

TOWN OF AUSTERLITZ

Columbia County
New York

Lee Tilden

Planning Board Chairman

Planning Board Meeting/Public Hearing

April 1, 2021

7:00 p.m.

*******AGENDA*******

1.) Open Regular Planning Board Meeting

2.) Moment of Silence, Followed by the Pledge of Allegiance

3.) Roll Call

4.) Minutes

5.) Old Business

A.) PL-2021-01 Special Use Permit 648 State Rte 203 LLC

B.) PL-2021-02 Special Use Permit Crown Castle as agent for T-Mobile

8.) New Business

A.) PL-2021-03 Boundary Line Adjustment, David Vieni

9.) Public Comment

10.) Adjournment

Town of Austerlitz
Planning Board Meeting
March 4, 2021

The March 4, 2021 Planning Board Meeting was held via Zoom in accordance with the Governor's Executive Order 202.1. Meeting instructions were on the Town website.

Present: Lee Tilden, Chair, Deborah Lans, Jane Magee and Perry Samowitz, Members. Susan Haag, Town Clerk also present.

Member Eric Sieber absent.

Public Hearing Called to Order at 7:06 p.m.

Public Hearing for PL-2021-1 Site Plan and Special Use Permit

Property Owner: 648 Rte 203 LLC, Dale Madsen

Applicant: Taconic Engineering, DPC, Andy Didio

Project Property: 648 State Route 203 SBL:86.-2-10

Zoning: Rural Residential

Project: The proposed project consists of building a 4800 sf building, 26.4' tall at ridge line, 1 story and using the building for storage of construction equipment and materials.

Applicant Andy Didio, Taconic Engineering, DPC and property owner Dale Madsen in attendance.

Town Clerk Haag noted that the Public Hearing notice was duly published in the newspaper and on the Town's website. Planning Board Chairman Lee Tilden advised that the applicant made the proper notice requirements to the neighboring properties within a 250 foot radius.

Applicant Andy Didio presented a power point presentation showing a survey of the proposed site explaining the topography noting a closed drainage system and the proposed building to be built on the site. It was noted that the NYSDOT has given a conceptual approval for the driveway cut noting required improvements to the area. This letter has been forwarded to the Town of Austerlitz Planning Board. The front of the proposed building was shown noting elevation. It was stated that only the very front of the building will be seen from State Route 203.

Property and Business Owner Dale Madsen explained that he owns a general excavation contracting business that handles mostly residential projects. His business currently employs 6 workers plus himself and his wife who handles the bookkeeping. This is a year-round business that has operated out of the Town of Austerlitz for the last 15 years. The current business location is at 397 West Hill Road in Austerlitz.

Planning Board Member Perry Samowitz questioned if any trees would be planted along State Route 203 for screening purposes. Property owner Dale Madsen advised that he wants to make

Reference Material
APR 01 2021
Planning Board Meeting

this area as comfortable as possible for the neighbors so he is willing to discuss the type of screening needed to satisfy any issues.

James Mannion, who lives at 662 State Route 203, gave a history about how he heard about this project noting he had no knowledge of it until he got a generated email from the Town of Austerlitz stating the date and time of the public hearing for this project. J. Mannion contacted the Town speaking with Town Clerk Haag who advised him how to find the particulars of the project on the website. J. Mannion received a certified letter and an additional letter concerning the project but did not received them until late in February, early March and feels there was not enough time given for him to consider this project. J. Mannion stated that he feels D. Madsen is a fine young man, but does not want to see this project next door to his property. J. Mannion feels that if this project goes through it will have a negative impact on his property value, not to mention the quality of life for his family and friends who come to visit. If this project is not postponed to give him time to access the ramifications, or if it is approved tonight, J. Mannion will contact his attorney.

Kim Garner, who lives at 626 State Route 203, noted she was just made aware of this project on February 12th by a certified letter. K. Garner had building plans for her property which she has now put on hold noting that if this project is approved, it would decrease her property value, kill her viewshed and increase the noise and traffic in the area. If this project is approved, at the very minimum, K. Garner would like to see screening. She is disappointed that this project is right up against her property and feels very adversely affected. This has nothing to do with her perception of Dale Madsen.

Mary Mannion, who lives at 662 State Route 203, questioned how many neighbors in the surrounding area were sent certified letters. Planning Board Chairman Lee Tilden advised that the Town Code states that any contiguous land owner 250 feet from the subject project property line is required to receive notification of the public hearing of that particular project. Property owners on the opposite side of State Route 203 were also notified. Applicant Andy Didio advised that the initial notices were sent out certified return receipt on February 16, 2021. The second notice, which was a redraft correcting contact information, was sent as an addendum and not sent certified return receipt. M. Mannion disagrees and notes she did not have to sign for any notice, also questioning who the notices were sent to. Chairman Tilden advised that 8 notices were sent, but he prefers not to give out private information out via zoom. Town Clerk Haag will send the list of those who were notified out via email. J. Mannion stated that the only land owners across State Route 203 are others in the Madsen family. According to J. Mannion, no other land owners were notified except him and K. Garner. The only neighbors are him and K. Garner and the other Madsens.

Kim Garner noted that she received the public hearing notice only 3 weeks before the meeting and assumes this project has been in the works for some time. Why weren't the neighbors given more time and discussion? K. Garner's assumption is that this project is moving forward and her property will suffer financially for this. Chairman Tilden noted that the project was received last month and the Planning Board has followed the process as stated under Town Code for a site plan and special use permit. Last month the Planning Board discussed the project with the applicant and with the land owner, discussed the project amongst the board, deemed the

Reference Material

APR 01 2021
Planning Board Meeting

application to be complete and designated as an unlisted action under SEQRA, and ready for a public hearing. The Planning Board took the steps necessary and the project was set for a public hearing at the March Planning Board Meeting. The neighbors were then notified that a public hearing had been set, a legal notice placed both in the newspaper and on the Town website. The application was also sent to the Columbia County Planning Board for comment. The NYSDOT has been contacted and responded and the septic system has been discussed. K. Garner questioned if this means that the application is approved. Chair Tilden advised no it does not. The application was only approved to move into the public hearing stage. Once the Public Hearing is complete and closed, the Planning Board will discuss the project and the comments heard. The Planning Board will then go through the SEQRA process. The Planning Board will deliberate and either decline the project, approve the project as is or approve the project with conditions. K. Garner asked if there were any financial considerations given to the residents in the area of this project. Chair Tilden noted that the Town Zoning Code allows for these types of projects in this area. A person would submit an application, the Planning board works through the process, deliberates and decides if this is an allowable use and if it is in the best interest of the Town. K. Garner questioned the increased traffic and noise. Chair Tilden advised that these are taken into consideration when completing the SEQRA review. K. Garner asked if the Planning Board needs anything from her. Chair Tilden stated if she wished she could put all her comments and concerns in writing.

J. Mannion noted that this was a large expense by Dale Madsen and it is a disgrace by how the Planning Board is handling this application. This seems like a done deal already. If this application is approved, J. Mannion will hire an attorney.

K. Garner noted that this type of project has a lot more effect when you live next door to it and asked if the Planning Board will come back to the neighbors asking what approval conditions will appease the neighbors. K. Garner would hate for this project to go through without any conditions. Chair Tilden advised K. Garner to put her concerns in writing, noting which property is hers and what conditions she would like to see as soon as she can. Chair Tilden advised that probably no decision will be made tonight on this project so K. Garner has 30 days to submit something.

Erlyn Madonia stated that if 8 people were notified of the Public Hearing, these people should know who else besides themselves were notified. Chair Tilden advised that the law requires that the contiguous land owners 250 feet from subject project be notified. The Planning Board has to follow what the law is. If some see a problem with the law, then any change in the law must be made by the Town Board. Planning Board Member Deborah Lans advised that the Town of Austerlitz' complete Town Code is on the Town's website and details how this process is to be completed. Member Lans urges the public to read the law, get a sense of what is there and how it happens. This process is not controlled by the Planning Board, but by the law. If some feel the law is wrong, discuss changing it with the Town Board who are the policy makers.

J. Mannion wants to again bring to the attention of the Planning Board that there are only 2 properties that boarder this project except other Madsens. These 2 property owners are on the zoom call tonight and do not want to see a business here.

Reference Material
APR 01 2021
Planning Board Meeting

Applicant Andy Didio stated that it was worth noting a couple of items. For the neighbor on the west side of the project, the project is over 150 feet from the property line. Secondly, the traffic of this business is not high. The equipment leaves in the morning and comes back at night. A. Didio discusses the currently traffic trends as compared to adding what additional this project would add. It is not significant. This project is not a construction site, just a storage building with an area to maintain and repair the equipment. Noise levels will be very low. A neighbor living next to where the current operation is housed wrote a letter and noted that there was no noise. The Town of Austerlitz does have a Zoning Code that allows for certain permitted uses by special permit. This project is not a change in the Zoning Code, not a variance application. This project fits the character for the area as there are other commercial operations. Madsen Overhead Doors, Fox Hill Camp grounds and the Town Highway Garage are in the area. The proposed building will sit back off the road and when there is foliage it will be hard to see. Sitting off the road, it will be harder to see without foliage as well.

Planning Board Member D. Lans questions A. Didio on how far back from State Rte 203 is the parking area and then the building proposed to be. A. Didio advised that the edge of the parking area is 200 ft and the building is +/- 300 ft. The building is set back as far as it is feasible.

K. Garner noted that it is good that the building is set back off of State Rte 203, but that means it is closer to her property. How will this affect her view? A. Didio noted that the back area is pretty heavily wooded and there is distance. A. Didio is not sure about how much visibility K. Garner would have unless her lot was really cleared and K. Garner is the one who has control of that clearing. K. Garner does not feel like it should be on her to clear trees or not because she had wanted to clear the lot for the view and with this building, the view would be impacted.

Comments received via email:
Scott Pintoff: Noted his family has lived next door to Madsen’s current storage location since 2014 and have only positive comments to submit to the Planning Board regarding the Madsen business and, its owner, Dale Madsen. Although their house is approximately 100 yards from the building used by Dale Madsen, they have never had an issue with any noise, even as both his wife and himself worked full-time in 2020 from their home. They were never interrupted or awoken by the business. D. Madsen keeps the building and equipment on the grounds in a tidy condition and there has never been any debris or eyesores. Dale Madsen and the Madsen business have been ideal commercial neighbors to the Pintoffs. S. Pintoff continues that the Pintoffs have personally valued having D. Madsen as a neighbor. Dale is a very friendly person and is always willing to help them out with anything, including when trees have fallen in their driveway or when their furnace failed when the Pintoffs were away.

All those wishing to be heard were heard.

A motion to close the Public Hearing on Planning Board Application PL-2021-1 was made by P. Samowitz and seconded by D. Lans.

By roll call,
Lee Tilden: yes
Deborah Lans: yes
Eric Sieber: absent

Reference Material

APR 01 2021

Planning Board Meeting

Perry Samowitz: yes
Jane Magee: yes
Motion carried 4:1. Public Hearing closed at 8:04 p.m.

Regular Meeting called to order at 8:04 P.M.

Moment of Silence, followed by Pledge of Allegiance.

Minutes

A motion to accept the February 4, 2021 Planning Board minutes was made by J. Magee and seconded by D. Lans.
Roll call
Lee Tilden: yes
Deborah Lans: yes
Eric Sieber: absent
Perry Samowitz: abstains
Jane Magee: yes
Motion carried 3:1:1.

Old Business

Planning Board Application #3-2020.

Property Owner: Otto Maier
Applicant: Robert Beckmann
Project Property: 309 Rigor Hill Road SBL:94.-1-15
Zoning: Rural Residential
Project: The proposed project consists of building and using an auto repair and towing facility, 40’ x 60’ one story building, 2400 Square feet. Site currently has a foundation. Was the site of O’s Diner. Fenced in area for 20-30 vehicles.

Email received from Robert Beckmann requesting that his application for site plan review be put on a 3-month hold.

Planning Board Application PL-2021-01.

Property Owner: 648 Rte 203 LLC, Dale Madsen
Applicant: Taconic Engineering, DPC, Andy Didio
Project Property: 648 State Route 203 SBL:86.-2-10
Zoning: Rural Residential
Project: The proposed project consists of building a 4800 sf building, 26.4’ tall at ridge line, 1 story and using the building for storage of construction equipment and materials.

Planning Board Member Perry Samowitz is concerned for the neighbors. The Zoning Code is what it is and this is an allowable use. A special use permit does allow the Planning Board to put conditions around approvals. Member Samowitz would like to put as much protection in place for the neighbors as possible and would like to go and visit the site.

Reference Material

APR 01 2021

Planning Board Meeting

Member Lans agrees with Member Samowitz and would like to go and look at the site as well. This project is allowed in the Zoning Code, but there needs to be a plan for screening. D. Lans would like to defer any decisions until next month. Member Lans feels for the neighbors being caught off guard, but believes that this is just a product of the postal service.

Planning Board Member Jane Magee agrees that this project is a legitimate use for this site, but screening needs to be looked into. Member Magee does not want to loiter on the screening needs, but rather wants to move ahead exponentially to make a decision.

Planning Board Chairman Lee Tilden is in agreement with thoughts and does not think 30 days will make that much difference if it will take care of the needs of the neighbors. Chair Tilden will talk with the Town Attorney for language concerning any conditions to be placed.

Member Samowitz would like the Planning Board to go to the site together. The neighbors are upset and they think the Planning Board is going to rush this decision. Chairman Tilden noted that as long as the Planning Board Members do not discuss the project while on the site visit, the Board can go together. The neighbors can hear any deliberations concerning the conditions at next month’s meeting. The Planning Board will decide when to meet for a site view at another time.

A motion to lay over Planning Board Application PL-2021-01 to the first item at the April Planning Board Meeting was made by P. Samowitz and seconded by J. Magee.

Roll call vote:

Lee Tilden: yes

Deborah Lans: yes

Eric Sieber: yes

Perry Samowitz: absent

Jane Magee: yes

Motion carried 4:1.

Reference Material

APR 01 2021

Planning Board Meeting

Member Lans asked if Andy Didio could provide the Planning Board with a map with all the properties in question on it. Chair Tilden will made arrangements with A. Didio to do a site visit.

New Business

Planning Board Application PL-2021-02

Property Owner: Goosetown Network Services LLC

Applicant: Richard Zajac/Crown Castle as agent for T-Mobile

Project Property: 321 West Hill Road SBL:87.-2-51.112-1

Zoning: Rural Residential

Project: The proposed project consists of T-Mobile proposing to add eight (8) antennas and ancillary equipment to existing cell tower. T-Mobile also proposing a 16’x21’ compound expansion to accommodate new equipment cabinets as well as a 40 kw diesel backup generator.

Richard Zajac in attendance and explained the project noting that T-Mobile is proposing to add 8 antennas and ancillary equipment to an existing cell tower. T. Mobile is also proposing a 16’ by

21’ compound expansion to accommodate new equipment cabinets, as well as, a 40 kw diesel backup generator. There is a gap in the coverage area for the T-Mobile network and this would fill in that gap. Crown Castle owns the existing tower and their internal land use department is getting prior authorization from GooseTown Network Services for this project. Nothing will be coming down with this installation.

Chairman Tilden advised that the Town will need authorization from Goosetown Network Services for this project since they are an owner. Chairman Tilden also asked if R. Zajac could provide a full-size drawing for the Planning Board to look at. The cell area on the top of the artemia is increasing. The Planning Board needs to understand what happens if this tower falls down, whose property it falls on and to what extent. Chairman Tilden understand that this is a permitted use in the Town of Austerlitz’ code, but he just wants to protect abutting land owners and do due diligence.

Applicant Zajac advised that an engineering company has done a structural impact which is included in the application. Chairman Tilden has reviewed this report, but still would like to look and make sure the tower will remain on the subject property.

Chairman Tilden advised that the next steps for this project would be receipt of GooseTown Network Services’ authorization. The Planning Board would then deem the special use permit application complete and a public hearing would be set.

Member Samowitz asked if there was a better way to secure the antennas, maybe with cables, to make the structure more secure. R. Zajak advised that Crown Castle’s structural team has already done an analysis on the fall zone and believes that this is required by the FCC and that there are Federal guidelines that must be followed. This project consists of a guyed tower. The structural analysis was based on certain stipulations and conditions. R. Zajak will provide the board with a larger drawing.

Chairman Tilden asked the age of the tower to which Applicant Zajak was not sure, but knows it is in the historical record. L. Tilden also requested a copy of the analysis done.

Miscellaneous

Member Lans questioned a solar project that was installed without a permit. Chairman Tilden advised that this project required a site plan review. Attorney for the Town, Joseph Catalano will reach out to Town of Austerlitz Building Inspector, Erin Reis, to be clear on how the process works when someone comes in for a building permit for a solar project. It was noted that this particular project was completed under the Town’s previous Building Inspector. Chairman Tilden does feel that a section of the Austerlitz Code is not clear concerning solar projects and he would like to ask the Town Board to make this section clearer. Attorney Catalano can look into this project that was issue without a site plan review. Member Lans would like to send something out to Town residents concerning the regulations surrounding solar projects.

Public Commit

None

Reference Material

APR 01 2021

Planning Board Meeting

Adjournment

A motion to adjourn was made by P. Samowitz and seconded by J. Magee.

Lee Tilden: yes

Deborah Lans: yes

Eric Sieber: absent

Perry Samowitz: yes

Jane Magee: yes

Motion carried 4:1. Meeting adjourned at 8:37 p.m.

Respectfully Submitted,
Susan Haag, Town Clerk

Reference Material
APR 01 2021
Planning Board Meeting

DRAWING SUMMARY

C100 - TITLE
C101 - SITE PLAN - EXISTING CONDITIONS
C102 - SITE PLAN - PROPOSED CONDITIONS
C103 - EROSION & SEDIMENT CONTROL PLAN
C501 - DETAILS

[illegible]

Reference Material
APR 01 2021
Planning Board Meeting

Planning Board Meeting

C501

SCALE:
AS SHOWN

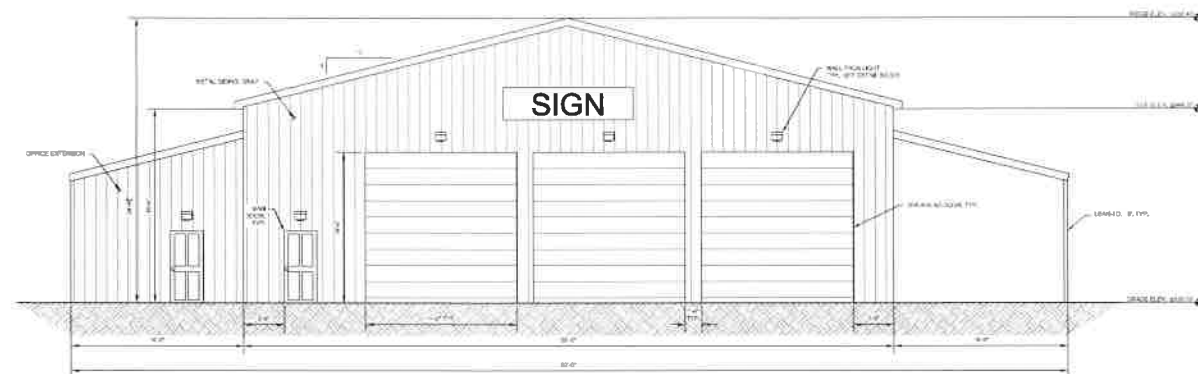
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DETAILS

648 ROUTE 203

TACONIC ENGINEERING, DPC
10000 PINE DUNE ROAD, SUITE 100, FORT MYERS, FL 33907
(813) 938-1000
www.tacomic.com

TACOMIC.COM
2/1/2021
2:00 PM
S 137 E
PROJECT NO. 203
SHEET NO. 1-22-21



A PROPOSED BUILDING ELEVATION
C501 SCALE: N.T.S.



ITEM	DESCRIPTION	QUANTITY	UNIT	PRICE	TOTAL
1	WALL PACK LIGHT	1	EA	100.00	100.00
2	WALL PACK LIGHT	1	EA	100.00	100.00
3	WALL PACK LIGHT	1	EA	100.00	100.00
4	WALL PACK LIGHT	1	EA	100.00	100.00
5	WALL PACK LIGHT	1	EA	100.00	100.00
6	WALL PACK LIGHT	1	EA	100.00	100.00
7	WALL PACK LIGHT	1	EA	100.00	100.00
8	WALL PACK LIGHT	1	EA	100.00	100.00
9	WALL PACK LIGHT	1	EA	100.00	100.00
10	WALL PACK LIGHT	1	EA	100.00	100.00

SPECIFICATION					
ITEM	DESCRIPTION	QUANTITY	UNIT	PRICE	TOTAL
1	WALL PACK LIGHT	1	EA	100.00	100.00
2	WALL PACK LIGHT	1	EA	100.00	100.00
3	WALL PACK LIGHT	1	EA	100.00	100.00
4	WALL PACK LIGHT	1	EA	100.00	100.00
5	WALL PACK LIGHT	1	EA	100.00	100.00
6	WALL PACK LIGHT	1	EA	100.00	100.00
7	WALL PACK LIGHT	1	EA	100.00	100.00
8	WALL PACK LIGHT	1	EA	100.00	100.00
9	WALL PACK LIGHT	1	EA	100.00	100.00
10	WALL PACK LIGHT	1	EA	100.00	100.00

B WALL PACK LIGHT DETAIL
C501 SCALE: N.T.S.

Reference Material
APR 01 2021
Planning Board Meeting

SHaag

From: Kim Garner [REDACTED]
Sent: Sunday, March 21, 2021 8:54 AM
To: SHaag
Subject: Follow Up to Recent Hearing for Dale Manson Commercial Property

Susan Haag

Town of Austerlitz

Columbia County, New York

Reference Material
APR 01 2021
Planning Board Meeting

March 8, 2021

FOLLOW UP – Letter of Complaint

RE: RECENT HEARING FOR DALE MANSON COMMERCIAL PROPERTY 626 ROUTE 203

Susan,

As per the recent planning meeting request, this serves as a formal letter of objection to Dale Manson’s commercial property. I just became aware of the proposed property Feb 12th and although he has followed the guidelines required, it felt the meeting was simply to go through necessary motions for a project that already is going to be approved.

I wish to be clear – the burden should not be on me on how I clear my land and should be on them to ensure that the plans include a solid fast-growing screen of trees that will hide their buildings from my property and view. I took offence that he asked to be on record that it was my responsibility as the adjacent property owner to change my clearing plans to accommodate their plans and my objection.

This is a formal request that I would like in writing a commitment from them to my satisfaction to plant a more than adequate screening to keep their property invisible from my property so I have the benefit on deciding how and what I clear.

I would also like to state that this commercial venture will adversely affect the value of my property and my view will be affected. I had plans to begin clearing and building this summer to create a property I could personally enjoy and rent which would be of value to the area. Until this is resolved to my satisfaction, I am putting my plans on hold. It also puts me a negative position that if I chose to sell, the price of the land would certainly be less when these upcoming plans take effect.

I have held onto my land with the sole purpose to develop it into a residential property I would use and I am disappointed that my plans are now compromised and I am being discouraged to build which ultimately brings more business and my dollars to businesses and restaurants in the area.

I have been asked to join Jim and his lawyer which I am considering.

Sincerely,

Kim Garner

Property Owner

626 Reid Rd

Spencertown, NY

Reference Material
APR 01 2021
Planning Board Meeting



121 STATE STREET
ALBANY, NEW YORK 12207-1693
TEL: 518-438-0751
FAX: 518-438-4751

JAMES T. POTTER
E-MAIL: JPOTTER@HINMANSTRAUB.COM

March 25, 2021

VIA US MAIL AND EMAIL (shaag@austerlitzny.com)

Planning Board
Town of Austerlitz
816 Route 203
PO Box 238
Spencertown, NY 12165

Attention: Susan Haag, Town Clerk

Re: Planning Board Application #1-2021
Property Owner: 648 Rte 203 LLC, Dale Madsen
Project Property: 648 State Route 203 SBL: 86.-2-10

Dear Ms. Haag:

I represent James and Mary Mannion, who reside at 662 Rte 203. I am writing concerning the project application of 648 Rte 203, LLC, which I have referenced above. It will be greatly appreciated if you could provide this letter to the Planning Board as soon as possible in advance of its meeting scheduled for April 1, 2021.

The Mannions are opposed to the project for a number of reasons that I will detail in this letter. They also believe that the application materials submitted by the applicant are deficient, as I will also outline.

- The application fails to address the project's location in an archeologically sensitive area

The applicant's Short Environmental Assessment Form, submitted as part of SEQRA, acknowledges that the property is "located in an archeologically sensitive area." This acknowledgement was generated automatically through the Department of Environmental Conservation's EAF Mapper. A review of the information available from the NY State Historic Preservation Office (SHPO) archeological site inventory shows that this property is nearby to a Native American site. The exact location of the site cannot be disclosed by this state agency. However, it is significant that the project location is a relatively flat area with permeable soils and water, which makes it a likely location for Native American habitat or activity. At the very least, SEQRA requires that an archeological survey be performed for Native American activity.

Reference Material
APR 01 2021
Planning Board Meeting

Additionally, the SHPO website shows that the project is in or very close to the Spencertown Historic District, as well as close to five buildings listed on the National Register. This is particularly significant because the proposed project is substantially out of character with its surroundings. The one exception is the Madsen Overhead Door site. However, the properties on the north side of Route 203 outside of the hamlet are all large lot residential properties, which are substantially in keeping with the historic character of the area. Adding another industrial property to this area will substantially detract from the historic character and charm of the town, resulting in diminished property values to a large group of owners, including those with historic structures on Route 203. For this reason, the project should be denied a special use permit and site plan approval.

- The application is deficient in failing to disclose the proposed location of equipment and materials storage

The application is deficient in failing to disclose the type and location of equipment and materials. The application asks for a "Detailed Description" of the proposed use, including primary and secondary uses. The applicant discloses "storage of construction equipment and materials." However, the applicant has never disclosed in its written materials the type of equipment and materials that will be stored or where on the property it will be stored. This is particularly important because, given the nature of the applicant's construction business, it is possible that the applicant could store heavy equipment and stockpiles of sand, gravel, stone and other materials on the property. These would have significant noise, dust and visual impacts that cannot at present be evaluated by the Planning Board or the public.

My clients have two houses located on their property. I have attached photographs taken from one of the houses that overlooks the project site. Photos are taken from one of the bedrooms, the second floor deck and the side of the house. These photographs demonstrate graphically that the project will have major impacts on my clients use and enjoyment of their property, and of the total residential character of this area. It bears noting that the project site previously was the site of a single family residence. The movement of heavy equipment, and the dropping and retrieval of construction materials will be fully visible from the house and deck, noise will flow directly from the project site into the bedroom windows of the house and onto the deck and dust will also migrate into these areas. No amount of screening will be adequate to mitigate these impacts from the second floor of this residence, where the living area and deck area are located.

- The proposed project fails to disclosure other essential features of the operation having a potential impact on the environment

The applicant submitted a Short Environmental Assessment Form that contained limited information about the proposed industrial project. There are numerous questions on the long form EAF about potential environmental impacts that this application completely ignores. The Board is required to consider these impacts as part of its duties under the State Environmental Quality Review Act.

Reference Material

APR 01 2021

Planning Board Meeting

For example, the application discloses that the building to be constructed will accommodate seven workers. However, it does not describe the proposed use in sufficient detail to determine how many other workers or customers may visit the site on a daily basis.

The application also does not identify the volume of water the applicant will use or the source of that water. If the applicant proposes to stockpile materials outdoors, or to run equipment over unpaved areas, this will generate a tremendous amount of dust. The most common way of suppressing this dust is through spraying with water. There is no analysis in the application of the need for or source of this water.

Moreover, there is no analysis of the dust that may be generated and its impact on air quality. These are potential adverse environmental impacts that must be analyzed in conformance with the requirements of SEQRA.

Additionally, there is no disclosure of the noise expected from the site. There is no disclosure of the type of equipment that is expected on the site, whether the equipment will be powered by diesel engines, the noise expected from that equipment, or the frequency that back-up alarms will occur. These impacts must be disclosed and analyzed under SEQRA.

The application also contains an inadequate disclosure of how stormwater will be handled. If materials are going to be stored outside, this raises significant potential for runoff of materials outside of the boundaries of the property. The stormwater issues must be disclosed and evaluated under SEQRA.

The application fails to disclose the types and numbers of vehicles expected to enter and exit the site each day. The application states that construction vehicles will be stored on the site. These will be exiting onto Route 203 in an area where it moves downhill. Slow moving construction vehicles exiting from the site, or turning left, uphill into the site, will potentially create a traffic hazard that must be disclosed and studied under SEQRA.

The application contains no disclosure of the expected hours of operation of the business. This is a required disclosure on the SEQRA long form. This should be disclosed as part of the application and studied by the Board.

The application also contains no disclosure of the type of lighting expected on the site. This could have a significant impact on neighboring properties and should be disclosed and studied under SEQRA.

The application also contains no disclosure of whether bulk storage of petroleum is expected on the site. This is a required disclosure on the SEQRA long form. The application did disclose that seven workers will be on the site and it will be used for the storage of construction equipment. How and where will that equipment be fueled. This must be studied under SEQRA.

The application also contains limited information from which visual impacts can be assessed, because it contains no information about where construction equipment and construction materials will be stored, or the type that will be stored. The photographs taken from

Reference Material

APR 01 2021

Planning Board Meeting

my clients' property show that this site is highly visible. Visual impacts must be studied under SEQRA.

Finally, the archeological significance of this area is well documented on the SHPO site and must be studied under SEQRA.

A long form EAF should have been mandated by the board to identify and address the numerous potential adverse environmental impacts from this property. The board should mandate that the applicant prepare an Environmental Impact Statement for these environmental issues.

- The proposed use conflicts with the Town's Comprehensive Plan

The Town's Comprehensive Plan notes that "Residents enjoy an independence and tranquil quality of life that is associated with a small, rural town." The proposed use, which will bring unquantified amounts of construction equipment, possible stockpiles of construction materials and increased truck traffic to the heart of an existing residential community will destroy the tranquility of this side of route 203. The plan's focus on business activity emphasizes protecting the town's rural character and scenic beauty. The proposed use runs completely contrary to these goals, as evidenced by the attached photographs of the project site from my clients' house. The survey of residents contained in the Comprehensive Plan noted that "Rural atmosphere and scenic beauty were most commonly cited as reasons influencing the decision to live in Austerlitz." This also reported that 73% of respondents expressed a strong desire to maintain undeveloped open land. The proposed use will convert an existing and developing rural residential area into an industrial corridor on the main thoroughfare through the Town, changing the appearance and character of the Town and depressing its desirability and market for rural housing.

- The proposed action fails to meet the criteria in the Zoning Law for a special use permit

Section 195-33 (B) of the Zoning Law provides a list of criteria for the issuance of a special use permit. This project fails to meet those criteria for multiple reasons. The first criteria species that "The proposed use must not be more objectionable to nearby properties by reason of noise, odors, vibration, dust, illumination or other potential nuisance than the operation of any allowed use in the particular district." This project is unique on the north side of route 203 in this area and will have significant negative impacts on the surrounding residential properties because of noise, vibration and dust from industrial equipment and storage of industrial materials, as well as the possible illumination of the site.

The second criteria requires "Compatibility of the proposed use with adjoining properties and with the natural and man-made environment." This proposed use is completely incompatible with the residential environment on the north side of route 203 in this area.

The third criteria requires "Adequacy of parking, vehicular circulation and infrastructure for the proposed use, and its accessibility to fire, police, and emergency vehicles." This is

Reference Material

APR 01 2021

Planning Board Meeting

virtually impossible for the Board and public to evaluate at this time because there has been so little disclosure about how this project will operate.

The forth criteria requires consideration of "Restrictions and/or conditions on design of structures or operation of the use (including hours of operation) necessary either to ensure compatibility with the surrounding uses or to protect the natural or scenic resources of the Town." This is impossible for the Board and public to evaluate at the present time given the limited disclosures in the application.

The fifth criteria requires "Compatibility with the traditional or historic character and use of the structure or structures and the traditional or historic character of the site and the surrounding area." This property was always residential, and the properties on all side of this property are residential. This project proposes to place an island of industrial activity squarely in the middle of rural residences.

The sixth criteria requires "Consistency with the requirements for site plan approval." There are numerous requires of site plan review that have not yet been met, so a special use permit cannot be issued. These include:

- o inadequate disclosure and mitigation of visual impacts as required by section 195-29(a),
- o inadequate disclosure and analysis of stormwater impacts as required by 195-29(B)(5),
- o inadequate disclose and analysis of visual, noise and dust impacts as required by 195-29(B)(6)
- o failure to submit a long form EAF as should have been required by 195-30(C)(1)
- o failure to disclose details of the project required by 195-30(C)(3)(d)
- o failure to show where waste containers will be placed and how they will be screened as required by 195(C)(3)(e)
- o failure to include information about lighting as required by 195-30(C)(3)(f)
- o failure to include information about signage as required by 195(C)(3)(g)
- o failure to include adequate information about the storm drainage system as required by 195(C)(3)(h)(4)
- o failure to include information about buffering as required by 195-30(C)(3)(i).

Although the Board can waive certain requirements of 195-30, it can only be done if the Board finds the requirements are not "requisite in the interest of the public health, safety or general welfare or [are] inappropriate to a particular sit Plan." The Board cannot make this finding for this proposed industrial use, particularly where so little public information is disclosed on the application. More importantly, these are critical environmental factors that must be evaluated under SEQRA before any action can be taken by the Board to approve the project.

The proposed project will have a very significant adverse impact on my clients' residential property and all the residential properties surrounding this project. Approval of the project will communicate to the residential community that any industrial project can be placed

Reference Material

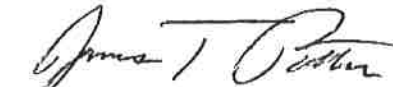
APR 01 2021

Planning Board Meeting

anywhere within the rural residential area of the Town. This will potentially discourage develop of new residential properties and the rehabilitation of existing properties.

The Board should deny the proposed application. In the alternative, at the very least, the Board should mandate that the applicant provide additional public details about its project, in written form, and that the various potential adverse environmental impacts outlined in this letter should be studied in a full Environmental Impact Statement.

Respectfully,

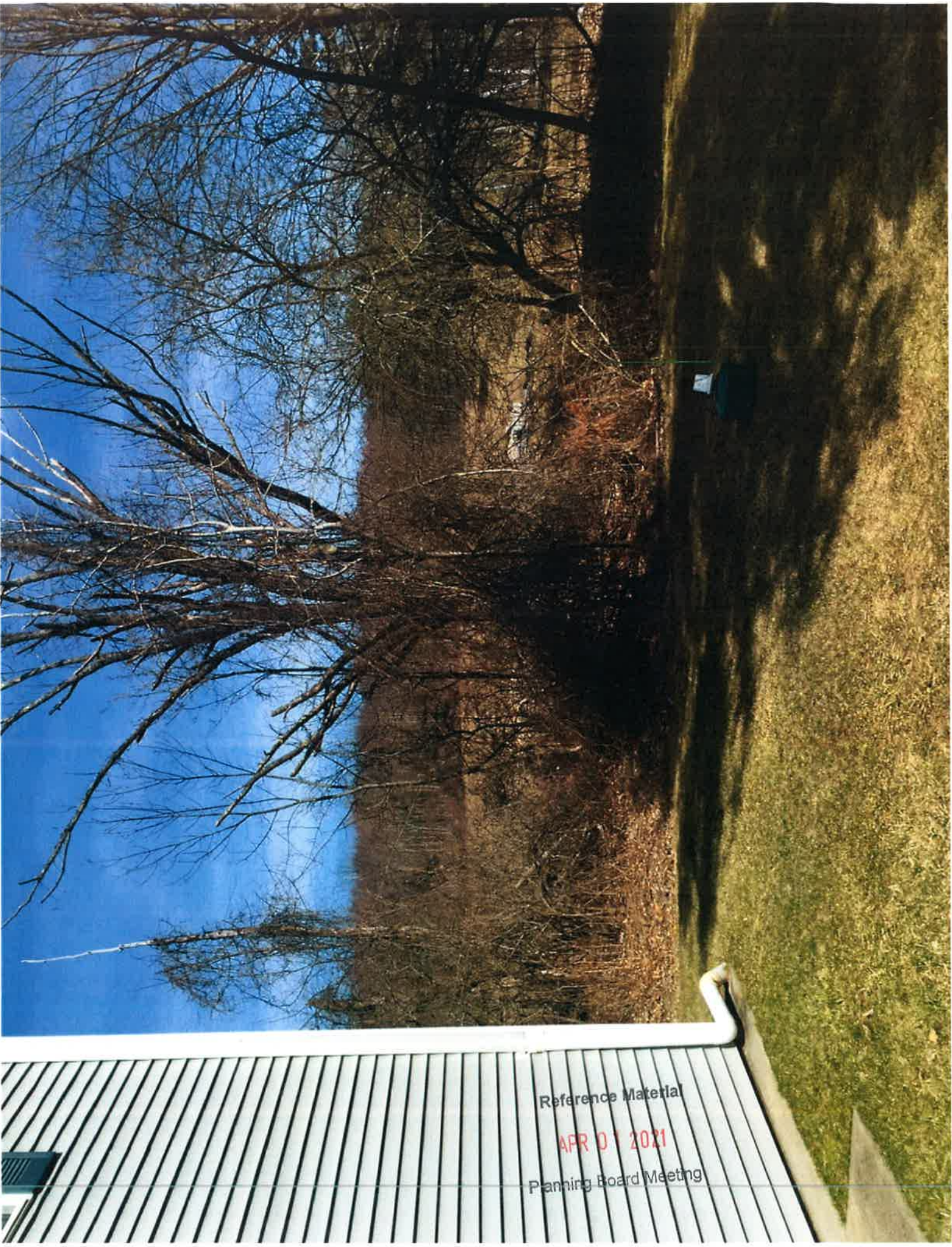

James T. Potter

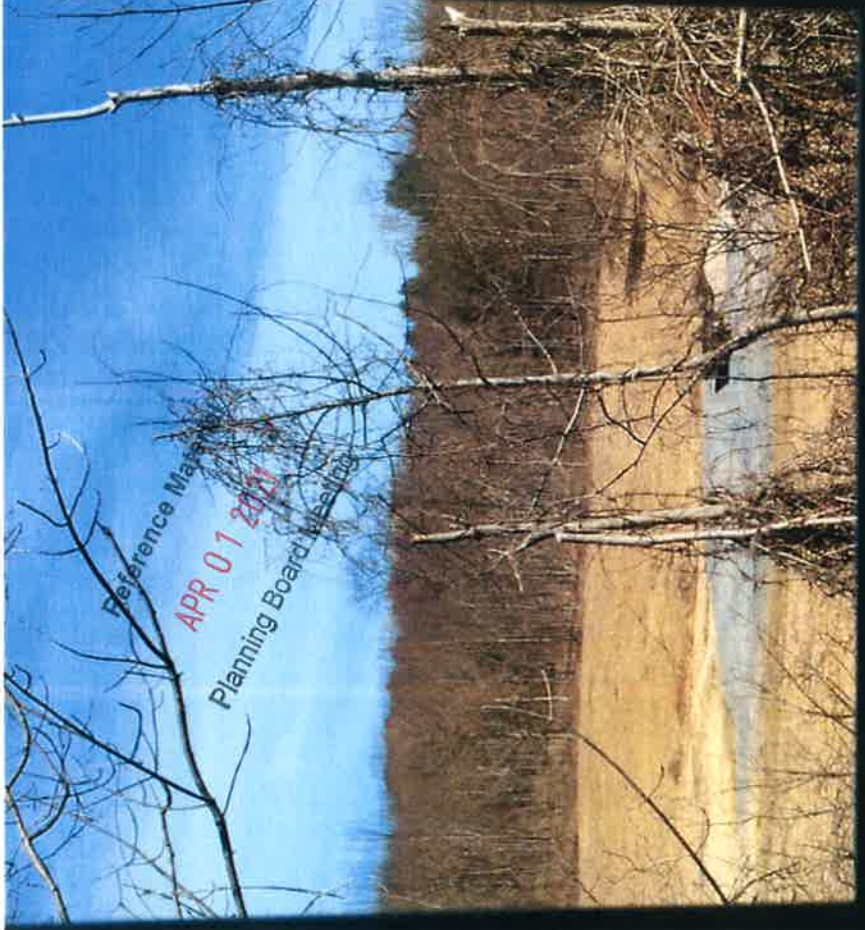
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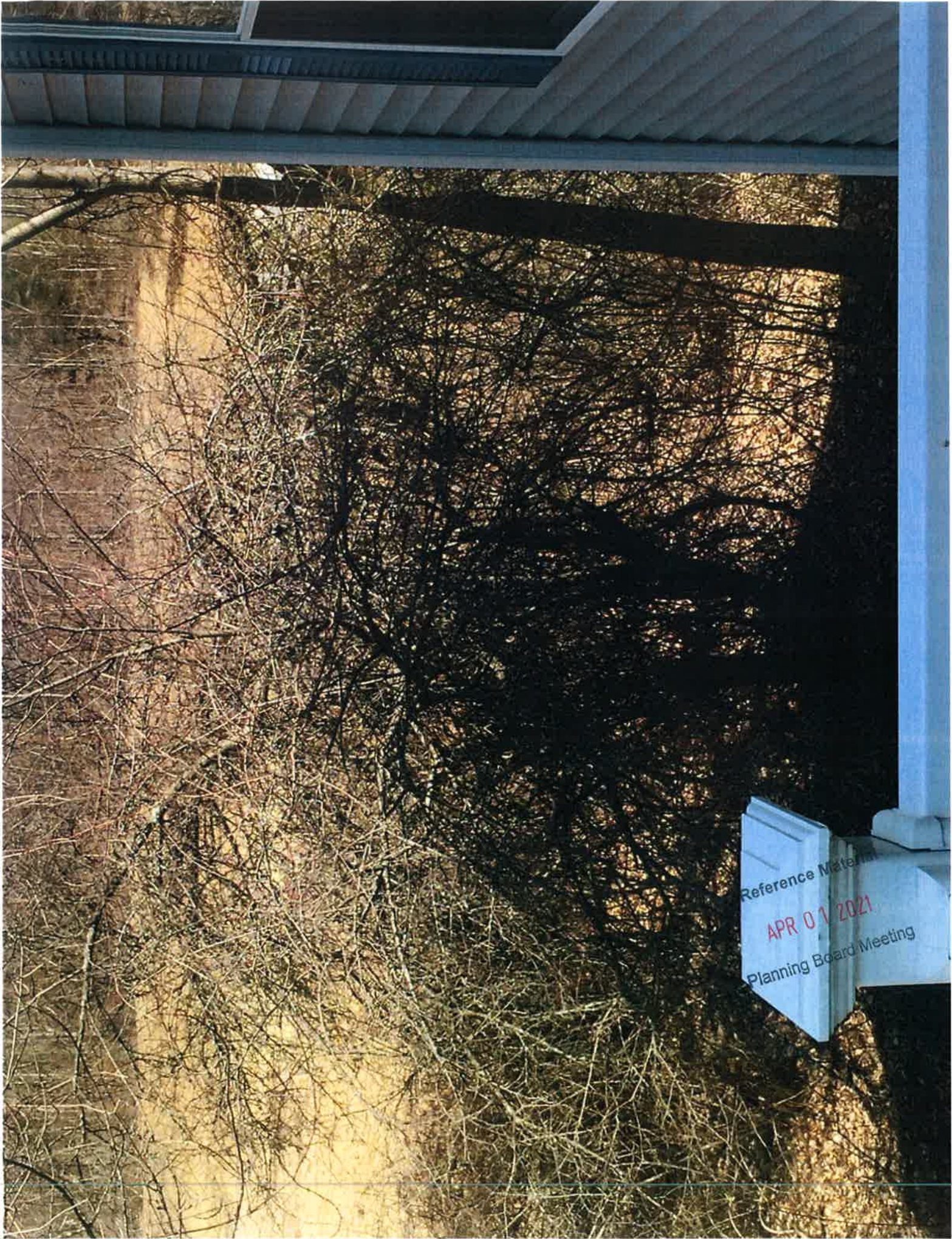
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APR 01 2021

Planning Board Meeting







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APR 01 2021
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Town of Austerlitz Planning Board

Lee Tilden, Chairman

Deborah Lans, Member

Perry Samowitz, Member

Eric Sieber, Member

Jane Magee, Member

RE: Planning Board Application #1-2021- 1

Property Owner: 648 Rte 203 LLC, Dale Madsen

Rural Residential

Erlyn Madonia

66 Fiddlehead Lane

Spencertown, NY12165

March 25, 2021

Austerlitz Planning Board,

When I first moved to Austerlitz the zoning codes were being written. Clearly the residents of Austerlitz felt a need to protect themselves from unwanted changes in the quality of life in their community. The area is zoned "Rural Residential". Everything should be done to protect that designation and inhibit exceptions. Every action must be taken to protect private properties from commercial encroachment. Every action must be taken to protect private property owners from the devaluation of their property and quality of life that they have come to expect within a "Rural Residential" area.

I attended the Public Hearing on March 4, 2021. I am unhappy that as of today, March 25, 2021 no Public Hearing minutes have been posted yet, the next Planning Board meeting is 1 week away.

I am writing to express my concern regarding the above application for an exception to the zoning code. I urge the Planning Board to take great caution in its consideration of this application. I believe that the fact that NYS allows a certain amount (#) of truck traffic to enter its state roadways does not mean that the Town of Austerlitz must provide opportunities for that amount of truck traffic.

In addition it was stated or suggested that there was an archeological site on or near the property listed in the application. Since there are no posted minutes I am relaying on my memory. What upset me was that the possibility of an archeological site on or near the property was basically dismissed. No one appeared concerned or inclined to investigate.

The Chairman's unfortunate comment, Oh this is Austerlitz, of course there are objections, was more than upsetting to me. Residents should be encouraged to express their views without being judged! Isn't that the very purpose of any Public Hearing?

Reference Material
APR 01 2021
Planning Board Meeting

Lastly as per your suggestion I brought the notification aspects of this application to the attention of the Austerlitz Town Board. I disagree with Joe, the town attorney, that it might be an invasion of privacy to provide all affected parties with the names of the others also notified. I do believe that the Town Board should notify the Zoning Board of the need for more inclusive notification of the parties affected by an exception to the current zoning laws. This provides the affected community members with greater transparency and provides for better governance.

Austerlitz resident,

Erlyn Madonia

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Planning Board Meeting



2000 Corporate Dr,
Canonsburg, PA 15317

Phone: (724) 416-2713
Fax: (724) 416-4208
www.crowncastle.com

March 11, 2021

Goosetown Network Services, LLC
58 N. Harrison Ave.
Congers, NY 10920

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APR 01 2021
Planning Board Meeting

RE: BU# 871864 – AUSTERLITZ
Site Address: 321 W. Hill Road Stop 132, AUSTERLITZ, NY 12017

Dear Goosetown Network Services, LLC:

In order to better serve the public and minimize the amount of towers in an area where a Lease is located, T-Mobile plans to modify the equipment at the telecommunication facility. The modification will not alter the character or use of the site nor will it change the nature of Crown Castle’s occupancy of the site.

The NY - TOWN OF AUSTERLITZ requires Landowners Authorization for applications related to Land Use, zoning and/or building permits. I have enclosed a Landowners Authorization form which requires your signature (or designee) and date to obtain the necessary city approvals to proceed with an installation of new equipment at this site.

Thank you for your continued cooperation with Crown Castle. If you have any questions concerning this request, please feel free contact me at (724) 416-2713 or via email at Alicia.Hildebrand@crowncastle.com



Yours truly,

DocuSigned by:
Alicia Hildebrand
E9FE323B148C437
Alicia Hildebrand

Real Estate Specialist
(724) 416-2713
Alicia.Hildebrand@crowncastle.com

Property Owner Letter of Authorization

**NY - TOWN OF AUSTERLITZ
P.O. BOX 238
SPENCERTOWN, NY 12165**

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Planning Board Meeting**

Re: Zoning/ Permitting – Plan / Design Review Process

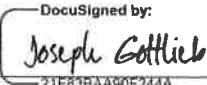
I hereby represent that I am the legal owner of the property referenced below, and I hereby give my authorization to T-MOBILE and/or its Agent(s), to act as our Agent(s) in processing and obtaining approval for Building and/or Zoning permits through the NY - TOWN OF AUSTERLITZ for the modification of the facility located at the existing wireless communications site described as:

Crown Site ID:	871864/Austerlitz
T-MOBILE Site ID:	UP40248E/Austerlitz
Site Address:	321 W. Hill Road Stop 132, AUSTERLITZ, NY 12017
APN:	102200-87.-2-51.112

Property Owner: Goosetown Network Services, LLC

Signature:

DocuSigned by:



21F83BAA90F244A...

Print Name: Joseph Gottlieb

Date: 3/16/2021 | 8:52:30 AM EDT

Certificate Of Completion

Envelope Id: 23EF5F0EA1434F2C8CE20532B38005D1
Subject: DocuSign: 871864/ Letter of Authorization/321 W. Hill Road Stop 132, AUSTERLITZ, NY 12017
Source Envelope:
Document Pages: 2
Certificate Pages: 4
AutoNav: Enabled
Envelopeld Stamping: Enabled
Time Zone: (UTC-05:00) Eastern Time (US & Canada)

Status: Completed

DocuSign
SECURED
Reference Material

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Envelope Originator:
Alicia Hildebrand
2000 Corporate Drive
Canonsburg, PA 15317
Alicia.Hildebrand@crowncastle.com
IP Address: 50.228.225.109

Record Tracking

Status: Original
3/11/2021 3:26:55 PM
Holder: Alicia Hildebrand
Alicia.Hildebrand@crowncastle.com

Location: DocuSign

Signer Events

Alicia Hildebrand
alicia.hildebrand@crowncastle.com
Crown Castle International Corp.
Security Level: Email, Account Authentication (None)

Signature

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Alicia Hildebrand
E0FE323B148C437

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Signed: 3/11/2021 3:35:34 PM

Electronic Record and Signature Disclosure:
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Joseph Gottlieb
davidg@goosetown.com
Exec. Vice President
Goosetown Enterprises, Inc
Security Level: Email, Account Authentication (None)

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Joseph Gottlieb
21F33BA90F244A

Signature Adoption: Pre-selected Style
Using IP Address: 173.56.5.66

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Signed: 3/16/2021 8:52:30 AM

Electronic Record and Signature Disclosure:
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In Person Signer Events

Signature

Timestamp

Editor Delivery Events

Status

Timestamp

Agent Delivery Events

Status

Timestamp

Intermediary Delivery Events

Status

Timestamp

Certified Delivery Events

Status

Timestamp

Carbon Copy Events

Status

Timestamp

Witness Events

Signature

Timestamp

Notary Events

Signature

Timestamp

Envelope Summary Events

Status

Timestamps

Envelope Sent
Certified Delivered
Hashed/Encrypted
Security Checked

3/11/2021 3:35:12 PM
3/11/2021 3:50:52 PM

Envelope Summary Events

Signing Complete
Completed

Status

Security Checked
Security Checked

Timestamps

3/16/2021 8:52:30 AM
3/16/2021 8:52:30 AM

Payment Events

Status

Timestamps

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APR 01 2021
Planning Board Meeting

APR 01 2021

ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

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If you elect to receive documents for execution and various other documents and other records only in paper format, it will slow the speed at which we can complete the subject transactions because of the increased delivery time.

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How to contact Crown Castle

You may contact us to let us know of any changes related to contacting you electronically, to request paper copies of documents for execution and other documents and records from us, and to withdraw your prior consent to receive documents for execution and other documents and records electronically as follows:

- To contact us by phone call: 724-416-2000
- To contact us by email, send messages to: esignature@CrownCastle.com
- To contact us by paper mail, send correspondence to
Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317

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To let us know of a change to the e-mail address where we should send documents for execution and other documents and records to you, you must send an email message to esignature@CrownCastle.com and state your previous e-mail address and your new e-mail address.

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Browsers:	Internet Explorer® 11 (Windows only); Windows Edge Current Version; Mozilla Firefox Current Version; Safari™ (Mac OS only) 6.2 or above; Google Chrome Current Version; Note : Pre-release (e.g., beta) versions of operating systems and browsers are not supported.
Mobile Signing:	Apple iOS 7.0 or above; Android 4.0 or above
PDF Reader:	Acrobat® Reader or similar software may be required to view and print PDF files
Screen Resolution:	1024 x 768

Enabled Security Settings:	Allow per session cookies
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These minimum requirements are subject to change. If these requirements change, you will be asked to re-accept the disclosure. Pre-release (e.g. beta) versions of operating systems and browsers are not supported.

Acknowledging your access and consent to receive documents electronically

Please confirm that you were able to access this disclosure electronically (which is similar to the manner in which we will deliver documents for execution and other documents and records) and that you were able to print this disclosure on paper or electronically save it for your future reference and access or that you were able to e-mail this disclosure to an address where you will be able to print it on paper or save it for your future reference and access. Further, if you consent to receiving documents for execution and other documents and records in electronic format on the terms described above, please let us know by clicking the "I agree" button below.

By checking the 'I agree' box, I confirm that:

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Planning Board Meeting



Date: December 16, 2020

Cheryl Schultz
Crown Castle
6325 Ardrey Kell Rd, Suite 600
Charlotte, NC 28277

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000



MAR 22 2021



Subject: Structural Analysis Report

Carrier Designation: T-Mobile Co-Locate
Carrier Site Number: UP40248E
Carrier Site Name: Austerlitz

Crown Castle Designation: Crown Castle BU Number: 871864
Crown Castle Site Name: Austerlitz
Crown Castle JDE Job Number: 620556
Crown Castle Work Order Number: 1905763
Crown Castle Order Number: 528493 Rev. 0

Engineering Firm Designation: Crown Castle Project Number: 1905763

Site Data: 321 W. Hill Road Stop 132, AUSTERLITZ, Columbia County, NY
Latitude 42° 18' 21.77", Longitude -73° 29' 27.12"
300 Foot - Guyed Tower

Dear Cheryl Schultz,

Crown Castle is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above-mentioned tower.

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

LC7: Proposed Equipment Configuration Sufficient Capacity

This analysis has been performed in accordance with the 2020 New York State Uniform Code based upon an ultimate 3-second gust wind speed of 112 mph. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Kenneth Sukitch, E.I.T.

Respectfully submitted by:

Rohit Soni, P.E.
Senior Project Engineer



Digitally signed
by Rohit Soni
Date:
2020.12.16
16:03:30 -05'00'

TABLE OF CONTENTS

- 1) INTRODUCTION
- 2) ANALYSIS CRITERIA
 - Table 1 - Proposed Equipment Configuration
 - Table 2 - Other Considered Equipment
- 3) ANALYSIS PROCEDURE
 - Table 3 - Documents Provided
 - 3.1) Analysis Method
 - 3.2) Assumptions
- 4) ANALYSIS RESULTS
 - Table 4 - Section Capacity (Summary)
 - Table 5 - Tower Component Stresses vs. Capacity - LC7
 - 4.1) Recommendations
- 5) APPENDIX A
 - tnxTower Output
- 6) APPENDIX B
 - Base Level Drawing
- 7) APPENDIX C
 - Additional Calculations

Reference Material
APR 01 2021
Planning Board Meeting

1) INTRODUCTION

This tower is a 300 ft Guyed tower designed by Rohn and mapped by Vertical Solutions.

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2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
Risk Category: II
Wind Speed: 112 mph
Exposure Category: B
Topographic Factor: 1
Ice Thickness: 1 in
Wind Speed with Ice: 40 mph
Service Wind Speed: 60 mph

APR 01 2021
Planning Board Meeting

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
290.0	290.0	4	sitepro 1	VFA12-HD	1 4	1/2 1-5/8
	288.0	4	andrew	HBXX-6517DS-A2M w/ Mount Pipe		
		4	ericsson	RADIO 4415 B66A		
		4	ericsson	RADIO 4424 B25_TMO		
		4	ericsson	RADIO 4449 B71/B85A		
		4	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
300.0	305.0	1	decibel	DB806T6-Z	1	1/2
	304.0	1	sinclair	SRL-210A	1	7/8
298.0	298.0	3	-	7' Arch Frame	2 9	3/8 3/4
		6	commscope	NNH4-65C-R6 w/ Mount Pipe		
		3	ericsson	4449		
		3	ericsson	4478		
		3	ericsson	8843		
		2	raycap	DC9-48-60-24-8C-EV		
278.0	278.0	1	rfs celwave	PAD6-59BC	1	E60
		1	tower mounts	Pipe Mount [PM 601-1]		
270.0	270.0	1	decibel	DB212-1	1	7/8
245.0	245.0	1	decibel	DB212-1	1	7/8
225.0	235.0	1	rfs celwave	PD220-1	1	7/8
	225.0	1	tower mounts	Side Arm Mount [SO 201-1]		
216.0	217.0	3	alcatel lucent	B13 RRH 4X30	1	1-5/8
		6	andrew	SBNHH-1D65B w/ Mount Pipe		
		1	raycap	RRFDC-3315-PF-48		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	216.0	3	-	12' Curved Sector Mount		
196.0	204.0	1	andrew	ASP682	1	7/8
	196.0	1	tower mounts	Side Arm Mount [SO 306-1]		
178.0	183.0	2	scala	OGB9-900	-	-
	178.0	2	tower mounts	Side Arm Mount [SO 306-1]		
168.0	170.0	1	decibel	DB201-A	1	1/2
	168.0	1	-	10' Standoff		
142.0	145.0	1	til-tek	TA-2350-DAB-T6	1	1/2
134.0	144.0	1	rfl antennas	COL54-166	1	7/8
	134.0	1	tower mounts	Side Arm Mount [SO 308-1]		
130.0	130.0	1	rfs celwave	PAD6-59BC	1	E60
		1	tower mounts	Pipe Mount [PM 601-1]		
120.0	120.0	1	tower mounts	Pipe Mount [PM 601-1]	-	-
116.0	116.0	1	kathrein	PR-950	1	7/8
109.0	119.0	1	rfl antennas	COL54-166	1	7/8
	109.0	1	tower mounts	Side Arm Mount [SO 306-1]		
103.0	113.0	1	rfl antennas	BA4040-41-DIN	1	7/8
	103.0	1	tower mounts	Side Arm Mount [SO 307-1]		
82.0	92.0	1	rfs celwave	220-1N	1	1/2
	82.0	1	tower mounts	Side Arm Mount [SO 201-1]		
78.0	88.0	1	rfs celwave	220-1N	1	1/2
	78.0	1	-	10' Standoff		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH	1360042	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	FDH (Mapping)	1360112	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Vertical Solutions (Mapping)	2146313	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.7.5), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

- 1) Tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

Reference Material

Reference Material

APR 01 2021

Planning Board Meeting
December 16, 2020
CCI BU No 871864
Page 5

300 Ft Guyed Tower Structural Analysis
Project Number 1905763, Order 528493, Revision 0

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	300 - 280	Leg	ROHN 2.5 EH	1	-29.083	79.978	36.4	Pass
T2	280 - 260	Leg	ROHN 2.5 STD	34	-26.808	61.326	43.7	Pass
T3	260 - 240	Leg	ROHN 2.5 STD	67	-23.247	61.326	37.9	Pass
T4	240 - 220	Leg	ROHN 2 EH	101	-35.854	46.048	77.9	Pass
T5	220 - 200	Leg	ROHN 2.5 STD	134	-32.448	61.326	52.9	Pass
T6	200 - 180	Leg	ROHN 2.5 STD	166	-33.169	61.326	54.1	Pass
T7	180 - 160	Leg	ROHN 2.5 EH	200	-35.374	79.978	44.2	Pass
T8	160 - 140	Leg	ROHN 2.5 EH	233	-44.426	79.978	55.5	Pass
T9	140 - 120	Leg	ROHN 2.5 EH	266	-56.717	79.978	70.9	Pass
T10	120 - 100	Leg	ROHN 2.5 EH	299	-56.968	79.978	71.2	Pass
T11	100 - 80	Leg	ROHN 2.5 EH	332	-47.922	79.978	59.9	Pass
T12	80 - 60	Leg	ROHN 2.5 EH	364	-49.714	79.978	62.2	Pass
T13	60 - 40	Leg	ROHN 2.5 EH	397	-53.111	79.978	66.4	Pass
T14	40 - 20	Leg	ROHN 2.5 EH	430	-53.270	79.978	66.6	Pass
T15	20 - 4.81771	Leg	ROHN 2.5 EH	463	-52.453	79.978	65.6	Pass
T16	4.81771 - 0	Leg	ROHN 2.5 STD	491	-53.862	75.174	71.6	Pass
T1	300 - 280	Diagonal	ROHN 1.5 x 11GA	18	-6.433	11.828	54.4 63.0 (b)	Pass
T2	280 - 260	Diagonal	ROHN 1.5 x 11GA	65	-3.232	11.828	27.3 31.5 (b)	Pass
T3	260 - 240	Diagonal	ROHN 1.5 x 11GA	78	-2.255	11.828	19.1 21.9 (b)	Pass
T4	240 - 220	Diagonal	ROHN 1.5 x 11GA	110	-4.384	11.655	37.6 48.6 (b)	Pass
T5	220 - 200	Diagonal	ROHN 1.5 x 11GA	164	-3.856	11.828	32.6 37.5 (b)	Pass
T6	200 - 180	Diagonal	ROHN 1.5 x 11GA	196	-1.681	11.828	14.2 16.4 (b)	Pass
T7	180 - 160	Diagonal	ROHN 1.5 x 11GA	209	-2.702	11.828	22.8 26.3 (b)	Pass
T8	160 - 140	Diagonal	ROHN 1.5 x 11GA	257	-4.096	11.828	34.6 40.2 (b)	Pass
T9	140 - 120	Diagonal	ROHN 1.5 x 11GA	296	-3.352	11.828	28.3 32.6 (b)	Pass
T10	120 - 100	Diagonal	ROHN 1.5 x 11GA	308	-2.891	11.828	24.4 28.1 (b)	Pass
T11	100 - 80	Diagonal	ROHN 1.5 x 11GA	341	-4.618	11.828	39.0 45.0 (b)	Pass
T12	80 - 60	Diagonal	ROHN 1.5 x 11GA	393	-2.768	11.828	23.4 27.9 (b)	Pass
T13	60 - 40	Diagonal	ROHN 1.5 x 11GA	428	-1.659	11.828	14.0 16.7 (b)	Pass
T14	40 - 20	Diagonal	ROHN 1.5 x 11GA	441	-2.070	11.828	17.5 20.1 (b)	Pass
T15	20 - 4.81771	Diagonal	ROHN 1.5 x 11GA	474	-2.458	11.828	20.8 23.9 (b)	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T16	4.81771 - 0	Horizontal	L4x4x1/4	498	-0.584	61.857	6.2	Pass
T1	300 - 280	Top Girt	ROHN 1.5 x 11GA	4	-0.715	14.231	5.0 7.0 (b)	Pass
T2	280 - 260	Top Girt	ROHN 1.5 x 11GA	38	-1.061	14.231	7.5 14.9 (b)	Pass
T3	260 - 240	Top Girt	ROHN 1.5 x 11GA	71	-0.505	14.231	3.6 6.3 (b)	Pass
T4	240 - 220	Top Girt	ROHN 1.5 x 11GA	105	-0.949	14.092	6.7 11.1 (b)	Pass
T5	220 - 200	Top Girt	ROHN 1.5 x 11GA	137	-1.533	14.231	10.8 19.7 (b)	Pass
T6	200 - 180	Top Girt	ROHN 1.5 x 11GA	169	0.857	20.649	4.1 8.3 (b)	Pass
T7	180 - 160	Top Girt	ROHN 1.5 x 11GA	204	0.768	20.649	3.7 7.5 (b)	Pass
T8	160 - 140	Top Girt	ROHN 1.5 x 11GA	236	1.275	20.649	6.2 12.4 (b)	Pass
T9	140 - 120	Top Girt	ROHN 1.5 x 11GA	270	-1.154	14.231	8.1 12.8 (b)	Pass
T10	120 - 100	Top Girt	ROHN 1.5 x 11GA	301	-0.580	14.231	4.1 5.8 (b)	Pass
T11	100 - 80	Top Girt	ROHN 1.5 x 11GA	335	-1.002	14.231	7.0 10.5 (b)	Pass
T12	80 - 60	Top Girt	ROHN 1.5 x 11GA	367	1.285	20.649	6.2 12.5 (b)	Pass
T13	60 - 40	Top Girt	ROHN 1.5 x 11GA	401	-0.711	14.231	5.0 6.9 (b)	Pass
T14	40 - 20	Top Girt	ROHN 1.5 x 11GA	435	-0.312	14.231	2.2 3.0 (b)	Pass
T15	20 - 4.81771	Top Girt	ROHN 1.5 x 11GA	468	-0.838	14.231	5.9 8.2 (b)	Pass
T16	4.81771 - 0	Top Girt	L4x4x1/4	495	8.900	62.856	14.2	Pass
T1	300 - 280	Bottom Girt	ROHN 1.5 x 11GA	8	-2.076	14.231	14.6 20.2 (b)	Pass
T2	280 - 260	Bottom Girt	ROHN 1.5 x 11GA	40	-0.621	14.231	4.4 6.0 (b)	Pass
T3	260 - 240	Bottom Girt	ROHN 1.5 x 11GA	75	-0.956	14.231	6.7 10.2 (b)	Pass
T4	240 - 220	Bottom Girt	ROHN 1.5 x 11GA	106	-1.749	14.092	12.4 19.4 (b)	Pass
T5	220 - 200	Bottom Girt	ROHN 1.5 x 11GA	139	-0.784	14.231	5.5 7.6 (b)	Pass
T6	200 - 180	Bottom Girt	ROHN 1.5 x 11GA	174	-0.575	14.231	4.0 5.6 (b)	Pass
T7	180 - 160	Bottom Girt	ROHN 1.5 x 11GA	205	-1.281	14.231	9.0 13.4 (b)	Pass
T8	160 - 140	Bottom Girt	ROHN 1.5 x 11GA	240	-1.312	14.231	9.2 13.4 (b)	Pass
T9	140 - 120	Bottom Girt	ROHN 1.5 x 11GA	273	0.761	20.649	3.7 7.4 (b)	Pass
T10	120 - 100	Bottom Girt	ROHN 1.5 x 11GA	305	-0.847	14.231	5.9 10.6 (b)	Pass
T11	100 - 80	Bottom Girt	ROHN 1.5 x 11GA	338	-1.907	14.231	13.4 23.3 (b)	Pass
T12	80 - 60	Bottom Girt	ROHN 1.5 x 11GA	371	0.935	20.649	4.5 9.1 (b)	Pass
T13	60 - 40	Bottom Girt	ROHN 1.5 x 11GA	405	0.386	20.649	1.9 3.8 (b)	Pass

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Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P allow (K)	% Capacity	Pass / Fail
T14	40 - 20	Bottom Girt	ROHN 1.5 x 11GA	438	0.941	20.649	4.6 9.2 (b)	Pass
T15	20 - 4.81771	Bottom Girt	ROHN 1.5 x 11GA	471	2.529	19.665	12.9 24.6 (b)	Pass
T1	300 - 280	Guy A@282.523	5/8 (ECP - 23000)	543	12.757	26.711	47.8	Pass
T4	240 - 220	Guy A@222.523	7/16 (ECP - 23000)	528	7.080	13.104	54.0	Pass
T8	160 - 140	Guy A@159.385	1/2 (ECP - 23000)	516	12.021	16.947	70.9	Pass
T12	80 - 60	Guy A@79.3854	7/16 (ECP - 23000)	510	9.893	13.104	75.5	Pass
T1	300 - 280	Guy B@282.523	5/8 (ECP - 23000)	540	13.232	26.711	49.5	Pass
T4	240 - 220	Guy B@222.523	7/16 (ECP - 23000)	525	7.246	13.104	55.3	Pass
T8	160 - 140	Guy B@159.385	1/2 (ECP - 23000)	515	12.418	16.947	73.3	Pass
T12	80 - 60	Guy B@79.3854	7/16 (ECP - 23000)	509	10.310	13.104	78.7	Pass
T1	300 - 280	Guy C@282.523	5/8 (ECP - 23000)	532	13.095	26.711	49.0	Pass
T4	240 - 220	Guy C@222.523	7/16 (ECP - 23000)	517	7.122	13.104	54.3	Pass
T8	160 - 140	Guy C@159.385	1/2 (ECP - 23000)	511	12.112	16.947	71.5	Pass
T12	80 - 60	Guy C@79.3854	7/16 (ECP - 23000)	505	10.129	13.104	77.3	Pass
T1	300 - 280	Top Guy Pull-Off@282.523	2L2x2x1/4x3/8	538	-7.382	45.798	16.1	Pass
T4	240 - 220	Top Guy Pull-Off@222.523	2L2x2x1/4x3/8	521	-5.048	45.153	11.2	Pass
T8	160 - 140	Top Guy Pull-Off@159.385	4 1/2x3/8	513	4.136	57.409	7.2	Pass
T12	80 - 60	Top Guy Pull-Off@79.3854	4 1/2x3/8	506	-0.317	3.227	9.8	Pass
T1	300 - 280	Torque Arm Top@282.523	C15x33.9	541	2.627	338.839	25.5	Pass
T4	240 - 220	Torque Arm Top@222.523	C10x15.3	526	-1.404	129.627	39.2	Pass
							Summary	
							Leg (T4)	77.9 Pass
							Diagonal (T1)	63.0 Pass
							Horizontal (T16)	6.2 Pass
							Top Girt (T5)	19.7 Pass
							Bottom Girt (T15)	24.6 Pass
							Guy A (T12)	75.5 Pass
							Guy B (T12)	78.7 Pass
							Guy C (T12)	77.3 Pass
							Top Guy Pull-Off (T1)	16.1 Pass
							Torque Arm Top (T4)	39.2 Pass
							Bolt Checks	63.0 Pass
							Rating =	78.7 Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Base Foundation (Structure)	0	15.9	Pass
1	Base Foundation (Soil Interaction)	0	25.9	Pass
1	Guy Anchor Shaft	0	58.9	Pass
1	Guy Anchor Foundation Soil Interaction	0	11.2	Pass
Structure Rating (max from all components) =			78.7%	

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

4.1) Recommendations

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

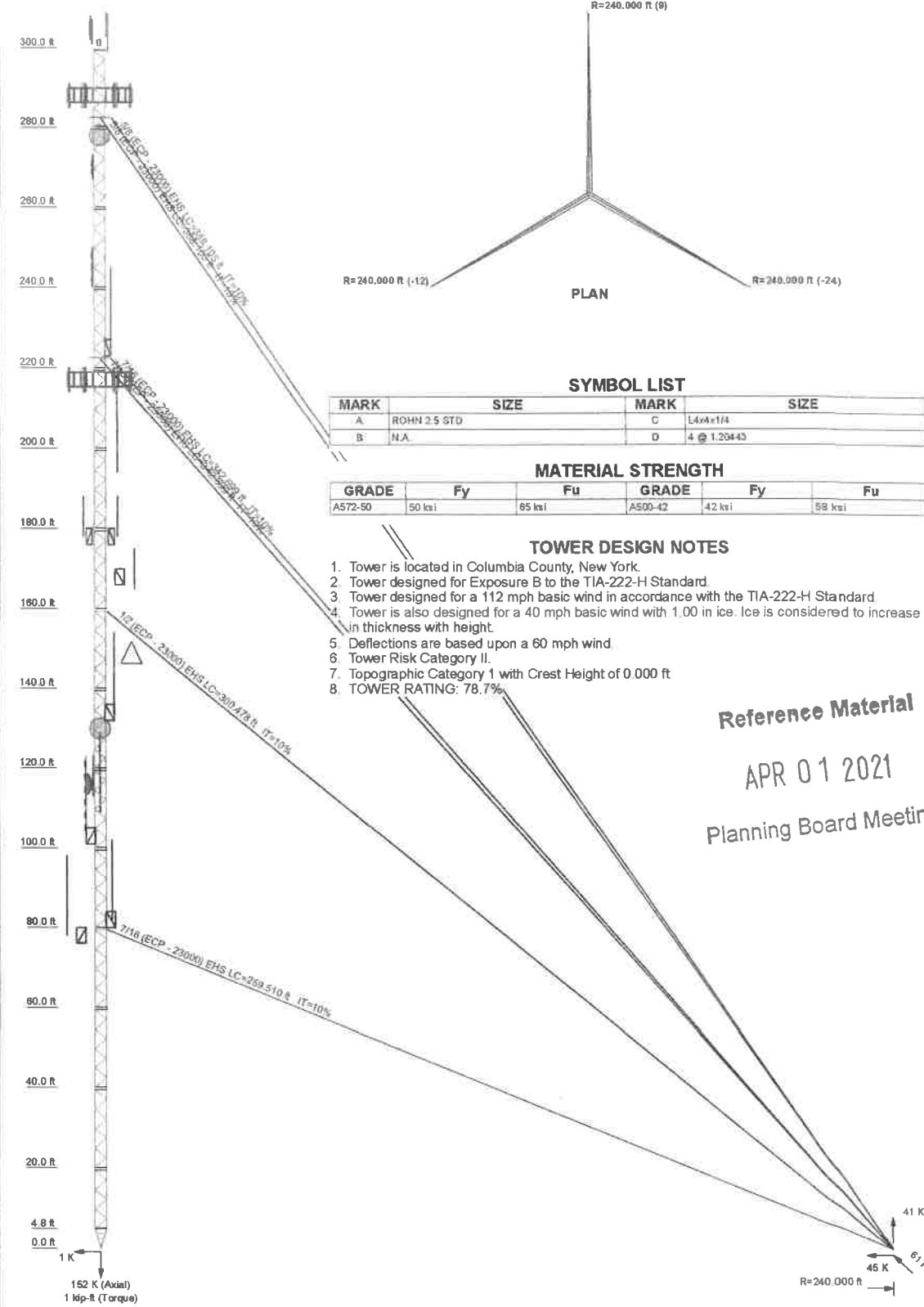
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APPENDIX A
TNXTOWER OUTPUT

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Section	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	A															ROHN 2.5 EH
Leg Girders																ROHN 2.5 STD
Diagonals	B															
Top Girts	C															
Bottom Girts	B															
Horizontals	C															
Top Guy Pull-Offs																2L2x2x1/4x3/8
Face Width (ft)																3.41887
# Panels @ (ft)																1.5
Weight (K)																1.5



ALL REACTIONS ARE FACTORED



Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
Phone: (724) 416-2000
FAX: (724) 416-2001

Job: BU# 871864		
Project: _____		
Client: Crown Castle	Drawn by: KSukitch	App'd: _____
Code: TIA-222-H	Date: 12/16/20	Scale: NTS
Path: _____		Dwg No. E-1

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 300.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 3.417 ft at the top and tapered at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

- 3) Tower is located in Columbia County, New York.
- 4) Tower base elevation above sea level: 1679.000 ft.
- 5) Basic wind speed of 112 mph.
- 6) Risk Category II.
- 7) Exposure Category B.
- 8) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- 9) Topographic Category: 1.
- 10) Crest Height: 0.000 ft.
- 11) Nominal ice thickness of 1.000 in.
- 12) Ice thickness is considered to increase with height.
- 13) Ice density of 56.000 pcf.
- 14) A wind speed of 40 mph is used in combination with ice.
- 15) Temperature drop of 50.000 °F.
- 16) Deflections calculated using a wind speed of 60 mph.
- 17) Pressures are calculated at each section.
- 18) Safety factor used in guy design is 0.9524.
- 19) Tower analysis based on target reliabilities in accordance with Annex S.
- 20) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- 21) Stress ratio used in tower member design is 1.05.
- 22) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

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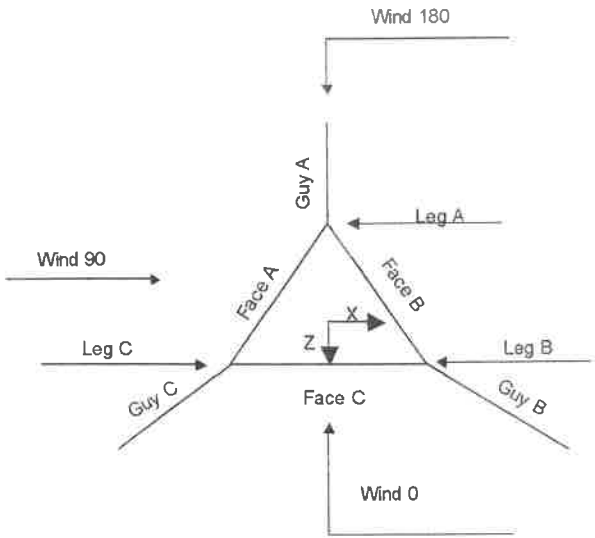
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Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	✓ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	✓ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	✓ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
Use Code Stress Ratios	✓ Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
Use Code Safety Factors - Guys	✓ Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	✓ Bypass Mast Stability Checks	✓ Consider Feed Line Torque
Always Use Max Kz	✓ Use Azimuth Dish Coefficients	✓ Include Angle Block Shear Check
Use Special Wind Profile	✓ Project Wind Area of Appurt.	Use TIA-222-H Bracing Resist.
✓ Include Bolts In Member Capacity	✓ Autocalc Torque Arm Areas	Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Use TIA-222-H Tension Splice
✓ Secondary Horizontal Braces Leg	✓ Sort Capacity Reports By Component	Exemption
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	

Poles

Include Shear-Torsion Interaction
Always Use Sub-Critical Flow
Use Top Mounted Sockets
Pole Without Linear Attachments
Pole With Shroud Or No
Appurtenances
Outside and Inside Corner Radii Are
Known

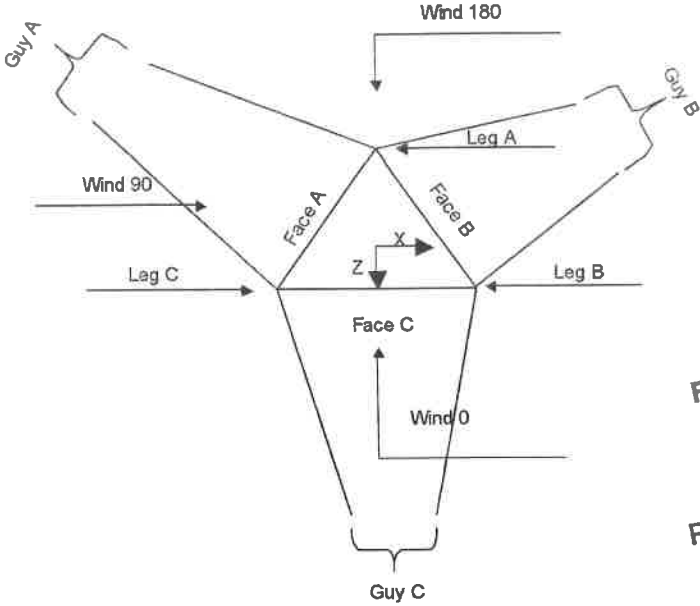


Comer & Starmount Guyed Tower

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Face Guyed

Tower Section Geometry						
Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	300.000-280.000			3.417	1	20.000
T2	280.000-260.000			3.417	1	20.000
T3	260.000-240.000			3.417	1	20.000
T4	240.000-220.000			3.417	1	20.000
T5	220.000-200.000			3.417	1	20.000
T6	200.000-180.000			3.417	1	20.000
T7	180.000-160.000			3.417	1	20.000
T8	160.000-140.000			3.417	1	20.000
T9	140.000-120.000			3.417	1	20.000
T10	120.000-100.000			3.417	1	20.000
T11	100.000-80.000			3.417	1	20.000
T12	80.000-60.000			3.417	1	20.000
T13	60.000-40.000			3.417	1	20.000
T14	40.000-20.000			3.417	1	20.000

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T15	20.000-4.818			3.417	1	15.182
T16	4.818-0.000			3.417	1	4.818

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	300.000-280.000	2.409	K Brace Left	No	No	7.375	1.375
T2	280.000-260.000	2.409	K Brace Left	No	No	7.375	1.375
T3	260.000-240.000	2.409	K Brace Left	No	No	7.375	1.375
T4	240.000-220.000	2.409	K Brace Left	No	No	7.375	1.375
T5	220.000-200.000	2.409	K Brace Left	No	No	7.375	1.375
T6	200.000-180.000	2.409	K Brace Left	No	No	7.375	1.375
T7	180.000-160.000	2.409	K Brace Left	No	No	7.375	1.375
T8	160.000-140.000	2.409	K Brace Left	No	No	7.375	1.375
T9	140.000-120.000	2.409	K Brace Left	No	No	7.375	1.375
T10	120.000-100.000	2.409	K Brace Left	No	No	7.375	1.375
T11	100.000-80.000	2.409	K Brace Left	No	No	7.375	1.375
T12	80.000-60.000	2.409	K Brace Left	No	No	7.375	1.375
T13	60.000-40.000	2.409	K Brace Left	No	No	7.375	1.375
T14	40.000-20.000	2.409	K Brace Left	No	No	7.375	1.375
T15	20.000-4.818	2.409	K Brace Left	No	No	7.375	1.375
T16	4.818-0.000	1.204	X Brace	No	Yes	0.000	0.000

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APR 01 2021

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Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
T1 300.000-280.000	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T2 280.000-260.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T3 260.000-240.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T4 240.000-220.000	Pipe	ROHN 2 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T5 220.000-200.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T6 200.000-180.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T7 180.000-160.000	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T8 160.000-140.000	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T9 140.000-120.000	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T10 120.000-100.000	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T11 100.000-80.000	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T12 80.000-60.000	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T13 60.000-40.000	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T14 40.000-20.000	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T15 20.000-4.818	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T16 4.818-0.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe		A500-42 (42 ksi)

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Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 300.000-280.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T2 280.000-260.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T3 260.000-240.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T4 240.000-220.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T5 220.000-200.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T6 200.000-180.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T7 180.000-160.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T8 160.000-140.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T9 140.000-120.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T10 120.000-100.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T11 100.000-80.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T12 80.000-60.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T13 60.000-40.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T14 40.000-20.000	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T15 20.000-4.818	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T16 4.818-0.000	Equal Angle	L4x4x1/4	A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T16 4.818-0.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
T1 300.000-280.000	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T2 280.000-260.000	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T3 260.000-240.000	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T4 240.000-220.000	0.000	0.154	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T5 220.000-200.000	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T6 200.000-180.000	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T7 180.000-160.000	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T8 160.000-140.000	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T9 140.000-120.000	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T10 120.000-100.000	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T11 100.000-80.000	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T12 80.000-60.000	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T13 60.000-40.000	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T14 40.000-20.000	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T15 20.000-4.818	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000
T16 4.818-0.000	0.000	0.000	A36 (36 ksi)	1	1.03	1.03	0.000	41.000	36.000

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	K Factors ¹							
			Legs	X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
ft				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1 300.000-280.000	No	No	1	1	1	1	1	1	1	1
T2 280.000-260.000	No	No	1	1	1	1	1	1	1	1
T3 260.000-240.000	No	No	1	1	1	1	1	1	1	1
T4 240.000-220.000	No	No	1	1	1	1	1	1	1	1
T5 220.000-200.000	No	No	1	1	1	1	1	1	1	1
T6 200.000-180.000	No	No	1	1	1	1	1	1	1	1
T7 180.000-160.000	No	No	1	1	1	1	1	1	1	1

Reference Material
APR 01 2021
Planning Board Meeting

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T8 160.000- 140.000	No	No	1	1	1	1	1	1	1	1
T9 140.000- 120.000	No	No	1	1	1	1	1	1	1	1
T10 120.000- 100.000	No	No	1	1	1	1	1	1	1	1
T11 100.000- 80.000	No	No	1	1	1	1	1	1	1	1
T12 80.000- 60.000	No	No	1	1	1	1	1	1	1	1
T13 60.000- 40.000	No	No	1	1	1	1	1	1	1	1
T14 40.000- 20.000	No	No	1	1	1	1	1	1	1	1
T15 20.000- 4.818	No	No	1	1	1	1	1	1	1	1
T16 4.818- 0.000	Yes	No	1	1	1	1	1	1	1	1

¹Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 300.000- 280.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T2 280.000- 260.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T3 260.000- 240.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T4 240.000- 220.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T5 220.000- 200.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T6 200.000- 180.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T7 180.000- 160.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T8 160.000- 140.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T9 140.000- 120.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T10 120.000- 100.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T11 100.000- 80.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T12 80.000- 60.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T13 60.000- 40.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T14 40.000- 20.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T15 20.000- 4.818	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T16 4.818- 0.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 300.000- 280.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T2 280.000- 260.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T3 260.000- 240.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T4 240.000- 220.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T5 220.000- 200.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T6 200.000- 180.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T7 180.000- 160.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T8 160.000- 140.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T9 140.000- 120.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T10 120.000- 100.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T11 100.000- 80.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T12 80.000- 60.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T13 60.000- 40.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T14 40.000- 20.000	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T15 20.000- 4.818	Flange	0.750	4	A325X	1	0.500	1	0.500	1	0.625	0	0.625	0	0.625	0
T16 4.818- 0.000	Flange	0.000	4	A325X	0	0.625	0	0.500	0	0.625	0	0.625	0	0.625	0

Guy Data

Reference Material
APR 01 2021
Planning Board Meeting

Guy Elevation	Guy Grade	Guy Size	Initial Tension	%	Guy Modulus	Guy Weight	L _u	Anchor Radius	Anchor Azimuth Adj.	Anchor Elevation	End Fitting Efficiency
ft			K		ksi	plf	ft	ft	°	ft	%
79.3854	EHS	A 7/16 (ECP -	2.080	10%	23000.00	0.399	248.042	240.000	0.000	9.000	100%
		B 23000)	2.080	10%	0	0.399	259.327	240.000	0.000	-24.000	100%
		C 7/16 (ECP -	2.080	10%	23000.00	0.399	254.788	240.000	0.000	-12.000	100%
		23000)			0						
159.385	EHS	7/16 (ECP -			23000.00						
		23000)			0						
		A 1/2 (ECP -	2.690	10%	23000.00	0.517	281.355	240.000	0.000	9.000	100%
		B 23000)	2.690	10%	0	0.517	300.265	240.000	0.000	-24.000	100%
222.523	EHS	C 1/2 (ECP -	2.690	10%	23000.00	0.517	293.101	240.000	0.000	-12.000	100%
		23000)			0						
		1/2 (ECP -			23000.00						
		23000)			0						
282.523	EHS	A 7/16 (ECP -	2.080	10%	23000.00	0.399	319.554	240.000	0.000	9.000	100%
		B 23000)	2.080	10%	0	0.399	342.453	240.000	0.000	-24.000	100%
		C 7/16 (ECP -	2.080	10%	23000.00	0.399	333.931	240.000	0.000	-12.000	100%
		23000)			0						
	EHS	7/16 (ECP -			23000.00						
		23000)			0						
		A 5/8 (ECP -	4.240	10%	23000.00	0.813	362.346	240.000	0.000	9.000	100%
		B 23000)	4.240	10%	0	0.813	387.824	240.000	0.000	-24.000	100%
	EHS	C 5/8 (ECP -	4.240	10%	23000.00	0.813	378.425	240.000	0.000	-12.000	100%
		23000)			0						
	EHS	5/8 (ECP -			23000.00						
		23000)			0						

Reference Material

APR 01 2021

Planning Board Meeting

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
79.3854	Corner						
159.385	Corner						
222.523	Torque Arm	6.833	0.000	Channel	A36 (36 ksi)	Channel	C10x15.3
282.523	Torque Arm	6.833	0.000	Channel	A36 (36 ksi)	Channel	C15x33.9

Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
79.385	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	4 1/2x3/8
159.385	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	4 1/2x3/8
222.523	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2x2x1/4x3/8
282.523	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2x2x1/4x3/8

Guy Data (cont'd)

Guy Elevation	Cable Weight A	Cable Weight B	Cable Weight C	Cable Weight D	Tower Intercept A	Tower Intercept B	Tower Intercept C	Tower Intercept D
ft	K	K	K	K	ft	ft	ft	ft
79.3854	0.099	0.103	0.102		5.867	6.393	6.178	
					4.2	4.4	4.3 sec/pulse	
159.385	0.145	0.155	0.152		sec/pulse	sec/pulse	8.130	
					7.506	8.522	4.9 sec/pulse	
					4.7	5.0		
222.523	0.128	0.137	0.133		sec/pulse	sec/pulse	10.470	
					9.607	10.999	5.6 sec/pulse	
					5.4	5.7		
282.523	0.295	0.315	0.308		sec/pulse	sec/pulse	13.366	
					12.278	14.022	6.3 sec/pulse	
					6.1	6.5		
					sec/pulse	sec/pulse		

Guy Data (cont'd)

Guy Elevation	Calc K Single Angles	Calc K Solid Rounds	Torque Arm		Pull Off		Diagonal	
			K _x	K _y	K _x	K _y	K _x	K _y
79.3854	No	No			1	1	1	1
159.385	No	No			1	1	1	1
222.523	No	No	1	1	1	1	1	1
282.523	No	No	1	1	1	1	1	1

Guy Data (cont'd)

Guy Elevation	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
79.3854	0.625 A325N	0	0.000	0.75	0.750 A325N	0	0.000	1	0.625 A325N	0	0.000	1
159.385	0.625 A325N	0	0.000	0.75	0.750 A325N	0	0.000	1	0.625 A325N	0	0.000	1
222.523	0.750 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	1
282.523	0.750 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	1

Guy Pressures

Guy Elevation	Guy Location	z	q _z	q _z	Ice Thickness
ft		ft	ksf	Ice ksf	in
79.3854	A	44.193	0.019	0.002	0.875
	B	27.693	0.017	0.002	0.835
	C	33.693	0.018	0.002	0.852
159.385	A	84.193	0.023	0.003	0.933
	B	67.693	0.022	0.003	0.913
	C	73.693	0.022	0.003	0.921
222.523	A	115.762	0.025	0.003	0.964
	B	99.262	0.024	0.003	0.949
	C	105.262	0.024	0.003	0.955
282.523	A	145.762	0.027	0.003	0.986
	B	129.262	0.026	0.003	0.974
	C	135.262	0.026	0.003	0.979

Reference Material
APR 01 2021
Planning Board Meeting

Reference Material

APR 01 2021

December 16, 2020

CCI BU No 871864

Page 20

300 Ft Guyed Tower Structural Analysis
Project Number 1905763, Order 528493, Revision 0

Planning Board Meeting

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F _x	F _y	F _z	M _x	M _y	M _z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
79.3854	A	16.473	2.108 2.080	0.000	0.643	-2.008	-1.269	0.000	0.000
	B	23.477	2.121 2.080	1.668	0.889	0.963	0.876	0.000	-1.518
	C	21.003	2.116 2.080	-1.696	0.803	0.979	0.792	0.000	1.371
159.385	A	32.285	Sum: 2.768 2.690	-0.028 0.000	2.335 1.530	-0.065 -2.306	0.399 -3.018	0.000 0.000	-0.146 0.000
	B	37.612	2.785 2.690	1.877	1.748	1.084	1.724	0.000	-2.986
	C	35.755	2.779 2.690	-1.921	1.673	1.109	1.650	0.000	2.859
222.523	A	41.891	Sum: 2.165 2.080	-0.044 -0.023	4.952 1.481	-0.113 -1.579	0.356 -2.921	0.000 5.441	-0.128 -5.060
	A	41.891	2.165 2.080	0.023	1.481	-1.579	-2.921	-5.441	5.060
	B	46.002	2.178 2.080	1.291	1.600	0.721	6.312	5.093	0.000
	B	46.002	2.178 2.080	1.270	1.600	0.758	-3.156	-5.093	-5.466
	C	44.572	2.173 2.080	-1.301	1.559	0.776	-3.075	5.217	5.327
	C	44.572	2.173 2.080	-1.322	1.559	0.738	6.151	-5.217	0.000
282.523	A	48.966	Sum: 4.462 4.240	-0.062 -0.041	9.280 3.429	-0.166 -2.855	0.389 -6.764	0.000 9.835	-0.140 -11.716
	A	48.966	4.462 4.240	0.041	3.429	-2.855	-6.764	-9.835	11.716
	B	52.166	4.489 4.240	2.336	3.604	1.304	14.220	9.217	0.000
	B	52.166	4.489 4.240	2.298	3.604	1.371	-7.110	-9.217	-12.315
	C	51.053	4.479 4.240	-2.352	3.544	1.403	-6.991	9.435	12.109
	C	51.053	4.479 4.240	-2.392	3.544	1.335	13.982	-9.435	0.000
Sum:				-0.110	21.155	-0.296	0.573	0.000	-0.206

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F _x	F _y	F _z	M _x	M _y	M _z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
79.3854	A	16.473	4.071 3.944	0.000	1.359	-3.837	-2.681	0.000	0.000
	B	23.477	4.009 3.833	3.110	1.782	1.796	1.757	0.000	-3.044
	C	21.003	4.036 3.877	-3.194	1.639	1.844	1.617	-0.000	2.800
159.385	A	32.285	Sum: 5.205 4.882	-0.084 0.000	4.780 2.996	-0.197 -4.257	0.693 -5.909	0.000 0.000	-0.243 0.000

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x K	F _y K	F _z K	M _x kip-ft	M _y kip-ft	M _z kip-ft
ft									
222.523	B	37.612	5.192 4.809	3.424	3.365	1.977	3.319	0.000	-5.748
	C	35.755	5.198 4.836	-3.520	3.241	2.032	3.196	-0.000	5.536
	A	41.891	Sum: 4.458 4.021	-0.096 -0.045	9.601 3.157	-0.248 -3.148	0.353 -6.227	0.000 10.844	-0.212 -10.785
	A	41.891	4.458 4.021	0.045	3.157	-3.148	-6.227	-10.844	10.785
	B	46.002	4.458 3.964	2.547	3.371	1.422	13.299	10.048	0.000
	B	46.002	4.458 3.964	2.505	3.371	1.495	-6.650	-10.048	-11.517
	C	44.572	4.459 3.986	-2.576	3.299	1.537	-6.509	10.334	11.273
	C	44.572	4.459 3.986	-2.619	3.299	1.463	13.017	-10.334	0.000
	A	48.966	Sum: 7.806 7.054	-0.144 -0.070	19.654 6.102	-0.379 -4.868	0.705 -12.036	0.000 16.771	-0.244 -20.847
	A	48.966	7.806 7.054	0.070	6.102	-4.868	-12.036	-16.771	20.847
282.523	B	52.166	7.827 6.995	3.961	6.378	2.212	25.163	15.626	0.000
	B	52.166	7.827 6.995	3.896	6.378	2.324	-12.581	-15.626	-21.791
	C	51.053	7.820 7.017	-3.997	6.284	2.385	-12.396	16.032	21.471
	C	51.053	7.820 7.017	-4.064	6.284	2.269	24.792	-16.032	0.000
			Sum:	-0.204	37.528	-0.547	0.905	0.000	-0.320

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x K	F _y K	F _z K	M _x kip-ft	M _y kip-ft	M _z kip-ft
ft									
79.3854	A	16.473	2.108 2.080	0.000	0.643	-2.008	-1.269	0.000	0.000
	B	23.477	2.121 2.080	1.668	0.889	0.963	0.876	0.000	-1.518
	C	21.003	2.116 2.080	-1.696	0.803	0.979	0.792	0.000	1.371
159.385	A	32.285	Sum: 2.768 2.690	-0.028 0.000	2.335 1.530	-0.065 -2.306	0.399 -3.018	0.000 0.000	-0.146 0.000
	B	37.612	2.785 2.690	1.877	1.748	1.084	1.724	0.000	-2.986
	C	35.755	2.779 2.690	-1.921	1.673	1.109	1.650	0.000	2.859
222.523	A	41.891	Sum: 2.165 2.080	-0.044 -0.023	4.952 1.481	-0.113 -1.579	0.356 -2.921	0.000 5.441	-0.128 -5.060
	A	41.891	2.165 2.080	0.023	1.481	-1.579	-2.921	-5.441	5.060
	B	46.002	2.178 2.080	1.291	1.600	0.721	6.312	5.093	0.000
	B	46.002	2.178 2.080	1.270	1.600	0.758	-3.156	-5.093	-5.466
	C	44.572	2.173 2.080	-1.301	1.559	0.776	-3.075	5.217	5.327

Reference Material
APR 01 2021
Planning Board Meeting

Reference Material

APR 01 2021

December 16, 2020
CCI BU No 871864
Page 22

300 Ft Guyed Tower Structural Analysis
Project Number 1905763, Order 528493, Revision 0

Planning Board Meeting

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x K	F _y K	F _z K	M _x kip-ft	M _y kip-ft	M _z kip-ft
ft		°							
282.523	C	44.572	2.173 2.080	-1.322	-1.559	0.738	6.151	-5.217	0.000
			Sum:	-0.062	9.280	-0.166	0.389	0.000	-0.140
	A	48.966	4.462 4.240	-0.041	3.429	-2.855	-6.764	9.835	-11.716
	A	48.966	4.462 4.240	0.041	3.429	-2.855	-6.764	-9.835	11.716
	B	52.166	4.489 4.240	2.336	3.604	1.304	14.220	9.217	0.000
	B	52.166	4.489 4.240	2.298	3.604	1.371	-7.110	-9.217	-12.315
	C	51.053	4.479 4.240	-2.352	3.544	1.403	-6.991	9.435	12.109
	C	51.053	4.479 4.240	-2.392	3.544	1.335	13.982	-9.435	0.000
			Sum:	-0.110	21.155	-0.296	0.573	0.000	-0.206

Guy-Tensioning Information

Temperature At Time Of Tensioning																	
Guy Elevation ft	H	V	0 F		20 F		40 F		60 F		80 F		100 F		120 F		
			Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	
79.3854	A	238.03	70.39	2.923	4.18	2.631	4.64	2.349	5.20	2.080	5.87	1.828	6.67	1.600	7.62	1.399	8.70
	B	238.03	103.39	2.848	4.68	2.583	5.16	2.326	5.72	2.080	6.39	1.849	7.19	1.636	8.11	1.446	9.16
	C	238.03	91.39	2.877	4.48	2.602	4.95	2.335	5.51	2.080	6.18	1.841	6.97	1.622	7.91	1.427	8.97
159.385	A	238.03	150.39	3.530	5.74	3.241	6.24	2.980	6.83	2.690	7.51	2.434	8.29	2.194	9.18	1.974	10.18
	B	238.03	183.39	3.424	6.72	3.172	7.24	2.927	7.84	2.690	8.52	2.464	9.29	2.250	10.16	2.051	11.12
	C	238.03	171.39	3.462	6.34	3.196	6.86	2.939	7.45	2.690	8.13	2.453	8.90	2.230	9.78	2.023	10.76
222.523	A	238.05	213.52	2.579	7.78	2.408	8.32	2.241	8.93	2.080	9.61	1.921	10.39	1.773	11.23	1.634	12.17
	B	238.05	246.52	2.514	9.13	2.386	9.70	2.221	10.31	2.080	11.00	1.944	11.75	1.814	12.58	1.690	13.48
	C	238.05	234.52	2.537	8.62	2.381	9.17	2.228	9.79	2.080	10.47	1.937	11.23	1.801	12.06	1.671	12.97
282.523	A	238.05	273.52	5.026	10.39	4.758	10.97	4.496	11.59	4.240	12.28	3.992	13.02	3.752	13.83	3.522	14.71
	B	238.05	306.52	4.924	12.12	4.691	12.70	4.463	13.34	4.240	14.02	4.023	14.76	3.812	15.55	3.608	16.41
	C	238.05	294.52	4.959	11.47	4.714	12.05	4.474	12.68	4.240	13.37	4.012	14.11	3.791	14.91	3.578	15.77

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacin g in	Width or Diameter in	Perimete r in	Weight plf
CL-0610-U	A	No	No	Af (CaAa)	300.000 - 8.000	0.000	0	1	1	3.000	3.000		8.400
Feedline Ladder (Af)	A	No	No	Af (CaAa)	300.000 - 8.000	0.000	0	1	1	3.000	3.000		8.400
Feedline Ladder (Af)	B	No	No	Af (CaAa)	300.000 - 8.000	0.000	0	1	1	3.000	3.000		8.400
Feedline Ladder (Af)	C	No	No	Af (CaAa)	300.000 - 8.000	-0.100	0	1	1	3.000	3.000		8.400
Safety Line 3/8	A	No	No	Ar (CaAa)	300.000 - 8.000	0.000	0.5	1	1	0.375	0.375		0.220
HB158-1- 08U8- S8F18(1- 5/8") ***	A	No	No	Ar (CaAa)	216.000 - 8.000	0.000	0.3	1	1	1.000	1.980		1.700
LDF5- 50A(7/8")	C	No	No	Ar (CaAa)	225.000 - 196.000	0.000	-0.1	1	1	1.000	1.090		0.330

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF5-50A(7/8")	C	No	No	Ar (CaAa)	196.000 - 134.000	0.000	-0.1	2	2	1.000	1.090		0.330
LDF5-50A(7/8")	C	No	No	Ar (CaAa)	134.000 - 109.000	0.000	-0.1	3	3	1.000	1.090		0.330
LDF5-50A(7/8")	C	No	No	Ar (CaAa)	109.000 - 103.000	0.000	-0.1	4	4	1.000	1.090		0.330
LDF5-50A(7/8")	C	No	No	Ar (CaAa)	103.000 - 8.000	0.000	-0.1	5	5	1.000	1.090		0.330
LDF4-50A(1/2")	C	No	No	Ar (CaAa)	168.000 - 8.000	0.000	-0.25	1	1	0.500	0.630		0.150
*** E60 (ELLIPTICAL)	B	No	No	Ar (CaAa)	130.000 - 8.000	1.000	-0.15	2	2	1.000	2.200		0.680
*** E60 (ELLIPTICAL)	B	No	No	Ar (CaAa)	278.000 - 130.000	1.000	-0.15	1	1	1.000	2.200		0.680
LDF5-50A(7/8")	B	No	No	Ar (CaAa)	300.000 - 270.000	0.000	-0.3	1	1	1.000	1.090		0.330
LDF5-50A(7/8")	B	No	No	Ar (CaAa)	270.000 - 245.000	0.000	-0.3	2	2	1.000	1.090		0.330
LDF5-50A(7/8")	B	No	No	Ar (CaAa)	245.000 - 8.000	0.000	-0.3	3	2	1.000	1.090		0.330
LDF5-50A(7/8")	B	No	No	Ar (CaAa)	116.000 - 8.000	0.000	0.1	1	1	1.000	1.090		0.330
LDF4-50A(1/2")	B	No	No	Ar (CaAa)	300.000 - 142.000	0.000	-0.1	1	1	0.630	0.630		0.150
LDF4-50A(1/2")	B	No	No	Ar (CaAa)	142.000 - 82.000	0.000	-0.1	2	2	0.630	0.630		0.150
LDF4-50A(1/2")	B	No	No	Ar (CaAa)	82.000 - 78.000	0.000	-0.1	3	3	0.630	0.630		0.150
LDF4-50A(1/2")	B	No	No	Ar (CaAa)	78.000 - 0.000	0.000	-0.1	4	4	0.630	0.630		0.150
*** RFFT-24SM-001-100M(3/8)	C	No	No	Ar (CaAa)	298.000 - 0.000	1.000	-0.48	2	1	0.400	0.400		0.091
*** WR-VG86ST-BRD(3/4)	C	No	No	Ar (CaAa)	298.000 - 0.000	0.000	-0.4	9	5	0.795	0.795		0.584
*** *** *** *** *** *** LDF4-50A(1/2)	C	No	No	Ar (CaAa)	290.000 - 0.000	0.000	0.25	1	1	0.630	0.630		0.150
HB158-21U6S24-xxM_TMO(1-5/8)	C	No	No	Ar (CaAa)	290.000 - 0.000	0.000	0.38	4	4	0.500	1.996		2.500

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	CAAA ft ² /ft	Weight plf

Reference Material
APR 01 2021
Planning Board Meeting

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Componen t Type	Placement ft	Total Number	C _A A _A ft ² /ft	Weight plf

**								

Feed Line/Linear Appurtenances Section Areas

Tower Sectio n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T1	300.000-280.000	A	0.000	0.000	20.750	0.000	0.340
		B	0.000	0.000	13.440	0.000	0.178
		C	0.000	0.000	32.933	0.000	0.367
T2	280.000-260.000	A	0.000	0.000	20.750	0.000	0.340
		B	0.000	0.000	18.490	0.000	0.193
		C	0.000	0.000	43.138	0.000	0.480
T3	260.000-240.000	A	0.000	0.000	20.750	0.000	0.340
		B	0.000	0.000	20.565	0.000	0.199
		C	0.000	0.000	43.138	0.000	0.480
T4	240.000-220.000	A	0.000	0.000	20.750	0.000	0.340
		B	0.000	0.000	22.200	0.000	0.204
		C	0.000	0.000	43.683	0.000	0.481
T5	220.000-200.000	A	0.000	0.000	23.918	0.000	0.368
		B	0.000	0.000	22.200	0.000	0.204
		C	0.000	0.000	45.318	0.000	0.486
T6	200.000-180.000	A	0.000	0.000	24.710	0.000	0.374
		B	0.000	0.000	22.200	0.000	0.204
		C	0.000	0.000	47.062	0.000	0.492
T7	180.000-160.000	A	0.000	0.000	24.710	0.000	0.374
		B	0.000	0.000	22.200	0.000	0.204
		C	0.000	0.000	48.002	0.000	0.494
T8	160.000-140.000	A	0.000	0.000	24.710	0.000	0.374
		B	0.000	0.000	22.326	0.000	0.205
		C	0.000	0.000	48.758	0.000	0.496
T9	140.000-120.000	A	0.000	0.000	24.710	0.000	0.374
		B	0.000	0.000	25.660	0.000	0.214
		C	0.000	0.000	50.284	0.000	0.501
T10	120.000-100.000	A	0.000	0.000	24.710	0.000	0.374
		B	0.000	0.000	29.604	0.000	0.226
		C	0.000	0.000	52.246	0.000	0.507
T11	100.000-80.000	A	0.000	0.000	24.710	0.000	0.374
		B	0.000	0.000	30.166	0.000	0.228
		C	0.000	0.000	55.298	0.000	0.516
T12	80.000-60.000	A	0.000	0.000	24.710	0.000	0.374
		B	0.000	0.000	32.434	0.000	0.233
		C	0.000	0.000	55.298	0.000	0.516
T13	60.000-40.000	A	0.000	0.000	24.710	0.000	0.374
		B	0.000	0.000	32.560	0.000	0.234
		C	0.000	0.000	55.298	0.000	0.516
T14	40.000-20.000	A	0.000	0.000	24.710	0.000	0.374
		B	0.000	0.000	32.560	0.000	0.234
		C	0.000	0.000	55.298	0.000	0.516
T15	20.000-4.818	A	0.000	0.000	14.826	0.000	0.225
		B	0.000	0.000	20.338	0.000	0.142
		C	0.000	0.000	38.452	0.000	0.359
T16	4.818-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	1.214	0.000	0.003
		C	0.000	0.000	7.982	0.000	0.075

Reference Material
APR 01 2021
Planning Board Meeting

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{RA} A _A In Face ft ²	C _{RA} A _A Out Face ft ²	Weight K
T1	300.000-280.000	A	1.056	0.000	0.000	33.426	0.000	0.640
		B		0.000	0.000	26.116	0.000	0.408
		C		0.000	0.000	64.880	0.000	0.938
T2	280.000-260.000	A	1.049	0.000	0.000	33.336	0.000	0.637
		B		0.000	0.000	38.281	0.000	0.518
		C		0.000	0.000	86.405	0.000	1.221
T3	260.000-240.000	A	1.041	0.000	0.000	33.239	0.000	0.634
		B		0.000	0.000	44.319	0.000	0.562
		C		0.000	0.000	86.180	0.000	1.215
T4	240.000-220.000	A	1.032	0.000	0.000	33.136	0.000	0.631
		B		0.000	0.000	46.587	0.000	0.593
		C		0.000	0.000	87.514	0.000	1.224
T5	220.000-200.000	A	1.023	0.000	0.000	39.465	0.000	0.715
		B		0.000	0.000	46.409	0.000	0.589
		C		0.000	0.000	91.946	0.000	1.261
T6	200.000-180.000	A	1.013	0.000	0.000	40.912	0.000	0.732
		B		0.000	0.000	46.215	0.000	0.584
		C		0.000	0.000	98.768	0.000	1.293
T7	180.000-160.000	A	1.001	0.000	0.000	40.733	0.000	0.727
		B		0.000	0.000	46.001	0.000	0.579
		C		0.000	0.000	102.270	0.000	1.311
T8	160.000-140.000	A	0.989	0.000	0.000	40.533	0.000	0.721
		B		0.000	0.000	46.408	0.000	0.576
		C		0.000	0.000	104.945	0.000	1.325
T9	140.000-120.000	A	0.975	0.000	0.000	40.308	0.000	0.715
		B		0.000	0.000	58.301	0.000	0.636
		C		0.000	0.000	107.673	0.000	1.347
T10	120.000-100.000	A	0.959	0.000	0.000	40.050	0.000	0.708
		B		0.000	0.000	69.113	0.000	0.715
		C		0.000	0.000	111.412	0.000	1.375
T11	100.000-80.000	A	0.940	0.000	0.000	39.745	0.000	0.699
		B		0.000	0.000	70.041	0.000	0.718
		C		0.000	0.000	117.646	0.000	1.424
T12	80.000-60.000	A	0.916	0.000	0.000	39.372	0.000	0.689
		B		0.000	0.000	74.426	0.000	0.749
		C		0.000	0.000	116.757	0.000	1.401
T13	60.000-40.000	A	0.886	0.000	0.000	38.887	0.000	0.675
		B		0.000	0.000	73.854	0.000	0.732
		C		0.000	0.000	115.604	0.000	1.372
T14	40.000-20.000	A	0.842	0.000	0.000	38.181	0.000	0.656
		B		0.000	0.000	72.605	0.000	0.706
		C		0.000	0.000	113.926	0.000	1.330
T15	20.000-4.818	A	0.771	0.000	0.000	22.226	0.000	0.376
		B		0.000	0.000	44.876	0.000	0.413
		C		0.000	0.000	77.165	0.000	0.881
T16	4.818-0.000	A	0.654	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	3.636	0.000	0.020
		C		0.000	0.000	15.120	0.000	0.170

Feed Line Center of Pressure					
Section	Elevation	CP _x	CP _z	CP _x	CP _z
	ft	in	in	Ice in	Ice in
T1	300.000-280.000	0.336	-0.134	0.712	-0.455
T2	280.000-260.000	-0.311	-0.318	-0.006	-0.504
T3	260.000-240.000	-0.191	-0.679	0.096	-0.849
T4	240.000-220.000	-0.052	-0.929	0.228	-0.851
T5	220.000-200.000	-0.126	-1.211	0.155	-1.069
T6	200.000-180.000	-0.096	-1.278	0.209	-1.115
T7	180.000-160.000	-0.038	-1.195	0.320	-0.952
T8	160.000-140.000	0.032	-1.067	0.448	-0.746
T9	140.000-120.000	0.260	-1.434	0.644	-1.137
T10	120.000-100.000	0.587	-1.673	1.007	-1.388
T11	100.000-80.000	0.711	-1.686	1.146	-1.412

Reference Material
APR 01 2021
Planning Board Meeting

Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
T12	80.000-60.000	0.767	-1.788	1.156	-1.554
T13	60.000-40.000	0.797	-1.857	1.169	-1.607
T14	40.000-20.000	0.797	-1.857	1.152	-1.628
T15	20.000-4.818	0.739	-1.362	1.029	-1.151
T16	4.818-0.000	0.309	1.633	0.241	1.387

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	1	CL-0610-U	280.00 - 300.00	0.6000	0.6000
T1	2	Feedline Ladder (Af)	280.00 - 300.00	0.6000	0.6000
T1	3	Feedline Ladder (Af)	280.00 - 300.00	0.6000	0.6000
T1	4	Feedline Ladder (Af)	280.00 - 300.00	0.6000	0.6000
T1	5	Safety Line 3/8	280.00 - 300.00	0.6000	0.6000
T1	25	LDF5-50A(7/8")	280.00 - 300.00	0.6000	0.6000
T1	30	LDF4-50A(1/2")	280.00 - 300.00	0.6000	0.6000
T1	39	RFFT-24SM-001- 100M(3/8)	280.00 - 298.00	0.6000	0.6000
T1	40	WR-VG86ST-BRD(3/4)	280.00 - 298.00	0.6000	0.6000
T1	47	LDF4-50A(1/2)	280.00 - 290.00	0.6000	0.6000
T1	48	HB158-21U6S24- xxM_TMO(1-5/8)	280.00 - 290.00	0.6000	0.6000
T2	1	CL-0610-U	260.00 - 280.00	0.6000	0.6000
T2	2	Feedline Ladder (Af)	260.00 - 280.00	0.6000	0.6000
T2	3	Feedline Ladder (Af)	260.00 - 280.00	0.6000	0.6000
T2	4	Feedline Ladder (Af)	260.00 - 280.00	0.6000	0.6000
T2	5	Safety Line 3/8	260.00 - 280.00	0.6000	0.6000
T2	24	E60 (ELLIPTICAL)	260.00 - 278.00	0.6000	0.6000
T2	25	LDF5-50A(7/8")	270.00 - 280.00	0.6000	0.6000
T2	26	LDF5-50A(7/8")	260.00 - 270.00	0.6000	0.6000
T2	30	LDF4-50A(1/2")	260.00 - 280.00	0.6000	0.6000
T2	39	RFFT-24SM-001- 100M(3/8)	260.00 - 280.00	0.6000	0.6000
T2	40	WR-VG86ST-BRD(3/4)	260.00 - 280.00	0.6000	0.6000
T2	47	LDF4-50A(1/2)	260.00 - 280.00	0.6000	0.6000
T2	48	HB158-21U6S24- xxM_TMO(1-5/8)	260.00 - 280.00	0.6000	0.6000
T3	1	CL-0610-U	240.00 - 260.00	0.6000	0.6000
T3	2	Feedline Ladder (Af)	240.00 - 260.00	0.6000	0.6000

Reference Material

APR 01 2021

Planning Board Meeting

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T3	3	Feedline Ladder (Af)	240.00 - 260.00	0.6000	0.6000
T3	4	Feedline Ladder (Af)	240.00 - 260.00	0.6000	0.6000
T3	5	Safety Line 3/8	240.00 - 260.00	0.6000	0.6000
T3	24	E60 (ELLIPTICAL)	240.00 - 260.00	0.6000	0.6000
T3	26	LDF5-50A(7/8")	245.00 - 260.00	0.6000	0.6000
T3	27	LDF5-50A(7/8")	240.00 - 245.00	0.6000	0.6000
T3	30	LDF4-50A(1/2")	240.00 - 260.00	0.6000	0.6000
T3	39	RFFT-24SM-001- 100M(3/8)	240.00 - 260.00	0.6000	0.6000
T3	40	WR-VG86ST-BRD(3/4)	240.00 - 260.00	0.6000	0.6000
T3	47	LDF4-50A(1/2)	240.00 - 260.00	0.6000	0.6000
T3	48	HB158-21U6S24- xxM_TMO(1-5/8)	240.00 - 260.00	0.6000	0.6000
T4	1	CL-0610-U	220.00 - 240.00	0.6000	0.6000
T4	2	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T4	3	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T4	4	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T4	5	Safety Line 3/8	220.00 - 240.00	0.6000	0.6000
T4	11	LDF5-50A(7/8")	220.00 - 225.00	0.6000	0.6000
T4	24	E60 (ELLIPTICAL)	220.00 - 240.00	0.6000	0.6000
T4	27	LDF5-50A(7/8")	220.00 - 240.00	0.6000	0.6000
T4	30	LDF4-50A(1/2")	220.00 - 240.00	0.6000	0.6000
T4	39	RFFT-24SM-001- 100M(3/8)	220.00 - 240.00	0.6000	0.6000
T4	40	WR-VG86ST-BRD(3/4)	220.00 - 240.00	0.6000	0.6000
T4	47	LDF4-50A(1/2)	220.00 - 240.00	0.6000	0.6000
T4	48	HB158-21U6S24- xxM_TMO(1-5/8)	220.00 - 240.00	0.6000	0.6000
T5	1	CL-0610-U	200.00 - 220.00	0.6000	0.6000
T5	2	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T5	3	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T5	4	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T5	5	Safety Line 3/8	200.00 - 220.00	0.6000	0.6000
T5	7	HB158-1-08U8-S8F18(1- 5/8")	200.00 - 216.00	0.6000	0.6000
T5	11	LDF5-50A(7/8")	200.00 - 220.00	0.6000	0.6000
T5	24	E60 (ELLIPTICAL)	200.00 - 220.00	0.6000	0.6000
T5	27	LDF5-50A(7/8")	200.00 - 220.00	0.6000	0.6000
T5	30	LDF4-50A(1/2")	200.00 - 220.00	0.6000	0.6000

Reference Material
APR 01 2021
Planning Board Meeting

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T5	39	RFFT-24SM-001- 100M(3/8)	200.00 - 220.00	0.6000	0.6000
T5	40	WR-VG86ST-BRD(3/4)	200.00 - 220.00	0.6000	0.6000
T5	47	LDF4-50A(1/2)	200.00 - 220.00	0.6000	0.6000
T5	48	HB158-21U6S24- xxM_TMO(1-5/8)	200.00 - 220.00	0.6000	0.6000
T6	1	CL-0610-U	180.00 - 200.00	0.6000	0.6000
T6	2	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T6	3	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T6	4	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T6	5	Safety Line 3/8	180.00 - 200.00	0.6000	0.6000
T6	7	HB158-1-08U8-S8F18(1- 5/8")	180.00 - 200.00	0.6000	0.6000
T6	11	LDF5-50A(7/8")	196.00 - 200.00	0.6000	0.6000
T6	12	LDF5-50A(7/8")	180.00 - 196.00	0.6000	0.6000
T6	24	E60 (ELLIPTICAL)	180.00 - 200.00	0.6000	0.6000
T6	27	LDF5-50A(7/8")	180.00 - 200.00	0.6000	0.6000
T6	30	LDF4-50A(1/2")	180.00 - 200.00	0.6000	0.6000
T6	39	RFFT-24SM-001- 100M(3/8)	180.00 - 200.00	0.6000	0.6000
T6	40	WR-VG86ST-BRD(3/4)	180.00 - 200.00	0.6000	0.6000
T6	47	LDF4-50A(1/2)	180.00 - 200.00	0.6000	0.6000
T6	48	HB158-21U6S24- xxM_TMO(1-5/8)	180.00 - 200.00	0.6000	0.6000
T7	1	CL-0610-U	160.00 - 180.00	0.6000	0.6000
T7	2	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T7	3	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T7	4	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T7	5	Safety Line 3/8	160.00 - 180.00	0.6000	0.6000
T7	7	HB158-1-08U8-S8F18(1- 5/8")	160.00 - 180.00	0.6000	0.6000
T7	12	LDF5-50A(7/8")	160.00 - 180.00	0.6000	0.6000
T7	19	LDF4-50A(1/2")	160.00 - 168.00	0.6000	0.6000
T7	24	E60 (ELLIPTICAL)	160.00 - 180.00	0.6000	0.6000
T7	27	LDF5-50A(7/8")	160.00 - 180.00	0.6000	0.6000
T7	30	LDF4-50A(1/2")	160.00 - 180.00	0.6000	0.6000
T7	39	RFFT-24SM-001- 100M(3/8)	160.00 - 180.00	0.6000	0.6000
T7	40	WR-VG86ST-BRD(3/4)	160.00 - 180.00	0.6000	0.6000
T7	47	LDF4-50A(1/2)	160.00 - 180.00	0.6000	0.6000
T7	48	HB158-21U6S24- xxM_TMO(1-5/8)	160.00 - 180.00	0.6000	0.6000

Reference Material

APR 01 2021

Planning Board Meeting

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T8	1	CL-0610-U	140.00 - 160.00	0.6000	0.6000
T8	2	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T8	3	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T8	4	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T8	5	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T8	7	HB158-1-08U8-S8F18(1- 5/8")	140.00 - 160.00	0.6000	0.6000
T8	12	LDF5-50A(7/8")	140.00 - 160.00	0.6000	0.6000
T8	19	LDF4-50A(1/2")	140.00 - 160.00	0.6000	0.6000
T8	24	E60 (ELLIPTICAL)	140.00 - 160.00	0.6000	0.6000
T8	27	LDF5-50A(7/8")	140.00 - 160.00	0.6000	0.6000
T8	30	LDF4-50A(1/2")	142.00 - 160.00	0.6000	0.6000
T8	32	LDF4-50A(1/2")	140.00 - 142.00	0.6000	0.6000
T8	39	RFFT-24SM-001- 100M(3/8)	140.00 - 160.00	0.6000	0.6000
T8	40	WR-VG86ST-BRD(3/4)	140.00 - 160.00	0.6000	0.6000
T8	47	LDF4-50A(1/2)	140.00 - 160.00	0.6000	0.6000
T8	48	HB158-21U6S24- xxM_TMO(1-5/8)	140.00 - 160.00	0.6000	0.6000
T9	1	CL-0610-U	120.00 - 140.00	0.6000	0.6000
T9	2	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T9	3	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T9	4	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T9	5	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T9	7	HB158-1-08U8-S8F18(1- 5/8")	120.00 - 140.00	0.6000	0.6000
T9	12	LDF5-50A(7/8")	134.00 - 140.00	0.6000	0.6000
T9	14	LDF5-50A(7/8")	120.00 - 134.00	0.6000	0.6000
T9	19	LDF4-50A(1/2")	120.00 - 140.00	0.6000	0.6000
T9	23	E60 (ELLIPTICAL)	120.00 - 130.00	0.6000	0.6000
T9	24	E60 (ELLIPTICAL)	130.00 - 140.00	0.6000	0.6000
T9	27	LDF5-50A(7/8")	120.00 - 140.00	0.6000	0.6000
T9	32	LDF4-50A(1/2")	120.00 - 140.00	0.6000	0.6000
T9	39	RFFT-24SM-001- 100M(3/8)	120.00 - 140.00	0.6000	0.6000
T9	40	WR-VG86ST-BRD(3/4)	120.00 - 140.00	0.6000	0.6000
T9	47	LDF4-50A(1/2)	120.00 - 140.00	0.6000	0.6000
T9	48	HB158-21U6S24- xxM_TMO(1-5/8)	120.00 - 140.00	0.6000	0.6000
T10	1	CL-0610-U	100.00 - 120.00	0.6000	0.6000

Reference Material
APR 01 2021
Planning Board Meeting

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T10	2	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T10	3	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T10	4	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T10	5	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T10	7	HB158-1-08U8-S8F18(1- 5/8")	100.00 - 120.00	0.6000	0.6000
T10	14	LDF5-50A(7/8")	109.00 - 120.00	0.6000	0.6000
T10	16	LDF5-50A(7/8")	103.00 - 109.00	0.6000	0.6000
T10	17	LDF5-50A(7/8")	100.00 - 103.00	0.6000	0.6000
T10	19	LDF4-50A(1/2")	100.00 - 120.00	0.6000	0.6000
T10	23	E60 (ELLIPTICAL)	100.00 - 120.00	0.6000	0.6000
T10	27	LDF5-50A(7/8")	100.00 - 120.00	0.6000	0.6000
T10	29	LDF5-50A(7/8")	100.00 - 116.00	0.6000	0.6000
T10	32	LDF4-50A(1/2")	100.00 - 120.00	0.6000	0.6000
T10	39	RFFT-24SM-001- 100M(3/8)	100.00 - 120.00	0.6000	0.6000
T10	40	WR-VG86ST-BRD(3/4)	100.00 - 120.00	0.6000	0.6000
T10	47	LDF4-50A(1/2)	100.00 - 120.00	0.6000	0.6000
T10	48	HB158-21U6S24- xxM_TMO(1-5/8)	100.00 - 120.00	0.6000	0.6000
T11	1	CL-0610-U	80.00 - 100.00	0.6000	0.6000
T11	2	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T11	3	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T11	4	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T11	5	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T11	7	HB158-1-08U8-S8F18(1- 5/8")	80.00 - 100.00	0.6000	0.6000
T11	17	LDF5-50A(7/8")	80.00 - 100.00	0.6000	0.6000
T11	19	LDF4-50A(1/2")	80.00 - 100.00	0.6000	0.6000
T11	23	E60 (ELLIPTICAL)	80.00 - 100.00	0.6000	0.6000
T11	27	LDF5-50A(7/8")	80.00 - 100.00	0.6000	0.6000
T11	29	LDF5-50A(7/8")	80.00 - 100.00	0.6000	0.6000
T11	32	LDF4-50A(1/2")	82.00 - 100.00	0.6000	0.6000
T11	34	LDF4-50A(1/2")	80.00 - 82.00	0.6000	0.6000
T11	39	RFFT-24SM-001- 100M(3/8)	80.00 - 100.00	0.6000	0.6000
T11	40	WR-VG86ST-BRD(3/4)	80.00 - 100.00	0.6000	0.6000
T11	47	LDF4-50A(1/2)	80.00 - 100.00	0.6000	0.6000
T11	48	HB158-21U6S24- xxM_TMO(1-5/8)	80.00 - 100.00	0.6000	0.6000

Reference Material

APR 01 2021

Planning Board Meeting

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T12	1	CL-0610-U	60.00 - 80.00	0.6000	0.6000
T12	2	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T12	3	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T12	4	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T12	5	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T12	7	HB158-1-08U8-S8F18(1-5/8")	60.00 - 80.00	0.6000	0.6000
T12	17	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.6000
T12	19	LDF4-50A(1/2")	60.00 - 80.00	0.6000	0.6000
T12	23	E60 (ELLIPTICAL)	60.00 - 80.00	0.6000	0.6000
T12	27	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.6000
T12	29	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.6000
T12	34	LDF4-50A(1/2")	78.00 - 80.00	0.6000	0.6000
T12	35	LDF4-50A(1/2")	60.00 - 78.00	0.6000	0.6000
T12	39	RFFT-24SM-001-100M(3/8)	60.00 - 80.00	0.6000	0.6000
T12	40	WR-VG86ST-BRD(3/4)	60.00 - 80.00	0.6000	0.6000
T12	47	LDF4-50A(1/2)	60.00 - 80.00	0.6000	0.6000
T12	48	HB158-21U6S24-xxM_TMO(1-5/8)	60.00 - 80.00	0.6000	0.6000
T13	1	CL-0610-U	40.00 - 60.00	0.6000	0.6000
T13	2	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T13	3	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T13	4	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T13	5	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T13	7	HB158-1-08U8-S8F18(1-5/8")	40.00 - 60.00	0.6000	0.6000
T13	17	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.6000
T13	19	LDF4-50A(1/2")	40.00 - 60.00	0.6000	0.6000
T13	23	E60 (ELLIPTICAL)	40.00 - 60.00	0.6000	0.6000
T13	27	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.6000
T13	29	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.6000
T13	35	LDF4-50A(1/2")	40.00 - 60.00	0.6000	0.6000
T13	39	RFFT-24SM-001-100M(3/8)	40.00 - 60.00	0.6000	0.6000
T13	40	WR-VG86ST-BRD(3/4)	40.00 - 60.00	0.6000	0.6000
T13	47	LDF4-50A(1/2)	40.00 - 60.00	0.6000	0.6000
T13	48	HB158-21U6S24-xxM_TMO(1-5/8)	40.00 - 60.00	0.6000	0.6000
T14	1	CL-0610-U	20.00 - 40.00	0.6000	0.6000

Reference Material

APR 01 2021
Planning Board Meeting

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T14	2	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T14	3	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T14	4	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T14	5	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T14	7	HB158-1-08U8-S8F18(1-5/8")	20.00 - 40.00	0.6000	0.6000
T14	17	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.6000
T14	19	LDF4-50A(1/2")	20.00 - 40.00	0.6000	0.6000
T14	23	E60 (ELLIPTICAL)	20.00 - 40.00	0.6000	0.6000
T14	27	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.6000
T14	29	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.6000
T14	35	LDF4-50A(1/2")	20.00 - 40.00	0.6000	0.6000
T14	39	RFFT-24SM-001-100M(3/8)	20.00 - 40.00	0.6000	0.6000
T14	40	WR-VG86ST-BRD(3/4)	20.00 - 40.00	0.6000	0.6000
T14	47	LDF4-50A(1/2)	20.00 - 40.00	0.6000	0.6000
T14	48	HB158-21U6S24-xxM_TMO(1-5/8)	20.00 - 40.00	0.6000	0.6000
T15	1	CL-0610-U	8.00 - 20.00	0.6000	0.6000
T15	2	Feedline Ladder (Af)	8.00 - 20.00	0.6000	0.6000
T15	3	Feedline Ladder (Af)	8.00 - 20.00	0.6000	0.6000
T15	4	Feedline Ladder (Af)	8.00 - 20.00	0.6000	0.6000
T15	5	Safety Line 3/8	8.00 - 20.00	0.6000	0.6000
T15	7	HB158-1-08U8-S8F18(1-5/8")	8.00 - 20.00	0.6000	0.6000
T15	17	LDF5-50A(7/8")	8.00 - 20.00	0.6000	0.6000
T15	19	LDF4-50A(1/2")	8.00 - 20.00	0.6000	0.6000
T15	23	E60 (ELLIPTICAL)	8.00 - 20.00	0.6000	0.6000
T15	27	LDF5-50A(7/8")	8.00 - 20.00	0.6000	0.6000
T15	29	LDF5-50A(7/8")	8.00 - 20.00	0.6000	0.6000
T15	35	LDF4-50A(1/2")	4.82 - 20.00	0.6000	0.6000
T15	39	RFFT-24SM-001-100M(3/8)	4.82 - 20.00	0.6000	0.6000
T15	40	WR-VG86ST-BRD(3/4)	4.82 - 20.00	0.6000	0.6000
T15	47	LDF4-50A(1/2)	4.82 - 20.00	0.6000	0.6000
T15	48	HB158-21U6S24-xxM_TMO(1-5/8)	4.82 - 20.00	0.6000	0.6000
T16	35	LDF4-50A(1/2")	0.00 - 4.82	0.4609	0.2891
T16	39	RFFT-24SM-001-100M(3/8)	0.00 - 4.82	0.4609	0.2891
T16	40	WR-VG86ST-BRD(3/4)	0.00 - 4.82	0.4609	0.2891
T16	47	LDF4-50A(1/2)	0.00 - 4.82	0.4609	0.2891
T16	48	HB158-21U6S24-xxM_TMO(1-5/8)	0.00 - 4.82	0.4609	0.2891

Reference Material
APR 01 2021
Planning Board Meeting

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
Flash Beacon Lighting	A	From Leg	0.000 0.000 0.500	0.000	300.000	No Ice 1/2" Ice 1" Ice	2.700 3.100 3.500	2.700 3.100 3.500	0.050 0.070 0.090

SRL-210A	B	From Leg	1.000 0.000 4.000	0.000	300.000	No Ice 1/2" Ice 1" Ice	10.000 18.000 26.000	10.000 18.000 26.000	0.009 0.012 0.014
10' x 2" Mount Pipe	B	From Leg	0.500 0.000 6.000	0.000	300.000	No Ice 1/2" Ice 1" Ice	2.375 3.403 4.448	2.375 3.403 4.448	0.037 0.054 0.079
DB806T6-Z	C	From Leg	1.000 0.000 5.000	0.000	300.000	No Ice 1/2" Ice 1" Ice	1.140 1.675 2.025	1.140 1.675 2.025	0.021 0.030 0.043
4' x 2" Pipe Mount	C	From Leg	0.500 0.000 4.000	0.000	300.000	No Ice 1/2" Ice 1" Ice	0.785 1.028 1.281	0.785 1.028 1.281	0.029 0.035 0.044

(2) NNH4-65C-R6 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	298.000	No Ice 1/2" Ice 1" Ice	9.680 10.270 10.870	5.170 5.710 6.260	0.132 0.242 0.367
(2) NNH4-65C-R6 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	298.000	No Ice 1/2" Ice 1" Ice	9.680 10.270 10.870	5.170 5.710 6.260	0.132 0.242 0.367
(2) NNH4-65C-R6 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	298.000	No Ice 1/2" Ice 1" Ice	9.680 10.270 10.870	5.170 5.710 6.260	0.132 0.242 0.367
8843	A	From Leg	4.000 0.000 0.000	0.000	298.000	No Ice 1/2" Ice 1" Ice	1.650 1.810 1.978	1.363 1.510 1.665	0.072 0.090 0.110
8843	B	From Leg	4.000 0.000 0.000	0.000	298.000	No Ice 1/2" Ice 1" Ice	1.650 1.810 1.978	1.363 1.510 1.665	0.072 0.090 0.110
8843	C	From Leg	4.000 0.000 0.000	0.000	298.000	No Ice 1/2" Ice 1" Ice	1.650 1.810 1.978	1.363 1.510 1.665	0.072 0.090 0.110
4449	A	From Leg	4.000 0.000 0.000	0.000	298.000	No Ice 1/2" Ice 1" Ice	1.969 2.145 2.329	1.402 1.558 1.720	0.071 0.089 0.110
4449	B	From Leg	4.000 0.000 0.000	0.000	298.000	No Ice 1/2" Ice 1" Ice	1.969 2.145 2.329	1.402 1.558 1.720	0.071 0.089 0.110
4449	C	From Leg	4.000 0.000 0.000	0.000	298.000	No Ice 1/2" Ice 1" Ice	1.969 2.145 2.329	1.402 1.558 1.720	0.071 0.089 0.110
4478	A	From Leg	4.000 0.000 0.000	0.000	298.000	No Ice 1/2" Ice 1" Ice	0.422 0.512 0.610	0.412 0.502 0.600	0.010 0.015 0.021
4478	B	From Leg	4.000 0.000 0.000	0.000	298.000	No Ice 1/2" Ice 1" Ice	0.422 0.512 0.610	0.412 0.502 0.600	0.010 0.015 0.021

Reference Material
APR 01 2021
Planning Board Meeting

Reference Material

APR 01 2021

December 16, 2020
CCI BU No 871864
Page 34

300 Ft Guyed Tower Structural Analysis
Project Number 1905763, Order 528493, Revision 0

Planning Board Meeting

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A ₁ Front ft ²	C _A A ₁ Side ft ²	Weight K
4478	C	From Leg	4.000 0.000 0.000	0.000	298.000	1" Ice No Ice 1/2" Ice	0.422 0.512 0.610	0.412 0.502 0.600	0.010 0.015 0.021
(2) DC9-48-60-24-8C-EV	A	From Leg	4.000 0.000 0.000	0.000	298.000	1" Ice No Ice 1/2" Ice	1.145 1.792 2.002	1.145 1.792 2.002	0.026 0.047 0.070
[3] 7' Arch Frame	C	From Leg	2.000 0.000 0.000	0.000	298.000	1" Ice No Ice 1/2" Ice	17.663 21.000 24.337	17.663 21.000 24.337	0.936 1.200 1.464
*** *** Pipe Mount [PM 601-1]	A	From Leg	0.500 0.000 0.000	0.000	278.000	1" Ice No Ice 1/2" Ice	1.320 1.580 1.840	1.320 1.580 1.840	0.065 0.077 0.093
*** DB212-1	C	From Leg	0.500 0.000 0.000	0.000	270.000	1" Ice No Ice 1/2" Ice	4.500 8.100 11.700	4.500 8.100 11.700	0.031 0.040 0.050
*** DB212-1	C	From Leg	0.500 0.000 0.000	0.000	245.000	1" Ice No Ice 1/2" Ice	4.500 8.100 11.700	4.500 8.100 11.700	0.031 0.040 0.050
*** *** Horizontal Stabilizer Arm	B	From Leg	1.000 0.000 0.000	0.000	243.000	1" Ice No Ice 1/2" Ice	0.026 0.056 0.097	0.026 0.056 0.097	0.007 0.008 0.009
PD220-1	B	From Leg	2.000 0.000 10.000	0.000	225.000	1" Ice No Ice 1/2" Ice	5.500 7.531 9.579	5.500 7.531 9.579	0.025 0.065 0.118
Side Arm Mount [SO 201-1]	B	From Leg	1.000 0.000 0.000	0.000	225.000	1" Ice No Ice 1/2" Ice	1.780 2.240 2.750	2.610 3.150 3.730	0.096 0.116 0.144
*** (3) 12' Curved Sector Mount	C	None		0.000	216.000	1" Ice No Ice 1/2" Ice	24.240 31.700 41.060	24.240 31.700 41.060	0.381 0.832 1.284
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	216.000	1" Ice No Ice 1/2" Ice	4.090 4.490 4.890	3.300 3.680 4.070	0.066 0.130 0.204
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	216.000	1" Ice No Ice 1/2" Ice	4.090 4.490 4.890	3.300 3.680 4.070	0.066 0.130 0.204
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	216.000	1" Ice No Ice 1/2" Ice	4.090 4.490 4.890	3.300 3.680 4.070	0.066 0.130 0.204
B13 RRH 4X30	A	From Leg	4.000 0.000 1.000	0.000	216.000	1" Ice No Ice 1/2" Ice	2.055 2.241 2.433	1.320 1.475 1.638	0.056 0.073 0.093
B13 RRH 4X30	B	From Leg	4.000	0.000	216.000	1" Ice No Ice	2.055	1.320	0.056

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
			0.000			1/2"	2.241	1.475	0.073
			1.000			Ice	2.433	1.638	0.093
B13 RRH 4X30	C	From Leg	4.000	0.000	216.000	1" Ice			
			0.000			No Ice	2.055	1.320	0.056
			1.000			1/2"	2.241	1.475	0.073
						Ice	2.433	1.638	0.093
RRFDC-3315-PF-48	A	From Leg	4.000	0.000	216.000	1" Ice			
			0.000			No Ice	3.364	2.192	0.032
			1.000			1/2"	3.597	2.395	0.061
						Ice	3.838	2.606	0.093
***						1" Ice			
Horizontal Stabilizer Arm	B	From Leg	1.000	0.000	215.000	No Ice	0.026	0.026	0.007
			0.000			1/2"	0.056	0.056	0.008
			0.000			Ice	0.097	0.097	0.009
						1" Ice			
ASP682	B	From Leg	4.000	0.000	196.000	No Ice	5.063	5.063	0.000
			0.000			1/2"	6.886	6.886	0.030
			8.000			Ice	8.722	8.722	0.073
						1" Ice			
Side Arm Mount [SO 306-1]	C	From Face	2.000	0.000	196.000	No Ice	0.410	2.260	0.042
			0.000			1/2"	0.810	3.830	0.062
			0.000			Ice	1.230	5.480	0.094
						1" Ice			

OGB9-900	C	From Leg	4.000	0.000	178.000	No Ice	1.987	1.987	0.015
			0.000			1/2"	3.006	3.006	0.030
			5.000			Ice	4.042	4.042	0.052
						1" Ice			
OGB9-900	B	From Leg	4.000	0.000	178.000	No Ice	1.987	1.987	0.015
			0.000			1/2"	3.006	3.006	0.030
			5.000			Ice	4.042	4.042	0.052
						1" Ice			
Side Arm Mount [SO 306-1]	C	From Leg	2.000	0.000	178.000	No Ice	0.410	2.260	0.042
			0.000			1/2"	0.810	3.830	0.062
			0.000			Ice	1.230	5.480	0.094
						1" Ice			
Side Arm Mount [SO 306-1]	B	From Leg	2.000	0.000	178.000	No Ice	0.410	2.260	0.042
			0.000			1/2"	0.810	3.830	0.062
			0.000			Ice	1.230	5.480	0.094
						1" Ice			

DB201-A	B	From Leg	10.000	0.000	168.000	No Ice	1.100	1.100	0.025
			0.000			1/2"	1.980	1.980	0.033
			2.000			Ice	2.860	2.860	0.040
						1" Ice			
10' Standoff	B	From Leg	5.000	0.000	168.000	No Ice	0.980	3.030	0.053
			0.000			1/2"	1.700	5.220	0.079
			0.000			Ice	2.420	7.410	0.105
						1" Ice			

TA-2350-DAB-T6	B	From Leg	0.500	0.000	142.000	No Ice	1.313	1.313	0.015
			0.000			1/2"	1.811	1.811	0.025
			3.000			Ice	2.169	2.169	0.039
						1" Ice			

COL54-166	B	From Leg	3.000	0.000	134.000	No Ice	6.398	6.398	0.044
			0.000			1/2"	8.563	8.563	0.090
			10.000			Ice	10.746	10.746	0.149
						1" Ice			

Reference Material
APR 01 2021
Planning Board Meeting

Reference Material
APR 01 2021
Planning Board Meeting

300 Ft Guyed Tower Structural Analysis
Project Number 1905763, Order 528493, Revision 0

December 16, 2020
CCI BU No 871864
Page 36

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
Side Arm Mount [SO 308-1]	B	From Leg	1.500 0.000 0.000	0.000	134.000	No Ice 1/2" Ice 1" Ice	0.410 0.810 1.230	3.060 5.100 7.200	0.053 0.080 0.122

Pipe Mount [PM 601-1]	A	From Leg	0.500 0.000 0.000	0.000	130.000	No Ice 1/2" Ice 1" Ice	1.320 1.580 1.840	1.320 1.580 1.840	0.065 0.077 0.093

Pipe Mount [PM 601-1]	C	From Leg	0.500 0.000 0.000	0.000	120.000	No Ice 1/2" Ice 1" Ice	1.320 1.580 1.840	1.320 1.580 1.840	0.065 0.077 0.093

5' x 2" Pipe Mount	C	From Leg	0.500 0.000 0.000	0.000	116.000	No Ice 1/2" Ice 1" Ice	1.188 1.496 1.807	1.188 1.496 1.807	0.018 0.027 0.040

COL54-166	A	From Leg	3.000 0.000 10.000	0.000	109.000	No Ice 1/2" Ice 1" Ice	6.398 8.563 10.746	6.398 8.563 10.746	0.044 0.090 0.149
Side Arm Mount [SO 306-1]	A	From Leg	1.500 0.000 0.000	0.000	109.000	No Ice 1/2" Ice 1" Ice	0.410 0.810 1.230	2.260 3.830 5.480	0.042 0.062 0.094

BA4040-41-DIN	C	From Leg	3.000 0.000 10.000	0.000	103.000	No Ice 1/2" Ice 1" Ice	8.900 14.300 19.700	8.900 14.300 19.700	0.068 0.081 0.094
Side Arm Mount [SO 307-1]	C	From Leg	1.500 0.000 0.000	0.000	103.000	No Ice 1/2" Ice 1" Ice	0.410 0.810 1.230	2.660 4.480 6.370	0.048 0.072 0.108

Horizontal Mount Stabilizer	B	From Leg	1.000 0.000 0.000	0.000	98.000	No Ice 1/2" Ice 1" Ice	0.026 0.056 0.097	0.026 0.056 0.097	0.007 0.008 0.009
220-1N	B	From Leg	2.000 0.000 10.000	0.000	82.000	No Ice 1/2" Ice 1" Ice	5.500 7.531 9.579	5.500 7.531 9.579	0.025 0.065 0.118
Side Arm Mount [SO 201-1]	B	From Leg	1.500 0.000 0.000	0.000	82.000	No Ice 1/2" Ice 1" Ice	1.780 2.240 2.750	2.610 3.150 3.730	0.096 0.116 0.144

220-1N	C	From Leg	10.000 0.000 10.000	0.000	78.000	No Ice 1/2" Ice 1" Ice	5.500 7.531 9.579	5.500 7.531 9.579	0.025 0.065 0.118
10' Standoff	C	From Leg	5.000 0.000 0.000	0.000	78.000	No Ice 1/2" Ice 1" Ice	0.980 1.700 2.420	3.030 5.220 7.410	0.053 0.079 0.105

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K

APXVAALL24_43-U- NA20_TMO w/ Mount Pipe	A	From Leg	4.000	0.000	290.000	No Ice	14.690	6.870	0.183
			0.000			1/2"	15.460	7.550	0.311
			-2.000			Ice	16.230	8.250	0.453
APXVAALL24_43-U- NA20_TMO w/ Mount Pipe	A	From Face	4.000	0.000	290.000	1" Ice	14.690	6.870	0.183
			0.000			No Ice	15.460	7.550	0.311
			-2.000			Ice	16.230	8.250	0.453
APXVAALL24_43-U- NA20_TMO w/ Mount Pipe	B	From Leg	4.000	0.000	290.000	1" Ice	14.690	6.870	0.183
			0.000			No Ice	15.460	7.550	0.311
			-2.000			Ice	16.230	8.250	0.453
APXVAALL24_43-U- NA20_TMO w/ Mount Pipe	C	From Leg	4.000	0.000	290.000	1" Ice	14.690	6.870	0.183
			0.000			No Ice	15.460	7.550	0.311
			-2.000			Ice	16.230	8.250	0.453
HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	4.000	0.000	290.000	1" Ice	7.970	5.990	0.076
			0.000			No Ice	8.730	6.720	0.139
			-2.000			Ice	9.510	7.470	0.214
HBXX-6517DS-A2M w/ Mount Pipe	A	From Face	4.000	0.000	290.000	1" Ice	7.970	5.990	0.076
			0.000			No Ice	8.730	6.720	0.139
			-2.000			Ice	9.510	7.470	0.214
HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	4.000	0.000	290.000	1" Ice	7.970	5.990	0.076
			0.000			No Ice	8.730	6.720	0.139
			-2.000			Ice	9.510	7.470	0.214
HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	4.000	0.000	290.000	1" Ice	7.970	5.990	0.076
			0.000			No Ice	8.730	6.720	0.139
			-2.000			Ice	9.510	7.470	0.214
RADIO 4449 B71/B85A	A	From Leg	4.000	0.000	290.000	1" Ice	1.644	1.310	0.075
			0.000			No Ice	1.804	1.455	0.092
			-2.000			Ice	1.972	1.608	0.112
RADIO 4449 B71/B85A	A	From Face	4.000	0.000	290.000	1" Ice	1.644	1.310	0.075
			0.000			No Ice	1.804	1.455	0.092
			-2.000			Ice	1.972	1.608	0.112
RADIO 4449 B71/B85A	B	From Leg	4.000	0.000	290.000	1" Ice	1.644	1.310	0.075
			0.000			No Ice	1.804	1.455	0.092
			-2.000			Ice	1.972	1.608	0.112
RADIO 4449 B71/B85A	C	From Leg	4.000	0.000	290.000	1" Ice	1.644	1.310	0.075
			0.000			No Ice	1.804	1.455	0.092
			-2.000			Ice	1.972	1.608	0.112
RADIO 4424 B25_TMO	A	From Leg	4.000	0.000	290.000	1" Ice	2.052	1.610	0.086
			0.000			No Ice	2.231	1.772	0.107
			-2.000			Ice	2.417	1.941	0.131
RADIO 4424 B25_TMO	A	From Face	4.000	0.000	290.000	1" Ice	2.052	1.610	0.086
			0.000			No Ice	2.231	1.772	0.107
			-2.000			Ice	2.417	1.941	0.131
RADIO 4424 B25_TMO	B	From Leg	4.000	0.000	290.000	1" Ice	2.052	1.610	0.086
			0.000			No Ice	2.231	1.772	0.107
			-2.000			Ice	2.417	1.941	0.131
RADIO 4424 B25_TMO	C	From Leg	4.000	0.000	290.000	1" Ice	2.052	1.610	0.086
			0.000			No Ice	2.231	1.772	0.107
			-2.000			Ice	2.417	1.941	0.131

Reference Material

APR 01 2021

Planning Board Meeting

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
RADIO 4415 B66A	A	From Leg	4.000 0.000 -2.000	0.000	290.000	1" Ice No Ice 1/2" Ice	1.856 2.027 2.204	0.870 0.997 1.134	0.050 0.064 0.081
RADIO 4415 B66A	A	From Face	4.000 0.000 -2.000	0.000	290.000	1" Ice No Ice 1/2" Ice	1.856 2.027 2.204	0.870 0.997 1.134	0.050 0.064 0.081
RADIO 4415 B66A	B	From Leg	4.000 0.000 -2.000	0.000	290.000	1" Ice No Ice 1/2" Ice	1.856 2.027 2.204	0.870 0.997 1.134	0.050 0.064 0.081
RADIO 4415 B66A	C	From Leg	4.000 0.000 -2.000	0.000	290.000	1" Ice No Ice 1/2" Ice	1.856 2.027 2.204	0.870 0.997 1.134	0.050 0.064 0.081
Sector Mount [SM 503-1]	A	From Leg	2.000 0.000 0.000	0.000	290.000	1" Ice No Ice 1/2" Ice	15.940 21.890 27.750	11.110 16.350 21.520	0.564 0.765 1.032
Sector Mount [SM 503-1]	A	From Face	2.000 0.000 0.000	0.000	290.000	1" Ice No Ice 1/2" Ice	15.940 21.890 27.750	11.110 16.350 21.520	0.564 0.765 1.032
Sector Mount [SM 503-1]	B	From Leg	2.000 0.000 0.000	0.000	290.000	1" Ice No Ice 1/2" Ice	15.940 21.890 27.750	11.110 16.350 21.520	0.564 0.765 1.032
Sector Mount [SM 503-1]	C	From Leg	2.000 0.000 0.000	0.000	290.000	1" Ice No Ice 1/2" Ice	15.940 21.890 27.750	11.110 16.350 21.520	0.564 0.765 1.032
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Reference Material
APR 01 2021
Planning Board Meeting

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
PAD6-59BC	A	Paraboloid w/o Radome	From Leg	1.000 0.000 0.000	-59.000		278.000	6.583	No Ice 34.040 1/2" Ice 34.910 1" Ice 35.780	0.140 0.150 0.170

PAD6-59BC	A	Paraboloid w/o Radome	From Leg	1.000 0.000 0.000	-38.000		130.000	6.583	No Ice 34.040 1/2" Ice 34.910 1" Ice 35.780	0.140 0.150 0.170

PR-950	C	Grid	From Leg	1.000 0.000 0.000	30.000		116.000	5.667	No Ice 25.220 1/2" Ice 25.970 1" Ice 26.710	0.038 0.170 0.300

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Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation ft	Outside Diameter ft	Aperture Area ft²	Weight K
				ft	°	°	ft	ft	ft²	K
	*									
	*									
	*									
	*									

Load Combinations

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

Reference Material
APR 01 2021
Planning Board Meeting

Maximum Member Forces

Sectio n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	300 - 280	Leg	Max Tension	12	20.207	0.057	-0.092
			Max. Compression	10	-29.083	0.415	-0.355
			Max. Mx	11	-13.976	0.814	-0.136
			Max. My	8	-9.723	-0.358	1.188
			Max. Vy	4	-1.331	-0.611	0.206
		Diagonal	Max. Vx	8	-1.693	-0.162	-1.157
			Max Tension	9	6.472	0.000	0.000
			Max. Compression	3	-6.433	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T2	280 - 260	Top Girt	Max. Mx	19	-0.299	0.010	0.000
			Max. My	4	0.204	0.000	0.000
			Max. Vy	19	-0.009	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
			Max Tension	4	0.722	0.000	0.000
			Max. Compression	10	-0.715	0.000	0.000
			Max. Mx	15	0.086	0.008	0.000
			Max. My	11	-0.614	0.000	-0.000
			Max. Vy	15	-0.009	0.000	0.000
			Max. Vx	11	0.000	0.000	0.000
		Bottom Girt	Max Tension	12	1.759	0.000	0.000
			Max. Compression	7	-2.076	0.000	0.000
			Max. Mx	22	0.207	0.008	0.000
			Max. My	11	-0.463	0.000	-0.000
			Max. Vy	22	-0.009	0.000	0.000
		Guy A	Max. Vx	11	0.000	0.000	0.000
			Bottom Tension	8	12.536		
			Top Tension	8	12.757		
			Top Cable Vert	8	9.765		
			Top Cable Norm	8	8.209		
			Top Cable Tan	8	0.009		
			Bot Cable Vert	8	-9.277		
		Guy B	Bot Cable Norm	8	8.431		
			Bot Cable Tan	8	0.004		
			Bottom Tension	12	12.985		
			Top Tension	12	13.232		
			Top Cable Vert	12	10.592		
			Top Cable Norm	12	7.931		
			Top Cable Tan	12	0.002		
		Guy C	Bot Cable Vert	12	-10.073		
			Bot Cable Norm	12	8.194		
			Bot Cable Tan	12	0.004		
			Bottom Tension	4	12.857		
			Top Tension	4	13.095		
			Top Cable Vert	4	10.326		
			Top Cable Norm	4	8.053		
			Top Cable Tan	4	0.004		
			Bot Cable Vert	4	-9.818		
			Bot Cable Norm	4	8.301		
		Top Guy Pull-Off	Bot Cable Tan	4	0.010		
			Max Tension	11	7.484	0.000	0.000
			Max. Compression	5	-7.382	0.000	0.000
			Max. Mx	15	1.152	0.022	0.000
			Max. My	11	-2.987	0.000	-0.000
		Torque Arm Top	Max. Vy	15	-0.025	0.000	0.000
			Max. Vx	11	0.000	0.000	0.000
			Max Tension	7	8.478	0.000	0.000
			Max. Compression	7	-3.522	-31.593	0.000
			Max. Mx	12	-2.359	-35.939	0.000
			Max. My	11	-1.137	-16.982	0.000
			Max. Vy	12	10.590	-35.939	0.000
			Max. Vx	11	0.000	-16.982	0.000
		Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	10	-28.102	-0.338	0.098
			Max. Mx	4	-20.289	0.904	-0.553
			Max. My	8	-14.191	0.215	0.975
			Max. Vy	4	-1.331	-0.458	0.116
		Diagonal	Max. Vx	8	-1.705	-0.149	-0.963
			Max Tension	13	2.555	0.000	0.000
			Max. Compression	8	-3.232	0.000	0.000
			Max. Mx	19	0.194	0.010	0.000
			Max. My	4	-1.000	0.000	0.000
		Top Girt	Max. Vy	19	-0.009	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
			Max Tension	7	1.527	0.000	0.000
			Max. Compression	12	-1.061	0.000	0.000
			Max. Mx	22	-0.007	0.008	0.000
			Max. My	11	0.810	0.000	-0.000
			Max. Vy	22	0.009	0.000	0.000

Reference Material
APR 01 2021
Planning Board Meeting

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T3	260 - 240	Bottom Girt	Max. Vx	11	0.000	0.000	0.000
			Max Tension	4	0.618	0.000	0.000
			Max. Compression	9	-0.621	0.000	0.000
			Max. Mx	25	0.124	0.008	0.000
			Max. My	4	0.618	0.000	-0.000
		Leg	Max. Vy	25	0.009	0.000	0.000
			Max. Vx	4	0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-23.349	0.022	-0.034
			Max. Mx	4	-14.716	0.347	0.013
		Diagonal	Max. My	3	-13.306	0.115	-0.380
			Max. Vy	4	0.751	0.261	0.026
			Max. Vx	3	-0.745	0.091	-0.294
			Max Tension	9	2.150	0.000	0.000
			Max. Compression	3	-2.255	0.000	0.000
		Top Girt	Max. Mx	15	-0.195	0.010	0.000
			Max. My	4	0.645	0.000	0.000
			Max. Vy	15	-0.009	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
			Max Tension	9	0.651	0.000	0.000
		Bottom Girt	Max. Compression	4	-0.505	0.000	0.000
			Max. Mx	25	-0.009	0.008	0.000
			Max. My	4	-0.467	0.000	-0.000
			Max. Vy	25	-0.009	0.000	0.000
			Max. Vx	4	0.000	0.000	0.000
T4	240 - 220	Leg	Max Tension	3	1.049	0.000	0.000
			Max. Compression	9	-0.956	0.000	0.000
			Max. Mx	24	-0.016	0.008	0.000
			Max. My	13	0.752	0.000	-0.000
			Max. Vy	24	-0.009	0.000	0.000
		Diagonal	Max. Vx	13	0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-35.854	-0.454	-0.236
			Max. Mx	5	-15.069	-0.650	-0.158
			Max. My	2	-17.296	0.034	0.815
		Top Girt	Max. Vy	11	1.459	0.321	0.140
			Max. Vx	8	-1.644	0.114	-0.475
			Max Tension	7	3.810	0.000	0.000
			Max. Compression	13	-4.384	0.000	0.000
			Max. Mx	15	0.289	0.010	0.000
		Bottom Girt	Max. My	9	2.558	0.000	0.000
			Max. Vy	15	-0.009	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Max Tension	9	0.998	0.000	0.000
			Max. Compression	3	-0.949	0.000	0.000
		Guy A	Max. Mx	24	0.102	0.008	0.000
			Max. My	13	-0.680	0.000	-0.000
			Max. Vy	24	0.009	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
			Max Tension	4	1.622	0.000	0.000
		Guy B	Max. Compression	9	-1.749	0.000	0.000
			Max. Mx	25	-0.119	0.008	0.000
			Max. My	9	1.153	0.000	0.000
			Max. Vy	25	0.009	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Guy C	Bottom Tension	8	6.995		
			Top Tension	8	7.080		
			Top Cable Vert	8	4.801		
			Top Cable Norm	8	5.203		
			Top Cable Tan	8	0.005		
		Guy D	Bot Cable Vert	8	-4.574		
			Bot Cable Norm	8	5.292		
			Bot Cable Tan	8	0.002		
			Bottom Tension	13	7.148		
			Top Tension	13	7.246		
		Guy E	Top Cable Vert	13	5.286		
			Top Cable Norm	13	4.955		
			Top Cable Tan	13	0.041		
			Bot Cable Vert	13	-5.043		
			Bot Cable Norm	13	-5.043		

Reference Material
APR 01 2021
Planning Board Meeting

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T5	220 - 200	Guy C	Bot Cable Norm	13	5.065		
			Bot Cable Tan	13	0.078		
			Bottom Tension	3	7.029		
			Top Tension	3	7.122		
			Top Cable Vert	3	5.072		
			Top Cable Norm	3	4.999		
			Top Cable Tan	3	0.040		
			Bot Cable Vert	3	-4.835		
			Bot Cable Norm	3	5.101		
			Bot Cable Tan	3	0.076		
			Max Tension	3	5.329	0.000	0.000
			Max. Compression	13	-5.048	0.000	0.000
		Top Guy Pull-Off	Max. Mx	25	0.999	0.021	0.000
			Max. My	13	2.258	0.000	-0.000
			Max. Vy	25	0.025	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
			Max Tension	7	5.659	-2.805	0.000
		Torque Arm Top	Max. Compression	7	-2.498	-15.310	0.000
			Max. Mx	13	0.134	-17.258	-0.000
			Max. My	13	0.134	-17.258	-0.000
			Max. Vy	13	5.083	-17.258	-0.000
			Max. Vx	13	-0.000	-17.258	-0.000
		Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-34.185	0.457	0.259
			Max. Mx	11	-13.860	-0.741	-0.007
			Max. My	7	-14.109	0.411	0.744
			Max. Vy	5	-1.461	-0.483	-0.188
			Max. Vx	8	-1.645	0.152	-0.286
		Diagonal	Max Tension	13	3.541	0.000	0.000
			Max. Compression	7	-3.856	0.000	0.000
			Max. Mx	15	0.401	0.010	0.000
			Max. My	9	1.347	0.000	0.000
			Max. Vy	15	-0.009	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Top Girt	Max Tension	7	2.021	0.000	0.000
			Max. Compression	13	-1.533	0.000	0.000
			Max. Mx	25	0.288	0.008	0.000
			Max. My	9	-1.100	0.000	0.000
			Max. Vy	25	-0.009	0.000	0.000
		Bottom Girt	Max. Vx	9	-0.000	0.000	0.000
			Max Tension	3	0.625	0.000	0.000
			Max. Compression	9	-0.784	0.000	0.000
			Max. Mx	18	0.175	0.008	0.000
			Max. My	9	-0.069	0.000	0.000
T6	200 - 180	Leg	Max. Vy	18	-0.009	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	16	-33.169	-0.049	0.081
			Max. Mx	10	-24.236	-0.314	0.037
		Diagonal	Max. My	8	-23.119	0.017	0.258
			Max. Vy	4	0.490	0.101	-0.192
			Max. Vx	8	0.577	0.044	0.192
			Max Tension	9	1.432	0.000	0.000
			Max. Compression	9	-1.681	0.000	0.000
		Top Girt	Max. Mx	15	0.168	0.009	0.000
			Max. My	9	-0.029	0.000	0.000
			Max. Vy	15	-0.009	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Max Tension	9	0.857	0.000	0.000
		Bottom Girt	Max. Compression	3	-0.512	0.000	0.000
			Max. Mx	18	-0.004	0.008	0.000
			Max. My	9	0.240	0.000	0.000
			Max. Vy	18	-0.009	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Max Tension	3	0.500	0.000	0.000
			Max. Compression	9	-0.575	0.000	0.000
			Max. Mx	17	0.183	0.008	0.000
			Max. My	9	-0.575	0.000	0.000
			Max. Vy	17	-0.009	0.000	0.000

Reference Material
APR 01 2021
Planning Board Meeting

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T7	180 - 160	Leg	Max. Vx	9	-0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	19	-35.781	-0.132	0.039
		Diagonal	Max. Mx	12	-10.554	-0.352	-0.098
			Max. My	8	-7.470	0.034	0.379
			Max. Vy	12	-1.214	-0.213	-0.041
			Max. Vx	8	1.458	0.028	0.212
			Max Tension	9	2.616	0.000	0.000
			Max. Compression	7	-2.702	0.000	0.000
		Top Girt	Max. Mx	23	-0.681	0.009	0.000
			Max. My	9	-0.917	0.000	0.000
			Max. Vy	23	-0.009	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Max Tension	8	0.768	0.000	0.000
			Max. Compression	3	-0.432	0.000	0.000
		Bottom Girt	Max. Mx	17	-0.013	0.008	0.000
			Max. My	9	0.763	0.000	0.000
			Max. Vy	17	-0.009	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Max Tension	10	1.380	0.000	0.000
			Max. Compression	4	-1.281	0.000	0.000
T8	160 - 140	Leg	Max. Mx	17	0.184	0.008	0.000
			Max. My	9	-1.198	0.000	0.000
			Max. Vy	17	-0.009	0.000	0.000
		Diagonal	Max. Vx	9	-0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	13	-46.279	0.023	0.276
			Max. Mx	5	-31.440	-0.643	0.085
			Max. My	8	-7.475	-0.003	-0.684
			Max. Vy	6	-1.241	-0.482	-0.292
		Top Girt	Max. Vx	2	1.491	-0.031	0.528
			Max Tension	7	4.129	0.000	0.000
			Max. Compression	7	-4.096	0.000	0.000
			Max. Mx	23	0.643	0.009	0.000
			Max. My	9	2.448	0.000	0.000
			Max. Vy	23	-0.009	0.000	0.000
		Bottom Girt	Max. Vx	9	-0.000	0.000	0.000
			Max Tension	9	1.275	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	17	0.413	0.008	0.000
			Max. My	9	0.418	0.000	0.000
			Max. Vy	17	-0.009	0.000	0.000
		Guy A	Max. Vx	9	-0.000	0.000	0.000
			Max Tension	9	1.379	0.000	0.000
			Max. Compression	2	-1.312	0.000	0.000
			Max. Mx	14	0.106	0.008	0.000
			Max. My	9	1.379	0.000	0.000
			Max. Vy	14	-0.009	0.000	0.000
		Guy B	Max. Vx	9	-0.000	0.000	0.000
			Bottom Tension	7	11.944		
			Top Tension	7	12.021		
			Top Cable Vert	7	6.488		
			Top Cable Norm	7	10.119		
			Top Cable Tan	7	0.003		
		Guy C	Bot Cable Vert	7	-6.270		
			Bot Cable Norm	7	10.166		
			Bot Cable Tan	7	0.090		
			Bottom Tension	13	12.324		
			Top Tension	13	12.418		
			Top Cable Vert	13	7.645		

Reference Material
APR 01 2021
Planning Board Meeting

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T9	140 - 120	Top Guy Pull-Off	Top Cable Tan	3	0.004		
			Bot Cable Vert	3	-6.913		
			Bot Cable Norm	3	9.838		
			Bot Cable Tan	3	0.093		
			Max Tension	9	4.136	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	17	1.339	0.020	0.000
			Max. My	9	1.356	0.000	0.000
			Max. Vy	17	-0.023	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Max Tension	2	6.835	-0.043	0.023
			Max. Compression	13	-56.717	-0.135	-0.080
			Max. Mx	7	-52.104	0.625	0.653
			Max. My	7	-53.602	0.543	0.653
			Max. Vy	6	-1.241	-0.340	-0.180
			Max. Vx	2	1.491	-0.004	0.357
		Diagonal	Max Tension	7	2.845	0.000	0.000
			Max. Compression	7	-3.352	0.000	0.000
			Max. Mx	23	0.556	0.009	0.000
			Max. My	9	-1.437	0.000	0.000
			Max. Vy	23	-0.009	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Max Tension	2	1.318	0.000	0.000
			Max. Compression	9	-1.154	0.000	0.000
T10	120 - 100	Top Girt	Max. Mx	14	0.092	0.007	0.000
			Max. My	9	-1.154	0.000	0.000
			Max. Vy	14	-0.009	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Bottom Girt	Max Tension	8	0.761	0.000	0.000
			Max. Compression	12	-0.412	0.000	0.000
			Max. Mx	22	0.265	0.007	0.000
			Max. My	13	-0.152	0.000	-0.000
			Max. Vy	22	-0.009	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
		Leg	Max Tension	2	7.247	0.104	-0.082
			Max. Compression	13	-56.968	-0.025	-0.118
			Max. Mx	12	-43.803	-0.520	-0.274
			Max. My	9	-47.712	0.106	0.468
			Max. Vy	6	0.938	0.223	0.277
			Max. Vx	8	1.094	-0.005	0.321
		Diagonal	Max Tension	8	2.518	0.000	0.000
			Max. Compression	7	-2.891	0.000	0.000
			Max. Mx	26	0.411	0.009	0.000
			Max. My	13	-1.042	0.000	0.000
			Max. Vy	26	-0.009	0.000	0.000
			Max. Vx	13	-0.000	0.000	0.000
		Top Girt	Max Tension	12	0.591	0.000	0.000
			Max. Compression	7	-0.580	0.000	0.000
			Max. Mx	19	0.043	0.007	0.000
			Max. My	13	0.368	0.000	-0.000
			Max. Vy	19	-0.009	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
		Bottom Girt	Max Tension	7	1.090	0.000	0.000
			Max. Compression	12	-0.847	0.000	0.000
			Max. Mx	21	0.164	0.007	0.000
			Max. My	13	-0.822	0.000	-0.000
			Max. Vy	21	-0.009	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
T11	100 - 80	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	13	-49.348	0.078	0.296
			Max. Mx	10	-33.600	-0.531	0.000
			Max. My	8	-23.230	0.296	0.634
			Max. Vy	11	-1.486	-0.335	-0.111
			Max. Vx	8	2.101	0.226	0.393
		Diagonal	Max Tension	13	3.915	0.000	0.000
			Max. Compression	7	-4.618	0.000	0.000
			Max. Mx	26	0.837	0.009	0.000
			Max. My	13	1.517	0.000	0.000
			Max. Vy	26	-0.009	0.000	0.000

Reference Material
APR 01 2021
Planning Board Meeting

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T12	80 - 60	Top Girt	Max. Vx	13	-0.000	0.000	0.000
			Max Tension	12	1.077	0.000	0.000
			Max. Compression	7	-1.002	0.000	0.000
			Max. Mx	21	0.023	0.007	0.000
			Max. My	13	1.012	0.000	-0.000
		Bottom Girt	Max. Vy	21	0.009	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
			Max Tension	7	2.393	0.000	0.000
			Max. Compression	13	-1.907	0.000	0.000
			Max. Mx	21	0.355	0.007	0.000
		Leg	Max. My	13	-1.907	0.000	-0.000
			Max. Vy	21	0.009	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	16	-49.986	0.038	-0.177
		Diagonal	Max. Mx	5	-29.047	-0.787	-0.067
			Max. My	2	-25.490	0.165	0.982
			Max. Vy	11	-1.490	0.580	0.115
			Max. Vx	8	2.105	-0.152	-0.900
			Max Tension	13	2.861	0.000	0.000
		Top Girt	Max. Compression	9	-2.768	0.000	0.000
			Max. Mx	26	-0.700	0.009	0.000
			Max. My	13	-0.952	0.000	0.000
			Max. Vy	26	-0.008	0.000	0.000
			Max. Vx	13	-0.000	0.000	0.000
		Bottom Girt	Max Tension	2	1.285	0.000	0.000
			Max. Compression	8	-0.098	0.000	0.000
			Max. Mx	21	0.368	0.007	0.000
			Max. My	13	0.554	0.000	-0.000
			Max. Vy	21	-0.008	0.000	0.000
		Guy A	Max. Vx	13	0.000	0.000	0.000
			Max Tension	13	0.935	0.000	0.000
			Max. Compression	7	-0.559	0.000	0.000
			Max. Mx	21	0.070	0.007	0.000
			Max. My	13	0.935	0.000	-0.000
		Guy B	Max. Vy	21	-0.008	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
			Bottom Tension	9	9.865		
			Top Tension	9	9.893		
			Top Cable Vert	9	2.853		
		Guy C	Top Cable Norm	9	9.473		
			Top Cable Tan	9	0.007		
			Bot Cable Vert	9	-2.730		
			Bot Cable Norm	9	9.480		
			Bot Cable Tan	9	0.056		
		Top Guy Pull-Off	Bottom Tension	13	10.269		
			Top Tension	13	10.310		
			Top Cable Vert	13	4.152		
			Top Cable Norm	13	9.437		
			Top Cable Tan	13	0.010		
T13	60 - 40	Leg	Bot Cable Vert	13	-4.017		
			Bot Cable Norm	13	9.451		
			Bot Cable Tan	13	0.060		
			Bottom Tension	3	10.093		
			Top Tension	3	10.129		
		Top Guy Pull-Off	Top Cable Vert	3	3.676		
			Top Cable Norm	3	9.438		
			Top Cable Tan	3	0.012		
			Bot Cable Vert	3	-3.546		
			Bot Cable Norm	3	9.449		
		Leg	Bot Cable Tan	3	0.061		
			Max Tension	2	4.169	0.000	0.000
			Max. Compression	8	-0.317	0.000	0.000
			Max. Mx	21	1.195	0.019	0.000
			Max. My	13	1.796	0.000	-0.000
			Max. Vy	21	-0.023	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
		Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	3	-53.279	0.076	-0.236

Reference Material
APR 01 2021
Planning Board Meeting

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T14	40 - 20	Diagonal	Max. Mx	12	-42.578	-0.366	-0.128
			Max. My	8	-41.508	0.056	0.412
			Max. Vy	4	-0.638	-0.101	-0.111
			Max. Vx	8	-0.762	0.162	-0.055
			Max Tension	13	1.720	0.000	0.000
			Max. Compression	7	-1.659	0.000	0.000
			Max. Mx	15	-0.174	0.009	0.000
			Max. My	13	0.355	0.000	0.000
			Max. Vy	15	-0.008	0.000	0.000
			Max. Vx	13	-0.000	0.000	0.000
		Top Girt	Max Tension	7	0.664	0.000	0.000
			Max. Compression	13	-0.711	0.000	0.000
			Max. Mx	21	0.140	0.007	0.000
			Max. My	13	-0.711	0.000	-0.000
		Bottom Girt	Max. Vy	21	0.008	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
			Max Tension	13	0.386	0.000	0.000
			Max. Compression	7	-0.133	0.000	0.000
			Max. Mx	21	0.127	0.007	0.000
			Max. My	13	0.291	0.000	-0.000
			Max. Vy	21	0.008	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
		Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	3	-53.288	0.077	-0.185
T15	20 - 4.81771	Diagonal	Max. Mx	10	-43.266	-0.370	0.090
			Max. My	2	-45.892	0.084	-0.445
			Max. Vy	10	-0.720	-0.176	-0.003
			Max. Vx	2	-0.951	0.125	-0.191
			Max Tension	2	1.630	0.000	0.000
			Max. Compression	2	-2.070	0.000	0.000
			Max. Mx	15	0.199	0.008	0.000
			Max. My	13	0.794	0.000	0.000
			Max. Vy	15	-0.008	0.000	0.000
			Max. Vx	13	-0.000	0.000	0.000
		Top Girt	Max Tension	6	0.287	0.000	0.000
			Max. Compression	13	-0.312	0.000	0.000
			Max. Mx	21	0.088	0.007	0.000
			Max. My	13	-0.062	0.000	-0.000
		Bottom Girt	Max. Vy	21	-0.008	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
			Max Tension	2	0.941	0.000	0.000
			Max. Compression	6	-0.491	0.000	0.000
			Max. Mx	21	0.170	0.007	0.000
			Max. My	13	-0.289	0.000	-0.000
			Max. Vy	21	-0.008	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
		Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	16	-52.599	0.025	-0.179
		Diagonal	Max. Mx	6	-38.516	-0.458	0.133
			Max. My	9	-38.703	0.151	-0.471
			Max. Vy	6	4.104	-0.458	0.133
			Max. Vx	22	4.571	0.081	-0.466
			Max Tension	2	2.306	0.000	0.000
			Max. Compression	2	-2.458	0.000	0.000
			Max. Mx	15	0.425	0.008	0.000
			Max. My	2	0.228	0.000	0.000
			Max. Vy	15	-0.007	0.000	0.000
			Max. Vx	2	-0.000	0.000	0.000
		Top Girt	Max Tension	6	0.682	0.000	0.000
			Max. Compression	2	-0.838	0.000	0.000
			Max. Mx	21	0.053	0.006	0.000
			Max. My	13	0.513	0.000	-0.000
		Bottom Girt	Max. Vy	21	-0.007	0.000	0.000
			Max. Vx	13	0.000	0.000	0.000
			Max Tension	26	2.629	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	21	2.510	0.006	0.000
			Max. My	13	1.698	0.000	-0.000
			Max. Vy	21	-0.007	0.000	0.000
			Max. Vx	21	-0.007	0.000	0.000

Reference Material
APR 01 2021
Planning Board Meeting

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T16	4.81771 - 0	Leg	Max. Vx	13	0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-55.412	-0.085	-0.062
		Horizontal	Max. Mx	20	-54.639	0.550	0.005
			Max. My	13	-43.023	-0.326	-0.547
			Max. Vy	20	0.709	0.550	0.005
			Max. Vx	13	0.511	-0.266	-0.503
			Max Tension	2	0.561	-0.079	0.027
			Max. Compression	13	-0.606	0.014	-0.379
			Max. Mx	13	-0.089	0.733	-0.258
			Max. My	2	-0.500	0.235	-0.472
			Max. Vy	13	-1.269	0.733	-0.258
		Top Girt	Max. Vx	2	-0.680	0.287	0.108
			Max Tension	26	9.196	0.050	-0.012
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	2	7.146	0.247	-0.119
			Max. My	2	5.891	0.180	-0.146
			Max. Vy	6	0.121	0.226	-0.084
			Max. Vx	2	-0.063	-0.070	0.060

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	15	151.824	-0.024	0.047
	Max. H _x	12	101.060	0.803	0.483
	Max. H _z	3	108.072	-0.666	0.649
	Max. M _x	1	0.000	-0.014	0.008
	Max. M _z	1	0.000	-0.014	0.008
	Max. Torsion	13	1.342	0.509	0.496
	Min. Vert	1	73.580	-0.014	0.008
	Min. H _x	4	100.185	-0.889	0.596
	Min. H _z	8	99.709	0.099	-1.162
	Min. M _x	1	0.000	-0.014	0.008
	Min. M _z	1	0.000	-0.014	0.008
	Min. Torsion	7	-0.586	-0.216	-0.797
	Max. Vert	10	-1.350	-0.992	0.573
Guy C @ 240 ft Elev -12 ft Azimuth 240 deg	Max. H _x	10	-1.350	-0.992	0.573
	Max. H _z	3	-37.482	-37.964	22.590
	Min. Vert	4	-37.546	-37.055	21.377
	Min. H _x	3	-37.482	-37.964	22.590
	Min. H _z	10	-1.350	-0.992	0.573
Guy B @ 240 ft Elev -24 ft Azimuth 120 deg	Max. Vert	6	-1.511	1.016	0.587
	Max. H _x	13	-40.683	38.690	23.013
	Max. H _z	13	-40.683	38.690	23.013
	Min. Vert	13	-40.683	38.690	23.013
	Min. H _x	6	-1.511	1.016	0.587
Guy A @ 240 ft Elev 9 ft Azimuth 0 deg	Min. H _z	6	-1.511	1.016	0.587
	Max. Vert	2	-0.870	0.000	-0.880
	Max. H _x	11	-17.291	1.146	-21.647
	Max. H _z	2	-0.870	0.000	-0.880
	Min. Vert	8	-35.814	-0.039	-45.546
	Min. H _x	5	-19.373	-1.160	-24.256
	Min. H _z	7	-35.698	-0.572	-46.135

Reference Material
APR 01 2021
Planning Board Meeting

Reference Material

APR 01 2021

300 Ft Guyed Tower Structural Analysis
Project Number 1905763, Order 528493, Revision 0

Planning Board Meeting
December 16, 2020
CCI BU No 871864
Page 48

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturing Moment, M _x kip-ft	Overturing Moment, M _z kip-ft	Torque kip-ft
Dead Only	73.580	0.014	-0.008	0.000	0.000	-0.028
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	112.409	0.040	-0.611	0.000	0.000	-0.664
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	108.072	0.666	-0.649	0.000	0.000	0.396
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	100.185	0.889	-0.596	0.000	0.000	-0.229
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	105.480	0.674	-0.230	0.000	0.000	-0.636
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	108.821	0.556	0.284	0.000	0.000	0.409
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	107.792	0.216	0.797	0.000	0.000	0.586
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	99.709	-0.099	1.162	0.000	0.000	-0.805
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	105.090	-0.391	0.906	0.000	0.000	-1.266
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	107.151	-0.594	0.420	0.000	0.000	-0.067
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	104.518	-0.679	-0.115	0.000	0.000	0.573
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	101.060	-0.803	-0.483	0.000	0.000	-0.409
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	109.901	-0.509	-0.496	0.000	0.000	-1.342
1.2 Dead+1.0 Ice+1.0 Temp+Guy	149.681	0.021	0.008	0.000	0.000	-0.044
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	151.824	0.024	-0.047	0.000	0.000	-0.126
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	151.168	0.062	-0.061	0.000	0.000	0.260
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	150.463	0.082	-0.048	0.000	0.000	0.114
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	150.547	0.065	-0.014	0.000	0.000	-0.035
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	150.780	0.045	0.026	0.000	0.000	0.087
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	150.350	0.023	0.075	0.000	0.000	0.157
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	150.022	0.004	0.110	0.000	0.000	-0.153
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	150.483	-0.031	0.086	0.000	0.000	-0.343
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	151.041	-0.031	0.050	0.000	0.000	-0.128
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	150.828	-0.033	0.009	0.000	0.000	-0.032
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	150.707	-0.027	-0.019	0.000	0.000	-0.195
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	151.312	-0.012	-0.036	0.000	0.000	-0.347
Dead+Wind 0 deg - Service+Guy	75.244	0.016	-0.469	0.000	0.000	-0.227

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead+Wind 30 deg - Service+Guy	75.043	0.243	-0.414	0.000	0.000	0.110
Dead+Wind 60 deg - Service+Guy	74.832	0.356	-0.219	0.000	0.000	-0.072
Dead+Wind 90 deg - Service+Guy	74.642	0.364	-0.023	0.000	0.000	-0.210
Dead+Wind 120 deg - Service+Guy	74.680	0.362	0.183	0.000	0.000	0.114
Dead+Wind 150 deg - Service+Guy	74.744	0.225	0.358	0.000	0.000	0.158
Dead+Wind 180 deg - Service+Guy	74.756	-0.005	0.430	0.000	0.000	-0.264
Dead+Wind 210 deg - Service+Guy	74.715	-0.244	0.380	0.000	0.000	-0.424
Dead+Wind 240 deg - Service+Guy	74.705	-0.351	0.213	0.000	0.000	-0.038
Dead+Wind 270 deg - Service+Guy	74.668	-0.344	0.002	0.000	0.000	0.151
Dead+Wind 300 deg - Service+Guy	74.884	-0.315	-0.200	0.000	0.000	-0.144
Dead+Wind 330 deg - Service+Guy	75.094	-0.189	-0.382	0.000	0.000	-0.430

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-39.267	0.000	-0.000	39.267	-0.000	0.001%
2	-0.346	-46.728	-38.850	0.346	46.728	38.846	0.006%
3	19.108	-46.477	-33.545	-19.108	46.476	33.540	0.007%
4	32.841	-46.220	-16.906	-32.840	46.220	16.908	0.004%
5	36.030	-46.427	1.839	-36.027	46.427	-1.837	0.006%
6	32.912	-46.636	19.559	-32.909	46.636	-19.557	0.006%
7	20.979	-46.393	34.183	-20.977	46.393	-34.181	0.005%
8	2.064	-46.158	39.559	-2.062	46.158	-39.559	0.003%
9	-18.661	-46.409	34.116	18.658	46.409	-34.115	0.006%
10	-31.926	-46.666	17.798	31.923	46.666	-17.797	0.007%
11	-35.273	-46.459	-0.244	35.270	46.459	0.245	0.006%
12	-32.367	-46.249	-18.677	32.368	46.249	18.675	0.004%
13	-19.823	-46.493	-33.872	19.823	46.492	33.867	0.007%
14	0.000	-99.780	0.000	-0.001	99.780	-0.004	0.004%
15	-0.052	-99.947	-10.147	0.052	99.947	10.146	0.001%
16	5.040	-99.797	-8.596	-5.040	99.797	8.595	0.002%
17	8.552	-99.645	-4.572	-8.550	99.645	4.568	0.005%
18	9.602	-99.772	0.251	-9.598	99.772	-0.249	0.005%
19	8.493	-99.900	4.898	-8.489	99.900	-4.895	0.005%
20	5.280	-99.754	8.653	-5.276	99.754	-8.652	0.004%
21	0.288	-99.612	10.243	-0.288	99.612	-10.238	0.006%
22	-4.891	-99.762	8.689	4.887	99.762	-8.688	0.004%
23	-8.370	-99.914	4.724	8.367	99.914	-4.722	0.003%
24	-9.460	-99.787	-0.037	9.459	99.787	0.038	0.001%
25	-8.363	-99.659	-4.813	8.360	99.659	4.808	0.006%
26	-5.035	-99.805	-8.628	5.036	99.805	8.626	0.002%
27	-0.104	-39.353	-11.736	0.104	39.353	11.735	0.003%
28	5.772	-39.277	-10.134	-5.773	39.277	10.132	0.004%
29	9.921	-39.199	-5.107	-9.920	39.199	5.107	0.004%
30	10.884	-39.262	0.555	-10.883	39.262	-0.554	0.004%
31	9.943	-39.325	5.909	-9.942	39.325	-5.908	0.003%
32	6.338	-39.252	10.326	-6.336	39.252	-10.326	0.004%
33	0.624	-39.180	11.951	-0.622	39.180	-11.950	0.004%
34	-5.637	-39.256	10.306	5.636	39.256	-10.306	0.004%
35	-9.645	-39.334	5.377	9.644	39.334	-5.376	0.003%
36	-10.656	-39.271	-0.074	10.654	39.271	0.074	0.004%
37	-9.778	-39.208	-5.642	9.776	39.208	5.641	0.005%
38	-5.988	-39.282	-10.232	5.988	39.282	10.231	0.004%

Reference Material
APR 01 2021
Planning Board Meeting

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	11	0.00000001	0.00006797
2	Yes	30	0.00006995	0.00006402
3	Yes	29	0.00009251	0.00007560
4	Yes	27	0.00009642	0.00005358
5	Yes	27	0.00008872	0.00007023
6	Yes	28	0.00007126	0.00006238
7	Yes	28	0.00006774	0.00005750
8	Yes	32	0.00007858	0.00004464
9	Yes	28	0.00009372	0.00007307
10	Yes	28	0.00009192	0.00007586
11	Yes	28	0.00008161	0.00006146
12	Yes	28	0.00008504	0.00004871
13	Yes	29	0.00009335	0.00008059
14	Yes	14	0.00010000	0.00004791
15	Yes	24	0.00000001	0.00002106
16	Yes	22	0.00000001	0.00002963
17	Yes	16	0.00010000	0.00006496
18	Yes	18	0.00010000	0.00008379
19	Yes	19	0.00010000	0.00008477
20	Yes	19	0.00010000	0.00006893
21	Yes	15	0.00010000	0.00008388
22	Yes	19	0.00010000	0.00007783
23	Yes	20	0.00010000	0.00006719
24	Yes	21	0.00000001	0.00002492
25	Yes	16	0.00010000	0.00007773
26	Yes	22	0.00000001	0.00002905
27	Yes	21	0.00000001	0.00003814
28	Yes	19	0.00000001	0.00005385
29	Yes	14	0.00000001	0.00003972
30	Yes	17	0.00000001	0.00006154
31	Yes	19	0.00000001	0.00004521
32	Yes	18	0.00000001	0.00005640
33	Yes	14	0.00000001	0.00004121
34	Yes	18	0.00000001	0.00005462
35	Yes	19	0.00000001	0.00004749
36	Yes	17	0.00000001	0.00005855
37	Yes	14	0.00000001	0.00005954
38	Yes	19	0.00000001	0.00005495

Reference Material
APR 01 2021
Planning Board Meeting

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	300 - 280	3.509	37	0.127	0.168
T2	280 - 260	3.039	37	0.089	0.181
T3	260 - 240	2.801	37	0.048	0.151
T4	240 - 220	2.648	37	0.027	0.123
T5	220 - 200	2.692	38	0.071	0.148
T6	200 - 180	2.940	38	0.077	0.195
T7	180 - 160	3.208	27	0.062	0.237
T8	160 - 140	3.447	27	0.068	0.260
T9	140 - 120	3.750	27	0.053	0.272
T10	120 - 100	3.847	27	0.032	0.246
T11	100 - 80	3.615	27	0.091	0.206
T12	80 - 60	3.142	27	0.115	0.189
T13	60 - 40	2.642	27	0.138	0.168
T14	40 - 20	1.971	27	0.188	0.136
T15	20 - 4.81771	1.068	27	0.237	0.103

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T16	4.81771 - 0	0.263	27	0.257	0.070

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
300.000	Flash Beacon Lighting	37	3.509	0.127	0.168	53932
298.000	(2) NNH4-65C-R6 w/ Mount Pipe	37	3.457	0.124	0.171	53932
290.000	APXVAALL24 43-U-NA20 TMO w/ Mount Pipe	37	3.252	0.109	0.179	26966
282.523	Guy	37	3.086	0.094	0.182	15600
278.000	PAD6-59BC	37	3.005	0.085	0.180	15074
270.000	DB212-1	37	2.898	0.068	0.171	24197
245.000	DB212-1	37	2.679	0.031	0.121	40270
243.000	Horizontal Stabilizer Arm	37	2.666	0.029	0.121	37004
225.000	PD220-1	38	2.654	0.061	0.139	19958
222.523	Guy	38	2.671	0.066	0.144	18548
216.000	(3) 12" Curved Sector Mount	38	2.733	0.077	0.157	22788
215.000	Horizontal Stabilizer Arm	38	2.744	0.078	0.159	25132
196.000	ASP682	38	2.987	0.074	0.203	35569
178.000	OGB9-900	27	3.231	0.062	0.240	81437
168.000	DB201-A	27	3.344	0.065	0.252	38048
159.385	Guy	27	3.456	0.068	0.261	22112
142.000	TA-2350-DAB-T6	27	3.724	0.057	0.272	21916
134.000	COL54-166	27	3.811	0.037	0.268	16379
130.000	PAD6-59BC	27	3.837	0.025	0.263	15481
120.000	Pipe Mount [PM 601-1]	27	3.847	0.032	0.246	13850
116.000	PR-950	27	3.827	0.041	0.238	14082
109.000	COL54-166	27	3.759	0.062	0.223	14973
103.000	BA4040-41-DIN	27	3.670	0.082	0.211	15879
98.000	Horizontal Mount Stabilizer	27	3.574	0.096	0.203	18938
82.000	220-1N	27	3.192	0.114	0.190	39811
79.385	Guy	27	3.127	0.115	0.189	34686
78.000	220-1N	27	3.093	0.116	0.188	36659

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	300 - 280	16.018	6	0.335	0.677
T2	280 - 260	15.617	2	0.239	0.699
T3	260 - 240	16.128	2	0.157	0.573
T4	240 - 220	16.733	2	0.172	0.434
T5	220 - 200	17.640	2	0.308	0.508
T6	200 - 180	19.074	2	0.306	0.642
T7	180 - 160	20.181	2	0.219	0.728
T8	160 - 140	20.975	2	0.210	0.793
T9	140 - 120	21.843	2	0.130	0.831
T10	120 - 100	21.775	2	0.197	0.747
T11	100 - 80	20.271	2	0.505	0.615
T12	80 - 60	17.609	2	0.680	0.587
T13	60 - 40	14.550	2	0.828	0.522
T14	40 - 20	10.620	2	1.063	0.421
T15	20 - 4.81771	5.659	2	1.275	0.317
T16	4.81771 - 0	1.387	2	1.358	0.223

Reference Material
APR 01 2021
Planning Board Meeting

APR 01 2021

Planning Board Meeting

December 16, 2020
CCI BU No 871864
Page 52

300 Ft Guyed Tower Structural Analysis
Project Number 1905763, Order 528493, Revision 0

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	°	°	ft
300.000	Flash Beacon Lighting	6	16.018	0.335	0.677	19677
298.000	(2) NNH4-65C-R6 w/ Mount Pipe	6	15.939	0.326	0.683	19677
290.000	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	6	15.638	0.288	0.701	9838
282.523	Guy	2	15.593	0.251	0.703	5695
278.000	PAD6-59BC	2	15.645	0.229	0.693	5567
270.000	DB212-1	2	15.827	0.192	0.653	9638
245.000	DB212-1	2	16.572	0.159	0.435	15077
243.000	Horizontal Stabilizer Arm	2	16.635	0.163	0.428	13404
225.000	PD220-1	2	17.355	0.276	0.482	5613
222.523	Guy	2	17.490	0.293	0.494	5180
216.000	(3) 12' Curved Sector Mount	2	17.904	0.323	0.532	6451
215.000	Horizontal Stabilizer Arm	2	17.974	0.325	0.539	7102
196.000	ASP682	2	19.339	0.287	0.665	8453
178.000	OGB9-900	2	20.264	0.216	0.736	13970
168.000	DB201-A	2	20.649	0.218	0.770	10908
159.385	Guy	2	21.002	0.208	0.795	6559
142.000	TA-2350-DAB-T6	2	21.781	0.139	0.832	4930
134.000	COL54-166	2	21.961	0.109	0.819	3797
130.000	PAD6-59BC	2	21.976	0.109	0.803	3585
120.000	Pipe Mount [PM 601-1]	2	21.775	0.197	0.747	3193
116.000	PR-950	2	21.591	0.251	0.720	3217
109.000	COL54-166	2	21.126	0.359	0.672	3349
103.000	BA4040-41-DIN	2	20.587	0.460	0.632	3480
98.000	Horizontal Mount Stabilizer	2	20.044	0.531	0.604	3966
82.000	220-1N	2	17.897	0.669	0.590	13059
79.385	Guy	2	17.520	0.684	0.585	11269
78.000	220-1N	2	17.320	0.691	0.582	12000

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	300	Leg	A325X	0.750	4	2.341	30.101	0.078	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	6.472	9.783	0.662	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	0.722	9.783	0.074	1.05	Gusset Bearing
		Bottom Girt	A325X	0.500	1	2.076	9.783	0.212	1.05	Gusset Bearing
T2	280	Leg	A325X	0.750	4	1.796	30.101	0.060	1	Bolt Tension
		Diagonal	A325X	0.500	1	3.232	9.783	0.330	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	1.527	9.783	0.156	1.05	Gusset Bearing
		Bottom Girt	A325X	0.500	1	0.621	9.783	0.063	1.05	Gusset Bearing
T3	260	Leg	A325X	0.750	4	1.946	30.101	0.065	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	2.255	9.783	0.230	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	0.651	9.783	0.067	1.05	Gusset Bearing
		Bottom Girt	A325X	0.500	1	1.049	9.783	0.107	1.05	Gusset Bearing
T4	240	Leg	A325X	0.750	4	2.849	30.101	0.095	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	4.384	8.591	0.510	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	0.998	8.591	0.116	1.05	Gusset Bearing
		Bottom Girt	A325X	0.500	1	1.749	8.591	0.204	1.05	Gusset Bearing
T5	220	Leg	A325X	0.750	4	2.699	30.101	0.090	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	3.856	9.783	0.394	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	2.021	9.783	0.207	1.05	Gusset Bearing
		Bottom Girt	A325X	0.500	1	0.784	9.783	0.080	1.05	Gusset Bearing
T6	200	Leg	A325X	0.750	4	2.643	30.101	0.088	1	Bolt Tension
		Diagonal	A325X	0.500	1	1.681	9.783	0.172	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	0.857	9.783	0.088	1.05	Gusset Bearing
		Bottom Girt	A325X	0.500	1	0.575	9.783	0.059	1.05	Gusset Bearing
T7	180	Leg	A325X	0.750	4	2.982	30.101	0.099	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	2.702	9.783	0.276	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	0.768	9.783	0.078	1.05	Gusset Bearing

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T8	160	Bottom Girt	A325X	0.500	1	1.380	9.783	0.141	1.05	Gusset Bearing
		Leg	A325X	0.750	4	3.857	30.101	0.128	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	4.129	9.783	0.422	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	1.275	9.783	0.130	1.05	Gusset Bearing
T9	140	Bottom Girt	A325X	0.500	1	1.379	9.783	0.141	1.05	Gusset Bearing
		Leg	A325X	0.750	4	4.716	30.101	0.157	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	3.352	9.783	0.343	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	1.318	9.783	0.135	1.05	Gusset Bearing
T10	120	Bottom Girt	A325X	0.500	1	0.761	9.783	0.078	1.05	Gusset Bearing
		Leg	A325X	0.750	4	4.112	30.101	0.137	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	2.891	9.783	0.295	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	0.591	9.783	0.060	1.05	Gusset Bearing
T11	100	Bottom Girt	A325X	0.500	1	1.090	9.783	0.111	1.05	Gusset Bearing
		Leg	A325X	0.750	4	3.603	30.101	0.120	1	Bolt Tension
		Diagonal	A325X	0.500	1	4.618	9.783	0.472	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	1.077	9.783	0.110	1.05	Gusset Bearing
T12	80	Bottom Girt	A325X	0.500	1	2.393	9.783	0.245	1.05	Gusset Bearing
		Leg	A325X	0.750	4	4.166	30.101	0.138	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	2.861	9.783	0.292	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	1.285	9.783	0.131	1.05	Gusset Bearing
T13	60	Bottom Girt	A325X	0.500	1	0.935	9.783	0.096	1.05	Gusset Bearing
		Leg	A325X	0.750	4	4.440	30.101	0.147	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	1.720	9.783	0.176	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	0.711	9.783	0.073	1.05	Gusset Bearing
T14	40	Bottom Girt	A325X	0.500	1	0.386	9.783	0.039	1.05	Gusset Bearing
		Leg	A325X	0.750	4	4.382	30.101	0.146	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	2.070	9.783	0.212	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	0.312	9.783	0.032	1.05	Gusset Bearing
T15	20	Bottom Girt	A325X	0.500	1	0.941	9.783	0.096	1.05	Gusset Bearing
		Leg	A325X	0.750	4	4.141	30.101	0.138	1	Bolt Tension
		Diagonal	A325X	0.500	1	2.458	9.783	0.251	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	0.838	9.783	0.086	1.05	Gusset Bearing
		Bottom Girt	A325X	0.500	1	2.529	9.783	0.259	1	Gusset Bearing

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	282.523 (A) (543)	5/8 (ECP - 23000) EHS	4.240	42.400	12.757	26.711	0.952	1.994
	282.523 (A) (544)	5/8 (ECP - 23000) EHS	4.240	42.400	12.510	26.711	0.952	2.034
	282.523 (B) (539)	5/8 (ECP - 23000) EHS	4.240	42.400	13.148	26.711	0.952	1.935
	282.523 (B) (540)	5/8 (ECP - 23000) EHS	4.240	42.400	13.232	26.711	0.952	1.923
	282.523 (C) (532)	5/8 (ECP - 23000) EHS	4.240	42.400	13.095	26.711	0.952	1.943
	282.523 (C) (533)	5/8 (ECP - 23000) EHS	4.240	42.400	12.385	26.711	0.952	2.054
	282.523 (C) (533)	5/8 (ECP - 23000) EHS	4.240	42.400	12.385	26.711	0.952	2.054
T4	222.523 (A) (528)	7/16 (ECP - 23000) EHS	2.080	20.800	7.080	13.104	0.952	1.763
	222.523 (A) (529)	7/16 (ECP - 23000) EHS	2.080	20.800	6.798	13.104	0.952	1.836

Reference Material

APR 01 2021

Planning Board Meeting

Reference Material

APR 01 2021

Planning Board Meeting

300 Ft Guyed Tower Structural Analysis
Project Number 1905763, Order 528493, Revision 0

December 16, 2020
CCI BU No 871864
Page 54

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T8	222.523 (B) (524)	7/16 (ECP - 23000) EHS	2.080	20.800	7.149	13.104	0.952	1.746
	222.523 (B) (525)	7/16 (ECP - 23000) EHS	2.080	20.800	7.246	13.104	0.952	1.722
	222.523 (C) (517)	7/16 (ECP - 23000) EHS	2.080	20.800	7.122	13.104	0.952	1.752
	222.523 (C) (518)	7/16 (ECP - 23000) EHS	2.080	20.800	6.927	13.104	0.952	1.802
	159.385 (A) (516)	1/2 (ECP - 23000) EHS	2.690	26.900	12.021	16.947	0.952	1.343
	159.385 (B) (515)	1/2 (ECP - 23000) EHS	2.690	26.900	12.418	16.947	0.952	1.300
	159.385 (C) (511)	1/2 (ECP - 23000) EHS	2.690	26.900	12.112	16.947	0.952	1.333
	79.385 (A) (510)	7/16 (ECP - 23000) EHS	2.080	20.800	9.893	13.104	0.952	1.262
	79.385 (B) (509)	7/16 (ECP - 23000) EHS	2.080	20.800	10.310	13.104	0.952	1.210
T12	79.385 (C) (505)	7/16 (ECP - 23000) EHS	2.080	20.800	10.129	13.104	0.952	1.232

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	K/Lr	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	ROHN 2.5 EH	20.000	2.409	62.6 K=2.00	2.254	-29.083	76.170	0.382 ¹
T2	280 - 260	ROHN 2.5 STD	20.000	2.409	61.0 K=2.00	1.704	-26.808	58.406	0.459 ¹
T3	260 - 240	ROHN 2.5 STD	20.000	2.409	61.0 K=2.00	1.704	-23.247	58.406	0.398 ¹
T4	240 - 220	ROHN 2 EH	20.000	2.409	75.4 K=2.00	1.477	-35.854	43.856	0.818 ¹
T5	220 - 200	ROHN 2.5 STD	20.000	2.409	61.0 K=2.00	1.704	-32.448	58.406	0.556 ¹
T6	200 - 180	ROHN 2.5 STD	20.000	2.409	61.0 K=2.00	1.704	-33.169	58.406	0.568 ¹
T7	180 - 160	ROHN 2.5 EH	20.000	2.409	62.6 K=2.00	2.254	-35.374	76.170	0.464 ¹
T8	160 - 140	ROHN 2.5 EH	20.000	2.409	62.6 K=2.00	2.254	-44.426	76.170	0.583 ¹
T9	140 - 120	ROHN 2.5 EH	20.000	2.409	62.6 K=2.00	2.254	-56.717	76.170	0.745 ¹
T10	120 - 100	ROHN 2.5 EH	20.000	2.409	62.6 K=2.00	2.254	-56.968	76.170	0.748 ¹
T11	100 - 80	ROHN 2.5 EH	20.000	2.409	62.6 K=2.00	2.254	-47.922	76.170	0.629 ¹
T12	80 - 60	ROHN 2.5 EH	20.000	2.409	62.6	2.254	-49.714	76.170	0.653 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T13	60 - 40	ROHN 2.5 EH	20.000	2.409	K=2.00 62.6	2.254	-53.111	76.170	0.697 ¹
T14	40 - 20	ROHN 2.5 EH	20.000	2.409	K=2.00 62.6	2.254	-53.270	76.170	0.699 ¹
T15	20 - 4.81771	ROHN 2.5 EH	15.182	2.409	K=2.00 62.6	2.254	-52.453	76.170	0.689 ¹
T16	4.81771 - 0	ROHN 2.5 STD	5.206	1.301	K=2.00 16.5 K=1.00	1.704	-53.862	75.174	0.716 ¹

^{*} DL controls

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-6.433	11.264	0.571 ¹
T2	280 - 260	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-3.232	11.264	0.287 ¹
T3	260 - 240	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-2.255	11.264	0.200 ¹
T4	240 - 220	ROHN 1.5 x 11GA	4.180	3.938	96.5 K=1.00	0.520	-4.384	11.100	0.395 ¹
T5	220 - 200	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-3.856	11.264	0.342 ¹
T6	200 - 180	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-1.681	11.264	0.149 ¹
T7	180 - 160	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-2.702	11.264	0.240 ¹
T8	160 - 140	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-4.096	11.264	0.364 ¹
T9	140 - 120	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-3.352	11.264	0.298 ¹
T10	120 - 100	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-2.891	11.264	0.257 ¹
T11	100 - 80	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-4.618	11.264	0.410 ¹
T12	80 - 60	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-2.768	11.264	0.246 ¹
T13	60 - 40	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-1.659	11.264	0.147 ¹
T14	40 - 20	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-2.070	11.264	0.184 ¹
T15	20 - 4.81771	ROHN 1.5 x 11GA	4.180	3.887	95.2 K=1.00	0.520	-2.458	11.264	0.218 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T16	4.81771 - 0	L4x4x1/4	0.854	0.615	64.6 K=6.97	1.940	-0.606	58.911	0.010 ¹

Reference Material
APR 01 2021
Planning Board Meeting

300 Ft Guyed Tower Structural Analysis
Project Number 1905763, Order 528493, Revision 0

¹ $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	K/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.715	13.554	0.053 ¹
T2	280 - 260	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-1.061	13.554	0.078 ¹
T3	260 - 240	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.505	13.554	0.037 ¹
T4	240 - 220	ROHN 1.5 x 11GA	3.417	3.219	78.9 K=1.00	0.520	-0.949	13.421	0.071 ¹
T5	220 - 200	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-1.533	13.554	0.113 ¹
T6	200 - 180	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.512	13.554	0.038 ¹
T7	180 - 160	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.432	13.554	0.032 ¹
T9	140 - 120	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-1.154	13.554	0.085 ¹
T10	120 - 100	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.580	13.554	0.043 ¹
T11	100 - 80	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-1.002	13.554	0.074 ¹
T12	80 - 60	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.098	13.554	0.007 ¹
T13	60 - 40	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.711	13.554	0.052 ¹
T14	40 - 20	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.312	13.554	0.023 ¹
T15	20 - 4.81771	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.838	13.554	0.062 ¹

¹ $P_u / \phi P_n$ controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	K/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-2.076	13.554	0.153 ¹
T2	280 - 260	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.621	13.554	0.046 ¹
T3	260 - 240	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.956	13.554	0.071 ¹
T4	240 - 220	ROHN 1.5 x 11GA	3.417	3.219	78.9 K=1.00	0.520	-1.749	13.421	0.130 ¹
T5	220 - 200	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.784	13.554	0.058 ¹
T6	200 - 180	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.575	13.554	0.042 ¹
T7	180 - 160	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-1.281	13.554	0.095 ¹
T8	160 - 140	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-1.312	13.554	0.097 ¹
T9	140 - 120	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.412	13.554	0.030 ¹
T10	120 - 100	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.847	13.554	0.062 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T11	100 - 80	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-1.907	13.554	0.141 ¹
T12	80 - 60	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.559	13.554	0.041 ¹
T13	60 - 40	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.133	13.554	0.010 ¹
T14	40 - 20	ROHN 1.5 x 11GA	3.417	3.177	77.8 K=1.00	0.520	-0.491	13.554	0.036 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	2L2x2x1/4x3/8	3.417	3.177	104.8 K=1.00	1.880	-7.382	43.618	0.169 ¹
T4	240 - 220	2L 'a' > 18.358 in - 538 2L2x2x1/4x3/8	3.417	3.219	106.2 K=1.00	1.880	-5.048	43.003	0.117 ¹
T12	80 - 60	2L 'a' > 18.599 in - 521 4 1/2x3/8 KL/R > 200 (C) - 506	3.417	3.177	352.2 K=1.00	1.688	-0.317	3.074	0.103 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
T1	300 - 280	2L2x2x1/4x3/8	0.000	2.001	0.000	0.000	3.392	0.000
T4	240 - 220	2L2x2x1/4x3/8	0.000	2.001	0.000	0.000	3.392	0.000
T12	80 - 60	4 1/2x3/8	0.000	5.126	0.000	0.000	0.427	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	Ratio $\frac{M_{uy}}{\phi M_{uy}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	300 - 280	2L2x2x1/4x3/8	0.169	0.000	0.000	0.169 ¹	1.050	4.8.1
T4	240 - 220	2L2x2x1/4x3/8	0.117	0.000	0.000	0.117 ¹	1.050	4.8.1
T12	80 - 60	4 1/2x3/8	0.103	0.000	0.000	0.103 ¹	1.050	4.8.1

¹ P_u / φP_n controls

Torque-Arm Top Design Data

APR 01 2021

Planning Board Meeting

300 Ft Guyed Tower Structural Analysis
Project Number 1905763, Order 528493, Revision 0

December 16, 2020
CCI BU No 871864
Page 58

Section No.	Elevation ft	Size	L ft	L _u ft	K/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280 (534)	C15x33.9	3.417	3.297	43.8 K=1.00	9.960	-1.817	291.753	0.006
T1	300 - 280 (535)	C15x33.9	3.417	3.297	43.8 K=1.00	9.960	-2.135	291.753	0.007
T1	300 - 280 (541)	C15x33.9	3.417	3.297	43.8 K=1.00	9.960	-2.359	291.753	0.008
T1	300 - 280 (542)	C15x33.9	3.417	3.297	43.8 K=1.00	9.960	-2.228	291.753	0.008
T1	300 - 280 (545)	C15x33.9	3.417	3.297	43.8 K=1.00	9.960	-2.389	291.753	0.008
T1	300 - 280 (546)	C15x33.9	3.417	3.297	43.8 K=1.00	9.960	-2.688	291.753	0.009
T4	240 - 220 (519)	C10x15.3	3.417	3.318	55.8 K=1.00	4.490	-1.251	123.454	0.010
T4	240 - 220 (520)	C10x15.3	3.417	3.318	55.8 K=1.00	4.490	-2.445	123.454	0.020
T4	240 - 220 (526)	C10x15.3	3.417	3.318	55.8 K=1.00	4.490	-1.404	123.454	0.011
T4	240 - 220 (527)	C10x15.3	3.417	3.318	55.8 K=1.00	4.490	-1.505	123.454	0.012
T4	240 - 220 (530)	C10x15.3	3.417	3.318	55.8 K=1.00	4.490	-2.418	123.454	0.020
T4	240 - 220 (531)	C10x15.3	3.417	3.318	55.8 K=1.00	4.490	-1.850	123.454	0.015

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	300 - 280 (534)	C15x33.9	-32.573	136.080	0.239	-0.000	12.595	0.000
T1	300 - 280 (535)	C15x33.9	-34.096	136.080	0.251	0.000	12.595	0.000
T1	300 - 280 (541)	C15x33.9	-35.939	136.080	0.264	0.000	12.595	0.000
T1	300 - 280 (542)	C15x33.9	-33.722	136.080	0.248	-0.000	12.595	0.000
T1	300 - 280 (545)	C15x33.9	-35.723	136.080	0.263	0.000	12.595	0.000
T1	300 - 280 (546)	C15x33.9	-33.021	136.080	0.243	-0.000	12.595	0.000
T4	240 - 220 (519)	C10x15.3	-15.440	41.932	0.368	-0.000	4.698	0.000
T4	240 - 220 (520)	C10x15.3	-16.176	41.932	0.386	-0.000	4.698	0.000
T4	240 - 220 (526)	C10x15.3	-16.695	41.932	0.398	0.000	4.698	0.000
T4	240 - 220 (527)	C10x15.3	-16.012	41.932	0.382	-0.000	4.698	0.000
T4	240 - 220 (530)	C10x15.3	-16.742	41.932	0.399	0.000	4.698	0.000
T4	240 - 220 (531)	C10x15.3	-15.535	41.932	0.370	-0.000	4.698	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
			$\frac{P_u}{\phi P_n}$	$\frac{M_{ux}}{\phi M_{nx}}$	$\frac{M_{uy}}{\phi M_{ny}}$			
T1	300 - 280 (534)	C15x33.9	0.006	0.239	0.000	0.242	1.050	4.8.1
T1	300 - 280 (535)	C15x33.9	0.007	0.251	0.000	0.254	1.050	4.8.1
T1	300 - 280 (541)	C15x33.9	0.008	0.264	0.000	0.268	1.050	4.8.1
T1	300 - 280 (542)	C15x33.9	0.008	0.248	0.000	0.252	1.050	4.8.1
T1	300 - 280 (545)	C15x33.9	0.008	0.263	0.000	0.267	1.050	4.8.1
T1	300 - 280 (546)	C15x33.9	0.009	0.243	0.000	0.247	1.050	4.8.1
T4	240 - 220 (519)	C10x15.3	0.010	0.368	0.000	0.373	1.050	4.8.1
T4	240 - 220 (520)	C10x15.3	0.020	0.386	0.000	0.396	1.050	4.8.1
T4	240 - 220 (526)	C10x15.3	0.011	0.398	0.000	0.404	1.050	4.8.1
T4	240 - 220 (527)	C10x15.3	0.012	0.382	0.000	0.388	1.050	4.8.1
T4	240 - 220 (530)	C10x15.3	0.020	0.399	0.000	0.409	1.050	4.8.1
T4	240 - 220 (531)	C10x15.3	0.015	0.370	0.000	0.378	1.050	4.8.1

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	ROHN 2.5 EH	20.000	2.409	31.3	2.254	20.207	101.409	0.199 ¹
T9	140 - 120	ROHN 2.5 EH	20.000	0.115	1.5	2.254	6.835	101.409	0.067 ¹
T10	120 - 100	ROHN 2.5 EH	20.000	2.409	31.3	2.254	7.247	101.409	0.071 ¹

¹ P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	6.472	19.665	0.329 ¹
T2	280 - 260	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	2.555	19.665	0.130 ¹
T3	260 - 240	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	2.150	19.665	0.109 ¹
T4	240 - 220	ROHN 1.5 x 11GA	4.180	3.938	96.5	0.520	3.810	19.665	0.194 ¹
T5	220 - 200	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	3.541	19.665	0.180 ¹
T6	200 - 180	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	1.432	19.665	0.073 ¹
T7	180 - 160	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	2.616	19.665	0.133 ¹
T8	160 - 140	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	4.129	19.665	0.210 ¹
T9	140 - 120	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	2.845	19.665	0.145 ¹
T10	120 - 100	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	2.518	19.665	0.128 ¹
T11	100 - 80	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	3.915	19.665	0.199 ¹
T12	80 - 60	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	2.861	19.665	0.146 ¹
T13	60 - 40	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	1.720	19.665	0.087 ¹
T14	40 - 20	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	1.630	19.665	0.083 ¹
T15	20 - 4.81771	ROHN 1.5 x 11GA	4.180	3.887	95.2	0.520	2.306	19.665	0.117 ¹

Reference Material

REV 11/2021

Planned 2023-11-20

Section No.	Elevation ft	Size	L ft	L _u ft	K/r	A in ²	P _u K	φP _n K	Ratio P_u / φP_n
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¹ P_u / φP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	K/r	A in ²	P _u K	φP _n K	Ratio P_u / φP_n
T16	4.81771 - 0	L4x4x1/4	0.854	0.615	5.9	1.940	0.561	62.856	0.009 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	K/r	A in ²	P _u K	φP _n K	Ratio P_u / φP_n
T1	300 - 280	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.722	19.665	0.037 ¹
T2	280 - 260	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	1.527	19.665	0.078 ¹
T3	260 - 240	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.651	19.665	0.033 ¹
T4	240 - 220	ROHN 1.5 x 11GA	3.417	3.219	78.9	0.520	0.998	19.665	0.051 ¹
T5	220 - 200	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	2.021	19.665	0.103 ¹
T6	200 - 180	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.857	19.665	0.044 ¹
T7	180 - 160	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.768	19.665	0.039 ¹
T8	160 - 140	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	1.275	19.665	0.065 ¹
T9	140 - 120	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	1.318	19.665	0.067 ¹
T10	120 - 100	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.591	19.665	0.030 ¹
T11	100 - 80	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	1.077	19.665	0.055 ¹
T12	80 - 60	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	1.285	19.665	0.065 ¹
T13	60 - 40	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.664	19.665	0.034 ¹
T14	40 - 20	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.287	19.665	0.015 ¹
T15	20 - 4.81771	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.682	19.665	0.035 ¹
T16	4.81771 - 0	L4x4x1/4	3.417	3.177	30.5	1.940	8.900	62.856	0.142 ¹

Reference Material

^{*} DL controls

¹ P_u / φP_n controls

APR 01 2021

Planning Board Meeting

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	K/r	A in ²	P _u K	φP _n K	Ratio P_u / φP_n
T1	300 - 280	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	1.759	19.665	0.089 ¹
T2	280 - 260	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.618	19.665	0.031 ¹
T3	260 - 240	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	1.049	19.665	0.053 ¹
T4	240 - 220	ROHN 1.5 x 11GA	3.417	3.219	78.9	0.520	1.622	19.665	0.082 ¹
T5	220 - 200	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.625	19.665	0.032 ¹
T6	200 - 180	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.500	19.665	0.025 ¹
T7	180 - 160	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	1.380	19.665	0.070 ¹
T8	160 - 140	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	1.379	19.665	0.070 ¹
T9	140 - 120	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.761	19.665	0.039 ¹
T10	120 - 100	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	1.090	19.665	0.055 ¹
T11	100 - 80	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	2.393	19.665	0.122 ¹
T12	80 - 60	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.935	19.665	0.048 ¹
T13	60 - 40	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.386	19.665	0.020 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T14	40 - 20	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	0.941	19.665	0.048 ¹
T15	20 - 4.81771	ROHN 1.5 x 11GA	3.417	3.177	77.8	0.520	2.529	19.665	0.129 ¹

¹ DL controls

¹ P_u / φP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	2L2x2x1/4x3/8 2L 'a' > 18.358 in - 538	3.417	3.177	62.6	1.880	7.484	60.912	0.123 ¹
T4	240 - 220	2L2x2x1/4x3/8 2L 'a' > 18.599 in - 522	3.417	3.219	63.4	1.880	5.329	60.912	0.087 ¹
T8	160 - 140	4 1/2x3/8	3.417	3.177	352.2	1.688	4.136	54.675	0.076 ¹
T12	80 - 60	4 1/2x3/8	3.417	3.177	352.2	1.688	4.169	54.675	0.076 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
T1	300 - 280	2L2x2x1/4x3/8	0.000	2.001	0.000	0.000	3.392	0.000
T4	240 - 220	2L2x2x1/4x3/8	0.000	2.001	0.000	0.000	3.392	0.000
T8	160 - 140	4 1/2x3/8	0.000	5.126	0.000	0.000	0.427	0.000
T12	80 - 60	4 1/2x3/8	0.000	5.126	0.000	0.000	0.427	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	Ratio $\frac{M_{uy}}{\phi M_{uy}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	300 - 280	2L2x2x1/4x3/8	0.123	0.000	0.000	0.123 ¹	1.050	4.8.1
T4	240 - 220	2L2x2x1/4x3/8	0.087	0.000	0.000	0.087 ¹	1.050	4.8.1
T8	160 - 140	4 1/2x3/8	0.076	0.000	0.000	0.076 ¹	1.050	4.8.1
T12	80 - 60	4 1/2x3/8	0.076	0.000	0.000	0.076 ¹	1.050	4.8.1

¹ P_u / φP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280 (534)	C15x33.9	3.417	3.297	43.8	9.960	0.620	322.704	0.002
T1	300 - 280 (535)	C15x33.9	3.417	3.297	43.8	9.960	0.375	322.704	0.001

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Section No.	Elevation ft	Size	L ft	L _u ft	KVr	A in ²	P _v K	φP _n K	Ratio P _v φP _n
T1	300 - 280 (541)	C15x33.9	3.417	3.297	43.8	9.960	2.627	322.704	0.008
T1	300 - 280 (542)	C15x33.9	3.417	3.297	43.8	9.960	0.474	322.704	0.001
T1	300 - 280 (545)	C15x33.9	3.417	3.297	43.8	9.960	2.702	322.704	0.008
T1	300 - 280 (546)	C15x33.9	3.417	3.297	43.8	9.960	0.460	322.704	0.001
T4	240 - 220 (519)	C10x15.3	3.417	3.318	55.8	4.490	0.417	145.476	0.003
T4	240 - 220 (520)	C10x15.3	3.417	3.318	55.8	4.490	0.274	145.476	0.002
T4	240 - 220 (526)	C10x15.3	3.417	3.318	55.8	4.490	0.134	145.476	0.001
T4	240 - 220 (527)	C10x15.3	3.417	3.318	55.8	4.490	0.109	145.476	0.001
T4	240 - 220 (530)	C10x15.3	3.417	3.318	55.8	4.490	0.145	145.476	0.001
T4	240 - 220 (531)	C10x15.3	3.417	3.318	55.8	4.490	0.047	145.476	0.000

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio M _{ux} φM _{ux}	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio M _{uy} φM _{uy}
T1	300 - 280 (534)	C15x33.9	-31.420	136.080	0.231	-0.000	12.595	0.000
T1	300 - 280 (535)	C15x33.9	-32.600	136.080	0.240	0.000	12.595	0.000
T1	300 - 280 (541)	C15x33.9	-27.323	136.080	0.201	-0.000	12.595	0.000
T1	300 - 280 (542)	C15x33.9	-31.250	136.080	0.230	-0.000	12.595	0.000
T1	300 - 280 (545)	C15x33.9	-27.113	136.080	0.199	-0.000	12.595	0.000
T1	300 - 280 (546)	C15x33.9	-30.339	136.080	0.223	0.000	12.595	0.000
T4	240 - 220 (519)	C10x15.3	-15.508	41.932	0.370	-0.000	4.698	0.000
T4	240 - 220 (520)	C10x15.3	-15.615	41.932	0.372	-0.000	4.698	0.000
T4	240 - 220 (526)	C10x15.3	-17.258	41.932	0.412	-0.000	4.698	0.000
T4	240 - 220 (527)	C10x15.3	-16.284	41.932	0.388	0.000	4.698	0.000
T4	240 - 220 (530)	C10x15.3	-15.606	41.932	0.372	0.000	4.698	0.000
T4	240 - 220 (531)	C10x15.3	-14.928	41.932	0.356	-0.000	4.698	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio P _u φP _n	Ratio M _{ux} φM _{ux}	Ratio M _{uy} φM _{uy}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	300 - 280 (534)	C15x33.9	0.002	0.231	0.000	0.232	1.050	4.8.1
T1	300 - 280 (535)	C15x33.9	0.001	0.240	0.000	0.240	1.050	4.8.1

Section No.	Elevation ft	Size	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
			P_u	M_{ux}	M_{uy}			
T1	300 - 280 (541)	C15x33.9	0.008	0.201	0.000	0.205	1.050	4.8.1
T1	300 - 280 (542)	C15x33.9	0.001	0.230	0.000	0.230	1.050	4.8.1
T1	300 - 280 (545)	C15x33.9	0.008	0.199	0.000	0.203	1.050	4.8.1
T1	300 - 280 (546)	C15x33.9	0.001	0.223	0.000	0.224	1.050	4.8.1
T4	240 - 220 (519)	C10x15.3	0.003	0.370	0.000	0.371	1.050	4.8.1
T4	240 - 220 (520)	C10x15.3	0.002	0.372	0.000	0.373	1.050	4.8.1
T4	240 - 220 (526)	C10x15.3	0.001	0.412	0.000	0.412	1.050	4.8.1
T4	240 - 220 (527)	C10x15.3	0.001	0.388	0.000	0.389	1.050	4.8.1
T4	240 - 220 (530)	C10x15.3	0.001	0.372	0.000	0.373	1.050	4.8.1
T4	240 - 220 (531)	C10x15.3	0.000	0.356	0.000	0.356	1.050	4.8.1

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	300 - 280	Leg	ROHN 2.5 EH	1	-29.083	79.978	36.4	Pass
T2	280 - 260	Leg	ROHN 2.5 STD	34	-26.808	61.326	43.7	Pass
T3	260 - 240	Leg	ROHN 2.5 STD	67	-23.247	61.326	37.9	Pass
T4	240 - 220	Leg	ROHN 2 EH	101	-35.854	46.048	77.9	Pass
T5	220 - 200	Leg	ROHN 2.5 STD	134	-32.448	61.326	52.9	Pass
T6	200 - 180	Leg	ROHN 2.5 STD	166	-33.169	61.326	54.1	Pass
T7	180 - 160	Leg	ROHN 2.5 EH	200	-35.374	79.978	44.2	Pass
T8	160 - 140	Leg	ROHN 2.5 EH	233	-44.426	79.978	55.5	Pass
T9	140 - 120	Leg	ROHN 2.5 EH	266	-56.717	79.978	70.9	Pass
T10	120 - 100	Leg	ROHN 2.5 EH	299	-56.968	79.978	71.2	Pass
T11	100 - 80	Leg	ROHN 2.5 EH	332	-47.922	79.978	59.9	Pass
T12	80 - 60	Leg	ROHN 2.5 EH	364	-49.714	79.978	62.2	Pass
T13	60 - 40	Leg	ROHN 2.5 EH	397	-53.111	79.978	66.4	Pass
T14	40 - 20	Leg	ROHN 2.5 EH	430	-53.270	79.978	66.6	Pass
T15	20 - 4.81771	Leg	ROHN 2.5 EH	463	-52.453	79.978	65.6	Pass
T16	4.81771 - 0	Leg	ROHN 2.5 STD	491	-53.862	75.174	71.6	Pass
T1	300 - 280	Diagonal	ROHN 1.5 x 11GA	18	-6.433	11.828	54.4	Pass
T2	280 - 260	Diagonal	ROHN 1.5 x 11GA	65	-3.232	11.828	63.0 (b) 27.3	Pass
T3	260 - 240	Diagonal	ROHN 1.5 x 11GA	78	-2.255	11.828	31.5 (b) 19.1	Pass
T4	240 - 220	Diagonal	ROHN 1.5 x 11GA	110	-4.384	11.655	21.9 (b) 37.6	Pass
T5	220 - 200	Diagonal	ROHN 1.5 x 11GA	164	-3.856	11.828	48.6 (b) 32.6	Pass
T6	200 - 180	Diagonal	ROHN 1.5 x 11GA	196	-1.681	11.828	37.5 (b) 14.2	Pass
T7	180 - 160	Diagonal	ROHN 1.5 x 11GA	209	-2.702	11.828	16.4 (b) 22.8	Pass
T8	160 - 140	Diagonal	ROHN 1.5 x 11GA	257	-4.096	11.828	26.3 (b) 34.6	Pass
T9	140 - 120	Diagonal	ROHN 1.5 x 11GA	296	-3.352	11.828	40.2 (b) 28.3	Pass
T10	120 - 100	Diagonal	ROHN 1.5 x 11GA	308	-2.891	11.828	32.6 (b) 24.4	Pass
T11	100 - 80	Diagonal	ROHN 1.5 x 11GA	341	-4.618	11.828	28.1 (b) 39.0	Pass
T12	80 - 60	Diagonal	ROHN 1.5 x 11GA	393	-2.768	11.828	45.0 (b) 23.4 27.9 (b)	Pass

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APR 01 2021
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APR 01 2021

Planning Board Meeting

December 16, 2020
CCI BU No 871864
Page 64

300 Ft Guyed Tower Structural Analysis
Project Number 1905763, Order 528493, Revision 0

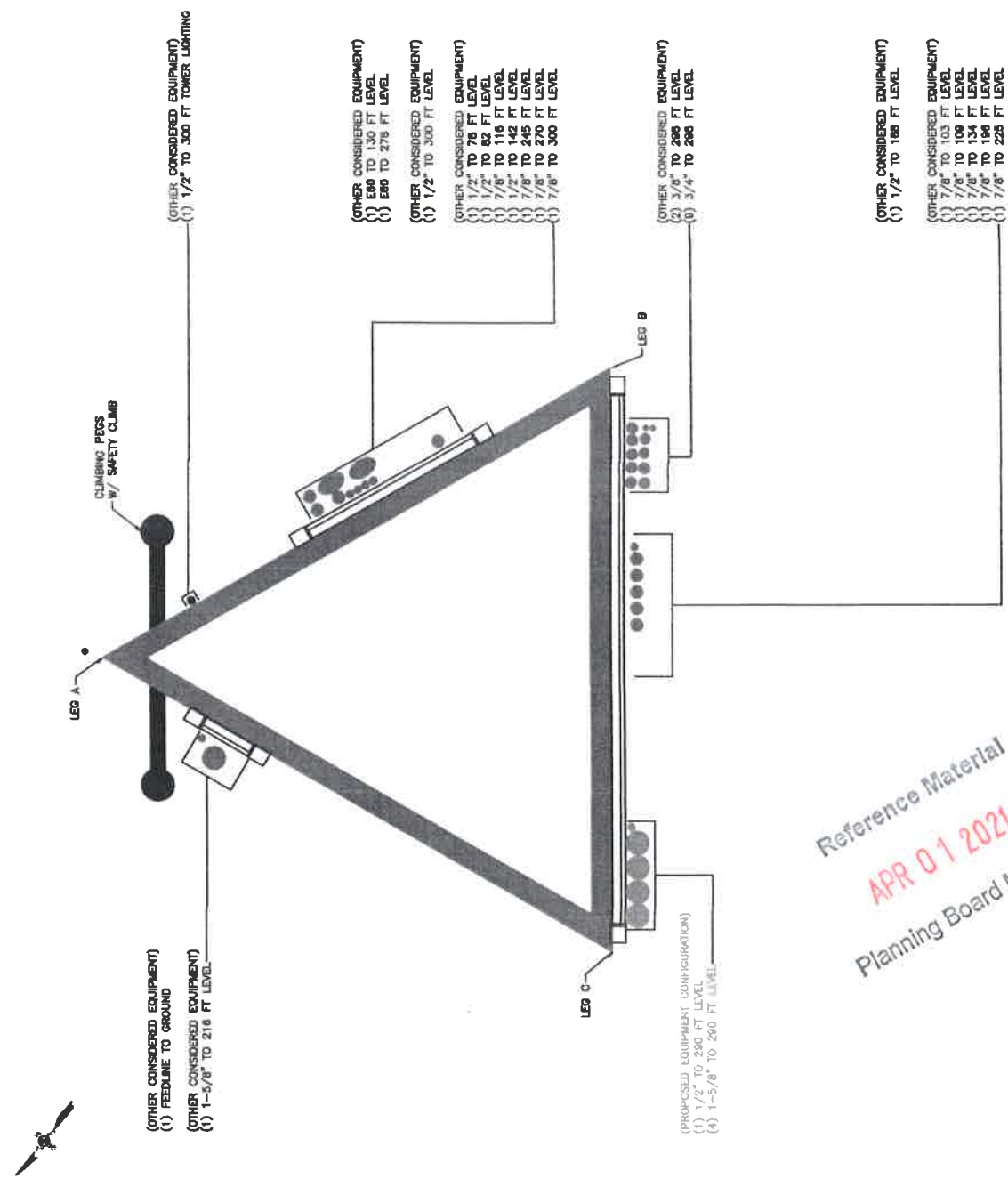
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T13	60 - 40	Diagonal	ROHN 1.5 x 11GA	428	-1.659	11.828	14.0 16.7 (b)	Pass
T14	40 - 20	Diagonal	ROHN 1.5 x 11GA	441	-2.070	11.828	17.5 20.1 (b)	Pass
T15	20 - 4.81771	Diagonal	ROHN 1.5 x 11GA	474	-2.458	11.828	20.8 23.9 (b)	Pass
T16	4.81771 - 0	Horizontal	L4x4x1/4	498	-0.584	61.857	6.2	Pass
T1	300 - 280	Top Girt	ROHN 1.5 x 11GA	4	-0.715	14.231	5.0 7.0 (b)	Pass
T2	280 - 260	Top Girt	ROHN 1.5 x 11GA	38	-1.061	14.231	7.5 14.9 (b)	Pass
T3	260 - 240	Top Girt	ROHN 1.5 x 11GA	71	-0.505	14.231	3.6 6.3 (b)	Pass
T4	240 - 220	Top Girt	ROHN 1.5 x 11GA	105	-0.949	14.092	6.7 11.1 (b)	Pass
T5	220 - 200	Top Girt	ROHN 1.5 x 11GA	137	-1.533	14.231	10.8 19.7 (b)	Pass
T6	200 - 180	Top Girt	ROHN 1.5 x 11GA	169	0.857	20.649	4.1 8.3 (b)	Pass
T7	180 - 160	Top Girt	ROHN 1.5 x 11GA	204	0.768	20.649	3.7 7.5 (b)	Pass
T8	160 - 140	Top Girt	ROHN 1.5 x 11GA	236	1.275	20.649	6.2 12.4 (b)	Pass
T9	140 - 120	Top Girt	ROHN 1.5 x 11GA	270	-1.154	14.231	8.1 12.8 (b)	Pass
T10	120 - 100	Top Girt	ROHN 1.5 x 11GA	301	-0.580	14.231	4.1 5.8 (b)	Pass
T11	100 - 80	Top Girt	ROHN 1.5 x 11GA	335	-1.002	14.231	7.0 10.5 (b)	Pass
T12	80 - 60	Top Girt	ROHN 1.5 x 11GA	367	1.285	20.649	6.2 12.5 (b)	Pass
T13	60 - 40	Top Girt	ROHN 1.5 x 11GA	401	-0.711	14.231	5.0 6.9 (b)	Pass
T14	40 - 20	Top Girt	ROHN 1.5 x 11GA	435	-0.312	14.231	2.2 3.0 (b)	Pass
T15	20 - 4.81771	Top Girt	ROHN 1.5 x 11GA	468	-0.838	14.231	5.9 8.2 (b)	Pass
T16	4.81771 - 0	Top Girt	L4x4x1/4	495	8.900	62.856	14.2	Pass
T1	300 - 280	Bottom Girt	ROHN 1.5 x 11GA	8	-2.076	14.231	14.6 20.2 (b)	Pass
T2	280 - 260	Bottom Girt	ROHN 1.5 x 11GA	40	-0.621	14.231	4.4 6.0 (b)	Pass
T3	260 - 240	Bottom Girt	ROHN 1.5 x 11GA	75	-0.956	14.231	6.7 10.2 (b)	Pass
T4	240 - 220	Bottom Girt	ROHN 1.5 x 11GA	106	-1.749	14.092	12.4 19.4 (b)	Pass
T5	220 - 200	Bottom Girt	ROHN 1.5 x 11GA	139	-0.784	14.231	5.5 7.6 (b)	Pass
T6	200 - 180	Bottom Girt	ROHN 1.5 x 11GA	174	-0.575	14.231	4.0 5.6 (b)	Pass
T7	180 - 160	Bottom Girt	ROHN 1.5 x 11GA	205	-1.281	14.231	9.0 13.4 (b)	Pass
T8	160 - 140	Bottom Girt	ROHN 1.5 x 11GA	240	-1.312	14.231	9.2 13.4 (b)	Pass
T9	140 - 120	Bottom Girt	ROHN 1.5 x 11GA	273	0.761	20.649	3.7 7.4 (b)	Pass
T10	120 - 100	Bottom Girt	ROHN 1.5 x 11GA	305	-0.847	14.231	5.9 10.6 (b)	Pass
T11	100 - 80	Bottom Girt	ROHN 1.5 x 11GA	338	-1.907	14.231	13.4 23.3 (b)	Pass
T12	80 - 60	Bottom Girt	ROHN 1.5 x 11GA	371	0.935	20.649	4.5 9.1 (b)	Pass
T13	60 - 40	Bottom Girt	ROHN 1.5 x 11GA	405	0.386	20.649	1.9 3.8 (b)	Pass
T14	40 - 20	Bottom Girt	ROHN 1.5 x 11GA	438	0.941	20.649	4.6 9.2 (b)	Pass
T15	20 - 4.81771	Bottom Girt	ROHN 1.5 x 11GA	471	2.529	19.665	12.9 24.6 (b)	Pass
T1	300 - 280	Guy A@282.523	5/8 (ECP - 23000)	543	12.757	26.711	47.8	Pass
T4	240 - 220	Guy A@222.523	7/16 (ECP - 23000)	528	7.080	13.104	54.0	Pass

Section No	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T8	160 - 140	Guy A@159.385	1/2 (ECP - 23000)	516	12.021	16.947	70.9	Pass
T12	80 - 60	Guy A@79.3854	7/16 (ECP - 23000)	510	9.893	13.104	75.5	Pass
T1	300 - 280	Guy B@282.523	5/8 (ECP - 23000)	540	13.232	26.711	49.5	Pass
T4	240 - 220	Guy B@222.523	7/16 (ECP - 23000)	525	7.246	13.104	55.3	Pass
T8	160 - 140	Guy B@159.385	1/2 (ECP - 23000)	515	12.418	16.947	73.3	Pass
T12	80 - 60	Guy B@79.3854	7/16 (ECP - 23000)	509	10.310	13.104	78.7	Pass
T1	300 - 280	Guy C@282.523	5/8 (ECP - 23000)	532	13.095	26.711	49.0	Pass
T4	240 - 220	Guy C@222.523	7/16 (ECP - 23000)	517	7.122	13.104	54.3	Pass
T8	160 - 140	Guy C@159.385	1/2 (ECP - 23000)	511	12.112	16.947	71.5	Pass
T12	80 - 60	Guy C@79.3854	7/16 (ECP - 23000)	505	10.129	13.104	77.3	Pass
T1	300 - 280	Top Guy Pull-Off@282.523	2L2x2x1/4x3/8	538	-7.382	45.798	16.1	Pass
T4	240 - 220	Top Guy Pull-Off@222.523	2L2x2x1/4x3/8	521	-5.048	45.153	11.2	Pass
T8	160 - 140	Top Guy Pull-Off@159.385	4 1/2x3/8	513	4.136	57.409	7.2	Pass
T12	80 - 60	Top Guy Pull-Off@79.3854	4 1/2x3/8	506	-0.317	3.227	9.8	Pass
T1	300 - 280	Torque Arm Top@282.523	C15x33.9	541	2.627	338.839	25.5	Pass
T4	240 - 220	Torque Arm Top@222.523	C10x15.3	526	-1.404	129.627	39.2	Pass
							Summary	
							Leg (T4)	77.9 Pass
							Diagonal (T1)	63.0 Pass
							Horizontal (T16)	6.2 Pass
							Top Girt (T5)	19.7 Pass
							Bottom Girt (T15)	24.6 Pass
							Guy A (T12)	75.5 Pass
							Guy B (T12)	78.7 Pass
							Guy C (T12)	77.3 Pass
							Top Guy Pull-Off (T1)	16.1 Pass
							Torque Arm Top (T4)	39.2 Pass
							Bolt Checks	63.0 Pass
							RATING =	78.7 Pass

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APPENDIX B
BASE LEVEL DRAWING

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APPENDIX C
ADDITIONAL CALCULATIONS

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Pier and Pad Foundation

BU # : 871864

Site Name: Austerlitz

App. Number: 528493 - Rev. 0



TIA-222 Revision: H

Tower Type: Guyed

Top & Bot. Pad Rein. Different?: ☐

Block Foundation?: ☐

Rectangular Pad?: ☐

Superstructure Analysis Reactions		
Compression, P_{comp}	151.82	kips
Base Shear, V_{u_comp}	0.05	kips
Moment, M_u	0	ft-kips
Tower Height, H	300	ft
BP Dist. Above Fdn, b_{p_dist}	0	in
Bolt Circle / Bearing Plate Width, BC	12	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, d_{pier}	2	ft
Ext. Above Grade, E	1	ft
Pier Rebar Size, S_c	6	
Pier Rebar Quantity, m_c	6	
Pier Tie/Spiral Size, S_t	3	
Pier Tie/Spiral Quantity, m_t	3	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}	3	in

Pad Properties		
Depth, D	4	ft
Pad Width, W_f	6	ft
Pad Thickness, T	2	ft
Pad Rebar Size (Bottom dir. 2), S_{p2}	6	
Pad Rebar Quantity (Bottom dir. 2), m_{p2}	8	
Pad Clear Cover, cc_{pad}	3	in

Material Properties		
Rebar Grade, F_y	60	ksi
Concrete Compressive Strength, F'_c	3	ksi
Dry Concrete Density, δ_c	150	pcf

Soil Properties		
Total Soil Unit Weight, γ	115	pcf
Ultimate Gross Bearing, Q_{ult}	30,000	ksf
Cohesion, C_u	0.750	ksf
Friction Angle, ϕ		degrees
SPT Blow Count, N_{blows}		
Base Friction, μ	0.4	
Neglected Depth, N	4.00	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw	N/A	ft

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	39.50	0.05	0.1%	Pass
Bearing Pressure (ksf)	18.00	4.89	25.9%	Pass
Overturning (kip*ft)	277.85	0.25	0.1%	Pass
Pier Flexure (Comp.) (kip*ft)	182.37	0.15	0.1%	Pass
Pier Compression (kip)	1499.67	153.52	9.7%	Pass
Pad Flexure (kip*ft)	305.71	50.95	15.9%	Pass
Pad Shear - 1-way (kips)	117.57	8.76	7.1%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.164	0.016	9.3%	Pass
Flexural 2-way (Comp) (kip*ft)	611.42	0.09	0.0%	Pass

*Rating per TIA-222-H Section 15.5

Soil Rating*:	25.9%
Structural Rating*:	15.9%

←Toggle between Gross and Net

Reference Material
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Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

BU#: 871864

Site Name: Austerlitz

Order Number: 517578 - Rev. 5

Location: Maximum @ 240 ft

TIA-222 Revision: H

Design Reactions		
Shear, S:	45.02	kips
Uplift, U:	40.68	kips
Resultant Force, R:	60.7	kips
Tower Height, H:	300.00	ft
Guy Anchor Radius, R:	240.00	ft
Resultant Angle to Horizontal, θ :	47.1	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, Dd:	10	ft
Anchor Width, Wa:	7	ft
Anchor Thickness, Ta:	3	ft
Anchor Length, La:	10	ft
Concrete Volume, Vc:	7.8	yd ³
Toe Width, Tw:		ft

Anchor Shaft Diameter, ds:	1.25	in
Anchor Shaft Quantity, n:	2	
Anchor Shaft Area Overlap:		in ²
Shear Lag Factor, u:	1	

Material Properties

Wt. Avg Concrete Density, δ_c :	0.150	kcf
Anchor Shaft Grade, Fy:	50	Ksi
Anchor Shaft Ultimate Strength, Fu:	65	Ksi



Design Checks				
	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	426.78	45.02	10.0%	Pass
Uplift Capacity (kips):	347.23	40.68	11.2%	Pass

Anchor Shaft (kips):	58.17	60.68	58.9%	Pass
----------------------	-------	-------	-------	------

Rating per TIA-222-H Section 15.5	11.2%
Soil Rating:	11.2%
Structural Rating:	N/A
Anchor Shaft Rating:	58.9%

Neglect Depth, Neg:	4	ft
Groundwater Level, gwl:	None	ft

Soil Properties:					
Layer	ϕ , deg	c_u , kcf	δ , kcf	d, ft	Ultimate fs (kcf)
1	0	0.750	115	2.00	
2	0	2.500	135	5.00	
3	0	5.000	145	10.00	
					N (blows/ft)

*Key: ϕ = Internal Angle of Friction
 c_u = Cohesion / Undrained Shear Strength
 δ = Buoyant Soil Unit Weight
 d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

Reference Material

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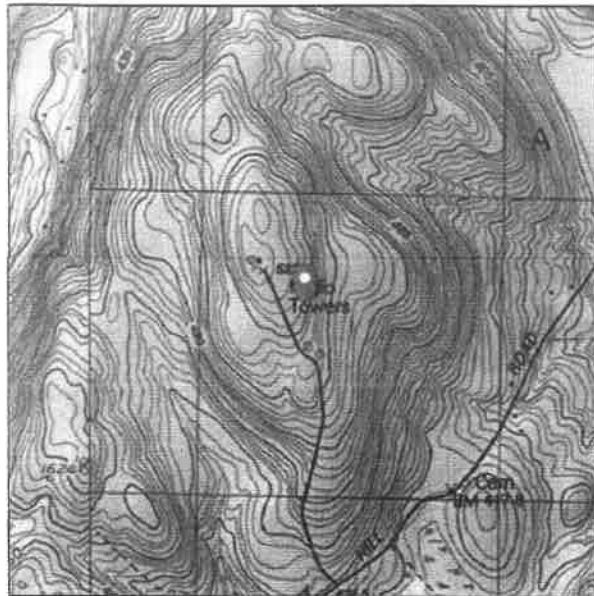


ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see
Section 11.4.3)

Elevation: 1678.8 ft (NAVD 88)
Latitude: 42.306047
Longitude: -73.490867



Wind

Results:

Wind Speed:	112 Vmph
10-year MRI	75 Vmph
25-year MRI	82 Vmph
50-year MRI	88 Vmph
100-year MRI	94 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4

Date Accessed: Fri Nov 20 2020

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

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

Reference Material

APR 01 2021

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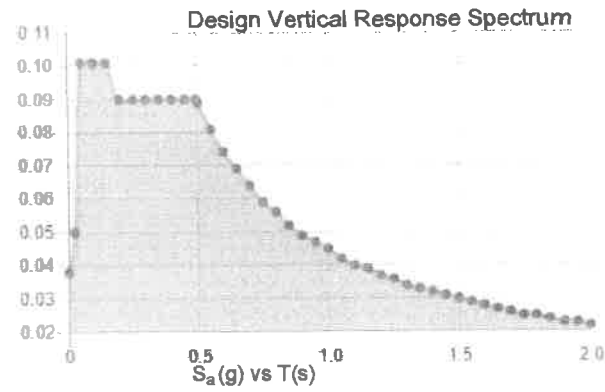
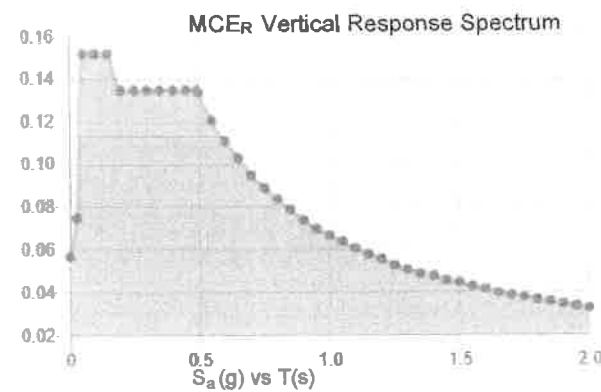
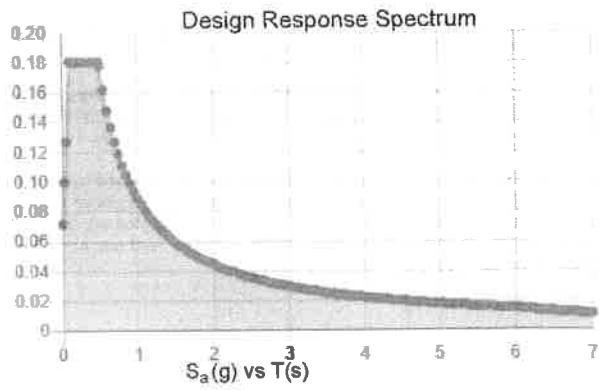
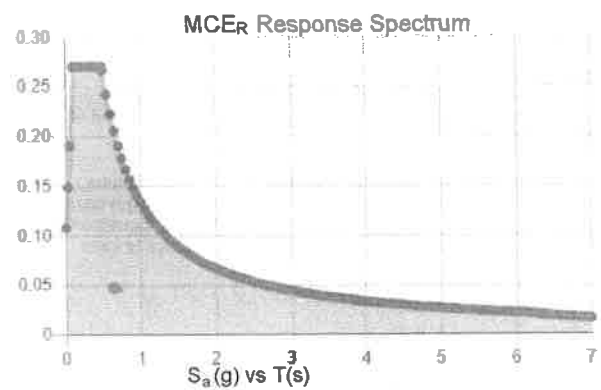
Reference Material
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Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_s	0.169	S_{D1}	0.089
S_1	0.056	T_L	6
F_a	1.6	PGA	0.087
F_v	2.4	PGA _M	0.14
S_{MS}	0.271	F_{PGA}	1.6
S_{M1}	0.134	I_e	1
S_{DS}	0.181	C_v	0.7

Seismic Design Category B



Data Accessed: Fri Nov 20 2020
Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	40 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri Nov 20 2020

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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Reference Material

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Additional Standard Features

- Air Cleaner, Heavy Duty
- Alternator Protection
- Battery Rack and Cables
- Open Crankcase Ventilation
- Oil Drain and Coolant Drain with Hose Barb
- Oil Drain Extension (with narrow skid and enclosure models only)
- Operation and Installation Literature
- Radiator Drain Extension (with enclosure models only)
- Stainless Steel Fasteners on Enclosure (with enclosure models only)

Available Options

Approvals and Listings

- ☐ CSA Certified
- ☐ IBC Seismic Certification
- ☐ UL2200 Listing

Enclosed Unit

- ☐ Sound Enclosure (with enclosed critical silencer)
- ☐ Weather Enclosure (with enclosed critical silencer)
- ☐ Stainless Steel Latches and Hinges

Open Unit

- ☐ Exhaust Silencer, Critical (kit: PA-324470)
- ☐ Flexible Exhaust Connector, Stainless Steel

Fuel System

- ☐ Flexible Fuel Lines
- ☐ Fuel Pressure Gauge (Available with 49-state engine only)
- ☐ Subbase Fuel Tanks

Controller

- ☐ 15-Relay Dry Contact (SCAQMD engine with APM402 controller only)
- ☐ Common Failure Relay (550 controller only)
- ☐ Communication Products and PC Software (550 controller only)
- ☐ Customer Connection (550 controller only)
- ☐ Dry Contact (isolated alarm) (550 controller only)
- ☐ Two Input/Five Output Module (49-state engine with APM402 controller only)
- ☐ Key Switch (SCAQMD engine with APM402 controller only)
- ☐ Manual Speed Adjust (requires Electronic Governor or SCAQMD engine)
- ☐ Remote Annunciator Panel
- ☐ Remote Emergency Stop
- ☐ Run Relay

Cooling System

- ☐ Block Heater (1000 W, 110- 120 V)
Required for ambient temperatures below 0°C (32°F).
- ☐ Radiator Duct Flange

Electrical System

- ☐ Alternator Strip Heater
- ☐ Battery
- ☐ Battery Charger, Equalize/Float Type
- ☐ Battery Heater
- ☐ Electronic Governor
- ☐ Line Circuit Breaker (NEMA type 1 enclosure)
- ☐ Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)

Miscellaneous

- ☐ Air Cleaner Restriction Indicator
- ☐ Engine Fluids Added
- ☐ Rated Power Factor Testing
- ☐ Rodent Guards

Literature

- ☐ General Maintenance
- ☐ NFPA 110
- ☐ Overhaul
- ☐ Production

Warranty

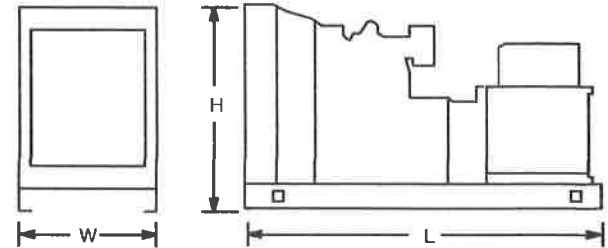
- ☐ 2-Year Basic Limited Warranty
- ☐ 5-Year Basic Limited Warranty
- ☐ 5-Year Comprehensive Limited Warranty

Other Options

- ☐
- ☐
- ☐
- ☐
- ☐

Dimensions and Weights (Open Unit)

Overall Size, L x W x H, mm (in.):
Wide Skid: 2300 x 1040 x 1133 (90.6 x 41.0 x 44.6)
Narrow Skid: 1875 x 780 x 1067 (73.8 x 30.7 x 42.0)
Weight (radiator model), wet, kg (lb.): 787 (1735)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

DISTRIBUTED BY:

Application Data

Cooling

Radiator System	49-State Engine	California SCAQMD
Ambient temperature, °C (°F) *	50 (122)	
Engine jacket water capacity, L (gal.)	4.5 (1.19)	
Radiator system capacity, including engine, L (gal.)	12.3 (3.2)	
Engine jacket water flow, Lpm (gpm)	125 (33)	120 (32)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	32 (1821)	35 (1991)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	11 (626)	7.7 (437)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	597 (23.5)	
Fan, kWm (HP)	1.8 (2.3)	
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)	

* Enclosure reduces ambient temperature capability by 5°C (9°F).

Operation Requirements

Air Requirements	49-State Engine	California SCAQMD
Radiator-cooled cooling air, m³/min. (scfm) †	96.3 (3400)	
Combustion air, m³/min. (cfm)	4.5 (159)	3.7 (132)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	10.5 (600)	
Alternator, kW (Btu/min.)	7.6 (435)	
Max. air intake restriction, kPa (in. Hg)	5.2 (1.54)	4.2 (1.24)

† Air density = 1.20 kg/m³ (0.075 lbm/ft³)

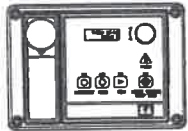
Fuel Consumption	49-State Engine	
Diesel, Lph (gph) at % load	Standby Rating	
100%	14.0	(3.7)
75%	11.7	(3.1)
50%	9.1	(2.4)
25%	4.9	(1.3)

Diesel, Lph (gph) at % load	Prime Rating	
100%	13.2	(3.5)
75%	10.6	(2.8)
50%	7.6	(2.0)
25%	4.9	(1.3)

Fuel Consumption	Calif. SCAQMD Engine	
Diesel, Lph (gph) at % load	Standby Rating	
100%	12.3	(3.2)
75%	9.4	(2.6)
50%	6.7	(1.8)
25%	4.2	(1.1)

Diesel, Lph (gph) at % load	Prime Rating	
100%	11.1	(2.9)
75%	8.8	(2.3)
50%	6.2	(1.6)
25%	3.6	(1.0)

Controllers

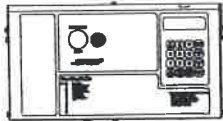


APM402 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-161 for additional controller features and accessories.



(Available with the 49-State generator set only.)

Decision-Maker® 550 Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities.

- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-46 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.

Reference Material

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Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Rare-Earth Permanent Magnet
Leads: quantity, type	12, Reconnectable
	4, 110- 120/220- 240 V
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	Controller Dependent
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.

Specifications	Alternator
Peak motor starting kVA:	(35% dip for voltages below)
480 V	4P5X (12 lead)
480 V	4P7BX (12 lead)
240 V	4Q5X (4 lead)
240 V	4Q7BX (4 lead)

Reference Material
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Planning Board Meeting

Application Data

Engine

Engine Specifications	49-State Engine	California SCAQMD
Manufacturer	Kohler Diesel	
	KDI	KDI
Engine model	3404TM	3404TCR
Engine type	4-Cycle, Turbocharged	
Cylinder arrangement	4 Inline	
Displacement, L (cu. in.)	3.4 (207)	
Bore and stroke, mm (in.)	96 x 116 (3.28 x 4.57)	
Compression ratio	18.5:1	17.0:1
Piston speed, m/min. (ft./min.)	418 (1371)	510 (1673)
Main bearings: quantity, type	5, Replaceable Insert	
Rated rpm	1800	
Max. power at rated rpm, kWm (BHP)	50 (67)	70 (94)
Cylinder head material	Cast Iron	
Crankshaft material	Cast Iron	
Valve material:		
Intake	Chromium-Silicon Steel	
Exhaust	Chromium Steel	
Governor: type, make/model	Mech. (or Electronic *)	Electronic
	Droop, 5%	Isochronous
Frequency regulation, no-load to full-load	(or Isochr. *)	
Frequency regulation, steady state	±0.5%	±0.28%
Frequency		Fixed
Air cleaner type, all models		Dry
* Requires available electronic governor option		

Exhaust

Exhaust System	49-State Engine	California SCAQMD
Exhaust manifold type	Dry	
Exhaust flow at rated kW, m³/min. (cfm)	8.1 (286)	
Exhaust temperature at rated kW, dry exhaust, °C (°F)	490 (914)	471 (880)
Minimum/maximum allowable back pressure, kPa (in. Hg)	6 (1.8)/ 9 (2.7)	8 (2.4)/ 13.5 (4.0)
Exhaust outlet size at engine hookup, mm (in.)	63.5 (2.5)	

Engine Electrical

Engine Electrical System	49-State Engine	California SCAQMD
Battery charging alternator:		
Ground (negative/positive)		Negative
Volts (DC)		12
Ampere rating		90
Starter motor rated voltage (DC)		12
Battery, recommended cold cranking amps (CCA):		
Quantity, CCA rating		One, 650
Battery voltage (DC)		12

Fuel

Fuel System	49-State Engine	California SCAQMD
Fuel supply line, min. ID, mm (in.)	8.0 (0.31)	
Fuel return line, min. ID, mm (in.)	6.0 (0.25)	
Max. lift, engine-driven fuel pump, m (ft.)	6.0 (20.0)	3.7 (12.1)
Max. fuel flow, Lph (gph)	46 (12.2)	87.4 (23.1)
Max. return line restriction, kPa (in. Hg)	20 (5.9)	17.7 (5.2)
Fuel filter		
Prefilter		74 Microns
Primary/Water Separator	5 Microns @ 98% Efficiency	5 Microns @ 95% Efficiency
Recommended fuel		#2 Ultra Low Sulfur Diesel

Lubrication

Lubricating System	49-State Engine	California SCAQMD
Type		Full Pressure
Oil pan capacity, L (qt.) §		15.3 (16.2)
Oil pan capacity with filter, L (qt.) §		15.6 (16.5)
Oil filter: quantity, type §		1, Cartridge
Oil cooler		Water-Cooled
§ Kohler recommends the use of Kohler Genuine oil and filters.		

TOWN OF AUSTERLITZ
RECEIVED
APR 22 2021
PLANNING BOARD
COLUMBIA COUNTY

KOHLER.

Model: 40REOZK

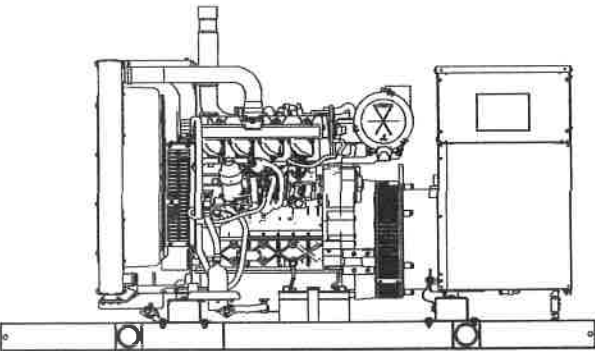
208- 600 V Diesel



Tier 3 EPA-Certified for Stationary
Emergency Applications

Ratings Range

		60 Hz
Standby:	kW	37 - 42
	kVA	37 - 52
Prime:	kW	34 - 37
	kVA	34 - 46



Model with TM Engine Shown

Generator Set Ratings

Alternator	Voltage	Ph	Hz	130°C Rise Standby Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps
4Q5X	120/240	1	60	40/40	166	36/36	150

Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- The generator set engine is certified to meet the Environmental Protection Agency (EPA) emergency stationary emissions requirements.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
 - The unique Fast-Response® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
 - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
 - Kohler designed controllers for one-source system integration and remote communication. See Controllers on page 3.
 - The low coolant level shutdown prevents overheating (standard on radiator models only).
 - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
 - The generator set for 49-state applications is equipped with the KDI 3404 TM engine. The generator set that is CARB compliant/California South Coast Air Quality Management District (SCAQMD) pre-certified is equipped with the KDI 3404 TCR engine.

Reference Material

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RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. Standby Ratings: Standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Prime Power Ratings: At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain the technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

T-Mobile

Reference Material

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T-Mobile

4 SYLVAN WAY
PARISIPPANY, NJ 07054

CROWN
CASTLE

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

TOWER ENGINEERING PROFESSIONALS

326 TRYON RD. 53 STICKLE AVE
RALEIGH, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 SUITE 1
984J 255-7011

TEP JOB #: 217034-472461

T-MOBILE SITE NUMBER: UP40248E
T-MOBILE SITE NAME: AUSTERLITZ
SITE TYPE: GUYED TOWER
TOWER HEIGHT: 300'-0"

BUSINESS UNIT #: 871864
SITE ADDRESS: 321 WEST HILL ROAD, STOP 132
AUSTERLITZ, NY 12017
COUNTY: COLUMBIA
JURISDICTION: TOWN OF AUSTERLITZ

T-MOBILE NEW SITE BUILD-COVERAGE STRATEGY SITE CONFIGURATION: 4sec-67D998C_1QP+1OP

SITE INFORMATION

CROWN CASTLE USA INC. AUSTERLITZ
SITE NAME:
SITE ADDRESS: WEST HILL ROAD
AUSTERLITZ, NY 12017
COUNTY: COLUMBIA
TAX MAP ID: 87-2-51.112-2
AREA OF CONSTRUCTION: EXISTING
LATITUDE: 42° 18' 21.77" (42.30604700°)
LONGITUDE: -73° 29' 27.12" (-73.49086700°)
LAT/LONG TYPE: NAD83
GROUND ELEVATION: 1685 FT
CURRENT ZONING: RR RURAL RESIDENTIAL DISTRICT
JURISDICTION: TOWN OF AUSTERLITZ
OVERLAY DISTRICT: N/A
TYPE OF CONSTRUCTION: TTB
A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER: GOOSE TOWN NETWORK SERVICES
58 WEST HARRISON AVENUE
CONGERS, NY 10920
TOWER OWNER: CROWN CASTLE USA, INC.
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065
CARRIER/APPLICANT: T-MOBILE
4 SYLVAN WAY
PARISIPPANY, NJ 07054
ELECTRIC PROVIDER: NYSEG
(800) 572-1121
TELCO PROVIDER: TACONIC TELEPHONE
(518) 392-5000

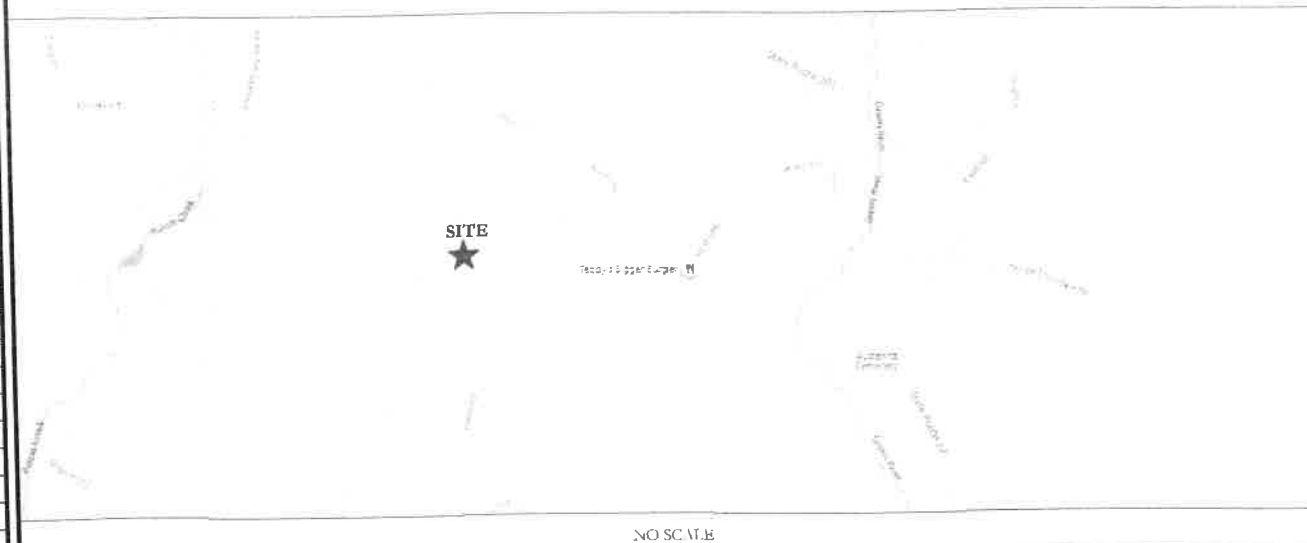
DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	COMPOUND PLAN
C-1.3	T-MOBILE EQUIPMENT PLAN
C-2.1	FINAL TOWER ELEVATION
C-2.2	ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE AND DIAGRAMS
C-4	EQUIPMENT SPECS
C-5	CABINET SPECS
C-6	PLATFORM AND METER BANK DETAILS
C-7	EQUIPMENT SPECIFICATIONS
C-8	ICE BRIDGE DETAILS
C-9	FENCE DETAILS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS

ATTACHED

MOUNT SPECIFICATIONS
ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 24x36. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

LOCATION MAP



APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS 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 THESE CODES:

CODE TYPE	CODE
BUILDING	2020 NEW YORK STATE UNIFORM CODE/2018 IBC
MECHANICAL	2020 NEW YORK STATE UNIFORM CODE/2018 IBC
ELECTRICAL	2020 NEW YORK STATE UNIFORM CODE/2018 IBC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	BY CROWN CASTLE USA INC.
DATED:	12/02/2020
MOUNT ANALYSIS:	BY GPD ENGINEERING AND ARCHITECTURE
DATED:	12/02/2020

ORDER ID: 528493
REVISION: 0

RFD VERSION: 1
DATED: 11/20/2020

ANALYSIS CRITERIA:

APPLICABLE CODES:	ITA-222-11 / ASCE 7-16
WIND SPEED:	V = 112 MPH (ULTIMATE 3 SECOND GUST)
EXPOSURE CATEGORY:	B
RISK CATEGORY:	11
TOPOGRAPHIC CATEGORY:	1
SEISMIC S:	0.169
SEISMIC S:	0.056
SERVICE WIND SPEED:	112 MPH

APPROVALS

APPROVAL	SIGNATURE	DATE
RE		
CONST		
FAA		
OPS		
RE		
SR DEV MGR		
REG DIR		

SEAL



02/11/21

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:

T-1

REVISION:

0

PROJECT TEAM

A&E FIRM: TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603
(919) 661-6351
SEAN KROPPER - DIVISION MANAGER
JOSEPH CRESS - PROJECT MANAGER
ANDREW HALDANE - CIVIL ENGINEER
SAMUEL TURKAL - ELECTRICAL ENGINEER
TOWER OWNER: CROWN CASTLE USA INC.
2000 CORPORATE DRIVE
CANONSBURG, PA 15317
CROWN.CASTLE.US@CROWNCASTLE.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS: TAMMY NOSEK - CONSTRUCTION MANAGER
TAMMY.NOSEK@CROWNCASTLE.COM
NITSA CRENSHAW - A&E SPECIALIST
NITSA.CRENSHAW@CROWNCASTLE.COM
TRICIA PELON - PROJECT MANAGER
TRICIA.PELON@CROWNCASTLE.COM

NOTE:

PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:

- INSTALL (3) SECTION FRAMES.
- INSTALL (8) ANTENNAS.
- INST ALL (12) RRHs.
- INSTALL MOUNT MODIFICATION.
- INSTALL (4) HCS 6x24 4AWG CABLES.
- INST ALL (4) BACK-TO-BACK MOUNTS.

GRADE SCOPE OF WORK:

- INST ALL (1) 6160 CABINET.
- INSTALL (1) B160 BATTERY CABINET.
- INST ALL (1) PPC CABINET.
- INSTALL (1) WESTILL CABINET (FIBER).
- INSTALL (1) 800 AMP METER BANK.
- INST ALL (1) METER AND DISCONNECT.
- RELOCATE 3 METERS TO NEW METER BANK.
- INSTALL (1) 10' X 15' PLATFORM WITH CANOPY.
- INST ALL (1) ICE BRIDGE.
- INSTALL GRAVEL W/ GEO-TEXTILE FABRIC INSIDE COMPOUND FENCE EXPANSION.
- INST ALL (1) 40KW GENERATOR WITH 200 V ATS.

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NCC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT: THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, ADJUST, REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NCC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO: BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ON-SITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS, INCLUDING BUT NOT LIMITED TO: ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANG/ASSE A10.48 (LATEST EDITION), FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CSD-STO-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH DAS-STO-1008B "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE" AND LATEST VERSION OF ANSI/TIA-1019-AA-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO: A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND B1) FOR GROUND ELECTRODE SYSTEMS. THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO ITS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTI-OXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH AN ANTI-CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 18" OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT IT MEET CODE REQUIREMENTS, OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (I.E., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE), THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM. THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NON-FERROUS METAL PIPING ONLY).

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 338, ASTM A184, ASTM A185 AND ACI 308.1, CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (F_c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE) CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (F_y) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
#4 BARS AND SMALLER 40 ksi
#5 BARS AND LARGER 60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 BARS AND LARGER 2"
#5 BARS AND SMALLER 1-1/2"
CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
SLAB AND WALLS 3/4"
BEAMS AND COLUMNS 1-1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

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

CONDUCTOR COLOR CODE

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

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

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDs	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SRU	SMART INTEGRATED DEVICE
TWA	TOWER MOUNTED AMPLIFIER
TP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

Reference Material

APR 01 2021

Planning Board Meeting

T-Mobile
4 SILVAN WAY
PARLIPPANY, NJ 07054

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

TOWER ENGINEERING PROFESSIONALS
326 TRYON RD 53 STUCKLE AVE
RALEIGH, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 SL 1111
984-255-7011
TWP JOB #: 217034-472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: 871864
AUSTERLITZ

321 WEST HILL ROAD
STOP 132
AUSTERLITZ, NJ 12017

EXISTING 300'-0"
GUYED TOWER

ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES/CHK
A	1/5/21	SPK	PRELIMINARY	JG
B	1/15/21	SPK	PRELIMINARY	JG
C	2/11/21	SPK	CONSTRUCTION	JG

APWA UNIFORM COLOR CODE:	
WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LUGS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

SEAL: 

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SHEET NUMBER: **T-2** REVISION: **0**

NOTE:
SITE PLAN SHOWN BELOW WAS REPRODUCED FROM
INFORMATION PROVIDED BY CROWN CASTLE AND SITE
WALK CONDUCTED BY TEP. CONTRACTOR TO VERIFY ALL
EXISTING INFORMATION IS AS INDICATED ON SITE PLAN.
CONTRACTOR IS TO ESTABLISH THE EXISTENCE AND
LOCATION OF ALL EXISTING UNDERGROUND AND
OVERHEAD UTILITIES. IMMEDIATELY NOTIFY THE
CONSTRUCTION MANAGER OF ANY DISCREPANCIES.

EARTHWORK NOTE:
CONTRACTOR TO VERIFY GRADE SLOPE PRIOR
TO CONSTRUCTION TO DETERMINE AMOUNT OF
GRADING NEEDED FOR LEVEL INSTALLATION OF
T-MOBILE EQUIPMENT.

NEW 16' X 21' T-MOBILE COMPOUND EXPANSION
NEW 6" OF #57 STONE ON GEOSYNTHETIC
FABRIC TO EXTEND 12" OUTSIDE FENCE
NEW T-MOBILE EQUIPMENT CABINETS ON
NEW 10'X15' PLATFORM AND CANOPY IN A
10'-0"X15'-0" LEASE AREA
(1) 5160 CABINET TO BE INSTALLED
(1) 8160 BATTERY CABINET TO BE INSTALLED
(1) ELECTRICAL PANEL TO BE INSTALLED
(1) FIBER BOX TO BE INSTALLED
(1) AUTOMATIC TRANSFER SWITCH TO BE INSTALLED
(1) 40KW BACKUP GENERATOR TO BE INSTALLED
(E) SATELLITE DISH ON GRADE

CONTRACTOR TO LOCATE (E) SATELLITE
DISH CABLES AND REROUTE ACCORDINGLY

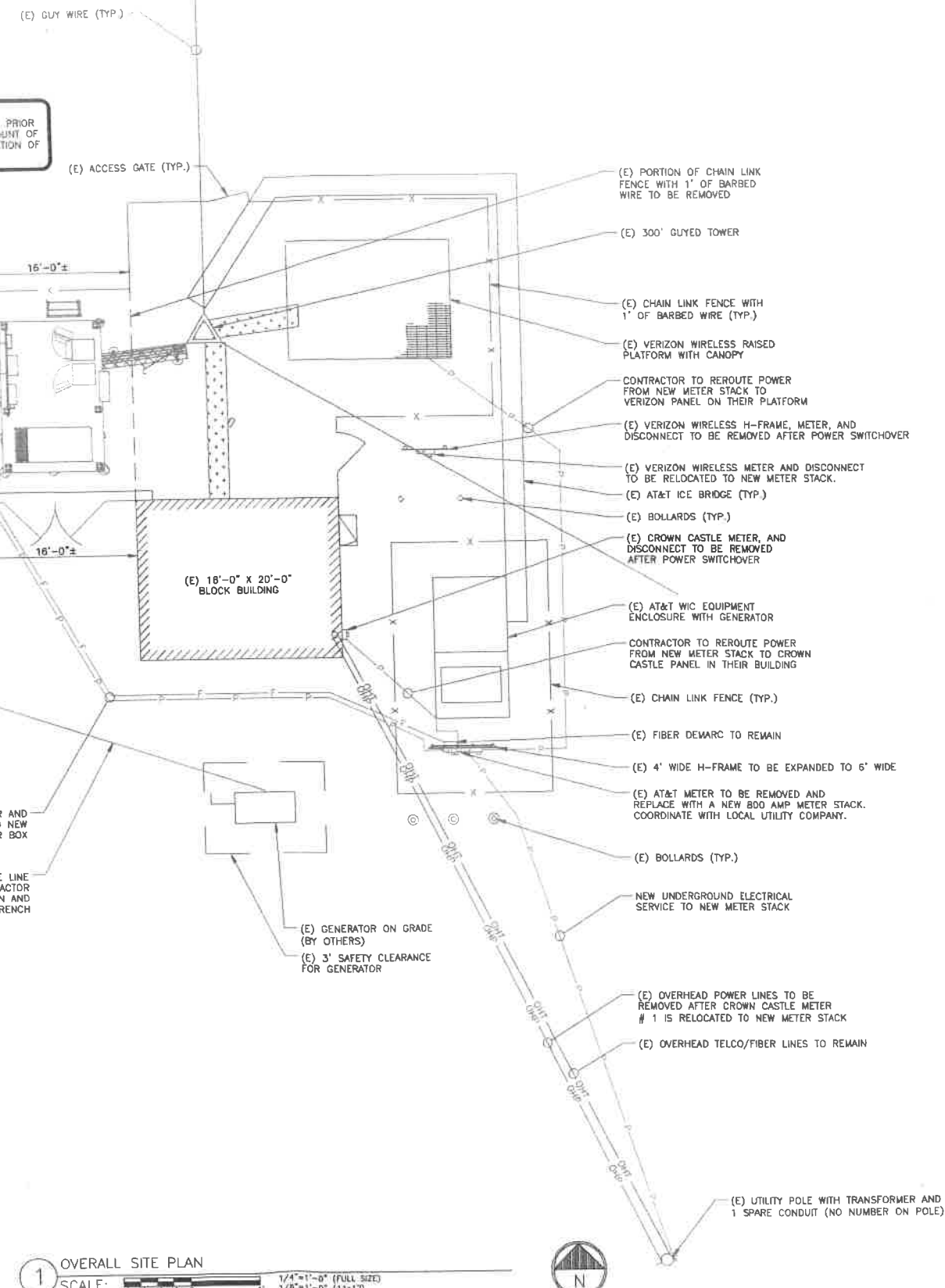
(E) LPG TANK (ABOVE GRADE)
(E) 10' SAFETY CLEARANCE
FOR LPG TANK

NEW UNDERGROUND POWER AND
FIBER CONDUITS TO NEW
T-MOBILE PANEL AND FIBER BOX

(E) UNDERGROUND PROPANE LINE
TO BE VERIFIED BY CONTRACTOR
DURING CONSTRUCTION AND
PROPERLY ENCLOSED IN TRENCH

(E) GENERATOR ON GRADE
(BY OTHERS)
(E) 3' SAFETY CLEARANCE
FOR GENERATOR

1 OVERALL SITE PLAN
SCALE: 1/4"=1'-0" (FULL SIZE)
1/8"=1'-0" (11x17)



T-Mobile
4 SYLVAN WAY
PARIS, INDIANA, IN 40364

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

LOWER ENGINEERING PROFESSIONALS
326 TRYON RD. 53 STICKLE AVE
RALEIGH, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 SUITE 1
908-435-7011
TEP JOB #: 217034 472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: 871864
AUSTERLITZ

321 WEST HILL ROAD
STOP 132
AUSTERLITZ, NY 12017

EXISTING 300'-0"
GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/CHK
A	1/5/21	SPK	PRELIMINARY	JC
B	1/15/21	SPK	PRELIMINARY	JC
C	2/11/21	SPK	CONSTRUCTION	JC

SEAL



02/11/21

Reference Material
APR 01 2021
Planning Board Meeting

IT IS A VIOLATION OF LAW FOR ANY PERSON,
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TO ALTER THIS DOCUMENT

SHEET NUMBER: C-1.1
REVISION: 0

EARTHWORK NOTE:
CONTRACTOR TO VERIFY GRADE SLOPE PRIOR
TO CONSTRUCTION TO DETERMINE AMOUNT OF
GRADING NEEDED FOR LEVEL INSTALLATION OF
T-MOBILE EQUIPMENT.

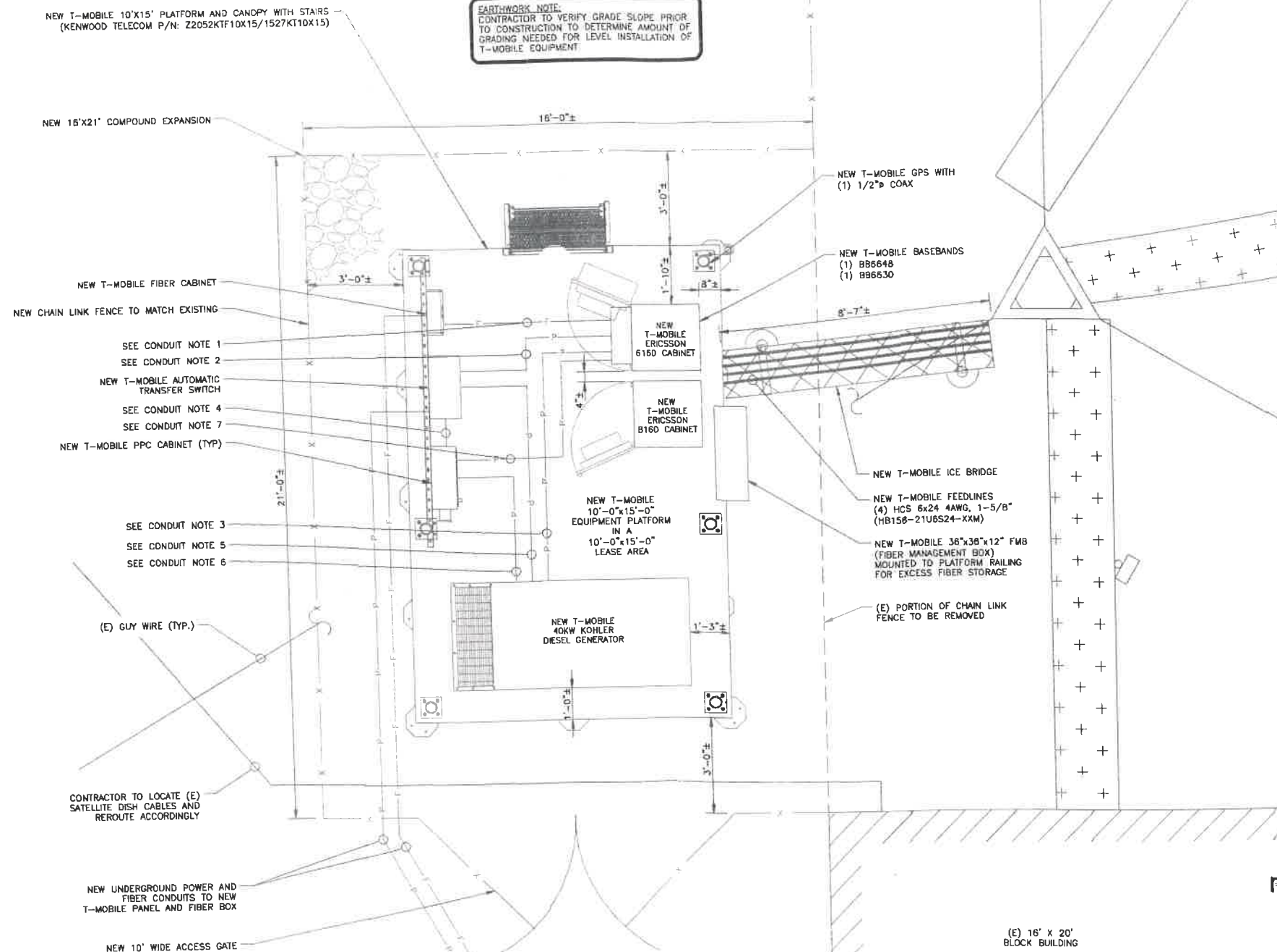


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CONDUIT NOTES:

- * ALL CONDUIT TO BE SCH40 PVC OR LITE, AS NOTED. INSTALL WEATHERPROOF FITTINGS.
- * ABOVE GRADE CONDUIT RUNS TO BE MARKED WITH HAZARD TAPE TO PREVENT TRIPPING HAZARD.
- 1. (1) 1" CONDUIT FROM S160 TO HW/WESTELL CABINET (BELOW PLATFORM, L1FC OR SCH40 PVC)
- 2. (1) 1" CONDUIT FROM S160 TO ATS FOR LOOP (BELOW PLATFORM, L1FC OR SCH40 PVC)
- 3. (1) 2" CONDUIT FROM S160 TO GENERATOR FOR ALARMS (BELOW PLATFORM, L1FC OR SCH40 PVC)
- 4. (1) 2" CONDUIT FROM ATS TO PPC (BELOW PLATFORM, L1FC OR SCH40 PVC)
- 5. (1) 2" CONDUIT FROM ATS TO GENERATOR (BELOW PLATFORM, L1FC OR SCH40 PVC)
- 6. (1) 2" CONDUIT FROM PPC TO GENERATOR (BELOW PLATFORM, L1FC OR SCH40 PVC)
- 7. (1) 2" CONDUIT FROM PPC TO S160. FOR 150A & 20A BREAKER CONDUCTORS (BELOW PLATFORM, SCH40 PVC)

EARTHWORK NOTE:
CONTRACTOR TO VERIFY GRADE SLOPE PRIOR
TO CONSTRUCTION TO DETERMINE AMOUNT OF
GRADING NEEDED FOR LEVEL INSTALLATION OF
T-MOBILE EQUIPMENT



② T-MOBILE EQUIPMENT PLAN



SEAL:



02/11/21

Planning Board Meeting

SHEET NUMBER: **C-1.3**

T-Mobile
4 SYLVAN WAY
PARLISSEPPANY, NJ 07054

CROWN
CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12063

LOWER ENGINEERING PROFESSIONALS
326 TRYON RD 53 STICKLEAVE
RALEIGH, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 (908) 255-7011
TBP JOB #: 217034-472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: 871864
AUSTERLITZ

321 WEST HILL ROAD
STOP 132
AUSTERLITZ, NY 12017

EXISTING 300'-0"
GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES / QA
A	1/5/21	SPK	PRELIMINARY	JC
B	1/15/21	SPK	PRELIMINARY	JC
C	2/11/21	SPK	CONSTRUCTION	JC

SEAL:



02/11/21

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SHEET NUMBER: C-2.1
REVISION: 0

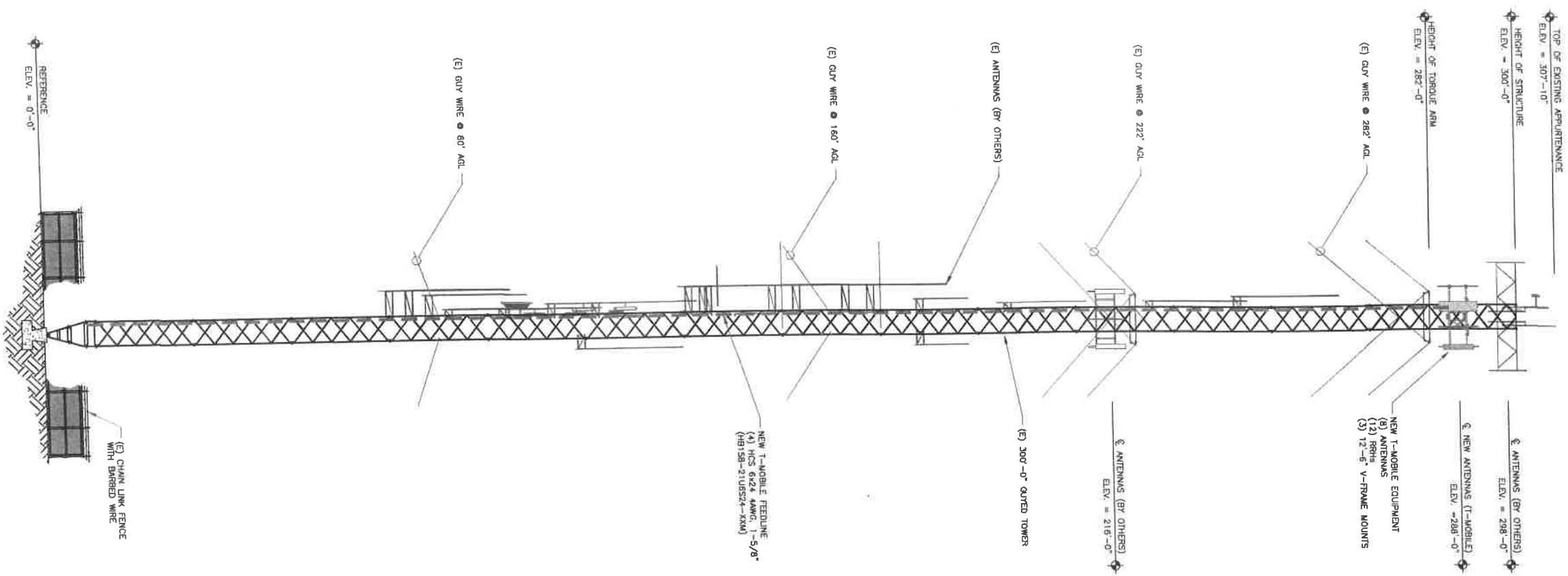
TOWER ANALYSIS NOTES:
1. THE DESIGN DEPICTED IN THESE DRAWINGS
IS VALID WHEN ACCOMPANIED BY A
CORRESPONDING PASSING TOWER ANALYSIS.
2. CONSTRUCTION MANAGER / GENERAL
CONTRACTOR SHALL REVIEW THE TOWER
ANALYSIS FOR ANY CONDITIONS PRIOR TO
INSTALLATION OF TOWER. MODIFICATION
DESIGN OR TOWER REPLACEMENT SHALL BE
APPROVED BY EOR.

MODIFY MODIFICATIONS NOTE:
T-MOBILE SECTOR MOUNTS TO BE
INSTALLED IN ACCORDANCE WITH GPO
MOUNT ANALYSIS REPORT, DATED
12/2/2020

INSTALLER NOTES:
1. PROPOSED ANTENNA/EQUIPMENT
POSITIONING SHOWN PER RPTS.
2. INSTALLATION SHALL BE IN ACCORDANCE WITH
MANUFACTURER SPECIFICATIONS
AND MOUNT MODIFICATIONS PER
MOUNT ANALYSIS

T-MOBILE EQUIPMENT
ANTENNA CL: 288'-0"
MOUNT CL: 288'-0"

ANY AND ALL TOWER
MOUNTED EQUIPMENT MUST
NOT BE PLACED IN VIOLATION OF
EXISTING SAFETY CLIMB



1 FINAL TOWER ELEVATION
SCALE: NOT TO SCALE

Reference Material
APR 01 2021
Planning Board Meeting

MOUNT ANALYSIS NOTES:

1. THE DESIGN DEPICTED IN THESE DRAWINGS IS VALID WHEN ACCOMPANIED BY A CORRESPONDING PASSING MOUNT ANALYSIS.
2. CONSTRUCTION MANAGER / GENERAL CONTRACTOR SHALL REVIEW THE MOUNT ANALYSIS FOR ANY CONDITIONS PRIOR TO INSTALLATION.
3. ANY REQUIRED MOUNT MODIFICATION DESIGN OR MOUNT REPLACEMENT SHALL BE APPROVED BY EOR.

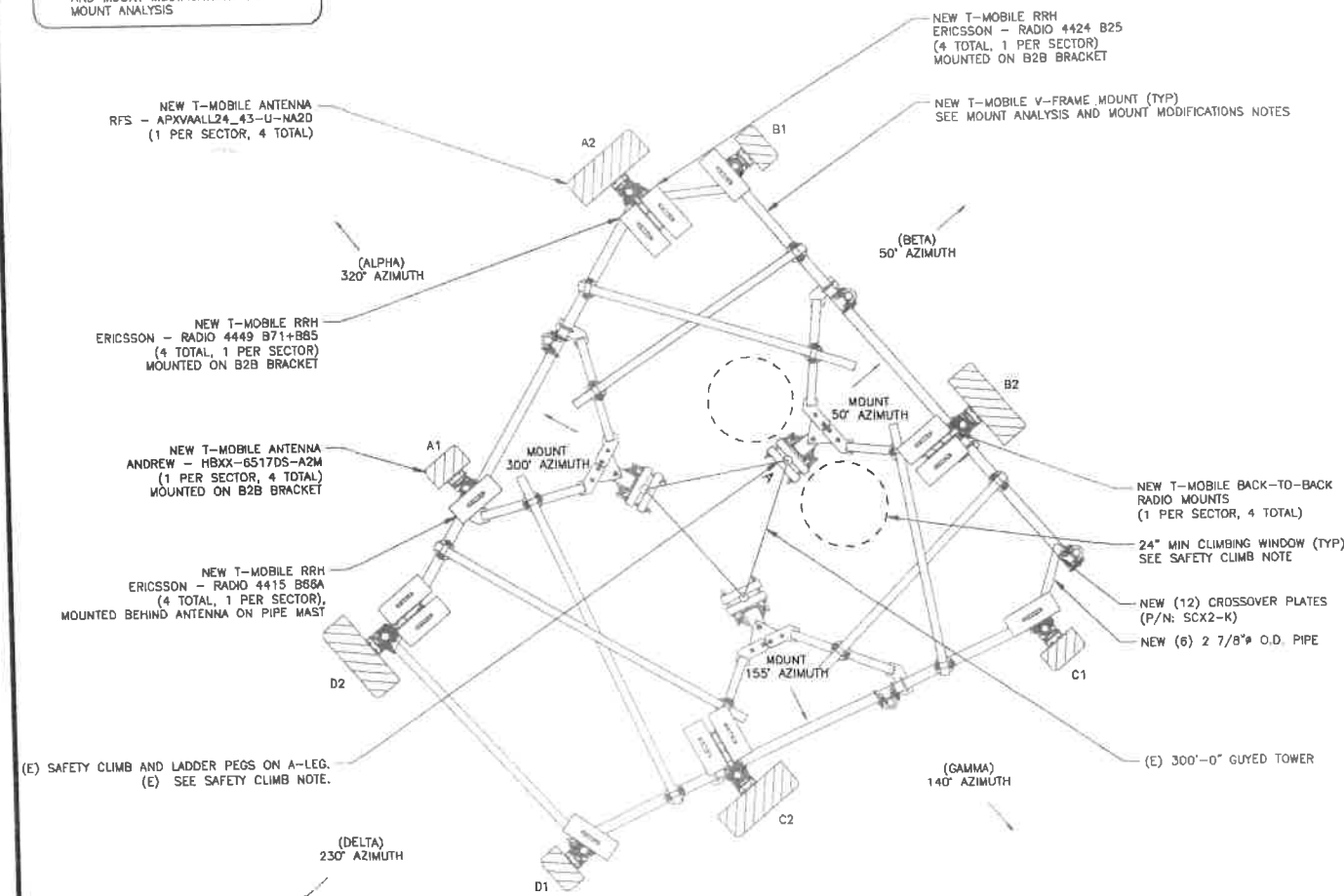
MOUNT MODIFICATIONS NOTE:

T-MOBILE SECTOR MOUNTS TO BE MODIFIED IN ACCORDANCE WITH GPD MOUNT ANALYSIS REPORT, DATED 12/2/2020.

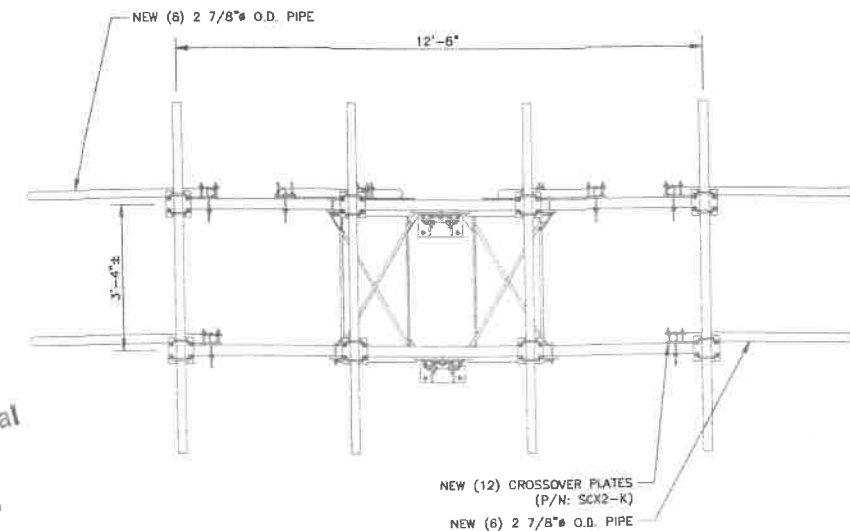
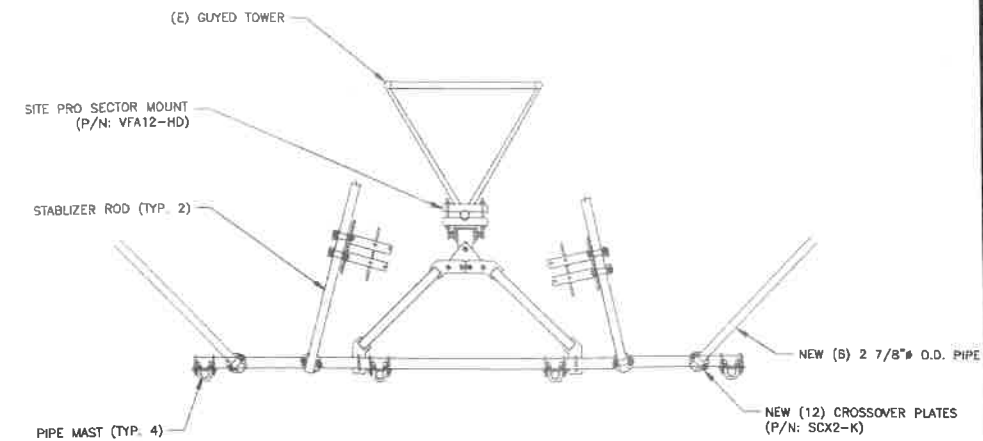
INSTALLER NOTES:

1. PROPOSED ANTENNA/EQUIPMENT POSITIONING SHOWN PER RFDS, VIEW FROM BEHIND.
2. INSTALL MOUNT PER MOUNT MANUFACTURER SPECIFICATIONS AND MOUNT MODIFICATIONS PER MOUNT ANALYSIS

SAFETY CLIMB NOTE:
ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB



1 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE



SITE PRO1 - 12'-6" HEAVY DUTY V-FRAME ASSEMBLY WITH TWO STIFF ARMS

2 VFA12-HD TOWER MOUNT
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARTEPPANY, NJ 07054

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

LOWER ENGINEERING PROFESSIONALS
326 TRYON RD. 53 STICKLE AVE
RALEIGH, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 SUITE 1
984) 255-7011
TRP JOB #: 217034-472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: 871864
AUSTERLITZ

321 WEST HILL ROAD
STOP 132
AUSTERLITZ, NY 12017

EXISTING 300'-0"
GUYED TOWER

ISSUED FOR:

REV	DATE	DWGN	DESCRIPTION	DES / QA
A	1/5/21	SPK	PRELIMINARY	JC
B	1/15/21	SPK	PRELIMINARY	JC
C	2/11/21	SPK	CONSTRUCTION	JC

SEAL:



02/11/21

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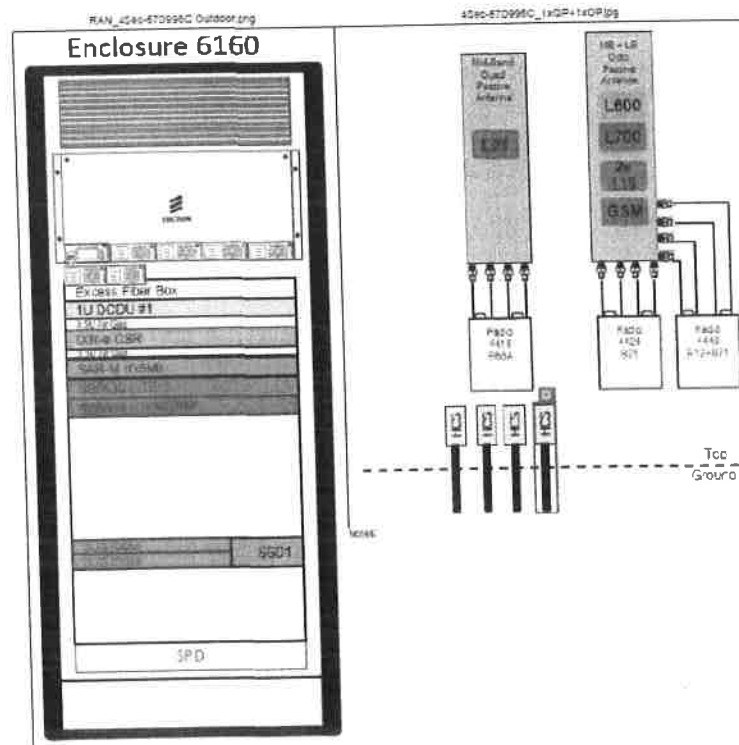
SHEET NUMBER: **C-2.2** REVISION: **0**

FINAL ANTENNA SCHEDULE									
SECTOR	POS.	TECHNOLOGY	RAD. CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT
ALPHA	A1	L2100	288°-0"	320°	ANDREW	HBXX-5517DS-A2M (QUAD)	0°	4°, 4°	(1) ERICSSON - RADIO 4415 B88A
ALPHA	A2	L700, L800, N800, L1900, G1900	288°-0"	320°	RFS	APXVAALL24_43-U-NA20 (OCTO)	0°	4°, 4°, 4°, 4°	(1) ERICSSON - RADIO 4449 B71+B85 (1) ERICSSON - RADIO 4424 B25
BETA	B1	L2100	288°-0"	50°	ANDREW	HBXX-5517DS-A2M (QUAD)	0°	4°, 4°	(1) ERICSSON - RADIO 4415 B88A
BETA	B2	L700, L800, N800, L1900, G1900	288°-0"	50°	RFS	APXVAALL24_43-U-NA20 (OCTO)	0°	4°, 4°, 4°, 4°	(1) ERICSSON - RADIO 4449 B71+B85 (1) ERICSSON - RADIO 4424 B25
GAMMA	C1	L2100	288°-0"	140°	ANDREW	HBXX-5517DS-A2M (QUAD)	0°	4°, 4°	(1) ERICSSON - RADIO 4415 B88A
GAMMA	C2	L700, L800, N800, L1900, G1900	288°-0"	140°	RFS	APXVAALL24_43-U-NA20 (OCTO)	0°	4°, 4°, 4°, 4°	(1) ERICSSON - RADIO 4449 B71+B85 (1) ERICSSON - RADIO 4424 B25
DELTA	D1	L2100	288°-0"	230°	ANDREW	HBXX-5517DS-A2M (QUAD)	0°	4°, 4°	(1) ERICSSON - RADIO 4415 B88A
DELTA	D2	L700, L800, N800, L1900, G1900	288°-0"	230°	RFS	APXVAALL24_43-U-NA20 (OCTO)	0°	4°, 4°, 4°, 4°	(1) ERICSSON - RADIO 4449 B71+B85 (1) ERICSSON - RADIO 4424 B25

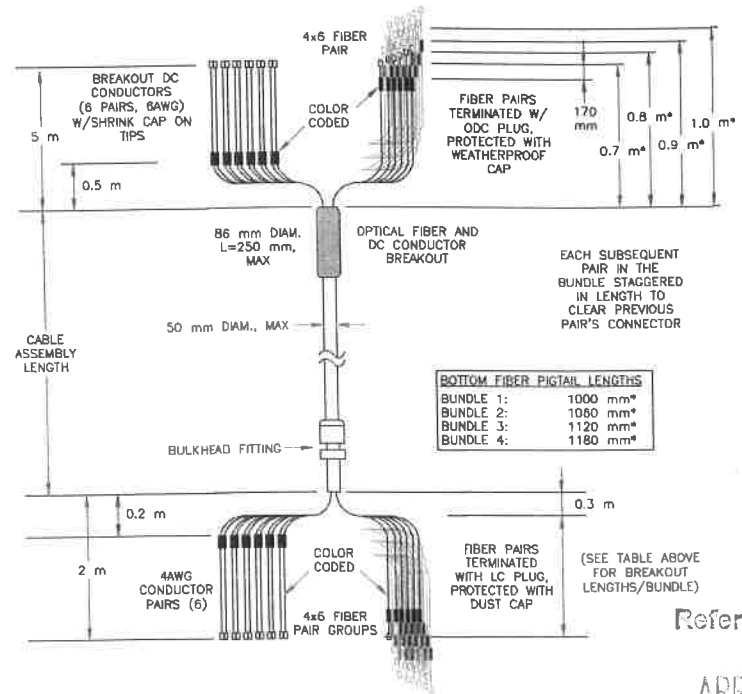
NEW CABLE SCHEDULE			
STATUS	CABLE TYPE	SIZE	QUANTITY
NEW	LDF4-50A	1/2"φ	1*
NEW	6x24 4AWG, 1-5/8" (HB158-21U5524-XXM)	1-5/8"φ	4
CABLE QUANTITY			5

* CONNECTED TO GPS AT GROUND

1 FINAL ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE



2 PLUMBING DIAGRAM
SCALE: NOT TO SCALE



3 HCS DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

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

LOWER ENGINEERING PROFESSIONALS
326 TRYON RD. 53 STICKLEAVE
RALEIGH, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 SUITE 1
(984) 255-7011
JOB # 217034-472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: **871864**
AUSTERLITZ

321 WEST HILL ROAD
STOP 132
AUSTERLITZ, NY 12017

EXISTING 300'-0"
GUYED TOWER

ISSUED FOR:

REV	DATE	BY	DESCRIPTION	DESIGN
A	1/5/21	SPK	PRELIMINARY	JC
B	1/15/21	SPK	PRELIMINARY	JC
C	2/11/21	SPK	CONSTRUCTION	JC

SEAL:



02/11/21

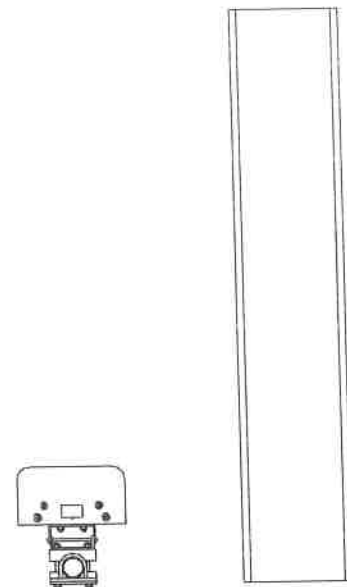
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SHEET NUMBER: **C-3** REVISION: **0**

Reference Material

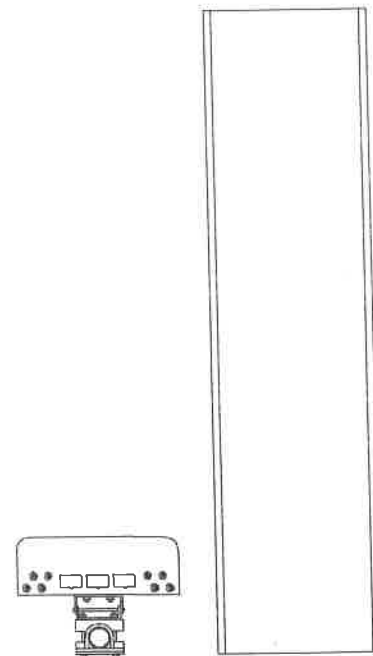
APR 01 2021

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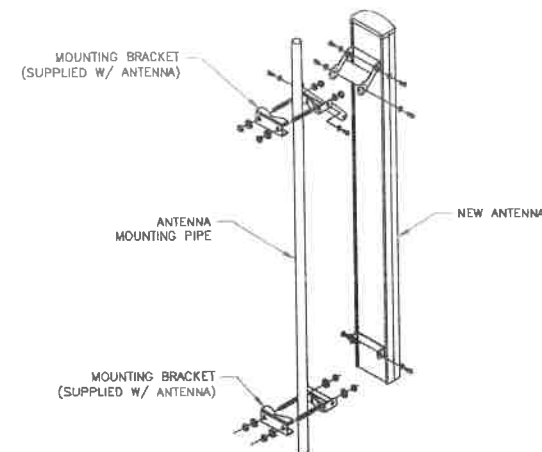
ANDREW - HBXX-6517DS-A2M
WEIGHT (WITHOUT MOUNTING HARDWARE): 49.30 LBS
SIZE (HxWxD): 75x12x8.5 IN.

1 ANDREW - HBXX-6517DS-A2M
SCALE: NOT TO SCALE

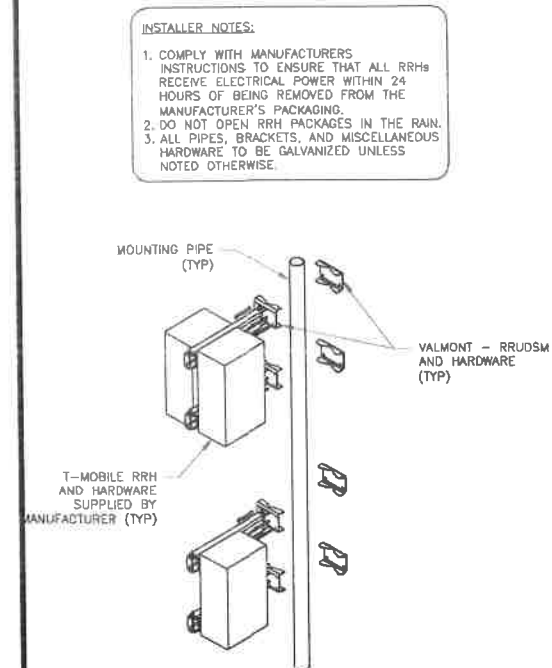


RFS/CELWAVE - APXVAALL24_43-U-NA20
WEIGHT (WITHOUT MOUNTING HARDWARE): 149.9 LBS
SIZE (HxWxD): 95.9x24.0x8.5 IN.

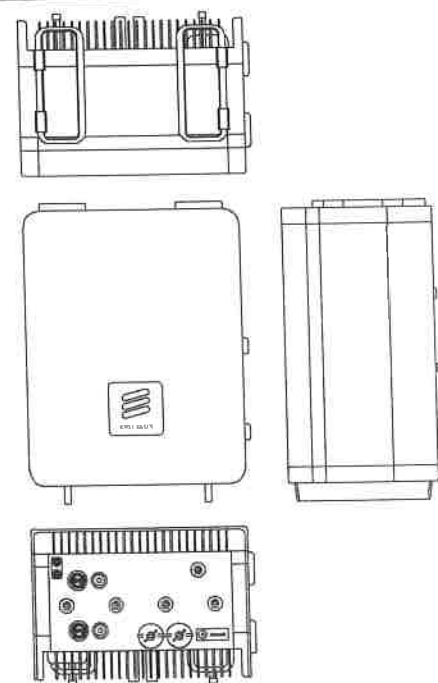
2 RFS/CELWAVE - APXVAALL24_43-U-NA20
SCALE: NOT TO SCALE



3 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

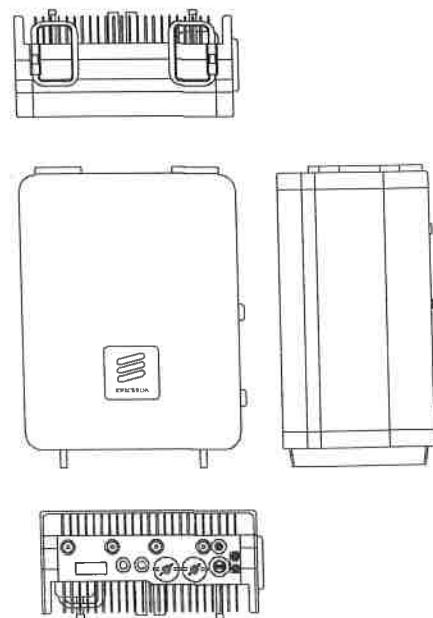


4 RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE



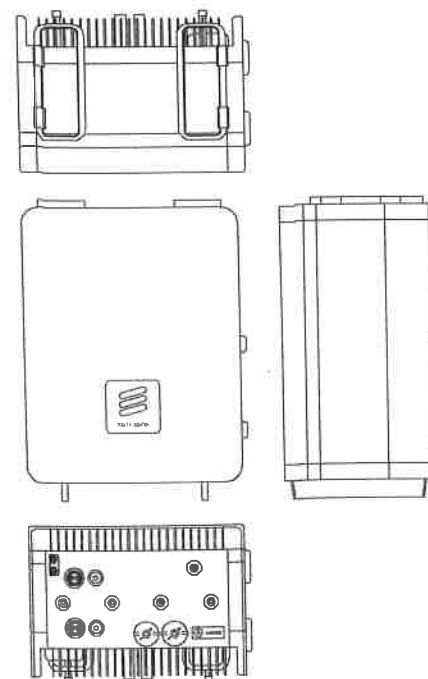
ERICSSON - RADIO 4415 B66A
WEIGHT: 46.3 LBS
SIZE (HxWxD): 14.96x13.19x5.39 IN.

5 ERICSSON - RADIO 4415 B66A
SCALE: NOT TO SCALE



ERICSSON - RADIO 4424 B25
WEIGHT: 44.0 LBS
SIZE (HxWxD): 14.96x13.19x5.39 IN.

6 ERICSSON - RADIO 4424 B25
SCALE: NOT TO SCALE



ERICSSON - RADIO 4449 B71+B85
WEIGHT: 70.0 LBS
SIZE (HxWxD): 18.0x13.2x9.4 IN.

7 ERICSSON - RADIO 4449 B71+B85
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.

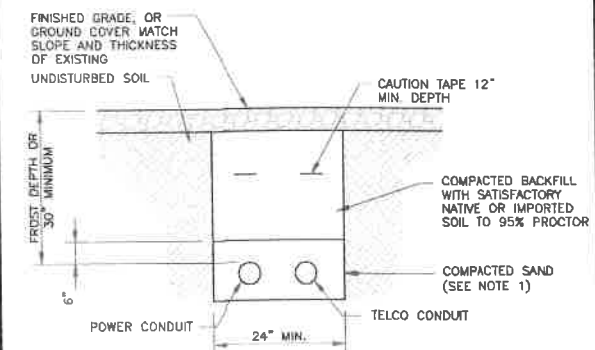
NOTES:

1. FROST DEPTH FOR COLUMBIA COUNTY IS 48"

Reference Material

APR 01 2021

Planning Board Meeting



NOTES:

1. LEAN CONCRETE, RED-COLORED TOP, MAY BE USED IN PLACE OF COMPACTED SAND

8 TYP TRENCH DETAIL
SCALE: NOT TO SCALE

T-Mobile

4 SYLVAN WAY
PARLIPPANY, NJ 07054

CROWN CASTLE

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

TOWER ENGINEERING PROFESSIONALS

326 TRYON RD 53 SICKLE AVE
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TWP JOB #: 217034 472461

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AUSTERLITZ

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STOP 132
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EXISTING 300'-0"
GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	CHK/QA
A	1/5/21	SPK	PRELIMINARY	JU
B	1/13/21	SPK	PRELIMINARY	JC
C	2/11/21	SPK	CONSTRUCTION	JC

SEAL



02/11/21

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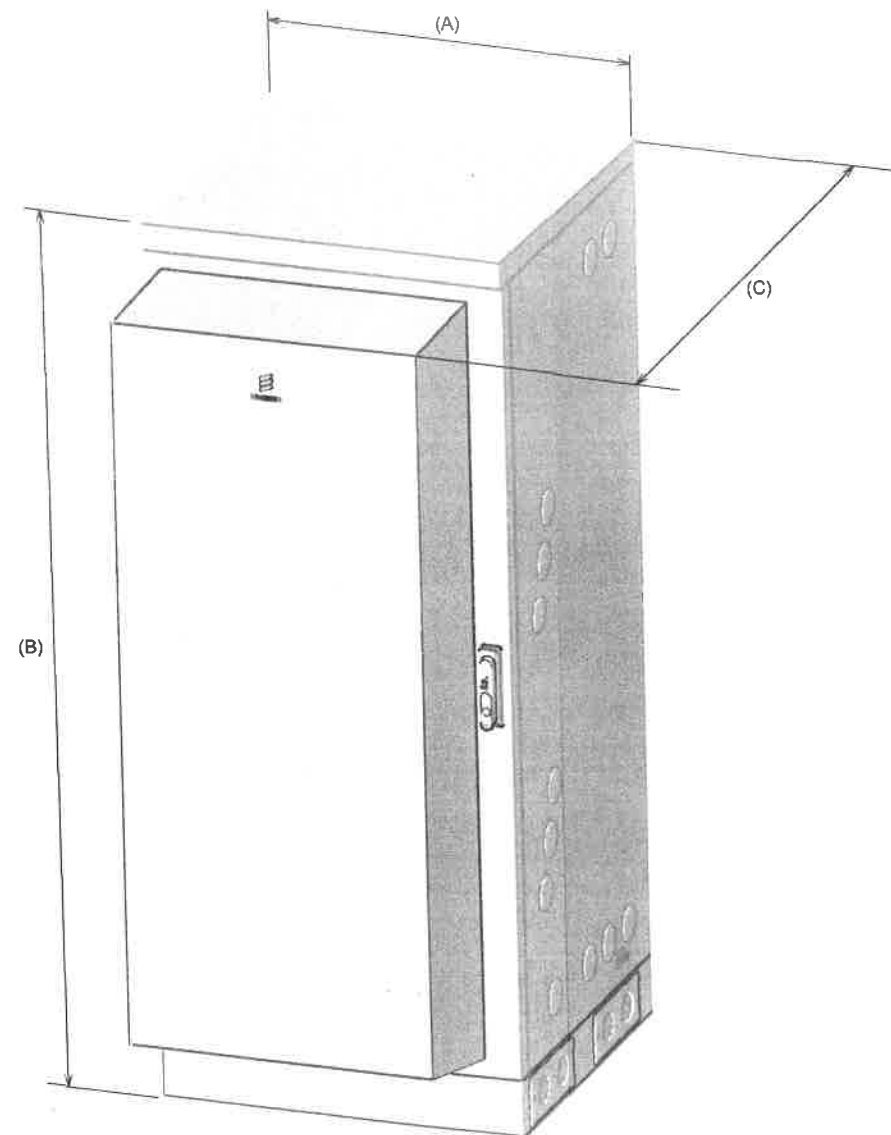
SHEET NUMBER:

C-4

REVISION:

0

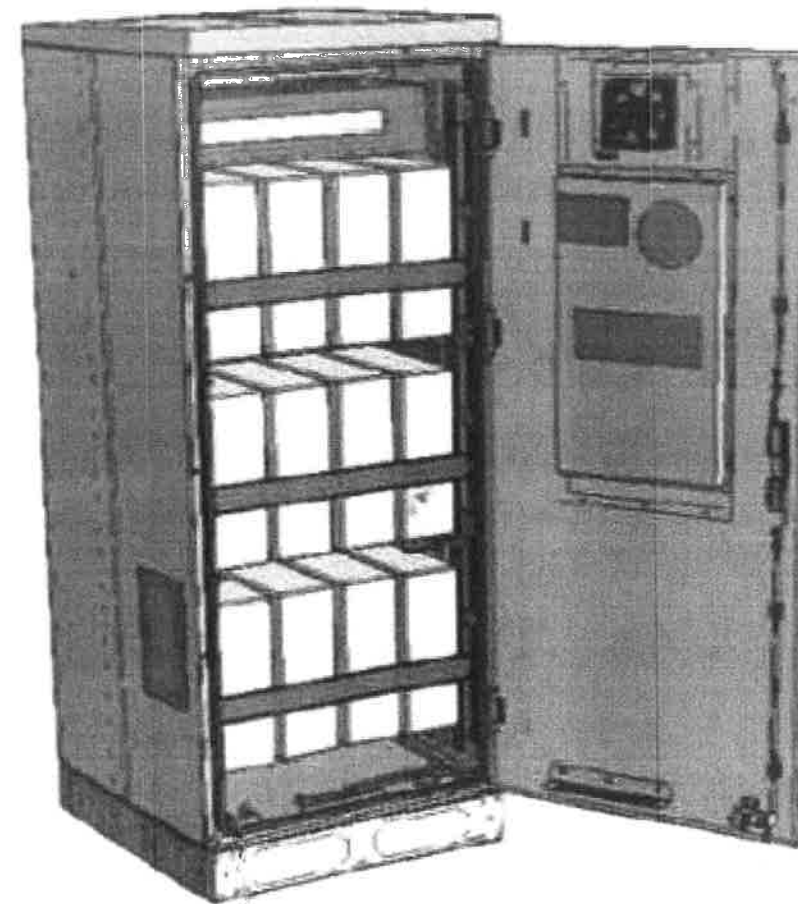
NOTE:
INFORMATION SHOWN PROVIDED BY CROWN
CASTLE. CONTRACTOR TO REFERENCE
CABINET MANUFACTURER'S SPECIFICATIONS
FOR FURTHER DETAILS.



Dimensions	
Width (A)	850 mm / 25.5906 in
Height (B)	1450 mm / 57.08661 in (without base frame) 1600 mm / 62.99213 in (with base frame)
Depth (C)	850 mm / 33.4646 in
Weight	
Empty enclosure	176 kg / 388.014 lb

1 ERICSSON B160 CABINET DETAILS
SCALE: NOT TO SCALE

NOTE:
INFORMATION SHOWN PROVIDED BY CROWN
CASTLE. CONTRACTOR TO REFERENCE
CABINET MANUFACTURER'S SPECIFICATIONS
FOR FURTHER DETAILS.



Dimensions	
Width (A)	26 in
Height (B)	57 in (without base frame) 63 in (with base frame)
Depth (C)	26 in
Weight	
Empty enclosure	322 lb

2 ERICSSON B160 CABINET DETAILS
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSONS, NJ 07054

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

LOWER ENGINEERING PROFESSIONALS
326 IRVON RD 53 STICKLE AVE
RALEIGH, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 SUITE 1
(944) 255-7011
TRD JOB #: 217034.472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: **871864**
AUSTERLITZ

321 WEST HILL ROAD
STOP 132
AUSTERLITZ, NY 12017

EXISTING 300'-0"
GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	1/5/21	SPK	PRELIMINARY	JC
B	1/15/21	SPK	PRELIMINARY	JC
C	2/11/21	SPK	CONSTRUCTION	JC

SEAL:



02/11/21

Reference Material

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SHEET NUMBER: **C-5** REVISION: **0**

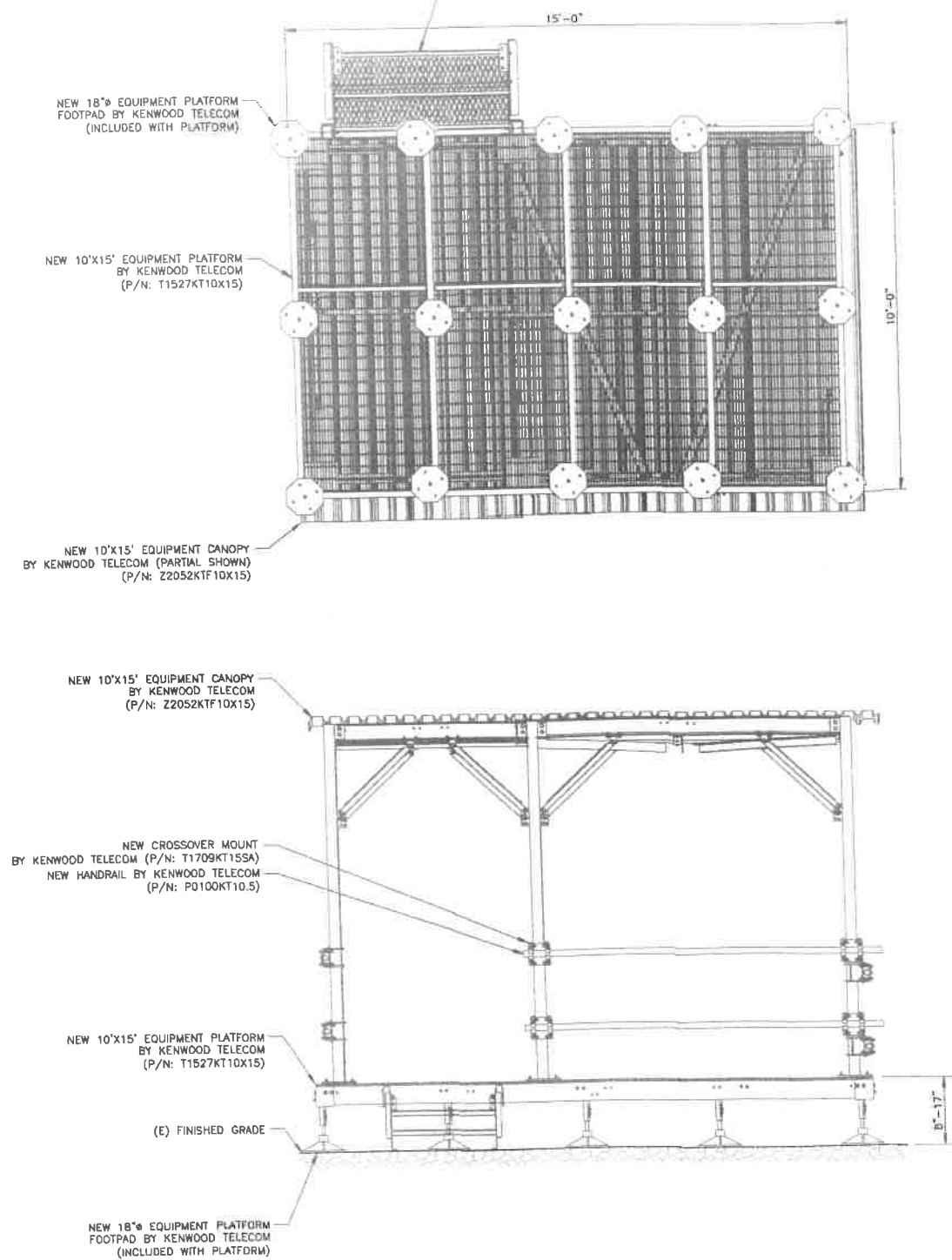
Reference Material

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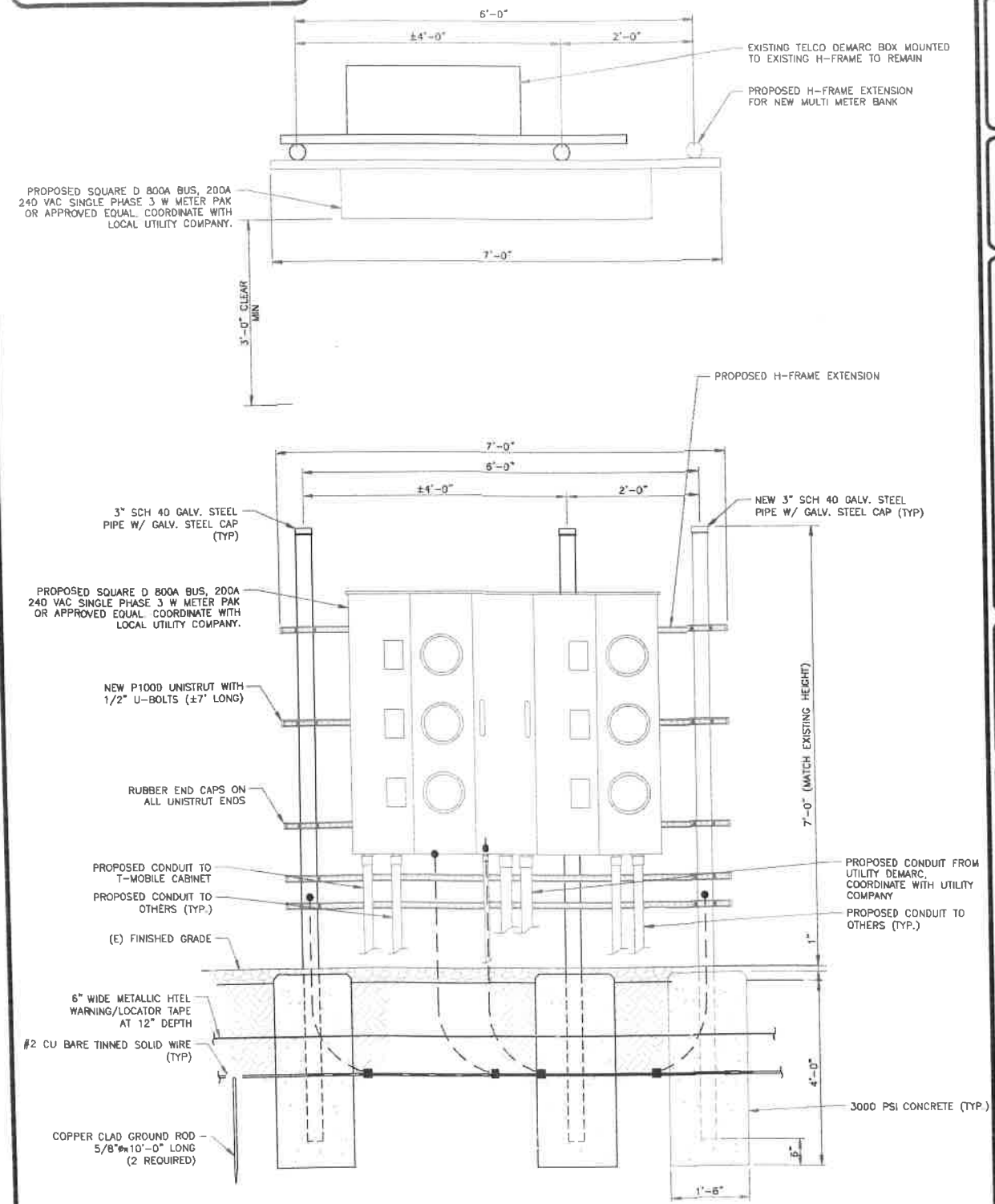
NOTES:
1. NEW 10'X15' EQUIPMENT PLATFORM AND CONOPY TO BE MANUFACTURED BY KENWOOD TELECOM PART # Z2052KTF10X15/T1527KT10X15 OR APPROVED EQUAL.
2. TEP DID NOT ANALYZE PLATFORM TO DETERMINE STRUCTURAL CAPACITY FOR LESSEE EQUIPMENT.

NEW STAIRS BY KENWOOD (INCLUDED WITH PLATFORM). SEE SHEET C1.3 FOR EXACT LOCATION FOR THIS INSTALLATION. VERIFY CONSTRUCTABILITY WITH KENWOOD WHEN ORDERING MATERIALS.



1 EQUIPMENT FRAME DETAIL
SCALE: NOT TO SCALE

NOTE:
1. ALL EXPOSED ELECTRICAL CONDUIT MUST BE GALVANIZED STEEL RIGID CONDUIT.
2. THREADED CONNECTORS ARE NOT ALLOWED.
3. EMT CONDUIT CAN ONLY BE USED INSIDE.
4. USE ONLY COMPRESSION TYPE FITTINGS ON EMT CONDUIT.
5. USE ONLY STRANDED CONDUCTORS FOR ALL ELECTRICAL WIRING. (EXCEPT TELCO AND THERMOSTAT)
6. USE SCHEDULE 80 CONDUIT UNDER DRIVEWAYS AND/OR ANY VEHICLE CROSSING AREA.



2 UTILITY FRAME ELEVATION
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARLIPPANY, NJ 07054

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12063

POWER ENGINEERING PROFESSIONALS
326 TRYON RD 53 STICKLE AVE
RALEIGH, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 (908) 255-7011
TEP JOB #: 217034.472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: **871864**
AUSTERLITZ

321 WEST HILL ROAD
STOP 132
AUSTERLITZ, NY 12017

EXISTING 300'-0"
GUYED TOWER

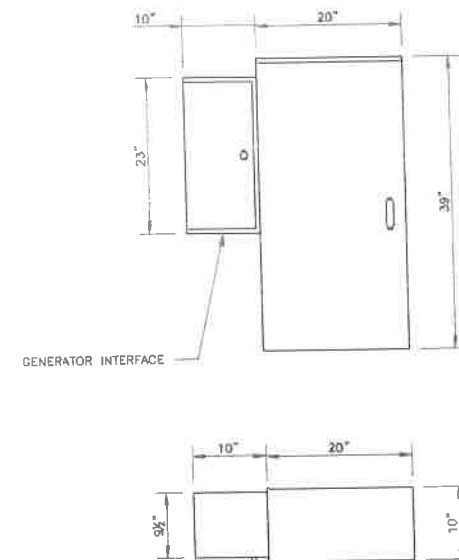
ISSUED FOR:

REV	DATE	DRAWN	DESCRIPTION	DES / QC
A	1/5/21	SPK	PRELIMINARY	JC
B	1/15/21	SPK	PRELIMINARY	JC
#	2/11/21	SPK	CONSTRUCTION	JC

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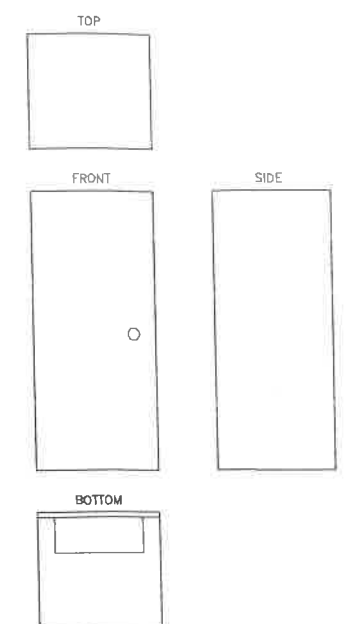
SHEET NUMBER: **C-6** REVISION: **0**



VERTIV SPECIFICATIONS (PPC)

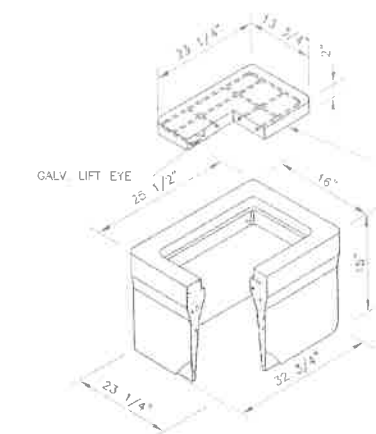
DIMENSIONS (WxHxD): 20" x 39" x 10"
 WEIGHT: APPROXIMATELY 75 LBS
 VOLTAGE: 240/120 VAC, SINGLE PHASE
 AMPERAGE: 200A
 FAULT CURRENT RATING: 85KAIC
 TRANSFER TYPE: SLIDE BAR MECHANICAL INTERLOCK
 DISTRIBUTION: 30 POSITION, 200A LOAD CENTER
 GENERATOR INTERFACE: INTERSECT CAM LOK (LEFT MOUNT)

1 VERTIV - PPC OR APPROVED EQUAL
 SCALE: NOT TO SCALE



INTERSECT - CAM-LOK GENERATOR CONNECTOR
 WEIGHT: 13 LBS
 SIZE (HxWxD): 25x10x9.5 IN.

2 INTERSECT - CAM-LOK GENERATOR CONNECTOR
 SCALE: NOT TO SCALE

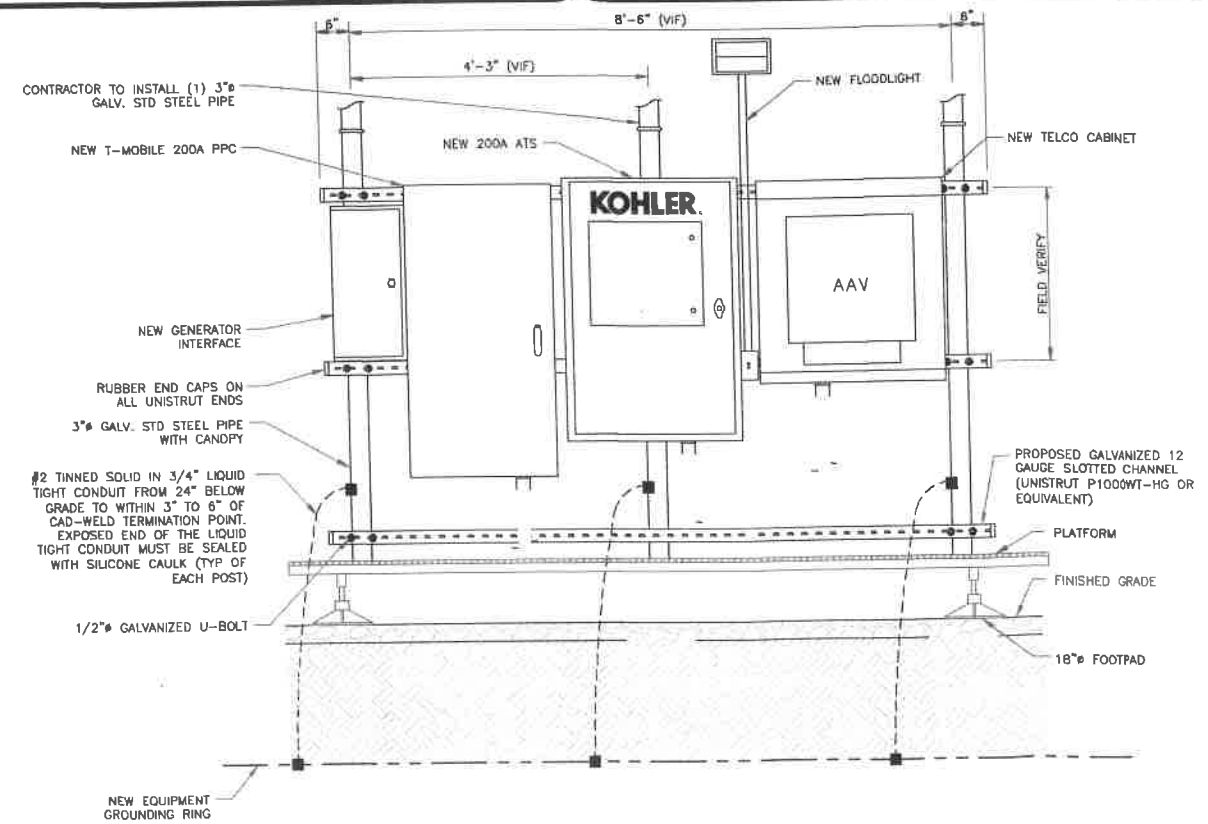


UTILITY VAULT CAPTIVE
 L-BOLTLOCK COVER

NOTES:

1. INSTALL ON 3/4" AGGREGATE WHICH SHALL EXTEND A MINIMUM OF 8" BEYOND ALL SIDES OF THE BOX AND BE A MINIMUM OF 4" DEEP, BELOW THE BOX.
2. CAP TO HAVE POWER/ELEC OR TELCO SHOWN.

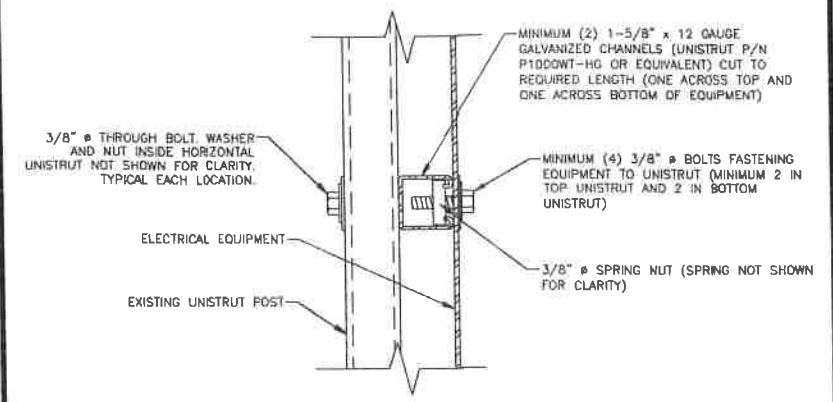
3 PULL BOX DETAIL
 SCALE: NOT TO SCALE



4 UTILITY FRAME ELEVATION
 SCALE: NOT TO SCALE

Reference Material
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NOTE: ALL BOLTS TO BE INSTALLED USING LOCK WASHERS AND FLAT WASHERS



5 UNISTRUT ATTACHMENT DETAIL (DESIGNED BY OTHERS)
 SCALE: NOT TO SCALE

T-Mobile
 4 SYLVAN WAY
 PARSIPPANY, NJ 07054

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

LOWER ENGINEERING PROFESSIONALS
 326 TRYON RD. 53 STICKLE AVE
 RALEIGH, NC 27603 ROCKAWAY, NJ 07866
 (919) 661-6351 (984) 355-7011
 TRIP JOB #: 217034-472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: **871864**
AUSTERLITZ

321 WEST HILL ROAD
 STOP 132
 AUSTERLITZ, NY 12017

EXISTING 300'-0"
 GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES / QA
A	1/3/21	SPK	PRELIMINARY	JG
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C	2/11/21	SPK	CONSTRUCTION	JG

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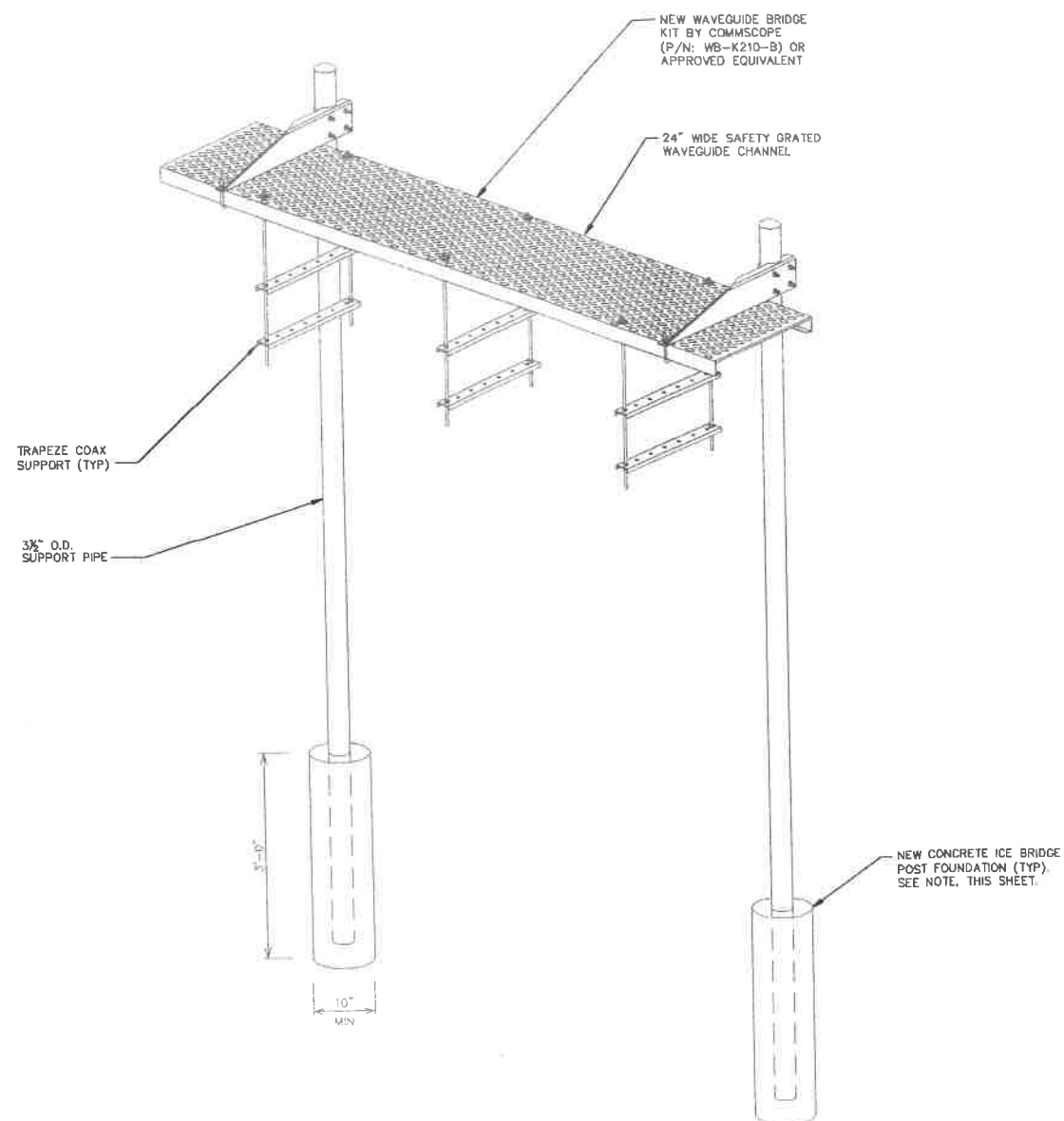


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NOTE:
CONCRETE SHALL BE 3,000 PSI.



1 ICE BRIDGE DETAIL
SCALE: NOT TO SCALE

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T-Mobile

4 SYLVAN WAY
PARLIPPANY, NJ 07054

CROWN
CASTLE

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

TOWER ENGINEERING PROFESSIONALS

326 TRYON RD 53 STICKLE AVE
RALPHI, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 SUITE 1
908-255-7011

TEP JOB #: 217034-472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: 871864
AUSTERLITZ

321 WEST HILL ROAD
STOP 132
AUSTERLITZ, NY 12017

EXISTING 300'-0"
GUYED TOWER

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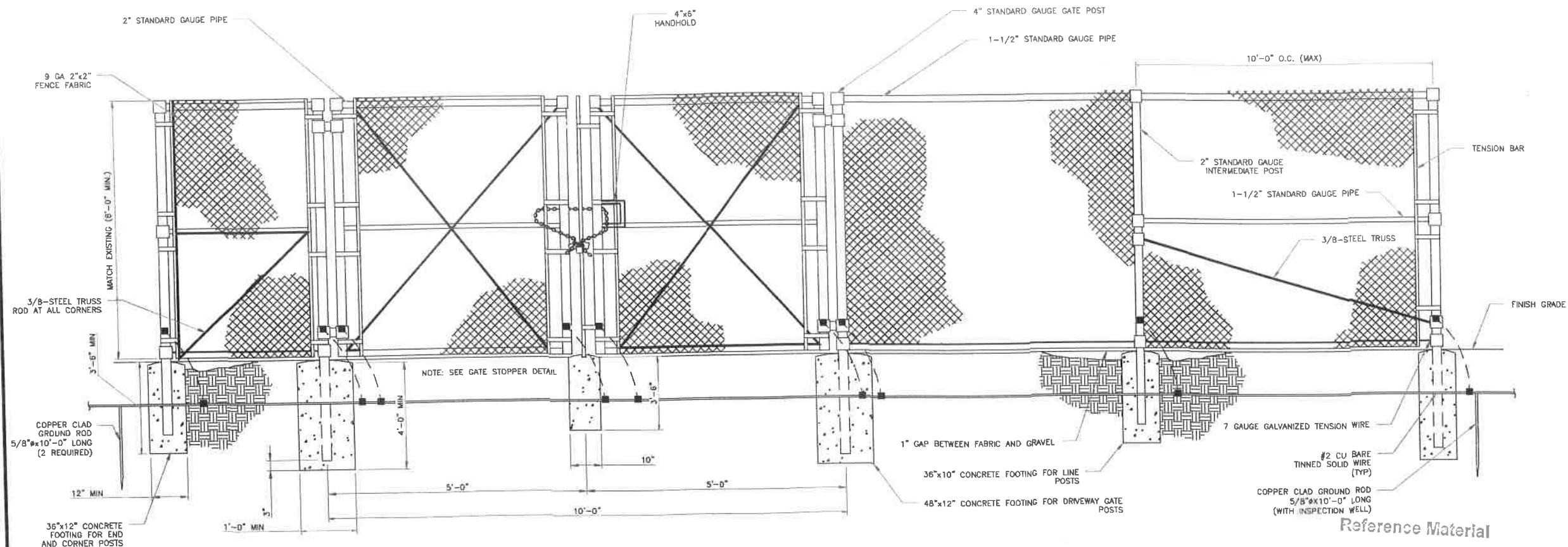
C-8

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NOTE:

CHAIN LINK FENCE FABRIC TO BE GALVANIZED, 9 GAGE WIRE. FENCE FABRIC TO HAVE 2-INCH OPENINGS. SELVAGE TO BE KNUCKLED BOTH ENDS (UNLESS NOTED OTHERWISE). ZINC COATING TO BE CLASS 2 WITH MINIMUM 2 OUNCES OF ZINC PER SQUARE FOOT OF COATING. SEE ASTM A392. FENCE TO BE INSTALLED PER ASTM F357 AND THE STANDARD GUIDE FROM THE CHAIN LINK FENCE MANUFACTURER'S INSTITUTE. WHERE OCCURS, CHAIN LINK SWING GATES TO BE INSTALLED PER ASTM F900 AND CHAIN LINK HORIZONTAL SLIDING GATES TO BE INSTALLED PER ASTM F1184.

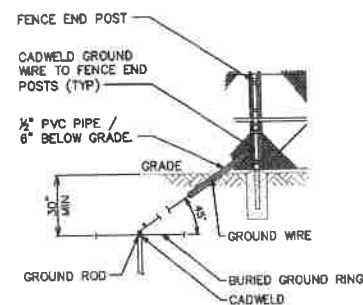


1 CHAIN LINK GATE
SCALE: NOT TO SCALE

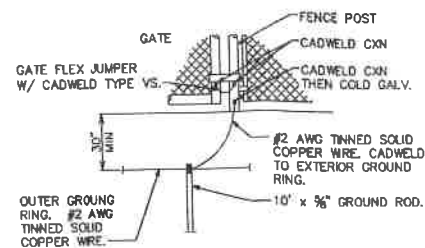
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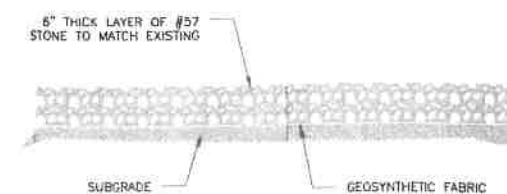
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2 TYPICAL FENCE GROUNDING DETAIL
SCALE: NOT TO SCALE



3 TYPICAL GATE POST GROUNDING DETAIL
SCALE: NOT TO SCALE



4 TYPICAL GRAVEL COVER
SCALE: NOT TO SCALE

T-Mobile

4 SYLVAN WAY
PARISIPPANY, NJ 07054

CROWN CASTLE

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

LOWER ENGINEERING PROFESSIONALS

326 TRYON RD. 53 STICKLE AVE
RALEIGH, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 SL 1111
984-233-7011

TEP JOB #: 217034-472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: 871864
AUSTERLITZ

321 WEST HILL ROAD
STOP 132
AUSTERLITZ, NY 12017

EXISTING 300'-0"
GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES / QA
A	1/5/21	SPK	PRELIMINARY	JG
B	1/15/21	SPK	PRELIMINARY	JG
#	2/11/21	SPK	CONSTRUCTION	JG

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LOAD CALCULATIONS FOR 6160 CABINET DETERMINED USING
POWER ANALYSIS TOOL, PER RFDS DATED 11/30/2020, V1

PROPOSED BREAKERS IN BOLD

① AC PANEL SCHEDULES
SCALE: NOT TO SCALE

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THWN, THWN-2, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.

UL NOTE: ELECTRICAL MATERIALS, DEVICES, CONDUCTORS, APPLIANCES AND EQUIPMENT SHALL BE LABELED/LISTED BY UL OR ACCEPTED BY JURISDICTION (I.E.: LOCAL COUNTY OR STATE) APPROVED THIRD PARTY TESTING AGENCY

1. ALL CONDUIT TO BE SCH40 PVC OR LTFC, AS NOTED. INSTALL WEATHERPROOF FITTINGS.
2. ABOVE GRADE CONDUIT RUNS TO BE MARKED WITH HAZARD TAPE TO PREVENT TRIPPING HAZARD.

1. ELECTRICAL SERVICE SHALL BE 200A, 120/240V, 1Ø, 3W
2. FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT, REF TO VENDOR PRINTS PROVIDED BY EQUIPMENT MANUFACTURER

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

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

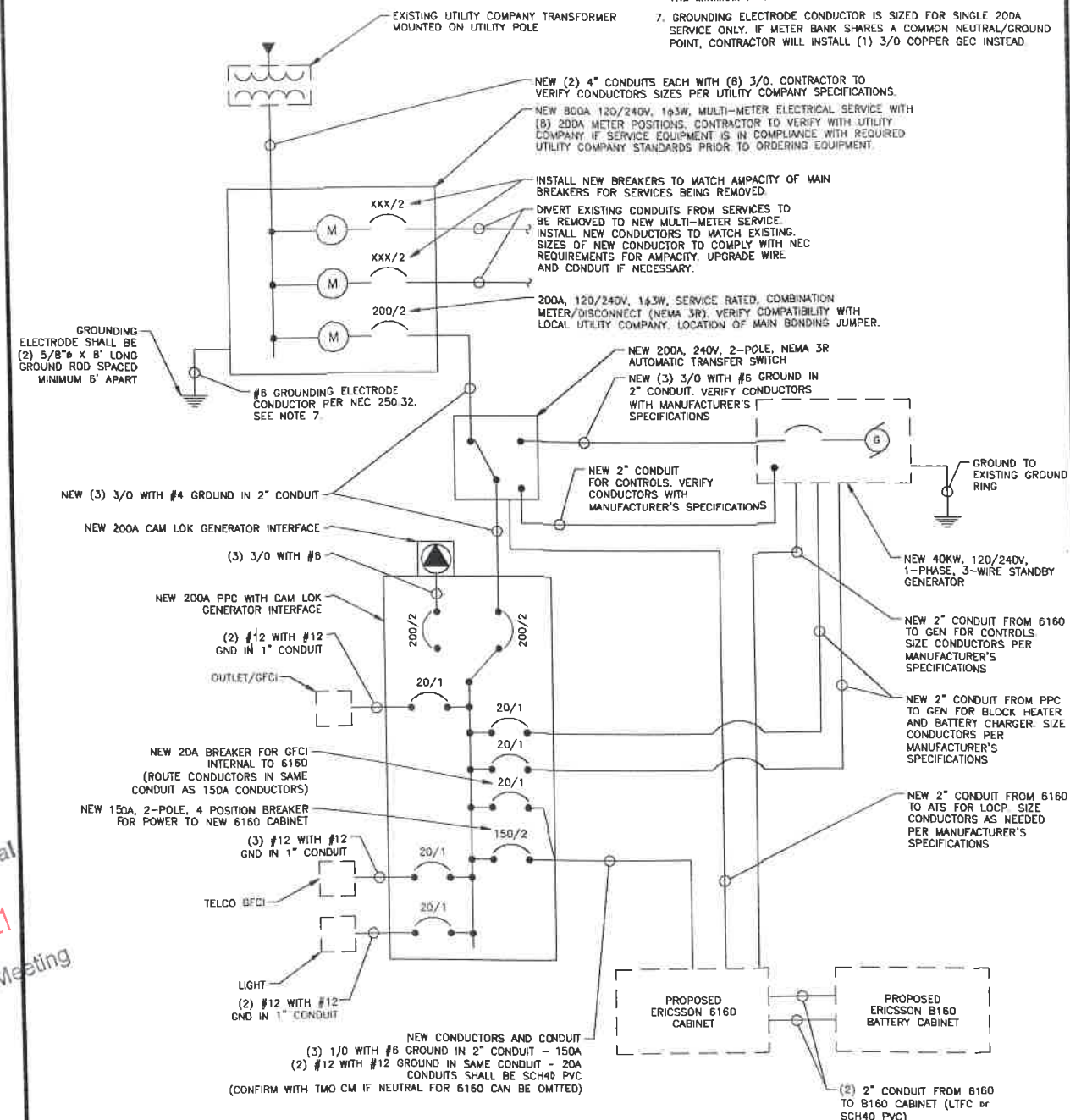
3. ONE-LINE DIAGRAM IS FOR SCHEMATIC PURPOSES ONLY AND IS NOT INDICATIVE OF THE ACTUAL EQUIPMENT LAYOUT.

4. ALL EQUIPMENT WILL HAVE A MINIMUM AIC OF 10 KA. CONTRACTOR TO DETERMINE AVAILABLE FAULT CURRENT BEFORE ENERGIZING EQUIPMENT. THE AMOUNT OF AVAILABLE FAULT CURRENT SHALL BE MARKED ON THE SERVICE EQUIPMENT PER NEC 110.24.

5. CONTRACTOR SHALL NOTIFY UTILITY COMPANY OF CHANGES IN ELECTRICAL LOAD.

B. CONTRACTOR TO VERIFY EXISTING CONDUIT(S) SIZE(S) PRIOR TO CONSTRUCTION AND MAY REUSE EXISTING CONDUIT(S) IF THEY MEET THE MINIMUM REQUIREMENTS PER NEC CODE.

7. GROUNDING ELECTRODE CONDUCTOR IS SIZED FOR SINGLE 20DA SERVICE ONLY. IF METER BANK SHARES A COMMON NEUTRAL/GROUND POINT, CONTRACTOR WILL INSTALL (1) 3/0 COPPER GEC INSTEAD.



② ONE LINE DIAGRAM
SCALE: NOT TO SCALE

4 SYLVAN WAY
PARSIPPANY, NJ 07054

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

LOWER ENGINEERING PROFESSIONALS

326 TRYON RD 53 STICKLE AVE
RALEIGH, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 SUTHER
984 255-7011

TEP JOB #: 217034-472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: 871864
AUSTERLITZ

321 WEST HILL ROAD
STOP 132
AUSTERLITZ, NY 12017

EXISTING 300'-0"
GUYED TOWER

REV	DATE	DRWN	DESCRIPTION	DES
A	1/5/21	SPK	PRELIMINARY	JC
B	1/15/21	SPK	PRELIMINARY	JC
H	2/11/21	SPK	CONSTRUCTION	JC

SEAT



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T-Mobile

4 SYLVAN WAY
PARLIPPANY, NJ 07054

CROWN CASTLE

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

TOWER ENGINEERING PROFESSIONALS

326 TRYON RD. 53 STICKLE AVE
RALEIGH, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 SUITE 1
(944) 233-7011

TWP JOB #: 217034.472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: 871864
AUSTERLITZ

321 WEST HILL ROAD
STOP 132
AUSTERLITZ, NY 12017

EXISTING 300'-0"
GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DWG / QA
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02/11/21

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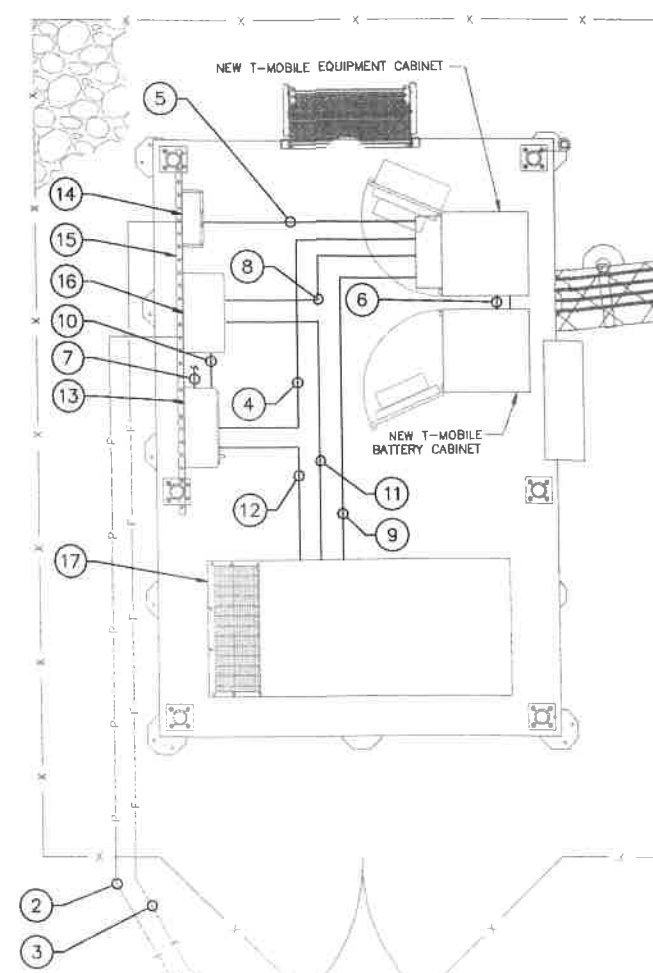
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E-2

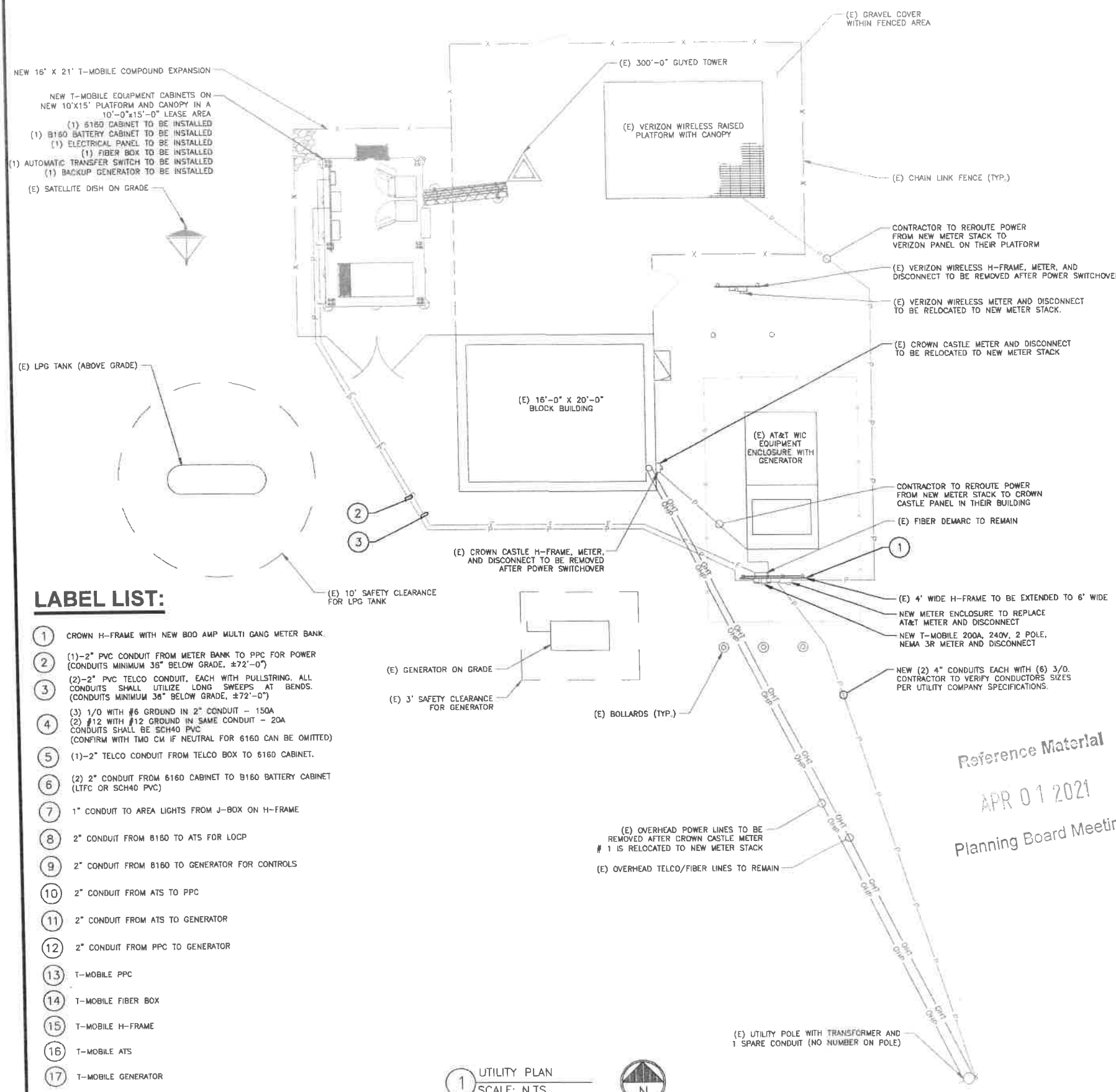
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NOTES:

1. AREA LIGHT LITHONIA HFR 250M SLWA DNA LP1 CONTROL VIA CONTRACTOR PROVIDED MANUAL TIMER SWITCH (WEATHERPROOF).
2. POWER AND TELCO CONDUITS RECEIVING CONDUCTORS BY OTHERS TO HAVE PULL ROPES.
3. ALL TELCO CONDUITS ARE TO BE STUBBED IN D-MARC LOCATION.
4. ALL POWER CONDUITS ARE TO BE TERMINATED AT THE METER CENTER.
5. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO TRENCHING. ANY DAMAGE CAUSED TO THE EXISTING UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
6. ALL CONDUITS SHALL BE INSTALLED PRIOR TO FINISH GRADING, GEDFABRIC, AND STONE INSTALLATION.
7. CONTRACTOR SHALL INSTALL SWEEPS AT ALL CONDUIT DIRECTION CHANGES UNLESS NOTED OTHERWISE.
8. WHERE APPLICABLE RUN CONDUITS FROM ILC TO GENERATOR UNDERGROUND AND STUB UP CONDUITS MINIMUM 6" HIGH INSIDE GENERATOR BASE AND TERMINATE WITH MALE ADAPTER AND THREADED BUSHING.
9. WHEN ALL RRUs ARE GROUND MOUNTED, OMIT OVPs AND RUN FIBER/POWER FROM PRIMARY CABINET DIRECTLY TO RRUs.
10. FIBER BRIDGE CONDUIT TO BE LEFT AS 5' LONG CAPPED STUB CONDUIT WHEN NO EXISTING HANDHOLE IS PRESENT.
11. CONTRACTOR TO VERIFY WITH CM WHICH EXISTING HANDHOLE (IF ANY) BELONGS TO FIBER PROVIDER.
12. CONTRACTOR TO INSTALL (2) PULL ROPES IN EACH FIBER CONDUIT.
13. CONTRACTOR TO UTILIZE EXPANSION COUPLINGS WITH ABOVE-GRADE TRANSITIONS.



2 ENLARGED EQUIPMENT ROUTING PLAN
SCALE: N.T.S.



1 UTILITY PLAN
SCALE: N.T.S.

LABEL LIST:

- 1 CROWN H-FRAME WITH NEW 800 AMP MULTI GANG METER BANK.
- 2 (1)-2" PVC CONDUIT FROM METER BANK TO PPC FOR POWER (CONDUITS MINIMUM 36" BELOW GRADE, ±72'-0")
- 3 (2)-2" PVC TELCO CONDUIT, EACH WITH PULLSTRING. ALL CONDUITS SHALL UTILIZE LONG SWEEPS AT BENDS. (CONDUITS MINIMUM 36" BELOW GRADE, ±72'-0")
- 4 (3) 1/2" WITH #6 GROUND IN 2" CONDUIT - 150A (2) #12 WITH #12 GROUND IN SAME CONDUIT - 20A CONDUITS SHALL BE SCH40 PVC (CONFIRM WITH TMO CM IF NEUTRAL FOR 6160 CAN BE OMITTED)
- 5 (1)-2" TELCO CONDUIT FROM TELCO BOX TO 6160 CABINET.
- 6 (2) 2" CONDUIT FROM 6160 CABINET TO 6160 BATTERY CABINET (LTFC OR SCH40 PVC)
- 7 1" CONDUIT TO AREA LIGHTS FROM J-BOX ON H-FRAME
- 8 2" CONDUIT FROM 6160 TO ATS FOR LOCP
- 9 2" CONDUIT FROM 6160 TO GENERATOR FOR CONTROLS
- 10 2" CONDUIT FROM ATS TO PPC
- 11 2" CONDUIT FROM ATS TO GENERATOR
- 12 2" CONDUIT FROM PPC TO GENERATOR
- 13 T-MOBILE PPC
- 14 T-MOBILE FIBER BOX
- 15 T-MOBILE H-FRAME
- 16 T-MOBILE ATS
- 17 T-MOBILE GENERATOR

Reference Material
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T-MOBILE GROUNDING NOTES:

ALL GROUNDS MUST ROUTE DOWNHILL FOR ENTIRE DURATION OF ROUTE

1. PROVIDE LABOR, MATERIALS, INSPECTION, AND TESTING TO PROVIDE CODE COMPLIANCE FOR ELECTRIC, TELEPHONE, AND GROUNDING/LIGHTNING SYSTEMS.

ICE BRIDGE/ EQUIPMENT POST:

#2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED TO GROUND RING (BOTH ENDS), FINAL WELD COLD GALVANIZED, IN 1/2" NON-METALLIC SEAL TIGHT CONDUIT, SEALED WITH SILICONE, ANCHORED TO PAD/PLATFORM TO AVOID TRIP HAZARD USING HAMMER SET ANCHORS.

PEDESTALS, PLINTHS, SSC CABINET, FCOA CABINETS:

1. #2 SOLID COPPER TINNED, 2 HOLE LUG WITH FLAT AND LOCK WASHER AT EQUIPMENT; EXOTHERMICALLY WELDED TO GROUND RING, FINAL WELD COLD GALVANIZED, IN 1/2" NON-METALLIC SEAL TIGHT CONDUIT, SEALED WITH SILICONE, ANCHORED TO PAD TO AVOID TRIP HAZARD USING HAMMER SET ANCHORS. EACH PART REQUIRES A SEPARATE DOWNLEAD, NO DAISY CHAINS.

COVP's:

#6 THIN STRANDED (GREEN JACKET), CONNECTED AT EQUIPMENT SIDE USING DVP TERMINAL BLOCK CONNECTION; MECHANICALLY CONNECTED TO GROUND REFERENCE AT MASTER BUSS BAR USING 2 HOLE LUG WITH FLAT AND LOCK WASHER, IN 1/2" NON-METALLIC SEAL TIGHT CONDUIT, SEALED WITH SILICONE, AND ANCHORED TO PAD/PLATFORM TO AVOID TRIP HAZARD.

ANTENNA/ COVP/ RRU MAST PIPES:

1. ALL VERTICAL MAST PIPES: #2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED TO TOP OF PIPE (PIPE, DOWN MOLD), FINAL WELD COLD GALVANIZED, BONDED TO TOP BUSS BAR WITH 2 HOLE COPPER COMPRESSION LUG, FLAT AND LOCK WASHER.
2. EXISTING/REUSED PIPES: #2 SOLID COPPER TINNED, BONDED WITH COLD WATER CLAMP TO TOP OF PIPE, BONDED TO TOP BUSS WITH 2 HOLE COPPER COMPRESSION LUG, FLAT AND LOCK WASHER.

AIR TERMINALS:

TO BE INSTALLED, ONLY IF REQUIRED

TMA's, DIPLEXERS AND TRIPLEXERS:

1. #6 THIN, WITH PROPER COPPER COMPRESSION LUG, FLATS AND LOCK WASHERS
2. ALL GROUND LUGS ON TMA MUST BE GROUNDED WITH SEPARATE DOWNLEAD TO BUSS BAR (NO DAISY CHAINS)

ELEVATED STEEL PLATFORMS WITH LUNAR FEET:

#2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED (FLAT PLATE MOLD) TO OUTSIDE PERIMETER BEAMS IN FOUR (4) PLACES, FINAL WELD COLD GALVANIZED, BONDED DIRECTLY TO SUBGRADE GROUND RING.

STEEL CANOPY (STEEL PLATFORM OR CONCRETE PAD):

1. #2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED (PIPE, DOWN MOLD) TO BOTTOM OF ALL VERTICAL SUPPORT POSTS, TYPICALLY FOUR (4) PIPES, FINAL WELD COLD GALVANIZED, BONDED DIRECTLY TO SUBGRADE GROUND RING.
2. #2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED (PIPE, UP MOLD) TO TOP OF ALL VERTICAL SUPPORT POSTS, TYPICALLY FOUR (4) PIPES, FINAL WELD COLD GALVANIZED, BONDED UP TO CANOPY GRIP-STRUT USING 2 HOLE COPPER COMPRESSION LUG, FLAT AND LOCK WASHER.

RRU:

#6 THIN, WITH PROPER COPPER COMPRESSION LUG, ANTI-OXIDANT TO SECTOR BUSS BAR

FSBE ALARM BOX:

#6 THIN WITH ONE HOLE LUG BONDED TO PREVIOUSLY GROUNDED FCOA, PLINTH OR BUSS BAR.

SURGE SUPPRESSORS:

#6 THIN TO PREVIOUSLY GROUNDED BUSS BAR USING PROPER LUGS

FYGA/FYGB BRACKET:

1. #6 THIN TO PREVIOUSLY GROUNDED BUSS BAR USING PROPER LUGS

2. THROUGH BOLTS WITH FLAT, LOCK ON BRACKET

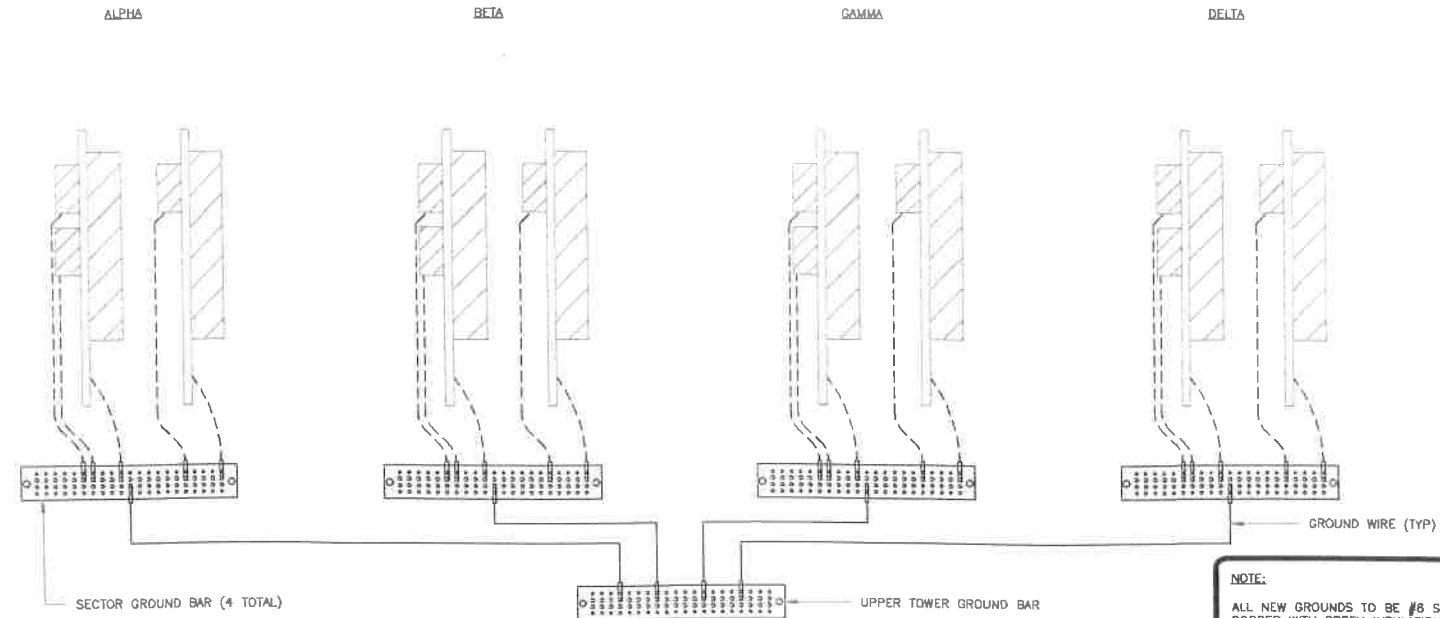
BUSS BARS:

1. PLATFORM / PAD BUSS BAR SHOULD BE MINIMUM 12" TINNED COPPER WITH INSULATORS, AND SHOULD HAVE TWO (2) EXOTHERMICALLY WELDED DOWN LEADS DIRECTLY TO GROUND RING USING #2 SOLID COPPER TINNED WIRE.
2. SECTOR BUSS BAR SHOULD BE PROPERLY SIZED TO ACCOMMODATE NECESSARY GROUNDING FOR EQUIPMENT ON EACH MOUNT, AND MAY BE SOLID COPPER (TINNED NOT REQUIRED). DO NOT USE INSULATORS ON SECTOR BUSS BARS ATTACH DIRECTLY TO TOWER MOUNT STEEL.

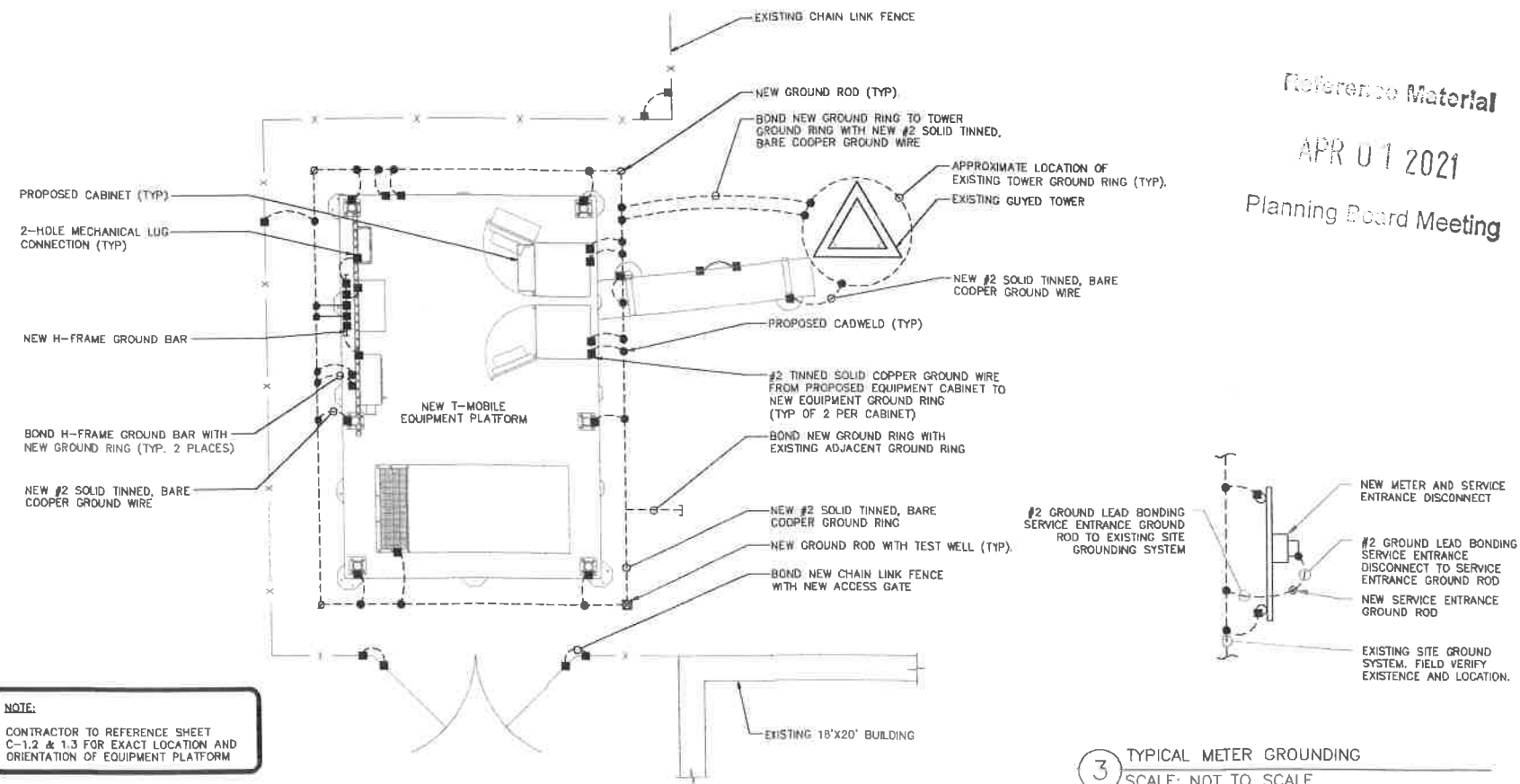
GENERAL:

- NO GROUND KITS ON HYBRID TRUNKS (TOP OR BOTTOM)
- NO GROUND KITS ON MICROWAVE IF CABLES (TOP OR BOTTOM)
- MICROWAVE SURGE SUPPRESSORS ARE NOT TO BE INSTALLED UPSTAIRS ON TOWER, DOWNSTAIRS ONLY (BULKHEAD PREFERRED)
- MICROWAVE ODU MUST BE GROUNDED TO TOWER TOP SECTOR OR COLLECTOR BUSS BAR
- ALL TMA'S AND DIPLEXERS MUST BE GROUNDED TO BUSS BAR. NO DAISY CHAIN ON TWIN/DUAL TMA
- ALL LUGS SHOULD BE PROPERLY SIZED FOR CONDUCTOR, BURNDY TINNED COPPER COMPRESSION STYLE
 1. INDOOR (OR INSIDE CABINET) SHOULD HAVE WINDOW
 2. OUTDOOR SHOULD NOT HAVE WINDOW
- CONTRACTOR TO VERIFY EXISTENCE AND LOCATION OF EXISTING SITE GROUND SYSTEM.
- CONTRACTOR SHALL VERIFY THAT GROUNDING ELECTRODES SHALL BE CONNECTED IN A RING USING #2 AWG BARE TINNED COPPER WIRE. THE TOP OF THE GROUND RODS AND THE RING CONDUCTOR SHALL BE 30" BELOW FINISHED GRADE, OR TO FROST DEPTH, WHICHEVER IS GREATER. GROUNDING ELECTRODES SHALL BE DRIVEN ON 10'-0" CENTERS (PROVIDE AND INSTALL AS REQUIRED, REQUIRED PER PLAN BELOW).
- GROUNDING CONDUCTORS SHALL BE OF EQUAL LENGTH, MATERIAL, AND BONDING TECHNIQUE.
- CONTRACTOR SHALL ENSURE GROUND RING IS WITHIN 12 TO 36 INCHES OF THE EQUIPMENT PLATFORM. PROVIDE AND INSTALL GROUNDING CONNECTIONS SHOWN BELOW AS NEEDED PER EXISTING SITE GROUNDING SYSTEM. CONTRACTOR SHALL VERIFY ALL EXISTING SITE GROUNDING CONDITIONS BEFORE STARTING WORK OR PURCHASING EQUIPMENT.

- ALL DOWN CONDUCTORS MUST GO DOWN.



1 TYPICAL ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



2 TYPICAL CABINET GROUNDING DIAGRAM
SCALE: NOT TO SCALE

3 TYPICAL METER GROUNDING
SCALE: NOT TO SCALE

T-Mobile

4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE

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

TOWER ENGINEERING PROFESSIONALS

326 TRYON RD. 53 SUICKLEAVE
RALEIGH, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 SETEB 1
984) 255-7011

TEN JOB #: 217034-472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: 871864
AUSTERLITZ

321 WEST HILL ROAD
STOP 132
AUSTERLITZ, NY 12017

EXISTING 300'-0"
GUYED TOWER

Reference Material

APR 01 2021

Planning Board Meeting

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES /QA
A	1/5/21	SPK	PRELIMINARY	JC
B	1/15/21	SPK	PRELIMINARY	JC
#	2/11/21	SPK	CONSTRUCTION	JC

SEAL:



02/11/21

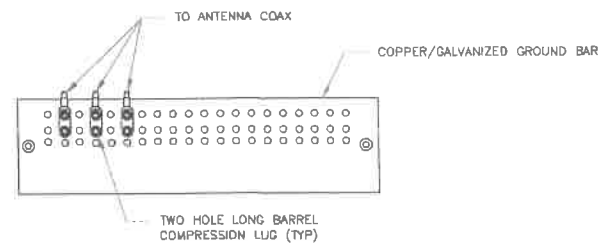
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:

G-1

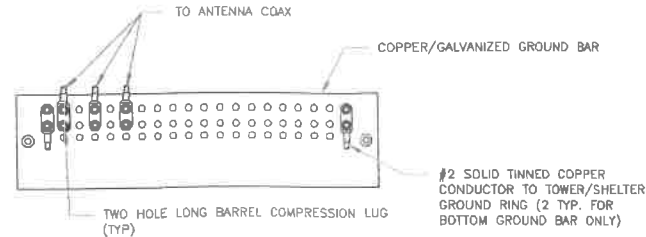
REVISION:

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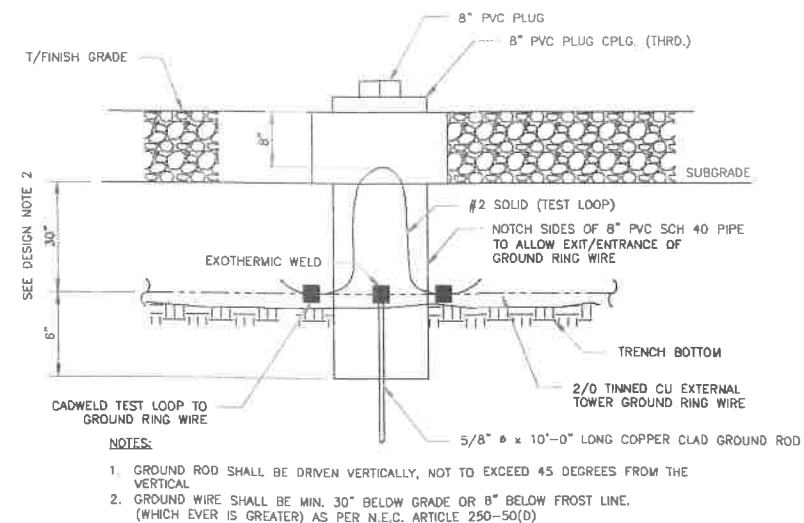
- NOTES:
1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
 2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
 3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE

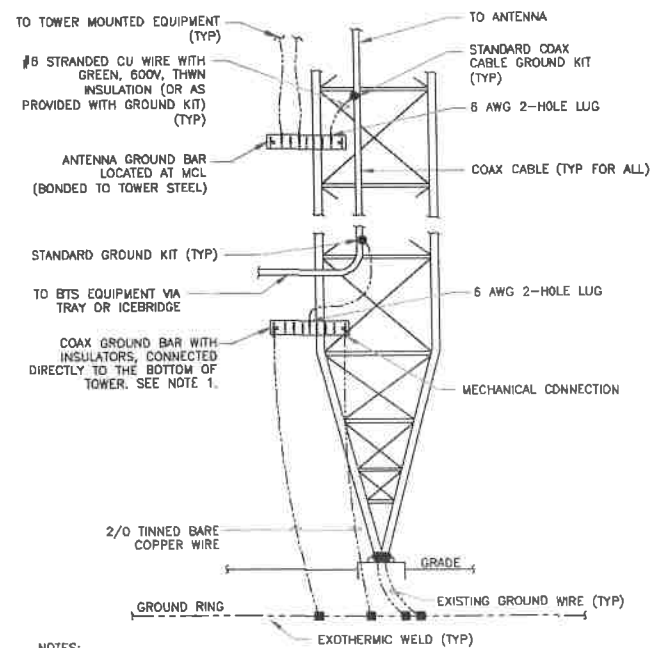


- NOTES:
1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
 2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
 3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE

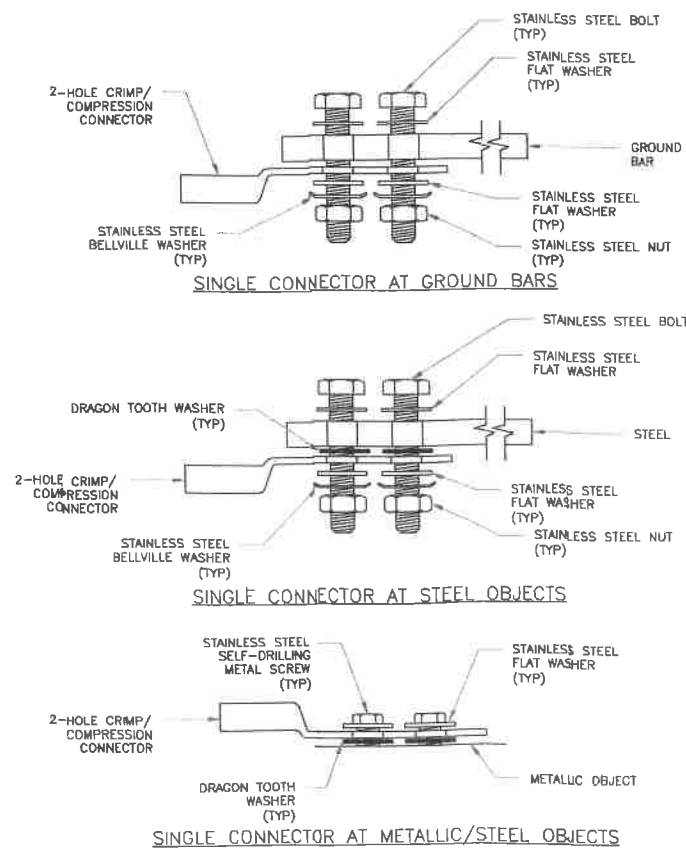


3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



- NOTES:
1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
 2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
 3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE

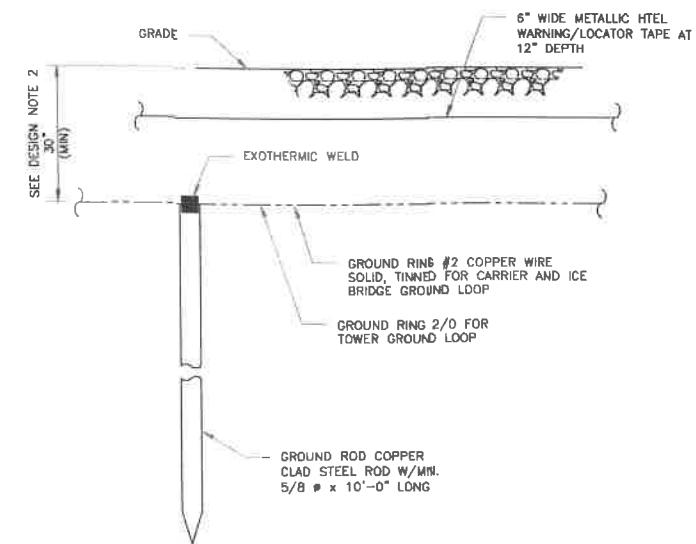


5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE

Reference Material

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6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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TOWER ENGINEERING PROFESSIONALS
326 TRYON RD. 53 STICKLE AVE
RALEIGH, NC 27603 ROCKAWAY, NJ 07866
(919) 661-6351 SUITE 1
784) 355-7011
TEP JOB #: 217034.472461

T-MOBILE SITE NUMBER:
UP40248E

BU #: **871864**
AUSTERLITZ

321 WEST HILL ROAD
STOP 132
AUSTERLITZ, NY 12017

EXISTING 300'-0"
GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES / QA
A	1/5/21	SPK	PRELIMINARY	JC
B	1/15/21	SPK	PRELIMINARY	JC
H	2/11/21	SPK	CONSTRUCTION	JC

SEAL:



02/11/21

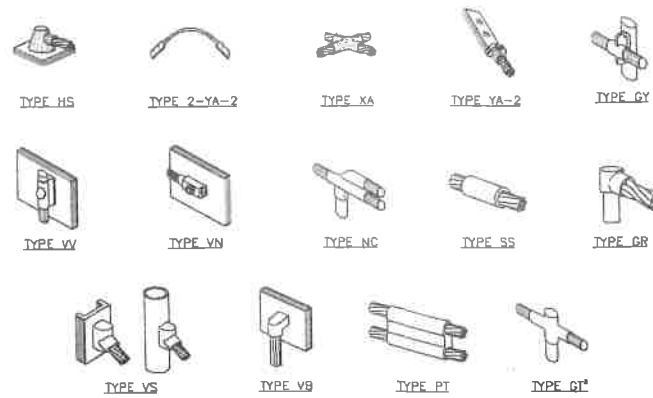
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SHEET NUMBER:

REVISION:

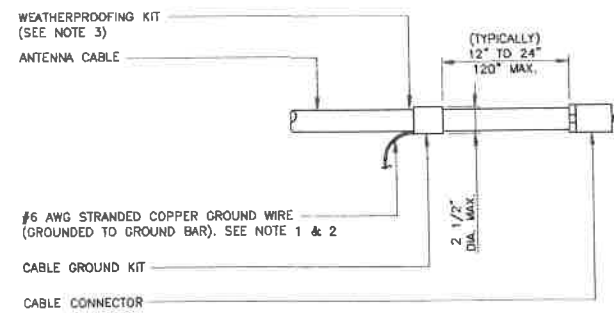
G-2

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NOTE:
1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

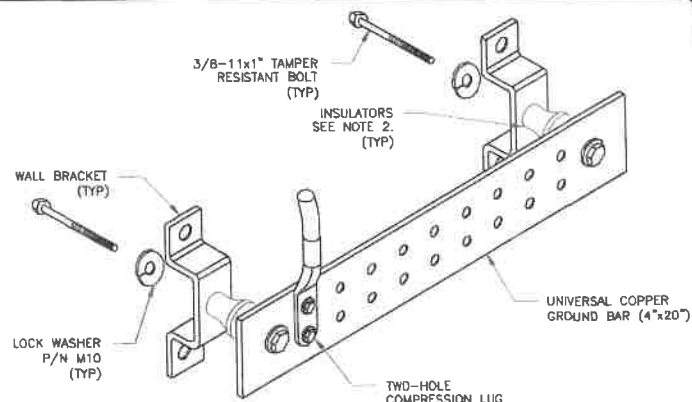
1 CADWELD GROUNDING CONNECTIONS SCALE: NOT TO SCALE



WEATHERPROOFING KIT (SEE NOTE 3)
ANTENNA CABLE
#6 AWG STRANDED COPPER GROUND WIRE (GROUNDED TO GROUND BAR). SEE NOTE 1 & 2
CABLE GROUND KIT
CABLE CONNECTOR

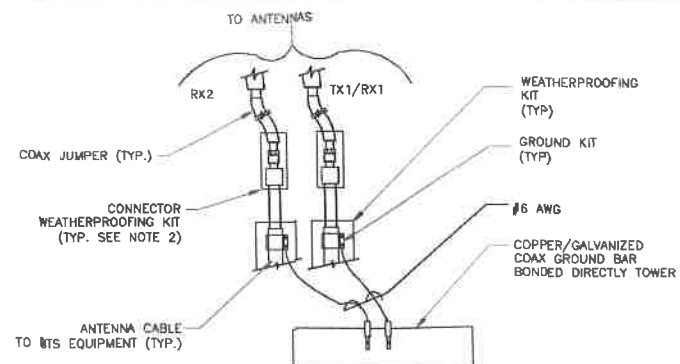
NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

3 CABLE GROUND KIT CONNECTION SCALE: NOT TO SCALE



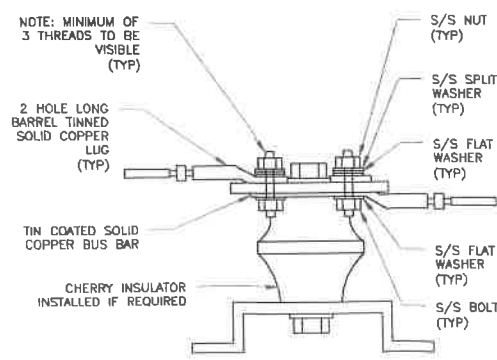
NOTES:
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-510-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION. CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL. USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL SCALE: NOT TO SCALE



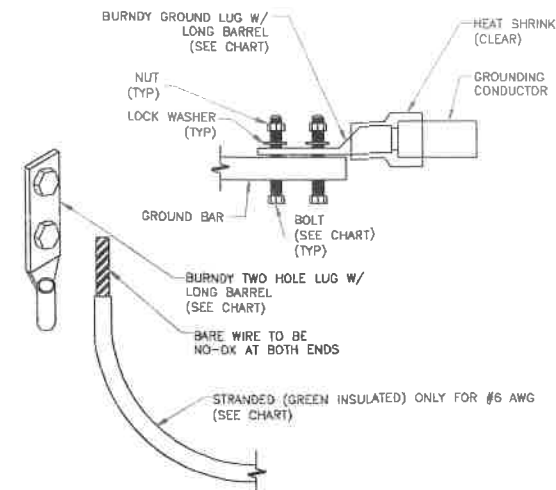
NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION SCALE: NOT TO SCALE



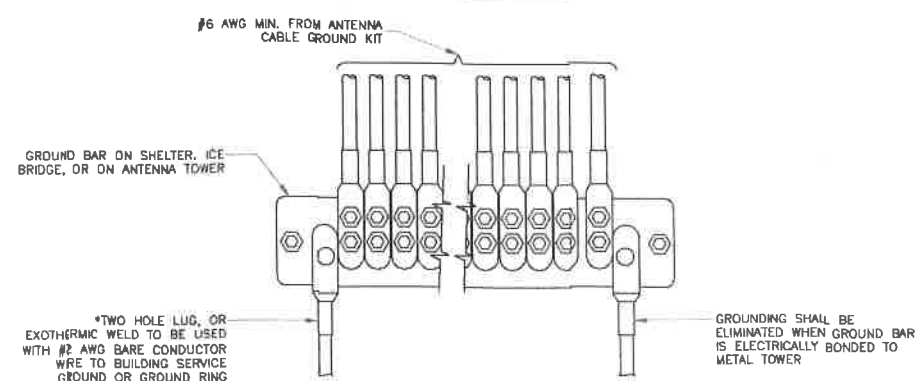
7 LUG DETAIL SCALE: NOT TO SCALE

WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA2B-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA2B-2N	1/2" - 16 NC S 2 BOLT

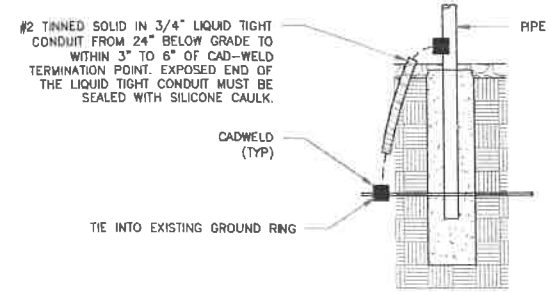


NOTES:
1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

2 MECHANICAL LUG CONNECTION SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL SCALE: NOT TO SCALE

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3 CORPORATE PARK DRIVE, SUITE 101
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TWP JOB #: 217034-472461

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AUSTERLITZ

321 WEST HILL ROAD
STOP 132
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EXISTING 300'-0"
GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QR
A	1/5/21	SPK	PRELIMINARY	JG
B	1/15/21	SPK	PRELIMINARY	JG
C	2/11/21	SPK	CONSTRUCTION	JG

SEAL:

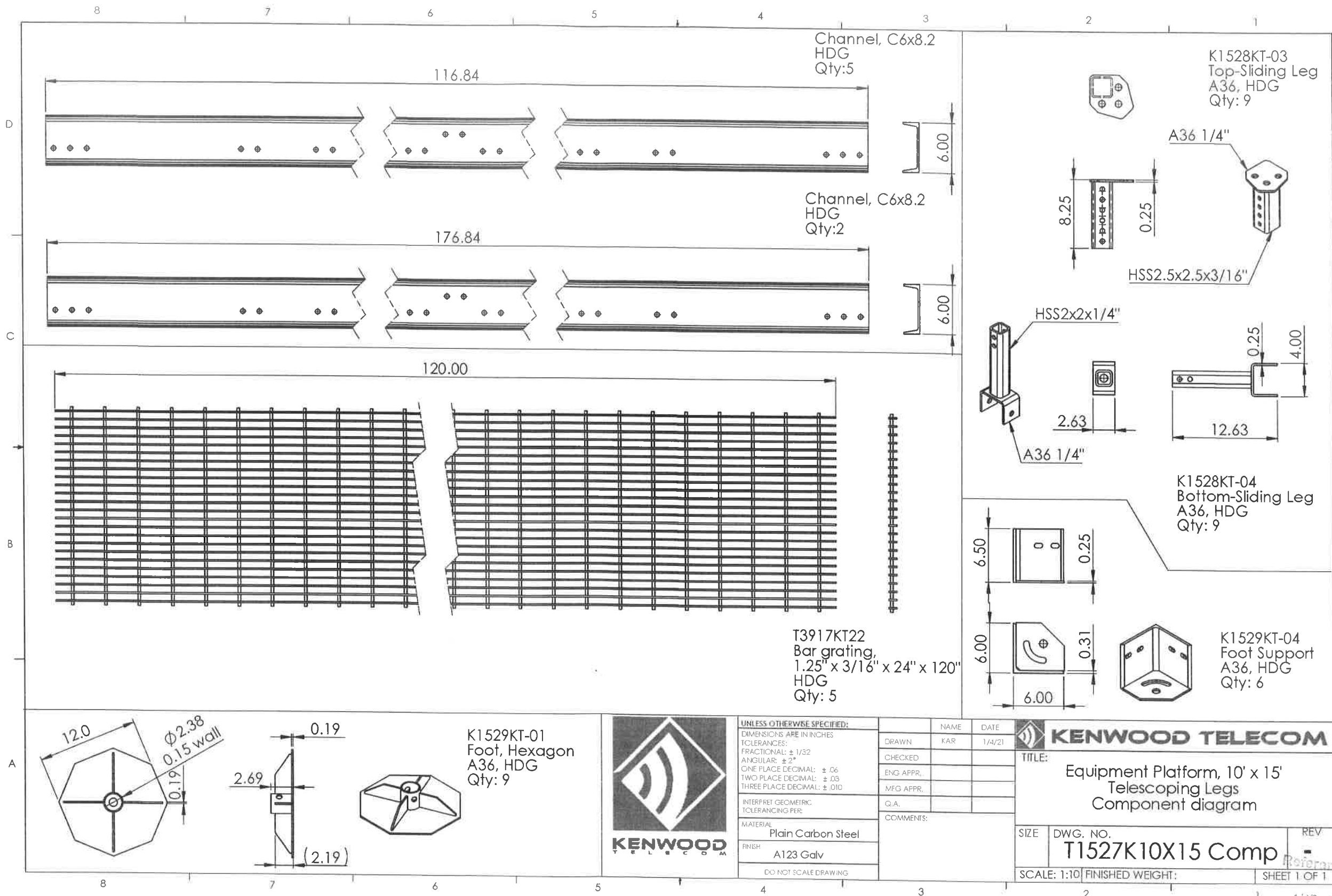


02/11/21

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SHEET NUMBER: REVISION:

G-3 0



UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	KAR
TOLERANCES:		CHECKED	
FRACTIONAL: ± 1/32		ENG APPR.	
ANGULAR: ± 2°		MFG APPR.	
ONE PLACE DECIMAL: ± .06		Q.A.	
TWO PLACE DECIMAL: ± .03		COMMENTS:	
THREE PLACE DECIMAL: ± .010			
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
Plain Carbon Steel			
FINISH			
A123 Galv			
DO NOT SCALE DRAWING			

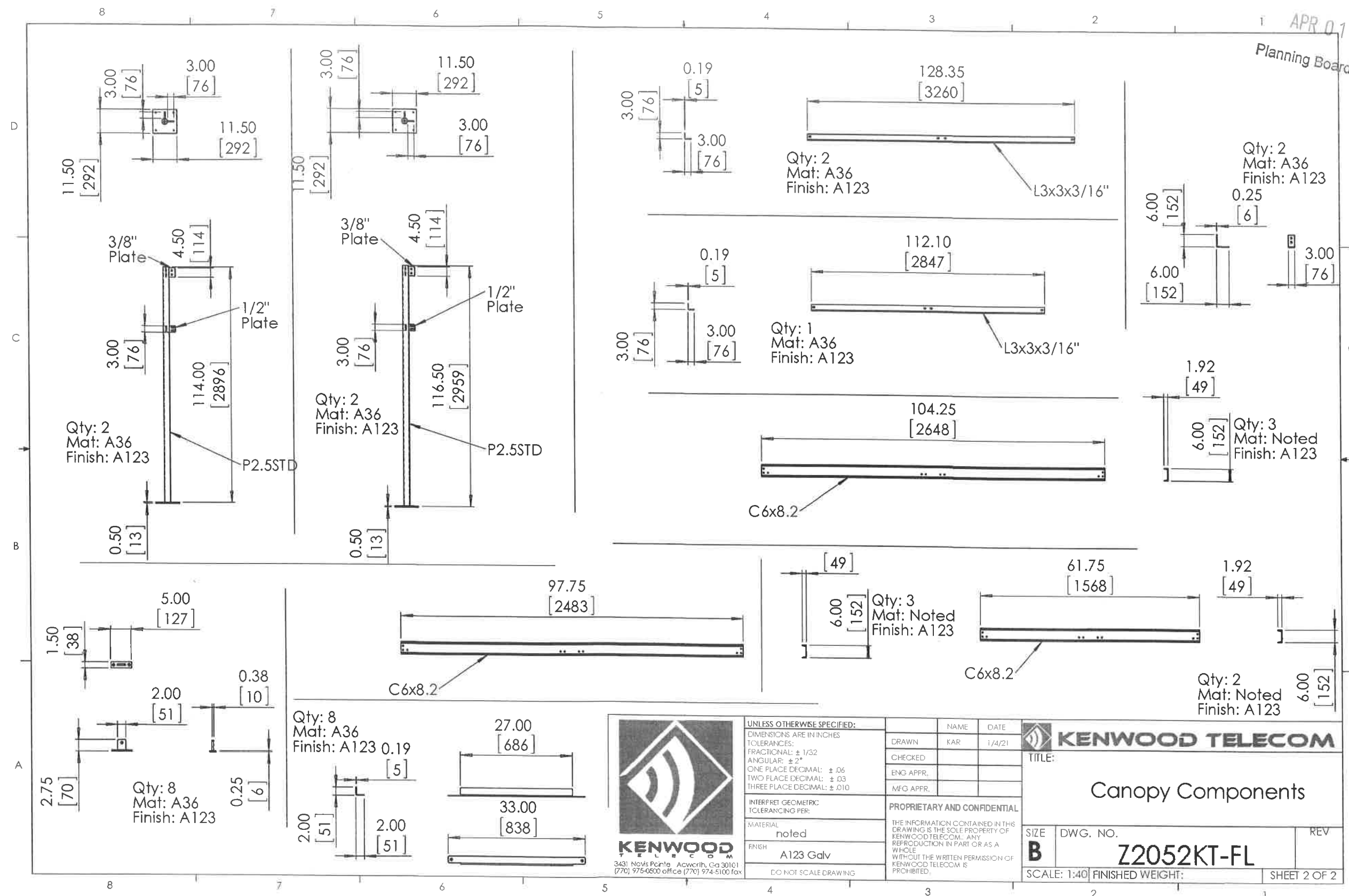
KENWOOD TELECOM			
TITLE:			
Equipment Platform, 10' x 15'			
Telescoping Legs			
Component diagram			
SIZE	DWG. NO.	REV	
	T1527K10X15 Comp		
SCALE: 1:10	FINISHED WEIGHT:	SHEET 1 OF 1	

Reference Material
APR 01 2021
Planning Board Meeting

Reference Material

APR 01 2021

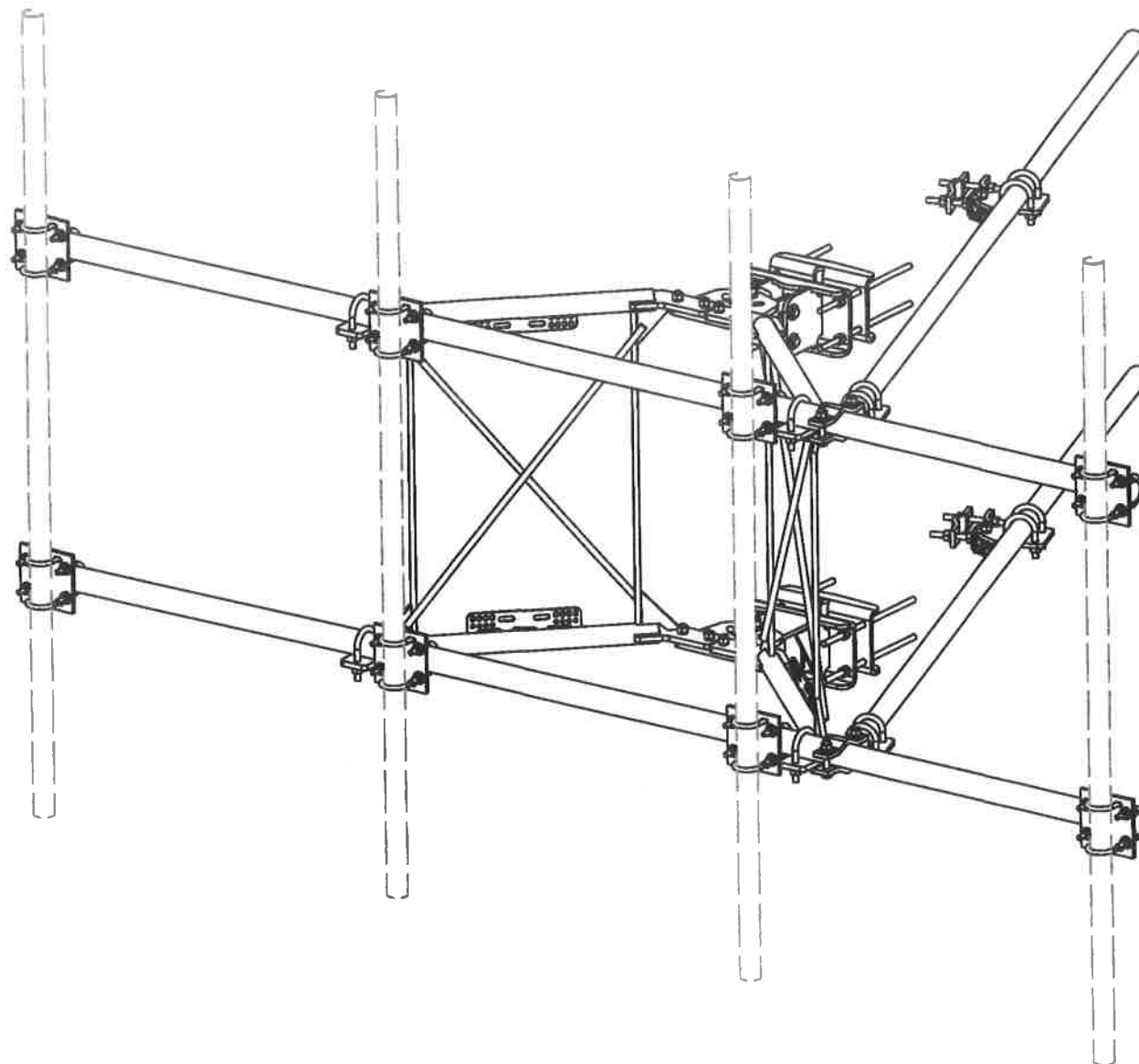
Planning Board Meeting



KENWOOD
3431 Novis Pointe, Acworth, GA 30101
(770) 975-0800 office (770) 974-5100 fax

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	KAR 1/4/21
TOLERANCES:		CHECKED	
FRACTIONAL: ± 1/32		ENG APPR.	
ANGULAR: ± 2°		MFG APPR.	
ONE PLACE DECIMAL: ± .06			
TWO PLACE DECIMAL: ± .03			
THREE PLACE DECIMAL: ± .010			
INTERPRET GEOMETRIC TOLERANCING PER:		PROPRIETARY AND CONFIDENTIAL	
MATERIAL		THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF KENWOOD TELECOM. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF KENWOOD TELECOM IS PROHIBITED.	
noted			
FINISH			
A123 Galv			
DO NOT SCALE DRAWING			

KENWOOD TELECOM			
TITLE:			
Canopy Components			
SIZE	DWG. NO.	REV	
B	Z2052KT-FL		
SCALE: 1:40		FINISHED WEIGHT:	
		SHEET 2 OF 2	



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFAW	SUPPORT ARM		71.41	142.81
2	1	X-HDCAMTBW	CLAMP WELDMENT FOR BCAM-HD		33.86	33.86
3	1	X-MHTPHD	MULTI-HOLE TAPER PLATE WELDMENT		36.24	36.24
4	2	X-VFAPL4	VFA-HD PIVOT PLATE	12 in	15.88	31.77
5	2	X-LCBP4	BENT BACKING PLATE	13 in	20.04	40.09
6	1	X-HDCAMSS	ANGLE ADJUSTMENT WELDMENT FOR BCAM-HD		16.39	16.39
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	1	X-HDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM-HD		2.58	2.58
9	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
10	8	SCX2	CROSSOVER PLATE	7 in	4.80	38.37
11	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
12	8	DCP	1/2" THICK, 5-3/4" CNTER TO CENTER CLAMP HALF	8 1/8 in	2.36	18.90
13	2	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	81.50
14	2	P30150	2-7/8" X 150" (2-1/2" SCH. 40) GALVANIZED PIPE	150 in	76.94	153.87
15	4	A34212	3/4" x 2-1/2" UNC HEX BOLT (A325)	2 1/2 in	0.48	1.92
16	4	G34FW	3/4" HDG USS FLATWASHER		0.06	0.24
17	4	G34LW	3/4" HDG LOCKWASHER		0.04	0.17
18	4	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.85
19	8	G58R-18	5/8" x 18" THREADED ROD (HDG.)		1.57	12.54
20	4	G58R-12	5/8" x 12" THREADED ROD (HDG.)		1.05	4.18
21	4	G58R-8	5/8" x 8" THREADED ROD (HDG.)		0.70	2.79
22	4	X-UB5300	5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.)		1.15	4.60
23	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
24	2	G5807	5/8" x 7" HDG HEX BOLT GR5 FULL THREAD	7 in	0.70	1.41
25	1	G5806	5/8" x 6" HDG HEX BOLT GR5 FULL THREAD	6 in	0.62	0.62
26	8	G5804	5/8" x 4" HDG HEX BOLT GR5		0.44	3.55
27	4	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.08
28	8	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	2.50
29	25	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.76
30	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
31	71	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	9.22
32	32	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	23.64
33	16	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.60	9.56
34	64	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.18
35	64	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.89
36	64	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	4.58
TOTAL WT. #						740.26

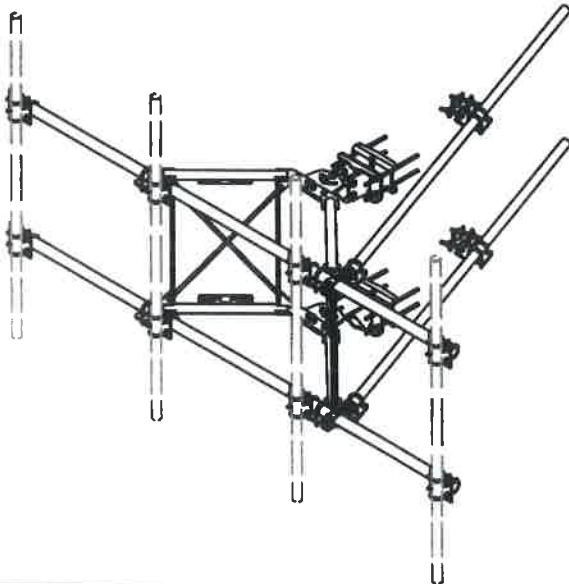
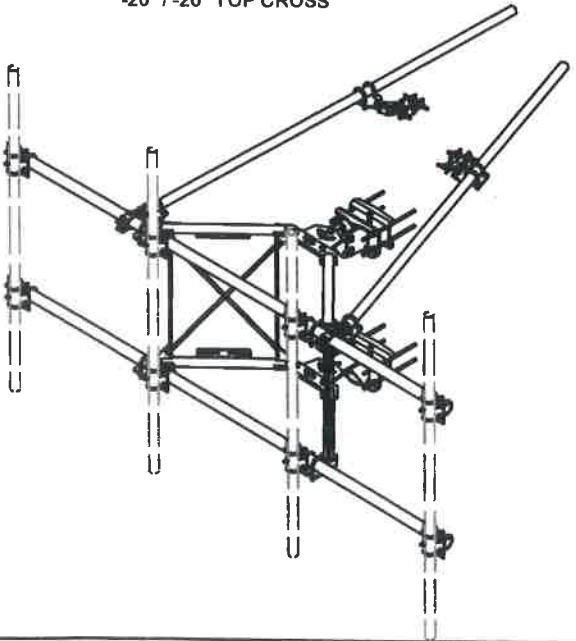
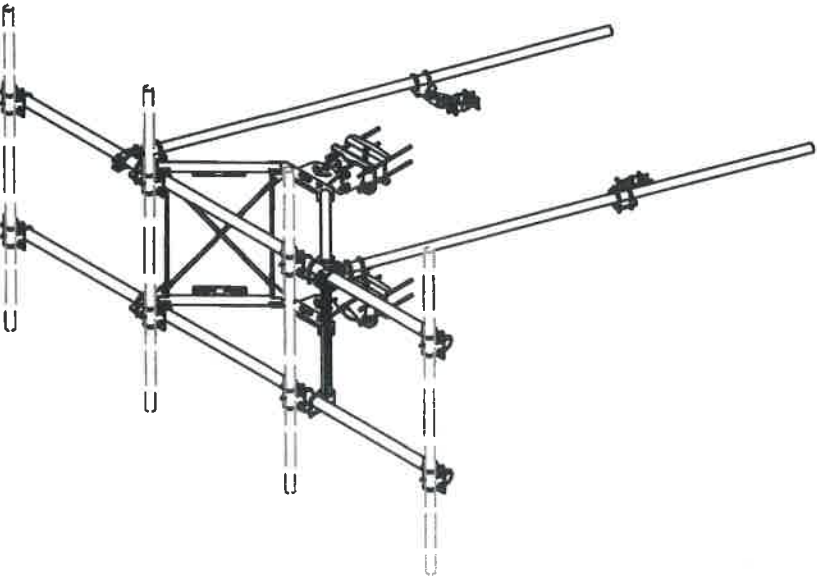
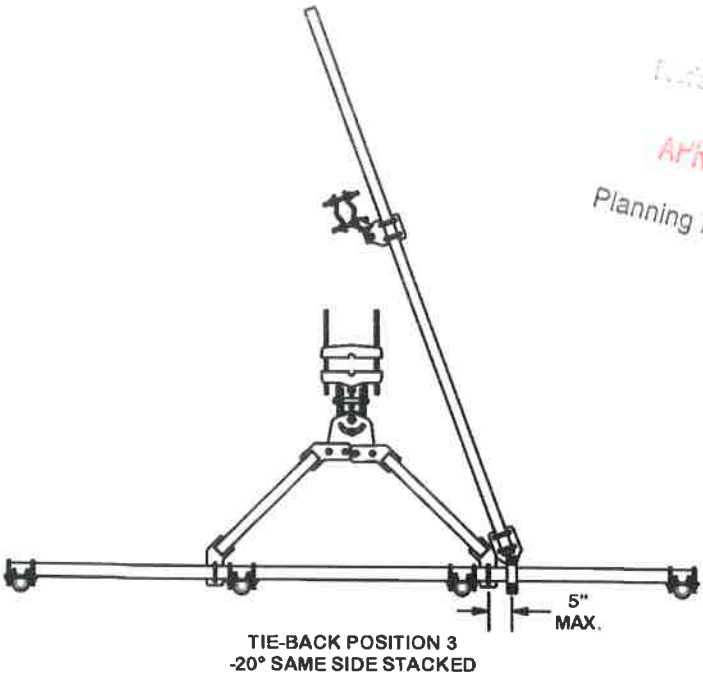
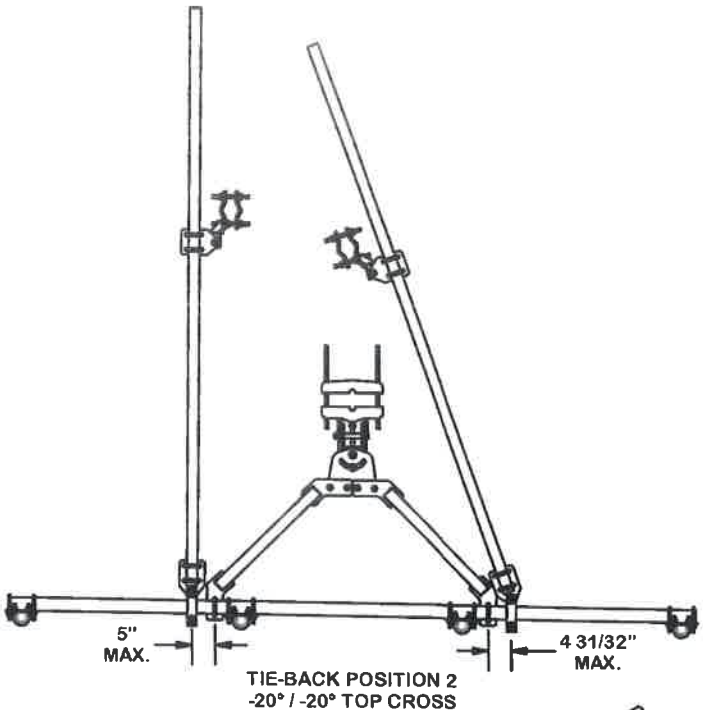
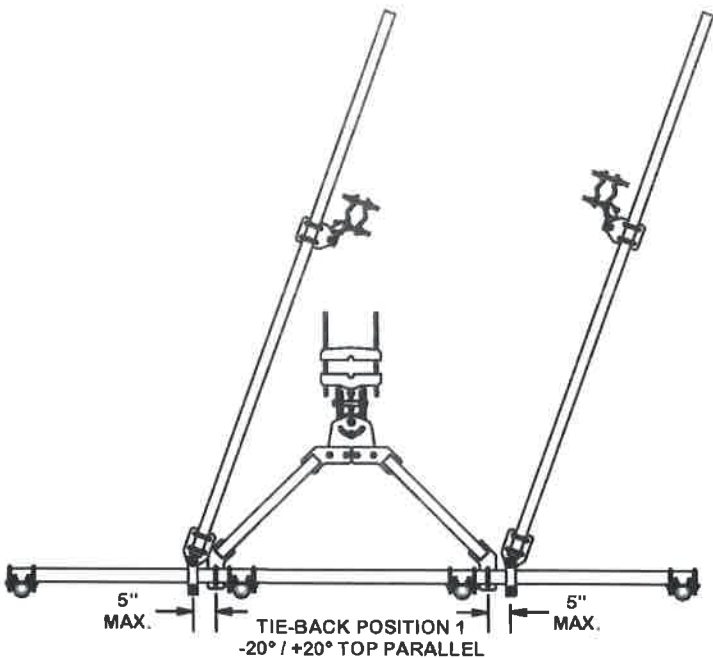
Reference Material

APR 01 2021

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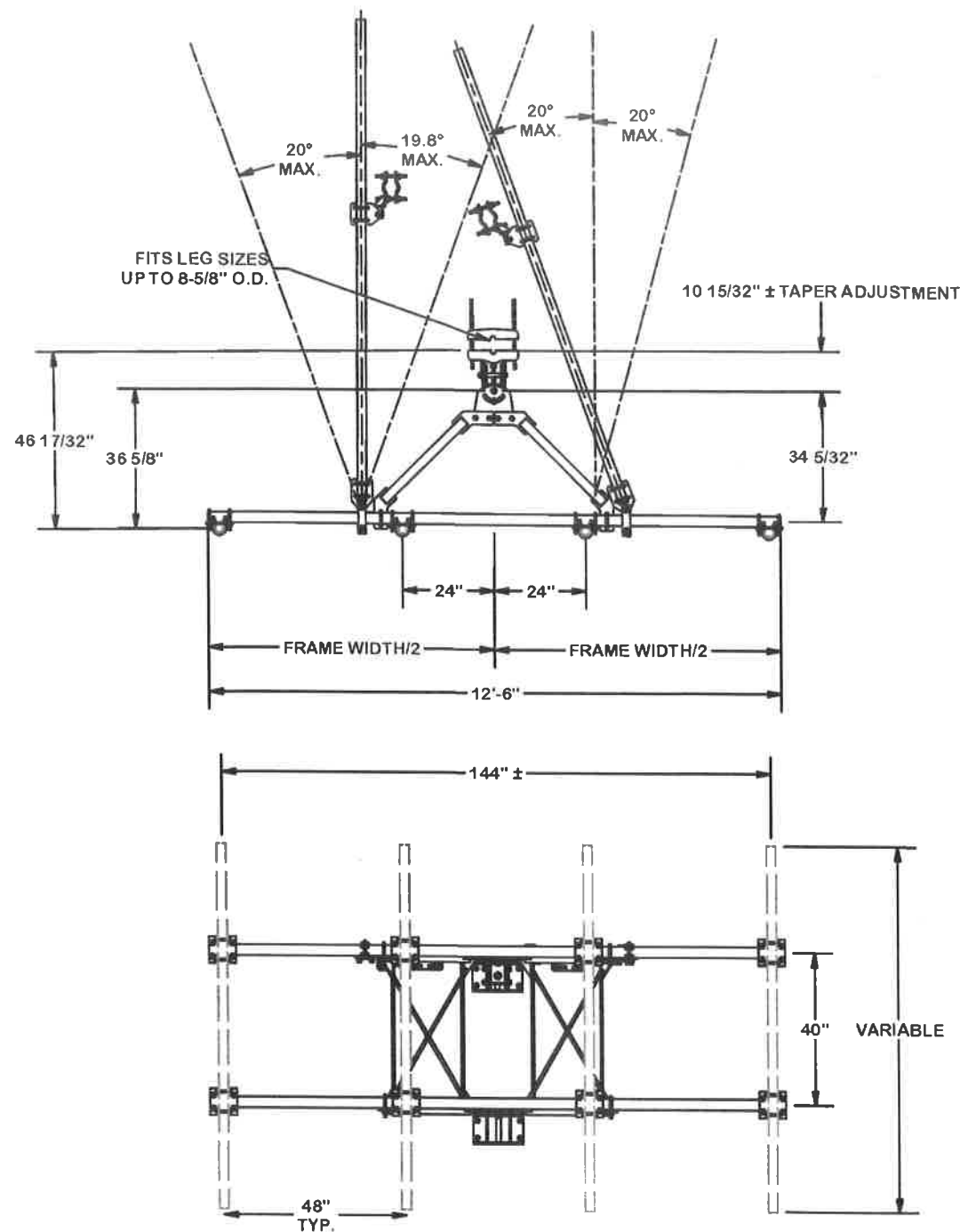
					TOLERANCE NOTES TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES (± 0.030") DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES BENDS ARE ± 1/2 DEGREE ALL OTHER MACHINING (± 0.030") ALL OTHER ASSEMBLY (± 0.060") PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.					DESCRIPTION 12' 6" HEAVY DUTY V-FRAME ASSEMBLY WITH TWO STIFF ARMS					SITE PRO 1 A valmont COMPANY Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX Engineering Support Team: 1-888-753-7446				
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2			CEK	6/29/2018		CPD NO.	DRAWN BY CEK 1/25/2017		ENG. APPROVAL		PART NO. VFA12-HD		1 OF 5 PAGE					
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION			CEK	12/7/2017														
B	CHANGED TIE-BACK BACK CONNECTION			CEK	7/31/2017														
A	CHANGED TIE-BACK FRONT CONNECTION			CEK	2/2/2017														
REV	DESCRIPTION OF REVISIONS			CPD	BY	DATE	CLASS	SUB	DRAWING USAGE		CHECKED BY		DWG. NO.						
REVISION HISTORY										81	02	CUSTOMER		BMC 12/13/2017	VFA12-HD				

TIE-BACK POSITIONS



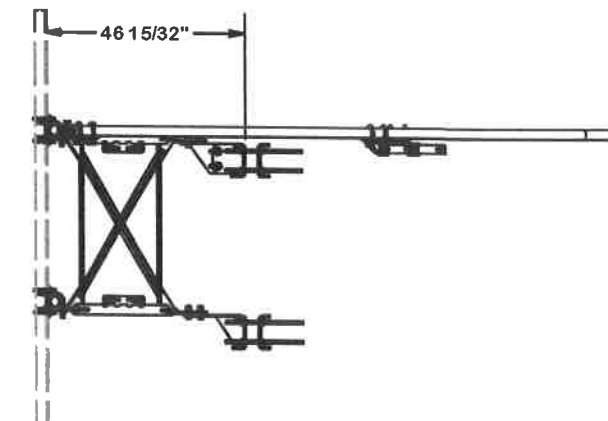
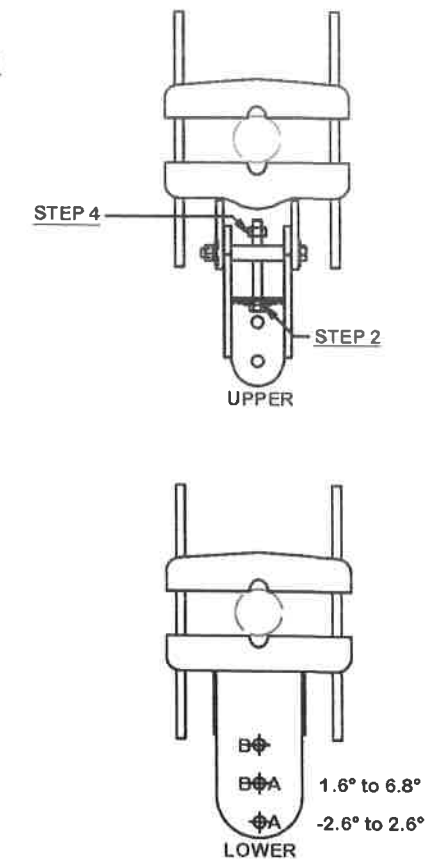
Reference Material
APR 01 2021
Planning Board Meeting

				TOLERANCE NOTES TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030''$) DRILLED AND GAS CUT HOLES ($\pm 0.030''$) - NO CONING OF HOLES LASER CUT EDGES AND HOLES ($\pm 0.010''$) - NO CONING OF HOLES BENDS ARE $\pm 1/2$ DEGREE ALL OTHER MACHINING ($\pm 0.030''$) ALL OTHER ASSEMBLY ($\pm 0.000''$) PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.				DESCRIPTION 12' 6" HEAVY DUTY V-FRAME ASSEMBLY WITH TWO STIFF ARMS CPD NO. DRAWN BY CEK 1/25/2017 ENG. APPROVAL CLASS 81 SUB 02 DRAWING USAGE CUSTOMER CHECKED BY BMC 12/13/2017				SITE PRO 1 A valmont COMPANY Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX Engineering Support Team: 1-888-753-7446 PART NO. VFA12-HD DWG. NO. VFA12-HD				PAGE 2 OF 5	
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2			CEK	6/29/2018												
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION			CEK	12/7/2017												
B	CHANGED TIE-BACK BACK CONNECTION			CEK	7/31/2017												
A	CHANGED TIE-BACK FRONT CONNECTION			CEK	2/2/2017												
REV	DESCRIPTION OF REVISIONS			CPD	BY	DATE											
REVISION HISTORY																	



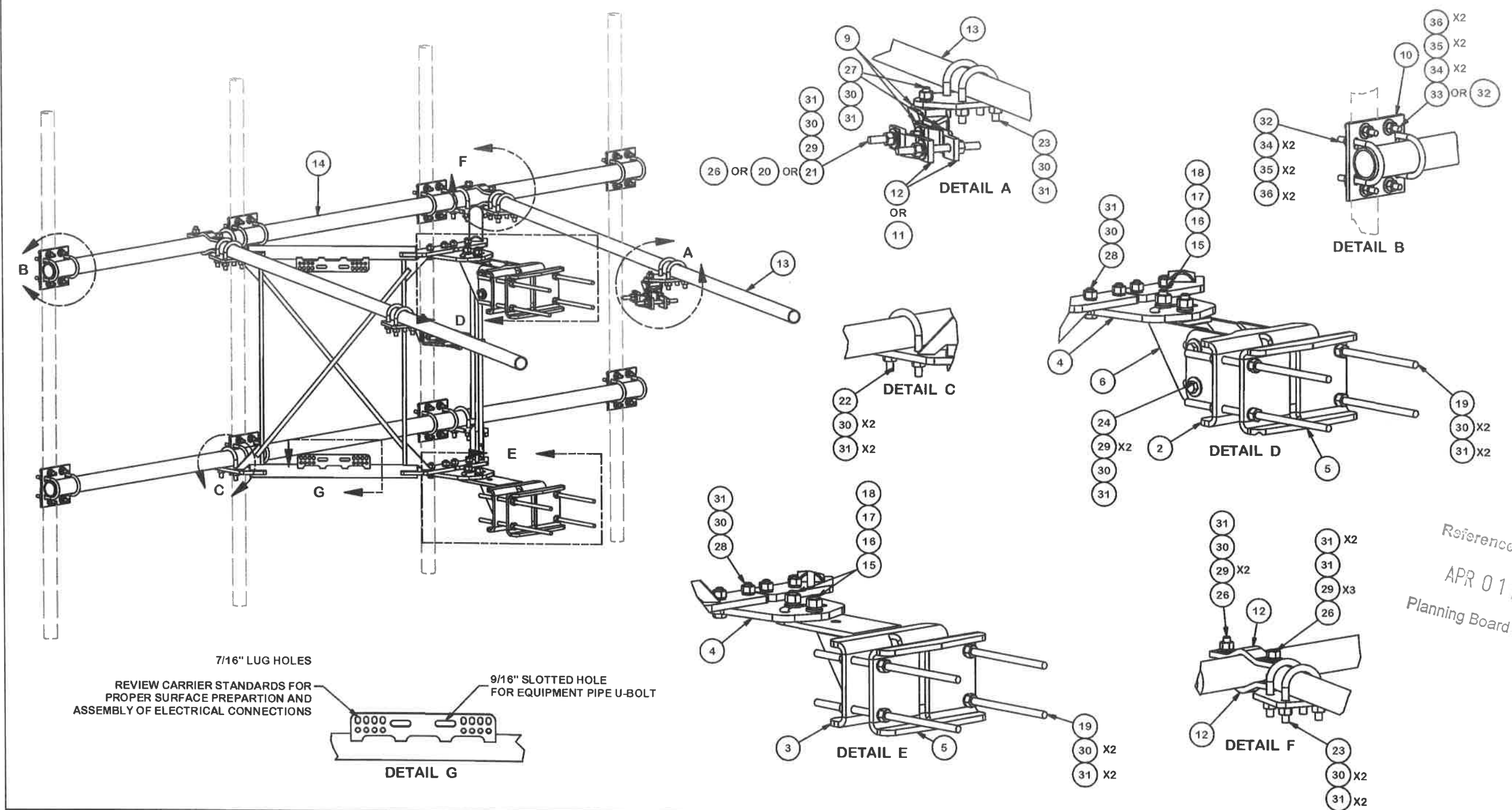
ANGLE CALIBRATING PROCEDURE:

1. MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:
 - HOLE A = -2.6° TO 2.6°
 - HOLE B = 1.6° TO 6.8°
2. USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER
3. TORQUE LOCKING BOLTS TO 100 ft.-lbs.
4. ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.



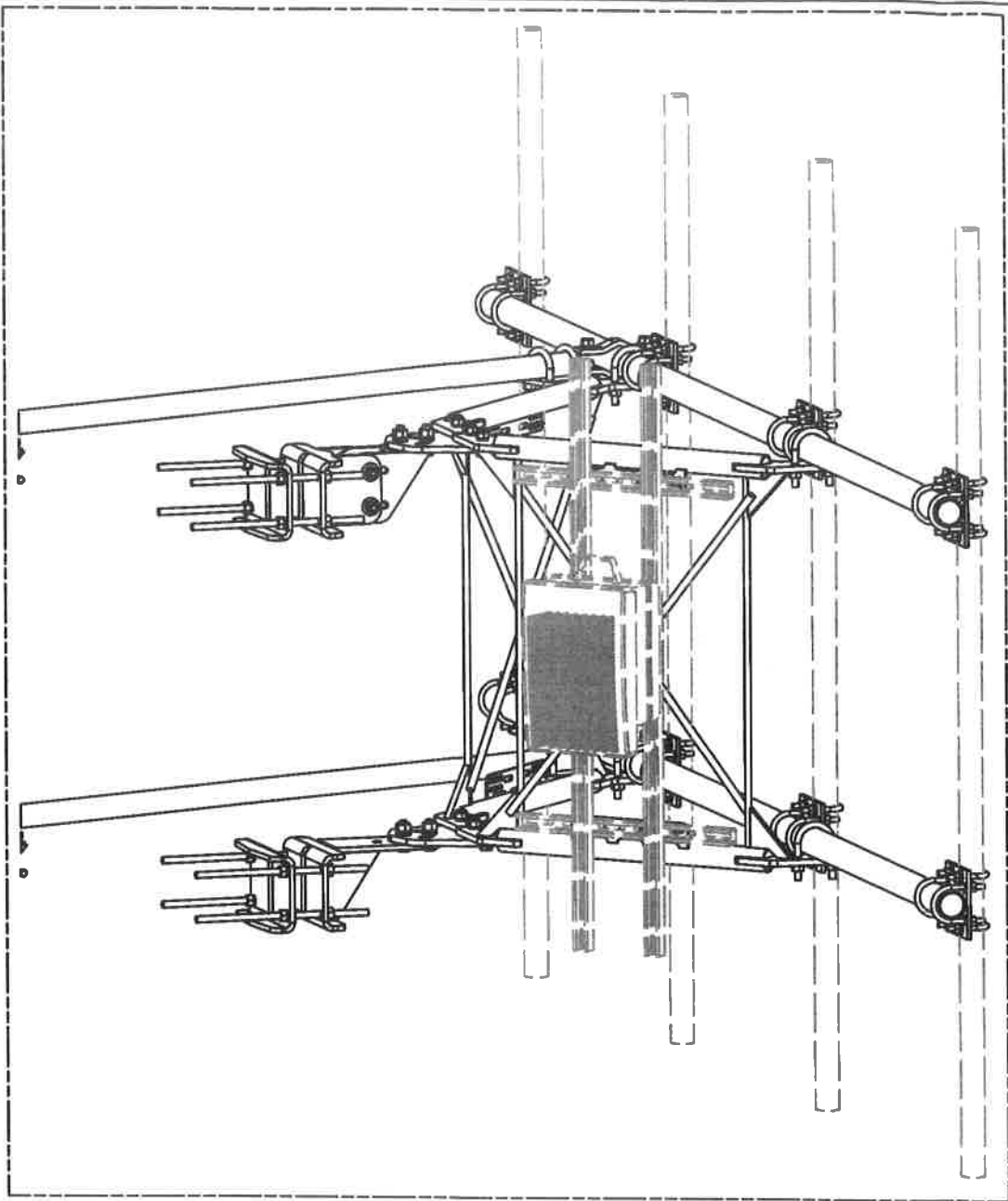
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APR 01 2021
Planning Board Meeting

REVISION HISTORY				TOLERANCE NOTES		DESCRIPTION			SITE PRO 1		Locations:	
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2	CEK	6/29/2018	TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$) DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES BENDS ARE $\pm 1/2$ DEGREE ALL OTHER MACHINING ($\pm 0.030"$) ALL OTHER ASSEMBLY ($\pm 0.000"$)		12' 6" HEAVY DUTY V-FRAME ASSEMBLY WITH TWO STIFF ARMS			Engineering Support Team: 1-888-753-7446		New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX	
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION	CEK	12/7/2017									
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A	CHANGED TIE-BACK FRONT CONNECTION	CEK	2/2/2017									
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							81	02	CUSTOMER	BMC 12/13/2017	VFA12-HD	VFA12-HD



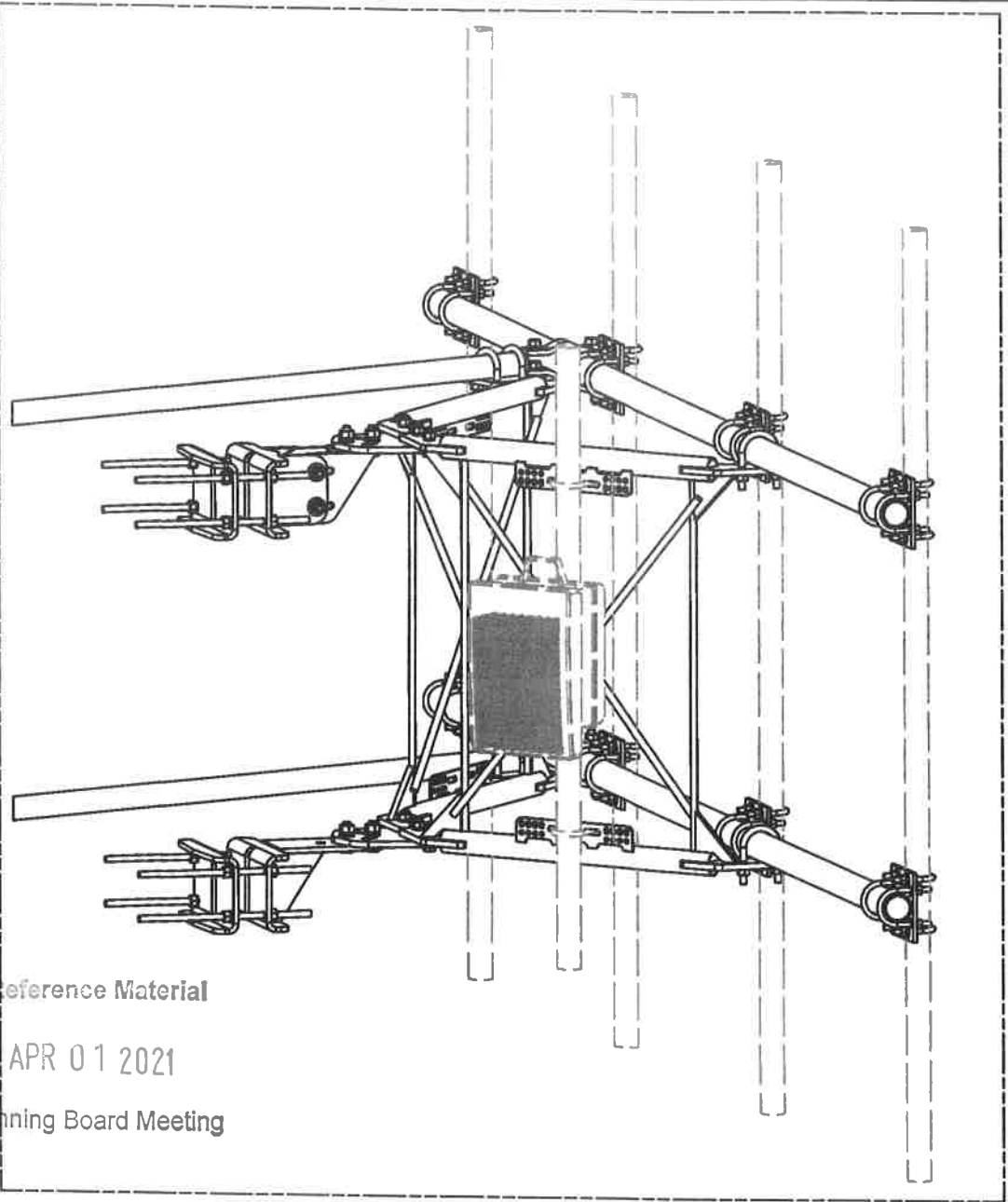
Reference Material
APR 01 2021
Planning Board Meeting

					TOLERANCE NOTES		DESCRIPTION 12' 6" HEAVY DUTY V-FRAME ASSEMBLY WITH TWO STIFF ARMS CPD NO. DRAWN BY CEK 1/25/2017 ENG. APPROVAL CLASS SUB DRAWING USAGE 81 02 CUSTOMER CHECKED BY BMC 12/13/2017			SITE PRO 1 A valmont COMPANY Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX Engineering Support Team: 1-888-753-7446		PART NO. VFA12-HD		4 OF 5
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REV	DESCRIPTION OF REVISIONS			CPD	BY	DATE								
REVISION HISTORY														



UNISTRUT AND HARDWARE
SOLD SEPARATELY.

REQUIRES 3/8" HARDWARE



Reference Material

APR 01 2021
Planning Board Meeting

EQUIPMENT PIPE AND HARDWARE
SOLD SEPARATELY.

REQUIRES 1/2" HARDWARE
AND 2-3/8" TO 4-1/2" O.D. PIPE

REVISION HISTORY					TOLERANCE NOTES		DESCRIPTION			SITE PRO 1		Locations:	
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK	6/29/2018	TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$) DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES BENDS ARE $\pm 1/2$ DEGREE ALL OTHER MACHINING ($\pm 0.030"$) ALL OTHER ASSEMBLY ($\pm 0.060"$)		12' 6" HEAVY DUTY V-FRAME ASSEMBLY WITH TWO STIFF ARMS			Engineering Support Team: 1-888-753-7446		New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX	
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							CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.		
							81	02	CUSTOMER	BMC 12/13/2017		VFA12-HD	PAGE 5 OF 5

March 22, 2021

Town of Austerlitz
Attn. Secretary/Chair of the Planning Board
PO Box 238
Spencertown, NY 12165

RE: Application for Subdivision/Lot Line Adjustment; Lands n/f Vieni, Vieni and Baker Trustees L845 P204; Tax Parcel 87.00-2-6.

Dear Secretary/Chair of the Planning Board:

In accordance with Chapter 167 Subdivision of Land §167-6 and §167-7 the Vieni, Vieni and Baker Trustees are applying for approval of a Lot Line Adjustment on L 845 P 204 tax parcel 87.00-2-6.

A discrepancy in boundaries was identified in a recent survey by Robert J. Ihlenburg Land Surveyor dated June 25, 2020. The lands of Michael Tessitore as described in deed 737 page 242 are not all of the lands being occupied by Michael Tessitore. The 150 wide parcel currently occupied is shown on a map for Charles Vieni prepared by Frank Ambrosio and dated January 9, 1989. The residence shown existed at that time.

Enclosed for your review are five (5) copies of a Sketch Plan of the proposed lot line adjustments that includes existing boundary lines with proposed adjustments with approximate dimensions.

By way of this letter we are requesting to be added to the Agenda for the upcoming April 1, 2021 Planning Board meeting.

Thank you for your attention to this matter, if you should require any additional information please feel free to contact me at vienidavid@gmail.com or 518-461-9895.

Regards,



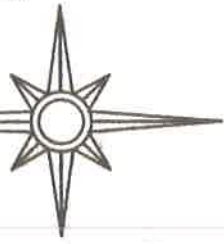
David J. Vieni

Enc. (5)

C:
Co. Vieni
B. Vieni
Ch. Vieni
N. Baker
M. Tessitore

Reference Material
APR 01 2021
Planning Board Meeting

MAP NORTH



NOTES:

- 1) This map was prepared from an accurate field survey. The property lines shown are established from deeds of record and existing monuments as indicated.
- 2) This property is subject to easements and rights of way of record. Where a property line runs along the center of a highway the presumption is that the center of the pavement is the center of the road right of way. Where the property line does not reach the road center line any interest in and to the road center is intended to be conveyed (if any).
- 3) Sub-surface structures not visible or readily apparent are not shown and their location and extent are not certified.
- 4) Where fence lines and/or stone wall lines shown do not correspond with the property line the ownership boundary may not coincide with the property line.
- 5) All bearings have been rounded to the nearest 5 seconds of arc. Any variation from the true bearing is insignificant in its relation and/or at its ground location.

Reference Material
APR 01 2021
Planning Board Meeting

Proposed Boundary Line Adjustment

Area: 5.536 acres
(vacant land)

lands n/1 Timothy Smith
tax parcel 87.00-2-5
see the map 00-50

lands n/1 Vieni, Vieni and Baker Trustees
tax parcel 87.00-2-6

lands occupied by Michael Tessitore
as shown on F. Amoroso map 1998
tax parcel 87.00-2-3

lands occupied by Michael Tessitore
by deed 737 page 242

original line Michael Tessitore by deed 737 page 242

lands occupied by Michael Tessitore
original area of Michael Tessitore by deed 737 page 242

KEY
-F- Fence line
-W- stone wall line
-U- utility line
-T- tree line
-R- road center line
-P- property line
-S- survey line
-M- map line

lands n/1 Vieni, Vieni and Baker Trustees
tax parcel 87.00-2-6

lands occupied by Michael Tessitore
as shown on F. Amoroso map 1998
tax parcel 87.00-2-3

original line Michael Tessitore by deed 737 page 242

lands occupied by Michael Tessitore
original area of Michael Tessitore by deed 737 page 242

SURVEY MAP PREPARED FOR: CHARLES P. VIENI II, DAVID J. VIENI and NICOLE C. BAKER, Trustees	
TOWN OF AUSTERLITZ COUNTY OF COLUMBIA STATE OF NEW YORK	
deed 845 page 196 see deed book 312 page 570 tax parcel 87.00-2-4	
SURVEY INFORMATION BY: ROBERT J. MLENBURG, LAND SURVEYOR 137 SHARPTOWN ROAD STUYVESANT, NEW YORK 12173 (518) 828-7400 rjmlenb@att.net	
DATE MAY 11, 2020	SCALE: 1" = 60 FT.
MAP No. 87-00-2-4	SHEET 1 of 1

Preliminary
03/22/2021 8:26:07 PM

Disclaimer: This map is prepared from an accurate field survey. The property lines shown are established from deeds of record and existing monuments as indicated. This map is not a warranty of title. The surveyor does not warrant the accuracy of the map. The surveyor is not responsible for any errors or omissions. The surveyor is not responsible for any damages or losses. The surveyor is not responsible for any claims or lawsuits. The surveyor is not responsible for any actions or inactions. The surveyor is not responsible for any consequences or results. The surveyor is not responsible for any outcomes or effects. The surveyor is not responsible for any impacts or effects. The surveyor is not responsible for any changes or modifications. The surveyor is not responsible for any updates or revisions. The surveyor is not responsible for any deletions or removals. The surveyor is not responsible for any additions or insertions. The surveyor is not responsible for any alterations or changes. The surveyor is not responsible for any improvements or enhancements. The surveyor is not responsible for any upgrades or updates. The surveyor is not responsible for any replacements or substitutions. The surveyor is not responsible for any repairs or fixes. The surveyor is not responsible for any maintenance or upkeep. The surveyor is not responsible for any cleaning or tidying. The surveyor is not responsible for any painting or decorating. The surveyor is not responsible for any landscaping or gardening. The surveyor is not responsible for any plumbing or electrical work. The surveyor is not responsible for any carpentry or construction work. The surveyor is not responsible for any painting or decorating. The surveyor is not responsible for any landscaping or gardening. The surveyor is not responsible for any plumbing or electrical work. The surveyor is not responsible for any carpentry or construction work.



CONSULT YOUR LAWYER BEFORE SIGNING THIS INSTRUMENT — THIS INSTRUMENT SHOULD BE USED BY LAWYERS ONLY

THIS INDENTURE, made on April 14, 2017
BETWEEN **CHARLES P. VIENI**, with a mailing address of P.O. Box 226, Claverack,
NY 12513

party of the first part, and

**CHARLES P. VIENI II, DAVID J. VIENI and NICOLE C. BAKER, as
Trustees of THE CHARLES AND MARY ANN VIENI TRUST, with a mailing address
of 148 North Hewlett Avenue, Merrick, NY 11566**

party of the second part,

WITNESSETH, that the party of the first part, in consideration of Ten Dollars and other valuable consideration paid by
the party of the second part, does hereby grant and release unto the party of the second part, the heirs or successors and
assigns of the party of the second part forever,

all of his interest in

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and
being in the

EXHIBIT A

Reference Material
APR 01 2021
Planning Board Meeting

TOGETHER with all right, title and interest, if any, of the party of the first part in and to any streets and roads abutting the
above described premises to the center lines thereof; TOGETHER with the appurtenances and all the estate and rights of
the party of the first part in and to said premises; TO HAVE AND TO HOLD the premises herein granted unto the party of
the second part, the heirs or successors and assigns of the party of the second part forever.

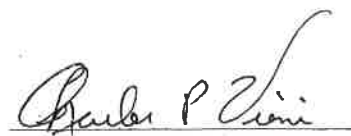
AND the party of the first part covenants that the party of the first part has not done or suffered anything whereby the said
premises have been encumbered in any way whatever, except as aforesaid.

AND the party of the first part, in compliance with Section 13 of the Lien Law, covenants that the party of the first part
will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be
applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost
of the improvement before using any part of the total of the same for any other purpose.

The word "party" shall be construed as if it read "parties" whenever the sense of this indenture so requires.

IN WITNESS WHEREOF, the party of the first part has duly executed this deed the day and year first above written.

IN PRESENCE OF:


CHARLES P. VIENI

State of New York, County of Columbia ss.:
On APRIL 14, 2019 before me, the undersigned,
personally appeared

Charles P. Vieni

personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

BRIAN J. HERMAN
NOTARY PUBLIC, State of New York
No. 02HE4873693

Qualified in Columbia County (insert city or political subdivision and state or country or other place acknowledgment taken)
Term Expires September 22, 2022

ACKNOWLEDGMENT OUTSIDE NEW YORK STATE (RPL 309-b)

State of _____ County of _____ ss.:
On _____ before me, the undersigned,
personally appeared

personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument, and that such individual made such appearance before the undersigned in

(insert city or political subdivision and state or county or other place acknowledgment taken)

(signature and office of individual taking acknowledgment)

Bargain and Sale Deed

WITH COVENANT AGAINST GRANTOR'S ACTS

Title No. _____

State of _____ } ss.:
County of _____ }

On _____ before me, the undersigned,
personally appeared

the subscribing witness(es) to the foregoing instrument, with whom I am personally acquainted, who, being by me duly sworn, did depose and say that he/she/they reside(s) in _____ (if the place of residence is in a city, include the street and street number, if any, thereof);

that he/she/they know(s)

to be the individual(s) described in and who executed the foregoing instrument; that said subscribing witness(es) was (were) present and saw said

execute the same; and that said witness(es) at the same time subscribed his/her/their name(s) as a witness(es) thereto.

☐ if taken outside New York State insert city or political subdivision and state or country or other place acknowledgment taken And that said subscribing witness(es) made such appearance before the undersigned in

)

(signature and office of individual taking acknowledgment)

SECTION **87**
BLOCK **2**
LOT **6**
COUNTY OR TOWN **Austerlitz**

Reference Material
APR 01 2021
Planning Board Meeting

CHARLES P. VIENI

TO

**CHARLES P. VIENI II, DAVID J. VIENI
AND NICOLE C. BAKER as Trustees of
THE CHARLES AND MARY ANN
VIENI TRUST**

RETURN BY MAIL TO:

**CHARLES P. VIENI II
148 North Hewlett Avenue
Merrick, NY 11566**

EXHIBIT A

ALL that plot or parcel of land, lying in the Town of Austerlitz, County of Columbia, State of New York, more particularly described as follows:

BEGINNING at a point about 700 feet Westerly, from the junction of State Highway No. 203 and the Macedonia-Red Rock Road, at the division line between the land hereby conveyed and the land of Breitschuh, formerly Wharton; thence westerly adjoining the land of Breitschuh, as the fence (stone wall) now stands to a chestnut tree standing in the corner of the fence; thence northerly adjoining land of Breitschuh as the fence now stands to the north corner of said Breitschuh's land; thence westerly as the fence now stands to a corner of the fence adjoining said Breitschuh's land (formerly a cleared lot); thence northerly adjoining said Breitschuh's land (formerly a cleared lot); thence northerly adjoining said Breitschuh's land as the fence now stands to a corner of the fence near the house formerly of Russell W. Howes on the Macedonia-Red Rock Road; thence in an easterly and southern direction to the place of beginning; excluding from said plots small parcels on the southeast corner of said plot heretofore deeded to Joseph Vieni and Al. DellGrotaglia; containing in plot conveyed herein 55 acres, be the same more or less. Plot hereby conveyed is part of the land mentioned and described in Deed Book 308 Page 32; Book 312, Page 570 and 571; and Book 325, Page 305; and Mortgage Book 205, Page 472. Also Deed Book No. 284 p. 203.

SUBJECT TO easements for electricity and telephone wires.

BEING the same premises conveyed to Joseph Vieni by Deed of McDonough Development Corporation dated August 20, 1956 and recorded in the Columbia County Clerk's Office in Liber 326 of Deeds at Page 507.

That said Joseph Vieni died intestate a resident of the Town of Austerlitz, Columbia County, New York on March 14, 1961 leaving him surviving his spouse, Rose Vieni, and two children, Charles P. Vieni and Cosimo J. Vieni.

Said Rose Vieni having conveyed her interest in the above described premises to Charles P. Vieni and Cosimo J. Vieni by deed dated December 26, 1996 and Recorded in the Columbia County Clerk's Office in Cartridge 287 of Land Records at Frame 338.

Reference Material
APR 01 2021
Planning Board Meeting