84	0.000	0.000	294.88	0.00	0.00
33	94.00	SBNHH-1D45A	6	24.119	26.531	0.58	0.80	25.37	363.60	0.000	0.000	1076.89	0.00	0.00
34	94.00	Low Profile	1	24.119	26.531	1.00	1.00	22.00	1800.00	0.000	0.000	933.88	0.00	0.00
35	94.00	ALU -	3	24.119	26.531	0.54	0.80	4.08	212.40	0.000	0.000	173.38	0.00	0.00
<b>Totals:</b>								<b>12,032.64</b>				<b>15,509.60</b>		

## Total Applied Force Summary

Structure: NY47416-A-SBA	Code: EIATIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 89 mph Wind

Dead Load Factor    1.20  
 Wind Load Factor    1.60



Iterations    25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		345.05	1104.04	0.00	0.00
10.00		337.72	1085.30	0.00	0.00
15.00		334.47	1066.56	0.00	0.00
20.00		346.31	1047.82	0.00	0.00
25.00		354.01	1029.08	0.00	0.00
30.00		358.83	1010.34	0.00	0.00
35.00		361.50	991.60	0.00	0.00
40.00		362.49	972.86	0.00	0.00
45.00		362.10	954.12	0.00	0.00
48.00		215.66	563.48	0.00	0.00
50.00		145.14	599.88	0.00	0.00
53.00		217.47	889.70	0.00	0.00
55.00		144.16	313.47	0.00	0.00
60.00		360.06	773.18	0.00	0.00
65.00		356.08	758.19	0.00	0.00
70.00		351.43	743.20	0.00	0.00
75.00		346.20	728.21	0.00	0.00
80.00		340.43	713.22	0.00	0.00
85.00		334.17	698.23	0.00	0.00
90.00		327.46	683.24	0.00	0.00
94.00	(22) attachments	3087.81	3622.43	0.00	0.00
95.00		63.20	129.02	0.00	0.00
97.04		128.37	261.76	0.00	0.00
100.00		186.29	564.38	0.00	0.00
100.96		59.78	181.28	0.00	0.00
105.00		249.19	422.54	0.00	0.00
107.00	(25) attachments	3462.85	2664.66	0.00	-3106.54
110.00		179.45	264.49	0.00	0.00
115.00		292.86	431.82	0.00	0.00
120.00	(33) attachments	6217.95	4386.45	0.00	0.00
125.00		275.08	283.33	0.00	0.00
129.00	(23) attachments	3616.04	2740.49	0.00	3357.25
	<b>Totals:</b>	<b>24,119.64</b>	<b>32,678.36</b>	<b>0.00</b>	<b>250.72</b>



## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> NY47416-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/10/2019
<b>Site Name:</b> Jim Reed Trucking	<b>Exposure:</b> C	
<b>Height:</b> 129.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 1.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 89 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.035	0.000	16.374	0.00	15.84
10.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.036	0.000	16.374	0.00	15.84
15.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.037	0.000	16.576	0.00	15.84
20.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.037	0.000	17.553	0.00	15.84
25.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.038	0.000	18.360	0.00	15.84
30.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.039	0.000	19.053	0.00	15.84
35.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.040	0.000	19.662	0.00	15.84
40.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.041	0.000	20.208	0.00	15.84
45.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.042	0.000	20.704	0.00	15.84
48.00	1-1/4" Coax	Yes	3.00	0.000	1.55	0.39	0.00	0.043	0.000	20.981	0.00	9.50
50.00	1-1/4" Coax	Yes	2.00	0.000	1.55	0.26	0.00	0.044	0.000	21.158	0.00	6.34
53.00	1-1/4" Coax	Yes	3.00	0.000	1.55	0.39	0.00	0.044	0.000	21.415	0.00	9.50
55.00	1-1/4" Coax	Yes	2.00	0.000	1.55	0.26	0.00	0.044	0.000	21.579	0.00	6.34
60.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.045	0.000	21.971	0.00	15.84
65.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.046	0.000	22.339	0.00	15.84
70.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.048	0.000	22.685	0.00	15.84
75.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.049	0.000	23.012	0.00	15.84
80.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.051	0.000	23.323	0.00	15.84
85.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.052	0.000	23.619	0.00	15.84
90.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.054	0.000	23.901	0.00	15.84
94.00	1-1/4" Coax	Yes	4.00	0.000	1.55	0.52	0.00	0.056	0.000	24.119	0.00	12.67
95.00	1-1/4" Coax	Yes	1.00	0.000	1.55	0.13	0.00	0.057	0.000	24.172	0.00	3.17
97.04	1-1/4" Coax	Yes	2.04	0.000	1.55	0.26	0.00	0.057	0.000	24.280	0.00	6.47
100.00	1-1/4" Coax	Yes	2.96	0.000	1.55	0.38	0.00	0.058	0.000	24.432	0.00	9.37
100.96	1-1/4" Coax	Yes	0.96	0.000	1.55	0.12	0.00	0.059	0.000	24.481	0.00	3.04
105.00	1-1/4" Coax	Yes	4.04	0.000	1.55	0.52	0.00	0.059	0.000	24.682	0.00	12.80
107.00	1-1/4" Coax	Yes	2.00	0.000	1.55	0.26	0.00	0.060	0.000	24.779	0.00	6.34
110.00	1-1/4" Coax	Yes	3.00	0.000	1.55	0.39	0.00	0.062	0.000	24.922	0.00	9.50
115.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.063	0.000	25.155	0.00	15.84
120.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.066	0.000	25.379	0.00	15.84
125.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.069	0.000	25.596	0.00	15.84
129.00	1-1/4" Coax	Yes	4.00	0.000	1.55	0.52	0.00	0.071	0.000	25.765	0.00	12.67
<b>Totals:</b>											<b>0.0</b>	<b>408.7</b>

## Calculated Forces

<b>Structure:</b> NY47416-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>4/10/2019</b>
<b>Site Name:</b> Jim Reed Trucking	<b>Exposure:</b> C	
<b>Height:</b> 129.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 1.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 89 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-32.61	-24.21	0.00	-2470.5	0.00	2470.57	2880.35	1440.17	5174.22	2590.95	0.00	0.000	0.000	0.965
5.00	-31.37	-24.05	0.00	-2349.5	0.00	2349.50	2842.78	1421.39	4997.79	2502.61	0.18	-0.328	0.000	0.950
10.00	-30.15	-23.88	0.00	-2229.2	0.00	2229.27	2804.19	1402.10	4822.50	2414.83	0.70	-0.660	0.000	0.934
15.00	-28.94	-23.70	0.00	-2109.8	0.00	2109.89	2764.60	1382.30	4648.46	2327.68	1.57	-0.997	0.000	0.917
20.00	-27.76	-23.50	0.00	-1991.4	0.00	1991.40	2723.98	1361.99	4475.78	2241.22	2.79	-1.337	0.000	0.899
25.00	-26.61	-23.28	0.00	-1873.9	0.00	1873.92	2682.35	1341.18	4304.59	2155.50	4.38	-1.680	0.000	0.880
30.00	-25.47	-23.04	0.00	-1757.5	0.00	1757.54	2639.71	1319.86	4135.01	2070.58	6.32	-2.026	0.000	0.859
35.00	-24.35	-22.79	0.00	-1642.3	0.00	1642.35	2596.06	1298.03	3967.14	1986.52	8.63	-2.374	0.000	0.836
40.00	-23.26	-22.53	0.00	-1528.4	0.00	1528.41	2551.38	1275.69	3801.10	1903.38	11.30	-2.723	0.000	0.812
45.00	-22.22	-22.22	0.00	-1415.7	0.00	1415.78	2505.70	1252.85	3637.02	1821.21	14.34	-3.073	0.000	0.787
48.00	-21.60	-22.04	0.00	-1349.1	0.00	1349.11	2477.80	1238.90	3539.56	1772.41	16.34	-3.286	0.000	0.770
50.00	-20.94	-21.93	0.00	-1305.0	0.00	1305.02	2459.00	1229.50	3475.00	1740.09	17.75	-3.429	0.000	0.759
53.00	-20.00	-21.72	0.00	-1239.2	0.00	1239.23	1826.96	913.48	2587.02	1295.43	19.97	-3.641	0.000	0.968
55.00	-19.59	-21.65	0.00	-1195.7	0.00	1195.79	1814.79	907.40	2541.98	1272.88	21.52	-3.783	0.000	0.951
60.00	-18.69	-21.37	0.00	-1087.5	0.00	1087.54	1783.67	891.84	2430.03	1216.82	25.70	-4.193	0.000	0.905
65.00	-17.82	-21.08	0.00	-980.68	0.00	980.68	1751.54	875.77	2319.13	1161.29	30.31	-4.596	0.000	0.855
70.00	-16.97	-20.79	0.00	-875.27	0.00	875.27	1718.39	859.19	2209.39	1106.34	35.33	-4.989	0.000	0.802
75.00	-16.14	-20.48	0.00	-771.34	0.00	771.34	1684.22	842.11	2100.92	1052.02	40.75	-5.371	0.000	0.743
80.00	-15.34	-20.17	0.00	-668.94	0.00	668.94	1649.04	824.52	1993.85	998.41	46.56	-5.735	0.000	0.680
85.00	-14.56	-19.85	0.00	-568.10	0.00	568.10	1612.85	806.42	1888.28	945.54	52.75	-6.079	0.000	0.610
90.00	-13.83	-19.51	0.00	-468.86	0.00	468.86	1575.64	787.82	1784.34	893.50	59.28	-6.396	0.000	0.534
94.00	-10.54	-16.06	0.00	-390.81	0.00	390.81	1545.14	772.57	1702.43	852.48	64.73	-6.629	0.000	0.466
95.00	-10.39	-16.00	0.00	-374.75	0.00	374.75	1537.42	768.71	1682.14	842.32	66.12	-6.685	0.000	0.452
97.04	-10.11	-15.86	0.00	-342.06	0.00	342.06	1521.50	760.75	1640.90	821.67	69.00	-6.794	0.000	0.423
100.00	-9.55	-15.63	0.00	-295.15	0.00	295.15	1498.18	749.09	1581.80	792.07	73.24	-6.942	0.000	0.379
100.96	-9.35	-15.56	0.00	-280.15	0.00	280.15	1031.84	515.92	1103.16	552.40	74.64	-6.987	0.000	0.517
105.00	-8.92	-15.29	0.00	-217.28	0.00	217.28	1013.36	506.68	1052.02	526.79	80.62	-7.158	0.000	0.422
107.00	-6.69	-11.53	0.00	-186.71	0.00	186.71	1003.96	501.98	1026.88	514.20	83.63	-7.253	0.000	0.370
110.00	-6.42	-11.33	0.00	-152.12	0.00	152.12	989.56	494.78	989.40	495.43	88.21	-7.378	0.000	0.314
115.00	-6.01	-11.00	0.00	-95.46	0.00	95.46	964.75	482.38	927.62	464.50	96.01	-7.541	0.000	0.212
120.00	-2.48	-4.26	0.00	-40.46	0.00	40.46	938.93	469.46	866.81	434.05	103.95	-7.641	0.000	0.096
125.00	-2.23	-3.95	0.00	-19.16	0.00	19.16	912.09	456.04	807.08	404.14	111.96	-7.690	0.000	0.050
129.00	0.00	-3.62	0.00	-3.36	0.00	3.36	889.89	444.94	760.16	380.64	118.39	-7.707	0.000	0.009



## Wind Loading - Shaft

<b>Structure:</b> NY47416-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/10/2019
<b>Site Name:</b> Jim Reed Trucking	<b>Exposure:</b> C	
<b>Height:</b> 129.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 1.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 89 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60

**Iterations** 25



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	16.374	18.01	305.51	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	16.374	18.01	299.08	0.650	0.000	5.00	18.420	11.97	345.1	0.0	656.5
10.00		1.00	0.85	16.374	18.01	292.66	0.650	0.000	5.00	18.029	11.72	337.7	0.0	642.4
15.00		1.00	0.86	16.576	18.23	287.99	0.650	0.000	5.00	17.637	11.46	334.5	0.0	628.4
20.00		1.00	0.91	17.553	19.31	289.70	0.650	0.000	5.00	17.246	11.21	346.3	0.0	614.3
25.00		1.00	0.95	18.360	20.20	289.49	0.650	0.000	5.00	16.854	10.96	354.0	0.0	600.3
30.00		1.00	0.99	19.053	20.96	287.96	0.650	0.000	5.00	16.463	10.70	358.8	0.0	586.2
35.00		1.00	1.02	19.662	21.63	285.49	0.650	0.000	5.00	16.071	10.45	361.5	0.0	572.2
40.00		1.00	1.05	20.208	22.23	282.29	0.650	0.000	5.00	15.680	10.19	362.5	0.0	558.1
45.00		1.00	1.07	20.704	22.77	278.50	0.650	0.000	5.00	15.288	9.94	362.1	0.0	544.0
48.00	Bot - Section 2	1.00	1.09	20.981	23.08	276.00	0.650	0.000	3.00	8.985	5.84	215.7	0.0	319.7
50.00		1.00	1.10	21.158	23.27	274.24	0.650	0.000	2.00	5.996	3.90	145.1	0.0	381.3
53.00	Top - Section 1	1.00	1.11	21.415	23.56	271.49	0.650	0.000	3.00	8.877	5.77	217.5	0.0	564.3
55.00		1.00	1.12	21.579	23.74	273.56	0.650	0.000	2.00	5.840	3.80	144.2	0.0	166.5
60.00		1.00	1.14	21.971	24.17	268.59	0.650	0.000	5.00	14.325	9.31	360.1	0.0	408.3
65.00		1.00	1.16	22.339	24.57	263.33	0.650	0.000	5.00	13.934	9.06	356.1	0.0	397.1
70.00		1.00	1.18	22.685	24.95	257.80	0.650	0.000	5.00	13.542	8.80	351.4	0.0	385.9
75.00		1.00	1.19	23.012	25.31	252.03	0.650	0.000	5.00	13.151	8.55	346.2	0.0	374.6
80.00		1.00	1.21	23.323	25.66	246.06	0.650	0.000	5.00	12.759	8.29	340.4	0.0	363.4
85.00		1.00	1.23	23.619	25.98	239.90	0.650	0.000	5.00	12.368	8.04	334.2	0.0	352.1
90.00		1.00	1.24	23.901	26.29	233.57	0.650	0.000	5.00	11.976	7.78	327.5	0.0	340.9
94.00	Appurtenance(s)	1.00	1.25	24.119	26.53	228.39	0.650	0.000	4.00	9.299	6.04	256.6	0.0	264.6
95.00		1.00	1.25	24.172	26.59	227.08	0.650	0.000	1.00	2.286	1.49	63.2	0.0	65.0
97.04	Bot - Section 3	1.00	1.26	24.280	26.71	224.39	0.650	0.000	2.04	4.621	3.00	128.4	0.0	131.5
100.00		1.00	1.27	24.432	26.88	220.45	0.650	0.000	2.96	6.665	4.33	186.3	0.0	329.5
100.96	Top - Section 2	1.00	1.27	24.481	26.93	219.16	0.650	0.000	0.96	2.135	1.39	59.8	0.0	105.5
105.00		1.00	1.28	24.682	27.15	216.88	0.650	0.000	4.04	8.825	5.74	249.2	0.0	188.7
107.00	Appurtenance(s)	1.00	1.29	24.779	27.26	214.15	0.650	0.000	2.00	4.274	2.78	121.2	0.0	91.4
110.00		1.00	1.29	24.922	27.41	210.01	0.650	0.000	3.00	6.294	4.09	179.5	0.0	134.5
115.00		1.00	1.31	25.155	27.67	203.02	0.650	0.000	5.00	10.177	6.62	292.9	0.0	217.5
120.00	Appurtenance(s)	1.00	1.32	25.379	27.92	195.93	0.650	0.000	5.00	9.785	6.36	284.1	0.0	209.0
125.00		1.00	1.33	25.596	28.16	188.73	0.650	0.000	5.00	9.394	6.11	275.1	0.0	200.6
129.00	Appurtenance(s)	1.00	1.34	25.765	28.34	182.90	0.650	0.000	4.00	7.233	4.70	213.2	0.0	154.4
<b>Totals:</b>									<b>129.00</b>			<b>8,610.0</b>		<b>11,548.7</b>

## Discrete Appurtenance Forces

<b>Structure:</b> NY47416-A-SBA	<b>Code:</b> EIATIA-222-G	4/10/2019
<b>Site Name:</b> Jim Reed Trucking	<b>Exposure:</b> C	
<b>Height:</b> 129.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 1.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 89 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	129.00	APXV9ERR18-C	3	25.807	28.388	0.72	0.90	17.32	135.00	0.000	1.000	786.82	0.00	786.82
2	129.00	TD-RRH8x20-25	3	25.807	28.388	0.67	1.00	8.14	189.00	0.000	1.000	369.74	0.00	369.74
3	129.00	2X50W RRH w/o Filter	3	25.807	28.388	0.67	1.00	4.82	143.10	0.000	1.000	219.11	0.00	219.11
4	129.00	1900 MHz 4X45 RRH	3	25.807	28.388	0.67	1.00	5.45	162.00	0.000	1.000	247.41	0.00	247.41
5	129.00	Low Profile Platform-flat	1	25.807	28.388	1.00	1.00	25.00	1080.00	0.000	1.000	1135.50	0.00	1135.50
6	129.00	ACU-A20-N	4	25.765	28.342	0.67	1.00	0.38	3.60	0.000	0.000	17.01	0.00	0.00
7	129.00	800 MHz ESMR Filter	3	25.765	28.342	0.50	1.00	0.63	27.00	0.000	0.000	28.57	0.00	0.00
8	129.00	APXVTM14-C-I20	3	25.807	28.388	0.69	0.90	13.18	151.74	0.000	1.000	598.68	0.00	598.68
9	120.00	Alcatel Lucent 9442 RRH	3	25.379	27.917	0.54	0.80	5.68	118.80	0.000	0.000	253.54	0.00	0.00
10	120.00	Nokia Airscale RRH 4T4R	3	25.379	27.917	0.54	0.80	2.06	99.36	0.000	0.000	91.94	0.00	0.00
11	120.00	Alcatel Lucent RRH	3	25.379	27.917	0.54	0.80	5.08	189.00	0.000	0.000	226.97	0.00	0.00
12	120.00	Commscope	6	25.379	27.917	0.59	0.80	60.63	535.68	0.000	0.000	2708.28	0.00	0.00
13	120.00	Raycap DC6-48-60-18-8F	1	25.379	27.917	0.90	0.90	0.83	28.62	0.000	0.000	36.98	0.00	0.00
14	120.00	Raycap DC6-48-60-18-8F	1	25.379	27.917	0.90	0.90	0.83	29.52	0.000	0.000	36.98	0.00	0.00
15	120.00	Nokia AHFIB 4T4R	3	25.379	27.917	0.74	0.90	8.15	238.14	0.000	0.000	363.93	0.00	0.00
16	120.00	Low Profile Platform	1	25.379	27.917	1.00	1.00	22.00	1350.00	0.000	0.000	982.68	0.00	0.00
17	120.00	RFS ATM19801712-0	6	25.379	27.917	0.40	0.80	2.69	102.60	0.000	0.000	120.07	0.00	0.00
18	120.00	Commscope	3	25.379	27.917	0.58	0.80	15.94	184.41	0.000	0.000	712.14	0.00	0.00
19	120.00	Kathrein 742 264	3	25.379	27.917	0.62	0.80	8.96	98.28	0.000	0.000	400.34	0.00	0.00
20	107.00	KRY 112 89/1	4	24.730	27.204	0.40	0.80	1.12	57.96	0.000	-1.000	48.75	0.00	-48.75
21	107.00	IBR 1300	1	24.779	27.257	0.80	0.80	0.54	8.01	0.000	0.000	23.38	0.00	0.00
22	107.00	MA0528-28AN	1	24.779	27.257	0.80	0.80	3.71	4.50	0.000	0.000	161.88	0.00	0.00
23	107.00	KRY 112 144/1	3	24.730	27.204	0.40	0.80	0.49	29.70	0.000	-1.000	21.41	0.00	-21.41
24	107.00	TMA-T-DB78-DD-A	1	24.779	27.257	0.80	0.80	1.14	32.76	0.000	0.000	49.89	0.00	0.00
25	107.00	AIR 21, 1.3M, B2A B4P	3	24.730	27.204	0.69	0.80	12.57	247.05	0.000	-1.000	547.11	0.00	-547.11
26	107.00	AIR 21, 1.3M, B4A B2P	3	24.730	27.204	0.69	0.80	12.57	244.08	0.000	-1.000	547.11	0.00	-547.11
27	107.00	APXVF24-C-A20	3	24.730	27.204	0.64	0.80	24.71	136.89	0.000	-1.000	1075.54	0.00	-1075.54
28	107.00	T-Arm (Round)	3	24.730	27.204	0.64	0.80	15.36	945.00	0.000	-1.000	668.55	0.00	-668.55
29	107.00	S11B12	3	24.730	27.204	0.54	0.80	4.55	137.70	0.000	-1.000	198.07	0.00	-198.07
30	94.00	ALU - B25 RRH4x30-4R -	3	24.119	26.531	0.54	0.80	3.44	137.70	0.000	0.000	146.07	0.00	0.00
31	94.00	Raycap -	3	24.119	26.531	0.54	0.80	4.86	86.40	0.000	0.000	206.14	0.00	0.00
32	94.00	ALU - B13 RRH4X30-4R -	6	24.119	26.531	0.54	0.80	6.95	308.88	0.000	0.000	294.88	0.00	0.00
33	94.00	SBNHH-1D45A	6	24.119	26.531	0.58	0.80	25.37	272.70	0.000	0.000	1076.89	0.00	0.00
34	94.00	Low Profile	1	24.119	26.531	1.00	1.00	22.00	1350.00	0.000	0.000	933.88	0.00	0.00
35	94.00	ALU -	3	24.119	26.531	0.54	0.80	4.08	159.30	0.000	0.000	173.38	0.00	0.00
<b>Totals:</b>								<b>9,024.48</b>				<b>15,509.60</b>		



## Total Applied Force Summary

Structure: NY47416-A-SBA	Code: EI/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 16



Load Case: 0.9D + 1.6W 89 mph Wind

Dead Load Factor 0.90  
Wind Load Factor 1.60

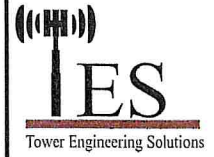


Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		345.05	828.03	0.00	0.00
10.00		337.72	813.97	0.00	0.00
15.00		334.47	799.92	0.00	0.00
20.00		346.31	785.86	0.00	0.00
25.00		354.01	771.81	0.00	0.00
30.00		358.83	757.76	0.00	0.00
35.00		361.50	743.70	0.00	0.00
40.00		362.49	729.65	0.00	0.00
45.00		362.10	715.59	0.00	0.00
48.00		215.66	422.61	0.00	0.00
50.00		145.14	449.91	0.00	0.00
53.00		217.47	667.28	0.00	0.00
55.00		144.16	235.10	0.00	0.00
60.00		360.06	579.89	0.00	0.00
65.00		356.08	568.64	0.00	0.00
70.00		351.43	557.40	0.00	0.00
75.00		346.20	546.16	0.00	0.00
80.00		340.43	534.91	0.00	0.00
85.00		334.17	523.67	0.00	0.00
90.00		327.46	512.43	0.00	0.00
94.00	(22) attachments	3087.81	2716.83	0.00	0.00
95.00		63.20	96.76	0.00	0.00
97.04		128.37	196.32	0.00	0.00
100.00		186.29	423.29	0.00	0.00
100.96		59.78	135.96	0.00	0.00
105.00		249.19	316.90	0.00	0.00
107.00	(25) attachments	3462.85	1998.50	0.00	-3106.54
110.00		179.45	198.36	0.00	0.00
115.00		292.86	323.86	0.00	0.00
120.00	(33) attachments	6217.95	3289.84	0.00	0.00
125.00		275.08	212.50	0.00	0.00
129.00	(23) attachments	3616.04	2055.37	0.00	3357.25
	<b>Totals:</b>	<b>24,119.64</b>	<b>24,508.77</b>	<b>0.00</b>	<b>250.72</b>

## Linear Appurtenance Segment Forces (Factored)

Structure: NY47416-A-SBA	Code: EIA/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 89 mph Wind

Dead Load Factor 0.90  
Wind Load Factor 1.60



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.035	0.000	16.374	0.00	11.88
10.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.036	0.000	16.374	0.00	11.88
15.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.037	0.000	16.576	0.00	11.88
20.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.037	0.000	17.553	0.00	11.88
25.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.038	0.000	18.360	0.00	11.88
30.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.039	0.000	19.053	0.00	11.88
35.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.040	0.000	19.662	0.00	11.88
40.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.041	0.000	20.208	0.00	11.88
45.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.042	0.000	20.704	0.00	11.88
48.00	1-1/4" Coax	Yes	3.00	0.000	1.55	0.39	0.00	0.043	0.000	20.981	0.00	7.13
50.00	1-1/4" Coax	Yes	2.00	0.000	1.55	0.26	0.00	0.044	0.000	21.158	0.00	4.75
53.00	1-1/4" Coax	Yes	3.00	0.000	1.55	0.39	0.00	0.044	0.000	21.415	0.00	7.13
55.00	1-1/4" Coax	Yes	2.00	0.000	1.55	0.26	0.00	0.044	0.000	21.579	0.00	4.75
60.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.045	0.000	21.971	0.00	11.88
65.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.046	0.000	22.339	0.00	11.88
70.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.048	0.000	22.685	0.00	11.88
75.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.049	0.000	23.012	0.00	11.88
80.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.051	0.000	23.323	0.00	11.88
85.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.052	0.000	23.619	0.00	11.88
90.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.054	0.000	23.901	0.00	11.88
94.00	1-1/4" Coax	Yes	4.00	0.000	1.55	0.52	0.00	0.056	0.000	24.119	0.00	9.50
95.00	1-1/4" Coax	Yes	1.00	0.000	1.55	0.13	0.00	0.057	0.000	24.172	0.00	2.38
97.04	1-1/4" Coax	Yes	2.04	0.000	1.55	0.26	0.00	0.057	0.000	24.280	0.00	4.85
100.00	1-1/4" Coax	Yes	2.96	0.000	1.55	0.38	0.00	0.058	0.000	24.432	0.00	7.03
100.96	1-1/4" Coax	Yes	0.96	0.000	1.55	0.12	0.00	0.059	0.000	24.481	0.00	2.28
105.00	1-1/4" Coax	Yes	4.04	0.000	1.55	0.52	0.00	0.059	0.000	24.682	0.00	9.60
107.00	1-1/4" Coax	Yes	2.00	0.000	1.55	0.26	0.00	0.060	0.000	24.779	0.00	4.75
110.00	1-1/4" Coax	Yes	3.00	0.000	1.55	0.39	0.00	0.062	0.000	24.922	0.00	7.13
115.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.063	0.000	25.155	0.00	11.88
120.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.066	0.000	25.379	0.00	11.88
125.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.069	0.000	25.596	0.00	11.88
129.00	1-1/4" Coax	Yes	4.00	0.000	1.55	0.52	0.00	0.071	0.000	25.765	0.00	9.50
<b>Totals:</b>											<b>0.0</b>	<b>306.5</b>



## Calculated Forces

<b>Structure:</b> NY47416-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/10/2019
<b>Site Name:</b> Jim Reed Trucking	<b>Exposure:</b> C	
<b>Height:</b> 129.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 1.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 89 mph Wind

**Iterations** 25

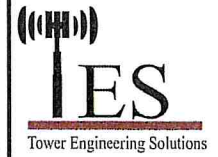
**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-24.44	-24.19	0.00	-2432.2	0.00	2432.20	2880.35	1440.17	5174.22	2590.95	0.00	0.000	0.000	0.947
5.00	-23.48	-23.98	0.00	-2311.2	0.00	2311.25	2842.78	1421.39	4997.79	2502.61	0.17	-0.323	0.000	0.932
10.00	-22.53	-23.76	0.00	-2191.3	0.00	2191.37	2804.19	1402.10	4822.50	2414.83	0.69	-0.650	0.000	0.916
15.00	-21.60	-23.54	0.00	-2072.5	0.00	2072.57	2764.60	1382.30	4648.46	2327.68	1.54	-0.980	0.000	0.899
20.00	-20.68	-23.30	0.00	-1954.8	0.00	1954.87	2723.98	1361.99	4475.78	2241.22	2.75	-1.314	0.000	0.880
25.00	-19.79	-23.04	0.00	-1838.3	0.00	1838.37	2682.35	1341.18	4304.59	2155.50	4.30	-1.651	0.000	0.861
30.00	-18.90	-22.77	0.00	-1723.1	0.00	1723.16	2639.71	1319.86	4135.01	2070.58	6.22	-1.990	0.000	0.840
35.00	-18.04	-22.49	0.00	-1609.2	0.00	1609.29	2596.06	1298.03	3967.14	1986.52	8.48	-2.331	0.000	0.817
40.00	-17.20	-22.20	0.00	-1496.8	0.00	1496.84	2551.38	1275.69	3801.10	1903.38	11.11	-2.673	0.000	0.793
45.00	-16.39	-21.88	0.00	-1385.8	0.00	1385.83	2505.70	1252.85	3637.02	1821.21	14.09	-3.016	0.000	0.768
48.00	-15.92	-21.69	0.00	-1320.1	0.00	1320.19	2477.80	1238.90	3539.56	1772.41	16.05	-3.224	0.000	0.752
50.00	-15.41	-21.57	0.00	-1276.8	0.00	1276.80	2459.00	1229.50	3475.00	1740.09	17.43	-3.364	0.000	0.740
53.00	-14.70	-21.36	0.00	-1212.1	0.00	1212.10	1826.96	913.48	2587.02	1295.43	19.61	-3.572	0.000	0.944
55.00	-14.37	-21.27	0.00	-1169.3	0.00	1169.39	1814.79	907.40	2541.98	1272.88	21.14	-3.711	0.000	0.927
60.00	-13.67	-20.96	0.00	-1063.0	0.00	1063.06	1783.67	891.84	2430.03	1216.82	25.23	-4.111	0.000	0.882
65.00	-12.99	-20.65	0.00	-958.25	0.00	958.25	1751.54	875.77	2319.13	1161.29	29.75	-4.505	0.000	0.833
70.00	-12.33	-20.34	0.00	-854.99	0.00	854.99	1718.39	859.19	2209.39	1106.34	34.67	-4.890	0.000	0.781
75.00	-11.69	-20.02	0.00	-753.29	0.00	753.29	1684.22	842.11	2100.92	1052.02	39.98	-5.262	0.000	0.724
80.00	-11.07	-19.70	0.00	-653.19	0.00	653.19	1649.04	824.52	1993.85	998.41	45.68	-5.618	0.000	0.662
85.00	-10.47	-19.37	0.00	-554.70	0.00	554.70	1612.85	806.42	1888.28	945.54	51.74	-5.954	0.000	0.594
90.00	-9.91	-19.04	0.00	-457.84	0.00	457.84	1575.64	787.82	1784.34	893.50	58.13	-6.264	0.000	0.519
94.00	-7.51	-15.69	0.00	-381.69	0.00	381.69	1545.14	772.57	1702.43	852.48	63.47	-6.491	0.000	0.453
95.00	-7.40	-15.62	0.00	-366.00	0.00	366.00	1537.42	768.71	1682.14	842.32	64.83	-6.545	0.000	0.440
97.04	-7.19	-15.49	0.00	-334.08	0.00	334.08	1521.50	760.75	1640.90	821.67	67.65	-6.652	0.000	0.412
100.00	-6.77	-15.26	0.00	-288.29	0.00	288.29	1498.18	749.09	1581.80	792.07	71.81	-6.796	0.000	0.369
100.96	-6.61	-15.20	0.00	-273.64	0.00	273.64	1031.84	515.92	1103.16	552.40	73.18	-6.841	0.000	0.503
105.00	-6.29	-14.93	0.00	-212.22	0.00	212.22	1013.36	506.68	1052.02	526.79	79.03	-7.008	0.000	0.410
107.00	-4.71	-11.26	0.00	-182.36	0.00	182.36	1003.96	501.98	1026.88	514.20	81.97	-7.100	0.000	0.360
110.00	-4.51	-11.07	0.00	-148.59	0.00	148.59	989.56	494.78	989.40	495.43	86.47	-7.222	0.000	0.305
115.00	-4.20	-10.74	0.00	-93.26	0.00	93.26	964.75	482.38	927.62	464.50	94.10	-7.381	0.000	0.206
120.00	-1.74	-4.15	0.00	-39.54	0.00	39.54	938.93	469.46	866.81	434.05	101.87	-7.479	0.000	0.093
125.00	-1.56	-3.85	0.00	-18.77	0.00	18.77	912.09	456.04	807.08	404.14	109.71	-7.528	0.000	0.048
129.00	0.00	-3.62	0.00	-3.36	0.00	3.36	889.89	444.94	760.16	380.64	116.01	-7.544	0.000	0.009

## Wind Loading - Shaft

<b>Structure:</b> NY47416-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/10/2019
<b>Site Name:</b> Jim Reed Trucking	<b>Exposure:</b> C	
<b>Height:</b> 129.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 1.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Iterations** 24

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	1.057	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.265	5.00	19.474	23.37	132.9	351.3	1226.6
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.344	5.00	19.149	22.98	130.6	366.1	1222.7
15.00		1.00	0.86	5.232	5.76	0.00	1.200	1.395	5.00	18.800	22.56	129.8	372.5	1210.3
20.00		1.00	0.91	5.540	6.09	0.00	1.200	1.434	5.00	18.441	22.13	134.9	374.7	1193.8
25.00		1.00	0.95	5.795	6.37	0.00	1.200	1.465	5.00	18.075	21.69	138.3	374.6	1175.0
30.00		1.00	0.99	6.013	6.61	0.00	1.200	1.491	5.00	17.705	21.25	140.5	372.9	1154.5
35.00		1.00	1.02	6.206	6.83	0.00	1.200	1.513	5.00	17.332	20.80	142.0	369.9	1132.8
40.00		1.00	1.05	6.378	7.02	0.00	1.200	1.533	5.00	16.957	20.35	142.8	366.1	1110.2
45.00		1.00	1.07	6.534	7.19	0.00	1.200	1.551	5.00	16.580	19.90	143.0	361.5	1086.9
48.00 Bot - Section 2		1.00	1.09	6.622	7.28	0.00	1.200	1.560	3.00	9.765	11.72	85.4	215.1	641.3
50.00		1.00	1.10	6.678	7.35	0.00	1.200	1.567	2.00	6.519	7.82	57.5	144.5	652.9
53.00 Top - Section 1		1.00	1.11	6.759	7.43	0.00	1.200	1.576	3.00	9.665	11.60	86.2	214.7	967.2
55.00		1.00	1.12	6.811	7.49	0.00	1.200	1.581	2.00	6.367	7.64	57.2	142.2	364.2
60.00		1.00	1.14	6.934	7.63	0.00	1.200	1.595	5.00	15.654	18.79	143.3	349.5	894.0
65.00		1.00	1.16	7.050	7.76	0.00	1.200	1.608	5.00	15.273	18.33	142.1	343.1	872.5
70.00		1.00	1.18	7.160	7.88	0.00	1.200	1.619	5.00	14.892	17.87	140.7	336.3	850.8
75.00		1.00	1.19	7.263	7.99	0.00	1.200	1.631	5.00	14.509	17.41	139.1	329.3	828.7
80.00		1.00	1.21	7.361	8.10	0.00	1.200	1.641	5.00	14.126	16.95	137.3	322.0	806.4
85.00		1.00	1.23	7.454	8.20	0.00	1.200	1.651	5.00	13.743	16.49	135.2	314.4	783.9
90.00		1.00	1.24	7.544	8.30	0.00	1.200	1.660	5.00	13.359	16.03	133.0	306.7	761.2
94.00 Appurtenance(s)		1.00	1.25	7.612	8.37	0.00	1.200	1.667	4.00	10.410	12.49	104.6	240.3	593.1
95.00		1.00	1.25	7.629	8.39	0.00	1.200	1.669	1.00	2.564	3.08	25.8	59.7	146.4
97.04 Bot - Section 3		1.00	1.26	7.663	8.43	0.00	1.200	1.673	2.04	5.191	6.23	52.5	120.7	296.0
100.00		1.00	1.27	7.711	8.48	0.00	1.200	1.678	2.96	7.492	8.99	76.3	174.2	613.5
100.96 Top - Section 2		1.00	1.27	7.726	8.50	0.00	1.200	1.679	0.96	2.403	2.88	24.5	56.3	196.9
105.00		1.00	1.28	7.790	8.57	0.00	1.200	1.686	4.04	9.960	11.95	102.4	231.3	482.9
107.00 Appurtenance(s)		1.00	1.29	7.821	8.60	0.00	1.200	1.689	2.00	4.837	5.80	49.9	113.2	235.0
110.00		1.00	1.29	7.866	8.65	0.00	1.200	1.693	3.00	7.141	8.57	74.1	166.7	346.1
115.00		1.00	1.31	7.939	8.73	0.00	1.200	1.701	5.00	11.594	13.91	121.5	269.3	559.3
120.00 Appurtenance(s)		1.00	1.32	8.010	8.81	0.00	1.200	1.708	5.00	11.209	13.45	118.5	260.6	539.4
125.00		1.00	1.33	8.079	8.89	0.00	1.200	1.715	5.00	10.823	12.99	115.4	251.8	519.3
129.00 Appurtenance(s)		1.00	1.34	8.132	8.95	0.00	1.200	1.720	4.00	8.380	10.06	90.0	195.7	401.6
<b>Totals:</b>									<b>129.00</b>			<b>3,447.4</b>		<b>23,865.4</b>



## Discrete Appurtenance Forces

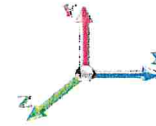
Structure: NY47416-A-SBA	Code: EIA/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor    1.20  
 Wind Load Factor    1.00



Iterations    24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	129.00	APXV9ERR18-C	3	8.145	8.960	0.72	0.90	23.27	542.67	0.000	1.000	208.51	0.00	208.51
2	129.00	TD-RRH8x20-25	3	8.145	8.960	0.67	1.00	9.75	577.71	0.000	1.000	87.36	0.00	87.36
3	129.00	2X50W RRH w/o Filter	3	8.145	8.960	0.67	1.00	7.04	324.54	0.000	1.000	63.09	0.00	63.09
4	129.00	1900 MHz 4X45 RRH	3	8.145	8.960	0.67	1.00	7.95	385.52	0.000	1.000	71.24	0.00	71.24
5	129.00	Low Profile Platform-flat	1	8.145	8.960	1.00	1.00	45.65	2172.25	0.000	1.000	408.96	0.00	408.96
6	129.00	ACU-A20-N	4	8.132	8.945	0.67	1.00	1.16	16.54	0.000	0.000	10.37	0.00	0.00
7	129.00	800 MHz ESMR Filter	3	8.132	8.945	0.50	1.00	1.11	103.51	0.000	0.000	9.93	0.00	0.00
8	129.00	APXVTM14-C-I20	3	8.145	8.960	0.69	0.90	15.46	675.35	0.000	1.000	138.52	0.00	138.52
9	120.00	Alcatel Lucent 9442 RRH	3	8.010	8.811	0.54	0.80	7.94	310.32	0.000	0.000	69.97	0.00	0.00
10	120.00	Nokia Airscale RRH 4T4R	3	8.010	8.811	0.54	0.80	2.82	276.98	0.000	0.000	24.88	0.00	0.00
11	120.00	Alcatel Lucent RRH	3	8.010	8.811	0.54	0.80	6.26	447.14	0.000	0.000	55.17	0.00	0.00
12	120.00	Commscope	6	8.010	8.811	0.59	0.80	66.87	2850.87	0.000	0.000	589.23	0.00	0.00
13	120.00	Raycap DC6-48-60-18-8F	1	8.010	8.811	0.90	0.90	1.21	80.97	0.000	0.000	10.70	0.00	0.00
14	120.00	Raycap DC6-48-60-18-8F	1	8.010	8.811	0.90	0.90	1.86	76.18	0.000	0.000	16.40	0.00	0.00
15	120.00	Nokia AHFIB 4T4R	3	8.010	8.811	0.74	0.90	9.86	534.84	0.000	0.000	86.90	0.00	0.00
16	120.00	Low Profile Platform	1	8.010	8.811	1.00	1.00	39.29	2781.09	0.000	0.000	346.15	0.00	0.00
17	120.00	RFS ATM19801712-0	6	8.010	8.811	0.40	0.80	4.48	265.02	0.000	0.000	39.51	0.00	0.00
18	120.00	Commscope	3	8.010	8.811	0.58	0.80	18.06	750.17	0.000	0.000	159.10	0.00	0.00
19	120.00	Kathrein 742 264	3	8.010	8.811	0.62	0.80	12.58	352.98	0.000	0.000	110.86	0.00	0.00
20	107.00	KRY 112 89/1	4	7.805	8.586	0.40	0.80	2.12	138.12	0.000	-1.000	18.18	0.00	-18.18
21	107.00	IBR 1300	1	7.821	8.603	0.80	0.80	0.80	23.88	0.000	0.000	6.92	0.00	0.00
22	107.00	MA0528-28AN	1	7.821	8.603	0.80	0.80	4.38	93.42	0.000	0.000	37.66	0.00	0.00
23	107.00	KRY 112 144/1	3	7.805	8.586	0.40	0.80	1.04	61.60	0.000	-1.000	8.96	0.00	-8.96
24	107.00	TMA-T-DB78-DD-A	1	7.821	8.603	0.80	0.80	1.55	72.61	0.000	0.000	13.35	0.00	0.00
25	107.00	AIR 21, 1.3M, B2A B4P	3	7.805	8.586	0.69	0.80	14.76	816.62	0.000	-1.000	126.70	0.00	-126.70
26	107.00	AIR 21, 1.3M, B4A B2P	3	7.805	8.586	0.69	0.80	14.76	812.66	0.000	-1.000	126.70	0.00	-126.70
27	107.00	APXVF24-C-A20	3	7.805	8.586	0.64	0.80	27.70	999.55	0.000	-1.000	237.85	0.00	-237.85
28	107.00	T-Arm (Round)	3	7.805	8.586	0.64	0.80	28.33	1759.30	0.000	-1.000	243.24	0.00	-243.24
29	107.00	S11B12	3	7.805	8.586	0.54	0.80	5.60	337.36	0.000	-1.000	48.05	0.00	-48.05
30	94.00	ALU - B25 RRH4x30-4R -	3	7.612	8.374	0.54	0.80	4.38	307.41	0.000	0.000	36.64	0.00	0.00
31	94.00	Raycap -	3	7.612	8.374	0.68	0.80	7.51	320.77	0.000	0.000	62.84	0.00	0.00
32	94.00	ALU - B13 RRH4X30-4R -	6	7.612	8.374	0.54	0.80	8.82	677.10	0.000	0.000	73.88	0.00	0.00
33	94.00	SBNHH-1D45A	6	7.612	8.374	0.58	0.80	29.17	1388.41	0.000	0.000	244.23	0.00	0.00
34	94.00	Low Profile	1	7.612	8.374	1.00	1.00	38.87	2750.47	0.000	0.000	325.50	0.00	0.00
35	94.00	ALU -	3	7.612	8.374	0.54	0.80	5.15	450.90	0.000	0.000	43.09	0.00	0.00
<b>Totals:</b>								<b>24,534.82</b>				<b>4,160.63</b>		

## Total Applied Force Summary

Structure: NY47416-A-SBA	Code: EIA/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20  
Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		132.85	1499.63	0.00	0.00
10.00		130.63	1498.87	0.00	0.00
15.00		129.83	1488.56	0.00	0.00
20.00		134.85	1473.70	0.00	0.00
25.00		138.26	1456.13	0.00	0.00
30.00		140.54	1436.73	0.00	0.00
35.00		141.98	1416.00	0.00	0.00
40.00		142.76	1394.25	0.00	0.00
45.00		143.01	1371.68	0.00	0.00
48.00		85.36	812.44	0.00	0.00
50.00		57.46	767.07	0.00	0.00
53.00		86.23	1138.73	0.00	0.00
55.00		57.24	478.67	0.00	0.00
60.00		143.29	1180.70	0.00	0.00
65.00		142.14	1159.83	0.00	0.00
70.00		140.74	1138.59	0.00	0.00
75.00		139.10	1117.04	0.00	0.00
80.00		137.26	1095.20	0.00	0.00
85.00		135.23	1073.11	0.00	0.00
90.00		133.03	1050.78	0.00	0.00
94.00	(22) attachments	890.80	6720.08	0.00	0.00
95.00		25.82	201.02	0.00	0.00
97.04		52.51	407.59	0.00	0.00
100.00		76.26	775.02	0.00	0.00
100.96		24.51	249.38	0.00	0.00
105.00		102.42	703.97	0.00	0.00
107.00	(25) attachments	917.54	5459.62	0.00	-809.68
110.00		74.14	468.63	0.00	0.00
115.00		121.51	763.83	0.00	0.00
120.00	(33) attachments	1627.38	9470.76	0.00	0.00
125.00		115.42	598.47	0.00	0.00
129.00	(23) attachments	1087.93	5263.26	0.00	977.67
<b>Totals:</b>		<b>7,608.02</b>	<b>55,129.34</b>	<b>0.00</b>	<b>167.99</b>



## Linear Appurtenance Segment Forces (Factored)

Structure: NY47416-A-SBA	Code: EIA/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20  
Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1-1/4" Coax	Yes	5.00	0.000	1.55	1.70	0.00	0.035	0.000	5.168	0.00	60.12
10.00	1-1/4" Coax	Yes	5.00	0.000	1.55	1.77	0.00	0.036	0.000	5.168	0.00	63.29
15.00	1-1/4" Coax	Yes	5.00	0.000	1.55	1.81	0.00	0.037	0.000	5.232	0.00	65.38
20.00	1-1/4" Coax	Yes	5.00	0.000	1.55	1.84	0.00	0.037	0.000	5.540	0.00	66.97
25.00	1-1/4" Coax	Yes	5.00	0.000	1.55	1.87	0.00	0.038	0.000	5.795	0.00	68.27
30.00	1-1/4" Coax	Yes	5.00	0.000	1.55	1.89	0.00	0.039	0.000	6.013	0.00	69.37
35.00	1-1/4" Coax	Yes	5.00	0.000	1.55	1.91	0.00	0.040	0.000	6.206	0.00	70.32
40.00	1-1/4" Coax	Yes	5.00	0.000	1.55	1.92	0.00	0.041	0.000	6.378	0.00	71.16
45.00	1-1/4" Coax	Yes	5.00	0.000	1.55	1.94	0.00	0.042	0.000	6.534	0.00	71.93
48.00	1-1/4" Coax	Yes	3.00	0.000	1.55	1.17	0.00	0.043	0.000	6.622	0.00	43.41
50.00	1-1/4" Coax	Yes	2.00	0.000	1.55	0.78	0.00	0.044	0.000	6.678	0.00	29.05
53.00	1-1/4" Coax	Yes	3.00	0.000	1.55	1.18	0.00	0.044	0.000	6.759	0.00	43.81
55.00	1-1/4" Coax	Yes	2.00	0.000	1.55	0.79	0.00	0.044	0.000	6.811	0.00	29.30
60.00	1-1/4" Coax	Yes	5.00	0.000	1.55	1.98	0.00	0.045	0.000	6.934	0.00	73.85
65.00	1-1/4" Coax	Yes	5.00	0.000	1.55	1.99	0.00	0.046	0.000	7.050	0.00	74.40
70.00	1-1/4" Coax	Yes	5.00	0.000	1.55	2.00	0.00	0.048	0.000	7.160	0.00	74.92
75.00	1-1/4" Coax	Yes	5.00	0.000	1.55	2.00	0.00	0.049	0.000	7.263	0.00	75.40
80.00	1-1/4" Coax	Yes	5.00	0.000	1.55	2.01	0.00	0.051	0.000	7.361	0.00	75.86
85.00	1-1/4" Coax	Yes	5.00	0.000	1.55	2.02	0.00	0.052	0.000	7.454	0.00	76.30
90.00	1-1/4" Coax	Yes	5.00	0.000	1.55	2.03	0.00	0.054	0.000	7.544	0.00	76.71
94.00	1-1/4" Coax	Yes	4.00	0.000	1.55	1.63	0.00	0.056	0.000	7.612	0.00	61.63
95.00	1-1/4" Coax	Yes	1.00	0.000	1.55	0.41	0.00	0.057	0.000	7.629	0.00	15.42
97.04	1-1/4" Coax	Yes	2.04	0.000	1.55	0.83	0.00	0.057	0.000	7.663	0.00	31.58
100.00	1-1/4" Coax	Yes	2.96	0.000	1.55	1.21	0.00	0.058	0.000	7.711	0.00	45.82
100.96	1-1/4" Coax	Yes	0.96	0.000	1.55	0.39	0.00	0.059	0.000	7.726	0.00	14.89
105.00	1-1/4" Coax	Yes	4.04	0.000	1.55	1.66	0.00	0.059	0.000	7.790	0.00	62.90
107.00	1-1/4" Coax	Yes	2.00	0.000	1.55	0.82	0.00	0.060	0.000	7.821	0.00	31.20
110.00	1-1/4" Coax	Yes	3.00	0.000	1.55	1.23	0.00	0.062	0.000	7.866	0.00	46.92
115.00	1-1/4" Coax	Yes	5.00	0.000	1.55	2.06	0.00	0.063	0.000	7.939	0.00	78.53
120.00	1-1/4" Coax	Yes	5.00	0.000	1.55	2.07	0.00	0.066	0.000	8.010	0.00	78.86
125.00	1-1/4" Coax	Yes	5.00	0.000	1.55	2.08	0.00	0.069	0.000	8.079	0.00	79.17
129.00	1-1/4" Coax	Yes	4.00	0.000	1.55	1.66	0.00	0.071	0.000	8.132	0.00	63.53
<b>Totals:</b>											<b>0.0</b>	<b>1,890.3</b>

## Calculated Forces

Structure: NY47416-A-SBA	Code: EIA/TIA-222-G	4/10/2019
Site Name: Jim Reéd Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Iterations 24

Dead Load Factor 1.20  
Wind Load Factor 1.00

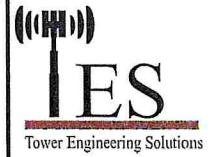


Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-55.12	-7.66	0.00	-790.24	0.00	790.24	2880.35	1440.17	5174.22	2590.95	0.00	0.000	0.000	0.324
5.00	-53.61	-7.62	0.00	-751.95	0.00	751.95	2842.78	1421.39	4997.79	2502.61	0.06	-0.105	0.000	0.319
10.00	-52.10	-7.59	0.00	-713.83	0.00	713.83	2804.19	1402.10	4822.50	2414.83	0.22	-0.211	0.000	0.314
15.00	-50.59	-7.55	0.00	-675.90	0.00	675.90	2764.60	1382.30	4648.46	2327.68	0.50	-0.319	0.000	0.309
20.00	-49.11	-7.49	0.00	-638.18	0.00	638.18	2723.98	1361.99	4475.78	2241.22	0.89	-0.428	0.000	0.303
25.00	-47.64	-7.44	0.00	-600.71	0.00	600.71	2682.35	1341.18	4304.59	2155.50	1.40	-0.538	0.000	0.296
30.00	-46.19	-7.37	0.00	-563.53	0.00	563.53	2639.71	1319.86	4135.01	2070.58	2.02	-0.649	0.000	0.290
35.00	-44.76	-7.30	0.00	-526.68	0.00	526.68	2596.06	1298.03	3967.14	1986.52	2.76	-0.760	0.000	0.282
40.00	-43.35	-7.22	0.00	-490.19	0.00	490.19	2551.38	1275.69	3801.10	1903.38	3.62	-0.872	0.000	0.275
45.00	-41.97	-7.12	0.00	-454.09	0.00	454.09	2505.70	1252.85	3637.02	1821.21	4.59	-0.985	0.000	0.266
48.00	-41.16	-7.06	0.00	-432.73	0.00	432.73	2477.80	1238.90	3539.56	1772.41	5.23	-1.053	0.000	0.261
50.00	-40.38	-7.03	0.00	-418.61	0.00	418.61	2459.00	1229.50	3475.00	1740.09	5.69	-1.099	0.000	0.257
53.00	-39.24	-6.96	0.00	-397.52	0.00	397.52	1826.96	913.48	2587.02	1295.43	6.40	-1.167	0.000	0.328
55.00	-38.75	-6.95	0.00	-383.60	0.00	383.60	1814.79	907.40	2541.98	1272.88	6.90	-1.213	0.000	0.323
60.00	-37.56	-6.87	0.00	-348.83	0.00	348.83	1783.67	891.84	2430.03	1216.82	8.24	-1.344	0.000	0.308
65.00	-36.39	-6.78	0.00	-314.48	0.00	314.48	1751.54	875.77	2319.13	1161.29	9.71	-1.473	0.000	0.292
70.00	-35.24	-6.69	0.00	-280.58	0.00	280.58	1718.39	859.19	2209.39	1106.34	11.33	-1.599	0.000	0.274
75.00	-34.11	-6.59	0.00	-247.15	0.00	247.15	1684.22	842.11	2100.92	1052.02	13.07	-1.722	0.000	0.255
80.00	-33.01	-6.48	0.00	-214.23	0.00	214.23	1649.04	824.52	1993.85	998.41	14.93	-1.838	0.000	0.235
85.00	-31.93	-6.37	0.00	-181.83	0.00	181.83	1612.85	806.42	1888.28	945.54	16.92	-1.948	0.000	0.212
90.00	-30.87	-6.25	0.00	-149.99	0.00	149.99	1575.64	787.82	1784.34	893.50	19.01	-2.050	0.000	0.188
94.00	-24.19	-5.13	0.00	-125.01	0.00	125.01	1545.14	772.57	1702.43	852.48	20.76	-2.124	0.000	0.162
95.00	-23.99	-5.11	0.00	-119.88	0.00	119.88	1537.42	768.71	1682.14	842.32	21.21	-2.142	0.000	0.158
97.04	-23.58	-5.06	0.00	-109.45	0.00	109.45	1521.50	760.75	1640.90	821.67	22.14	-2.177	0.000	0.149
100.00	-22.80	-4.96	0.00	-94.50	0.00	94.50	1498.18	749.09	1581.80	792.07	23.50	-2.224	0.000	0.135
100.96	-22.55	-4.94	0.00	-89.74	0.00	89.74	1031.84	515.92	1103.16	552.40	23.95	-2.239	0.000	0.184
105.00	-21.85	-4.83	0.00	-69.77	0.00	69.77	1013.36	506.68	1052.02	526.79	25.87	-2.294	0.000	0.154
107.00	-16.43	-3.70	0.00	-60.11	0.00	60.11	1003.96	501.98	1026.88	514.20	26.83	-2.324	0.000	0.133
110.00	-15.96	-3.62	0.00	-49.01	0.00	49.01	989.56	494.78	989.40	495.43	28.31	-2.365	0.000	0.115
115.00	-15.20	-3.48	0.00	-30.90	0.00	30.90	964.75	482.38	927.62	464.50	30.81	-2.417	0.000	0.082
120.00	-5.80	-1.45	0.00	-13.50	0.00	13.50	938.93	469.46	866.81	434.05	33.36	-2.450	0.000	0.037
125.00	-5.21	-1.31	0.00	-6.23	0.00	6.23	912.09	456.04	807.08	404.14	35.94	-2.466	0.000	0.021
129.00	0.00	-1.09	0.00	-0.98	0.00	0.98	889.89	444.94	760.16	380.64	38.01	-2.472	0.000	0.003



## Seismic Segment Forces (Factored)

Structure: NY47416-A-SBA	Code: EIA/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E				Iterations	23
Gust Response Factor	1.10	Sds	0.26	Ss	0.24
Dead Load Factor	1.20	Seismic Load Factor	1.00	S1	0.07
Wind Load Factor	0.00	Structure Frequency (f1)	0.31	SA	0.03
		Seismic Importance Factor			1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.01	0.00	0.00	
5.00		729.42	0.00	0.04	0.02	25.86	
10.00		713.80	0.01	0.06	0.03	32.08	
15.00		698.19	0.03	0.07	0.04	34.24	
20.00		682.57	0.05	0.07	0.04	34.87	
25.00		666.96	0.08	0.07	0.04	35.06	
30.00		651.34	0.11	0.07	0.04	35.24	
35.00		635.72	0.14	0.07	0.03	35.39	
40.00		620.11	0.19	0.06	0.02	35.16	
45.00		604.49	0.24	0.06	0.02	33.87	
48.00	Bot - Section 2	355.20	0.27	0.05	0.02	19.20	
50.00		423.66	0.29	0.05	0.01	21.93	
53.00	Top - Section 1	627.05	0.33	0.04	0.01	29.11	
55.00		184.98	0.35	0.03	0.01	7.66	
60.00		453.71	0.42	0.01	0.01	10.35	
65.00		441.22	0.49	-0.01	0.01	-1.32	
70.00		428.72	0.56	-0.04	0.01	-12.89	
75.00		416.23	0.65	-0.07	0.02	-21.19	
80.00		403.74	0.73	-0.10	0.04	-24.94	
85.00		391.25	0.83	-0.12	0.06	-24.36	
90.00		378.75	0.93	-0.12	0.10	-20.15	
94.00	Appurtenance(s)	2866.2	1.01	-0.11	0.14	-113.17	
95.00		72.25	1.03	-0.10	0.15	-2.54	
97.04	Bot - Section 3	146.08	1.08	-0.08	0.17	-3.70	
100.00		366.07	1.14	-0.04	0.21	-3.10	
100.96	Top - Section 2	117.21	1.16	-0.03	0.23	-0.28	
105.00		209.66	1.26	0.06	0.30	5.65	
107.00	Appurtenance(s)	2150.0	1.30	0.13	0.34	93.63	
110.00		149.49	1.38	0.24	0.41	10.64	
115.00		241.65	1.50	0.51	0.55	30.09	
120.00	Appurtenance(s)	3537.1	1.64	0.90	0.72	662.33	
125.00		222.91	1.78	1.43	0.94	57.88	
129.00	Appurtenance(s)	2273.1	1.89	1.98	1.14	738.19	
<b>Totals:</b>		<b>22,859.0</b>				<b>1,760.8</b>	<b>Total Wind: 24,119.6</b>

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

## Calculated Forces

Structure: NY47416-A-SBA	Code: EI/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.0E						Iterations	23	
Gust Response Factor		1.10		Sds		0.26		
Dead Load Factor		1.20		Seismic Load Factor		1.00		
Wind Load Factor		0.00		Structure Frequency (f1)		0.31		
				SA		0.03		
						Ss	0.24	
						S1	0.07	
						Seismic Importance Factor		1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-32.68	-2.00	0.00	-223.73	0.00	223.73	2880.35	1440.17	5174.22	2590.95	0.00	0.00	0.00	0.098
5.00	-31.57	-1.99	0.00	-213.75	0.00	213.75	2842.78	1421.39	4997.79	2502.61	0.02	-0.03	0.097	
10.00	-30.49	-1.97	0.00	-203.82	0.00	203.82	2804.19	1402.10	4822.50	2414.83	0.06	-0.06	0.095	
15.00	-29.42	-1.95	0.00	-193.97	0.00	193.97	2764.60	1382.30	4648.46	2327.68	0.14	-0.09	0.094	
20.00	-28.37	-1.93	0.00	-184.21	0.00	184.21	2723.98	1361.99	4475.78	2241.22	0.25	-0.12	0.093	
25.00	-27.34	-1.91	0.00	-174.57	0.00	174.57	2682.35	1341.18	4304.59	2155.50	0.40	-0.15	0.091	
30.00	-26.33	-1.88	0.00	-165.03	0.00	165.03	2639.71	1319.86	4135.01	2070.58	0.58	-0.19	0.090	
35.00	-25.34	-1.86	0.00	-155.61	0.00	155.61	2596.06	1298.03	3967.14	1986.52	0.79	-0.22	0.088	
40.00	-24.36	-1.83	0.00	-146.31	0.00	146.31	2551.38	1275.69	3801.10	1903.38	1.04	-0.25	0.086	
45.00	-23.41	-1.81	0.00	-137.14	0.00	137.14	2505.70	1252.85	3637.02	1821.21	1.32	-0.29	0.085	
48.00	-22.48	-1.79	0.00	-131.71	0.00	131.71	2477.80	1238.90	3539.56	1772.41	1.51	-0.31	0.084	
50.00	-22.24	-1.77	0.00	-128.13	0.00	128.13	2459.00	1229.50	3475.00	1740.09	1.64	-0.32	0.083	
53.00	-21.35	-1.75	0.00	-122.81	0.00	122.81	1826.96	913.48	2587.02	1295.43	1.85	-0.34	0.106	
55.00	-21.04	-1.75	0.00	-119.32	0.00	119.32	1814.79	907.40	2541.98	1272.88	1.99	-0.36	0.105	
60.00	-20.26	-1.75	0.00	-110.58	0.00	110.58	1783.67	891.84	2430.03	1216.82	2.39	-0.40	0.102	
65.00	-19.51	-1.75	0.00	-101.85	0.00	101.85	1751.54	875.77	2319.13	1161.29	2.83	-0.44	0.099	
70.00	-18.76	-1.76	0.00	-93.08	0.00	93.08	1718.39	859.19	2209.39	1106.34	3.31	-0.48	0.095	
75.00	-18.03	-1.77	0.00	-84.27	0.00	84.27	1684.22	842.11	2100.92	1052.02	3.83	-0.52	0.091	
80.00	-17.32	-1.77	0.00	-75.43	0.00	75.43	1649.04	824.52	1993.85	998.41	4.40	-0.56	0.086	
85.00	-16.62	-1.78	0.00	-66.56	0.00	66.56	1612.85	806.42	1888.28	945.54	5.01	-0.60	0.081	
90.00	-15.93	-1.78	0.00	-57.67	0.00	57.67	1575.64	787.82	1784.34	893.50	5.66	-0.64	0.075	
94.00	-12.31	-1.74	0.00	-50.55	0.00	50.55	1545.14	772.57	1702.43	852.48	6.21	-0.67	0.067	
95.00	-12.18	-1.74	0.00	-48.80	0.00	48.80	1537.42	768.71	1682.14	842.32	6.35	-0.68	0.066	
97.04	-11.92	-1.74	0.00	-45.24	0.00	45.24	1521.50	760.75	1640.90	821.67	6.64	-0.69	0.063	
100.00	-11.35	-1.74	0.00	-40.08	0.00	40.08	1498.18	749.09	1581.80	792.07	7.07	-0.71	0.058	
100.96	-11.17	-1.74	0.00	-38.41	0.00	38.41	1031.84	515.92	1103.16	552.40	7.22	-0.72	0.080	
105.00	-10.75	-1.73	0.00	-31.38	0.00	31.38	1013.36	506.68	1052.02	526.79	7.83	-0.74	0.070	
107.00	-8.09	-1.61	0.00	-27.92	0.00	27.92	1003.96	501.98	1026.88	514.20	8.15	-0.75	0.062	
110.00	-7.82	-1.60	0.00	-23.10	0.00	23.10	989.56	494.78	989.40	495.43	8.63	-0.77	0.055	
115.00	-7.39	-1.56	0.00	-15.12	0.00	15.12	964.75	482.38	927.62	464.50	9.45	-0.80	0.040	
120.00	-3.01	-0.84	0.00	-7.31	0.00	7.31	938.93	469.46	866.81	434.05	10.30	-0.81	0.020	
125.00	-2.73	-0.78	0.00	-3.11	0.00	3.11	912.09	456.04	807.08	404.14	11.15	-0.82	0.011	
129.00	0.00	-0.74	0.00	0.00	0.00	0.00	889.89	444.94	760.16	380.64	11.84	-0.83	0.000	



## Seismic Segment Forces (Factored)

Structure: NY47416-A-SBA	Code: EIA/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E				Iterations	23
Gust Response Factor	1.10	Sds	0.26	Ss	0.24
Dead Load Factor	0.90	Seismic Load Factor	1.00	S1	0.07
Wind Load Factor	0.00	Structure Frequency (f1)	0.31	SA	0.03
		Seismic Importance Factor	1.00		



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.01	0.00	0.00	
5.00		729.42	0.00	0.04	0.02	25.86	
10.00		713.80	0.01	0.06	0.03	32.08	
15.00		698.19	0.03	0.07	0.04	34.24	
20.00		682.57	0.05	0.07	0.04	34.87	
25.00		666.96	0.08	0.07	0.04	35.06	
30.00		651.34	0.11	0.07	0.04	35.24	
35.00		635.72	0.14	0.07	0.03	35.39	
40.00		620.11	0.19	0.06	0.02	35.16	
45.00		604.49	0.24	0.06	0.02	33.87	
48.00	Bot - Section 2	355.20	0.27	0.05	0.02	19.20	
50.00		423.66	0.29	0.05	0.01	21.93	
53.00	Top - Section 1	627.05	0.33	0.04	0.01	29.11	
55.00		184.98	0.35	0.03	0.01	7.66	
60.00		453.71	0.42	0.01	0.01	10.35	
65.00		441.22	0.49	-0.01	0.01	-1.32	
70.00		428.72	0.56	-0.04	0.01	-12.89	
75.00		416.23	0.65	-0.07	0.02	-21.19	
80.00		403.74	0.73	-0.10	0.04	-24.94	
85.00		391.25	0.83	-0.12	0.06	-24.36	
90.00		378.75	0.93	-0.12	0.10	-20.15	
94.00	Appurtenance(s)	2866.2	1.01	-0.11	0.14	-113.17	
95.00		72.25	1.03	-0.10	0.15	-2.54	
97.04	Bot - Section 3	146.08	1.08	-0.08	0.17	-3.70	
100.00		366.07	1.14	-0.04	0.21	-3.10	
100.96	Top - Section 2	117.21	1.16	-0.03	0.23	-0.28	
105.00		209.66	1.26	0.06	0.30	5.65	
107.00	Appurtenance(s)	2150.0	1.30	0.13	0.34	93.63	
110.00		149.49	1.38	0.24	0.41	10.64	
115.00		241.65	1.50	0.51	0.55	30.09	
120.00	Appurtenance(s)	3537.1	1.64	0.90	0.72	662.33	
125.00		222.91	1.78	1.43	0.94	57.88	
129.00	Appurtenance(s)	2273.1	1.89	1.98	1.14	738.19	
<b>Totals:</b>		<b>22,859.0</b>				<b>1,760.8</b>	<b>Total Wind: 24,119.6</b>

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

## Calculated Forces

<b>Structure:</b> NY47416-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/10/2019
<b>Site Name:</b> Jim Reed Trucking	<b>Exposure:</b> C	
<b>Height:</b> 129.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 1.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.0E						<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.26	<b>Ss</b>	0.24	
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.07	
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.31	<b>SA</b>	0.03	
<b>Seismic Importance Factor</b>						1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-24.51	-1.99	0.00	-219.96	0.00	219.96	2880.35	1440.17	5174.22	2590.95	0.00	0.00	0.00	0.093
5.00	-23.68	-1.98	0.00	-209.99	0.00	209.99	2842.78	1421.39	4997.79	2502.61	0.02	-0.03	0.092	
10.00	-22.86	-1.96	0.00	-200.09	0.00	200.09	2804.19	1402.10	4822.50	2414.83	0.06	-0.06	0.091	
15.00	-22.06	-1.94	0.00	-190.29	0.00	190.29	2764.60	1382.30	4648.46	2327.68	0.14	-0.09	0.090	
20.00	-21.28	-1.91	0.00	-180.61	0.00	180.61	2723.98	1361.99	4475.78	2241.22	0.25	-0.12	0.088	
25.00	-20.50	-1.89	0.00	-171.05	0.00	171.05	2682.35	1341.18	4304.59	2155.50	0.39	-0.15	0.087	
30.00	-19.75	-1.86	0.00	-161.62	0.00	161.62	2639.71	1319.86	4135.01	2070.58	0.57	-0.18	0.086	
35.00	-19.00	-1.83	0.00	-152.33	0.00	152.33	2596.06	1298.03	3967.14	1986.52	0.78	-0.22	0.084	
40.00	-18.27	-1.80	0.00	-143.17	0.00	143.17	2551.38	1275.69	3801.10	1903.38	1.02	-0.25	0.082	
45.00	-17.55	-1.78	0.00	-134.15	0.00	134.15	2505.70	1252.85	3637.02	1821.21	1.30	-0.28	0.081	
48.00	-17.13	-1.76	0.00	-128.82	0.00	128.82	2477.80	1238.90	3539.56	1772.41	1.48	-0.30	0.080	
50.00	-16.68	-1.74	0.00	-125.30	0.00	125.30	2459.00	1229.50	3475.00	1740.09	1.61	-0.31	0.079	
53.00	-16.01	-1.71	0.00	-120.08	0.00	120.08	1826.96	913.48	2587.02	1295.43	1.81	-0.33	0.101	
55.00	-15.78	-1.71	0.00	-116.66	0.00	116.66	1814.79	907.40	2541.98	1272.88	1.96	-0.35	0.100	
60.00	-15.20	-1.71	0.00	-108.11	0.00	108.11	1783.67	891.84	2430.03	1216.82	2.34	-0.39	0.097	
65.00	-14.63	-1.71	0.00	-99.57	0.00	99.57	1751.54	875.77	2319.13	1161.29	2.77	-0.43	0.094	
70.00	-14.07	-1.72	0.00	-91.01	0.00	91.01	1718.39	859.19	2209.39	1106.34	3.24	-0.47	0.090	
75.00	-13.52	-1.72	0.00	-82.42	0.00	82.42	1684.22	842.11	2100.92	1052.02	3.76	-0.51	0.086	
80.00	-12.98	-1.73	0.00	-73.80	0.00	73.80	1649.04	824.52	1993.85	998.41	4.31	-0.55	0.082	
85.00	-12.46	-1.73	0.00	-65.16	0.00	65.16	1612.85	806.42	1888.28	945.54	4.91	-0.59	0.077	
90.00	-11.95	-1.73	0.00	-56.51	0.00	56.51	1575.64	787.82	1784.34	893.50	5.55	-0.63	0.071	
94.00	-9.23	-1.70	0.00	-49.59	0.00	49.59	1545.14	772.57	1702.43	852.48	6.08	-0.65	0.064	
95.00	-9.13	-1.70	0.00	-47.88	0.00	47.88	1537.42	768.71	1682.14	842.32	6.22	-0.66	0.063	
97.04	-8.93	-1.71	0.00	-44.40	0.00	44.40	1521.50	760.75	1640.90	821.67	6.51	-0.68	0.060	
100.00	-8.51	-1.70	0.00	-39.36	0.00	39.36	1498.18	749.09	1581.80	792.07	6.93	-0.69	0.055	
100.96	-8.37	-1.70	0.00	-37.72	0.00	37.72	1031.84	515.92	1103.16	552.40	7.07	-0.70	0.076	
105.00	-8.06	-1.70	0.00	-30.84	0.00	30.84	1013.36	506.68	1052.02	526.79	7.68	-0.72	0.067	
107.00	-6.06	-1.58	0.00	-27.45	0.00	27.45	1003.96	501.98	1026.88	514.20	7.98	-0.74	0.059	
110.00	-5.86	-1.57	0.00	-22.72	0.00	22.72	989.56	494.78	989.40	495.43	8.45	-0.76	0.052	
115.00	-5.54	-1.53	0.00	-14.88	0.00	14.88	964.75	482.38	927.62	464.50	9.26	-0.78	0.038	
120.00	-2.26	-0.83	0.00	-7.21	0.00	7.21	938.93	469.46	866.81	434.05	10.09	-0.80	0.019	
125.00	-2.04	-0.77	0.00	-3.07	0.00	3.07	912.09	456.04	807.08	404.14	10.93	-0.81	0.010	
129.00	0.00	-0.74	0.00	0.00	0.00	0.00	889.89	444.94	760.16	380.64	11.60	-0.81	0.000	



## Wind Loading - Shaft

Structure: NY47416-A-SBA	Code: EIA/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00  
Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	205.96	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	201.63	0.650	0.000	5.00	18.420	11.97	98.0	0.0	729.4
10.00		1.00	0.85	7.442	8.19	197.30	0.650	0.000	5.00	18.029	11.72	95.9	0.0	713.8
15.00		1.00	0.86	7.534	8.29	194.15	0.650	0.000	5.00	17.637	11.46	95.0	0.0	698.2
20.00		1.00	0.91	7.978	8.78	195.30	0.650	0.000	5.00	17.246	11.21	98.4	0.0	682.6
25.00		1.00	0.95	8.345	9.18	195.16	0.650	0.000	5.00	16.854	10.96	100.6	0.0	667.0
30.00		1.00	0.99	8.659	9.53	194.13	0.650	0.000	5.00	16.463	10.70	101.9	0.0	651.3
35.00		1.00	1.02	8.936	9.83	192.47	0.650	0.000	5.00	16.071	10.45	102.7	0.0	635.7
40.00		1.00	1.05	9.184	10.10	190.31	0.650	0.000	5.00	15.680	10.19	103.0	0.0	620.1
45.00		1.00	1.07	9.410	10.35	187.76	0.650	0.000	5.00	15.288	9.94	102.9	0.0	604.5
48.00	Bot - Section 2	1.00	1.09	9.536	10.49	186.07	0.650	0.000	3.00	8.985	5.84	61.3	0.0	355.2
50.00		1.00	1.10	9.616	10.58	184.88	0.650	0.000	2.00	5.996	3.90	41.2	0.0	423.7
53.00	Top - Section 1	1.00	1.11	9.733	10.71	183.03	0.650	0.000	3.00	8.877	5.77	61.8	0.0	627.1
55.00		1.00	1.12	9.807	10.79	184.43	0.650	0.000	2.00	5.840	3.80	40.9	0.0	185.0
60.00		1.00	1.14	9.986	10.98	181.08	0.650	0.000	5.00	14.325	9.31	102.3	0.0	453.7
65.00		1.00	1.16	10.153	11.17	177.52	0.650	0.000	5.00	13.934	9.06	101.1	0.0	441.2
70.00		1.00	1.18	10.310	11.34	173.80	0.650	0.000	5.00	13.542	8.80	99.8	0.0	428.7
75.00		1.00	1.19	10.459	11.50	169.91	0.650	0.000	5.00	13.151	8.55	98.3	0.0	416.2
80.00		1.00	1.21	10.600	11.66	165.88	0.650	0.000	5.00	12.759	8.29	96.7	0.0	403.7
85.00		1.00	1.23	10.734	11.81	161.73	0.650	0.000	5.00	12.368	8.04	94.9	0.0	391.2
90.00		1.00	1.24	10.863	11.95	157.46	0.650	0.000	5.00	11.976	7.78	93.0	0.0	378.8
94.00	Appurtenance(s)	1.00	1.25	10.962	12.06	153.97	0.650	0.000	4.00	9.299	6.04	72.9	0.0	294.0
95.00		1.00	1.25	10.986	12.08	153.09	0.650	0.000	1.00	2.286	1.49	18.0	0.0	72.3
97.04	Bot - Section 3	1.00	1.26	11.035	12.14	151.27	0.650	0.000	2.04	4.621	3.00	36.5	0.0	146.1
100.00		1.00	1.27	11.104	12.21	148.62	0.650	0.000	2.96	6.665	4.33	52.9	0.0	366.1
100.96	Top - Section 2	1.00	1.27	11.126	12.24	147.75	0.650	0.000	0.96	2.135	1.39	17.0	0.0	117.2
105.00		1.00	1.28	11.218	12.34	146.21	0.650	0.000	4.04	8.825	5.74	70.8	0.0	209.7
107.00	Appurtenance(s)	1.00	1.29	11.262	12.39	144.37	0.650	0.000	2.00	4.274	2.78	34.4	0.0	101.5
110.00		1.00	1.29	11.327	12.46	141.58	0.650	0.000	3.00	6.294	4.09	51.0	0.0	149.5
115.00		1.00	1.31	11.432	12.58	136.87	0.650	0.000	5.00	10.177	6.62	83.2	0.0	241.6
120.00	Appurtenance(s)	1.00	1.32	11.534	12.69	132.08	0.650	0.000	5.00	9.785	6.36	80.7	0.0	232.3
125.00		1.00	1.33	11.633	12.80	127.23	0.650	0.000	5.00	9.394	6.11	78.1	0.0	222.9
129.00	Appurtenance(s)	1.00	1.34	11.710	12.88	123.31	0.650	0.000	4.00	7.233	4.70	60.6	0.0	171.6
<b>Totals:</b>									<b>129.00</b>			<b>2,445.7</b>		<b>12,831.8</b>

## Discrete Appurtenance Forces

<b>Structure:</b> NY47416-A-SBA	<b>Code:</b> EI/TIA-222-G	4/10/2019
<b>Site Name:</b> Jim Reed Trucking	<b>Exposure:</b> C	
<b>Height:</b> 129.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 1.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 24

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	129.00	APXV9ERR18-C	3	11.729	12.902	0.72	0.90	17.32	150.00	0.000	1.000	223.50	0.00	223.50
2	129.00	TD-RRH8x20-25	3	11.729	12.902	0.67	1.00	8.14	210.00	0.000	1.000	105.03	0.00	105.03
3	129.00	2X50W RRH w/o Filter	3	11.729	12.902	0.67	1.00	4.82	159.00	0.000	1.000	62.24	0.00	62.24
4	129.00	1900 MHz 4X45 RRH	3	11.729	12.902	0.67	1.00	5.45	180.00	0.000	1.000	70.28	0.00	70.28
5	129.00	Low Profile Platform-flat	1	11.729	12.902	1.00	1.00	25.00	1200.00	0.000	1.000	322.55	0.00	322.55
6	129.00	ACU-A20-N	4	11.710	12.881	0.67	1.00	0.38	4.00	0.000	0.000	4.83	0.00	0.00
7	129.00	800 MHz ESMR Filter	3	11.710	12.881	0.50	1.00	0.63	30.00	0.000	0.000	8.12	0.00	0.00
8	129.00	APXVTM14-C-I20	3	11.729	12.902	0.69	0.90	13.18	168.60	0.000	1.000	170.06	0.00	170.06
9	120.00	Alcatel Lucent 9442 RRH	3	11.534	12.688	0.54	0.80	5.68	132.00	0.000	0.000	72.02	0.00	0.00
10	120.00	Nokia Airscale RRH 4T4R	3	11.534	12.688	0.54	0.80	2.06	110.40	0.000	0.000	26.11	0.00	0.00
11	120.00	Alcatel Lucent RRH	3	11.534	12.688	0.54	0.80	5.08	210.00	0.000	0.000	64.47	0.00	0.00
12	120.00	Commscope	6	11.534	12.688	0.59	0.80	60.63	595.20	0.000	0.000	769.30	0.00	0.00
13	120.00	Raycap DC6-48-60-18-8F	1	11.534	12.688	0.90	0.90	0.83	31.80	0.000	0.000	10.51	0.00	0.00
14	120.00	Raycap DC6-48-60-18-8F	1	11.534	12.688	0.90	0.90	0.83	32.80	0.000	0.000	10.51	0.00	0.00
15	120.00	Nokia AHFIB 4T4R	3	11.534	12.688	0.74	0.90	8.15	264.60	0.000	0.000	103.38	0.00	0.00
16	120.00	Low Profile Platform	1	11.534	12.688	1.00	1.00	22.00	1500.00	0.000	0.000	279.13	0.00	0.00
17	120.00	RFS ATM19801712-0	6	11.534	12.688	0.40	0.80	2.69	114.00	0.000	0.000	34.11	0.00	0.00
18	120.00	Commscope	3	11.534	12.688	0.58	0.80	15.94	204.90	0.000	0.000	202.29	0.00	0.00
19	120.00	Kathrein 742 264	3	11.534	12.688	0.62	0.80	8.96	109.20	0.000	0.000	113.72	0.00	0.00
20	107.00	KRY 112 89/1	4	11.240	12.364	0.40	0.80	1.12	64.40	0.000	-1.000	13.85	0.00	-13.85
21	107.00	IBR 1300	1	11.262	12.388	0.80	0.80	0.54	8.90	0.000	0.000	6.64	0.00	0.00
22	107.00	MA0528-28AN	1	11.262	12.388	0.80	0.80	3.71	5.00	0.000	0.000	45.98	0.00	0.00
23	107.00	KRY 112 144/1	3	11.240	12.364	0.40	0.80	0.49	33.00	0.000	-1.000	6.08	0.00	-6.08
24	107.00	TMA-T-DB78-DD-A	1	11.262	12.388	0.80	0.80	1.14	36.40	0.000	0.000	14.17	0.00	0.00
25	107.00	AIR 21, 1.3M, B2A B4P	3	11.240	12.364	0.69	0.80	12.57	274.50	0.000	-1.000	155.41	0.00	-155.41
26	107.00	AIR 21, 1.3M, B4A B2P	3	11.240	12.364	0.69	0.80	12.57	271.20	0.000	-1.000	155.41	0.00	-155.41
27	107.00	APXVF24-C-A20	3	11.240	12.364	0.64	0.80	24.71	152.10	0.000	-1.000	305.51	0.00	-305.51
28	107.00	T-Arm (Round)	3	11.240	12.364	0.64	0.80	15.36	1050.00	0.000	-1.000	189.91	0.00	-189.91
29	107.00	S11B12	3	11.240	12.364	0.54	0.80	4.55	153.00	0.000	-1.000	56.26	0.00	-56.26
30	94.00	ALU - B25 RRH4x30-4R -	3	10.962	12.058	0.54	0.80	3.44	153.00	0.000	0.000	41.49	0.00	0.00
31	94.00	Raycap -	3	10.962	12.058	0.54	0.80	4.86	96.00	0.000	0.000	58.56	0.00	0.00
32	94.00	ALU - B13 RRH4X30-4R -	6	10.962	12.058	0.54	0.80	6.95	343.20	0.000	0.000	83.76	0.00	0.00
33	94.00	SBNHH-1D45A	6	10.962	12.058	0.58	0.80	25.37	303.00	0.000	0.000	305.90	0.00	0.00
34	94.00	Low Profile	1	10.962	12.058	1.00	1.00	22.00	1500.00	0.000	0.000	265.27	0.00	0.00
35	94.00	ALU -	3	10.962	12.058	0.54	0.80	4.08	177.00	0.000	0.000	49.25	0.00	0.00
<b>Totals:</b>								<b>10,027.20</b>				<b>4,405.58</b>		



## Total Applied Force Summary

Structure: NY47416-A-SBA	Code: EIA/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00  
Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		98.01	920.03	0.00	0.00
10.00		95.93	904.41	0.00	0.00
15.00		95.01	888.80	0.00	0.00
20.00		98.37	873.18	0.00	0.00
25.00		100.56	857.57	0.00	0.00
30.00		101.93	841.95	0.00	0.00
35.00		102.69	826.33	0.00	0.00
40.00		102.97	810.72	0.00	0.00
45.00		102.86	795.10	0.00	0.00
48.00		61.26	469.57	0.00	0.00
50.00		41.23	499.90	0.00	0.00
53.00		61.77	741.42	0.00	0.00
55.00		40.95	261.23	0.00	0.00
60.00		102.28	644.32	0.00	0.00
65.00		101.15	631.83	0.00	0.00
70.00		99.83	619.33	0.00	0.00
75.00		98.34	606.84	0.00	0.00
80.00		96.70	594.35	0.00	0.00
85.00		94.92	581.86	0.00	0.00
90.00		93.02	569.36	0.00	0.00
94.00	(22) attachments	877.11	3018.70	0.00	0.00
95.00		17.95	107.51	0.00	0.00
97.04		36.46	218.13	0.00	0.00
100.00		52.92	470.32	0.00	0.00
100.96		16.98	151.06	0.00	0.00
105.00		70.78	352.12	0.00	0.00
107.00	(25) attachments	983.64	2220.55	0.00	-882.43
110.00		50.97	220.41	0.00	0.00
115.00		83.19	359.85	0.00	0.00
120.00	(33) attachments	1766.24	3655.38	0.00	0.00
125.00		78.14	236.11	0.00	0.00
129.00	(23) attachments	1027.15	2283.74	0.00	953.65
	<b>Totals:</b>	<b>6,851.30</b>	<b>27,231.97</b>	<b>0.00</b>	<b>71.22</b>

## Linear Appurtenance Segment Forces (Factored)

Structure: NY47416-A-SBA	Code: EIA/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00  
Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.035	0.000	7.442	0.00	13.20
10.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.036	0.000	7.442	0.00	13.20
15.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.037	0.000	7.534	0.00	13.20
20.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.037	0.000	7.978	0.00	13.20
25.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.038	0.000	8.345	0.00	13.20
30.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.039	0.000	8.659	0.00	13.20
35.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.040	0.000	8.936	0.00	13.20
40.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.041	0.000	9.184	0.00	13.20
45.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.042	0.000	9.410	0.00	13.20
48.00	1-1/4" Coax	Yes	3.00	0.000	1.55	0.39	0.00	0.043	0.000	9.536	0.00	7.92
50.00	1-1/4" Coax	Yes	2.00	0.000	1.55	0.26	0.00	0.044	0.000	9.616	0.00	5.28
53.00	1-1/4" Coax	Yes	3.00	0.000	1.55	0.39	0.00	0.044	0.000	9.733	0.00	7.92
55.00	1-1/4" Coax	Yes	2.00	0.000	1.55	0.26	0.00	0.044	0.000	9.807	0.00	5.28
60.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.045	0.000	9.986	0.00	13.20
65.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.046	0.000	10.153	0.00	13.20
70.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.048	0.000	10.310	0.00	13.20
75.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.049	0.000	10.459	0.00	13.20
80.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.051	0.000	10.600	0.00	13.20
85.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.052	0.000	10.734	0.00	13.20
90.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.054	0.000	10.863	0.00	13.20
94.00	1-1/4" Coax	Yes	4.00	0.000	1.55	0.52	0.00	0.056	0.000	10.962	0.00	10.56
95.00	1-1/4" Coax	Yes	1.00	0.000	1.55	0.13	0.00	0.057	0.000	10.986	0.00	2.64
97.04	1-1/4" Coax	Yes	2.04	0.000	1.55	0.26	0.00	0.057	0.000	11.035	0.00	5.39
100.00	1-1/4" Coax	Yes	2.96	0.000	1.55	0.38	0.00	0.058	0.000	11.104	0.00	7.81
100.96	1-1/4" Coax	Yes	0.96	0.000	1.55	0.12	0.00	0.059	0.000	11.126	0.00	2.53
105.00	1-1/4" Coax	Yes	4.04	0.000	1.55	0.52	0.00	0.059	0.000	11.218	0.00	10.67
107.00	1-1/4" Coax	Yes	2.00	0.000	1.55	0.26	0.00	0.060	0.000	11.262	0.00	5.28
110.00	1-1/4" Coax	Yes	3.00	0.000	1.55	0.39	0.00	0.062	0.000	11.327	0.00	7.92
115.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.063	0.000	11.432	0.00	13.20
120.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.066	0.000	11.534	0.00	13.20
125.00	1-1/4" Coax	Yes	5.00	0.000	1.55	0.65	0.00	0.069	0.000	11.633	0.00	13.20
129.00	1-1/4" Coax	Yes	4.00	0.000	1.55	0.52	0.00	0.071	0.000	11.710	0.00	10.56
<b>Totals:</b>											<b>0.0</b>	<b>340.6</b>



## Calculated Forces

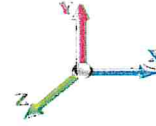
**Structure:** NY47416-A-SBA      **Code:** EIA/TIA-222-G      **4/10/2019**  
**Site Name:** Jim Reed Trucking      **Exposure:** C  
**Height:** 129.00 (ft)      **Crest Height:** 0.00  
**Base Elev:** 1.000 (ft)      **Site Class:** D - Stiff Soil  
**Gh:** 1.1      **Topography:** 1      **Struct Class:** II      **Page:** 32



**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 24

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-27.23	-6.87	0.00	-696.37	0.00	696.37	2880.35	1440.17	5174.22	2590.95	0.00	0.000	0.000	0.278
5.00	-26.30	-6.82	0.00	-662.00	0.00	662.00	2842.78	1421.39	4997.79	2502.61	0.05	-0.092	0.000	0.274
10.00	-25.38	-6.76	0.00	-627.91	0.00	627.91	2804.19	1402.10	4822.50	2414.83	0.20	-0.186	0.000	0.269
15.00	-24.48	-6.70	0.00	-594.11	0.00	594.11	2764.60	1382.30	4648.46	2327.68	0.44	-0.281	0.000	0.264
20.00	-23.60	-6.64	0.00	-560.60	0.00	560.60	2723.98	1361.99	4475.78	2241.22	0.79	-0.377	0.000	0.259
25.00	-22.73	-6.57	0.00	-527.40	0.00	527.40	2682.35	1341.18	4304.59	2155.50	1.23	-0.473	0.000	0.253
30.00	-21.88	-6.50	0.00	-494.55	0.00	494.55	2639.71	1319.86	4135.01	2070.58	1.78	-0.570	0.000	0.247
35.00	-21.04	-6.42	0.00	-462.05	0.00	462.05	2596.06	1298.03	3967.14	1986.52	2.43	-0.668	0.000	0.241
40.00	-20.22	-6.34	0.00	-429.94	0.00	429.94	2551.38	1275.69	3801.10	1903.38	3.18	-0.767	0.000	0.234
45.00	-19.42	-6.26	0.00	-398.22	0.00	398.22	2505.70	1252.85	3637.02	1821.21	4.04	-0.865	0.000	0.226
48.00	-18.94	-6.20	0.00	-379.45	0.00	379.45	2477.80	1238.90	3539.56	1772.41	4.60	-0.925	0.000	0.222
50.00	-18.44	-6.17	0.00	-367.04	0.00	367.04	2459.00	1229.50	3475.00	1740.09	5.00	-0.965	0.000	0.218
53.00	-17.69	-6.11	0.00	-348.52	0.00	348.52	1826.96	913.48	2587.02	1295.43	5.62	-1.025	0.000	0.279
55.00	-17.43	-6.09	0.00	-336.30	0.00	336.30	1814.79	907.40	2541.98	1272.88	6.06	-1.065	0.000	0.274
60.00	-16.77	-6.01	0.00	-305.85	0.00	305.85	1783.67	891.84	2430.03	1216.82	7.24	-1.180	0.000	0.261
65.00	-16.13	-5.93	0.00	-275.80	0.00	275.80	1751.54	875.77	2319.13	1161.29	8.54	-1.293	0.000	0.247
70.00	-15.50	-5.84	0.00	-246.17	0.00	246.17	1718.39	859.19	2209.39	1106.34	9.95	-1.404	0.000	0.232
75.00	-14.89	-5.75	0.00	-216.97	0.00	216.97	1684.22	842.11	2100.92	1052.02	11.48	-1.511	0.000	0.215
80.00	-14.29	-5.67	0.00	-188.20	0.00	188.20	1649.04	824.52	1993.85	998.41	13.12	-1.614	0.000	0.197
85.00	-13.70	-5.58	0.00	-159.87	0.00	159.87	1612.85	806.42	1888.28	945.54	14.86	-1.711	0.000	0.178
90.00	-13.13	-5.48	0.00	-131.98	0.00	131.98	1575.64	787.82	1784.34	893.50	16.70	-1.800	0.000	0.156
94.00	-10.13	-4.52	0.00	-110.05	0.00	110.05	1545.14	772.57	1702.43	852.48	18.24	-1.865	0.000	0.136
95.00	-10.02	-4.50	0.00	-105.53	0.00	105.53	1537.42	768.71	1682.14	842.32	18.63	-1.881	0.000	0.132
97.04	-9.80	-4.46	0.00	-96.33	0.00	96.33	1521.50	760.75	1640.90	821.67	19.44	-1.912	0.000	0.124
100.00	-9.33	-4.40	0.00	-83.14	0.00	83.14	1498.18	749.09	1581.80	792.07	20.64	-1.953	0.000	0.111
100.96	-9.18	-4.38	0.00	-78.91	0.00	78.91	1031.84	515.92	1103.16	552.40	21.03	-1.966	0.000	0.152
105.00	-8.83	-4.30	0.00	-61.21	0.00	61.21	1013.36	506.68	1052.02	526.79	22.72	-2.014	0.000	0.125
107.00	-6.64	-3.25	0.00	-52.60	0.00	52.60	1003.96	501.98	1026.88	514.20	23.57	-2.041	0.000	0.109
110.00	-6.42	-3.19	0.00	-42.86	0.00	42.86	989.56	494.78	989.40	495.43	24.86	-2.076	0.000	0.093
115.00	-6.06	-3.10	0.00	-26.90	0.00	26.90	964.75	482.38	927.62	464.50	27.06	-2.122	0.000	0.064
120.00	-2.48	-1.20	0.00	-11.40	0.00	11.40	938.93	469.46	866.81	434.05	29.30	-2.150	0.000	0.029
125.00	-2.24	-1.11	0.00	-5.40	0.00	5.40	912.09	456.04	807.08	404.14	31.56	-2.164	0.000	0.016
129.00	0.00	-1.03	0.00	-0.95	0.00	0.95	889.89	444.94	760.16	380.64	33.38	-2.169	0.000	0.003

## Final Analysis Summary

Structure: NY47416-A-SBA	Code: EIA/TIA-222-G	4/10/2019
Site Name: Jim Reed Trucking	Exposure: C	
Height: 129.00 (ft)	Crest Height: 0.00	
Base Elev: 1.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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### Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 89 mph Wind	24.2	0.00	32.61	0.00	0.00	2470.57
0.9D + 1.6W 89 mph Wind	24.2	0.00	24.44	0.00	0.00	2432.20
1.2D + 1.0Di + 1.0Wi 50 mph Wind	7.7	0.00	55.12	0.00	0.00	790.24
1.2D + 1.0E	2.0	0.00	32.68	0.00	0.00	223.73
0.9D + 1.0E	2.0	0.00	24.51	0.00	0.00	219.96
1.0D + 1.0W 60 mph Wind	6.9	0.00	27.23	0.00	0.00	696.37

### Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 89 mph Wind	-20.00	-21.72	0.00	-1239.2	0.00	-1239.2	1826.96	913.48	2587.02	1295.43	53.00	0.968
0.9D + 1.6W 89 mph Wind	-24.44	-24.19	0.00	-2432.2	0.00	-2432.2	2880.35	1440.1	5174.22	2590.95	0.00	0.947
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-39.24	-6.96	0.00	-397.52	0.00	-397.52	1826.96	913.48	2587.02	1295.43	53.00	0.328
1.2D + 1.0E	-21.35	-1.75	0.00	-122.81	0.00	-122.81	1826.96	913.48	2587.02	1295.43	53.00	0.106
0.9D + 1.0E	-16.01	-1.71	0.00	-120.08	0.00	-120.08	1826.96	913.48	2587.02	1295.43	53.00	0.101
1.0D + 1.0W 60 mph Wind	-17.69	-6.11	0.00	-348.52	0.00	-348.52	1826.96	913.48	2587.02	1295.43	53.00	0.279

## Base Plate Summary

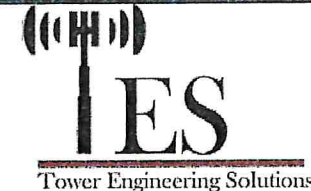
<b>Structure:</b> NY47416-A-SB	<b>Code:</b> EIA/TIA-222-G	4/10/2019
<b>Site Name:</b> Jim Reed Trucking	<b>Exposure:</b> C	
<b>Height:</b> 129.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 1.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Reactions	Base Plate	Anchor Bolts
Original Design	<b>Yield (ksi):</b> 60.00	<b>Bolt Circle:</b> 53.00
<b>Moment (kip-ft):</b> 1773.40	<b>Width (in):</b> 59.00	<b>Number Bolts:</b> 12.00
<b>Axial (kip):</b> 22.10	<b>Style:</b> Round	<b>Bolt Type:</b> 2.25" 18J
<b>Shear (kip):</b> 18.50	<b>Polygon Sides:</b> 0.00	<b>Bolt Diameter (in):</b> 2.25
Analysis	<b>Clip Length (in):</b> 0.00	<b>Yield (ksi):</b> 75.00
<b>Moment (kip-ft):</b> 2470.57	<b>Effective Len (in):</b> 15.21	<b>Ultimate (ksi):</b> 100.00
<b>Axial (kip):</b> 55.12	<b>Moment (kip-in):</b> 859.73	<b>Arrangement:</b> Radial
<b>Shear (kip):</b> 24.21	<b>Allow Stress (ksi):</b> 81.00	<b>Cluster Dist (in):</b> 0.00
	<b>Applied Stress (ksi):</b> 0.00	<b>Start Angle (deg):</b> 0.00
<b>Moment Design %:</b> 139.31	<b>Stress Ratio:</b> 0.67	<b>Compression</b>
		<b>Force (kip):</b> 191.05
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.75
		<b>Tension</b>
		<b>Force (kip):</b> 181.86
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.72



	<b>Pier Foundation Design For Monopole</b>			Date
				4/10/2019
	Customer Name:	AT&T	EIA/TIA Standard:	EIA-222-G
	Site Name:		Structure Height (Ft.):	129
	Site Number:	NY47416-A-SBA	Engineer Name:	J. Chen
Engr. Number:	73406	Engineer Login ID:		

**Foundation Info Obtained from:**

Drawings/Calculations

**Structure Type:**

Monopole

**Analysis or Design?**

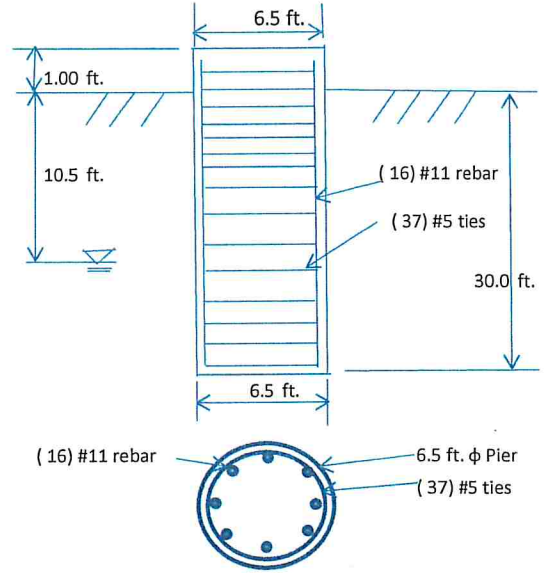
Analysis

**Base Reactions (Factored):**

Axial Load (Kips):	55.1	Shear Force (Kips):	24.2
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2470.6

**Foundation Geometries:**

Mods required -Yes/No ?:	No		ft.
Diameter of Pier (ft.):	6.5	Depth of Base B. G. S. :	30.0 ft.
Pier Height A. G. (ft.):	1.00		



**Monopole Pier Foundation**

**Material Properties and Rebar Info:**

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000 ksi
Vertical bar yield (ksi):	60	Tie steel yield strength:	60 ksi
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	5
Qty. of Vertical Rebars:	16	Tie Spacing:	12.0 in.
Concrete Cover (in.):	4	Concrete unit weight:	150.0 pcf

**Soil Design Parameters:**

Water Table B.G.S. (ft):	10.5	Unit weight of water:	62.4 psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30 (°)
Skin Frictions are to be obtained from:		Soil Report	

Depth of Layers (ft)		$\gamma_{soil}$ (pcf)	$\phi$ (°)	Cohesion (psf)	Ultimate Skin Friction (psf)	Ultimate Bearing (psf)	Soil Types						
Top	Bottom												
0.0	3.0	120	0	0	0	0	clay						
3.0	8.0	120	31	400	0	0	Silt						
8.0	12.0	120	31	0	0	3000	sand						
12.0	30.0	120	34	0	0	4000	sand						
30.0	35.0												

Soil weight increase Factor for bouyant soils (1.0 to 1.15): 1.1

**Foundation Analysis and Design:**

Uplift Strength Reduction Factor:	0.75	Soil Bearing Strength Reduction Factor:	0.75
Total Dry Soil Volume from Conical Failure (cu. Ft.):	9867	Dry Soil Weight from Conical Failure:	1184 Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	4830	Buoyant Soil Weight from Conical Failure (Kips):	229 Kips
Total Dry Concrete Volume (cu. Ft.):	382	Total Dry Concrete Weight:	57.2 Kips
Total Buoyant Concrete Volume (cu. Ft.):	647.1	Total Buoyant Concrete Weight:	56.68 Kips
Total Effective Concrete Weight (Kips):	113.9	Total Effective Soil Weight:	1413.2 Kips
Total Effective Vertical Load on Base (Kips):	96.5		

**Check Soil Capacities:**

Allowable Foundation Overturning Resistance (kips-ft):	12398.6	>	Design Factored Moment (kips-ft):	2953	Usage	0.24	OK!
Factor of Safety of Passive Soil Resistance against Moment:	4.20	OK!					

**Check the capacities of Reinforcing Concrete:**

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

**Reinforcing Concrete Pier:**

Vertical Steel Rebar Area (sq. in./each):	1.56	Tie / Stirrup Area (sq. in./each):	0.31	Usage	
Calculated Moment Capacity (Mn, Kips-Ft):	3917.8	>	Design Factored Moment (Mu, K-Ft):	2568.3	0.66 OK!
Calculated Shear Capacity (Kips):	816.9	>	Design Factored Shear (Kips):	192.9	0.24 OK!
Calculated Tension Capacity (Tn, Kips):	1347.8	>	Design Factored Tension (Tu Kips):	0.0	0.00 OK!
Calculated Compression Capacity (Pn, Kips):	8404	>	Design Factored Axial Load (Pu Kips):	55.1	0.01 OK!
Moment & Axial Strength Combination:	0.66	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.
Pier Reinforcement Ratio:	0.005		Reinforcement Ratio is too small		





**FA NUMBER: 10107983 / SITE ID: NYCNNY5524**  
**SITE NAME: ANNSVILLE**  
**4C PACE# MRNYC054850 / 5C PACE# MRNYC054869**  
**(LTE 4C 1900 / LTE 5C AWS3)**

5742 ALBANY POST ROAD  
 CORTLANDT MANOR, NY, 10567



Know what's below.  
 Call before you dig.



1777 SENTRY PARKWAY WEST  
 VEVA 17, SUITE 400  
 BLUE BELL, PA 19422  
 (267) 460-0122



BURTNER ENGINEERING SERVICES, PLLC  
 NY CERTIFICATION OF  
 AUTHORIZATION NO. 0010982  
 6095 MARSHALEE DRIVE, SUITE 300  
 ELK RIDGE, MD 21075  
 410-712-7092



ANNSVILLE  
 NYCNNY5524  
 FA #10107983  
 4C PACE #MRNYC054850  
 5C PACE #MRNYC054869  
 5742 ALBANY POST ROAD  
 CORTLANDT MANOR, NY 10567

**SITE INFORMATION**

SITE ADDRESS: 5742 ALBANY POST ROAD  
 CORTLANDT MANOR, NY, 10567

LATITUDE (NAD 83): 41.3068200°  
 LONGITUDE (NAD 83): -73.9280000°

GROUND ELEVATION: 8.0' (AMSL)

JURISDICTION: CORTLANDT TOWNSHIP  
 WESTCHESTER COUNTY

PARCEL/MAP NUMBER: 2289-022-016-00004-000-0002

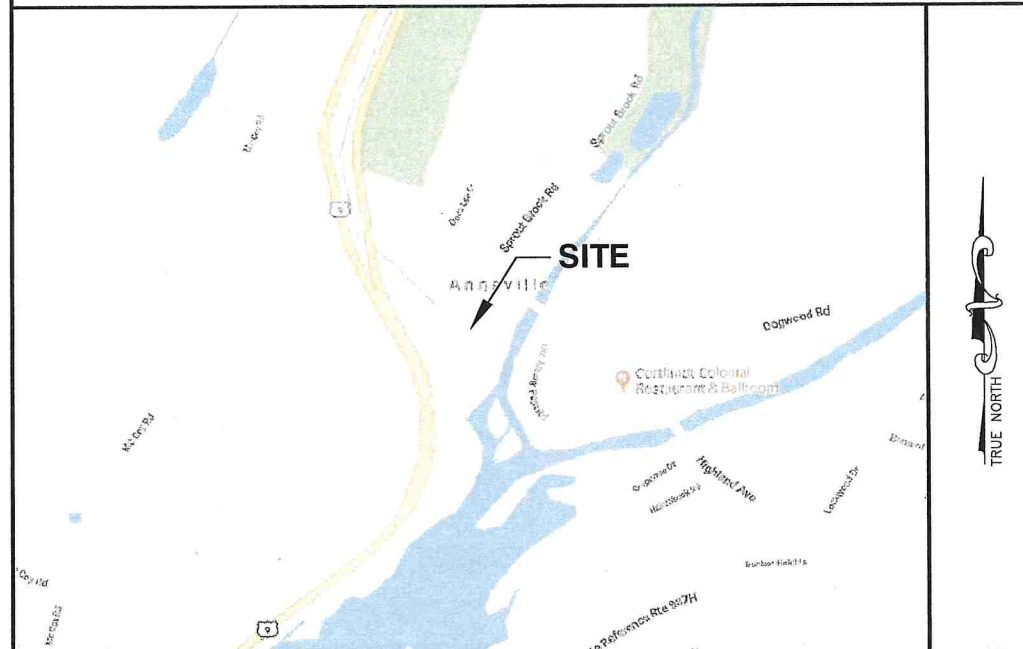
PARCEL OWNER: JAMES REED  
 5742 ALBANY POST RD  
 CORTLANDT MANOR, NY 10567

STRUCTURE TYPE: MONOPOLE

STRUCTURE HEIGHT: 130.0' (AGL)

TOWER OWNER: SBA 2012 TC ASSETS, LLC  
 8051 CONGRESS AVENUE  
 BOCA RATON, FL 33487-1307

**VICINITY MAP**



**DIRECTIONS**

FROM ONE AT&T WAY, BEDMINSTER, NJ 07921: SLIGHT RIGHT ONTO AT&T WAY, MERGE ONTO US-202 S/US-206 S, TURN LEFT ONTO SCHLEY MOUNTAIN RD, TAKE THE INTERSTATE 287 N RAMP, TAKE PALISADES INTERSTATE PKWY N TO US-202 E/US-6 E IN HIGHLANDS, MERGE ONTO I-287 E/I-87 S TOWARD TAPPAN ZEE BR/NEW YORK CITY, TAKE EXIT 13N FOR PALISADES PKWY N TOWARD BEAR MTN, CONTINUE STRAIGHT TO STAY ON PALISADES INTERSTATE PKWY N (SIGNS FOR US-6 E/PALISADES PKWY/W POINT/BEAR MOUNTAIN), CONTINUE ONTO US-6 E/PALISADES INTERSTATE PKWY N, CONTINUE ON US-202 E/US-6 E. DRIVE TO ALBANY POST RD IN CORTLANDT, ONTO US-202 E/US-6 E, AT ANNSVILLE CIR, TAKE THE 2ND EXIT ONTO U.S. 9 N, TURN RIGHT ONTO ROA HOOK RD, ROA HOOK RD TURNS RIGHT AND BECOMES ALBANY POST RD. DESTINATION WILL BE ON THE RIGHT

**CODE COMPLIANCE**

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

- 2015 INTERNATIONAL BUILDING CODE
- 2014 NATIONAL ELECTRICAL CODE
- 2009 NFPA 101, LIFE SAFETY CODE
- 2010 FIRE CODE OF NEW YORK STATE
- 2017 NYS UNIFORM CODE SUPPLEMENT
- 2015 INTERNATIONAL FIRE CODE
- AMERICAN CONCRETE INSTITUTE
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION
- MANUAL OF STEEL CONSTRUCTION 13TH EDITION
- ANSI/TIA-222-G
- TIA 607
- INSTITUTE FOR ELECTRICAL & ELECTRONICS ENGINEER 81
- IEEE C2 NATIONAL ELECTRIC SAFETY CODE LATEST EDITION
- TELECORDIA GR-1275
- ANSI/T 311

**DRAWING INDEX**

ANT-001.00	TITLE SHEET
ANT-002.00	GENERAL NOTES
ANT-003.00	COMPOUND PLAN & EQUIPMENT LAYOUT
ANT-004.00	ELEVATION & ANTENNA MOUNTING PLAN
ANT-005.00	DETAILS AND ANTENNA SCHEDULE
ANT-006.00	SYSTEM DIAGRAM & PANEL SCHEDULE
ANT-007.00	WIRING DIAGRAM
ANT-008.00	GROUNDING DIAGRAM & DETAILS

**DO NOT SCALE DRAWINGS**

THESE DRAWINGS ARE FORMATTED TO BE FULL-SIZE AT 22"X34". CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE DESIGNER / ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR MATERIAL ORDERS OR BE RESPONSIBLE FOR THE SAME. CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICE TO PREVENT STORM WATER POLLUTION DURING CONSTRUCTION.

**SCOPE OF WORK**

- THIS PROJECT CONSISTS OF:
- REPLACING (1) EXISTING ANTENNA MODEL SBNH-1D6565C WITH (1) PROPOSED ANTENNA MODEL NNHH-65C-R4.
  - REPLACING (2) EXISTING ANTENNA MODEL DBXNH-6565A-A2M WITH (2) PROPOSED ANTENNA MODEL NNHH-65A-R4.
  - INSTALLING (3) PROPOSED RRH MODEL AIRSCALE DUAL RRH 4T4 B25/B66A 320W AHFB AT AT&T ANTENNA LOCATION.
  - INSTALLING (1) PROPOSED EMERSON 512 POWER PLANT.
  - REMOVING (1) EXISTING GSM CABINET.

**PROJECT TEAM**

APPLICANT: AT&T MOBILITY CORPORATION  
 ONE AT&T WAY  
 BEDMINSTER, NJ 07921

PROJECT MANAGEMENT FIRM: NETWORK BUILDING + CONSULTING, LLC.  
 1777 SENTRY PARKWAY WEST  
 VEVA 17, SUITE 400  
 BLUE BELL, PA 19422  
 (267) 460-0122

A+E FIRM: NB&C ENGINEERING SERVICES, LLC.  
 1777 SENTRY PARKWAY WEST  
 VEVA 17, SUITE 400  
 BLUE BELL, PA 19422  
 (267) 460-0122

ENGINEER: BURTNER ENGINEERING SERVICES, PLLC  
 6095 MARSHALEE DRIVE, SUITE 300  
 ELK RIDGE, MD 21075  
 (410) 712-7092

PROJECT MANAGER

ENGINEER

APPLICANT

SITE INFORMATION

DESIGN RECORD

PROFESSIONAL STAMP

ENGINEER

SHEET TITLE

SHEET NUMBER

**REVISIONS**

REV	DATE	DESCRIPTION	BY
0	08/11/19	PERMIT READY	JMC
A	05/10/19	PRELIMINARY CDs	JMC



KRUPAKARAN KOLANDAIVELU, P.E.  
 STATE OF NEW YORK  
 PROFESSIONAL ENGINEER  
 LICENSE #091974

**TITLE SHEET**

**ANT-001.00**  
 1 OF 8



**ELECTRICAL NOTES**

- SUBMITTAL OF BID INDICATES THAT THE CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
- CONTRACTOR SHALL PERFORM ALL VERIFICATIONS, OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO ORDERING OF ANY EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE PROJECT MANAGER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
- VERIFY HEIGHTS WITH PROJECT MANAGER PRIOR TO INSTALLATION.
- THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE.
- CONTRACTOR SHALL COORDINATE ALL WORK BETWEEN TRADES AND ALL OTHER SCHEDULING AND PROVISIONARY CIRCUMSTANCES SURROUNDING THE PROJECT.
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR COMPLETE AND FUNCTIONALLY OPERATING SYSTEMS ENERGIZED AND READY FOR USE THROUGHOUT AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. ELECTRICAL MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION OVER THE CONSTRUCTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH ALL CURRENT APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU. ALL MATERIALS AND EQUIPMENT SHALL BE APPROVED FOR THEIR INTENDED USE AND LOCATION.
- ALL WORK SHALL COMPLY WITH ALL APPLICABLE GOVERNING STATE, COUNTY AND CITY CODES AND OSHA, NFPA, NEC & ASHRAE REQUIREMENTS.
- ENTIRE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE. ALL WORK, MATERIAL AND EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
- PROPERLY SEAL ALL PENETRATIONS. PROVIDE UL LISTED FIRE-STOPS WHERE PENETRATIONS ARE MADE THROUGH FIRE-RATED ASSEMBLIES. WATER-TIGHT USING SILICONE SEALANT.
- LOCATE ALL PENETRATIONS SUCH THAT ALL REINFORCEMENT CONTAINED WITHIN THE EXISTING BUILDING CONSTRUCTION REMAINS INTACT AND UNDISTURBED. SUBMIT LOCATING METHOD TO THE PROJECT MANAGER FOR APPROVAL PRIOR TO EXECUTION.
- DELIVER ALL BROCHURES, OPERATING MANUALS, CATALOGS AND SHOP DRAWINGS TO THE PROJECT MANAGER AT JOB COMPLETION. PROVIDE MAINTENANCE MANUALS FOR MECHANICAL EQUIPMENT. AFFIX MAINTENANCE LABELS TO MECHANICAL EQUIPMENT.
- ALL CONDUCTORS SHALL BE COPPER. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG., UNLESS OTHERWISE NOTED. CONDUCTORS SHALL BE TYPE THHW, RATED IN ACCORDANCE WITH NEC 110-14(C).
- ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN THE MAXIMUM INTERRUPTING CURRENT TO WHICH THEY MAY BE SUBJECTED.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ARTICLES 250 & 810 AND THE UTILITY COMPANY STANDARDS.
- CONDUIT:
  - RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
  - ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
  - LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE U.L. LISTED AND SHALL BE USED AT FINAL CONNECTIONS TO MECHANICAL EQUIPMENT & RECTIFIERS AND WHERE PERMITTED BY CODE. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL CONTAIN A FULL-SIZE GROUND CONDUCTOR.
  - CONDUIT RUNS SHALL BE SURFACE MOUNTED ON CEILINGS OR WALLS UNLESS NOTED OTHERWISE. ALL CONDUIT SHALL RUN PARALLEL OR PERPENDICULAR TO WALLS, FLOOR, CEILING, OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH THE PROJECT MANAGER PRIOR TO INSTALLING.
  - PVC CONDUIT MAY BE PROVIDED ONLY WHERE SHOWN, OR IN UNDERGROUND INSTALLATIONS. PROVIDE UV-RESISTANT CONDUIT WHERE EXPOSED TO THE ATMOSPHERE. PROVIDE GROUND CONDUCTOR IN ALL PVC RUNS; EXCEPT WHERE PERMITTED BY CODE TO OMIT.
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS. BACKGROUND SHALL BE BLACK WITH WHITE LETTERS; EXCEPT AS REQUIRED BY CODE TO FOLLOW A DIFFERENT SCHEME.
- UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.
- CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION. LEGALLY DISPOSE OF ALL REMOVED, UNUSED AND EXCESS MATERIAL GENERATED BY THE WORK OF THIS CONTRACT. DELIVER ITEMS INDICATED ON THE DRAWINGS TO THE OWNER IN GOOD CONDITION. OBTAIN SIGNED RECEIPT UPON DELIVERY.
- COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS SHALL BE PAID BY THE CONTRACTOR.
- VERIFY ALL EXISTING CIRCUITRY PRIOR TO REMOVAL AND NEW WORK. MAINTAIN POWER TO ALL OTHER AREAS & CIRCUITS NOT SCHEDULED FOR REMOVAL.
- ALL CONDUITS AND PIPING INSTALLATIONS SHALL BE COLOR-CODED WITH CONTINUOUS, DURABLE AND WEATHERPROOF REFLECTIVE OR LUMINESCENT MARKING AS FOLLOWS, AND FOR CONDUIT AND PIPING INSTALLED AFTER JULY 1, 2014, SHALL BE CONTINUOUSLY LABELED IN AN APPROVED MANNER TO INDICATE ITS CONTENTS:
  - HIGH VOLTAGE WIRING - RED
  - LOW VOLTAGE WIRING - ORANGE
  - NATURAL GAS PIPING - YELLOW
  - OTHER COMPRESSED GAS PIPING - YELLOW, LABELED AT REGULAR INTERVALS WITH THE TYPE OF GAS
  - FUEL OIL PIPING - YELLOW WITH BLACK STRIPES.

**DIVISION 01000 - GENERAL REQUIREMENTS**

**PART 1 - GENERAL**

- ALL WORK TO BE PERFORMED BY AT&T CERTIFIED INSTALLATION PERSONNEL MINIMUM OF TWO MEMBERS PER CREW.
- REFER TO AT&T STANDARD CONSTRUCTION SPECIFICATIONS. IN CASE OF A CONFLICT, AT&T STANDARD CONSTRUCTION SPECIFICATIONS (LATEST EDITION) SHALL BE FOLLOWED.

**PART 2 - GENERAL NOTES**

- THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
- THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
- THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) AT&T'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.
- THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
- THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS.
- THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS / CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- THE CONTRACTOR SHALL MAINTAIN A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUM'S OR CLARIFICATIONS AVAILABLE FOR THE USE OF ALL PERSONNEL INVOLVED WITH THE PROJECT.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
- THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING SITE CONDITIONS DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
- THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE ALL UNNECESSARY MATERIAL.
- THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE STATE BASIC BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT. 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 THE ARCHITECT/ENGINEER.
- THE CONTRACTOR SHALL NOTIFY AT&T'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL THE CONFLICT IS RESOLVED BY AT&T'S REPRESENTATIVE.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
- THE CONTRACTOR SHALL NOTIFY THE RF ENGINEER FOR ANTENNA AZIMUTH VERIFICATION (DURING ANTENNA INSTALLATION) PRIOR TO CONDUCTING SITE SIZING.
- THE GENERAL CONTRACTOR SHALL IN ALL INSTANCES CONFORM TO THE SPECIFICATIONS ISSUED BY AT&T.
- PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS OR RISERS THROUGH THE BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT STRUCTURAL ENGINEER'S APPROVAL. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE PACKED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE STRUCTURE. FILL FOR FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE FIRE AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.

**GENERAL PROJECT NOTES:**

- FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:  
OWNER - AT&T  
CONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
- ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS AS REQUIRED FOR BID AND CONSTRUCTION.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
- ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHED MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
- 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 THE OWNER.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK AREA, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED. 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: FALL PROTECTION, CONFINED SPACE, ELECTRICAL SAFETY AND TRENCHING & EXCAVATION.
- ALL EXISTING ACTIVE 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, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
- THE AREAS OF THE OWNER'S 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.
- THE CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
- THE CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
- THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE TELECOMMUNICATIONS EQUIPMENT.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR THE SITE SIGNAGE.
- THE CONTRACTOR SHALL DISPOSE OF ANY EQUIPMENT REMOVED AS PART OF THE WORK SHOWN IN THESE DRAWINGS IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS. ANTENNAS REMOVED SHALL BE RECYCLED WHERE FEASIBLE BY THE CONTRACTOR.

**PROJECT COMPLIANCE NOTES:**

- THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE AND IS NOT FOR HUMAN HABITAT. (NO HANDICAP ACCESS IS REQUIRED).
- OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
- NO NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS PROPOSAL.
- OUTDOOR STORAGE AND SOLID WASTE CONTAINERS ARE NOT PROPOSED.
- ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST AT&T SYSTEM GROUNDING STANDARDS. "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES", "TECHNICAL SPECIFICATION FOR FACILITY GROUNDING". IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED DURING CONSTRUCTION OPERATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION.
- THE CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
- INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM DRAWINGS PROVIDED BY THE APPLICANT REPRESENTATIVE. THE CONTRACTOR SHALL NOTIFY AT&T OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- NO ADDITIONAL PARKING IS PROPOSED. EXISTING ACCESS AND PARKING WILL BE USED.
- NO ADDITIONAL LANDSCAPING IS PROPOSED AT THIS SITE.
- ALL COAXIAL & FIBER CABLE INSTALLATION TO FOLLOW MANUFACTURER'S INSTRUCTIONS.
- ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL JURISDICTIONS COVERING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.
- TRANSMITTER EQUIPMENT AND ANTENNAS ARE DESIGNED TO MEET ANSI/EIA/TIA 222-G REQUIREMENTS.
- ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
- CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.

PROJECT MANAGER



ENGINEER

**BURTNER ENGINEERING SERVICES, PLLC**  
NY CERTIFICATION NO. 0010982  
6065 MARSHALLE DRIVE, SUITE 300  
ELK RIDGE, MD 21075  
410-712-7092

APPLICANT



SITE INFORMATION

ANNVILLE  
NYCNY5524  
FA #10107983  
4C PACE #MRNYC054850  
5C PACE #MRNYC054869  
5742 ALBANY POST ROAD  
CORTLANDT MANOR, NY 10567

DESIGN RECORD

REVISIONS			
REV	DATE	DESCRIPTION	BY
0	06/11/19	PERMIT READY	JMC
A	05/10/19	PRELIMINARY CDs	JMC

PROFESSIONAL STAMP



ENGINEER

KRUPAKARAN KOLANDAIVELU, P.E.  
STATE OF NEW YORK  
PROFESSIONAL ENGINEER  
LICENSE #091974

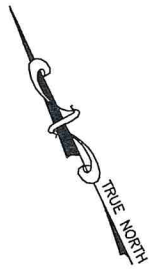
SHEET TITLE

**GENERAL NOTES**

SHEET NUMBER

**ANT-002.00**  
2 OF 8

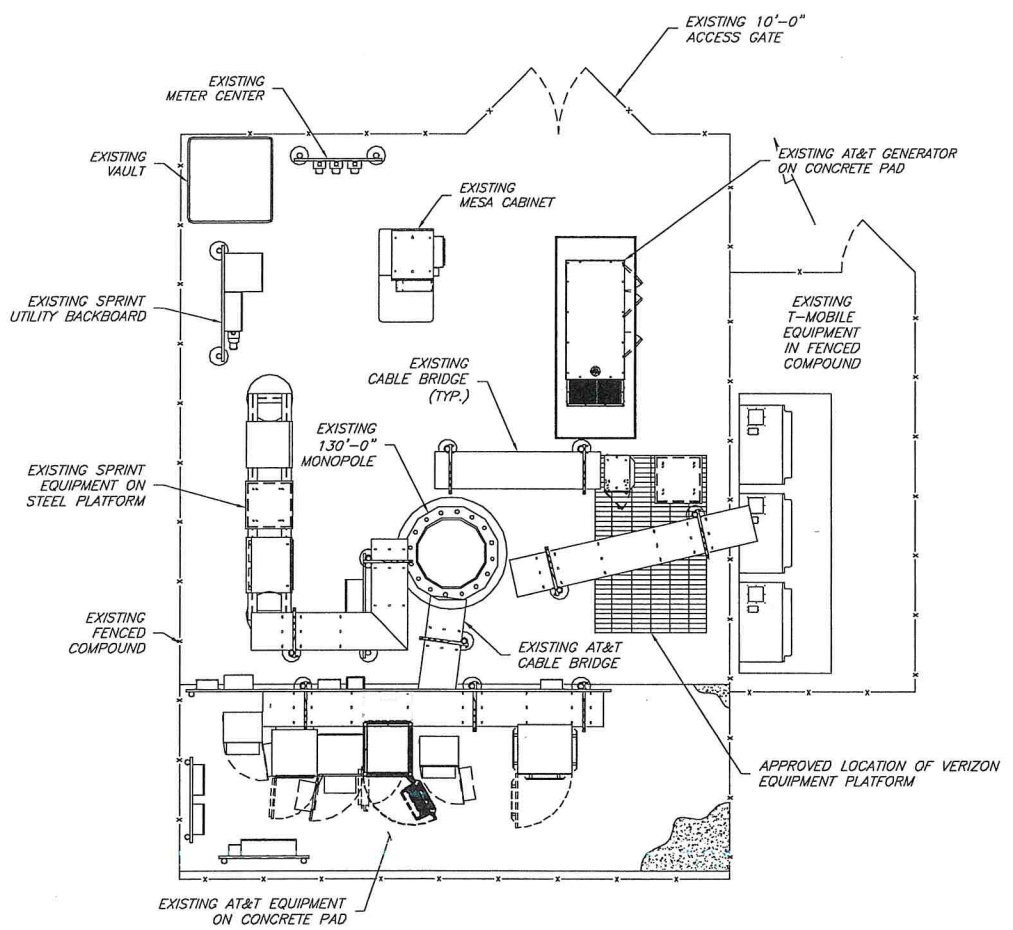




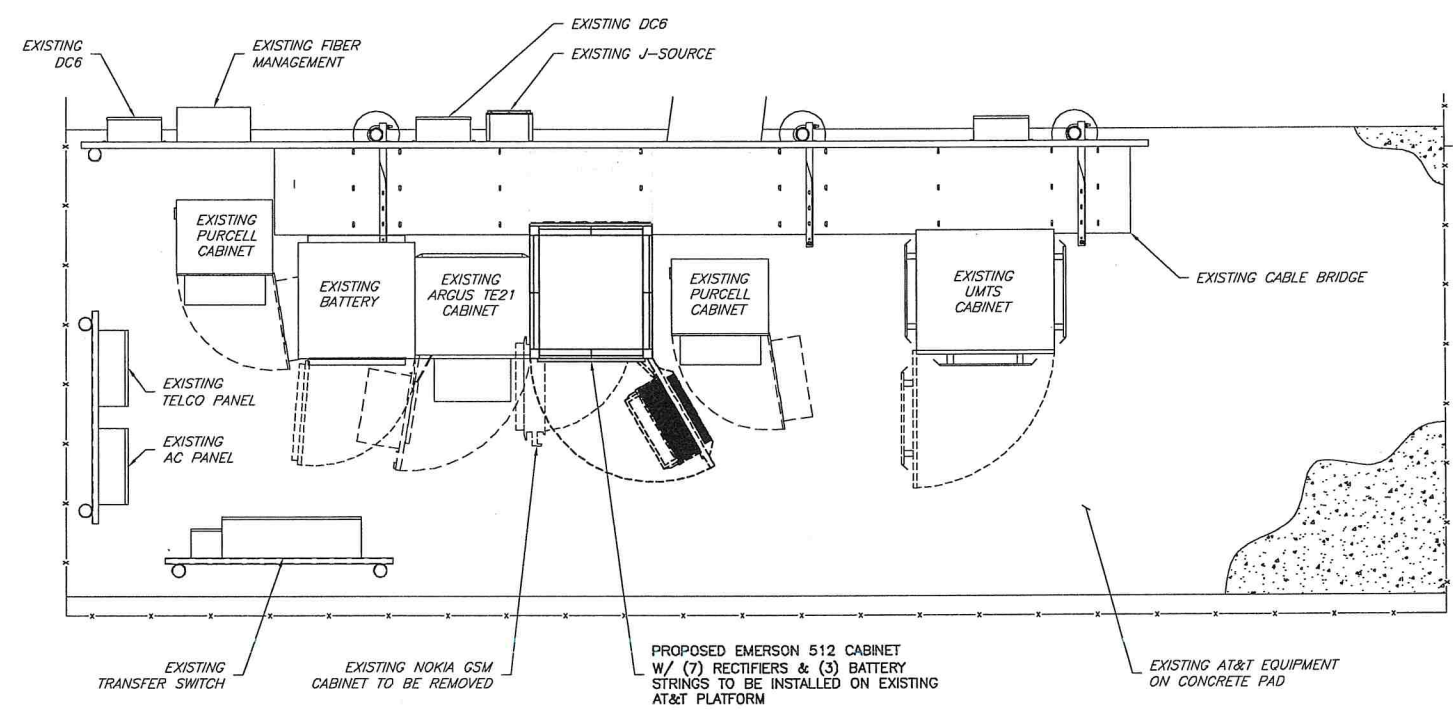
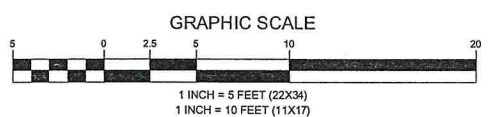
24V RECTIFIER INFO		-48V RECTIFIER INFO		-48V BATTERY INFO	
NO. OF REQUIRED 24V RECTIFIERS FOR 4C/5C SCOPE	2	NO. OF REQUIRED -48V RECTIFIERS FOR 4C/5C SCOPE	7	NO. OF REQUIRED -48V STRINGS FOR 4C/5C SCOPE	3
NO. OF EXISTING 24V RECTIFIERS	7	NO. OF EXISTING -48V RECTIFIERS	0	NO. OF EXISTING -48V STRINGS	0
NO. OF PROPOSED 24V RECTIFIERS	0	NO. OF PROPOSED -48V RECTIFIERS	7	NO. OF PROPOSED -48V STRINGS	3
NO. OF 24V RECTIFIERS TO BE REMOVED	0	NO. OF -48V RECTIFIERS TO BE REMOVED	0	NO. OF -48V STRINGS TO BE REMOVED	0

**NOTES:**

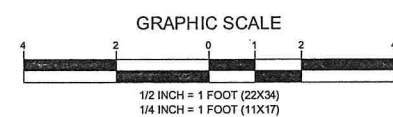
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
- ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
- SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR.
- THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
- SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
- ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
- ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
- ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.
- CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 24782-000-3AP5-A00Z-00002, GENERAL CONSTRUCTION SERVICES.
- SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALL WORK MAY BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
- SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.



**1 COMPOUND PLAN**  
 SCALE: 1" = 5' (22X34)  
 SCALE: 1" = 10' (11X17)



**2 EQUIPMENT LAYOUT**  
 SCALE: 1/2" = 1' (22X34)  
 SCALE: 1/4" = 1' (11X17)



PROJECT MANAGER	<b>NB+C</b> TOTALLY COMMITTED. 1777 SENTRY PARKWAY WEST NEWA 17, SUITE 100 BLUE BELL, PA 19422 (267) 486-0122												
ENGINEER	<b>BURTNER ENGINEERING SERVICES, PLLC</b> NY CERTIFICATION OF AUTHORIZATION NO. 0010982 6095 MARSHALEE DRIVE, SUITE 200 ELK RIDGE, MD 21075 410-712-7092												
APPLICANT													
SITE INFORMATION	ANNVILLE NYC NNY5524 FA #10107983 4C PACE #MRNYC054850 5C PACE #MRNYC054869 5742 ALBANY POST ROAD CORTLANDT MANOR, NY 10567												
DESIGN RECORD	<table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>08/11/19</td> <td>PERMIT READY</td> <td>JMC</td> </tr> <tr> <td>A</td> <td>05/10/19</td> <td>PRELIMINARY CDs</td> <td>JMC</td> </tr> </tbody> </table>	REV	DATE	DESCRIPTION	BY	0	08/11/19	PERMIT READY	JMC	A	05/10/19	PRELIMINARY CDs	JMC
REV	DATE	DESCRIPTION	BY										
0	08/11/19	PERMIT READY	JMC										
A	05/10/19	PRELIMINARY CDs	JMC										
PROFESSIONAL STAMP													
ENGINEER	KRUPAKARAN KOLANDAIVELU, P.E. STATE OF NEW YORK PROFESSIONAL ENGINEER LICENSE #091974												
SHEET TITLE	<b>COMPOUND PLAN &amp; EQUIPMENT LAYOUT</b>												
SHEET NUMBER	<b>ANT-003.00</b> 3 OF 8												







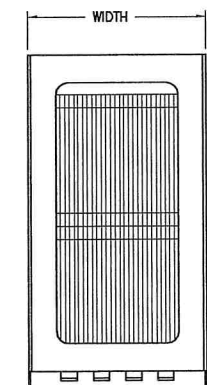
**GENERAL ANTENNA NOTES**

1. ALL ANTENNAS TO BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR TO COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH RF ENGINEER.
2. ANTENNA CENTERLINE HEIGHT IS IN REFERENCE TO ELEVATION 0.0'.
3. CHECK WITH RF ENGINEER FOR LATEST ANTENNA TYPE & AZIMUTH.
4. CONTRACTOR SHALL VERIFY ANTENNA TYPE AND AZIMUTH WITH CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.
5. ALL CABLE LENGTHS ARE ESTIMATED AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
6. COLOR TAPE MARKINGS MUST BE 3/4" WIDE AND UV RESISTANT, SUCH AS SCOTCH 35 VINYL ELECTRICAL COLOR CODING TAPE.
7. CONTRACTOR SHALL COORDINATE COLOR CODINGS IN THE FIELD WITH AT&T REPRESENTATIVE.
8. PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT OR MODIFICATION OF THE EXISTING STRUCTURE, A STRUCTURAL ANALYSIS SHALL BE PERFORMED BY THE OWNER'S AGENT TO CERTIFY THAT THE EXISTING/PROPOSED COMMUNICATION STRUCTURE AND COMPONENTS ARE STRUCTURALLY ADEQUATE TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, COAXIAL CABLES AND OTHER APPURTENANCES. THE OWNER'S AGENT SHALL FURNISH A CERTIFICATION LETTER SEALED BY A REGISTERED PROFESSIONAL ENGINEER STATING THAT THIS STRUCTURAL ANALYSIS WAS PREPARED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS.

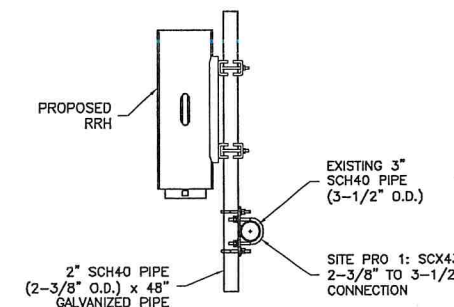
ANTENNA AND RRH SCHEDULE						
SECTOR	ANTENNA MODEL	TECHNOLOGY	AZIMUTH	ANTENNA HEIGHT	DIPLEXER/TMA MODEL	RRH MODEL
ALPHA	NNHH-65C-R4 (EXISTING ANTENNA TO REMAIN)	LTE WCS	110°	121'±	N/A	(1) RRH4x25-WCS-4R
	NNHH-65C-R4	* LTE 850	110°	121'±	N/A	* (1) RRH 4T4R B5
	NNHH-65C-R4 (EXISTING ANTENNA TO REMAIN)	** LTE 700 LTE 1900 / AWS3	110°	121'±	N/A	** (1) RRH2x40W-07L (1) RRH 4T4R B25/B66
	SBNHH-1D65A (EXISTING ANTENNA TO REMAIN)	UMTS	110°	121'±	(2) CBC819-DF-19-DCB (2) RFS DB TMA	-
BETA	NNHH-65A-R4 (EXISTING ANTENNA TO REMAIN)	LTE WCS	220°	121'±	N/A	(1) RRH4x25-WCS-4R
	NNHH-65A-R4	* LTE 850	220°	121'±	N/A	* (1) RRH 4T4R B5
	NNHH-65A-R4 (EXISTING ANTENNA TO REMAIN)	** LTE 700 LTE 1900 / AWS3	220°	121'±	N/A	** (1) RRH2x40W-07L (1) RRH 4T4R B25/B66
	SBNHH-1D65A (EXISTING ANTENNA TO REMAIN)	UMTS	220°	121'±	(2) CBC819-DF-19-DCB (2) RFS DB TMA	-
GAMMA	NNHH-65A-R4 (EXISTING ANTENNA TO REMAIN)	LTE WCS	350°	121'±	N/A	(1) RRH4x25-WCS-4R
	NNHH-65A-R4	* LTE 850	350°	121'±	N/A	* (1) RRH 4T4R B5
	NNHH-65A-R4 (EXISTING ANTENNA TO REMAIN)	** LTE 700 LTE 1900 / AWS3	350°	121'±	N/A	** (1) RRH2x40W-07L (1) RRH 4T4R B25/B66
	742-264 (EXISTING ANTENNA TO REMAIN)	UMTS	350°	121'±	(2) CBC819-DF-19-DCB (2) RFS DB TMA	-

**NOTE:**  
 \* LTE 850 MOVES FROM POSITION 3 TO POSITION 2.  
 \*\* LTE 700 MOVES FROM POSITION 2 TO POSITION 3.

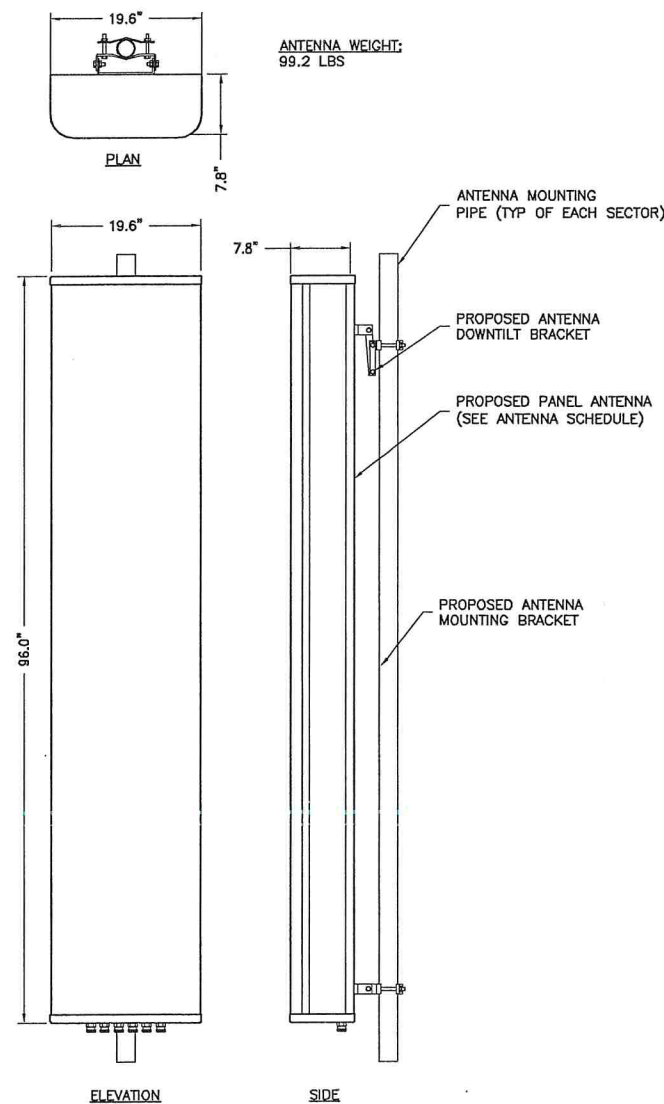
RRH	WIDTH	DEPTH	HEIGHT	WEIGHT
DUAL AIRSCALE RRH 4T4R B25/B66 320W AHFIB	15.35"	9.44"	28.74"	88.1 LBS



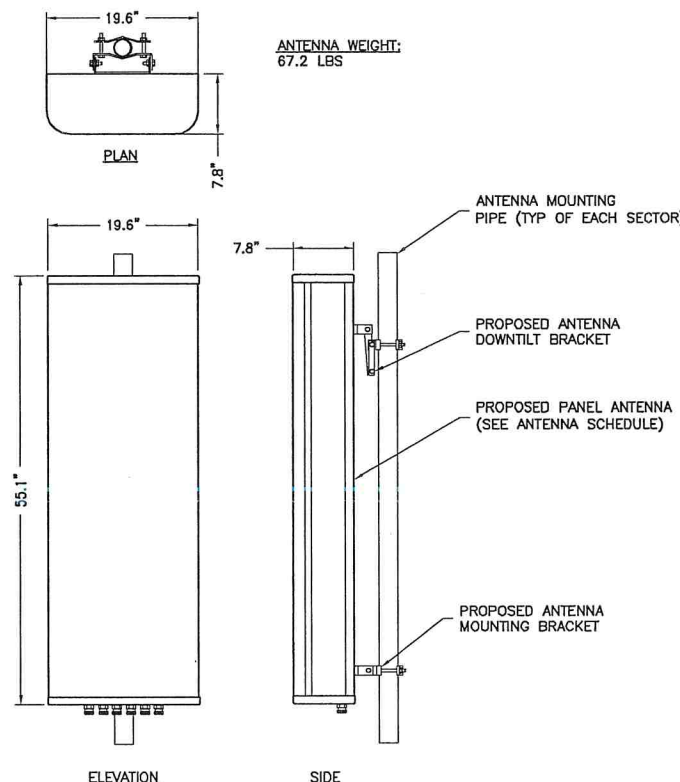
3 REMOTE RADIO HEAD (RRH)  
 A05 NTS



4 RRH MOUNTING DETAIL  
 A02 NTS



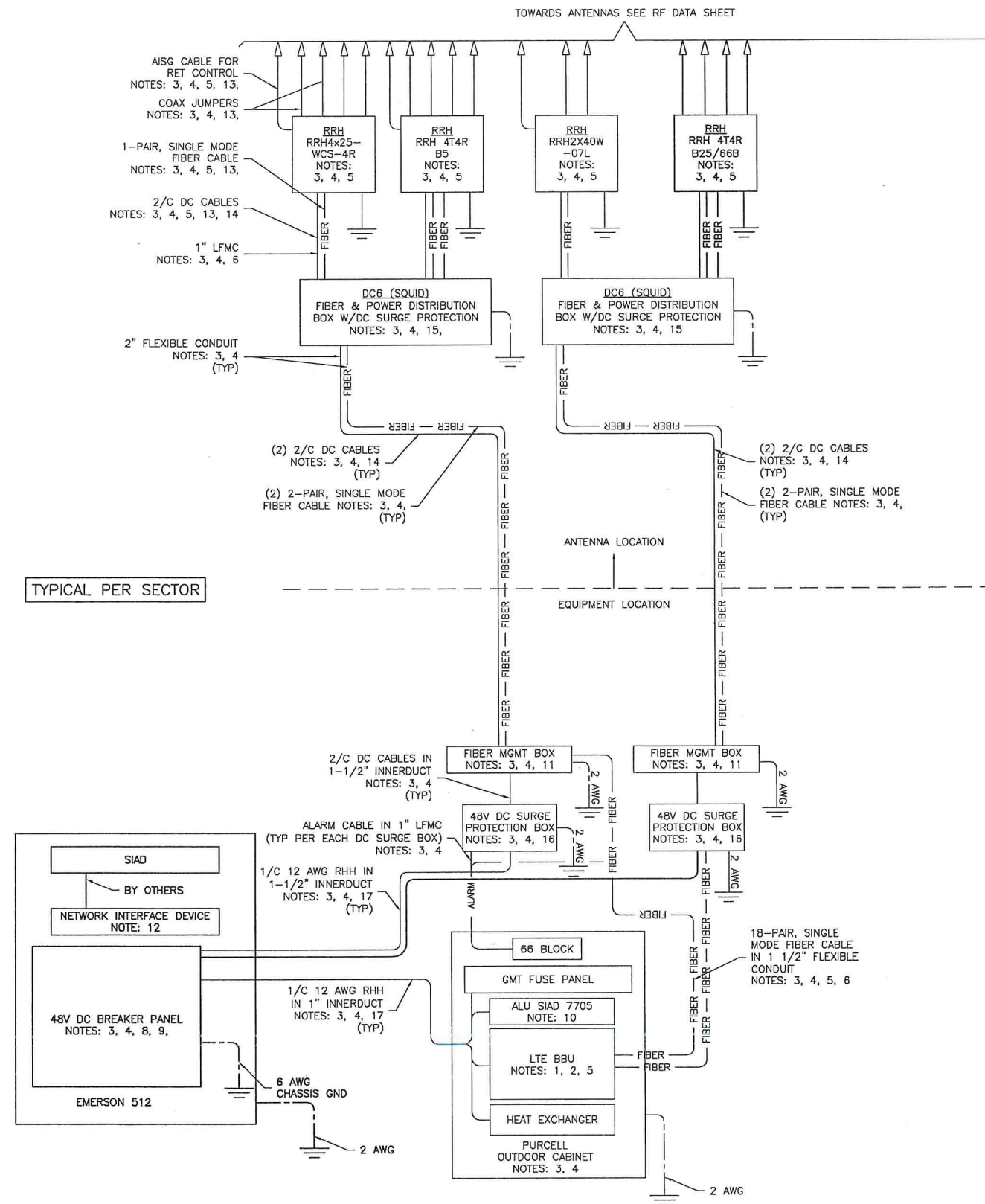
1 NNHH-65C-R4 ANTENNA DETAILS  
 A05 NTS



2 NNHH-65A-R4 ANTENNA DETAILS  
 A05 NTS

PROJECT MANAGER	<b>NB+C</b> TOTALLY COMMITTED. 1777 SENTRY PARKWAY WEST VEVA 17, SUITE 400 BLUE BELL, PA 19422 (267) 460-0122												
ENGINEER	<b>BURTNER ENGINEERING SERVICES, PLLC</b> NY CERTIFICATION OF AUTHORIZATION NO. 0010982 8095 MARSHALLEE DRIVE, SUITE 300 ELK RIDGE, MD 21079 410-712-7092												
APPLICANT	<b>at&amp;t</b> mobility corp.												
SITE INFORMATION	ANNSVILLE NYCNY5524 FA #10107983 4C PACE #MRNYC054850 5C PACE #MRNYC054869 5742 ALBANY POST ROAD CORTLANDT MANOR, NY 10567												
DESIGN RECORD	<b>REVISIONS</b>												
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PROFESSIONAL STAMP													
ENGINEER	KRUPAKARAN KOLANDAIVELU, P.E. STATE OF NEW YORK PROFESSIONAL ENGINEER LICENSE #091974												
SHEET TITLE	<b>DETAILS AND ANTENNA SCHEDULE</b>												
SHEET NUMBER	<b>ANT-005.00</b> 5 OF 8												





TYPICAL PER SECTOR

NOTES:

- FURNISHED BY OEM/AT&T.
- INSTALLED BY OEM OR AS SCOPED BY MARKET.
- FURNISHED BY OTHERS
- INSTALLED BY OTHERS
- FINAL CONNECTION BY OEM OR AS SCOPED BY MARKET.
- OPEN END OF LFMC TO BE LEFT WEATHERPROOFED UNTIL TERMINATED.
- ARGUS 053-997-20-000 DUAL FEED DC-DC CONVERTER WITH 012-526-20-040 MODULES.
- PART OF CONVERTER WITH 18 BREAKER POSITIONS. BREAKERS SPECIFIED SOLD SEPARATELY.
- BREAKERS TO BE TAGGED AND LOCKED OUT.
- SIAD IS FURNISHED AND INSTALLED BY OTHERS AND INCLUDES POWER CONNECTIONS AND FIBER TO THE UNIT OR AS SCOPED BY MARKET. INSTALL 10 AWG CHASSIS GROUND, PROVIDE (2) 10A BREAKERS FROM A 24V DC POWER SOURCE OR (2) 5A BREAKERS FROM A 48V DC POWER SOURCE AND CONNECT USING MFR POWER CABLE WITH SPECIAL CONNECTOR.
- FIBER MANAGEMENT BOX IS RAYCAP MODEL FB-15-BOX.
- LEC TO FURNISH AND INSTALL NETWORK INTERFACE DEVICE.
- LEAVE COILED AND PROTECTED UNTIL TERMINATED.
- SEE DETAIL 140B FOR DC POWER CABLE SIZES.
- FIBER AND POWER DISTRIBUTION BOX 4/48V SURGE SHALL BE RAYCAP MODEL DC2-48-60-0-9E.
- FIBER AND POWER DISTRIBUTION W/DC SURGE PROTECTION BOX SHALL BE RAYCAP MODEL DC6-48-60-18.
- SINGLE-CONDUCTOR DC POWER CABLES SHALL BE TELCOFLEX OR KS24194, COPPER, UL LISTED RHH NON-HALOGEN, LOW SMOKE WITH BRAIDED COVER, TYPE TC (1/0 AND LARGER). UNLESS OTHERWISE NOTED, STRANDING SHALL BE CLASS B (TYPE III) FOR CABLES SIZES 14, 12 & 10 AWG AND CLASS 1 (TYPE IV) FOR SIZES 8 AWG AND LARGER. CABLES SHALL BE COLOR CODED RED FOR +24V, BLUE FOR -48V AND GRAY FOR 24V AND 48V RETURN CONDUCTORS. MULTI-CONDUCTOR DC POWER CABLES SHALL COPPER, CLASS B STRANDED WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90°C DRY/ 75°C WET INSTALLATION.
- 10A FUSE FOR HEAT EXCHANGER FURNISHED AND INSTALLED BY OTHERS.
- DELETED
- GROUNDING WIRES SHALL BE COPPER. GREEN THHN/THWN UL LISTED FOR 90°C DRY/75°C WET INSTALLATION. MINIMUM SIZE IS 6 AWG UNLESS NOTED OTHERWISE.
- RET CONTROL FROM THE RRH IS AN OPTIONAL METHOD OF CONNECTION. REFER TO RF DATA SHEET FOR APPLICABILITY.
- MAXIMUM 4/0 AWG CABLE LENGTH FROM 24V DC POWER PLANT TO CONVERTER SHALL NOT EXCEED 44 FT.

1 SYSTEM DIAGRAM  
A06 NTS

PROJECT MANAGER



ENGINEER

BURTNER ENGINEERING SERVICES, PLLC  
NY CERTIFICATION OF AUTHORIZATION NO. 0010982  
6956 MARSHALEE DRIVE, SUITE 200  
ELK RIDGE, MD 21075  
410-712-7092

APPLICANT



SITE INFORMATION

ANNVILLE  
NYCNY5524  
FA #10107983  
4C PACE #MRNYC054850  
5C PACE #MRNYC054869  
5742 ALBANY POST ROAD  
CORTLANDT MANOR, NY 10567

DESIGN RECORD

REVISIONS			
REV	DATE	DESCRIPTION	BY
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A	05/10/19	PRELIMINARY CDs	JMC

PROFESSIONAL STAMP



ENGINEER

KRUPAKARAN KOLANDAIVELU, P.E.  
STATE OF NEW YORK  
PROFESSIONAL ENGINEER  
LICENSE #091974

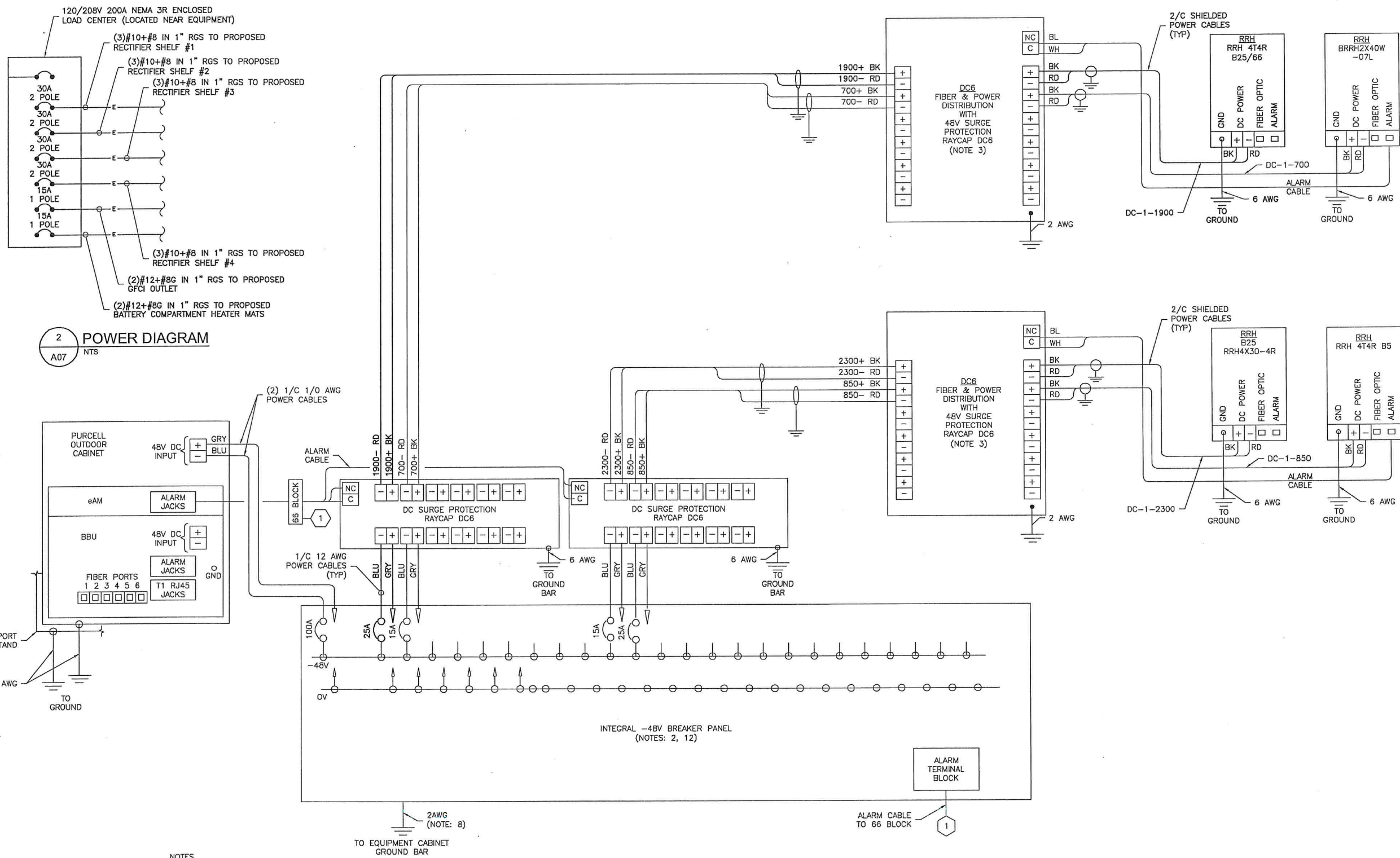
SHEET TITLE

SYSTEM DIAGRAM

SHEET NUMBER

ANT-006.00  
6 OF 8





- NOTES
1. LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A-AWS+".
  2. INSTALL ON IN AUXILIARY EQUIPMENT CABINET.
  3. CABLE TERMINALS FOR +24V INPUT FEED A, FEED B AND REFERENCE GROUND SHALL BE 2-HOLE: 3/8" ON 1" CENTER.
  4. INSTALL CABLE TERMINALS FOR FEED A AND FEED B RETURN BACK-TO-BACK ON OPPOSITE SIDES OF PAD USING 1-HOLE 3/8" TERMINALS.
  5. CABLE TERMINALS FOR CHASSIS GROUND SHALL BE 2-HOLE, 1/4" ON 5/8" CENTER.
  6. WHEN DISTRIBUTION BOX IS NOT USED, INSTALL 3 RUNS OF (2) 2/C CABLES IN CONDUIT, 1 EACH FROM DC SURGE SHELF TO DC6s.
  7. A JUNCTION BOX IS REQUIRED WHEN FIBER OPTIC CABLES ARE INSTALLED IN CONDUIT AS SCOPED BY MARKET.
  8. CONVERTER REFERENCE GROUND IS NOT REQUIRED WHEN CONVERTER AND 24V DC POWER PLANT ARE ON THE SAME RACK OR ENCLOSURE.
  9. THE BARE GROUND WIRE OF EACH MULTI-CONDUCTOR CABLE AND DRAIN WIRE WHEN A SHIELDED CABLE IS USED, SHALL BE CONNECTED TO THE EQUIPMENT CABINET GROUND BAR.
  10. SEE ALARM BLOCK ASSIGNMENT DETAIL FOR ALARM CABLE CONNECTIONS.
  11. PROVIDE A JUNCTION BOX, AS SCOPED BY MARKET, TO COIL EXCESS DC POWER AND OPTICAL FIBER CABLES (FIBER CABLES NOT SHOWN FOR CLARITY)
  12. NOTED EQUIPMENT MAY BE COMMON TO LTE AND UMS SYSTEMS.
  13. CABLE GROUND WIRE AND SHIELD DRAIN WIRE TO BE LEFT UN-TERMINATED AT RRH.
  14. WHEN AN RRH IS USED INSTEAD OF AN AWS RRH CABLE, LABELS SHOULD REFLECT CORRECT FREQUENCY BAND.

TYPICAL PER SECTOR

1 WIRING DIAGRAM  
 A07 NTS



1777 SENTRY PARKWAY WEST  
 SUITE 112, SUITE 400  
 BLUE BELL, PA 19422  
 (267) 480-0122

BURTNER ENGINEERING SERVICES, PLLC  
 NY CERTIFICATION OF  
 AUTHORIZATION NO. 0610982  
 6095 MARSHALLE DRIVE, SUITE 300  
 ELK RIDGE, MD 21075  
 410-712-7092



ANNSVILLE  
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KRUPAKARAN KOLANDAIVELU, P.E.  
 STATE OF NEW YORK  
 PROFESSIONAL ENGINEER  
 LICENSE #091974

WIRING  
 DIAGRAM

ANT-007.00  
 7 OF 8



**CABLE LABELING NOTES:**

- CABLE PORT DIAGRAM ONLY REQUIRED FOR SHELTER SITES.
- SUBCONTRACTOR SHALL FILL OUT CABLE PORT DIAGRAM UPON INSTALLATION. CABLE PORT DIAGRAM WILL BE AFFIXED TO THE INTERIOR SHELTER WALL NEAR THE CABLE ENTRY PORT TO AID IN CABLE IDENTIFICATION. THE CHART IS INTENDED TO BE USED TO RECORD THE LINE AND CORRESPONDING ANTENNA POSITION ON THE TOWER AT TIME OF INSTALLATION.
- (1) COMPLETED COPY PLUS (2) BLANK COPIES OF THE CHART SHOULD BE POSTED IN THE SHELTER IN A PROTECTIVE PLASTIC SLEEVE.
- SHEEP TEST EACH JUMPER AND DOCUMENT THE TEST IN ACCORDANCE WITH PROJECT PROCEDURES.

**CABLE COLOR CODING NOTES:**

- SECTOR ORIENTATION/AZIMUTH WILL VARY FROM REGION AND IS SITE SPECIFIC. REFER TO RF REPORT FOR EACH SITE TO DETERMINE THE ANTENNA LOCATION AND FUNCTION OF EACH TOWER SECTOR FACE.
- THE ANTENNA SYSTEM CABLES SHALL BE LABELED WITH VINYL TAPE EXCEPT IN LOCATIONS WHERE ENVIRONMENTAL CONDITIONS CAUSE PHYSICAL DAMAGE, THEN PHYSICAL TAGS ARE PREFERRED.
- THE STANDARD IS BASED ON EIGHT COLORED TAPES - RED, BLUE, GREEN, YELLOW, ORANGE, BROWN, WHITE & VIOLET. THESE TAPES MUST BE 3/4" WIDE & UV RESISTANT SUCH AS SCOTCH 35 VINYL ELECTRICAL COLOR CODING TAPE AND SHOULD BE READILY AVAILABLE TO THE ELECTRICIAN OR SUBCONTRACTOR ON SITE.
- USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLES BY SECTOR AND NUMBER AS SHOWN ON "CABLE MARKING COLOR CONVENTION TABLE".
- WHEN AN EXISTING COAXIAL LINE THAT IS INTENDED TO BE A SHARED LINE BETWEEN GSM/3G AND IS-136 TDMA IS ENCOUNTERED, THE SUBCONTRACTOR SHALL REMOVE THE EXISTING COLOR CODING SCHEME AND REPLACE IT WITH THE COLOR CODING AND TAGGING STANDARD THAT IS OUTLINED IN THE CURRENT VERSION OF ND-00027. IN THE ABSENCE OF AN EXISTING COLOR CODING TAGGING SCHEME, OR WHEN INSTALLING PROPOSED COAXIAL CABLES, THIS GUIDELINE SHALL BE IMPLEMENTED AT THAT SITE REGARDLESS OF TECHNOLOGY.
- ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE A MINIMUM OF (3) WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SO AS TO AVOID UNRAVELING.
- ALL COLOR BANDS INSTALLED AT THE TOP OF TOWER SHALL BE A MINIMUM OF 3" WIDE AND SHALL HAVE A MINIMUM OF 3/4" OF SPACE IN BETWEEN EACH COLOR.
- ALL COLOR CODES SHALL BE INSTALLED AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE TO SIDE.
- IF EXISTING CABLES AT THE SITE ALREADY HAVE A COLOR CODING SCHEME AND THEY ARE NOT INTENDED TO BE REUSED OR SHARED WITH THE GSM TECHNOLOGY, THE EXISTING COLOR CODING SCHEME SHALL REMAIN UNTOUCHED.

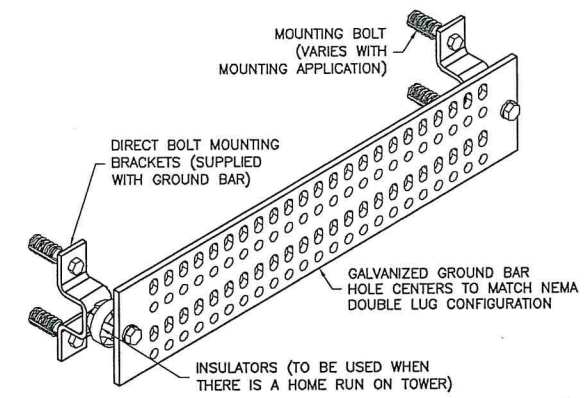
**GROUNDING NOTES:**

- GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
- ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
- ALL WIRES SHALL BE AWG THHN/THWN COPPER UNLESS NOTED OTHERWISE.
- GROUNDING CONNECTIONS TO GROUND RODS, GROUND RING WIRE, TOWER BASE AND FENCE POSTS SHALL BE EXOTHERMIC ("CADWELDS") UNLESS NOTED OTHERWISE. CLEAN SURFACES TO SHINY METAL. WHERE GROUND WIRES ARE CADWELDED TO GALVANIZED SURFACES, SPRAY CADWELD WITH GALVANIZING PAINT.
- GROUNDING CONNECTIONS TO GROUND BARS ARE TO BE TWO-HOLE BRASS MECHANICAL CONNECTORS WITH STAINLESS STEEL HARDWARE (INCLUDING SCREW SET) CLEAN GROUND BAR TO SHINY METAL AFTER MECHANICAL CONNECTION, TREAT WITH PROTECTIVE ANTI-OXIDANT COATING.
- GROUND COAXIAL CABLE SHIELDS AT BOTH ENDS WITH MANUFACTURER'S GROUNDING KITS.
- ROUTE GROUNDING CONDUCTORS THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 12" RADIUS.
- INSTALL #2 AWG GREEN-INSULATED STRANDED WIRE FOR ABOVE GRADE GROUNDING AND #2 BARE TINNED COPPER WIRE FOR BELOW GRADE GROUNDING UNLESS OTHERWISE NOTED.
- REFER TO GROUNDING PLAN FOR GROUND BAR LOCATIONS. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC TYPE ("CADWELDS") TO ANTENNA MOUNTS AND GROUND RING. REMAINING GROUNDING CONNECTIONS SHALL BE COMPRESSION FITTINGS. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO-HOLE LUGS.
- THE GROUND ELECTRODE SYSTEM SHALL CONSIST OF DRIVEN GROUND RODS POSITION ACCORDING TO GROUNDING PLAN. THE GROUND RODS SHALL BE 5/8"x10'-0" COPPER CLAD STEEL INTERCONNECTED WITH #2 BARE TINNED COPPER WIRE BURIED 36" BELOW GRADE. BURY GROUND RODS A MAXIMUM OF 15' APART, AND A MINIMUM OF 8' APART.
- IF ROCK IS ENCOUNTERED GROUND RODS SHALL BE PLACED AT AN OBLIQUE ANGLE NOT TO EXCEED 45°.
- EXOTHERMIC WELDS SHALL BE MADE IN ACCORDANCE WITH ERICO PRODUCTS BULLETIN A-AT.
- CONSTRUCTION OF GROUND RING AND CONNECTIONS TO EXISTING GROUND RING SYSTEM SHALL BE DOCUMENTED WITH PHOTOGRAPHS PRIOR TO BACKFILLING SITE. PROVIDE PHOTOS TO THE METROPCS CONSTRUCTION MANAGER.
- ALL GROUND LEADS EXCEPT THOSE TO THE EQUIPMENT ARE TO BE #2 BARE TINNED COPPER WIRE. ALL EXTERIOR GROUND BARS TINNED COPPER.
- PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETTS KOPR-SHIELD (TM OF JET LUBE INC.). PRIOR TO BOLTING GROUND WIRE LUGS TO GROUND BARS, APPLY KOPR-SHIELD OR EQUAL.
- ENGAGE AN INDEPENDENT ELECTRICAL TESTING FIRM TO TEST AND VERIFY THAT IMPEDANCE DOES NOT EXCEED FIVE OHMS TO GROUND BY MEANS OF "FALL OF POTENTIAL TEST". TEST SHALL BE WITNESSED BY AN AT&T REPRESENTATIVE, AND RECORDED ON THE "GROUND RESISTANCE TEST" FORM.
- WHERE BARE COPPER GROUND WIRES ARE ROUTED FROM ANY CONNECTION ABOVE GRADE TO GROUND RING, INSTALL WIRE IN 3/4" PVC SLEEVE, FROM 1' BELOW GRADE AND SEAL TOP WITH SILICONE MATERIAL.
- PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL. FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDIZATION PAINT.
- ANY SITE WHERE THE EQUIPMENT (BTS, CABLE BRIDGE, PPC, GENERATOR, ETC.) IS LOCATED WITHIN 6 FEET OF METAL FENCING, THE GROUND RING SHALL BE BONDED TO THE NEAREST FENCE POST USING (3) RUNS OF #2 BARE TINNED COPPER WIRE.

**CABLE MARKING TAGS:**

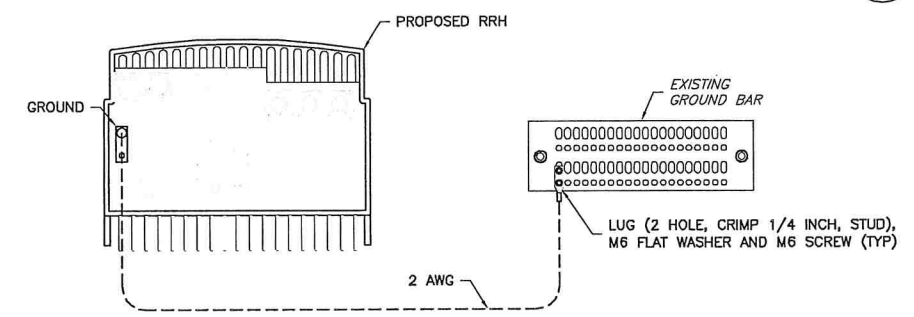
WHEN USING THE ALTERNATIVE LABELING METHOD, EACH RF CABLE SHALL BE IDENTIFIED WITH A METAL ID TAG MADE OF STAINLESS STEEL OR BRASS. THE TAG SHALL BE 1-1/2" IN DIAMETER WITH 1/4" STAMPED LETTERS AND NUMBERS INDICATING THE SECTOR, ANTENNA POSITION AND CABLE NUMBER. ID MARKING LOCATIONS SHOULD BE AS PER "CABLE MARKING LOCATIONS TABLE". THE TAG SHOULD BE ATTACHED WITH CORROSION PROOF WIRE AROUND THE CABLE AT THE SAME LOCATION AS DEFINED ABOVE. THE TAG SHOULD BE LABELED AS SHOWN ON THE "GSM AND UMTS LINE TAG" DETAIL.

CABLE MARKING LOCATIONS TABLE	
NO.	LOCATIONS
1	EACH JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
2	EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS AT THE TOP JUMPER CONNECTION AND WITH (1) SET OF 3/4" WIDE COLOR BANDS PRIOR TO ENTERING THE BTS OR SHELTER.
3	CABLE ENTRY PORT ON THE INTERIOR OF SHELTER.
4	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.
5	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.



GROUND BAR SCHEDULE				
TYPE	QTY	MANUFACTURER	PART NO.	REMARKS
MGB	2	ITS	GB12	OR EQUAL
CBG	3	ITS	GB24	OR EQUAL

1 GROUND BAR DETAIL  
A08 NTS



2 RRH GROUNDING DETAIL  
A08 NTS

**LTE COLOR KEY**

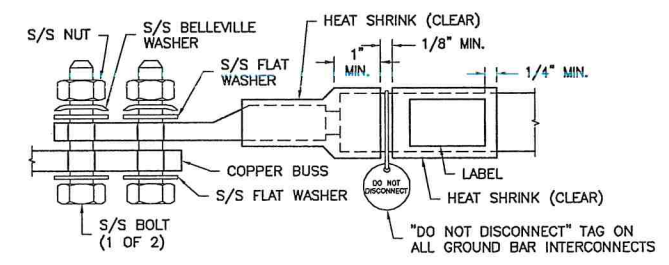
SECTOR COLOR Identifiers	
Alpha = Green	
Beta = Blue	
Gamma = White	
Delta = Red	
Epsilon = Yellow	
Zeta = Orange	

RRH COLOR Identifiers	
700 B17 sector identifiers w/one purple stripe	
DB 700 B12/B14, B12 one purple stripe; B14 one green stripe	
J900 = one red stripe	
DB B25/B66, B25 one red stripe; B66 one blue stripe	
700 B25 = one yellow stripe	
WCS = one pink stripe	
Second J900 = two red stripes	
AWS = one blue stripe	
#90 = two purple stripes	

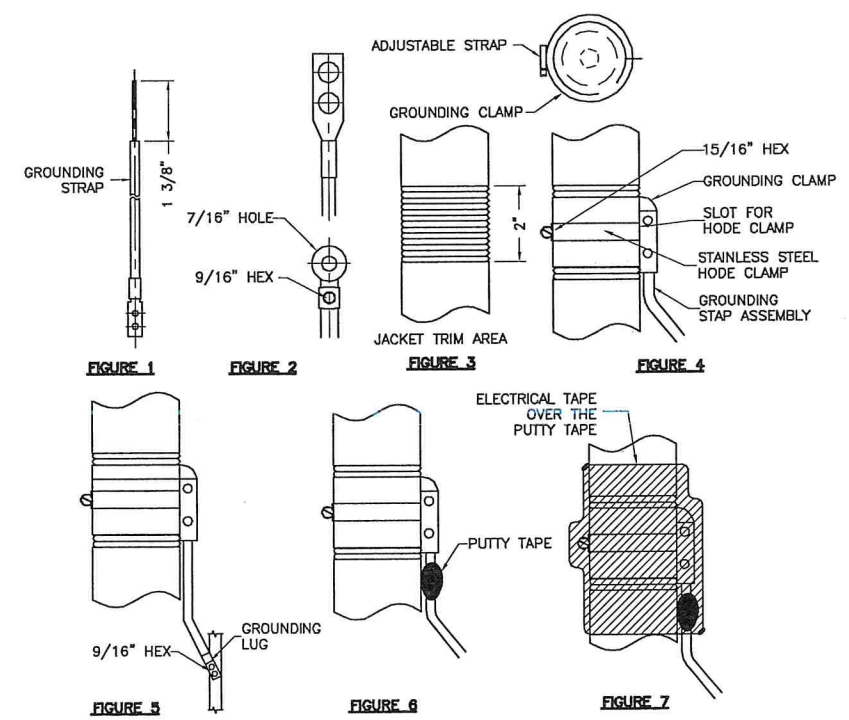
  

TECHNOLOGY IDENTIFIERS	
GSM = Sector identifiers only	
UMTS = One band of Orange Tape	
LTE = One band of Purple Tape	



- NOTES:
- ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH ANTI-OXIDATION COMPOUND BEFORE MATING.
  - FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH ANTI-OXIDATION COMPOUND.
  - COAT ALL BARRELS WITH ANTI-OXIDATION COMPOUND BEFORE CRIMPING.

3 GENERAL LUG DETAIL  
A08 NTS



4 GROUNDING STRAP WEATHERPROOFING DETAIL  
A08 NTS

PROJECT MANAGER	<b>NB+C</b> TOTALLY COMMITTED. 1777 SENTRY PARKWAY WEST SUITE 400 BLUE BELL, PA 19422 (267) 480-0122												
ENGINEER	<b>BURTNER ENGINEERING SERVICES, PLLC</b> NY CERTIFICATION OF AUTHORIZATION NO. 0610982 6999 MARSHALLE DRIVE, SUITE 300 ELK RIDGE, MD 21075 410-712-7092												
APPLICANT	<b>at&amp;t</b> mobility corp.												
SITE INFORMATION	ANNSVILLE NYC NNY5524 FA #10107983 4C PACE #MRNYC054850 5C PACE #MRNYC054869 5742 ALBANY POST ROAD CORTLANDT MANOR, NY 10567												
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SHEET TITLE	<b>GROUNDING DIAGRAM &amp; DETAILS</b>												
SHEET NUMBER	<b>ANT-008.00</b> 8 OF 8												