STAFF REPORT FOR PLANNING COMMISSION MEETING OF FEBRUARY 28, 2024

FILE NO: LU-2024-0011 **AGENDA ITEM: 6.C**

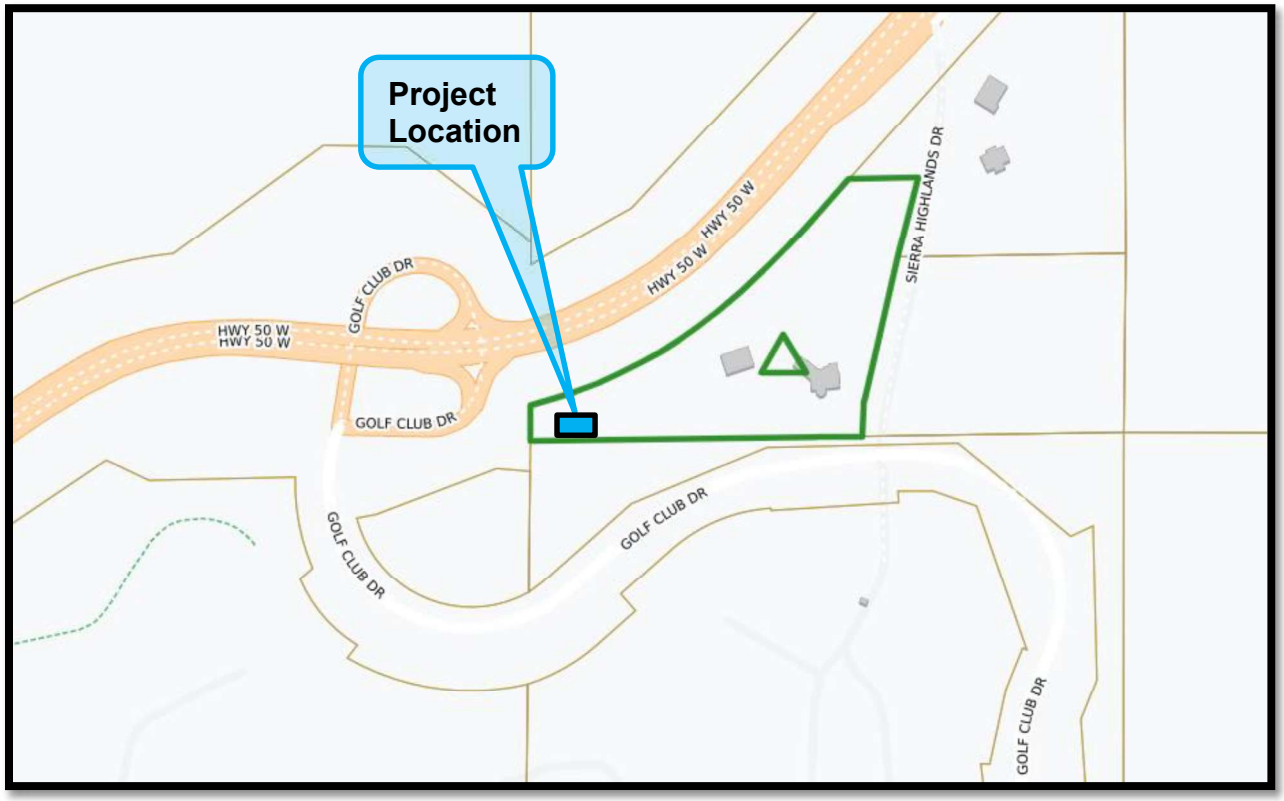
STAFF CONTACT: Heather Manzo, Associate Planner

AGENDA TITLE: For Possible Action: Discussion and possible action regarding a request for a special use permit ("SUP") to allow for collocation of wireless facilities on an existing stealth monopine communication tower on a property zoned Single Family 5 Acres ("SF5A"), located at 5364 Sierra Highlands Drive, Assessor's Parcel Number ("APN") 007-051-66. (Heather Manzo, hmanzo@carson.org)

Staff Summary: T-Mobile West LLC by Crown Castle USA Inc. ("Applicant") is proposing to collocate facilities at an existing ±98-foot tall stealth monopine communications facility site. The proposal includes the removal and relocation of existing antenna and equipment as well as installation of new antennas and associated ground equipment within the existing footprint of the lease area. This proposal will not result in an increase to the monopole height. Per Carson City Municipal Code ("CCMC") Chapter 18.15, wireless communication facilities, including collocated facilities, are not permitted within residential zoning districts without first obtaining approval of an SUP. The Planning Commission is authorized to approve the SUP.

PROPOSED MOTION: "I move to approve special use permit LU-2024-0011, based on the ability to make all findings and subject to the conditions of approval contained in the staff report."

VICINITY MAP:



RECOMMENDED CONDITIONS OF APPROVAL:

1. The applicant must sign and return the notice of decision for conditions for approval within 10 days of receipt of notification. If the notice of decision is not signed and returned within 10 days, then the item may be rescheduled for the next Planning Commission meeting for further consideration.

2. All development shall be substantially in accordance with the development plans approved with this application, except as otherwise modified by these conditions of approval.

3. All on- and off-site improvements shall conform to City standards and requirements.

4. The applicant shall meet all the conditions of approval and commence the use for which this permit is granted, within 12 months of the date of final approval. A single, one-year extension of time may be granted if requested in writing to the Planning Division of the Carson City Community Development Department ("Planning Division") at least 30 days prior to the one-year expiration date. Should this permit not be initiated within one-year, and no extension granted, the permit shall become null and void.

5. The applicant shall submit a copy of the signed notice of decision, conditions of approval, and explanation of how the request addresses each condition with the building permit application.

6. Construction shall be limited to between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and between 7:00 a.m. and 5:00 p.m. on Saturdays. Construction activities on Sunday shall be prohibited. A note to this effect shall be placed on the building permit plans.

7. At least 10 days prior to the commencement of construction, the applicant shall provide written notification to the owner of 5364 Sierra Highlands Drive. At a minimum, the notice shall include the anticipated construction timeline. Should the construction timeline be extended, the applicant shall notify the property owner of the new anticipated completion date. The applicant shall send the notification(s) to the Carson City Community Development Department with a reference to Case No. LU-2024-0011.

8. On-site lighting of the ground facility shall only be turned on during maintenance visits to the site. Lights must be recessed or shielded with a 90-degree full cutoff so that light is projected downward and not horizontally or upward. Light sources or refractors shall not extend below the bottom of the shield.

9. Prior to the issuance of a permit, the applicant shall demonstrate that all new ground-mounted equipment shall be painted in a manner that is consistent with the existing equipment. Any observed damage to the existing screen fence shall be repaired as part of the construction of this project.

10. Prior to the issuance of a permit, the applicant shall demonstrate that 24-hour emergency contact information is posted at the site or that a sign with this information will be installed with the construction of this project.

LEGAL REQUIREMENTS: CCMC 18.02.080 (Special Use Permits), 18.04.040 (Permitted Uses within the Single Family 5 Acre (SF5A) zoning district), 18.15 (Communication Facilities and

Equipment), and Development Standards Division 1 Land Use and Site Design at 1.9 (Wireless Telecommunication Facilities and Equipment).

MASTER PLAN DESIGNATION: Rural Residential (5-20 acres per dwelling unit)

PRESENT ZONING: Single Family-5 Acre

KEY ISSUES: Will the proposal be in keeping with all the standards of the Carson City Municipal Code?

SURROUNDING ZONING AND LAND USE INFORMATION
WEST: Conservation Reserve ("CR") / State of Nevada owned vacant land
EAST: SF5A / Single Family Residence and vacant parcel
NORTH: CR & Public Regional ("PR") / US HWY 50 West and vacant land
SOUTH: CR / State of Nevada owned vacant land

ENVIRONMENTAL INFORMATION
FLOOD ZONE: Zone D no special flood mitigation is required
EARTHQUAKE FAULT: Beyond 500 feet away which as a slip rate between 1 and 5 mm/year
SLOPE: The site has a slope of approximately 21%

SITE DEVELOPMENT INFORMATION
LOT SIZE: 5.51 acres (900 square foot ground leased area)
STRUCTURE SIZE/HEIGHT: Collocation of antennas and ancillary equipment to an existing 98-foot tall stealth monopole (monopine), within a 900 square foot lease area containing the stealth monopine pole and supporting equipment.
SETBACKS (in feet): Front = 100, Side = 50, Street Side = 50, Rear = 50
VARIANCES REQUESTED: None

PREVIOUS REVIEWS
- SUP-040-157 and VAR-04-158 – November 17, 2004, the Planning Commission approved the construction of a new stealth wireless communications facility and associated ground equipment. The request included a SUP for the establishment of the use within a residentially zoned property and a variance to allow for a reduction to the required rear yard setback.
- SUP-2021-0296 – October 27, 2021, the Planning Commission approved a SUP to collocate antenna and ancillary equipment on the existing communication tower. All permits were requested, and construction completed.

DISCUSSION:
CCMC Chapter 18.15 *Communication Facilities and Equipment* notes that wireless telecommunication facilities are prohibited in the SF5A residential zoning district except when a SUP for a proposed new facility or collocation at an existing facility is first approved by the Planning Commission.

It is worth noting that wireless telecommunication facilities are regulated by the Federal Telecommunications Act of 1996 which prohibits local governments from adopting ordinances that impose unreasonable barriers to the siting of towers/antennas and the provision of wireless service. Local governments cannot write regulations that would: 1) discriminate among providers of functionally equivalent services; 2) prohibit, or effectively prohibit, wireless service provisions; or 3) regulate personal wireless service facilities based on environmental effects of radio frequency emissions, assuming the facilities comply with the Federal Communications

Commission ("FCC") regulations related to radio frequency.

The Federal Telecommunications Act also requires local governments to review applications in a timely manner and sets timeframes for review and decision regarding such applications. Additionally, in the event an application is denied, the local government must include a written explanation for the denial, substantiated by evidence.

Local governments do have the ability to regulate telecommunication facilities to a certain extent. Regulations may include permitted locations and design elements of towers and antennas, setbacks and screening requirements, "stealth" design standards, and different standards for residential zones, historic districts, or environmentally sensitive areas.

The regulations for such facilities within the CCMC are based on the federal requirements, which are generally intended to facilitate the provision and expansion of the wireless service network nationwide while retaining zoning control at the local government level.

PUBLIC COMMENTS: On February 15, 2024, public notices were mailed to 36 adjacent property owners 7,000 feet of the subject site. As of the writing of this report staff has not received any comments regarding the request. Any comments that are received after this report is completed will be submitted to the Planning Commission prior to or at the February 28, 2024, meeting, depending on the date of submission of the comments to the Planning Division.

OTHER CITY DEPARTMENTS OR OUTSIDE AGENCY COMMENTS: The following comments were received by various City departments. Recommendations have been incorporated into the recommended conditions of approval, where applicable.

Carson City Development Engineering Division:
The Carson City Public Works Department, Development Engineering Division ("Development Engineering") has no preference or objection to the special use request and offers no conditions of approval.

Development Engineering has reviewed the application within our areas of purview relative to adopted standards and practices and to the provisions of CCMC 18.02.080, Conditional Uses. Development Engineering offers the following discussion:

CCMC 18.02.080(5)(a) - Master Plan
The request is not in conflict with any Master Plan elements.

CCMC 18.02.080(5)(b) – Use, Peaceful Enjoyment, Economic Value, Compatibility
Development Engineering has no comment on this finding.

CCMC 18.02.080(5)(c) - Traffic/Pedestrians
The request will have no impact on pedestrian and vehicular traffic.

CCMC 18.02.080(5)(d) - Public Services
The request will have no impact on City water, sewer or storm drain facilities.

CCMC 18.02.080(5)(e) – Title 18 Standards
Development Engineering has no comment on this finding.

CCMC 18.02.080(5)(f) – Public health, Safety, Convenience, and Welfare

The project meets will meet engineering standards for health and safety.

Earthquake faults: The structure is existing and there are no known earthquake fault lines within 200 feet of the project.
Federal Emergency Management Agency ("FEMA") flood zones: The project is within a FEMA D flood zone, so no special construction requirements or mitigations are required.
Site slope and soils: The tower is existing, so site slope and soils have no impact on this project.
Federal Aviation Administration ("FAA") compliance: The tower is existing, and no height is being added.

CCMC 18.02.080(5)(g) – Material Damage or Prejudice to Other Property
Development Engineering has no comment on this finding.

CCMC 18.02.080(5)(h) – Adequate Information
The plans and reports provided were adequate for this analysis.

FINDINGS: The staff recommendation is based upon the findings as required by CCMC 18.02.080 (Special Use Permits) enumerated below and substantiated in the public record for the project.

1. *Will be consistent with the master plan elements*.

The proposed collocation on an existing facility supports cellular coverage, a service provided universally to residents, the traveling public, tourists, and businesses. Goal 1.5 of the Master Plan calls for the City to cooperate and coordinate services for infrastructure, schools, etc. The proposed project is also consistent with Goal 3.2, Protect Visual Resources, Issue 3.2c, Communication Facilities and Equipment. The proposed equipment will be located in a manner where the antennas are screened by monopine limbs and the ground mounted equipment will be stored within the existing screened enclosure.

2. Will not be detrimental to the use, peaceful enjoyment, economic value, or development of surrounding properties or the general neighborhood; and will cause no objectionable noise, vibrations, fumes, odors, dust, glare or physical activity.

Since the proposal is to collocate equipment within an existing facility, the proposed project, as designed and conditioned, will not be detrimental to the use, peaceful enjoyment, economic value, or development of surrounding properties or the general neighborhood. The project will not cause objectionable noise, vibrations, fumes, odors, dust, glare or physical activity. The ground mounted portions of the facility will be screened from view. Once construction is complete, the site will function very similarly to how it operates today. In order to reduce possible negative impacts of the use for nearby residents that relate to noise, light and physical activity, conditions are recommended to limit the construction hours and to limit lighting for the telecommunications facility lease area.

Conditions are recommended to limit the construction hours and to provide the owner of the residence with notification prior to the commencement of construction activity since the site is located on a single-family residential lot.

3. Will have little or no detrimental effect on vehicular or pedestrian traffic.

Once the equipment is installed, traffic to the site will be related to maintenance of the equipment

and facility. The facility is accessed from existing easements and a long-term land lease is in effect. The proposal will not have an impact on vehicular or pedestrian traffic.

4. Will not overburden existing public services and facilities, including schools, police and fire protection, water, sanitary sewer, public roads, storm drainage, and other public improvements.

The facility will be un-manned and therefore will not require the extension or expansion of any public services and facilities. The existing services and facilities are adequate in the area to accommodate the proposed facility.

5. Meets the definition and specific standards set forth elsewhere in this title for such particular use and meets the purpose statement of that district.

The project will meet the definition and specific standards set forth in Title 18. Pursuant to CCMC 18.04.040, the SF5A zoning district is intended to provide for low-density residential development on large lots which convey a rural environment. Pursuant to CCMC 18.15.025, the Applicant is requesting approval of a SUP to remove, replace and add additional wireless telecommunication antenna and equipment on an existing site with a stealth monopine tower.

Division 1.9 of Carson City Development Standards must also be met. A majority of the standards set forth in Division 1.9 were met when the original facility was constructed. Since the request is to collocate within an existing facility, the request will not result in a change to the structure height nor the size of the lease area. The applicant is proposing the antenna and pole-mounted equipment located in a manner where the branches and existing screen fence will mitigate the potential visual impacts normally associated with this type of use. The following summarizes the requested modifications and additions to the facility:

	Existing	Removing	Proposed	Final
Cabinets	4	2	1	3
Antennas	4	2	4	6
Radios/tower	2	0	4	6
Radios/ground	6	6	0	0

Division 1.9 requires that lighting only be provided when required by the FAA and that 24-hour emergency contact information be posted at the site. If emergency contact information is not currently posted at the site, a condition is recommended to require the applicant to post this information as part of this project.

6. Will not be detrimental to the public health, safety, convenience, and welfare.

The proposed collocated antennas and equipment will not be detrimental to the public health, safety, convenience and welfare, and will cause no adverse impacts to surrounding properties. The request will expand services available without the need for another individual monopole in the area. Per the Federal Telecommunications Act, it has been determined that electromagnetic waves emitted by or to such facilities are not a public health risk and may not be considered in reviewing an application.

7. Will not result in material damage or prejudice to other property in the vicinity.

As noted above, the impacts of the proposed facility, with the recommended conditions of approval, will be minimal and will not result in material damage or prejudice to other property in the vicinity as the proposal is to add new antenna and equipment to an established facility.

Attachment: Application and Supplemental Materials for LU-2024-0011

From: Heather Manzo
To: Stapleton, FraNita
Subject: RE: LU-2024-0011 (5364 Sierra Highland Drive)
Date: Wednesday, January 17, 2024 11:42:53 AM
Attachments: image001.png

Good Morning FraNita,

1. Yes you can pay online. I just sent out the invoice for your convenience. There is an additional 3% service fee for card payments. As an alternative, you can mail a check if that is your preference.
2. Yes, that would be perfect. Thank you.
3. Thank you.
4. This works great!
5. Yes, feel free to send me the package for review prior to print.
6. I recently heard that there is or was a plan to install a generator at this site. Is this still something that you are pursuing and is it included in your request? If it is part of the application, I will need information about the generator including its size and location, when it will operate, and the noise levels when working at max load.

Thank you,

Heather Manzo
Associate Planner
108 E. Proctor Street
Carson City, NV 89701
(775) 283-7075
hmanzo@carson.org

From: Stapleton, FraNita <franita.stapleton@crowncastle.com>
Sent: Wednesday, January 17, 2024 7:14 AM
To: Heather Manzo <HManzo@carson.org>
Subject: RE: LU-2024-0011 (5364 Sierra Highland Drive)

message contains attachments, links, or requests for information.

Hi Heather,

We have a few follow-up questions concerning the resubmittal.

1. Can I pay the fees online or call in the payment?
2. Will 2 views (4 total) photo sims be sufficient?
3. Engineering is working on plan view
4. Please confirm the attached is what is needed to satisfy this request. This is the inspection for the associated building project to SUP-2021-0296.
5. Can I send you the completed application prior to mailing the 15 copies to ensure we have everything required included?

Thank you for your assistance -

Thank you,

FRANITA STAPLETON
Site Acquisition Specialist
Real Estate Services - Phoenix District
T: (602) 598-7252

CROWN CASTLE
2055 S. Stearman Dr., Chandler, AZ 85286
CrownCastle.com

From: Heather Manzo <HManzo@carson.org>
Sent: Tuesday, January 16, 2024 11:34 AM
To: Stapleton, FraNita <franita.stapleton@crowncastle.com>
Subject: LU-2024-0011 (5364 Sierra Highland Drive)

Good Morning Franita,

The above referenced special use permit (SUP) application has been deemed incomplete. Please provide the following items for the project no later than Tuesday, January 23, 2024 so the application can be deemed complete and scheduled for the February 28, 2024 Planning Commission meeting:

1. Please submit fees in the amount of $2,224.50.

2. Please provide a photo simulation of the existing vs. proposed stealth tower and tower equipment.
3. Please provide a plan view with diameter dimensions of the stealth tree limbs and of the proposed antennae and equipment to demonstrate standards are being met.
4. Please clarify whether the improvements and equipment associated with the approved project SUP-2021-0296 were installed.
5. Once the above items have been addressed, please provide **15 collated copies** of the complete application package and a USB with the complete application.

Sincerely,

Heather Manzo
Associate Planner
108 E. Proctor Street
Carson City, NV 89701
(775) 283-7075
hmanzo@carson.org

CARSON CITY
COMMUNITY DEVELOPMENT

From: noreply@mygovpay.com
To: Stapleton, FraNita
Subject: Payment Confirmation - Carson City, NV
Date: Wednesday, January 17, 2024 3:45:15 PM

Carson City, NV

Payment Confirmation

Payment Date	Wednesday, January 17, 2024
Order Number	38312

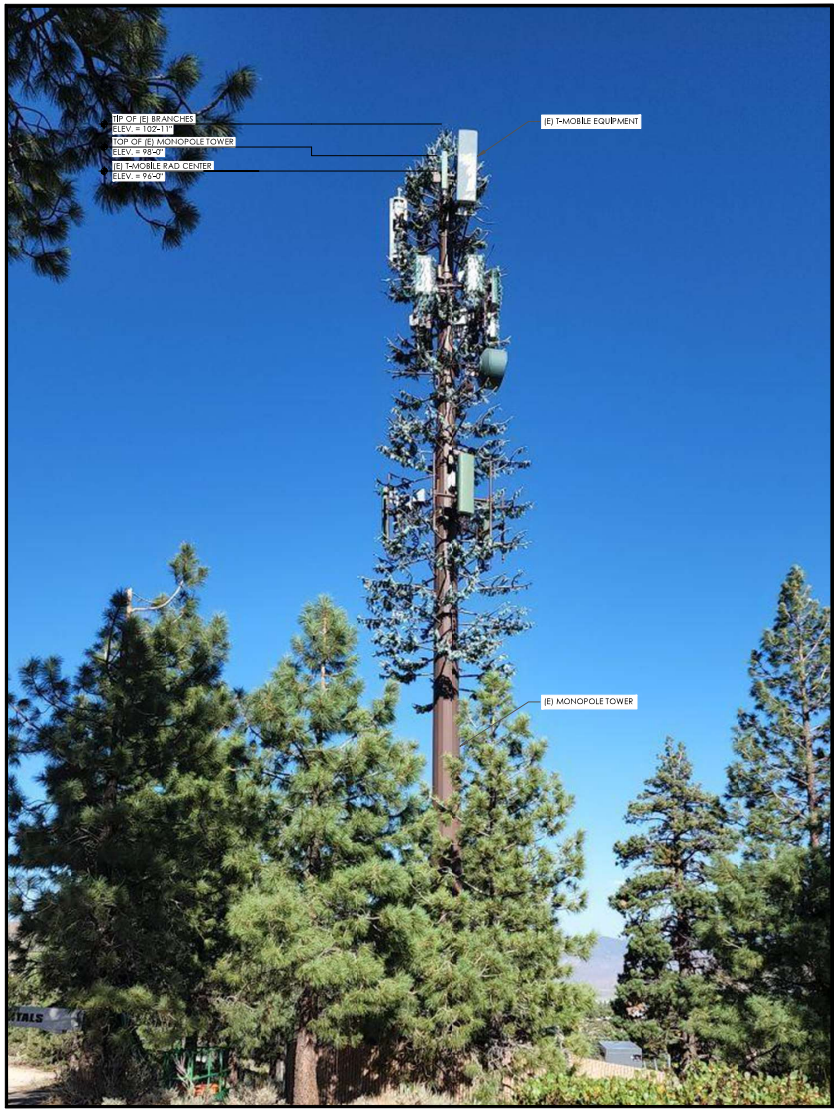
Line Items

Invoice #	Item Description	Quantity	Unit Price	Total Price
INV-00045997	NONE	1	$2,224.05	$2,224.05

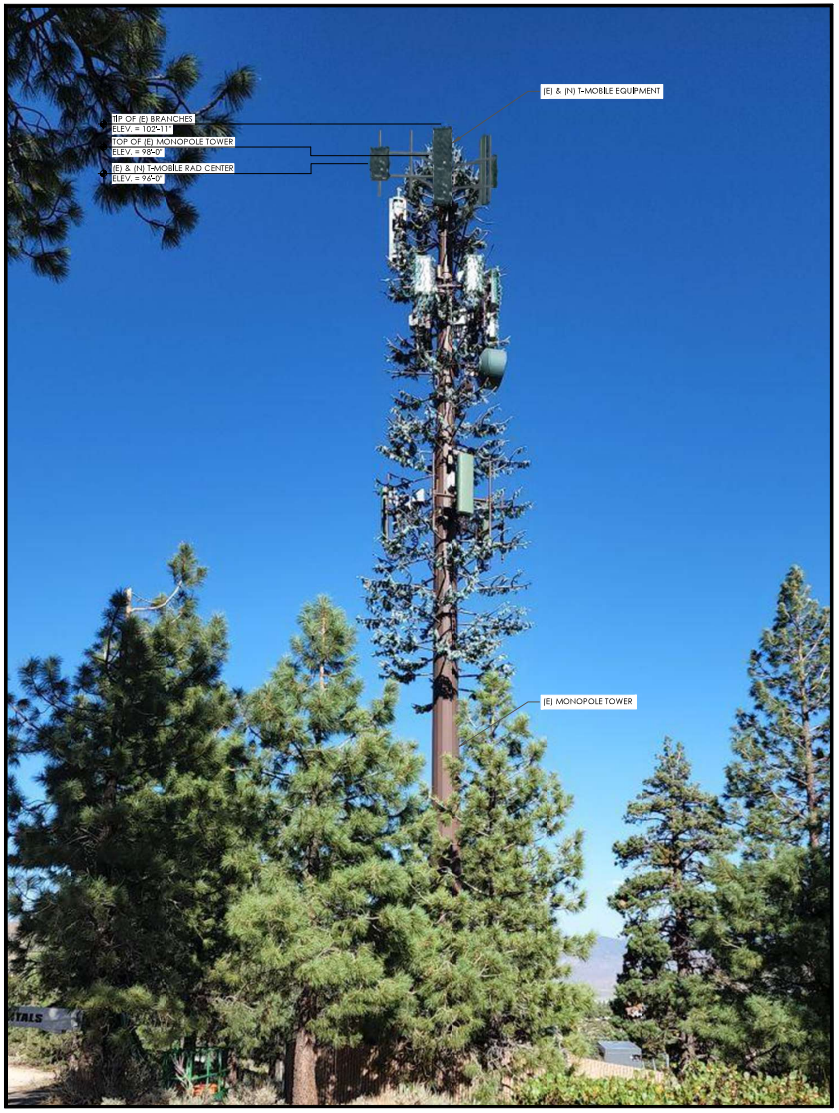
Item Total	$2,224.05
Service Fee	$72.28
Order Total	**$2,296.33**

Thank you for your payment,

Carson City, NV



1 EXISTING VIEW
SCALE: NOT TO SCALE



2 PROPOSED VIEW
SCALE: NOT TO SCALE

T-Mobile

1755 CREEKSIDE OAKS DR, #190
SACRAMENTO, CA 95833

CROWN CASTLE

1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024

T-MOBILE SITE:
SC14008Z
SN305 SPOONER GRADE

CROWN CASTLE SITE:
828012

ADDRESS:
5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

SHEET TITLE:

TOWER CONFIGURATION
- WEST VIEW

SHEET NUMBER:

1 OF 2

1 EXISTING VIEW
SCALE: NOT TO SCALE

2 PROPOSED VIEW
SCALE: NOT TO SCALE

T-Mobile
1755 CREEKSIDE OAKS DR, #190
SACRAMENTO, CA 95833

CROWN CASTLE
1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024

T-MOBILE SITE:
SC14008Z
SN305 SPOONER GRADE

CROWN CASTLE SITE:
828012

ADDRESS:
5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

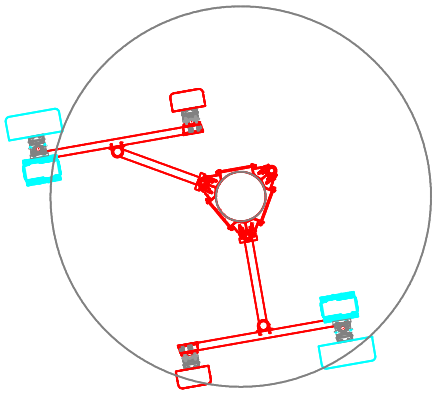
SHEET TITLE:

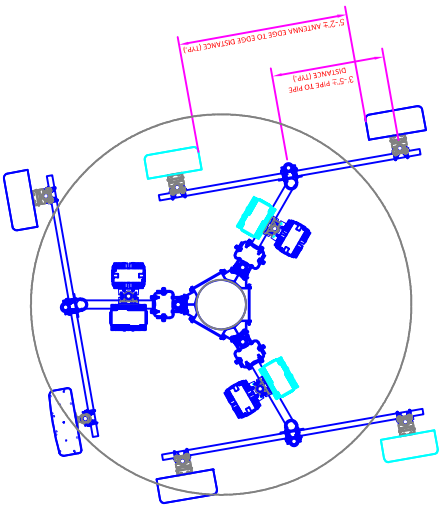
TOWER CONFIGURATION
- SOUTH-EAST VIEW

SHEET NUMBER:

2 OF 2


07.19.2022 12:23




5'-2" ANTENNA EDGE TO EDGE DISTANCE (TYP.)
3'-5" PIPE TO PIPE DISTANCE (TYP.)

INSPECTION WORKSHEET (IBLD-028969-2022)

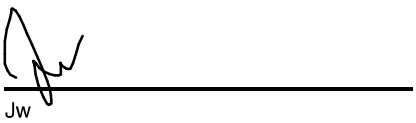
Carson City Community Development (Bulding Division)
E-mail: inspections@carson.org Address: 108 East Proctor Street

Case Number:	CELL-2021-2334	**Case Module:**	Permit
Inspection Date:	Tue Aug 23, 2022	**Inspection Status:**	Passed - Permit
Inspector:	Wentworth, James	**Inspection Type:**	Final Building

Job Address:	5364 SIERRA HIGHLANDS DR CARSON CITY, NV, 89703	**Parcel Number:**	00705166

Contact Type	Company Name	Name
Applicant	Crown Castle	Gardini, Irina
Contractor	Quality Telecom inc	Oldall, Deven

Checklist Item	Status
General Comments	Passed
OK for electric meter	



Carson City Planning Division
108 E. Proctor Street · Carson City NV 89701
Phone: (775) 887-2180 • E-mail: planning@carson.org

FOR OFFICE USE ONLY:

CCMC 18.02.080

SPECIAL USE PERMIT

FEE*: **$2,450.00 MAJOR**
$2,200.00 MINOR (Residential zoning districts)
+ noticing fee
***Due after application is deemed complete by staff**

FILE

APPLICANT	**PHONE #**
T-Mobile West LLC by Crown Castle USA Inc.	949.226.1508
MAILING ADDRESS, CITY, STATE, ZIP	
12920 SE 38TH STREET BELLEVUE, WA 98006	
EMAIL ADDRESS	
franita.stapleton@crowncastle.com	
PROPERTY OWNER	**PHONE #**
GLOBAL SIGNAL ACQUISITIONS IV LLC	
MAILING ADDRESS, CITY, STATE, ZIP	
PO BOX 277455, ATLANTA, GA 30384-7455	
EMAIL ADDRESS	
sarah.kim@crowncastle.com	
APPLICANT AGENT/REPRESENTATIVE	**PHONE #**
FraNita Stapleton	602.598.7252
MAILING ADRESS, CITY STATE, ZIP	
2055 S Stearman Dr, Chandler, AZ 85295	
EMAIL ADDRESS	

- ☐ **SUBMITTAL PACKET – 4 Complete Packets (1 Unbound Original and 3 Copies) including:**
  - ☐ Application Form
  - ☐ Detailed Written Project Description
  - ☐ Site Plan
  - ☐ Building Elevation Drawings and Floor Plans
  - ☐ Special Use Permit Findings
  - ☐ Master Plan Policy Checklist
  - ☐ Applicant's Acknowledgment Statement
  - ☐ Documentation of Taxes Paid-to-Date
  - ☐ Project Impact Reports (Engineering)
- ☐ **CD or USB DRIVE with complete application in PDF**

Application Received and Reviewed By:

_____

Submittal Deadline: Planning Commission application submittal schedule.

Note: Submittals must be of sufficient clarity and detail for all departments to adequately review the request. Additional information may be required.

Project's Assessor Parcel Number(s):	Street Address	
007-051-66	5364 SIERRA HIGHLAND DR	
Project's Master Plan Designation	**Project's Current Zoning**	**Nearest Major Cross Street(s)**
N/A	SF5A	Golf Club Drive & Sierra Highlands Drive

Please provide a brief description of your proposed project and/or proposed use below. Provide additional pages to describe your request in more detail.
Replace (4) antennas, ancillary equipment and ground equipment: relocate (1) equipment rack, remove (3) cabinets, install (1) power cabinet,
as per plans for an existing carrier on an existing wireless communication facility.

PROPERTY OWNER'S AFFIDAVIT

I, FraNita Stapleton, being duly deposed, do hereby affirm that I am the record owner of the subject property, and that I have knowledge of, and I agree to, the filing of this application.

Signature	Address	Date
Fra Nita Stapleton	2055 S Stearman Drive, Chandler, AZ 85286	1.10.2024

Use additional page(s) if necessary for additional owners.

STATE OF ~~NEVADA~~ Alabama)
COUNTY of Shelby)

On January 10th, 2024, Fra Nita Stapleton, personally appeared before me, a notary public, personally known (or proved) to me to be the person whose name is subscribed to the foregoing document and who acknowledged to me that he/she executed the foregoing document.

Notary Public

DONOVAN PIEPER NOTARY PUBLIC STATE OF ALABAMA

NOTE: If your project is located within the Historic District or airport area, it may need to be scheduled before the Historic Resources Commission or the Airport Authority in addition to being scheduled for review by the Planning Commission. Planning staff can help you make this determination.

If there is any additional information that would provide a clearer picture of your proposal that you would like to add for presentation to the Planning Commission, please be sure to include it in your detailed description.

Please type and sign the statement on the following page at the end of your findings response.

ACKNOWLEDGMENT OF APPLICANT

I certify that the forgoing statements are true and correct to the best of my knowledge and belief. I agree to fully comply with all conditions as established by the Planning Commission. I am aware that this permit becomes null and void if the use is not initiated within one-year of the date of the Planning Commission's approval; and I understand that this permit may be revoked for violation of any of the conditions of approval. I further understand that approval of this application does not exempt me from all City code requirements.

Applicant's Signature	Print Name	Date
FraNita Stapleton	FraNita Statpleton, agent of T-Mobile West LLC	1/10/2024

Master Plan Policy Checklist

Special Use Permits & Major Project Reviews & Administrative Permits

PURPOSE

The purpose of a development checklist is to provide a list of questions that address whether a development proposal is in conformance with the goals and objectives of the 2006 Carson City Master Plan that are related to non-residential and multi-family residential development. This checklist is designed for developers, staff, and decision-makers and is intended to be used as a guide only.

Development Name: _____

Reviewed By: _____

Date of Review: _____

DEVELOPMENT CHECKLIST

The following five themes are those themes that appear in the Carson City Master Plan and which reflect the community's vision at a broad policy level. Each theme looks at how a proposed development can help achieve the goals of the Carson City Master Plan. A check mark indicates that the proposed development meets the applicable Master Plan policy. The Policy Number is indicated at the end of each policy statement summary. Refer to the Comprehensive Master Plan for complete policy language.

CHAPTER 3: A BALANCED LAND USE PATTERN

The Carson City Master Plan seeks to establish a balance of land uses within the community by providing employment opportunities, a diverse choice of housing, recreational opportunities, and retail services.

Is or does the proposed development:

- ☐ Meet the provisions of the Growth Management Ordinance (1.1d, Municipal Code 18.12)?
- ☐ Use sustainable building materials and construction techniques to promote water and energy conservation (1.1e, f)?
- ☐ Located in a priority infill development area (1.2a)?
- ☐ Provide pathway connections and easements consistent with the adopted Unified Pathways Master Plan and maintain access to adjacent public lands (1.4a)?

- ☐ Protect existing site features, as appropriate, including mature trees or other character-defining features (1.4c)?
- ☐ At adjacent county boundaries or adjacent to public lands, coordinated with the applicable agency with regards to compatibility, access and amenities (1.5a, b)?
- ☐ In identified Mixed-Use areas, promote mixed-use development patterns as appropriate for the surrounding context consistent with the land use descriptions of the applicable Mixed-Use designation, and meet the intent of the Mixed-Use Evaluation Criteria (2.1b, 2.2b, 2.3b, Land Use Districts, Appendix C)?
- ☐ Meet adopted standards (e.g. setbacks) for transitions between non-residential and residential zoning districts (2.1d)?
- ☐ Protect environmentally sensitive areas through proper setbacks, dedication, or other mechanisms (3.1b)?
- ☐ Sited outside the primary floodplain and away from geologic hazard areas or follows the required setbacks or other mitigation measures (3.3d, e)?
- ☐ Provide for levels of services (i.e. water, sewer, road improvements, sidewalks, etc.) consistent with the Land Use designation and adequate for the proposed development (Land Use table descriptions)?
- ☐ If located within an identified Specific Plan Area (SPA), meet the applicable policies of that SPA (Land Use Map, Chapter 8)?

CHAPTER 4: EQUITABLE DISTRIBUTION OF RECREATIONAL OPPORTUNITIES

The Carson City Master Plan seeks to continue providing a diverse range of park and recreational opportunities to include facilities and programming for all ages and varying interests to serve both existing and future neighborhoods.

Is or does the proposed development:

- ☐ Provide park facilities commensurate with the demand created and consistent with the City's adopted standards (4.1b)?
- ☐ Consistent with the Open Space Master Plan and Carson River Master Plan (4.3a)?

CHAPTER 5: ECONOMIC VITALITY

The Carson City Master Plan seeks to maintain its strong diversified economic base by promoting principles which focus on retaining and enhancing the strong employment base, include a broader range of retail services in targeted areas, and include the roles of technology, tourism, recreational amenities, and other economic strengths vital to a successful community.

Is or does the proposed development:

- ☐ Encourage a citywide housing mix consistent with the labor force and non-labor force populations (5.1j)
- ☐ Encourage the development of regional retail centers (5.2a)
- ☐ Encourage reuse or redevelopment of underused retail spaces (5.2b)?
- ☐ Support heritage tourism activities, particularly those associated with historic resources, cultural institutions and the State Capitol (5.4a)?
- ☐ Promote revitalization of the Downtown core (5.6a)?
- ☐ Incorporate additional housing in and around Downtown, including lofts, condominiums, duplexes, live-work units (5.6c)?

CHAPTER 6: LIVABLE NEIGHBORHOODS AND ACTIVITY CENTERS

The Carson City Master Plan seeks to promote safe, attractive and diverse neighborhoods, compact mixed-use activity centers, and a vibrant, pedestrian-friendly Downtown.

Is or does the proposed development:

- ☐ Use durable, long-lasting building materials (6.1a)?
- ☐ Promote variety and visual interest through the incorporation of varied building styles and colors, garage orientation and other features (6.1b)?
- ☐ Provide variety and visual interest through the incorporation of well-articulated building facades, clearly identified entrances and pedestrian connections, landscaping and other features consistent with the Development Standards (6.1c)?
- ☐ Provide appropriate height, density and setback transitions and connectivity to surrounding development to ensure compatibility with surrounding development for infill projects or adjacent to existing rural neighborhoods (6.2a, 9.3b 9.4a)?
- ☐ If located in an identified Mixed-Use Activity Center area, contain the appropriate mix, size and density of land uses consistent with the Mixed-Use district policies (7.1a, b)?
- ☐ If located Downtown:
  - ☐ Integrate an appropriate mix and density of uses (8.1a, e)?
  - ☐ Include buildings at the appropriate scale for the applicable Downtown Character Area (8.1b)?
  - ☐ Incorporate appropriate public spaces, plazas and other amenities (8.1d)?
- ☐ Incorporate a mix of housing models and densities appropriate for the project location and size (9.1a)?

CHAPTER 7: A CONNECTED CITY

The Carson City Master Plan seeks promote a sense of community by linking its many neighborhoods, employment areas, activity centers, parks, recreational

amenities and schools with an extensive system of interconnected roadways, multi-use pathways, bicycle facilities, and sidewalks.

Is or does the proposed development:

- ☐ Promote transit-supportive development patterns (e.g. mixed-use, pedestrian-oriented, higher density) along major travel corridors to facilitate future transit (11.2b)?
- ☐ Maintain and enhance roadway connections and networks consistent with the Transportation Master Plan (11.2c)?
- ☐ Provide appropriate pathways through the development and to surrounding lands, including parks and public lands, consistent with the Unified Pathways Master Plan (12.1a, c)?

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January 10, 2024

CITY OF CARSON CITY, NV

108 EAST PROCTOR STREET
CARSON CITY, NV 89701

Via Electronic Delivery

RE: Request for Minor Modification to Existing Wireless Facility – Section 6409
Site Address: 5364 SIERRA HIGHLAND DR, Carson City, NV 89703
Crown Site Number: 828012 / Crown Site Name: SN305 Spooner Grade
Customer Site Number: SC14008Z / Application Number: 649714 –
Supplemental Materials for Special Use Permit Application

Attention Planner:

On behalf of T-Mobile West LLC ("T-Mobile" or "Applicant"), Crown Castle USA Inc. ("Crown Castle") is pleased to submit this request to modify the existing wireless facility noted above through the collocation, replacement and/or removal of the Applicant's equipment as an eligible facilities request for a minor modification under Section 6409[1] and the rules of the Federal Communications Commission ("FCC").[2]

Section 6409 mandates that state and local governments must approve any eligible facilities request for the modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station. Under Section 6409, to toll the review period, if the reviewing authority determines that the application is incomplete, it must provide written notice to the applicant within 30 days, which clearly and specifically delineates all missing documents or information reasonably related to whether the request meets the federal requirements.[3] Additionally, if a state or local government, fails to issue any approvals required for this request within 60 days, these approvals are deemed granted. The FCC has clarified that the 30-day and 60-day deadlines begins when an applicant: (1) takes the first step required under state or local law; and (2) submits information sufficient to inform the jurisdiction that this modification qualifies under the federal law[4]. CITY OF CARSON CITY, NV requires the electronic submission of applications for Special Use Permit. Please allow this letter to confirm that the Applicant submitted its electronic application through the appropriate forum. This letter supplements the electronic filing for purposes of starting the review period. Accordingly, the deadline for written notice of incomplete application is February 9, 2024, and the deadline for issuance of approval is March 10, 2024.

[1] Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, § 6409 (2012) (codified at 47 U.S.C. § 1455).
[2] *Acceleration of Broadband Deployment by Improving Wireless Facility Siting Policies*, 29 FCC Rcd. 12865 (2014) (codified at 47 CFR § 1.6100); and *Implementation of State & Local Governments' Obligation to Approve Certain Wireless Facility Modification Requests Under Section 6409(a) of the Spectrum Act of 2012*, WT Docket No. 19-250 (June 10, 2020).
[3] *See* 47 CFR § 1.6100 (c)(3). [4] *See* 2020 Upgrade Order at paragraph 16.

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After we submitted the Application, the City requested certain additional information. The purpose of this letter is to respond to these requests by the City. For each request, we will state whether (a) the request is duplicative because the material was already included in the Application or the Original Submission; (b) the request does not toll the 60-day period for review of the Application but we are voluntarily providing the material to ease your review of the Application; or (c) the request does not toll the 60-day period for review of the Application because the request is not "reasonably related" to determining whether the Application is an EFR and, thus, we will not be providing a response. We will address each of your requests in turn.

1. Detailed Written Project Description

Such a request is not "reasonably related" to determining whether the Application is an EFR and, therefore, does not toll the 60-day period for review of the Application. Notwithstanding the foregoing, Crown Castle respectfully refers the City to the cover letter that accompanied the Original Submission and the Special Use Permit Findings Narrative enclosed with today's submission. See No. 4 below. Additionally, Crown Castle explains that, with the Application, T-Mobile proposes modifying the existing wireless tower at the Site by installing (3) antennas, (6) remote radio heads, and (1) over-voltage-protector on the tower. The City will be able to see additional detail set forth in the Construction Drawings included with the Original Submission and attached again herewith.

Specifically, T-Mobile proposes removing (2) antennas, (4) TMAs, (2) antenna sector mounts, (2) 7/8" coax cables, relocating (2) antennas to new mounts, (2) RRUs to new mounts, installing (1) site pro 1 triple t-arm antenna mount, (4) antennas, (4) RRUs, (2) 1-5/8" hcs 6X24 4awg cables. T-Mobile also proposes relocate (1) equipment rack, remove (3) cabinets, install (1) equipment rackm (1) power cabinet on the ground inside the existing compound at the site. There is no tower extension and no compound expansion proposed as part of this project. Given that the Site is stealthed as a monopine, the proposed project will be installed in such a manner to continue the stealthed nature of the existing wireless tower – the antennae will be painted to match the green exterior of the monopine and concealed as part of the existing structure. This proposed installation is part of T-Mobile's nationwide effort to deploy its wireless network.

2. Special Use Permit Findings Narrative

Such a request is not "reasonably related" to determining whether the Application is an EFR and therefore does not toll the 60-day period for review of the Application. Notwithstanding the foregoing, Crown Castle has voluntarily provided a Special Use Permit Findings Narrative along with this submission.

3. Master Plan Policy Checklist

Such a request does not toll the 60-day period for review of the Application because it is irrelevant to the work proposed in the Original Submission and the Application. The Application proposes a modification of the existing wireless tower located at the Site; this proposal is not a new development within the City's jurisdiction but rather a collocation at any already-existing (and properly approved and permitted) wireless facility. Crown Castle respectfully submits that allowing T-Mobile to collocate at this existing wireless facility, which is what is proposed here, comports with all five themes expressed in your Master Plan Policy Checklist. Specifically, collocation at the existing Site obviates the need to construct a new tower in the areas and is therefore advancing the themes of a balanced land use pattern, economic vitality, livable neighborhoods, and a connected city. T-Mobile simply proposes installing equipment on an existing structure and therefore improving its network and connectivity in your area, aiding your residents amidst these unprecedented times.

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4. Documentation of Taxes Paid to Date

Such a request is not "reasonably related" to determining whether the Application proposes an EFR and, accordingly, this request does not toll the 60-day period for review of the Application. Notwithstanding the foregoing, Crown Castle responds as follows: neither Crown Castle nor CCTMO LLC, our tower operator affiliate that operates the existing tower, is aware of any issues with regard to the proper payment of taxes related to operation of the Site, which is located on Tax Parcel ID No. 007-051-66.

5. Project Impact Reports

Such a request does not toll the 60-day period for review of the Application because it is duplicative of materials already provided with the Original Submission and/or the Application. Crown Castle respectfully refers the City to the Structural Analysis and Anchorage Calculations included with the Original Submission and/or the Application

6. Building Elevation Drawings and Floor Plan

Such a request does not toll the 60-day period for review of the Application because it is irrelevant to the work proposed in the Original Submission and the Application. The Application proposes a modification of the existing wireless tower located at the Site; there are not buildings associated with this request.

7. Site Plan

Such a request does not toll the 60-day period for review of the Application because it is duplicative of materials already provided with the Original Submission and/or the Application. Crown Castle respectfully refers the City to the Construction Drawings included with the Original Submission and/or the Application.

8. Property Lines of the subject property with dimension indicated

Such a request does not toll the 60-day period for review of the Application because it is duplicative of materials already provided with the Original Submission and/or the Application. Crown Castle respectfully refers the City to the Structural Analysis and Anchorage Calculations included with the Original Submission and/or the Application.

9. All existing and proposed structures shall be shown, including:

Such a request does not toll the 60-day period for review of the Application because it is duplicative of materials already provided with the Original Submission and/or the Application. Crown Castle respectfully refers the City to the Construction Drawings included with the Original Submission and/or the Application.

10. Show curb, gutter, sidewalks, ADA facilities, circulation

Such a request does not toll the 60-day period for review of the Application because it is irrelevant to the work proposed in the Original Submission and the Application. The Application proposes a modification of the existing wireless tower located at the Site; there are not buildings associated with this request.

11. Project access:

Such a request does not toll the 60-day period for review of the Application because it is duplicative of materials already provided with the Original Submission and/or the Application. Crown Castle respectfully refers the City to the Construction Drawings included with the Original Submission and/or the Application.

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12. Show the Accessor Parcel Number(s) of adjoining parcels

Such a request does not toll the 60-day period for review of the Application because it is duplicative of materials already provided with the Original Submission and/or the Application. Crown Castle respectfully refers the City to the Construction Drawings included with the Original Submission and/or the Application.

13. Show all existing and proposed parking, landscape islands and traffic aisles, with dimensions. If you are requesting approval for off-site parking within 300 feet, provide site plans showing (1) parking on your site, (2) parking on the offsite parking lot, and (3) how much of the off-site parking area is required for any business other than your own.

Such a request does not toll the 60-day period for review of the Application because it is irrelevant to the work proposed in the Original Submission and the Application. The Application proposes a modification of the existing wireless tower located at the Site; there are not buildings associated with this request.

14. Show location of existing and proposed utilities and drainage facilities, and indicate whether overhead or underground. Show the location of any septic lines/fields.

Such a request does not toll the 60-day period for review of the Application because it is irrelevant to the project at issue here. The proposed project is not the development of a new facility but rather the simple modification of an already existing – and properly sited and permitted – wireless facility located at the Site. There is not tower height extension nor any compound expansion associated with this project and, thus, this request is irrelevant to your determination of whether the Application is an EFR.

15. If specific landscape areas are required or provided, show with dimensions.

Such a request does not toll the 60-day period for review of the Application because it is irrelevant to the project at issue here. The proposed project is not the development of a new facility but rather the simple modification of an already existing – and properly sited and permitted – wireless facility located at the Site. There is not tower height extension nor any compound expansion associated with this project and, thus, this request is irrelevant to your determination of whether the Application is an EFR.

16. Show location of all proposed amenities, such as gazebos, retaining walls, retention areas, etc.

Such a request does not toll the 60-day period for review of the Application because it is irrelevant to the work proposed in the Original Submission and the Application. The Application proposes a modification of the existing wireless tower located at the Site; there are not buildings associated with this request.

As these documents indicate, (i) the modification involves the collocation, removal or replacement of transmission equipment; and (ii) such modification will not substantially change the physical dimensions of such tower or base station. As such, it is an "eligible facilities request" as defined in the FCC's rules to which the 60-day deadline for approval applies. Accordingly, Applicant requests all authorization necessary for this proposed minor modification under Section 6409.

Our goal is to work with you to obtain approvals earlier than the deadline. We will respond promptly to any request for related information you may have in connection with this request. Please let us know how we can work with you to expedite the approval process. We look forward to working with you on this important project, which will improve wireless

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telecommunication services in your community using collocation on existing infrastructure. If you have any questions, please do not hesitate to contact me.

Regards,

FraNita Stapleton

FraNita Stapleton
Site Acquisition Specialist
Crown Castle, Agent for Applicant
(602) 598-7252
Franita.Stapleton@crowncastle.com

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Narrative Statement In Support of Special Use Permit

On behalf of our customer T-Mobile West LLC, Crown Castle appreciates the opportunity to provide this Narrative Statement In Support of Special Use Permit explaining that T-Mobile's proposed modification of the existing wireless facility located at 5364 Sierra Highland Drive, Carson City, NV 89703, Crown Castle BU# 828012 (the "Site") why the requested variance is appropriate for the wireless comports with the required findings (the "Findings"). In accordance with the Carson City Planning Division (the "City") Finding, we respectfully submit that the proposed project at the existing wireless facility at the Site:

a) Will be consistent with the objectives of the Master Plan elements;

b) Will not be detrimental to the use, peaceful enjoyment, economic value, or development of surrounding properties or the general neighborhood; and is compatible with and preserves the character and integrity of adjacent development and neighborhoods or includes improvements or modifications either on-site or within the public right-of-way to mitigate development related to adverse impacts such as noise, vibrations, fumes, odors, dust, glare or physical activity;

c) Will have little or no detrimental effect on vehicular or pedestrian traffic;

d) Will not overburden existing public services and facilities, including schools, police and fire protection, water, sanitary sewer, public roads, storm drainage and other public improvements;

e) Meets the definition and specific standards set forth elsewhere in this Title for such particular use and meets the purpose statement of that district;

f) Will not be detrimental to the public health, safety, convenience and welfare; and

g) Will not result in material damage or prejudice to other property in the vicinity, as a result of proposed mitigation measures.

With this Narrative Statement, Crown Castle will also provide information about how the subject application constitutes an "eligible facilities request" under applicable federal law and detail certain discussions with County staff regarding the subject application.

The parent parcel includes an existing WCF (the "monopine") and is also surrounded by assorted pine trees and vegetation. The monopine is a 98' monopole that has been stealthed to appear like a pine tree with the tip of its concealment branches reaching to 102' 11." There are two other carriers installed on the monopine. With the subject application, which was originally submitted on June 10, 2021 and submitted as a Special Use Permit Application on August 13, 2021, T-Mobile proposes to collocate a new antenna array on the monopine (the "Application"). T-Mobile proposes modifying the monopine at the Site by installing (3) antennas, (6) remote radio heads, and (1) over-voltage-protector on the tower. Specifically, T-Mobile proposes installing (3) JMA Wireless MX08FRO665-20 antennae, (3) Fujitsu TA08025-B604 remote radio heads, (3) Fujtisu TA08025-B605 remote radio heads, and (1) Raycap RDIDC-9181-PF-48 over-voltage-protector on the tower. T-Mobile also proposes installing (1) equipment cabinet on the ground inside the existing compound at the Site. There is no tower extension and no compound expansion proposed as part of this project. Given that the Site is stealthed as a monopine, the proposed project will be installed in such a manner to continue the stealthed nature of the existing wireless tower – the three new antennae installed by T-Mobile will be painted to match the green exterior of the monopine and concealed as part of the existing structure. This proposed installation is part of T-Mobile's nationwide effort to deploy its wireless network. T-Mobile is especially pleased to install this antenna array on the existing monopine at the Site rather than having to construct an entirely new wireless communications facility in your City. Instead, by simply collocating these antennae and ancillary equipment at the Site, T-Mobile can obtain the coverage necessary to serve your area without a disruptive new site build. This seems like a better arrangement for all concerned in that it allows T-Mobile to achieve what T-Mobile needs to build out its network without adding another vertical element to the neighborhood.

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T-Mobile anticipates that once this modification at the existing monopine is complete, its ability to provide your neighbors will coverage and connectivity will be vastly improved. If there is anything that the years living through the COVID-19 pandemic has taught us, it is the importance of coverage and connectivity during these unprecedented times – where all of us are spending more time at home, students are learning from home, professionals are working from home, and first responders are getting the information they need to serve the people of your area when they need help most.

As discussed with City Staff, this modification request is an "eligible facilities request" subject to streamlined review under federal law, specifically Section 6409(a) of the Spectrum Act and the Federal Communications Commission's rules implementing that federal statute.1 Section 6409(a) requires that the County shall approve, and may not deny, "eligible facilities requests," like the modification proposed in the subject application, when they do not result in a "substantial change" to the physical dimensions of the existing structure. The intent behind this federal law is to promote deployment to help our country meet the ongoing technological revolution and connect our citizens with each other, with their schools, with their jobs, and with life-saving technologies.

This modification request is consistent with the City's Master Plan elements because T-Mobile is taking advantage of existing infrastructure within the area and not seeking to build a new site.

This modification request will not be detrimental to the use, peaceful enjoyment, or economic value of surrounding properties because there is such a minimal change – T-Mobile is not proposing to build an entirely new wireless facility. Rather, it seeks only to install its standard configuration on the already existing – and properly sited and approved – monopine at the Site.

This modification request will have no impact on vehicular or pedestrian traffic – the project simply proposes installing three antennas and associated equipment on the exiting monopine and a 5'x7' raised platform on the ground within the existing site compound that is already located at the Site.

This modification request will have no impact on existing public services and facilities because it simply entails the installation of new tower-mounted and ground-based equipment at an already-existing wireless facility.

This modification request will not be detrimental to public health, safety, convenience, and welfare – T-Mobile only proposes transmitting within its frequencies already approved and licensed by the FCC, the prime regulator that occupies the field of regulating these kinds of transmissions in this county.

This modification request will not result in any damage or prejudice to other property in the vicinity given that the project simply involves the installation of three antennae and associated equipment on the tower at the Site and ground-based equipment within the existing compound that is already properly sited and approved by the City.

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Section 6409 Substantial Change Checklist
Towers Outside of the Public Right of Way

The Federal Communications Commission has determined that a modification substantially changes the physical dimension of a wireless tower or base station under 47 U.S.C. § 1455(a) if it meets one of six enumerated criteria under 47 C.F.R. § 1.6100.

Criteria for Towers Outside the Public Rights of Way

YES/NO **NO**	Does the modification increase the height of the tower by more than the greater of: (a) 10% (b) or, the height of an additional antenna array plus separation of up to 20 feet from the top of the nearest existing antenna?
YES/NO **NO**	Does the modification add an appurtenance to the body of the tower that would protrude from the edge of the tower more than 20 feet or more than the width of the tower structure at the level of the appurtenance, whichever is greater?
YES/NO **NO**	Does the modification involve the installation of more than the standard number of new equipment cabinets for the technology involved or add more than four new equipment cabinets?
YES/NO **NO**	Does the modification entail any excavation or deployment outside the current site by more than 30 feet in any direction, not including any access or utility easements?
YES/NO **NO**	Does the modification defeat the concealment elements of the eligible support structure?
YES/NO **NO**	Does the modification violate conditions associated with the siting approval with the prior approval the tower or base station other than as specified in 47 C.F.R. § 1.6100(c)(7)(i) – (iv)?

If all questions in the above section are answered "NO," then the modification does not constitute a substantial change to the existing tower under 47 C.F.R. § 1.6100.

T-Mobile

T-MOBILE SITE NUMBER: SC14008Z
T-MOBILE SITE NAME: SN305 SPOONER GRADE
T-MOBILE PROJECT: ANCHOR

BUSINESS UNIT #: 828012
SITE ADDRESS: 5364 SIERRA HIGHLAND DR CARSON CITY, NV 89703
COUNTY: CARSON CITY
SITE TYPE: MONOPOLE
TOWER HEIGHT: 98'-0"

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	SN305 SPOONER GRADE
SITE ADDRESS:	5364 SIERRA HIGHLAND DR CARSON CITY, NV 89703
COUNTY:	CARSON CITY
MAP/PARCEL #:	00705166
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	39.11713166
LONGITUDE:	-119.843592
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	5907.0'
CURRENT ZONING:	SF5A
JURISDICTION:	CITY OF CARSON CITY, NV
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	TARANGO JORGE 5364 SIERRA HIGHLAND DR CARSON CITY, NV 89701
TOWER OWNER:	CROWN CASTLE USA, INC. 1 PARK PLACE, SUITE 300 DUBLIN, CA 94568
CARRIER/APPLICANT:	T-MOBILE 1755 CREEKSIDE OAKS DR, #190 SACRAMENTO, CA 95833
ELECTRIC PROVIDER:	NV ENERGY 1 (775) 834-4444
TELCO PROVIDER:	- -

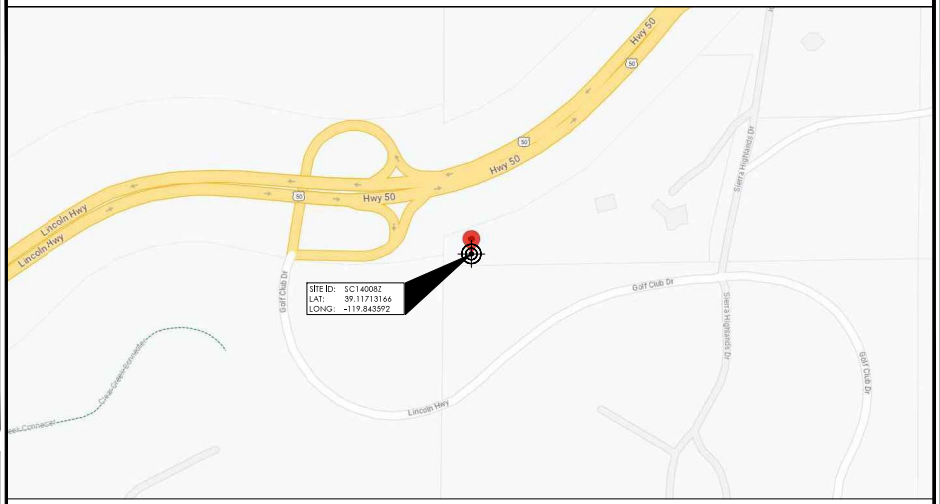
DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	OVERALL SITE PLAN
C-1.1	SITE PLAN
C-1.2	EXISTING & FINAL EQUIPMENT PLANS
C-2 - C-2.1	TOWER ELEVATIONS
C-3	ANTENNA PLANS
C-4	EXISTING EQUIPMENT SCHEDULE
C-4.1	FINAL EQUIPMENT SCHEDULE
C-5	ANTENNA, RRU SPECS & MOUNTING DETAIL
C-6	ERICSSON CABINET SPECS & ANCHOR DETAIL
C-7 - C-7.1	SITE PRO 1 ANTENNA MOUNT SPECS.
E-1	PANEL SCHEDULE & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING SCHEMATIC
G-2 - G-3	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 22X34. 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.

CALL CALIFORNIA ONE CALL
(800) 227-2600
CALL 3 WORKING DAYS
BEFORE YOU DIG!

LOCATION MAP



NO SCALE

PROJECT TEAM

A&E FIRM:
P. MARSHALL & ASSOCIATES, LLC
6801 PORTWEST DR, SUITE 100
HOUSTON, TX 77024
(713) 677-0964

CROWN CASTLE USA INC.
DISTRICT CONTACTS:
1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

---- - PROJECT MANAGER

---- - 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:
- REMOVE (2) ANTENNAS
- REMOVE (4) TMA'S
- REMOVE (2) ANTENNA SECTOR MOUNTS
- RELOCATE (2) ANTENNAS TO NEW MOUNTS
- RELOCATE (2) RRU'S TO NEW MOUNTS
- REMOVE (2) 7/8" COAX CABLES
- INSTALL (1) SITE PRO 1 TRIPLE T-ARM ANTENNA MOUNT, P/N: RMVD8-296-18
- INSTALL (4) ANTENNAS
- INSTALL (4) RRU'S
- INSTALL (2) 1-5/8" HCS 6X24 4AWG CABLES

GROUND SCOPE OF WORK:
- RELOCATE (1) BB 6630 & (1) DUG20 FROM RBS 6201 ODE TO (E) 19" EQUIPMENT RACK
- REMOVE (3) CABINETS
- INSTALL (1) RP 6651, (1) BB 6630, (1) RBS6601 & (1) CSR IXRE V2 ROUTER IN (E) 19" EQUIPMENT RACK
- INSTALL (1) POWER 6230 DC POWER CABINET

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	2018 INTERNATIONAL BUILDING CODE
MECHANICAL	2018 UNIFORM MECHANICAL CODE
ELECTRICAL	2017 NATIONAL ELECTRICAL CODE

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

ELECTRICAL NOTES:
POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGE IS TO BE PERFORMED BY OTHERS AND IS SHOWN REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	CROWN CASTLE
DATED:	06/20/23
MOUNT ANALYSIS:	TRYLON
DATED:	06/09/23
RFDS REVISION:	5
DATED:	04/12/23
ORDER ID:	649714
REVISION:	0

T-Mobile
1755 CREEKSIDE OAKS DR, #190
SACRAMENTO, CA 95833

CROWN CASTLE
1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

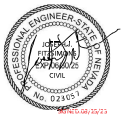
BU #: 828012
SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/29/23	SM	PRELIMINARY	HS
0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS



PROJECT NUMBER:
23CCTNVM-003

SHEET NUMBER:	REVISION:
T-1	1

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STD-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED-STD-10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND 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 (Fy) 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.

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

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. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT 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 MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T-MOBILE".
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
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (-)	BLACK**

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

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 LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

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
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

T-Mobile
1755 CREEKSIDE OAKS DR, #190
SACRAMENTO, CA 95833

CROWN CASTLE
1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012
SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/29/23	SM	PRELIMINARY	HS
0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS

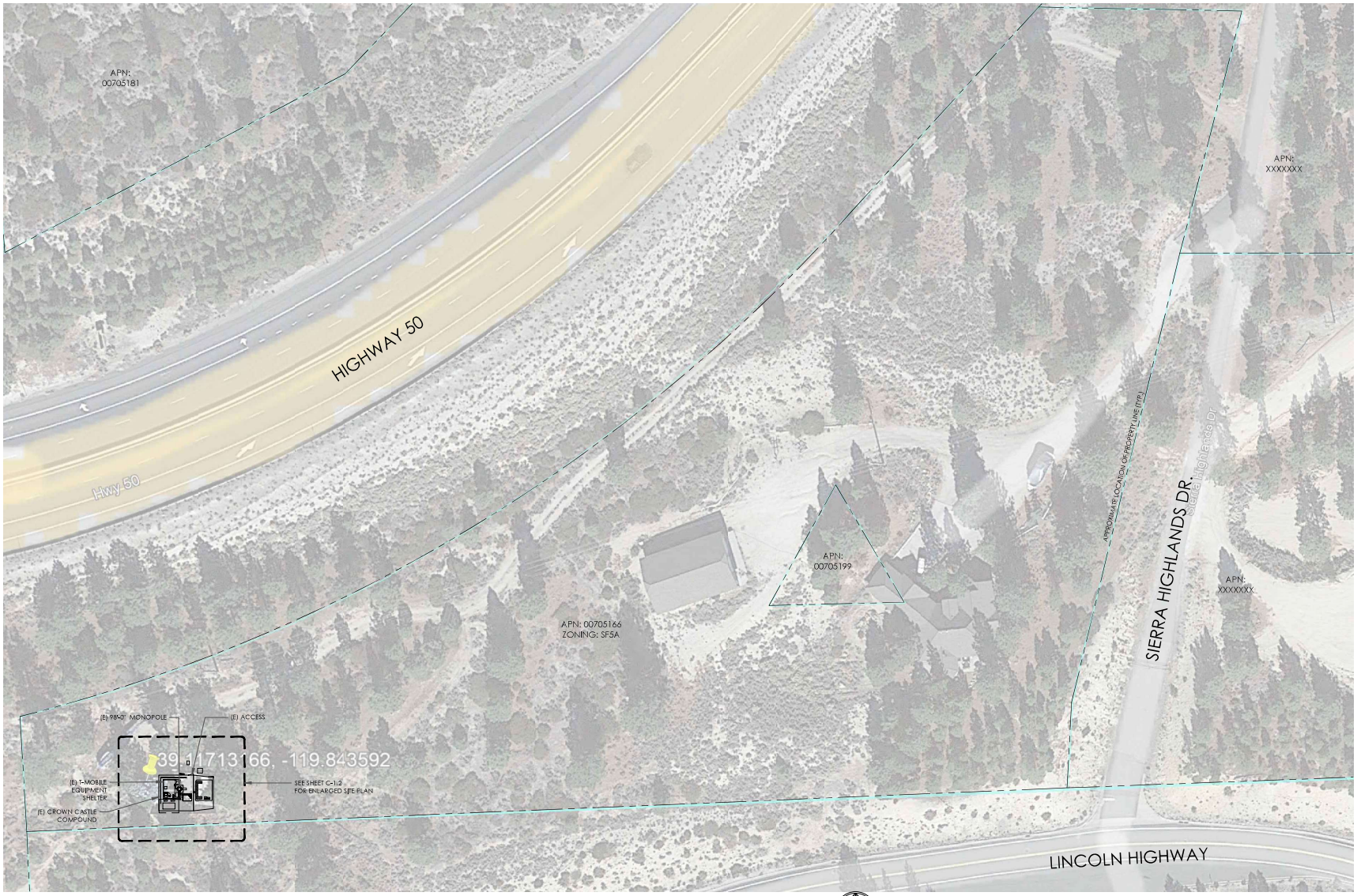
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

PROJECT NUMBER:
23CCTNVM-003

SHEET NUMBER: T-2
REVISION: 1

SITE PLAN DISCLAIMER:

PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS. CROWN CASTLE USA INC. HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.



1 OVERALL SITE PLAN
SCALE: 1"=40'-0" (FULL SIZE) 1"=80'-0" (11x17)

N

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DUBLIN, CA 94568

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P. MARSHALL & ASSOCIATES
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HOUSTON, TX 77024
OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012
SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

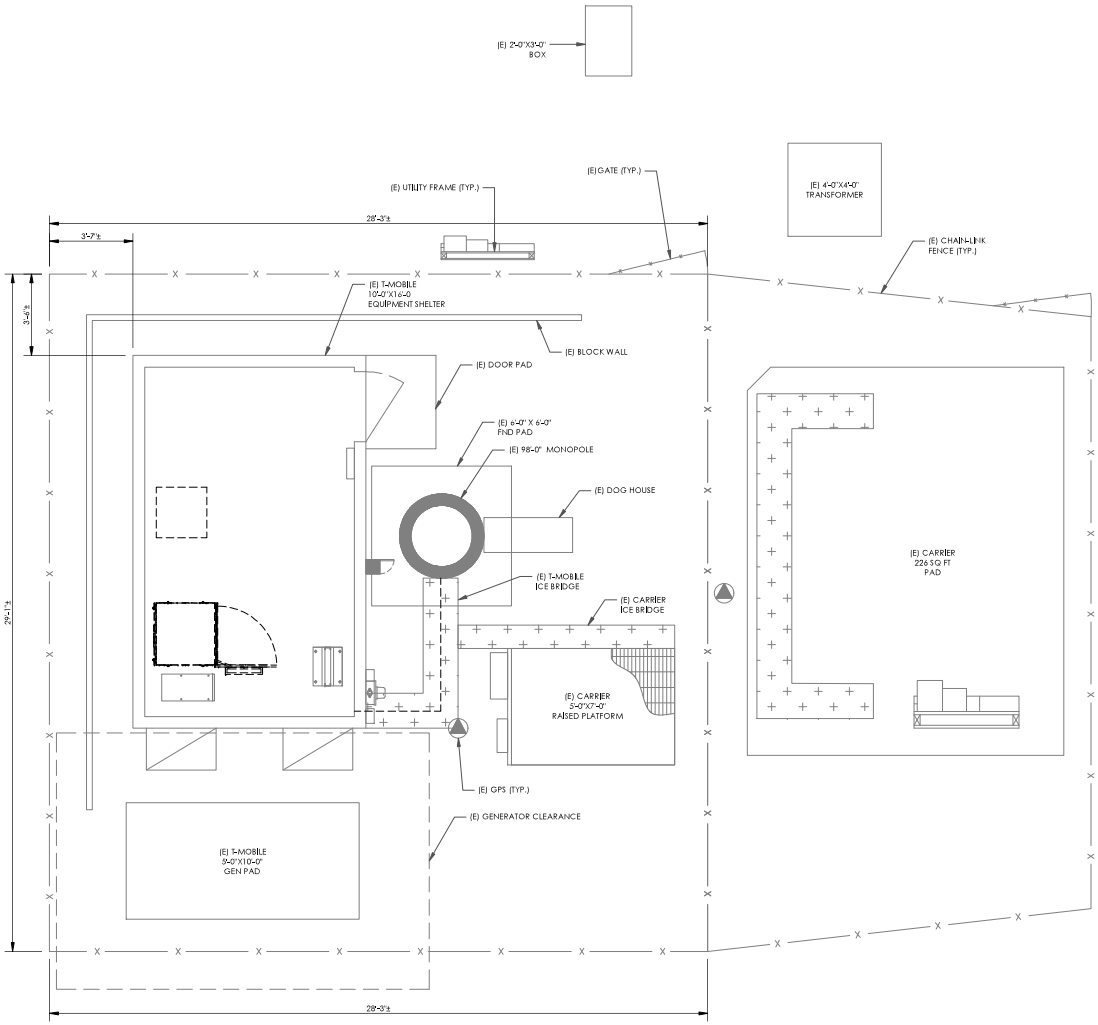
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/29/23	SM	PRELIMINARY	HS
0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS

PROFESSIONAL ENGINEER, STATE OF NEVADA
No. 021057
CIVIL
DATE: 08/25/23

PROJECT NUMBER:
23CCTNVM-003

SHEET NUMBER: C-1

REVISION: 1



1 SITE PLAN
SCALE: 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)

N

T··Mobile···

1755 CREEKSIDE OAKS DR, #190
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CROWN CASTLE

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OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012
SN305 SPOONER GRADE

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CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

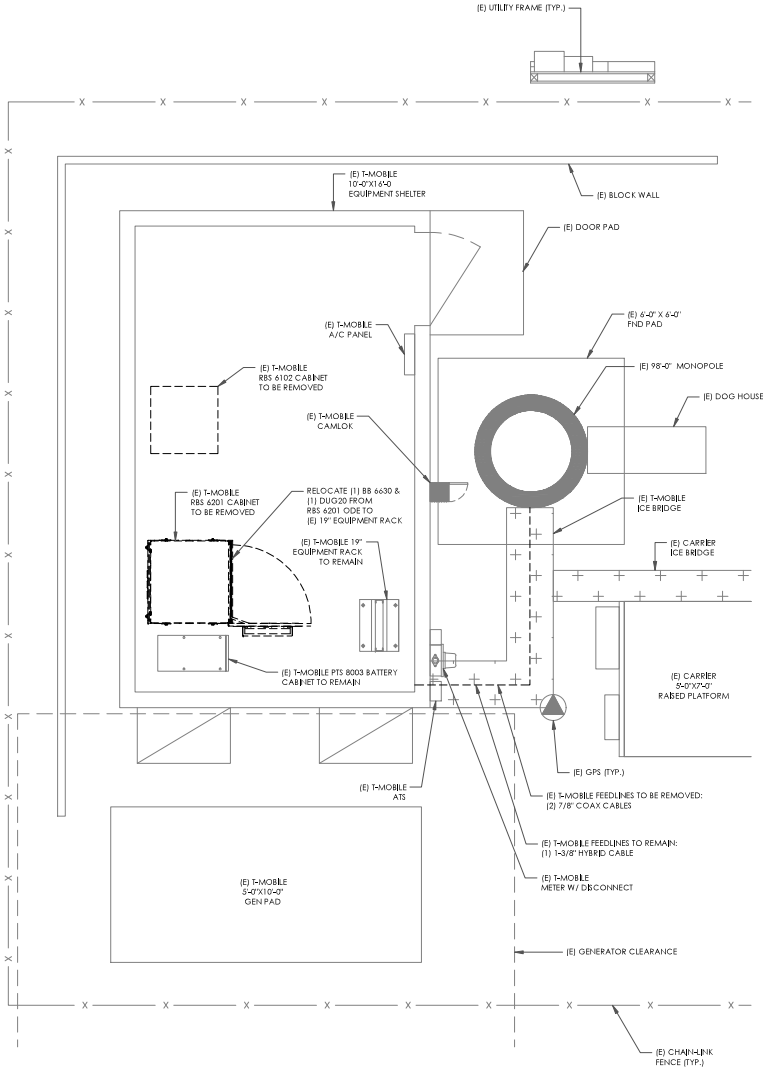
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/29/23	SM	PRELIMINARY	HS
0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS

PROFESSIONAL ENGINEER STATE OF NEVADA
PRELIMINARY
NOT FOR CONSTRUCTION
CIVIL
NO. 021051
DATE: 08/25/23

PROJECT NUMBER:
23CCTNVM-003

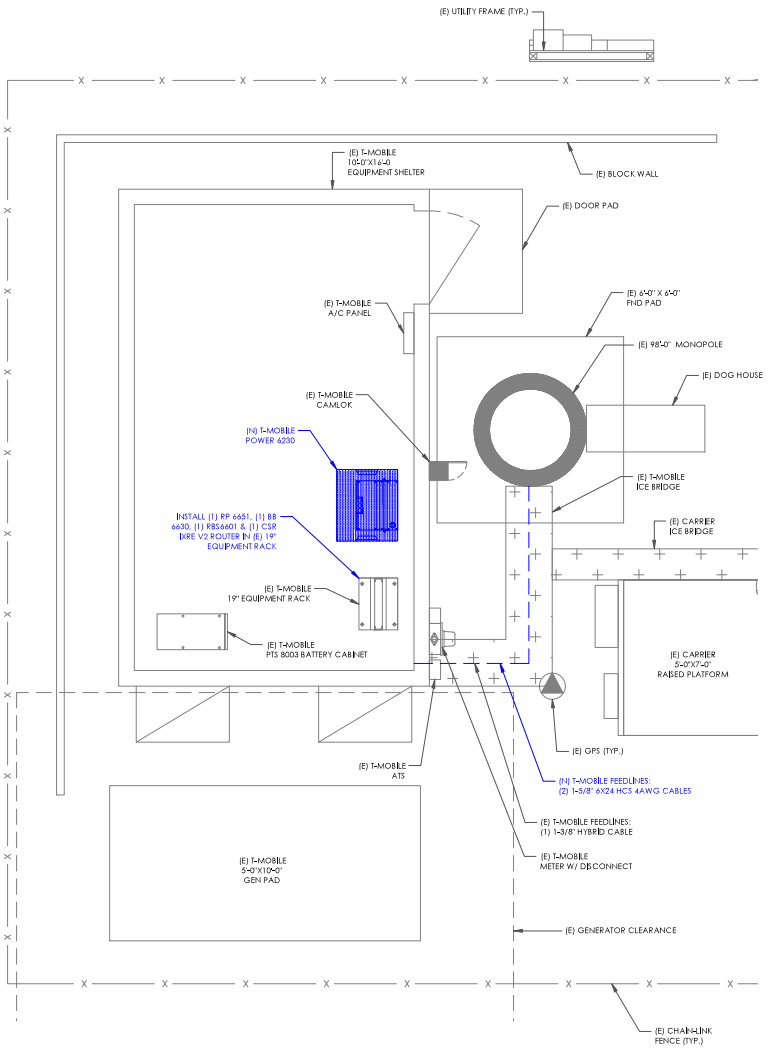
SHEET NUMBER:	REVISION:
C-1.1	1



1 EXISTING EQUIPMENT PLAN
SCALE: 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

ELECTRICAL NOTES:

POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGE IS TO BE PERFORMED BY OTHERS AND IS FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.



2 NEW EQUIPMENT PLAN
SCALE: 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

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T-MOBILE SITE NUMBER:
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BU #: 828012
SN305 SPOONER GRADE

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CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

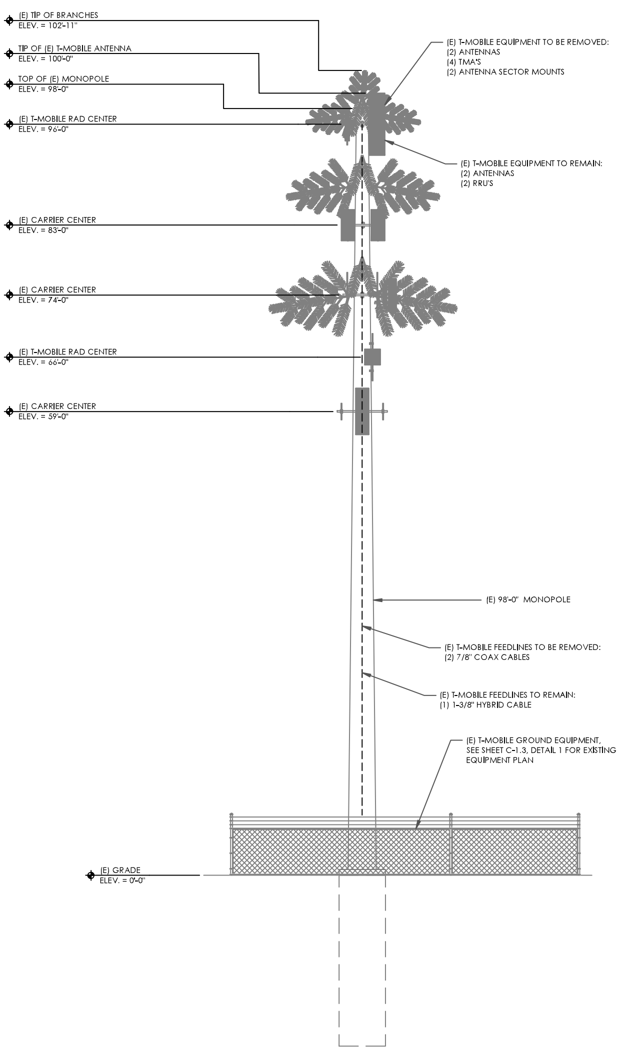
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/29/23	SM	PRELIMINARY	HS
0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS

PROJECT NUMBER:
23CCTNVM-003

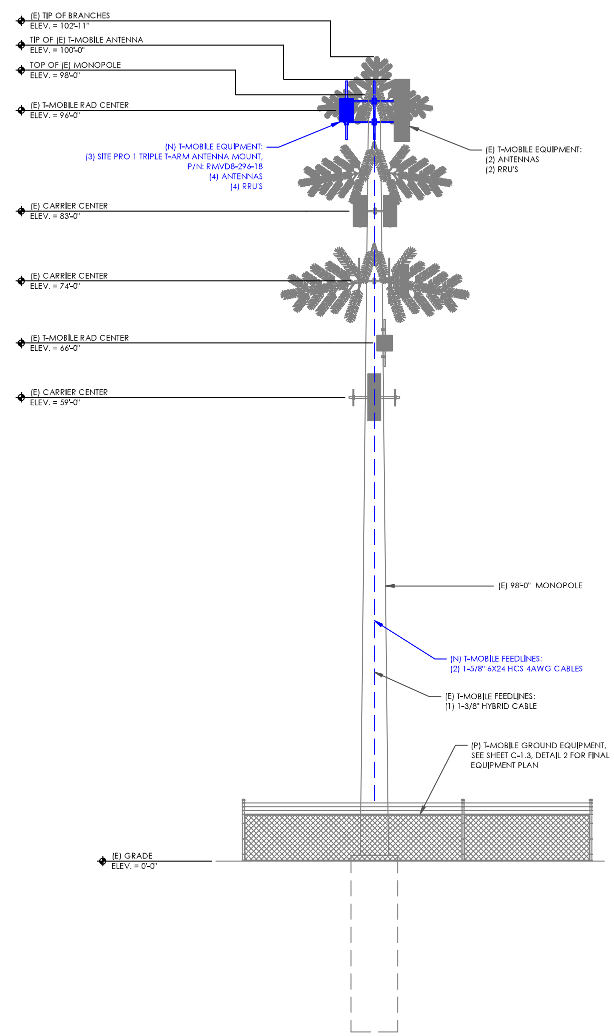
SHEET NUMBER:	REVISION:
C-1.2	1

STRUCTURAL ANALYSIS & INSTALLATION NOTES:

1. THE DESIGN DEPICTED IN THESE DRAWINGS IS VALID WHEN ACCOMPANIED BY A CORRESPONDING PASSING TOWER ANALYSIS, FOUNDATION ANALYSIS & 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.
4. GC SHALL USE ANTENNA CONCEALMENT SCOCKS TO CONCEAL ANTENNAS AND MATCH EXISTING FAUX PINE BRANCHES.
5. RRU'S AND ANTENNA MOUNTS SHALL BE PAINTED TO MATCH.



1 EXISTING SOUTH ELEVATION
SCALE: 1/8"=1'-0" (FULL SIZE) 1/16"=1'-0" (11x17)



2 NEW SOUTH ELEVATION
SCALE: 1/8"=1'-0" (FULL SIZE) 1/16"=1'-0" (11x17)

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T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012
SN305 SPOONER GRADE

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CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS

PROFESSIONAL ENGINEER STATE OF NEVADA, No. 023057, CIVIL — SIGNED 08/25/23

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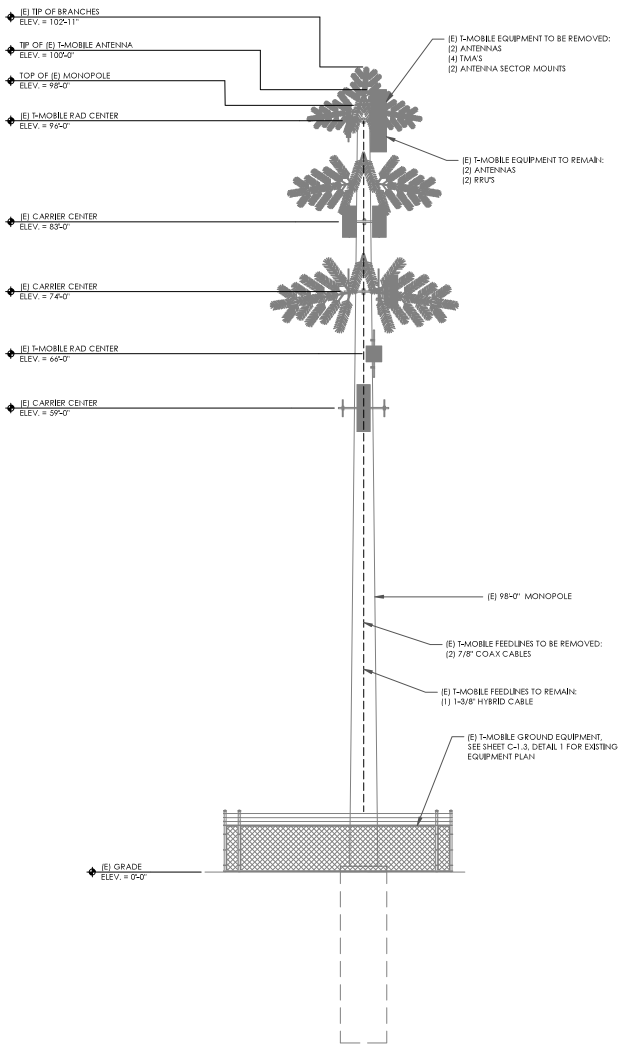
PROJECT NUMBER:
23CCTNVM-003

SHEET NUMBER: C-2
REVISION: 1

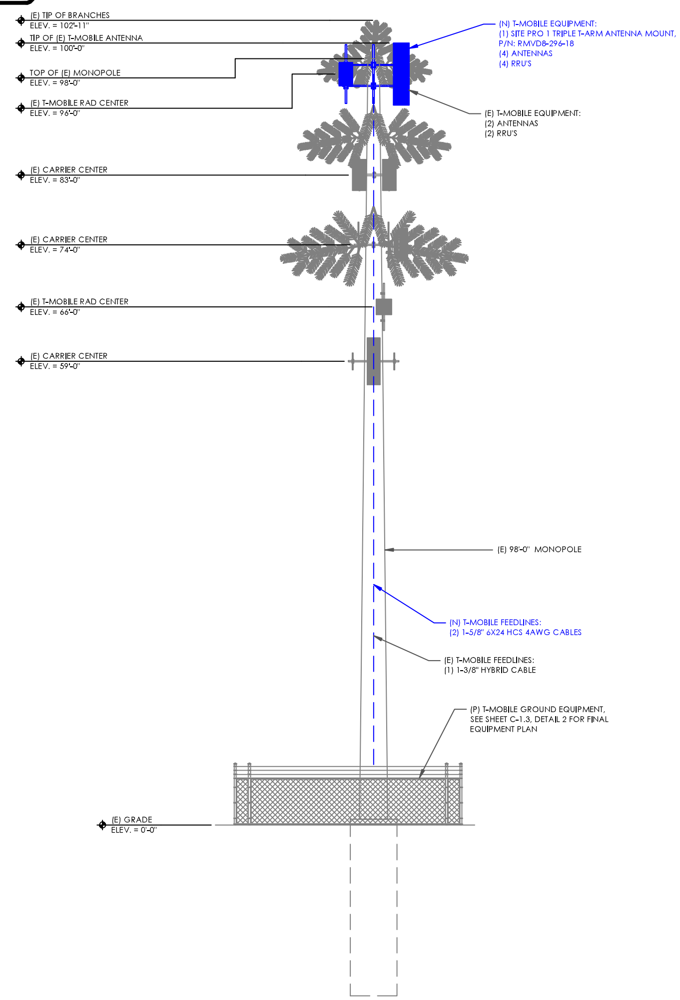


1 EXISTING WEST ELEVATION

SCALE: 1/8"=1'-0" (FULL SIZE) 1/16"=1'-0" (11x17)

STRUCTURAL ANALYSIS & INSTALLATION NOTES:

1. THE DESIGN DEPICTED IN THESE DRAWINGS IS VALID WHEN ACCOMPANIED BY A CORRESPONDING PASSING TOWER ANALYSIS, FOUNDATION ANALYSIS & 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.
4. GC SHALL USE ANTENNA CONCEALMENT SCOCKS TO CONCEAL ANTENNAS AND MATCH EXISTING FAUX PINE BRANCHES.
5. RRU'S AND ANTENNA MOUNTS SHALL BE PAINTED TO MATCH.



2 NEW WEST ELEVATION

SCALE: 1/8"=1'-0" (FULL SIZE) 1/16"=1'-0" (11x17)

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OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012

SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/29/23	SM	PRELIMINARY	HS
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1	08/25/23	SM	FINAL CD	HS

PROFESSIONAL ENGINEER STATE OF NEVADA, CIVIL, No. 023057, SIGNED 08/25/23

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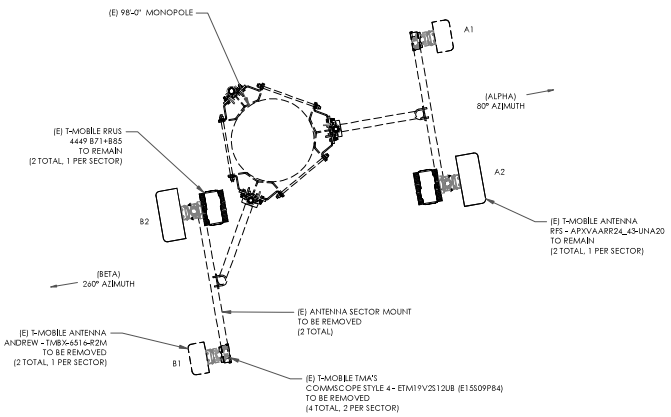
PROJECT NUMBER:
23CCTNVM-003

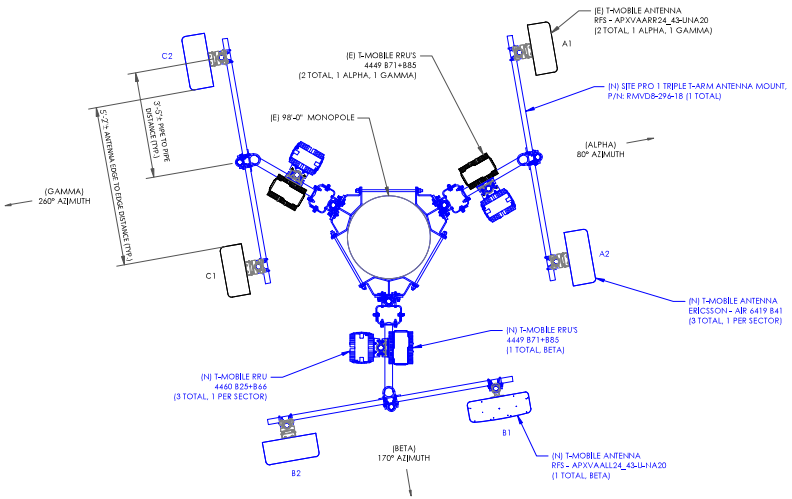
SHEET NUMBER: C-2.1

REVISION: 1



1 EXISTING ANTENNA PLAN
SCALE: 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

N



2 NEW ANTENNA PLAN
SCALE: 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

"LOOK UP" – CROWN CASTLE USA INC.
SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

NOTES:

1. REFERENCE RFDS FOR FINAL EQUIPMENT SCHEDULE.
2. REFERENCE C-5 FOR NEW EQUIPMENT SPECIFICATIONS.
3. CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.

STRUCTURAL ANALYSIS & INSTALLATION NOTES:

1. THE DESIGN DEPICTED IN THESE DRAWINGS IS VALID WHEN ACCOMPANIED BY A CORRESPONDING PASSING TOWER ANALYSIS, FOUNDATION ANALYSIS & 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.
4. GC SHALL USE ANTENNA CONCEALMENT SOCKS TO CONCEAL ANTENNAS AND MATCH EXISTING FAUX PINE BRANCHES.
5. RRU'S AND ANTENNA MOUNTS SHALL BE PAINTED TO MATCH.

ANTENNA & RRU INSTALLATION NOTES:

1. ANTENNAS ON EACH SECTOR SHALL HAVE A MINIMUM OF 38" SEPARATION BETWEEN ANTENNAS.

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1755 CREEKSIDE OAKS DR, #190
SACRAMENTO, CA 95833

CROWN CASTLE
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PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

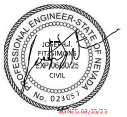
BU #: 828012
SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/29/23	SM	PRELIMINARY	HS
0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS



PROJECT NUMBER:
23CCTNVM-003

SHEET NUMBER:	REVISION:
C-3	1

EXISTING EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)

POSITION	ANTENNA				RADIO			DIPLEXER			TMA			SURGE PROTECTION			CABLES			
	TECH.	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS/MODEL	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
ALPHA																				
A1	L2100/ G1900	(E) ANDREW - TMBX-6516-R2M	80°	96'-0"	1	(E) 4449 B71+B85	A1	-	-	-	2	(E) COMMSCOPE STYLE 4 - ETM19V2512U8 (E1SS09PB4)	-	-	1	6X12 HCS CABLE	1-3/8"	40M
A2	L700/N600/ L600	(E) RFS - APXVAARR24_43-UNA20	80°	96'-0"	-	"	-	-	-	-	-	-	-	-	-	SHARED HYBRID CABLE	-	-
BETA																				
B1	L2100/ G1900	(E) ANDREW - TMBX-6516-R2M	260°	96'-0"	1	(E) 4449 B71+B85	B1	-	-	-	2	(E) COMMSCOPE STYLE 4 - ETM19V2512U8 (E1SS09PB4)	-	-	-	SHARED HYBRID CABLE	-	-
B2	L700/N600/ L600	(E) RFS - APXVAARR24_43-UNA20	260°	96'-0"	-	"	-	-	-	-	-	-	-	-	-	SHARED HYBRID CABLE	-	-

1 EXISTING EQUIPMENT SCHEDULE
SCALE: NOT TO SCALE

T-Mobile
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SACRAMENTO, CA 95833

CROWN CASTLE
1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012
SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/29/23	SM	PRELIMINARY	HS
0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS

PROJECT NUMBER:
23CCTNVM-003

SHEET NUMBER: C-4
REVISION: 1

FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)

POSITION	ANTENNA				RADIO			DIPLEXER			TMA		SURGE PROTECTION		CABLES			
	TECH.	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS/MODEL	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
ALPHA																		
A1	L600/L700/ N600/G1900 /L2100/ L1900/N1900	(E) RFS - APXVAARR24_43-UNA20	80°	96'-0"	2	(E) 4449 B71+B85/(N) 4460 B25+B66	A1	-	-	-	-	-	-	-	1	(E) 6X12 HCS CABLE	1-3/8"	40M
A2	N2500	(N) ERICSSON AIR 6419 B41	80°	96'-0"	-	-	-	-	-	-	-	-	-	-	1	(N) 6X24 HCS CABLE	1-5/8"	40M
BETA																		
B1	L600/L700/ N600/G1900 /L2100/ L1900/N1900	(N) RFS - APXVAALL24_43-U-NA20	170°	96'-0"	2	(E) 4449 B71+B85/(N) 4460 B25+B66	B1	-	-	-	-	-	-	-	-	(E) SHARED 6X12 HCS CABLE	-	-
B2	N2500	(N) ERICSSON AIR 6419 B41	170°	96'-0"	-	-	-	-	-	-	-	-	-	-	1	(N) 6X24 HCS CABLE	1-5/8"	40M
GAMMA																		
C1	L600/L700/ N600/G1900 /L2100/ L1900/N1900	(E) RFS - APXVAARR24_43-UNA20	260°	96'-0"	2	(N) 4449 B71+B85/(N) 4460 B25+B66	C1	-	-	-	-	-	-	-	-	(E) SHARED 6X12 HCS CABLE	-	-
C2	N2500	(N) ERICSSON AIR 6419 B41	260°	96'-0"	-	-	-	-	-	-	-	-	-	-	-	(N) SHARED 6X24 HCS CABLE	-	-

NOTES:
(E) - EXISTING
(N) - NEW

1 FINAL EQUIPMENT SCHEDULE
SCALE: NOT TO SCALE

T-Mobile
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SACRAMENTO, CA 95833

CROWN CASTLE
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5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

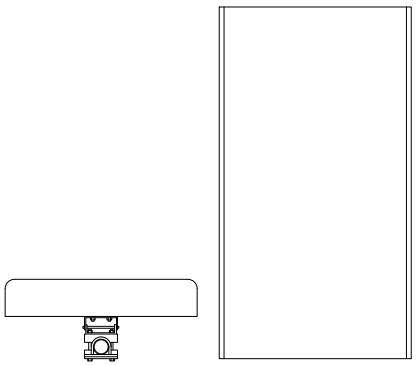
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/29/23	SM	PRELIMINARY	HS
0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS

PROFESSIONAL ENGINEER STATE OF NEVADA, No. 023051, CIVIL
SIGNED 08/25/23

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.

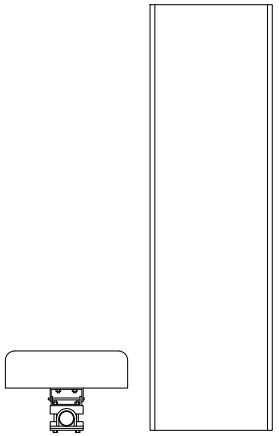
PROJECT NUMBER:
23CCTNVM-003

SHEET NUMBER: C-4.1
REVISION: 1



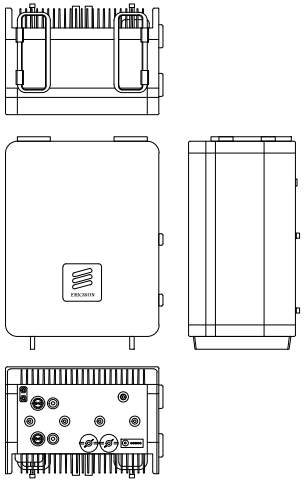
ERICSSON - AIR 6419 B41
WEIGHT (WITHOUT MOUNTING HARDWARE): 83.0 LBS
SIZE (HXWXD): 36.3X20.9X9.0IN.

1 ERICSSON - AIR 6419 B41
SCALE: NOT TO SCALE



RFS - APXVAALL24_43-U-NA20
WEIGHT (WITHOUT MOUNTING HARDWARE): 123.0 LBS
SIZE (HXWXD): 96.0X24.0X8.5 IN.

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



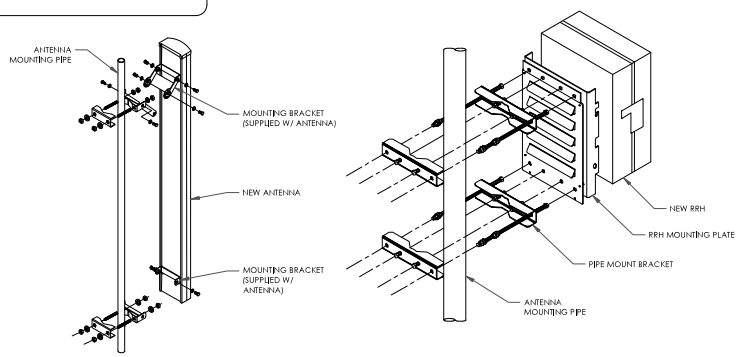
ERICSSON - RADIO 4460 B25+B66
WEIGHT: 109.0 LBS
SIZE (HxWxD): 17.0X15.1X11.9 IN.

3 ERICSSON - RADIO 4460 B25+B66
SCALE: NOT TO SCALE

4 NOT USED
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.



5 ANTENNA & RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

T-Mobile
1755 CREEKSIDE OAKS DR, #190
SACRAMENTO, CA 95833

CROWN CASTLE
1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012
SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

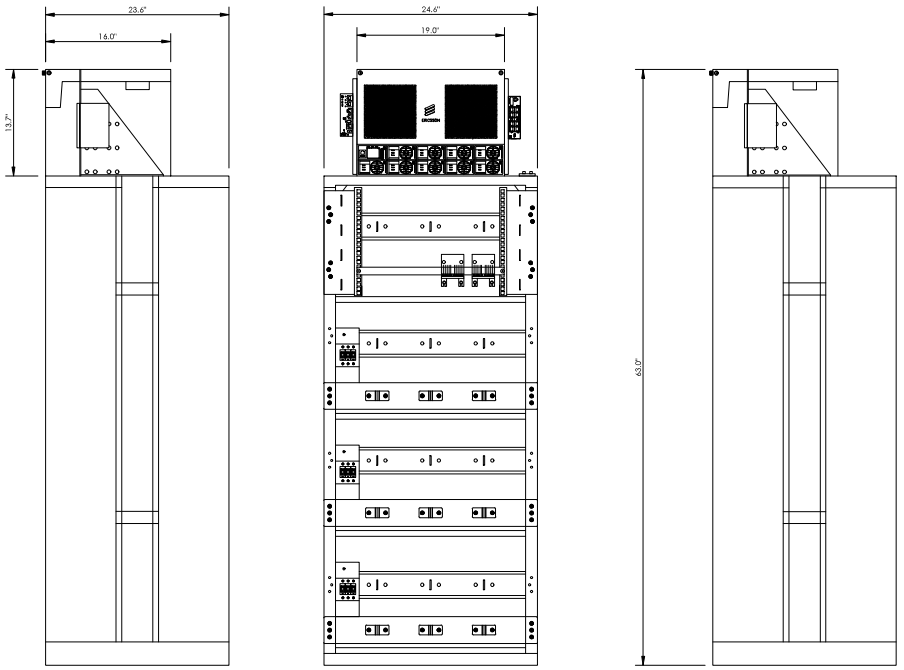
EXISTING 98'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/29/23	SM	PRELIMINARY	HS
0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS

PROJECT NUMBER:
23CCTNVM-003

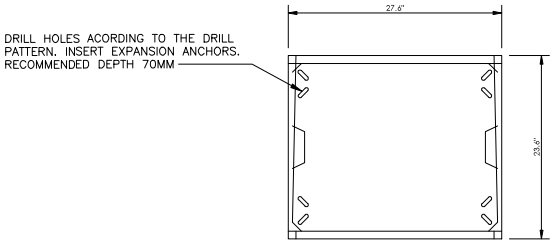
SHEET NUMBER:	REVISION:
C-5	1



LEFT VIEW

FRONT VIEW

RIGHT VIEW



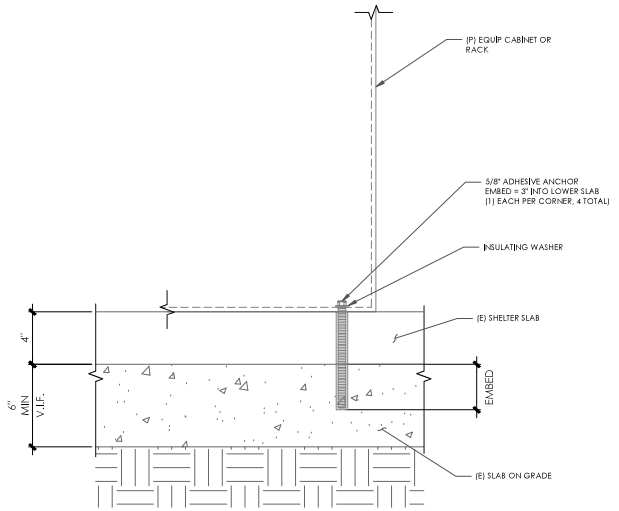
BOTTOM VIEW

MANUFACTURER:	ERICSSON
MODEL:	6230 POWER CABINET ID KIT REP 32477/9
DIMENSIONS:	63" x 27.6" x 23.6" (H x W x D)
WEIGHT:	343.9 LBS

1 ERICSSON 6230 DC POWER CABINET SPECS
SCALE: NOT TO SCALE

CABINET INSTALLATION NOTES:

1. ADHESIVE IS HILTI HIT-HY 200 V3
2. THREAD ROD IS GALVANIZED F1554 GR55
3. INSTALLATION AND SPECIAL INSPECTION IS PER ESR-4868



1 CABINET ANCHOR DETAIL
SCALE: NOT TO SCALE

T··Mobile···
1755 CREEKSIDE OAKS DR, #190
SACRAMENTO, CA 95833

CROWN CASTLE
1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012
SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

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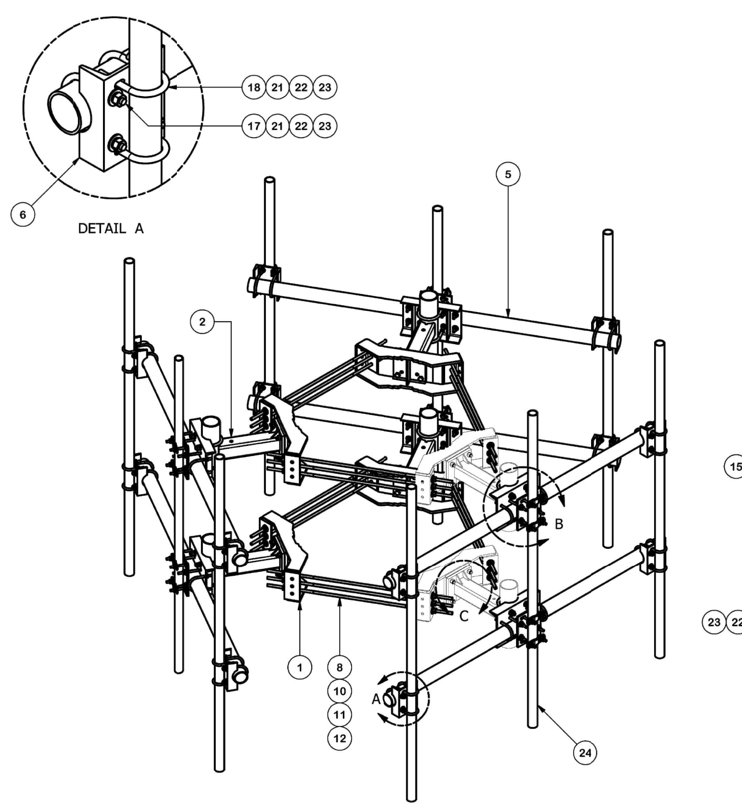
0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS

PROJECT NUMBER:
23CCTNVM-003

SHEET NUMBER:	REVISION:
C-6	1



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	6	X-SV197-18	SUPPORT ARM WELDMENT - 18"		45.69	274.15
3	6	X-SP216	LARGE SUPPORT CROSS PLATE		22.08	132.46
4	6	SCX3	CROSSOVER PLATE	9.250 in	7.19	43.13
5	6	P396	3-1/2" X 96" (3" SCH 40) GALVANZIED PIPE	96.000 in	60.75	364.49
6	12	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	103.33
7	12	X-100064	CLAMP (4" V-CLAMP) GALVANIZED		0.92	11.06
8	18	G58R-48	5/8" X 48" GALV THREADED ROD		4.39	79.03
8	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	37.63
9	12	X-UB5458	5/8" X 4-5/8" X 7" X 3" U-BOLT (HDG.)		1.54	18.42
10	36	G58FW	5/8" HDG USS FLATWASHER	.122	0.07	2.54
11	84	G58LW	5/8" HDG LOCKWASHER		0.03	2.19
12	36	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	4.68
13	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2.75	0.36	8.54
14	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
15	48	A58NUT	5/8" HDG A325 HEX NUT		0.13	6.23
16	12	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" U-BOLT (HDG.)		0.77	9.27
17	24	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	19.88
18	24	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	15.00
19	24	G12R-8	1/2" x 8" THREADED ROD (HDG.)		0.45	10.71
20	24	G12045	1/2" x 4.5" HDG HEX BOLT GR5 FULL THREAD	4.5	0.30	7.15
21	216	G12FW	1/2" HDG USS FLATWASHER	0.095	0.03	7.36
22	192	G12LW	1/2" HDG LOCKWASHER	.125	0.01	2.67
23	192	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	13.75
24	9	A	B	C	D	E

TABLE					
"ASSEMBLY NO."	PART NO. "A"	PART DESCRIPTION "B"	LENGTH "C"	UNIT WT. "D"	TOTAL WT.
RMVD8-296-18	P296	2-3/8" O.D. SCH. 40 PIPE	96"	29.22	1,880.76
RMVD8-2120-18	P2120	2-2/8" O.D. SCH. 40 PIPE	120"	36.53	1,936.65

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")*

DESCRIPTION
8' DOUBLE MONOPOLE TRIPLE T-ARM W/ 2-3/8" ANTENNA PIPES & 18" STANDOFF

SITE PRO 1 — A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
	CMFL 11/23/2021	11/13/2020	RMVD8-2XX-18	1 OF 2
CLASS 87 / SUB 02	DRAWING USAGE: CUSTOMER	CHECKED BY: BMC 11/13/2020	DWG. NO.: RMVD8-2XX-18	

1 SITE PRO 1 RMVD8-296-18 MOUNT SPECS
SCALE: NOT TO SCALE

T-Mobile
1755 CREEKSIDE OAKS DR, #190
SACRAMENTO, CA 95833

CROWN CASTLE
1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012
SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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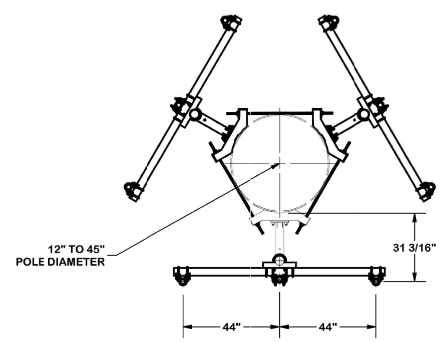
1	08/25/23	SM	FINAL CD	HS

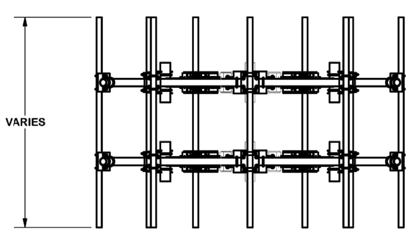
PROFESSIONAL ENGINEER STATE OF NEVADA — CIVIL — No. 023057 — SIGNED 08/25/23

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.

PROJECT NUMBER:
23CCTNVM-003

SHEET NUMBER: C-7
REVISION: 1





TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
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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")*

DESCRIPTION
8' DOUBLE MONOPOLE TRIPLE T-ARM
W/ 2-3/8" ANTENNA PIPES & 18" STANDOFF

SITE PRO 1
A valmont COMPANY

Engineering Support Team: 1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

CPD NO.		DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
		CMFL 11/23/2021	11/13/2020	RMVD8-2XX-18	2 OF 2
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.	
87	02	CUSTOMER	BMC 11/13/2020	RMVD8-2XX-18	

1 SITE PRO 1 RMVD8-296-18 MOUNT SPECS
SCALE: NOT TO SCALE

T-Mobile
1755 CREEKSIDE OAKS DR, #190
SACRAMENTO, CA 95833

CROWN CASTLE
1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012
SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/29/23	SM	PRELIMINARY	HS
0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS

PROFESSIONAL ENGINEER STATE OF NEVADA, CIVIL, No. 023057, EXP. 06/30/25 — SIGNED 08/25/23

PROJECT NUMBER:
23CCTNVM-003

SHEET NUMBER: C-7.1
REVISION: 1

T-MOBILE SITE #:	LOCATION:	VOLTAGE: 240/120 1ø
SC60294A (EXISTING)	INTERIOR WALL MOUNTED P²C CABINET	MAIN C/B: 200 AMPS
6/29/2023		BUS RATING: 200 AMPS

MOUNTING / ENCLOSURE:	EXISTING / NEMA 3R
AVAIL. FAULT CURRENT:	EXISTING
SHORT CIRCUIT RATING:	EXISTING

AMPS/ POLES	WIRE & CONDUIT	TYPE	DESCRIPTION	kVA	CKT	A	B	CKT	kVA	DESCRIPTION	TYPE	WIRE & CONDUIT	AMPS/ POLES
-	-	AC	-		1	2.88		2	2.88	HVAC #2	AC	EXISTING	30/2
30/2	EXISTING	AC	HVAC	2.88	3		2.88	4		-	AC	-	-
20/1			-		5			6		SPARE			15/1
20/1			SPARE		7		1.66	8	1.65	POWER 6230 RECTIFIER #1	EQ	3) #6, (1) #.0 GND, 1/1" C	25/2
20/1	SPARE		-		9	1.66		10	1.65	-	EQ	-	-
		EQ	-	5.76	11		7.42	12	1.65	POWER 6230 RECTIFIER #2	EQ	3) #6, (1) #.0 GND, 1/1" C	25/2
60/2	EXISTING	EQ	RBS 6201	5.76	13	7.42		14	1.65	-	EQ	-	-
-			SPARE		15		1.66	16	1.65	POWER 6230 RECTIFIER #3	EQ	3) #6, (1) #.0 GND, 1/1" C	25/2
15/2			-		17	1.66		18	1.65	-	EQ	-	-
			SPARE		19		1.66	20	1.65	POWER 6230 RECTIFIER #4	EQ	3) #6, (1) #.0 GND, 1/1" C	25/2
15/2					21	1.66		22	1.65	-	EQ		
-			SPARE		23		1.66	24	1.65	POWER 6230 RECTIFIER #5	EQ	3) #6, (1) #.0 GND, 1/1" C	25/2
15/2			-		25	1.66		26	1.65	-	EQ	-	-
			KNOCKOUT		27		1.66	28	1.65	POWER 6230 RECTIFIER #6	EQ	3) #6, (1) #.0 GND, 1/1" C	25/2
			KNOCKOUT		29	1.66		30	1.65	-	EQ	-	-
			KNOCKOUT		31			32		KNOCKOUT			
			KNOCKOUT		33			34		KNOCKOUT			
			KNOCKOUT		35			36		KNOCKOUT			
			KNOCKOUT		37			38		KNOCKOUT			
			KNOCKOUT		39		0.10	40	0.10	SURGE PROTECTION	EQ	EXISTING	30/2
			KNOCKOUT		41	0.10		42	0.10	-	EQ		
				PHASE TOTAL		18.7			18.7	kVA			

TOTAL CONNECTED LOAD	37.1 kVA	156 A
TOTAL DEMAND LOAD	37.1 kVA	156 A

LOAD TYPE	DESCRIPTION	CONN. LOAD kVA	CONN. LOAD AMPS	DEMAND FACTOR	DESIGN LOAD kVA	DESIGN LOAD AMPS
L	LIGHTING	0.0	0.0	1.25	0.0	0.0
R	RECEPTACLE	0.0	0.0	NEC	0.0	0.0
M	MOTOR	0.0	0.0	NEC	0.0	0.0
H	HEATING	0.0	0.0	1.00	0.0	0.0
AC	HVAC	5.8	24.0	1.00	5.8	24.0
EQ	EQUIPMENT	31.6	131.8	1.00	31.6	131.8
E	EXISTING	0.0	0.0	1.25	0.0	0.0

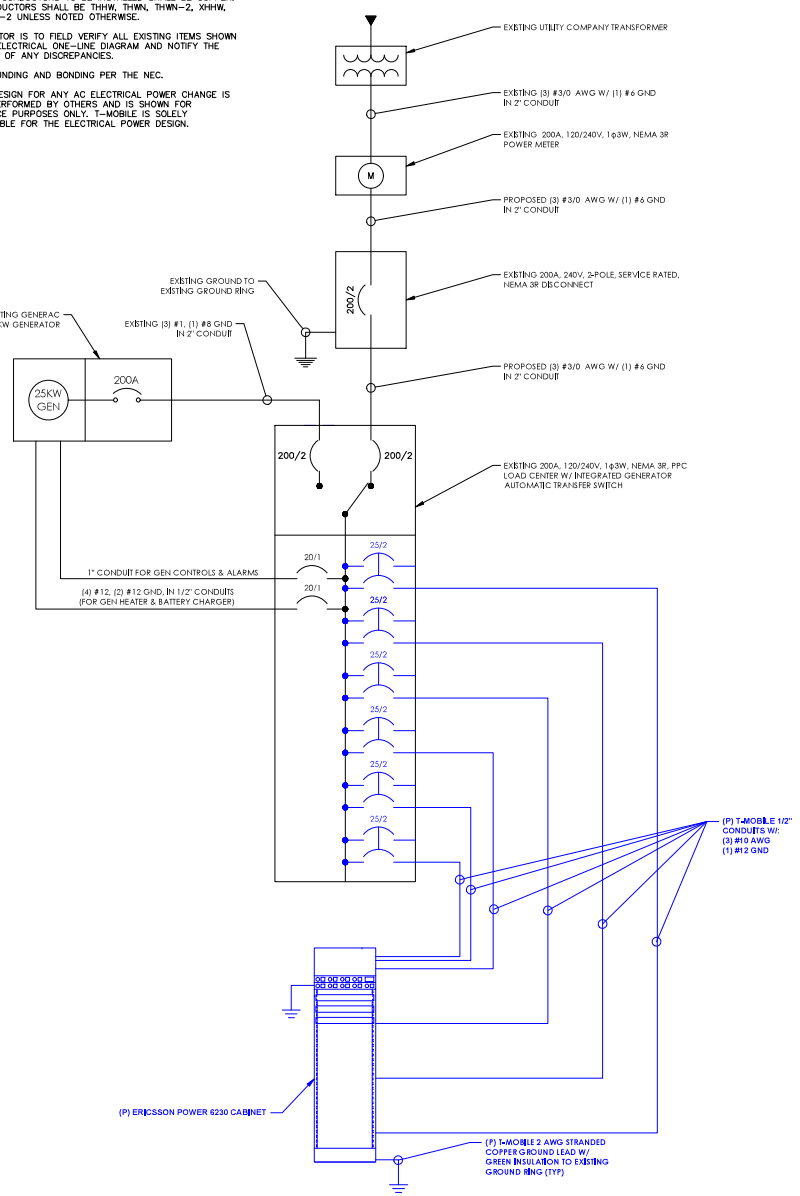
* ALL EQUIPMENT LOADS CONSIDERED CONTINUOUS LOADS

NOTES:

1 FINAL PANEL SCHEDULE
SCALE: NOT TO SCALE

ELECTRICAL NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, OR XHHW-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.
4. POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGE IS TO BE PERFORMED BY OTHERS AND IS SHOWN FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.



2 ONE-LINE DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
1755 CREEKSIDE OAKS DR, #190
SACRAMENTO, CA 95833

CROWN CASTLE
1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012
SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

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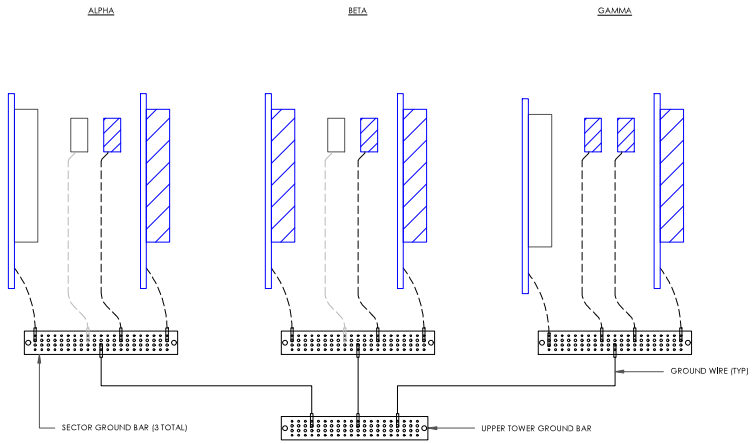
PROFESSIONAL ENGINEER — STATE OF NEVADA
JEFF ERTELT
Exp: 12/31/24
ELECTRICAL
No. 030565

8/30/2023

PROJECT NUMBER:
23CCTNVM-003

SHEET NUMBER:	REVISION:
E-1	1



GROUNDING NOTE:

ALL NEW GROUNDS TO BE #6 STRANDED COPPER WITH GREEN INSULATION UNLESS NOTED OTHERWISE.

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile

1755 CREEKSIDE OAKS DR, #190
SACRAMENTO, CA 95833

CROWN CASTLE
1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

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T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012
SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

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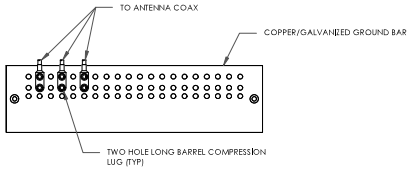
0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS

PROFESSIONAL ENGINEER - STATE OF NEVADA
JEFF
ERTELT
Exp: 12/31/24
ELECTRICAL
No. 030565

8/30/202

PROJECT NUMBER:
23CCTNVM-003

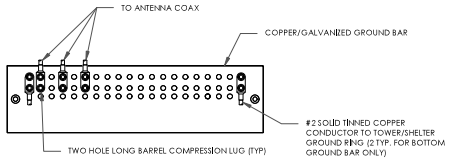
SHEET NUMBER:	REVISION:
G-1	1



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

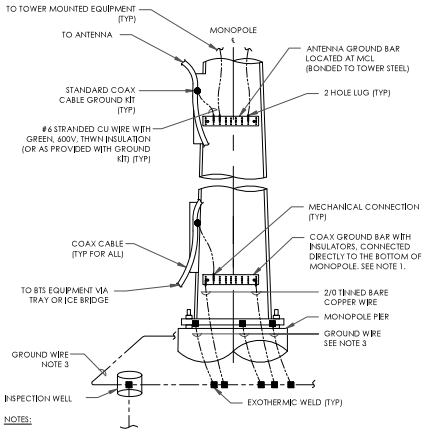


NOTES:

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

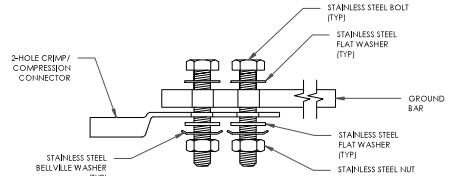
3 NOT USED
SCALE: NOT TO SCALE



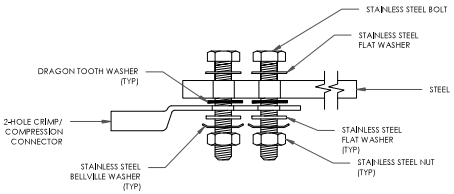
NOTES:

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.

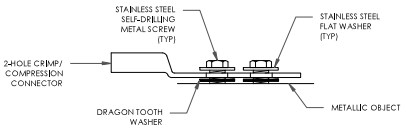
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS



SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

T-Mobile
1755 CREEKSIDE OAKS DR, #190
SACRAMENTO, CA 95833

CROWN CASTLE
1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012
SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR
CARSON CITY, NV 89703

EXISTING 98'-0" MONOPOLE

ISSUED FOR:

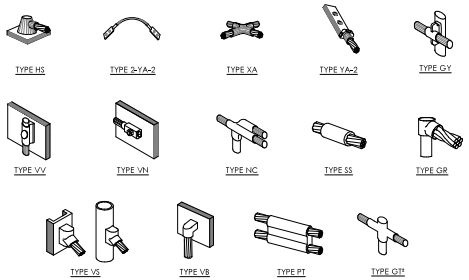
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/29/23	SM	PRELIMINARY	HS
0	07/27/23	SM	FINAL CD	HS
1	08/25/23	SM	FINAL CD	HS

PROFESSIONAL ENGINEER STATE OF NEVADA
JEFF ERTELT
Exp: 12/31/24
ELECTRICAL
No. 030565

8/30/202

PROJECT NUMBER:
23CCTNVM-003

SHEET NUMBER:	REVISION:
G-2	1

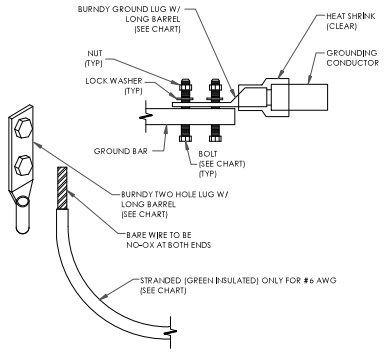


NOTE:

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

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	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

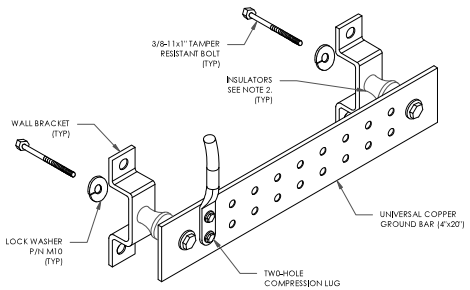
1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER,GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE

3 NOT USED
SCALE: NOT TO SCALE

4 NOT USED
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

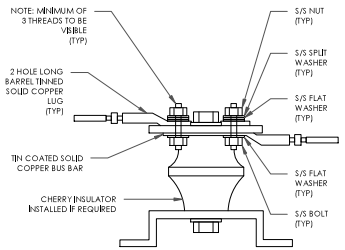


NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY GAS-STD-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



7 LUG DETAIL
SCALE: NOT TO SCALE

8 NOT USED
SCALE: NOT TO SCALE

T-Mobile

1755 CREEKSIDE OAKS DR, #190
SACRAMENTO, CA 95833

CROWN CASTLE

1 PARK PLACE, SUITE 300
DUBLIN, CA 94568

PM&A

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6801 PORTWEST DR. STE 100,
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OFFICE 713-677-0964

T-MOBILE SITE NUMBER:
SC14008Z

BU #: 828012
SN305 SPOONER GRADE

5364 SIERRA HIGHLAND DR
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EXISTING 98'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/29/23	SM	PRELIMINARY	HS
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PROFESSIONAL ENGINEER - STATE OF NEVADA
JEFF ERTELT
Exp: 12/31/24
ELECTRICAL
No. 030565

8/30/202

PROJECT NUMBER:
23CCTNVM-003

SHEET NUMBER:	REVISION:
G-3	1

Date: **June 9, 2023**

Trylon
1825 W. Walnut Hill Lane,
Suite 302
Irving, TX 75038
214-930-1730

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	SC14008Z
	Carrier Site Name:	SC14008
Crown Castle Designation:	**BU Number:**	828012
	Site Name:	SN305 Spooner Grade
	JDE Job Number:	746214
	Order Number:	649714 Rev. 0
Engineering Firm Designation:	**Trylon Report Designation:**	228920
Site Data:	**5364 Sierra Highland Dr, Carson City, Carson City County, NV, 89703**	
	Latitude 39°7'1.53" Longitude -119°50'36.67"	
Structure Information:	**Tower Height & Type:**	**98.0 ft Monopole**
	Mount Elevation:	**96.0 ft**
	Mount Width & Type:	**8.0 ft Double T-Arms**

Trylon is pleased to submit this **"Mount Replacement Analysis Report"** to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

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

Double T-Arms **Sufficient***
***Sufficient upon completion of the changes listed in the 'Recommendations' section of this report.**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 120 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Steve Mustaro, P.E.

Respectfully Submitted by:
Matthew K Jamerson, P.E.

Matthew Jamerson

TABLE OF CONTENTS

1) INTRODUCTION

This is a proposed three sector 8.0 ft Double T-Arms, designed by Site Pro 1.

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	120 mph
Exposure Category:	C
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	0 in
Wind Speed with Ice:	30 mph
Seismic S_s:	1.990
Seismic S_1:	0.730
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
96.0	96.0	2	RFS/CELWAVE	APXVAARR24_43-U-NA20	8.0 ft Double T-Arms [Site Pro 1 RMVD8-296-18]
		3	ERICSSON	AIR 6419 B41_TMO_CCIV2	
		1	RFS/CELWAVE	APXVAALL24_43-U-NA20_TMO	
		1	ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	
		3	ERICSSON	RADIO 4460 B2/B25 B66_TMO	
	95.0	2	ERICSSON	RADIO 4449 B71/B85A	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	T-Mobile Application	649714 Rev. 0	CCI Sites
Mount Manufacturer Drawings	Site Pro 1	RMVD8-2XX-18	Trylon

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed, using Microsoft Excel, by Trylon was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

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

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Double T-Arms, Worst Case Sector)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2, 3	Mount Pipe(s)	MP1	96.0	35.7	Pass
	Horizontal(s)	H1		27.3	Pass
	Standoff(s)	M1		13.0	Pass
	Mount Connection(s)	-		10.9	Pass

Structure Rating (max from all components) =	35.7%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in "Appendix D – Additional Calculations" for detailed mount connection calculations.
3) Rating per TIA-222-H, Section 15.5

4.1) Recommendations

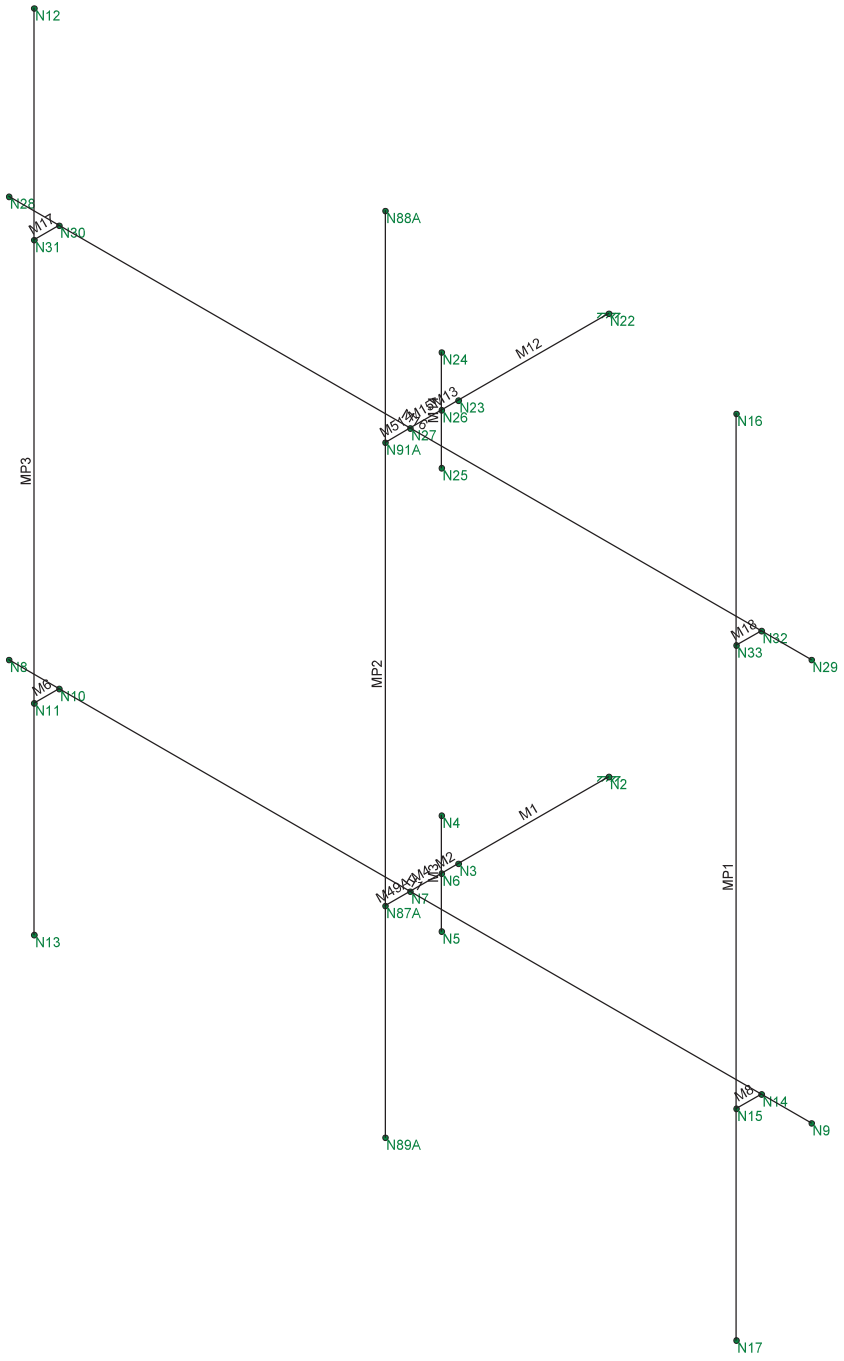
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Site Pro 1 RMVD8-296-18.

No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Trylon	828012	Wireframe
SMM		June 9, 2023 at 9:46 AM
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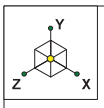

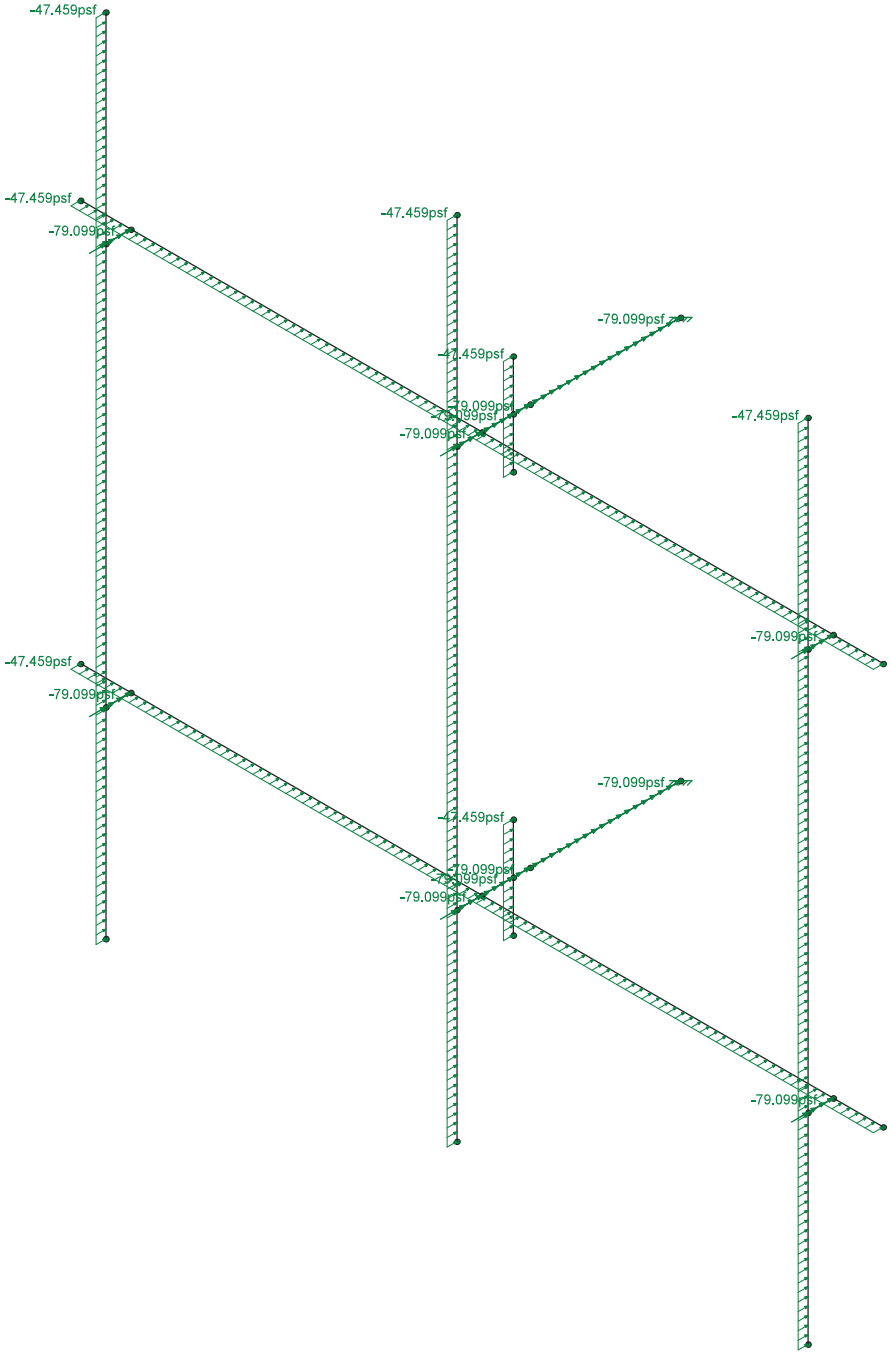

Loads: BLC 2, Structure Wind Z
Envelope Only Solution

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SMM		June 9, 2023 at 9:46 AM
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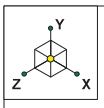

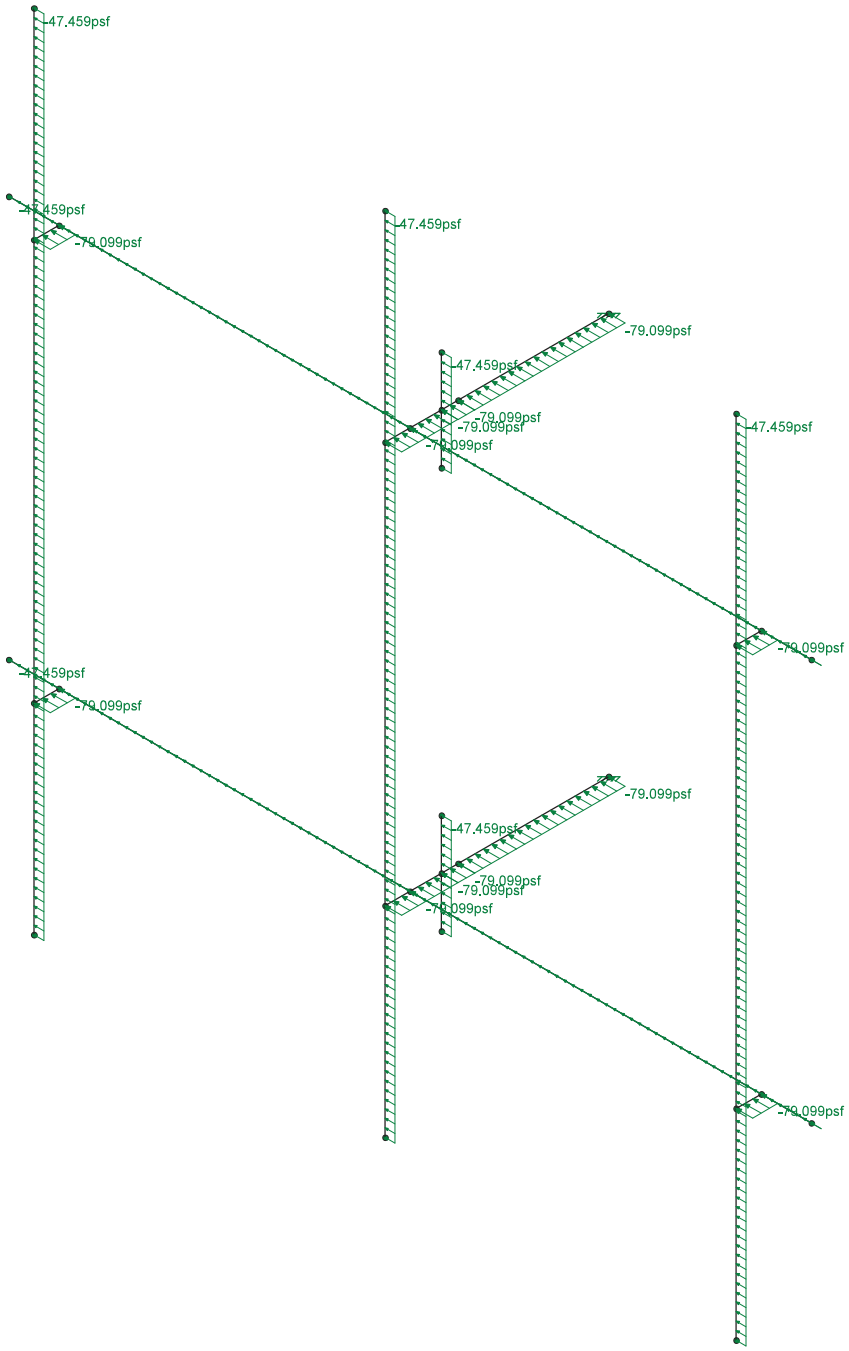

Loads: BLC 3, Structure Wind X
Envelope Only Solution

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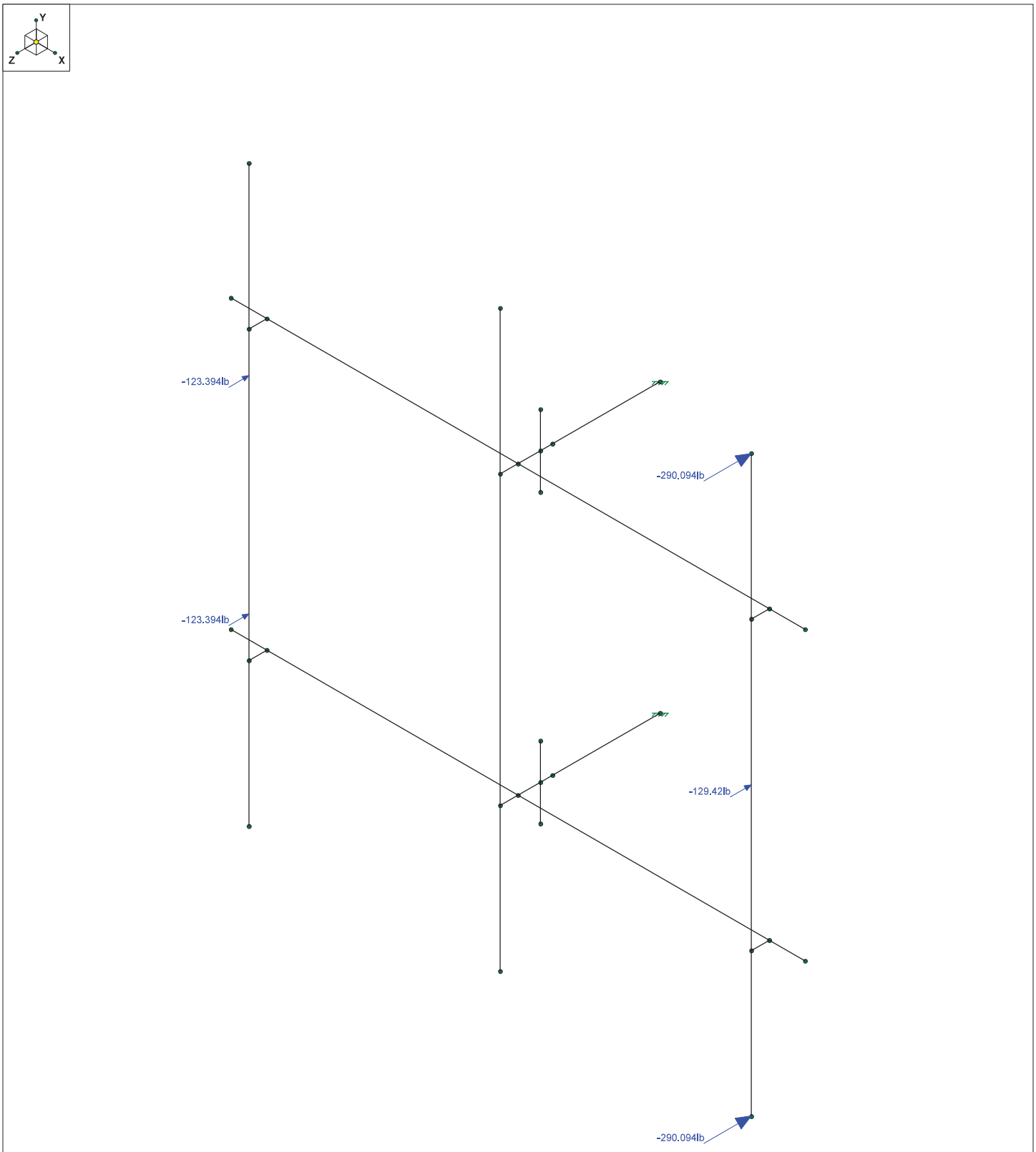

Loads: BLC 4, Wind Load 0 AZI
Envelope Only Solution

Trylon	828012	Wind Loads
SMM		June 9, 2023 at 9:46 AM
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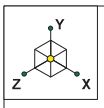

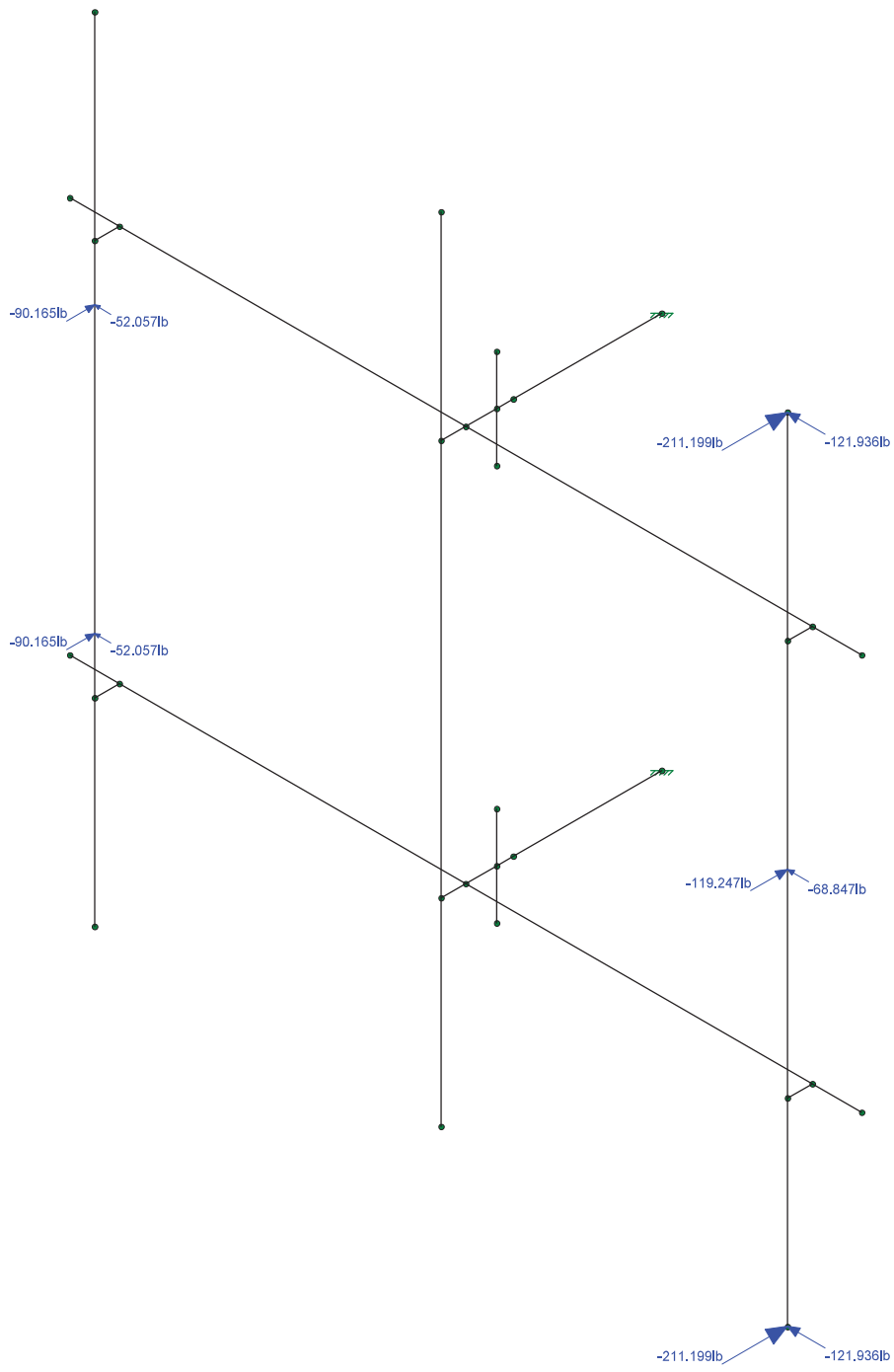

Loads: BLC 5, Wind Load 30 AZI
Envelope Only Solution

Trylon	828012	Wind Loads
SMM		June 9, 2023 at 9:47 AM
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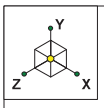
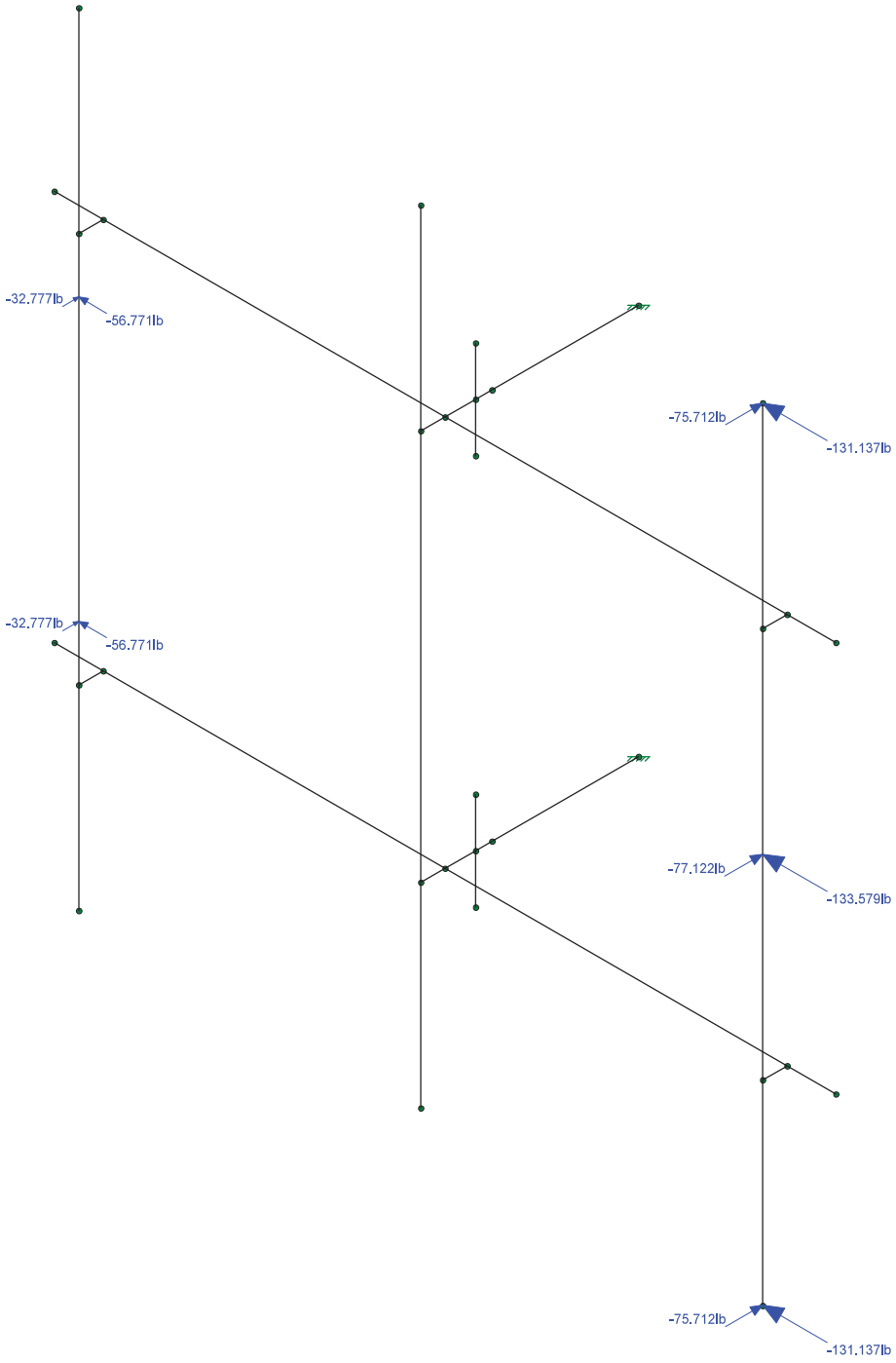
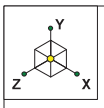
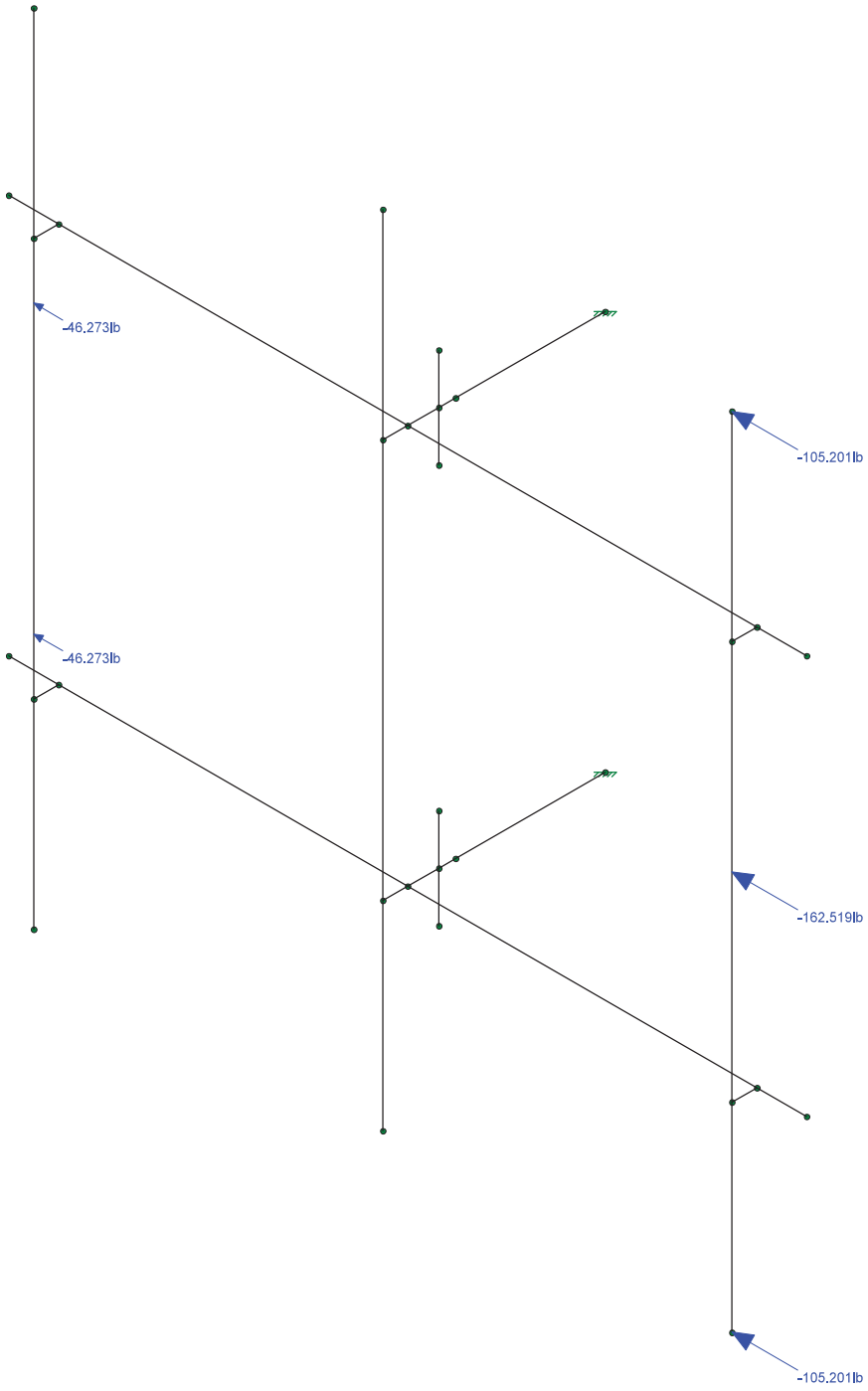




Loads: BLC 7, Wind Load 60 AZI
Envelope Only Solution

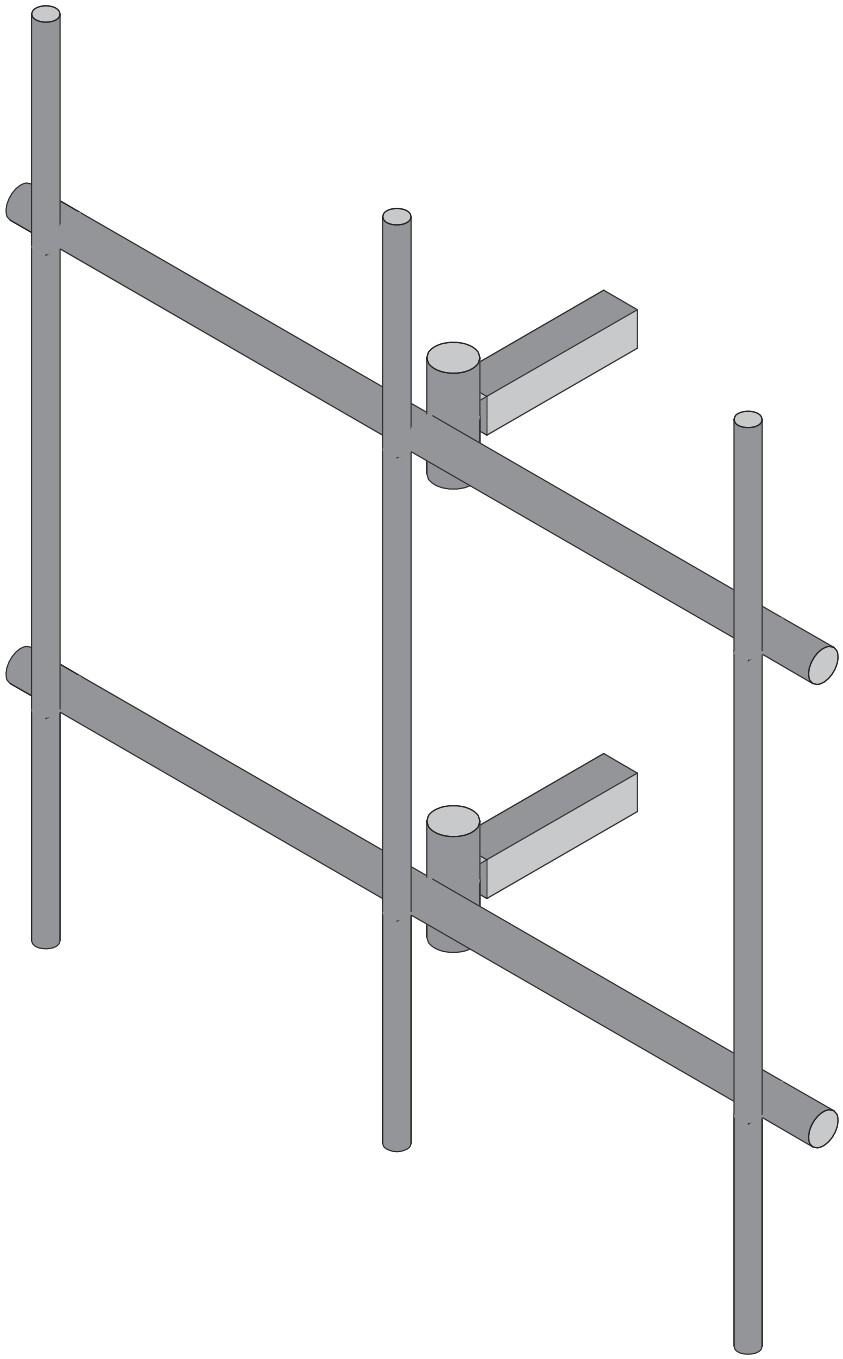
Trylon	828012	Wind Loads
SMM		June 9, 2023 at 9:47 AM
228920		828012_loaded.r3d





Loads: BLC 8, Wind Load 90 AZI
Envelope Only Solution

Trylon	828012	Wind Loads
SMM		June 9, 2023 at 9:47 AM
228920		828012_loaded.r3d



Envelope Only Solution

Trylon	828012	Render
SMM		June 9, 2023 at 9:47 AM
228920		828012_loaded.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	39.117092
Risk Category:	II	**Longitude:**	-119.843519
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	5904.348567357783 ft (NAVD 88)

Wind

Results:

Wind Speed	120 mph per Jurisdiction requirements.
10-year MRI	67 Vmph
25-year MRI	73 Vmph
50-year MRI	77 Vmph
100-year MRI	82 Vmph
Special	Special Wind Region -- Mountainous terrain, gorges, and special wind regions shown in Fig. 26.5-1 shall be examined for unusual wind conditions. The Authority Having Jurisdiction shall, if necessary, adjust the values given in Fig. 26.5-1 to account for higher local wind speeds. Such adjustment shall be based on meteorological information and an estimate of the basic wind speed obtained in accordance with the provisions in Section 26.5.3.

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Fri Jun 09 2023

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.

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

Seismic

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

Results:

S_S :	1.99	S_{D1} :	N/A
S_1 :	0.73	T_L :	6
F_a :	1.2	PGA :	0.857
F_v :	N/A	PGA_M :	1.028
S_{MS} :	2.388	F_{PGA} :	1.2
S_{M1} :	N/A	I_e :	1
S_{DS} :	1.592	C_v :	1.498

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Fri Jun 09 2023

Date Source: USGS Seismic Design Maps

Ice

Results:

Ice Thickness:	0 in.
Concurrent Temperature:	25 F
Gust Speed	30 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri Jun 09 2023

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.

Trylon
1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

TIA LOAD CALCULATOR 2.2

PROJECT DATA	
Job Code:	228920
Carrier Site ID:	BU 828012
Carrier Site Name:	SN305 Spooner Grade

CODES AND STANDARDS	
Building Code:	2018 IBC
Local Building Code:	0
Design Standard:	TIA-222-H

STRUCTURE DETAILS		
Mount Type:	T-Arm (Multiple)	--
Mount Elevation:	96.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	98.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	C	--
Site Class:	D - Default	--
Ground Elevation:	0	ft.

TOPOGRAPHIC DATA		
Topographic Category:	1.00	--
Topographic Feature:	N/A	--
Crest Point Elevation:	0.00	ft.
Base Point Elevation:	0.00	ft.
Crest to Mid-Height (L/2):	0.00	ft.
Distance from Crest (x):	0.00	ft.
Base Topo Factor (K_{zt}):	1.00	--
Mount Topo Factor (K_{zt}):	1.00	--

WIND PARAMETERS		
Design Wind Speed:	120	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	1.25	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (Gh):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	43.94	psf
Ground Elevation Factor (K_e):	1.00	--

ICE PARAMETERS		
Design Ice Wind Speed:	30	mph
Design Ice Thickness (t_i):	0.00	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	0.00	psf
Mount Ice Thickness (t_{iz}):	0.00	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	79.10	psf
Round Member Pressure:	47.46	psf
Ice Wind Pressure:	0.00	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel .(S_s):	1.99	g
1 Second Accel (S_1):	0.73	g
Short Period Des. (S_{DS}):	1.59	g
1 Second Des. (S_{D1}):	0.83	g
Short Period Coeff. (F_a):	1.20	--
1 Second Coeff. (F_v):	1.70	--
Response Coefficient (Cs):	0.80	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

#	Description
1	1.4DL
2	1.2DL + 1WL 0 AZI
3	1.2DL + 1WL 30 AZI
4	1.2DL + 1WL 45 AZI
5	1.2DL + 1WL 60 AZI
6	1.2DL + 1WL 90 AZI
7	1.2DL + 1WL 120 AZI
8	1.2DL + 1WL 135 AZI
9	1.2DL + 1WL 150 AZI
10	1.2DL + 1WL 180 AZI
11	1.2DL + 1WL 210 AZI
12	1.2DL + 1WL 225 AZI
13	1.2DL + 1WL 240 AZI
14	1.2DL + 1WL 270 AZI
15	1.2DL + 1WL 300 AZI
16	1.2DL + 1WL 315 AZI
17	1.2DL + 1WL 330 AZI
18	0.9DL + 1WL 0 AZI
19	0.9DL + 1WL 30 AZI
20	0.9DL + 1WL 45 AZI
21	0.9DL + 1WL 60 AZI
22	0.9DL + 1WL 90 AZI
23	0.9DL + 1WL 120 AZI
24	0.9DL + 1WL 135 AZI
25	0.9DL + 1WL 150 AZI
26	0.9DL + 1WL 180 AZI
27	0.9DL + 1WL 210 AZI
28	0.9DL + 1WL 225 AZI
29	0.9DL + 1WL 240 AZI
30	0.9DL + 1WL 270 AZI
31	0.9DL + 1WL 300 AZI
32	0.9DL + 1WL 315 AZI
33	0.9DL + 1WL 330 AZI
34	1.2DL + 1DLi + 1WLi 0 AZI
35	1.2DL + 1DLi + 1WLi 30 AZI
36	1.2DL + 1DLi + 1WLi 45 AZI
37	1.2DL + 1DLi + 1WLi 60 AZI
38	1.2DL + 1DLi + 1WLi 90 AZI
39	1.2DL + 1DLi + 1WLi 120 AZI
40	1.2DL + 1DLi + 1WLi 135 AZI
41	1.2DL + 1DLi + 1WLi 150 AZI

#	Description
42	1.2DL + 1DLi + 1WLi 180 AZI
43	1.2DL + 1DLi + 1WLi 210 AZI
44	1.2DL + 1DLi + 1WLi 225 AZI
45	1.2DL + 1DLi + 1WLi 240 AZI
46	1.2DL + 1DLi + 1WLi 270 AZI
47	1.2DL + 1DLi + 1WLi 300 AZI
48	1.2DL + 1DLi + 1WLi 315 AZI
49	1.2DL + 1DLi + 1WLi 330 AZI
50	(1.2+0.2Sds) + 1.0E 0 AZI
51	(1.2+0.2Sds) + 1.0E 30 AZI
52	(1.2+0.2Sds) + 1.0E 45 AZI
53	(1.2+0.2Sds) + 1.0E 60 AZI
54	(1.2+0.2Sds) + 1.0E 90 AZI
55	(1.2+0.2Sds) + 1.0E 120 AZI
56	(1.2+0.2Sds) + 1.0E 135 AZI
57	(1.2+0.2Sds) + 1.0E 150 AZI
58	(1.2+0.2Sds) + 1.0E 180 AZI
59	(1.2+0.2Sds) + 1.0E 210 AZI
60	(1.2+0.2Sds) + 1.0E 225 AZI
61	(1.2+0.2Sds) + 1.0E 240 AZI
62	(1.2+0.2Sds) + 1.0E 270 AZI
63	(1.2+0.2Sds) + 1.0E 300 AZI
64	(1.2+0.2Sds) + 1.0E 315 AZI
65	(1.2+0.2Sds) + 1.0E 330 AZI
66	(0.9-0.2Sds) + 1.0E 0 AZI
67	(0.9-0.2Sds) + 1.0E 30 AZI
68	(0.9-0.2Sds) + 1.0E 45 AZI
69	(0.9-0.2Sds) + 1.0E 60 AZI
70	(0.9-0.2Sds) + 1.0E 90 AZI
71	(0.9-0.2Sds) + 1.0E 120 AZI
72	(0.9-0.2Sds) + 1.0E 135 AZI
73	(0.9-0.2Sds) + 1.0E 150 AZI
74	(0.9-0.2Sds) + 1.0E 180 AZI
75	(0.9-0.2Sds) + 1.0E 210 AZI
76	(0.9-0.2Sds) + 1.0E 225 AZI
77	(0.9-0.2Sds) + 1.0E 240 AZI
78	(0.9-0.2Sds) + 1.0E 270 AZI
79	(0.9-0.2Sds) + 1.0E 300 AZI
80	(0.9-0.2Sds) + 1.0E 315 AZI
81	(0.9-0.2Sds) + 1.0E 330 AZI
82-88	1.2D + 1.5 Lv1

#	Description
89	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP1
90	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP1
91	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP1
92	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP1
93	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP1
94	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP1
95	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP1
96	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP1
97	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP1
98	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP1
99	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP1
100	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP1
101	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP1
102	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP1
103	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP1
104	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP1
105	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP2
106	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP2
107	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP2
108	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP2
109	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP2
110	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP2
111	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP2
112	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP2
113	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP2
114	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP2
115	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP2
116	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP2
117	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP2
118	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP2
119	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP2
120	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP2

#	Description
121	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP3
122	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP3
123	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP3
124	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP3
125	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP3
126	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP3
127	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP3
128	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP3
129	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP3
130	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP3
131	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP3
132	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP3
133	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP3
134	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP3
135	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP3
136	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP3
137	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP4
138	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP4
139	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP4
140	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP4
141	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP4
142	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP4
143	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP4
144	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP4
145	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP4
146	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP4
147	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP4
148	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP4
149	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP4
150	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP4
151	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP4
152	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP4

*This page shows an example of maintenance loads for (4) pipes, the number of mount pipe LCs may vary per site

EQUIPMENT LOADING

Appurtenance Name	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
APXVAALL24_43-U-NA20_TMO	1	96	No Ice	14.67	5.32	149.90
--	--	--	w/ Ice	14.58	5.24	0.00
AIR 6419 B41_TMO_CCIV2	1	96	No Ice	6.24	2.34	81.84
--	--	--	w/ Ice	6.11	2.22	0.00
RADIO 4449 B71 B85A_T-MOBILE	1	96	No Ice	1.97	1.59	73.21
--	--	--	w/ Ice	1.97	1.59	0.00
RADIO 4460 B2/B25 B66_TMO	1	96	No Ice	2.14	1.69	109.00
--	--	--	w/ Ice	2.14	1.69	0.00
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
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			No Ice			
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			No Ice			
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			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT LOADING [CONT.]

Appurtenance Name	Qty.	Elevation [ft]	--	EPA_N (ft2)	EPA_T (ft2)	Weight (lbs)
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT WIND CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	K_{zt}	K_z	K_d	t_d	q_z [psf]	q_{zi} [psf]
XVAALL24_43-U-NA20_TI	1	96	1.00	1.25	0.95	0.00	43.94	0.00
AIR 6419 B41_TMO_CCIV2	1	96	1.00	1.25	0.95	0.00	43.94	0.00
DIO 4449 B71 B85A_T-MO	1	96	1.00	1.25	0.95	0.00	43.94	0.00
ADIO 4460 B2/B25 B66_TM	1	96	1.00	1.25	0.95	0.00	43.94	0.00

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
APXVAALL24_43-U-NA20_TMO	1	No Ice	580.19	302.85	487.74	210.40	487.74	302.85
--	--	w/ Ice	0.00	0.00	0.00	0.00	0.00	0.00
AIR 6419 B41_TMO_CCIV2	1	No Ice	246.79	131.11	208.23	92.55	208.23	131.11
--	--	w/ Ice	0.00	0.00	0.00	0.00	0.00	0.00
ADIO 4449 B71 B85A_T-MOBIL	1	No Ice	77.92	66.54	74.12	62.75	74.12	66.54
--	--	w/ Ice	0.00	0.00	0.00	0.00	0.00	0.00
RADIO 4460 B2/B25 B66_TMO	1	No Ice	84.60	71.16	80.12	66.67	80.12	71.16
--	--	w/ Ice	0.00	0.00	0.00	0.00	0.00	0.00
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
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		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT LATERAL WIND FORCE CALCULATIONS [CONT.]

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
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		No Ice						
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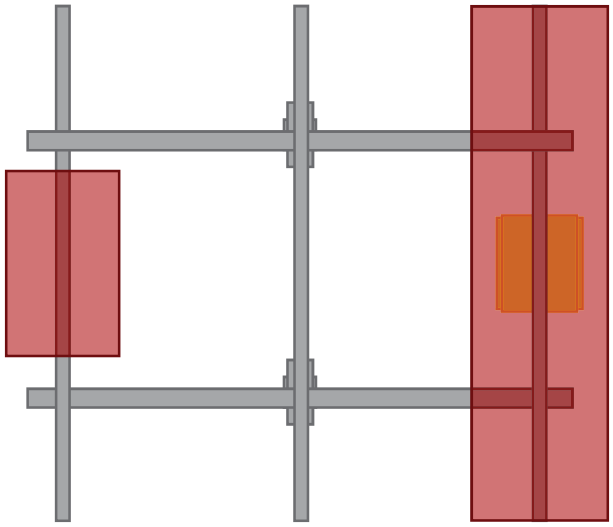
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT SEISMIC FORCE CALCULATIONS

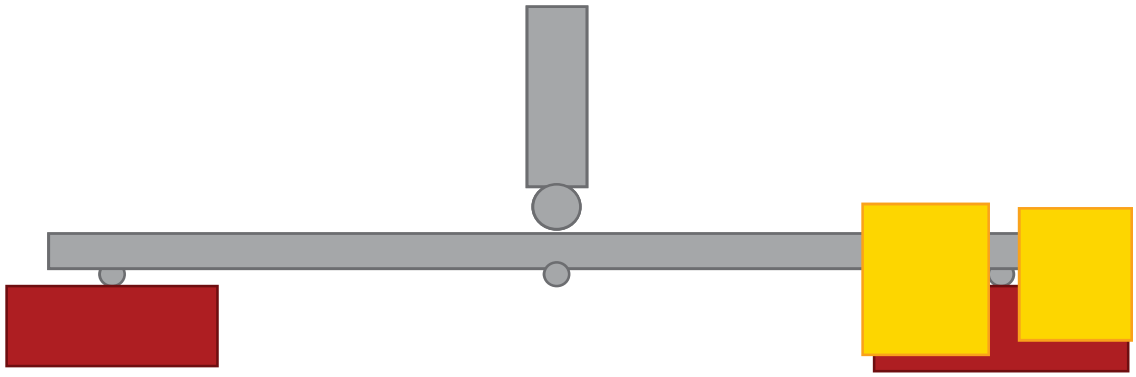
Appurtenance Name	Qty.	Elevation [ft]	Weight [lbs]	F_p [lbs]
APXVAALL24_43-U-NA20_TMO	1	96	149.9	143.18
AIR 6419 B41_TMO_CCIV2	1	96	81.84	78.17
RADIO 4449 B71 B85A_T-MOBILE	1	96	73.21	69.93
RADIO 4460 B2/B25 B66_TMO	1	96	109	104.12

ELEVATION VIEW



*these drawings are intended to show approximate locations of equipment on the mount and should not be used to determine exact placement of equipment or additional hardware

PLAN VIEW



1825 W. Walnut Hill Lane, Suite 120
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Equipment Name	Total Quantity	Antenna Centerline	Mount Pipe Positions	Equipment Azimuths
APXVAALL24_43-U-NA20_TMO	1	96	MP1	0
AIR 6419 B41_TMO_CCIV2	1	96	MP3	0
RADIO 4449 B71 B85A_T-MOBILE	1	96	MP1	90
RADIO 4460 B2/B25 B66_TMO	1	96	MP1	270

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APPENDIX C

SOFTWARE ANALYSIS OUTPUT

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	25
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[lb/...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	490	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	490	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	527	42	1.4	58	1.3
5	A500 Gr.B RECT	29000	11154	.3	.65	527	46	1.4	58	1.3
6	A500 Gr.C RND	29000	11154	.3	.65	527	46	1.4	62	1.3
7	A500 Gr.C RECT	29000	11154	.3	.65	527	50	1.4	62	1.3
8	A53 Gr.B	29000	11154	.3	.65	490	35	1.6	60	1.2
9	A1085	29000	11154	.3	.65	490	50	1.4	65	1.3
10	A913 Gr.65	29000	11154	.3	.65	490	65	1.1	80	1.1

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[lb/ft^3]	Yield[ksi]	Fu[ksi]
1	A653 SS Gr33	29500	11346	.3	.65	490	33	45
2	A653 SS Gr50/1	29500	11346	.3	.65	490	50	65

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff	HSS4X4X4	Beam	Tube	A500 Gr.B RECT	Typical	3.37	7.8	7.8	12.8
2	Standoff Vert	PIPE_4.0	Beam	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
3	Face Horizontal	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
4	Mount Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
5	Tieback	PIPE_2.0	HBrace	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF1	8CU1.25X0...	Beam	CU	A653 SS Gr33	Typical	.581	.057	4.41	.00063

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N22	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Self Weight	DL		-1			6			
2	Structure Wind Z	WLZ						19		
3	Structure Wind X	WLX						19		
4	Wind Load 0 AZI	WLZ					12			
5	Wind Load 30 AZI	None					12			
6	Wind Load 45 AZI	None					12			
7	Wind Load 60 AZI	None					12			
8	Wind Load 90 AZI	WLX					12			
9	Wind Load 120 AZI	None					12			
10	Wind Load 135 AZI	None					12			
11	Wind Load 150 AZI	None					12			
12	Seismic Load Z	ELZ			-.955		6			
13	Seismic Load X	ELX	-.955				6			
14	Live Load 1 (Lv)	None					1			
15	Live Load 2 (Lv)	None					1			
16	Live Load 3 (Lv)	None					1			
17	Maintenance Load 1 (Lm)	None					1			
18	Maintenance Load 2 (Lm)	None					1			
19	Maintenance Load 3 (Lm)	None					1			

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..
1	1.4DL	Yes	Y		DL	1.4																		
2	1.2DL + 1WL 0 AZI	Yes	Y		DL	1.2	2	1	3		4	1												
3	1.2DL + 1WL 30 AZI	Yes	Y		DL	1.2	2	.866	3	.5	5	1												
4	1.2DL + 1WL 45 AZI	Yes	Y		DL	1.2	2	.707	3	.707	6	1												
5	1.2DL + 1WL 60 AZI	Yes	Y		DL	1.2	2	.5	3	.866	7	1												
6	1.2DL + 1WL 90 AZI	Yes	Y		DL	1.2	2		3	1	8	1												
7	1.2DL + 1WL 120 AZI	Yes	Y		DL	1.2	2	-.5	3	.866	9	1												
8	1.2DL + 1WL 135 AZI	Yes	Y		DL	1.2	2	-.707	3	.707	10	1												
9	1.2DL + 1WL 150 AZI	Yes	Y		DL	1.2	2	-.866	3	.5	11	1												
10	1.2DL + 1WL 180 AZI	Yes	Y		DL	1.2	2	-1	3		4	-1												
11	1.2DL + 1WL 210 AZI	Yes	Y		DL	1.2	2	-.866	3	-.5	5	-1												

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
12	1.2DL + 1WL 225 AZI	Yes	Y		DL	1.2	2	-.707	3	-.707	6	-1														
13	1.2DL + 1WL 240 AZI	Yes	Y		DL	1.2	2	-.5	3	-.866	7	-1														
14	1.2DL + 1WL 270 AZI	Yes	Y		DL	1.2	2		3	-1	8	-1														
15	1.2DL + 1WL 300 AZI	Yes	Y		DL	1.2	2	.5	3	-.866	9	-1														
16	1.2DL + 1WL 315 AZI	Yes	Y		DL	1.2	2	.707	3	-.707	10	-1														
17	1.2DL + 1WL 330 AZI	Yes	Y		DL	1.2	2	.866	3	-.5	11	-1														
18	0.9DL + 1WL 0 AZI	Yes	Y		DL	.9	2	1	3		4	1														
19	0.9DL + 1WL 30 AZI	Yes	Y		DL	.9	2	.866	3	.5	5	1														
20	0.9DL + 1WL 45 AZI	Yes	Y		DL	.9	2	.707	3	.707	6	1														
21	0.9DL + 1WL 60 AZI	Yes	Y		DL	.9	2	.5	3	.866	7	1														
22	0.9DL + 1WL 90 AZI	Yes	Y		DL	.9	2		3	1	8	1														
23	0.9DL + 1WL 120 AZI	Yes	Y		DL	.9	2	-.5	3	.866	9	1														
24	0.9DL + 1WL 135 AZI	Yes	Y		DL	.9	2	-.707	3	.707	10	1														
25	0.9DL + 1WL 150 AZI	Yes	Y		DL	.9	2	-.866	3	.5	11	1														
26	0.9DL + 1WL 180 AZI	Yes	Y		DL	.9	2	-1	3		4	-1														
27	0.9DL + 1WL 210 AZI	Yes	Y		DL	.9	2	-.866	3	-.5	5	-1														
28	0.9DL + 1WL 225 AZI	Yes	Y		DL	.9	2	-.707	3	-.707	6	-1														
29	0.9DL + 1WL 240 AZI	Yes	Y		DL	.9	2	-.5	3	-.866	7	-1														
30	0.9DL + 1WL 270 AZI	Yes	Y		DL	.9	2		3	-1	8	-1														
31	0.9DL + 1WL 300 AZI	Yes	Y		DL	.9	2	.5	3	-.866	9	-1														
32	0.9DL + 1WL 315 AZI	Yes	Y		DL	.9	2	.707	3	-.707	10	-1														
33	0.9DL + 1WL 330 AZI	Yes	Y		DL	.9	2	.866	3	-.5	11	-1														
34	(1.2+0.2Sds)DL + 1E 0 ...	Yes	Y		DL	1.5...	12	1	13																	
35	(1.2+0.2Sds)DL + 1E 3...	Yes	Y		DL	1.5...	12	.866	13	.5																
36	(1.2+0.2Sds)DL + 1E 4...	Yes	Y		DL	1.5...	12	.707	13	.707																
37	(1.2+0.2Sds)DL + 1E 6...	Yes	Y		DL	1.5...	12	.5	13	.866																
38	(1.2+0.2Sds)DL + 1E 9...	Yes	Y		DL	1.5...	12		13	1																
39	(1.2+0.2Sds)DL + 1E 1...	Yes	Y		DL	1.5...	12	-.5	13	.866																
40	(1.2+0.2Sds)DL + 1E 1...	Yes	Y		DL	1.5...	12	-.707	13	.707																
41	(1.2+0.2Sds)DL + 1E 1...	Yes	Y		DL	1.5...	12	-.866	13	.5																
42	(1.2+0.2Sds)DL + 1E 1...	Yes	Y		DL	1.5...	12	-1	13																	
43	(1.2+0.2Sds)DL + 1E 2...	Yes	Y		DL	1.5...	12	-.866	13	-.5																
44	(1.2+0.2Sds)DL + 1E 2...	Yes	Y		DL	1.5...	12	-.707	13	-.707																
45	(1.2+0.2Sds)DL + 1E 2...	Yes	Y		DL	1.5...	12	-.5	13	-.866																
46	(1.2+0.2Sds)DL + 1E 2...	Yes	Y		DL	1.5...	12		13	-1																
47	(1.2+0.2Sds)DL + 1E 3...	Yes	Y		DL	1.5...	12	.5	13	-.866																
48	(1.2+0.2Sds)DL + 1E 3...	Yes	Y		DL	1.5...	12	.707	13	-.707																
49	(1.2+0.2Sds)DL + 1E 3...	Yes	Y		DL	1.5...	12	.866	13	-.5																
50	(0.9-0.2Sds)DL + 1E 0 ...	Yes	Y		DL	.582	12	1	13																	
51	(0.9-0.2Sds)DL + 1E 3...	Yes	Y		DL	.582	12	.866	13	.5																
52	(0.9-0.2Sds)DL + 1E 4...	Yes	Y		DL	.582	12	.707	13	.707																
53	(0.9-0.2Sds)DL + 1E 6...	Yes	Y		DL	.582	12	.5	13	.866																
54	(0.9-0.2Sds)DL + 1E 9...	Yes	Y		DL	.582	12		13	1																
55	(0.9-0.2Sds)DL + 1E 1...	Yes	Y		DL	.582	12	-.5	13	.866																
56	(0.9-0.2Sds)DL + 1E 1...	Yes	Y		DL	.582	12	-.707	13	.707																
57	(0.9-0.2Sds)DL + 1E 1...	Yes	Y		DL	.582	12	-.866	13	.5																
58	(0.9-0.2Sds)DL + 1E 1...	Yes	Y		DL	.582	12	-1	13																	
59	(0.9-0.2Sds)DL + 1E 2...	Yes	Y		DL	.582	12	-.866	13	-.5																
60	(0.9-0.2Sds)DL + 1E 2...	Yes	Y		DL	.582	12	-.707	13	-.707																
61	(0.9-0.2Sds)DL + 1E 2...	Yes	Y		DL	.582	12	-.5	13	-.866																
62	(0.9-0.2Sds)DL + 1E 2...	Yes	Y		DL	.582	12		13	-1																
63	(0.9-0.2Sds)DL + 1E 3...	Yes	Y		DL	.582	12	.5	13	-.866																

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
64	(0.9-0.2Sds)DL + 1E 3...	Yes	Y		DL	.582	12	.707	13	-.707																
65	(0.9-0.2Sds)DL + 1E 3...	Yes	Y		DL	.582	12	.866	13	-.5																
66	1.2DL + 1Lv1	Yes	Y		DL	1.2	14	1.5																		
67	1.2DL + 1Lv2	Yes	Y		DL	1.2	15	1.5																		
68	1.2DL + 1Lv3	Yes	Y		DL	1.2	16	1.5																		
69	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	.063	3		4	.063												
70	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	.054	3	.031	5	.063												
71	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	.044	3	.044	6	.063												
72	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	.031	3	.054	7	.063												
73	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2		3	.063	8	.063												
74	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	-.031	3	.054	9	.063												
75	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	-.044	3	.044	10	.063												
76	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	-.054	3	.031	11	.063												
77	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	-.063	3		4	-.063												
78	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	-.054	3	-.031	5	-.063												
79	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	-.044	3	-.044	6	-.063												
80	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	-.031	3	-.054	7	-.063												
81	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2		3	-.063	8	-.063												
82	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	.031	3	-.054	9	-.063												
83	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	.044	3	-.044	10	-.063												
84	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	17	1.5	2	.054	3	-.031	11	-.063												
85	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	.063	3		4	.063												
86	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	.054	3	.031	5	.063												
87	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	.044	3	.044	6	.063												
88	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	.031	3	.054	7	.063												
89	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2		3	.063	8	.063												
90	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	-.031	3	.054	9	.063												
91	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	-.044	3	.044	10	.063												
92	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	-.054	3	.031	11	.063												
93	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	-.063	3		4	-.063												
94	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	-.054	3	-.031	5	-.063												
95	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	-.044	3	-.044	6	-.063												
96	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	-.031	3	-.054	7	-.063												
97	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2		3	-.063	8	-.063												
98	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	.031	3	-.054	9	-.063												
99	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	.044	3	-.044	10	-.063												
100	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	18	1.5	2	.054	3	-.031	11	-.063												
101	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2	.063	3		4	.063												
102	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2	.054	3	.031	5	.063												
103	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2	.044	3	.044	6	.063												
104	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2	.031	3	.054	7	.063												
105	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2		3	.063	8	.063												
106	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2	-.031	3	.054	9	.063												
107	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2	-.044	3	.044	10	.063												
108	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2	-.054	3	.031	11	.063												
109	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2	-.063	3		4	-.063												
110	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2	-.054	3	-.031	5	-.063												
111	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2	-.044	3	-.044	6	-.063												
112	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2	-.031	3	-.054	7	-.063												
113	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2		3	-.063	8	-.063												
114	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2	.031	3	-.054	9	-.063												
115	1.2DL + 1.5Lm + 1Wm ...	Yes	Y		DL	1.2	19	1.5	2	.044	3	-.044	10	-.063												

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
116	1.2DL + 1.5Lm + 1Wm ..	Yes	Y		DL	1.2	19	1.5	2	.054	3	-.031	11	-.063										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N22	max	313.865	22	787.779	85	663.501	18	-322.506	58	1112.076	25	1014.149	86
2		min	-520.939	14	102.505	26	-794.536	10	-1403.032	101	-1437.733	17	-436.548	78
3	N2	max	521.371	6	787.548	109	794.027	2	-322.751	50	1442.033	9	1014.258	94
4		min	-314.188	30	102.248	18	-663.121	26	-1402.931	109	-1110.698	33	-436.46	70
5	Totals:	max	805.591	22	1550.519	69	1438.883	2						
6		min	-805.592	14	387.983	58	-1438.882	26						

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

	Member	Shape	Code..	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [...	phi*Pnt [l...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	MP1	PIPE_2.0	.375	72	88	.036	72		89	14916.096	32130	1871.625	1871.625	1....	H1-1b
2	H1	PIPE_3.0	.287	48	2	.098	48		10	46290.523	65205	5748.75	5748.75	1....	H1-1b
3	M16	PIPE_3.0	.286	48	10	.098	48		2	46290.523	65205	5748.75	5748.75	1....	H1-1b
4	MP3	PIPE_2.0	.270	72	83	.028	24		75	14916.096	32130	1871.625	1871.625	1....	H1-1b
5	M1	HSS4X4X4	.137	0	9	.095	0	y	94	138210....	139518	16180.5	16180.5	1....	H1-1b
6	M12	HSS4X4X4	.137	0	17	.095	0	y	86	138210....	139518	16180.5	16180.5	1....	H1-1b
7	MP2	PIPE_2.0	.120	72	88	.024	72		88	14916.096	32130	1871.625	1871.625	1....	H1-1b
8	M3	PIPE_4.0	.000	6	13	.000	6		13	92942.22	93240	10631.25	10631.25	1....	H1-1b
9	M14	PIPE_4.0	.000	6	13	.000	6		14	92942.22	93240	10631.25	10631.25	1....	H1-1b

Envelope AISI S100-16: LRFD Cold Formed Steel Code Checks

Member	Shape	Code ...	Loc[in]	LC	Shear ..	Loc[in]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mny...	phi*Mnz...	phi*V...	phi*V...	Cb	Eqn
No Data to Print ...																

APPENDIX D

ADDITIONAL CALCULATIONS

Trylon

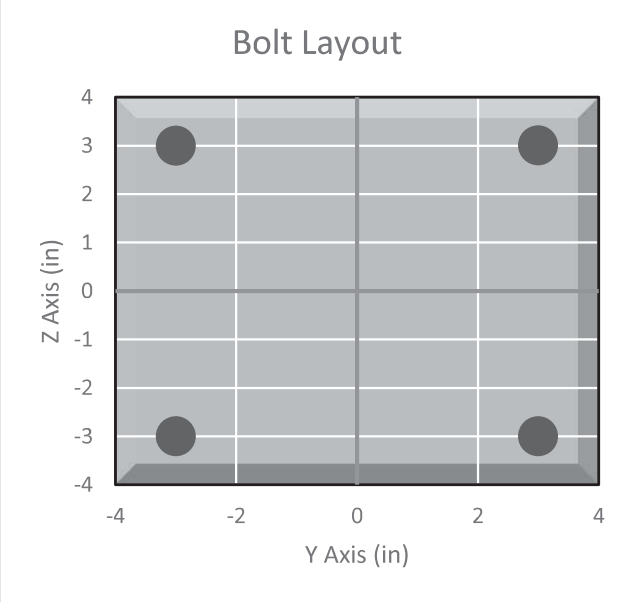
Analysis date: 6/9/2023

BOLT TOOL 1.5.3

Project Data	
Job Code:	228920
Carrier Site ID:	BU 828012
Carrier Site Name:	SN305 Spooner Grade

Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	TIA-222-H

Bolt Properties		
Connection Type:	Bolt	
Diameter:	0.625	in
Grade:	A325	--
Yield Strength (Fy):	92	ksi
Ultimate Strength (Fu):	120	ksi
Number of Bolts:	4	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	-	in



Connection Description
Standoff to Collar

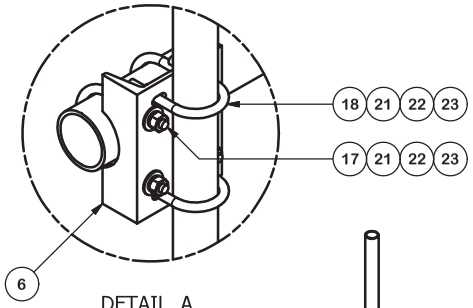
Bolt Check*		
Tensile Capacity (ϕT_n):	20340.1	lbs
Shear Capacity (ϕV_n):	13805.8	lbs
Tension Force (T_u):	2318.4	lbs
Shear Force (V_u):	369.6	lbs
Tension Usage:	10.9%	--
Shear Usage:	2.5%	--
Interaction:	10.9%	Pass
Controlling Member:	M1	--
Controlling LC:	9	--

**Rating per TIA-222-H Section 15.5*

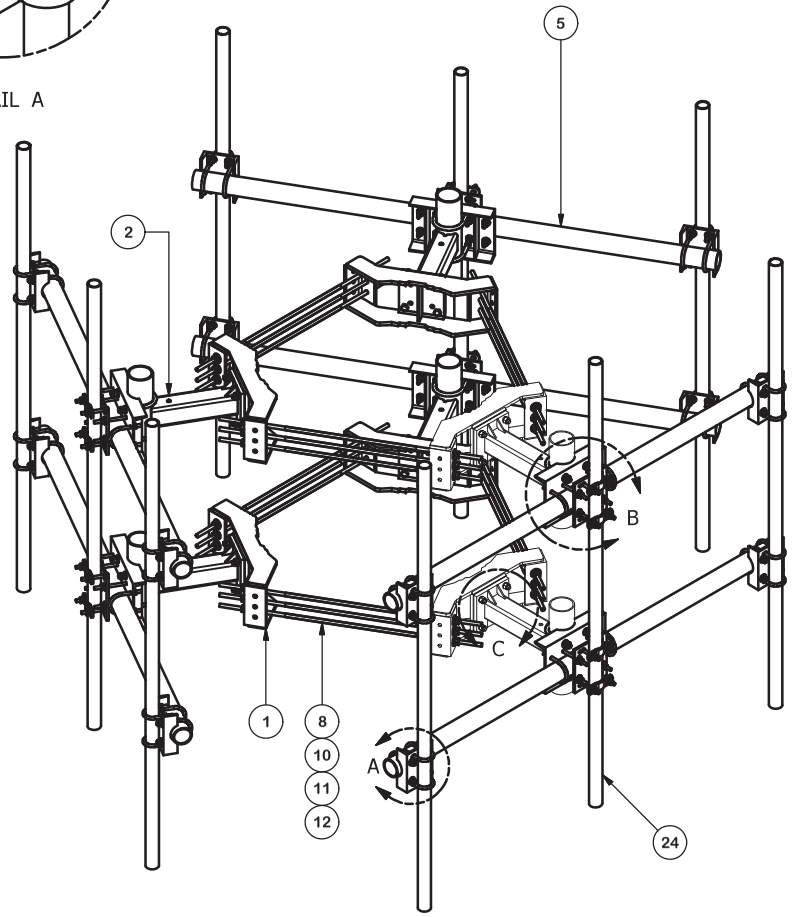
1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

APPENDIX E

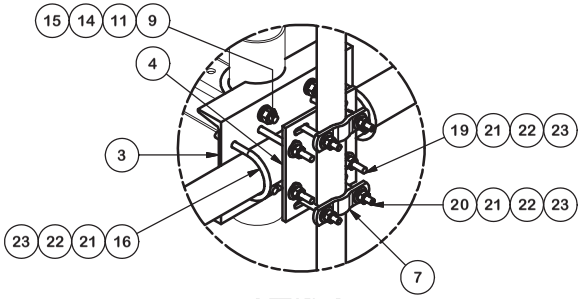
SUPPLEMENTAL DRAWINGS



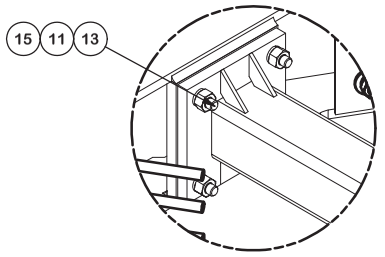
DETAIL A



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	6	X-SV197-18	SUPPORT ARM WELDMENT - 18"		45.69	274.15
3	6	X-SP216	LARGE SUPPORT CROSS PLATE		22.08	132.46
4	6	SCX3	CROSSOVER PLATE	9.250 in	7.19	43.13
5	6	P396	3-1/2" X 96" (3" SCH 40) GALVANZIED PIPE	96.000 in	60.75	364.49
6	12	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	103.33
7	12	X-100064	CLAMP (4" V-CLAMP) GALVANIZED		0.92	11.06
8	18	G58R-48	5/8" X 48" GALV THREADED ROD		4.39	79.03
8	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	37.63
9	12	X-UB5458	5/8" X 4-5/8" X 7" X 3" U-BOLT (HDG.)		1.54	18.42
10	36	G58FW	5/8" HDG USS FLATWASHER	.122	0.07	2.54
11	84	G58LW	5/8" HDG LOCKWASHER		0.03	2.19
12	36	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	4.68
13	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2.75	0.36	8.54
14	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
15	48	A58NUT	5/8" HDG A325 HEX NUT		0.13	6.23
16	12	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" U-BOLT (HDG.)		0.77	9.27
17	24	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	19.88
18	24	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	15.00
19	24	G12R-8	1/2" x 8" THREADED ROD (HDG.)		0.45	10.71
20	24	G12045	1/2" x 4.5" HDG HEX BOLT GR5 FULL THREAD	4.5	0.30	7.15
21	216	G12FW	1/2" HDG USS FLATWASHER	0.095	0.03	7.36
22	192	G12LW	1/2" HDG LOCKWASHER	.125	0.01	2.67
23	192	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	13.75
24	9	A	B	C	D	E



DETAIL B



DETAIL C

TABLE					
"ASSEMBLY NO."	PART NO. "A"	PART DESCRIPTION "B"	LENGTH "C"	UNIT WT. "D"	TOTAL WT.
RMVD8-296-18	P296	2-3/8" O.D. SCH. 40 PIPE	96"	29.22	1,880.76
RMVD8-2120-18	P2120	2-2/8" O.D. SCH. 40 PIPE	120"	36.53	1,936.65

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")*

DESCRIPTION
8' DOUBLE MONOPOLE TRIPLE T-ARM
W/ 2-3/8" ANTENNA PIPES & 18" STANDOFF

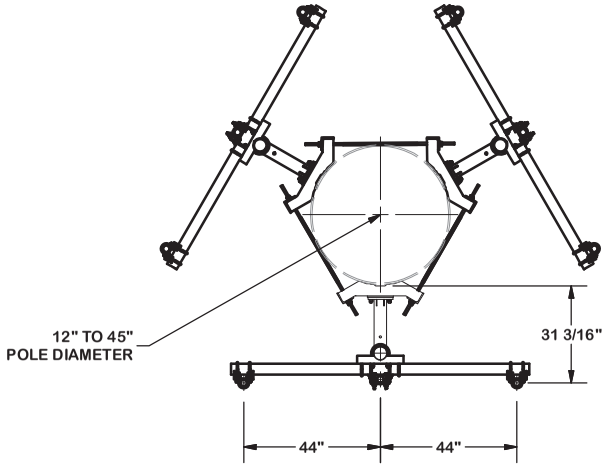
SITE PRO 1 — A valmont COMPANY

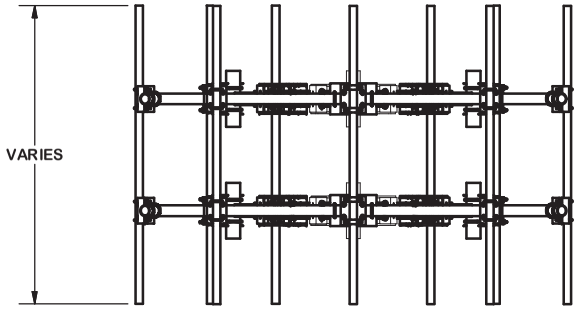
Engineering Support Team: 1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CMFL 11/23/2021	11/13/2020	RMVD8-2XX-18

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER	BMC 11/13/2020	RMVD8-2XX-18





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CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER	BMC 11/13/2020	RMVD8-2XX-18

Date: **June 20, 2023**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Site Number:	SC14008Z
	Site Name:	SC14008
Crown Castle Designation:	**BU Number:**	828012
	Site Name:	SN305 Spooner Grade
	JDE Job Number:	746214
	Work Order Number:	2237562
	Order Number:	649714 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	2237562
Site Data:	**5364 SIERRA HIGHLAND DR, Carson City, CARSON CITY County, NV**	
	Latitude *39° 7' 1.53"*, Longitude *-119° 50' 36.67"*	
	98 Foot - Monopole Tower	

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:

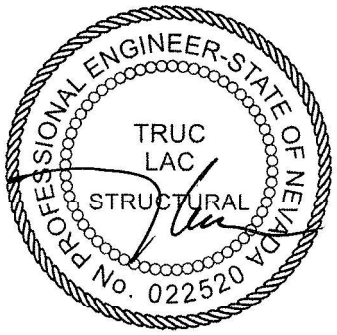
LC5: Proposed Equipment Configuration **Sufficient Capacity**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 120 mph. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Kenneth Sukitch

06/21/23

Respectfully submitted by:



Truc Lac, P.E., S.E.
Senior Project Engineer

License Expires: 12/31/2023

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 98 ft Monopole tower designed by TRANAMERICAN POWER PRODUCTS, INC.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	C
Topographic Factor:	1
Seismic Ss:	1.99
Seismic S1:	0.73
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
96.0	96.0	3	sitepro 1	RMVD8-296-18	1 2	1-3/8 1-5/8
		3	ericsson	AIR 6419 B41_TMO_CCIV2_TIA w/ Mount Pipe		
		1	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		1	rfs celwave	APXVAALL24_43-U-NA20_TMO_TIA w/ Mount Pipe		
		2	rfs celwave	APXVAARR24_43-U-NA20_TIA w/ Mount Pipe		
	95.0	2	ericsson	RADIO 4449 B71/B85A		
66.0	66.0	1	gabriel electronics	DFPD2-18	1	1/2
		1	tower mounts	Pipe Mount [PM 601-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
83.0	84.0	3	commscope	CBC78T-DS-43_CCIV2	12 4 2	7/8 13/16 /8
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14		
		2	raycap	DC6-48-60-18-8C-EV		
	83.0	6	cci antennas	TPA65R-BU4D_TIA w/ Mount Pipe		
		1	tower mounts	T-Arm Mount [TA 702-3]		
74.0	74.0	1	commscope	UHX4-107/B	4	13/32
		4	ericsson	TN11/2X 131T/16X HP-2		
		1	tower mounts	T-Arm Mount [TA 702-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
59.0	60.0	3	fujitsu	TA08025-B604	1	1-3/8
		3	fujitsu	TA08025-B605		
		1	raycap	RDIDC-9181-PF-48		
	59.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	tower mounts	Commscope MC-K6MHDX-9-96 (3)		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	3778947	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	3942802	CCISITES
4-TOWER MANUFACTURER DRAWINGS	3791099	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.4.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. 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.

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
L1	98 - 45	Pole	TP32.061x18x0.25	1	-14.62	1498.77	65.2	Pass
L2	45 - 0	Pole	TP43.5x30.4998x0.3125	2	-25.96	2631.24	85.8	Pass
							Summary	
						Pole (L2)	85.8	Pass
						Rating =	85.8	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	82.1	Pass
1	Base Plate		50.4	Pass
1	Base Foundation (Structure)		76.7	Pass
1	Base Foundation (Soil Interaction)		61.3	Pass

Structure Rating (max from all components) =	85.8%

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.

The results of the tilt and twist values for a 60 mph 3-second gust service wind speed per the TIA-222-H Standard are given below:

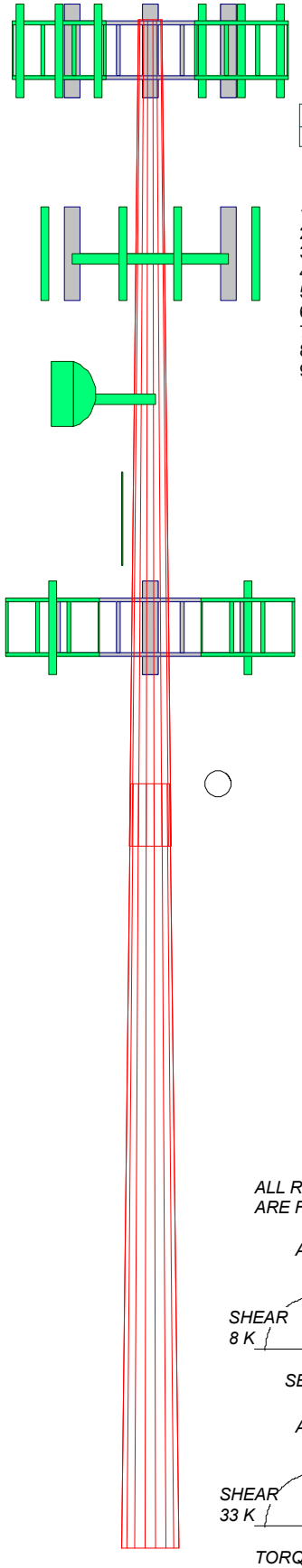
Critical Deflections and Radius of Curvature - Service Wind

Elevation	*Appurtenance*	*Gov. Load Comb.*	*Deflection*	*Tilt*	*Twist*	*Radius of Curvature*
ft			*in*	°	°	*ft*
66.00	DFPD2-18	28	6.815	0.8969	0.0020	4512

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	53.00	18	0.2500	4.00	18.0000	32.0610	A572-65	3.5
2	49.00	18	0.3125		30.4998	43.5000		6.1
								9.6



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Carson City County, Nevada.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. CCISeismic Note: Seismic loads generated by CCISeismic 3.3.9
8. CCISeismic Note: Seismic calculations are in accordance with TIA-222-H-1
9. TOWER RATING: 85.8%

ALL REACTIONS ARE FACTORED

AXIAL 33 K

SHEAR 8 K — *MOMENT 676 kip-ft*

SEISMIC

AXIAL 26 K

SHEAR 33 K — *MOMENT 2240 kip-ft*

TORQUE 2 kip-ft

REACTIONS - 120 mph WIND

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
The Pathway to Possible
Phone: (724) 416-2000
FAX:

Job: **BU# 828012**			
Project:			
Client: Crown Castle	Drawn by: KSukitch	App'd:	
Code: TIA-222-H	Date: 06/20/23	Scale: NTS	
Path: C:\Work Area\828012\WO 2237562 - SA\Prod\828012 CCISeismic 3.3.9 Wind And Seismic Analysis.en		Dwg No. E-1	

Tower Input Data

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

- Tower is located in Carson City County, Nevada.
- Tower base elevation above sea level: 0.00 ft.
- Basic wind speed of 120 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Deflections calculated using a wind speed of 60 mph.
- CCISeismic Note: Seismic loads generated by CCISeismic 3.3.9.
- CCISeismic Note: Seismic calculations are in accordance with TIA-222-H-1.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(E_v$ and $E_h) = 1.0$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	98.00-45.00	53.00	4.00	18	18.0000	32.0610	0.2500	1.0000	A572-65 (65 ksi)
L2	45.00-0.00	49.00		18	30.4998	43.5000	0.3125	1.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	18.2391	14.0846	560.6340	6.3012	9.1440	61.3117	1122.0058	7.0437	2.7280	10.912
	32.5170	25.2420	3227.1292	11.2929	16.2870	198.1416	6458.5046	12.6234	5.2027	20.811
L2	31.9997	29.9420	3447.2034	10.7165	15.4939	222.4879	6898.9426	14.9739	4.8180	15.417
	44.1228	42.8366	10094.1229	15.3316	22.0980	456.7890	20201.5279	21.4224	7.1060	22.739

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 98.00-45.00				1	1	1			
L2 45.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
***											
**											
**											

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
**									
LDF5-50A(7/8)	C	No	No	Inside Pole	83.00 - 0.00	12	No Ice	0.00	0.33
PWRT-608-S(13/16)	C	No	No	Inside Pole	83.00 - 0.00	4	No Ice	0.00	0.62
RFFT-36SM-001-XXM(3/8)	C	No	No	Inside Pole	83.00 - 0.00	2	No Ice	0.00	0.09
2" Rigid Conduit	C	No	No	Inside Pole	83.00 - 0.00	1	No Ice	0.00	2.80
***									
**									
CNT-400(13/32)	B	No	No	Inside Pole	74.00 - 0.00	4	No Ice	0.00	0.07
**									
LDF4-50A(1/2)	C	No	No	Inside Pole	66.00 - 0.00	1	No Ice	0.00	0.15
**									
**									
CU12PSM9P8XXX(1-3/8)	C	No	No	Inside Pole	59.00 - 0.00	1	No Ice	0.00	1.66
***									
HB158-21U6S24-xxM_TMO(1-5/8)	C	No	No	Inside Pole	96.00 - 0.00	2	No Ice	0.00	2.50
HCS 6X12 6AWG(1-3/8)	C	No	No	Inside Pole	96.00 - 0.00	1	No Ice	0.00	1.70
**									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	98.00-45.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.73
L2	45.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.81

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	98.00-45.00	0.0000	0.0000	0.0000	0.0000
L2	45.00-0.00	0.0000	0.0000	0.0000	0.0000

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

User Defined Loads - Seismic

Description	Elevation ft	Offset From Centroid ft	Azimuth Angle °	E_v K	E_{hx} K	E_{hz} K	E_h K
CCISeismic Tower Section 1 - 1	96.50	0.00	0.0000	0.05	0.00	0.00	0.13
CCISeismic Tower Section 1 - 2	90.00	0.00	0.0000	0.17	0.00	0.00	0.41
CCISeismic Tower Section 1 - 3	80.00	0.00	0.0000	0.19	0.00	0.00	0.37
CCISeismic Tower Section 1 - 4	70.00	0.00	0.0000	0.22	0.00	0.00	0.32
CCISeismic Tower Section 1 - 5	60.00	0.00	0.0000	0.24	0.00	0.00	0.27
CCISeismic Tower Section 1 - 6	50.00	0.00	0.0000	0.26	0.00	0.00	0.21
CCISeismic Tower Section 2 - 1	44.50	0.00	0.0000	0.30	0.00	0.00	0.20
CCISeismic Tower Section 2 - 2	35.00	0.00	0.0000	0.36	0.00	0.00	0.15
CCISeismic Tower Section 2 - 3	25.00	0.00	0.0000	0.39	0.00	0.00	0.09
CCISeismic Tower Section 2 - 4	15.00	0.00	0.0000	0.42	0.00	0.00	0.04
CCISeismic Tower Section 2 - 5	5.00	0.00	0.0000	0.45	0.00	0.00	0.01
CCISeismic 5' Pine Branches	95.24	0.00	0.0000	0.08	0.00	0.00	0.22
CCISeismic 6' Pine Branches	86.26	0.00	0.0000	0.15	0.00	0.00	0.34
CCISeismic 7' Pine Branches	71.07	0.00	0.0000	0.37	0.00	0.00	0.58
CCISeismic 8' Pine Branches	55.88	0.00	0.0000	0.25	0.00	0.00	0.25
CCISeismic 9' Pine Branches	46.90	0.00	0.0000	0.19	0.00	0.00	0.14
CCISeismic 10' Pine Branches	41.38	0.00	0.0000	0.14	0.00	0.00	0.08
CCISeismic ericsson AIR 6419 B41_TMO_CCIV2_TIA w/ Mount Pipe	96.00	0.00	0.0000	0.03	0.00	0.00	0.09

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
CCISeismic ericsson AIR 6419 B41_TMO_CCIV2_TIA w/ Mount Pipe	96.00	0.00	0.0000	0.03	0.00	0.00	0.09
CCISeismic ericsson AIR 6419 B41_TMO_CCIV2_TIA w/ Mount Pipe	96.00	0.00	0.0000	0.03	0.00	0.00	0.09
CCISeismic rfs celwave APXVAALL24_43-U-NA20_TMO_TIA w/ Mount Pipe	96.00	0.00	0.0000	0.06	0.00	0.00	0.15
CCISeismic rfs celwave APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	96.00	0.00	0.0000	0.05	0.00	0.00	0.14
CCISeismic rfs celwave APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	96.00	0.00	0.0000	0.05	0.00	0.00	0.14
CCISeismic (2) ericsson RADIO 4449 B71/B85A	96.00	0.00	0.0000	0.04	0.00	0.00	0.12
CCISeismic ericsson RADIO 4449 B71 B85A_T-MOBILE	96.00	0.00	0.0000	0.02	0.00	0.00	0.06
CCISeismic ericsson RADIO 4460 B2/B25 B66_TMO	96.00	0.00	0.0000	0.04	0.00	0.00	0.09
CCISeismic ericsson RADIO 4460 B2/B25 B66_TMO	96.00	0.00	0.0000	0.04	0.00	0.00	0.09
CCISeismic ericsson RADIO 4460 B2/B25 B66_TMO	96.00	0.00	0.0000	0.04	0.00	0.00	0.09
CCISeismic tower mounts T-Arm Mount [TA 601-3]	97.00	0.00	0.0000	0.23	0.00	0.00	0.63
CCISeismic tower mounts T-Arm Mount [TA 601-3]	95.00	0.00	0.0000	0.23	0.00	0.00	0.61
CCISeismic (2) cci antennas TPA65R-BU4D_TIA w/ Mount Pipe	83.00	0.00	0.0000	0.05	0.00	0.00	0.10
CCISeismic (2) cci antennas TPA65R-BU4D_TIA w/ Mount Pipe	83.00	0.00	0.0000	0.05	0.00	0.00	0.10
CCISeismic (2) cci antennas TPA65R-BU4D_TIA w/ Mount Pipe	83.00	0.00	0.0000	0.05	0.00	0.00	0.10
CCISeismic ericsson RRUS 4478 B14	83.00	0.00	0.0000	0.02	0.00	0.00	0.04
CCISeismic ericsson RRUS 4478 B14	83.00	0.00	0.0000	0.02	0.00	0.00	0.04
CCISeismic ericsson RRUS 4478 B14	83.00	0.00	0.0000	0.02	0.00	0.00	0.04
CCISeismic ericsson RRUS 32 B2	83.00	0.00	0.0000	0.02	0.00	0.00	0.03
CCISeismic ericsson RRUS 32 B2	83.00	0.00	0.0000	0.02	0.00	0.00	0.03
CCISeismic ericsson RRUS 32 B2	83.00	0.00	0.0000	0.02	0.00	0.00	0.03
CCISeismic ericsson RRUS 4449 B5/B12	83.00	0.00	0.0000	0.02	0.00	0.00	0.05
CCISeismic ericsson RRUS 4449 B5/B12	83.00	0.00	0.0000	0.02	0.00	0.00	0.05
CCISeismic ericsson RRUS 4449 B5/B12	83.00	0.00	0.0000	0.02	0.00	0.00	0.05
CCISeismic commscope CBC78T-DS-43_CCIV2	83.00	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic commscope CBC78T-DS-43_CCIV2	83.00	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic commscope CBC78T-DS-43_CCIV2	83.00	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic raycap DC6-48-60-18-8C-EV	83.00	0.00	0.0000	0.01	0.00	0.00	0.02
CCISeismic raycap DC6-48-60-18-8C-EV	83.00	0.00	0.0000	0.01	0.00	0.00	0.02

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
CCISeismic tower mounts T-Arm Mount [TA 702-3]	83.00	0.00	0.0000	0.11	0.00	0.00	0.22
CCISeismic (4) ericsson TN11/2X 131T/16X HP-2	74.00	0.00	0.0000	0.01	0.00	0.00	0.02
CCISeismic tower mounts T-Arm Mount [TA 702-1]	74.00	0.00	0.0000	0.04	0.00	0.00	0.06
CCISeismic gabriel electronics DFPD2-18	66.00	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic tower mounts Pipe Mount [PM 601-1]	66.00	0.00	0.0000	0.02	0.00	0.00	0.03
CCISeismic jma wireless MX08FRO665-21 w/ Mount Pipe	59.00	0.00	0.0000	0.03	0.00	0.00	0.04
CCISeismic jma wireless MX08FRO665-21 w/ Mount Pipe	59.00	0.00	0.0000	0.03	0.00	0.00	0.04
CCISeismic jma wireless MX08FRO665-21 w/ Mount Pipe	59.00	0.00	0.0000	0.03	0.00	0.00	0.04
CCISeismic fujitsu TA08025-B604	59.00	0.00	0.0000	0.02	0.00	0.00	0.02
CCISeismic fujitsu TA08025-B604	59.00	0.00	0.0000	0.02	0.00	0.00	0.02
CCISeismic fujitsu TA08025-B604	59.00	0.00	0.0000	0.02	0.00	0.00	0.02
CCISeismic fujitsu TA08025-B605	59.00	0.00	0.0000	0.03	0.00	0.00	0.03
CCISeismic fujitsu TA08025-B605	59.00	0.00	0.0000	0.03	0.00	0.00	0.03
CCISeismic fujitsu TA08025-B605	59.00	0.00	0.0000	0.03	0.00	0.00	0.03
CCISeismic raycap RDIDC-9181-PF-48	59.00	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic tower mounts Commscope MC-K6MHDX-9-96 (3)	59.00	0.00	0.0000	0.38	0.00	0.00	0.41
CCISeismic (2) tower mounts 8' x 2" Mount Pipe	59.00	0.00	0.0000	0.02	0.00	0.00	0.02
CCISeismic (2) tower mounts 8' x 2" Mount Pipe	59.00	0.00	0.0000	0.02	0.00	0.00	0.02
CCISeismic (2) tower mounts 8' x 2" Mount Pipe	59.00	0.00	0.0000	0.02	0.00	0.00	0.02
CCISeismic commscope UHX4-107/B	74.00	0.00	0.0000	0.05	0.00	0.00	0.08
CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (78ft to83ft)	80.50	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (68ft to78ft)	73.00	0.00	0.0000	0.01	0.00	0.00	0.02
CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (58ft to68ft)	63.00	0.00	0.0000	0.01	0.00	0.00	0.02
CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (48ft to58ft)	53.00	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (38ft to48ft)	43.00	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (28ft to38ft)	33.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (18ft to28ft)	23.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (8ft to18ft)	13.00	0.00	0.0000	0.01	0.00	0.00	0.00

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (0ft to8ft)	4.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (4) commscope PWRT-608-S(13/16) From 0 to 83 (78ft to83ft)	80.50	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic (4) commscope PWRT-608-S(13/16) From 0 to 83 (68ft to78ft)	73.00	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic (4) commscope PWRT-608-S(13/16) From 0 to 83 (58ft to68ft)	63.00	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic (4) commscope PWRT-608-S(13/16) From 0 to 83 (48ft to58ft)	53.00	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic (4) commscope PWRT-608-S(13/16) From 0 to 83 (38ft to48ft)	43.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (4) commscope PWRT-608-S(13/16) From 0 to 83 (28ft to38ft)	33.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (4) commscope PWRT-608-S(13/16) From 0 to 83 (18ft to28ft)	23.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (4) commscope PWRT-608-S(13/16) From 0 to 83 (8ft to18ft)	13.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (4) commscope PWRT-608-S(13/16) From 0 to 83 (0ft to8ft)	4.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83 (78ft to83ft)	80.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83 (68ft to78ft)	73.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83 (58ft to68ft)	63.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83 (48ft to58ft)	53.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83 (38ft to48ft)	43.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83 (28ft to38ft)	33.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83 (18ft to28ft)	23.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83 (8ft to18ft)	13.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83 (0ft to8ft)	4.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic miscl 2" Rigid Conduit From 0 to 83 (78ft to83ft)	80.50	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic miscl 2" Rigid Conduit From 0 to 83 (68ft to78ft)	73.00	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic miscl 2" Rigid Conduit From 0 to 83 (58ft to68ft)	63.00	0.00	0.0000	0.01	0.00	0.00	0.01

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
CCISeismic miscl 2" Rigid Conduit From 0 to 83 (48ft to58ft)	53.00	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic miscl 2" Rigid Conduit From 0 to 83 (38ft to48ft)	43.00	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic miscl 2" Rigid Conduit From 0 to 83 (28ft to38ft)	33.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic miscl 2" Rigid Conduit From 0 to 83 (18ft to28ft)	23.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic miscl 2" Rigid Conduit From 0 to 83 (8ft to18ft)	13.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic miscl 2" Rigid Conduit From 0 to 83 (0ft to8ft)	4.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (4) andrew CNT-400(13/32) From 0 to 74 (68ft to74ft)	71.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) andrew CNT-400(13/32) From 0 to 74 (58ft to68ft)	63.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) andrew CNT-400(13/32) From 0 to 74 (48ft to58ft)	53.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) andrew CNT-400(13/32) From 0 to 74 (38ft to48ft)	43.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) andrew CNT-400(13/32) From 0 to 74 (28ft to38ft)	33.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) andrew CNT-400(13/32) From 0 to 74 (18ft to28ft)	23.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) andrew CNT-400(13/32) From 0 to 74 (8ft to18ft)	13.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) andrew CNT-400(13/32) From 0 to 74 (0ft to8ft)	4.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic andrew LDF4-50A(1/2) From 0 to 66 (58ft to66ft)	62.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic andrew LDF4-50A(1/2) From 0 to 66 (48ft to58ft)	53.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic andrew LDF4-50A(1/2) From 0 to 66 (38ft to48ft)	43.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic andrew LDF4-50A(1/2) From 0 to 66 (28ft to38ft)	33.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic andrew LDF4-50A(1/2) From 0 to 66 (18ft to28ft)	23.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic andrew LDF4-50A(1/2) From 0 to 66 (8ft to18ft)	13.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic andrew LDF4-50A(1/2) From 0 to 66 (0ft to8ft)	4.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic cui CU12PSM9P8XXX(1-3/8) From 0 to 59 (58ft to59ft)	58.50	0.00	0.0000	0.00	0.00	0.00	0.00

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
CCISeismic cui CU12PSM9P8XXX(1-3/8) From 0 to 59 (48ft to58ft)	53.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic cui CU12PSM9P8XXX(1-3/8) From 0 to 59 (38ft to48ft)	43.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic cui CU12PSM9P8XXX(1-3/8) From 0 to 59 (28ft to38ft)	33.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic cui CU12PSM9P8XXX(1-3/8) From 0 to 59 (18ft to28ft)	23.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic cui CU12PSM9P8XXX(1-3/8) From 0 to 59 (8ft to18ft)	13.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic cui CU12PSM9P8XXX(1-3/8) From 0 to 59 (0ft to8ft)	4.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96 (88ft to96ft)	92.00	0.00	0.0000	0.01	0.00	0.00	0.03
CCISeismic (2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96 (78ft to88ft)	83.00	0.00	0.0000	0.02	0.00	0.00	0.03
CCISeismic (2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96 (68ft to78ft)	73.00	0.00	0.0000	0.02	0.00	0.00	0.03
CCISeismic (2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96 (58ft to68ft)	63.00	0.00	0.0000	0.02	0.00	0.00	0.02
CCISeismic (2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96 (48ft to58ft)	53.00	0.00	0.0000	0.02	0.00	0.00	0.01
CCISeismic (2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96 (38ft to48ft)	43.00	0.00	0.0000	0.02	0.00	0.00	0.01
CCISeismic (2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96 (28ft to38ft)	33.00	0.00	0.0000	0.02	0.00	0.00	0.01
CCISeismic (2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96 (18ft to28ft)	23.00	0.00	0.0000	0.02	0.00	0.00	0.00
CCISeismic (2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96 (8ft to18ft)	13.00	0.00	0.0000	0.02	0.00	0.00	0.00
CCISeismic (2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96 (0ft to8ft)	4.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96 (88ft to96ft)	92.00	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96 (78ft to88ft)	83.00	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96 (68ft to78ft)	73.00	0.00	0.0000	0.01	0.00	0.00	0.01

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
CCISeismic ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96 (58ft to68ft)	63.00	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96 (48ft to58ft)	53.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96 (38ft to48ft)	43.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96 (28ft to38ft)	33.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96 (18ft to28ft)	23.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96 (8ft to18ft)	13.00	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96 (0ft to8ft)	4.00	0.00	0.0000	0.00	0.00	0.00	0.00

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
5' Pine Branches	C	None		0.0000	95.24
6' Pine Branches	C	None		0.0000	86.26
7' Pine Branches	C	None		0.0000	71.07
8' Pine Branches	C	None		0.0000	55.88
9' Pine Branches	C	None		0.0000	46.90
10' Pine Branches	C	None		0.0000	41.38
* ** 96 **					
AIR 6419 B41_TMO_CCIV2_TIA w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	96.00
AIR 6419 B41_TMO_CCIV2_TIA w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	96.00
AIR 6419 B41_TMO_CCIV2_TIA w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	96.00
APXVAALL24_43-U-NA20_TMO_TIA w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	96.00
APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	96.00
APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	96.00
(2) RADIO 4449 B71/B85A	B	From Leg	4.00 0.00 -1.00	0.0000	96.00
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.00 0.00 0.00	0.0000	96.00
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00	0.0000	96.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.00 0.00		
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00 0.00 0.00	0.0000	96.00
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00 0.00 0.00	0.0000	96.00
(3) sitepro 1 RMVD8-296-18	C	None		0.0000	96.00
T-Arm Mount [TA 601-3]	A	None		0.0000	97.00
T-Arm Mount [TA 601-3]	A	None		0.0000	95.00
** 83 **					
(2) TPA65R-BU4D_TIA w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	83.00
(2) TPA65R-BU4D_TIA w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	83.00
(2) TPA65R-BU4D_TIA w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	83.00
RRUS 4478 B14	A	From Leg	4.00 0.00 1.00	0.0000	83.00
RRUS 4478 B14	B	From Leg	4.00 0.00 1.00	0.0000	83.00
RRUS 4478 B14	C	From Leg	4.00 0.00 1.00	0.0000	83.00
RRUS 32 B2	A	From Leg	4.00 0.00 1.00	0.0000	83.00
RRUS 32 B2	B	From Leg	4.00 0.00 1.00	0.0000	83.00
RRUS 32 B2	C	From Leg	4.00 0.00 1.00	0.0000	83.00
RRUS 4449 B5/B12	A	From Leg	4.00 0.00 1.00	0.0000	83.00
RRUS 4449 B5/B12	B	From Leg	4.00 0.00 1.00	0.0000	83.00
RRUS 4449 B5/B12	C	From Leg	4.00 0.00 1.00	0.0000	83.00
CBC78T-DS-43_CCIV2	A	From Leg	4.00 0.00 1.00	0.0000	83.00
CBC78T-DS-43_CCIV2	B	From Leg	4.00 0.00 1.00	0.0000	83.00
CBC78T-DS-43_CCIV2	C	From Leg	4.00 0.00 1.00	0.0000	83.00
DC6-48-60-18-8C-EV	B	From Leg	4.00 0.00 1.00	0.0000	83.00
DC6-48-60-18-8C-EV	C	From Leg	4.00 0.00 1.00	0.0000	83.00
T-Arm Mount [TA 702-3]	C	None		0.0000	83.00
** 74 **					

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
(4) TN11/2X 131T/16X HP-2	C	From Leg	3.00 0.00 0.00	0.0000	74.00
T-Arm Mount [TA 702-1]	C	From Leg	1.50 0.00 0.00	0.0000	74.00
** 66 **					
DFPD2-18	C	From Leg	2.00 0.00 0.00	0.0000	66.00
Pipe Mount [PM 601-1]	C	From Leg	1.00 0.00 0.00	0.0000	66.00
** 59 **					
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	59.00
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	59.00
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	59.00
TA08025-B604	A	From Leg	4.00 0.00 1.00	0.0000	59.00
TA08025-B604	B	From Leg	4.00 0.00 1.00	0.0000	59.00
TA08025-B604	C	From Leg	4.00 0.00 1.00	0.0000	59.00
TA08025-B605	A	From Leg	4.00 0.00 1.00	0.0000	59.00
TA08025-B605	B	From Leg	4.00 0.00 1.00	0.0000	59.00
TA08025-B605	C	From Leg	4.00 0.00 1.00	0.0000	59.00
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 1.00	0.0000	59.00
Commscope MC-K6MHDX-9-96 (3)	C	None		0.0000	59.00
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	59.00
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	59.00
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	59.00
***					

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft
UHX4-107/B **	C	Paraboloid w/Shroud (HP)	From Leg	3.00 0.00 0.00	0.0000		74.00	4.23

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	Dead+Wind 0 deg - Service
27	Dead+Wind 30 deg - Service
28	Dead+Wind 60 deg - Service
29	Dead+Wind 90 deg - Service
30	Dead+Wind 120 deg - Service
31	Dead+Wind 150 deg - Service
32	Dead+Wind 180 deg - Service
33	Dead+Wind 210 deg - Service
34	Dead+Wind 240 deg - Service
35	Dead+Wind 270 deg - Service
36	Dead+Wind 300 deg - Service
37	Dead+Wind 330 deg - Service
38	1.2 Dead+1.0 Ev+1.0 Eh 0 deg
39	0.9 Dead-1.0 Ev+1.0 Eh 0 deg
40	1.2 Dead+1.0 Ev+1.0 Eh 30 deg
41	0.9 Dead-1.0 Ev+1.0 Eh 30 deg
42	1.2 Dead+1.0 Ev+1.0 Eh 60 deg
43	0.9 Dead-1.0 Ev+1.0 Eh 60 deg
44	1.2 Dead+1.0 Ev+1.0 Eh 90 deg
45	0.9 Dead-1.0 Ev+1.0 Eh 90 deg
46	1.2 Dead+1.0 Ev+1.0 Eh 120 deg
47	0.9 Dead-1.0 Ev+1.0 Eh 120 deg
48	1.2 Dead+1.0 Ev+1.0 Eh 150 deg
49	0.9 Dead-1.0 Ev+1.0 Eh 150 deg
50	1.2 Dead+1.0 Ev+1.0 Eh 180 deg
51	0.9 Dead-1.0 Ev+1.0 Eh 180 deg
52	1.2 Dead+1.0 Ev+1.0 Eh 210 deg
53	0.9 Dead-1.0 Ev+1.0 Eh 210 deg
54	1.2 Dead+1.0 Ev+1.0 Eh 240 deg
55	0.9 Dead-1.0 Ev+1.0 Eh 240 deg

Comb. No.	Description
56	1.2 Dead+1.0 Ev+1.0 Eh 270 deg
57	0.9 Dead-1.0 Ev+1.0 Eh 270 deg
58	1.2 Dead+1.0 Ev+1.0 Eh 300 deg
59	0.9 Dead-1.0 Ev+1.0 Eh 300 deg
60	1.2 Dead+1.0 Ev+1.0 Eh 330 deg
61	0.9 Dead-1.0 Ev+1.0 Eh 330 deg

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	98 - 45	Pole	Max Tension	56	0.00	-0.00	0.00
			Max. Compression	38	-20.25	0.15	256.65
			Max. Mx	8	-14.63	-713.21	7.03
			Max. My	14	-14.67	8.55	-703.55
			Max. Vy	8	25.90	-713.21	7.03
			Max. Vx	2	-25.50	-12.07	701.44
			Max. Torque	25			2.08
L2	45 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	38	-32.90	0.15	672.40
			Max. Mx	8	-25.96	-2232.38	25.54
			Max. My	14	-25.96	26.96	-2201.24
			Max. Vy	8	32.77	-2232.38	25.54
			Max. Vx	2	-32.37	-37.72	2200.80
			Max. Torque	25			1.97

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	50	32.90	0.00	-8.44
	Max. H_x	20	26.00	32.58	-0.33
	Max. H_z	2	26.00	-0.51	32.33
	Max. M_x	2	2200.80	-0.51	32.33
	Max. M_z	8	2232.38	-32.73	0.37
	Max. Torsion	25	1.97	16.15	27.82
	Min. Vert	61	12.60	4.22	7.31
	Min. H_x	8	26.00	-32.73	0.37
	Min. H_z	14	26.00	0.37	-32.30
	Min. M_x	14	-2201.24	0.37	-32.30
	Min. M_z	20	-2221.14	32.58	-0.33
	Min. Torsion	13	-1.97	-16.03	-27.89

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	21.67	0.00	0.00	1.24	0.13	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	26.00	0.51	-32.33	-2200.80	-37.72	-0.70
0.9 Dead+1.0 Wind 0 deg - No Ice	19.50	0.51	-32.33	-2186.67	-37.51	-0.71
1.2 Dead+1.0 Wind 30 deg - No Ice	26.00	16.69	-28.14	-1915.63	-1139.56	0.05
0.9 Dead+1.0 Wind 30 deg - No Ice	19.50	16.69	-28.14	-1903.38	-1132.08	0.05

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 60 deg - No Ice	26.00	28.46	-16.42	-1117.78	-1941.31	0.68
0.9 Dead+1.0 Wind 60 deg - No Ice	19.50	28.46	-16.42	-1110.80	-1928.54	0.68
1.2 Dead+1.0 Wind 90 deg - No Ice	26.00	32.73	-0.37	-25.54	-2232.38	1.12
0.9 Dead+1.0 Wind 90 deg - No Ice	19.50	32.73	-0.37	-25.76	-2217.69	1.13
1.2 Dead+1.0 Wind 120 deg - No Ice	26.00	28.28	15.72	1069.88	-1928.80	1.38
0.9 Dead+1.0 Wind 120 deg - No Ice	19.50	28.28	15.72	1062.44	-1916.11	1.39
1.2 Dead+1.0 Wind 150 deg - No Ice	26.00	16.03	27.89	1900.50	-1091.96	1.96
0.9 Dead+1.0 Wind 150 deg - No Ice	19.50	16.03	27.89	1887.58	-1084.78	1.97
1.2 Dead+1.0 Wind 180 deg - No Ice	26.00	-0.37	32.30	2201.24	26.96	1.15
0.9 Dead+1.0 Wind 180 deg - No Ice	19.50	-0.37	32.30	2186.34	26.75	1.15
1.2 Dead+1.0 Wind 210 deg - No Ice	26.00	-16.57	28.03	1910.44	1131.02	0.09
0.9 Dead+1.0 Wind 210 deg - No Ice	19.50	-16.57	28.03	1897.46	1123.53	0.09
1.2 Dead+1.0 Wind 240 deg - No Ice	26.00	-28.33	16.35	1115.13	1931.73	-0.68
0.9 Dead+1.0 Wind 240 deg - No Ice	19.50	-28.33	16.35	1107.40	1918.96	-0.68
1.2 Dead+1.0 Wind 270 deg - No Ice	26.00	-32.58	0.33	25.05	2221.14	-1.26
0.9 Dead+1.0 Wind 270 deg - No Ice	19.50	-32.58	0.33	24.50	2206.45	-1.27
1.2 Dead+1.0 Wind 300 deg - No Ice	26.00	-28.18	-15.83	-1075.12	1921.32	-1.83
0.9 Dead+1.0 Wind 300 deg - No Ice	19.50	-28.18	-15.83	-1068.41	1908.60	-1.83
1.2 Dead+1.0 Wind 330 deg - No Ice	26.00	-16.15	-27.82	-1892.38	1101.05	-1.96
0.9 Dead+1.0 Wind 330 deg - No Ice	19.50	-16.15	-27.82	-1880.28	1093.75	-1.97
Dead+Wind 0 deg - Service	21.67	0.12	-7.62	-515.81	-8.76	-0.17
Dead+Wind 30 deg - Service	21.67	3.93	-6.63	-448.87	-267.47	0.02
Dead+Wind 60 deg - Service	21.67	6.70	-3.87	-261.54	-455.72	0.17
Dead+Wind 90 deg - Service	21.67	7.71	-0.09	-5.08	-524.06	0.27
Dead+Wind 120 deg - Service	21.67	6.66	3.70	252.11	-452.77	0.33
Dead+Wind 150 deg - Service	21.67	3.78	6.57	447.13	-256.28	0.47
Dead+Wind 180 deg - Service	21.67	-0.09	7.61	517.74	6.42	0.27
Dead+Wind 210 deg - Service	21.67	-3.90	6.60	449.47	265.65	0.02
Dead+Wind 240 deg - Service	21.67	-6.67	3.85	262.74	453.65	-0.17
Dead+Wind 270 deg - Service	21.67	-7.67	0.08	6.79	521.60	-0.31
Dead+Wind 300 deg - Service	21.67	-6.64	-3.73	-251.52	451.20	-0.44
Dead+Wind 330 deg - Service	21.67	-3.80	-6.55	-443.39	258.61	-0.47
1.2 Dead+1.0 Ev+1.0 Eh 0 deg	32.90	0.00	-8.44	-672.40	0.15	0.01
0.9 Dead-1.0 Ev+1.0 Eh 0 deg	12.60	0.00	-8.44	-657.91	0.12	0.01
1.2 Dead+1.0 Ev+1.0 Eh 30 deg	32.90	4.22	-7.31	-582.11	-336.83	0.00
0.9 Dead-1.0 Ev+1.0 Eh 30 deg	12.60	4.22	-7.31	-569.61	-329.40	0.00

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
1.2 Dead+1.0 Ev+1.0 Eh 60 deg	32.90	7.31	-4.22	-335.42	-583.51	-0.00
0.9 Dead-1.0 Ev+1.0 Eh 60 deg	12.60	7.31	-4.22	-328.39	-570.62	-0.00
1.2 Dead+1.0 Ev+1.0 Eh 90 deg	32.90	8.44	0.00	1.56	-673.81	-0.01
0.9 Dead-1.0 Ev+1.0 Eh 90 deg	12.60	8.44	0.00	1.12	-658.91	-0.01
1.2 Dead+1.0 Ev+1.0 Eh 120 deg	32.90	7.31	4.22	338.54	-583.51	-0.01
0.9 Dead-1.0 Ev+1.0 Eh 120 deg	12.60	7.31	4.22	330.64	-570.62	-0.01
1.2 Dead+1.0 Ev+1.0 Eh 150 deg	32.90	4.22	7.31	585.23	-336.83	-0.01
0.9 Dead-1.0 Ev+1.0 Eh 150 deg	12.60	4.22	7.31	571.86	-329.40	-0.01
1.2 Dead+1.0 Ev+1.0 Eh 180 deg	32.90	0.00	8.44	675.52	0.15	-0.01
0.9 Dead-1.0 Ev+1.0 Eh 180 deg	12.60	0.00	8.44	660.15	0.12	-0.01
1.2 Dead+1.0 Ev+1.0 Eh 210 deg	32.90	-4.22	7.31	585.23	337.14	-0.00
0.9 Dead-1.0 Ev+1.0 Eh 210 deg	12.60	-4.22	7.31	571.86	329.63	-0.00
1.2 Dead+1.0 Ev+1.0 Eh 240 deg	32.90	-7.31	4.22	338.54	583.82	0.00
0.9 Dead-1.0 Ev+1.0 Eh 240 deg	12.60	-7.31	4.22	330.64	570.85	0.00
1.2 Dead+1.0 Ev+1.0 Eh 270 deg	32.90	-8.44	0.00	1.56	674.12	0.01
0.9 Dead-1.0 Ev+1.0 Eh 270 deg	12.60	-8.44	0.00	1.12	659.14	0.01
1.2 Dead+1.0 Ev+1.0 Eh 300 deg	32.90	-7.31	-4.22	-335.42	583.82	0.01
0.9 Dead-1.0 Ev+1.0 Eh 300 deg	12.60	-7.31	-4.22	-328.39	570.85	0.01
1.2 Dead+1.0 Ev+1.0 Eh 330 deg	32.90	-4.22	-7.31	-582.11	337.14	0.01
0.9 Dead-1.0 Ev+1.0 Eh 330 deg	12.60	-4.22	-7.31	-569.61	329.63	0.01

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-21.67	0.00	0.00	21.67	0.00	0.000%
2	0.51	-26.00	-32.33	-0.51	26.00	32.33	0.000%
3	0.51	-19.50	-32.33	-0.51	19.50	32.33	0.000%
4	16.69	-26.00	-28.14	-16.69	26.00	28.14	0.000%
5	16.69	-19.50	-28.14	-16.69	19.50	28.14	0.000%
6	28.46	-26.00	-16.42	-28.46	26.00	16.42	0.000%
7	28.46	-19.50	-16.42	-28.46	19.50	16.42	0.000%
8	32.73	-26.00	-0.37	-32.73	26.00	0.37	0.000%
9	32.73	-19.50	-0.37	-32.73	19.50	0.37	0.000%
10	28.28	-26.00	15.72	-28.28	26.00	-15.72	0.000%
11	28.28	-19.50	15.72	-28.28	19.50	-15.72	0.000%
12	16.03	-26.00	27.89	-16.03	26.00	-27.89	0.000%
13	16.03	-19.50	27.89	-16.03	19.50	-27.89	0.000%
14	-0.37	-26.00	32.30	0.37	26.00	-32.30	0.000%
15	-0.37	-19.50	32.30	0.37	19.50	-32.30	0.000%
16	-16.57	-26.00	28.03	16.57	26.00	-28.03	0.000%
17	-16.57	-19.50	28.03	16.57	19.50	-28.03	0.000%
18	-28.33	-26.00	16.35	28.33	26.00	-16.35	0.000%
19	-28.33	-19.50	16.35	28.33	19.50	-16.35	0.000%
20	-32.58	-26.00	0.33	32.58	26.00	-0.33	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
21	-32.58	-19.50	0.33	32.58	19.50	-0.33	0.000%
22	-28.18	-26.00	-15.83	28.18	26.00	15.83	0.000%
23	-28.18	-19.50	-15.83	28.18	19.50	15.83	0.000%
24	-16.15	-26.00	-27.82	16.15	26.00	27.82	0.000%
25	-16.15	-19.50	-27.82	16.15	19.50	27.82	0.000%
26	0.12	-21.67	-7.62	-0.12	21.67	7.62	0.000%
27	3.93	-21.67	-6.63	-3.93	21.67	6.63	0.000%
28	6.70	-21.67	-3.87	-6.70	21.67	3.87	0.000%
29	7.71	-21.67	-0.09	-7.71	21.67	0.09	0.000%
30	6.66	-21.67	3.70	-6.66	21.67	-3.70	0.000%
31	3.78	-21.67	6.57	-3.78	21.67	-6.57	0.000%
32	-0.09	-21.67	7.61	0.09	21.67	-7.61	0.000%
33	-3.90	-21.67	6.60	3.90	21.67	-6.60	0.000%
34	-6.67	-21.67	3.85	6.67	21.67	-3.85	0.000%
35	-7.67	-21.67	0.08	7.67	21.67	-0.08	0.000%
36	-6.64	-21.67	-3.73	6.64	21.67	3.73	0.000%
37	-3.80	-21.67	-6.55	3.80	21.67	6.55	0.000%
38	0.00	-32.90	-8.44	0.00	32.90	8.44	0.000%
39	0.00	-12.60	-8.44	0.00	12.60	8.44	0.000%
40	4.22	-32.90	-7.31	-4.22	32.90	7.31	0.000%
41	4.22	-12.60	-7.31	-4.22	12.60	7.31	0.000%
42	7.31	-32.90	-4.22	-7.31	32.90	4.22	0.000%
43	7.31	-12.60	-4.22	-7.31	12.60	4.22	0.000%
44	8.44	-32.90	0.00	-8.44	32.90	0.00	0.000%
45	8.44	-12.60	0.00	-8.44	12.60	0.00	0.000%
46	7.31	-32.90	4.22	-7.31	32.90	-4.22	0.000%
47	7.31	-12.60	4.22	-7.31	12.60	-4.22	0.000%
48	4.22	-32.90	7.31	-4.22	32.90	-7.31	0.000%
49	4.22	-12.60	7.31	-4.22	12.60	-7.31	0.000%
50	0.00	-32.90	8.44	0.00	32.90	-8.44	0.000%
51	0.00	-12.60	8.44	0.00	12.60	-8.44	0.000%
52	-4.22	-32.90	7.31	4.22	32.90	-7.31	0.000%
53	-4.22	-12.60	7.31	4.22	12.60	-7.31	0.000%
54	-7.31	-32.90	4.22	7.31	32.90	-4.22	0.000%
55	-7.31	-12.60	4.22	7.31	12.60	-4.22	0.000%
56	-8.44	-32.90	0.00	8.44	32.90	0.00	0.000%
57	-8.44	-12.60	0.00	8.44	12.60	0.00	0.000%
58	-7.31	-32.90	-4.22	7.31	32.90	4.22	0.000%
59	-7.31	-12.60	-4.22	7.31	12.60	4.22	0.000%
60	-4.22	-32.90	-7.31	4.22	32.90	7.31	0.000%
61	-4.22	-12.60	-7.31	4.22	12.60	7.31	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00005544
3	Yes	4	0.00000001	0.00002796
4	Yes	5	0.00000001	0.00007586
5	Yes	5	0.00000001	0.00003032
6	Yes	5	0.00000001	0.00007335
7	Yes	5	0.00000001	0.00002921
8	Yes	4	0.00000001	0.00008962
9	Yes	4	0.00000001	0.00005043
10	Yes	5	0.00000001	0.00007589
11	Yes	5	0.00000001	0.00003064
12	Yes	5	0.00000001	0.00006915
13	Yes	5	0.00000001	0.00002760
14	Yes	4	0.00000001	0.00019422
15	Yes	4	0.00000001	0.00011307
16	Yes	5	0.00000001	0.00007484
17	Yes	5	0.00000001	0.00002989
18	Yes	5	0.00000001	0.00007672
19	Yes	5	0.00000001	0.00003074
20	Yes	4	0.00000001	0.00023467
21	Yes	4	0.00000001	0.00013592
22	Yes	5	0.00000001	0.00006857
23	Yes	5	0.00000001	0.00002742
24	Yes	5	0.00000001	0.00007713
25	Yes	5	0.00000001	0.00003125
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00005378
28	Yes	4	0.00000001	0.00004869
29	Yes	4	0.00000001	0.00001301
30	Yes	4	0.00000001	0.00005917
31	Yes	4	0.00000001	0.00004454
32	Yes	4	0.00000001	0.00001276
33	Yes	4	0.00000001	0.00005253
34	Yes	4	0.00000001	0.00005777
35	Yes	4	0.00000001	0.00001675
36	Yes	4	0.00000001	0.00004285
37	Yes	4	0.00000001	0.00006080
38	Yes	4	0.00000001	0.00002268
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00023269
41	Yes	4	0.00000001	0.00006820
42	Yes	4	0.00000001	0.00023281
43	Yes	4	0.00000001	0.00006824
44	Yes	4	0.00000001	0.00002285
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00023758
47	Yes	4	0.00000001	0.00006925
48	Yes	4	0.00000001	0.00023819
49	Yes	4	0.00000001	0.00006940
50	Yes	4	0.00000001	0.00002294
51	Yes	4	0.00000001	0.00000001
52	Yes	4	0.00000001	0.00023751
53	Yes	4	0.00000001	0.00006925
54	Yes	4	0.00000001	0.00023740
55	Yes	4	0.00000001	0.00006922
56	Yes	4	0.00000001	0.00002286
57	Yes	4	0.00000001	0.00000001
58	Yes	4	0.00000001	0.00023265
59	Yes	4	0.00000001	0.00006821
60	Yes	4	0.00000001	0.00023204
61	Yes	4	0.00000001	0.00006806

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	98 - 45	14.178	28	1.1630	0.0030
L2	49 - 0	3.836	28	0.7179	0.0014

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
97.00	T-Arm Mount [TA 601-3]	28	13.934	1.1553	0.0035	28879
96.50	CCISeismic Tower Section 1 - 1	28	13.812	1.1514	0.0034	28879
96.00	AIR 6419 B41_TMO_CCIV2_TIA w/ Mount Pipe	28	13.690	1.1476	0.0034	28879
95.24	5' Pine Branches	28	13.504	1.1417	0.0034	28879
95.00	T-Arm Mount [TA 601-3]	28	13.446	1.1398	0.0034	28879
92.00	CCISeismic (2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96 (88ft to96ft)	28	12.716	1.1165	0.0032	24066
90.00	CCISeismic Tower Section 1 - 2	28	12.231	1.1009	0.0031	18050
86.26	6' Pine Branches	28	11.333	1.0713	0.0029	12299
83.00	(2) TPA65R-BU4D_TIA w/ Mount Pipe	28	10.561	1.0451	0.0028	9626
80.50	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (78ft to83ft)	28	9.978	1.0247	0.0026	8251
80.00	CCISeismic Tower Section 1 - 3	28	9.862	1.0205	0.0026	8022
74.00	UHX4-107/B	28	8.507	0.9695	0.0023	6016
73.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (68ft to78ft)	28	8.288	0.9608	0.0023	5775
71.07	7' Pine Branches	28	7.870	0.9436	0.0022	5361
71.00	CCISeismic (4) andrew CNT-400(13/32) From 0 to 74 (68ft to74ft)	28	7.855	0.9430	0.0022	5347
70.00	CCISeismic Tower Section 1 - 4	28	7.643	0.9340	0.0022	5156
66.00	DFPD2-18	28	6.815	0.8969	0.0020	4512
63.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (58ft to68ft)	28	6.222	0.8682	0.0018	4125
62.00	CCISeismic andrew LDF4-50A(1/2) From 0 to 66 (58ft to66ft)	28	6.030	0.8583	0.0018	4010
60.00	CCISeismic Tower Section 1 - 5	28	5.655	0.8383	0.0017	3799
59.00	MX08FRO665-21 w/ Mount Pipe	28	5.472	0.8281	0.0017	3701
58.50	CCISeismic cui CU12PSM9P8XXX(1-3/8) From 0 to 59 (58ft to59ft)	28	5.382	0.8230	0.0017	3655
55.88	8' Pine Branches	28	4.923	0.7954	0.0016	3427
53.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (48ft to58ft)	28	4.446	0.7638	0.0015	3209
50.00	CCISeismic Tower Section 1 - 6	28	3.983	0.7296	0.0014	3062
46.90	9' Pine Branches	28	3.541	0.6926	0.0013	3099
44.50	CCISeismic Tower Section 2 - 1	28	3.225	0.6629	0.0012	3244
43.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (38ft to48ft)	28	3.038	0.6439	0.0012	3357
41.38	10' Pine Branches	28	2.846	0.6230	0.0011	3488
35.00	CCISeismic Tower Section 2 - 2	28	2.171	0.5369	0.0010	4123
33.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (28ft to38ft)	28	1.985	0.5089	0.0009	4373
25.00	CCISeismic Tower Section 2 - 3	28	1.343	0.3924	0.0007	5773
23.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (18ft to28ft)	28	1.205	0.3623	0.0006	6275

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
15.00	CCISeismic Tower Section 2 - 4	28	0.723	0.2390	0.0004	9621
13.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (8ft to18ft)	28	0.617	0.2076	0.0004	11101
5.00	CCISeismic Tower Section 2 - 5	28	0.227	0.0803	0.0001	28862
4.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (0ft to8ft)	28	0.181	0.0642	0.0001	28862

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	98 - 45	60.471	6	4.9453	0.0121
L2	49 - 0	16.364	6	3.0650	0.0057

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
97.00	T-Arm Mount [TA 601-3]	6	59.429	4.9130	0.0149	6861
96.50	CCISeismic Tower Section 1 - 1	6	58.909	4.8968	0.0148	6861
96.00	AIR 6419 B41_TMO_CCIV2_TIA w/ Mount Pipe	6	58.388	4.8806	0.0146	6861
95.24	5' Pine Branches	6	57.597	4.8560	0.0145	6861
95.00	T-Arm Mount [TA 601-3]	6	57.348	4.8482	0.0144	6861
92.00	CCISeismic (2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96 (88ft to96ft)	6	54.234	4.7508	0.0138	5717
90.00	CCISeismic Tower Section 1 - 2	6	52.168	4.6854	0.0133	4287
86.26	6' Pine Branches	6	48.337	4.5617	0.0125	2921
83.00	(2) TPA65R-BU4D_TIA w/ Mount Pipe	6	45.045	4.4519	0.0118	2285
80.50	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (78ft to83ft)	6	42.557	4.3661	0.0112	1958
80.00	CCISeismic Tower Section 1 - 3	6	42.064	4.3487	0.0111	1904
74.00	UHX4-107/B	6	36.285	4.1346	0.0099	1426
73.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (68ft to78ft)	6	35.350	4.0978	0.0097	1369
71.07	7' Pine Branches	6	33.570	4.0255	0.0093	1271
71.00	CCISeismic (4) andrew CNT-400(13/32) From 0 to 74 (68ft to74ft)	6	33.506	4.0229	0.0093	1267
70.00	CCISeismic Tower Section 1 - 4	6	32.598	3.9849	0.0091	1222
66.00	DFPD2-18	6	29.069	3.8283	0.0083	1068
63.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (58ft to68ft)	6	26.539	3.7059	0.0077	976
62.00	CCISeismic andrew LDF4-50A(1/2) From 0 to 66 (58ft to66ft)	6	25.721	3.6640	0.0075	949
60.00	CCISeismic Tower Section 1 - 5	6	24.122	3.5787	0.0072	898
59.00	MX08FRO665-21 w/ Mount Pipe	6	23.342	3.5352	0.0070	875
58.50	CCISeismic cui CU12PSM9P8XXX(1-3/8) From 0 to 59 (58ft to59ft)	6	22.957	3.5132	0.0069	864
55.88	8' Pine Branches	6	21.000	3.3955	0.0066	810

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
53.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (48ft to58ft)	6	18.967	3.2611	0.0062	758
50.00	CCISeismic Tower Section 1 - 6	6	16.989	3.1151	0.0059	723
46.90	9' Pine Branches	6	15.106	2.9575	0.0055	731
44.50	CCISeismic Tower Section 2 - 1	6	13.757	2.8307	0.0052	765
43.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (38ft to48ft)	6	12.961	2.7495	0.0050	791
41.38	10' Pine Branches	6	12.139	2.6602	0.0048	822
35.00	CCISeismic Tower Section 2 - 2	6	9.262	2.2929	0.0040	971
33.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (28ft to38ft)	6	8.468	2.1732	0.0038	1030
25.00	CCISeismic Tower Section 2 - 3	6	5.731	1.6756	0.0029	1358
23.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (18ft to28ft)	6	5.143	1.5471	0.0026	1476
15.00	CCISeismic Tower Section 2 - 4	6	3.085	1.0205	0.0017	2263
13.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (8ft to18ft)	6	2.631	0.8862	0.0015	2611
5.00	CCISeismic Tower Section 2 - 5	6	0.969	0.3427	0.0006	6788
4.00	CCISeismic (12) andrew LDF5-50A(7/8) From 0 to 83 (0ft to8ft)	6	0.773	0.2742	0.0005	6788

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	98 - 45 (1)	TP32.061x18x0.25	53.00	0.00	0.0	24.4000	-14.62	1427.40	0.010
L2	45 - 0 (2)	TP43.5x30.4998x0.3125	49.00	0.00	0.0	42.8366	-25.96	2505.94	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	98 - 45 (1)	TP32.061x18x0.25	714.70	1065.68	0.671	0.00	1065.68	0.000
L2	45 - 0 (2)	TP43.5x30.4998x0.3125	2240.12	2522.18	0.888	0.00	2522.18	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	98 - 45 (1)	TP32.061x18x0.25	26.03	428.22	0.061	0.68	1153.16	0.001
L2	45 - 0 (2)	TP43.5x30.4998x0.3125	32.89	751.78	0.044	0.68	2843.35	0.000

Pole Interaction Design Data

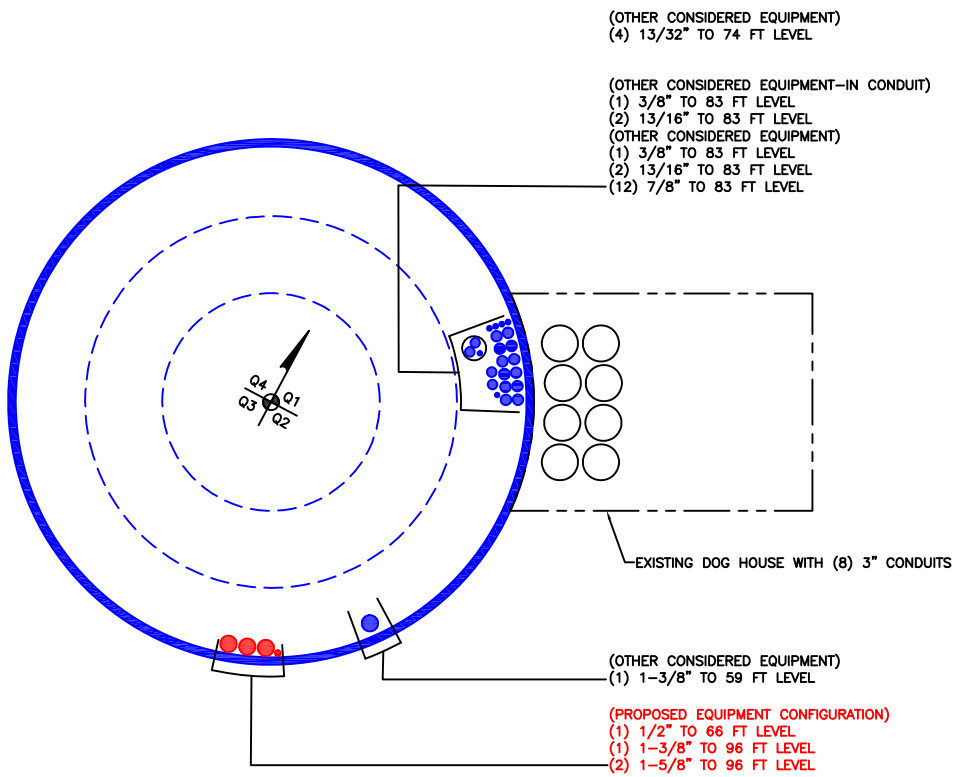
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	98 - 45 (1)	0.010	0.671	0.000	0.061	0.001	0.685	1.050	4.8.2
L2	45 - 0 (2)	0.010	0.888	0.000	0.044	0.000	0.900	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	98 - 45	Pole	TP32.061x18x0.25	1	-14.62	1498.77	65.2	Pass
L2	45 - 0	Pole	TP43.5x30.4998x0.3125	2	-25.96	2631.24	85.8	Pass
							Summary	
						Pole (L2)	85.8	Pass
						RATING =	**85.8**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(4) 13/32" TO 74 FT LEVEL
(OTHER CONSIDERED EQUIPMENT–IN CONDUIT)
(1) 3/8" TO 83 FT LEVEL
(2) 13/16" TO 83 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 3/8" TO 83 FT LEVEL
(2) 13/16" TO 83 FT LEVEL
(12) 7/8" TO 83 FT LEVEL
Q4
Q1
Q3
Q2
EXISTING DOG HOUSE WITH (8) 3" CONDUITS
(OTHER CONSIDERED EQUIPMENT)
(1) 1–3/8" TO 59 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1/2" TO 66 FT LEVEL
(1) 1–3/8" TO 96 FT LEVEL
(2) 1–5/8" TO 96 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

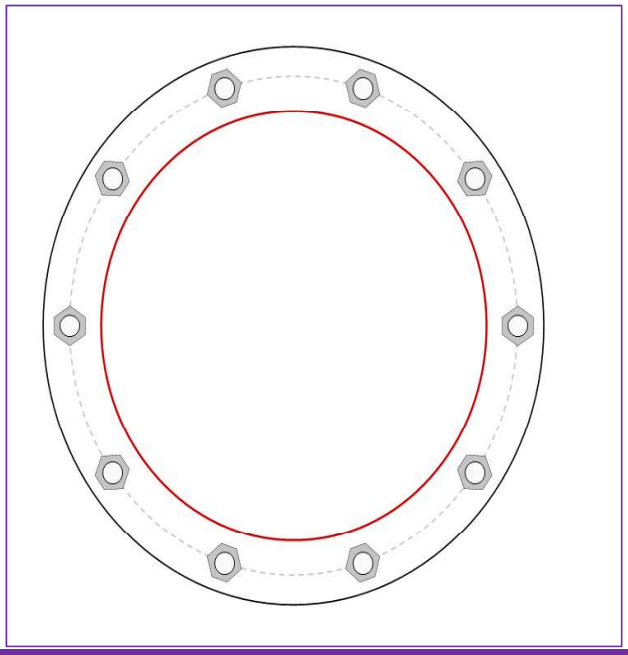
Monopole Base Plate Connection

Site Info	
BU #	828012
Site Name	SN305 Spooner Grade
Order #	649714 - Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0.75

Applied Loads	
Moment (kip-ft)	2240.11
Axial Force (kips)	25.96
Shear Force (kips)	32.89

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(10) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 50.5" BC

Base Plate Data

56.5" OD x 2.25" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

43.5" x 0.3125" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_t = 210.15	ϕPn_t = 243.75	**Stress Rating**
Vu = 3.29	ϕVn = 149.1	**82.1%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	28.58	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**50.4%**	**Pass**

Monopole Base Plate Connection - Seismic

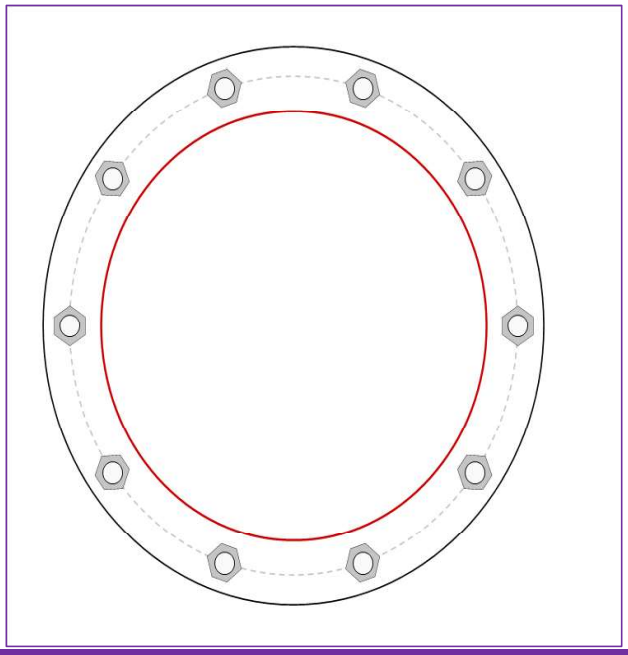
Site Info	
BU #	828012
Site Name	SN305 Spooner Grade
Order #	649714 - Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0.75

Applied Loads	
Moment (kip-ft)	675.52
Axial Force (kips)	32.90
Shear Force (kips)	8.44

**TIA-222-H Section 15.5 Applied*

**1.5 Overstrength Factor Applied*



Connection Properties

Anchor Rod Data

(10) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 50.5" BC

Base Plate Data

56.5" OD x 2.25" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

43.5" x 0.3125" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_t = 92.94	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.27	ϕVn = 149.1	**36.3%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	8.97	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**15.8%**	**Pass**

Drilled Pier Foundation

BU # :	828012
Site Name:	SN305 Spooner Grade
Order Number:	649714 - Rev. 0
TIA-222 Revison:	H
Tower Type:	Monopole

Check Limitation	
Apply TIA-222-H Section 15.5:	☑
N/A	☐
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☐
Shear Design Options	
Check Shear along Depth of Pier:	☑
Utilize Shear-Friction Methodology:	☐
Override Critical Depth:	☐

Go to Soil Calculations

Applied Loads	Comp.	Uplift
Moment (kip-ft)	2240.12	
Axial Force (kips)	26	
Shear Force (kips)	32.86	

Material Properties			Rebar 2, Fy Override (ksi)	Rebar 3, Fy Override (ksi)
Concrete Strength, f'c:	3	ksi		
Rebar Strength, Fy:	60	ksi		
Tie Yield Strength, Fyt:	40	ksi		

Pier Design Data		
Depth	22	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 22' below grade		
Pier Diameter	6	ft
Rebar Quantity	16	
Rebar Size	11	
Clear Cover to Ties	3	in
Tie Size	5	
Tie Spacing		in

Rebar & Pier Options
Embedded Pole Inputs
Belled Pier Inputs

Analysis Results

Soil Lateral Check	Compression	Uplift
$D_{v=0}$ (ft from TOC)	6.14	-
Soil Safety Factor	2.06	-
Max Moment (kip-ft)	2438.63	-
Rating*	*61.3%*	-

Soil Vertical Check	Compression	Uplift
Skin Friction (kips)	80.58	-
End Bearing (kips)	178.55	-
Weight of Concrete (kips)	114.51	-
Total Capacity (kips)	259.13	-
Axial (kips)	140.51	-
Rating*	*51.6%*	-

Reinforced Concrete Flexure	Compression	Uplift
Critical Depth (ft from TOC)	6.02	-
Critical Moment (kip-ft)	2438.50	-
Critical Moment Capacity	3374.21	-
Rating*	*68.8%*	-

Reinforced Concrete Shear	Compression	Uplift
Critical Depth (ft from TOC)	16.56	-
Critical Shear (kip)	325.16	-
Critical Shear Capacity	403.61	-
Rating*	*76.7%*	-

Structural Foundation Rating*	**76.7%**
Soil Interaction Rating*	**61.3%**

*Rating per TIA-222-H Section 15.5

Soil Profile

Groundwater Depth	n/a

# of Layers	3

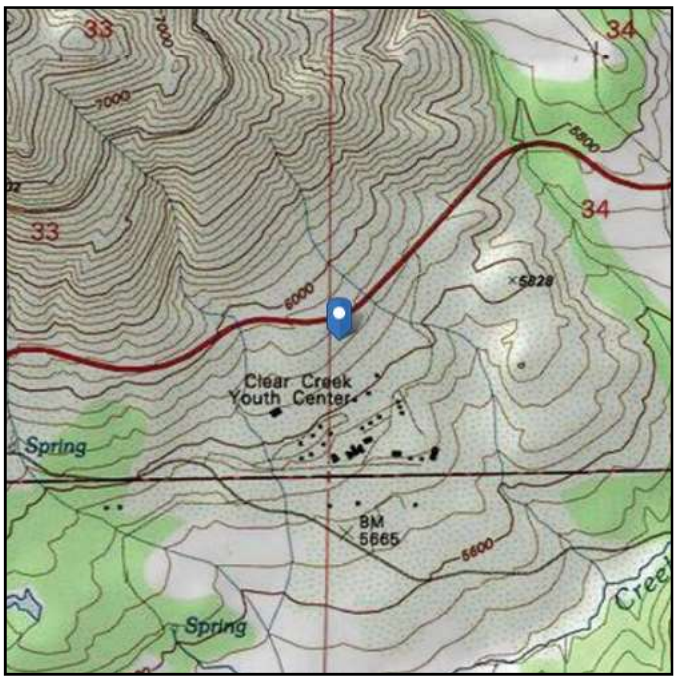
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3	3	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3	6	3	110	150	0	30	0.000	0.000	0.30	0.30			Cohesionless
3	6	22	16	110	150	0	30	0.000	0.000	0.30	0.30	8.42		Cohesionless

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: 5903.3 ft (NAVD 88)
Latitude: 39.117092
Longitude: -119.843519



Wind

Results:

Wind Speed:	96 Vmph
10-year MRI	67 Vmph
25-year MRI	73 Vmph
50-year MRI	77 Vmph
100-year MRI	82 Vmph
Special	Special Wind Region -- Mountainous terrain, gorges, and special wind regions shown in Fig. 26.5-1 shall be examined for unusual wind conditions. The Authority Having Jurisdiction shall, if necessary, adjust the values given in Fig. 26.5-1 to account for higher local wind speeds. Such adjustment shall be based on meteorological information and an estimate of the basic wind speed obtained in accordance with the provisions in Section 26.5.3.
Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Thu Apr 08 2021

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.

Seismic

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

Results:

S_S :	1.99	S_{D1} :	N/A
S_1 :	0.73	T_L :	6
F_a :	1.2	PGA :	0.857
F_v :	N/A	PGA_M :	1.028
S_{MS} :	2.388	F_{PGA} :	1.2
S_{M1} :	N/A	I_e :	1
S_{DS} :	1.592	C_v :	1.498

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Thu Apr 08 2021

Date Source: USGS Seismic Design Maps

Ice

Results:

Ice Thickness:	0.00 in.
Concurrent Temperature:	25 F
Gust Speed:	30 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu Apr 08 2021

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.

BU:	828012	Structure:	A
WO:	2237562		
Order:	649714	Rev:	0

Location

	Decimal Degrees		Deg	Min	Sec
Lat:	39.117083	+	39	7	1.50
Long:	-119.843528	-	119	50	36.70

Code and Site Parameters

Seismic Design Code:	TIA-222-H-1	
Site Soil:	D (Default)	Default
Risk Category:	II	

USGS Seismic Reference			
	S_S:	1.9900	g
	S_1:	0.7300	g
	T_L:	6	s

Seismic Design Category Determination

Importance Factor, I_e:	1	
Acceleration-based site coefficient, F_a:	1.2000	
Velocity-based site coefficient, F_v:	1.7000	
Design spectral response acceleration short period, S_{DS}:	1.5920	g
Design spectral response acceleration 1 s period, S_{D1}:	0.8273	g
T_s:	0.5197	
Seismic Design Category Based on S_{DS}:	D	
Seismic Design Category Based on S_{D1}:	D	
Seismic Design Category Based on S_1:	N/A	
Controlling Seismic Design Category:	D	

BU:	828012	Structure:	A
WO:	2237562		
Order:	649714	Rev:	0

Tower Details

Tower Type:	Tapered Monopole		
Height, h:	98	ft	
Effective Seismic Weight, W:	21.67	kips	
Amplification Factor, A_s:	1.0		2.7.8.1

Seismic Base Shear

Response Modification Factor, R:	1.5		
Discrete Appurtenance Weight in Top 1/3 of Structure, W_u:	6.54	kips	
W_L:	15.12677067	kips	
E:	29000.0	ksi	
g:	386.088	in/s^2	
Average Moment of Inertia, I_{avg}:	3933.125431	in^4	
F_a:	0.451135509	hz	
Approximate Fundamental Period Monopole, T_a:	2.2166	s	2.7.7.1.3.3
Seismic Response Coefficient, C_s	0.3732		Table 2-12 Note 3
Seismic Response Coefficient Max 1, C_{smax}	N/A		
Seismic Response Coefficient Max 2, C_{smax}	N/A		
Seismic Response Coefficient Min 1, C_{smin}	0.0700		2.7.7.1.1
Seismic Response Coefficient Min 2, C_{smin}	0.3893		2.7.7.1.1
Controlling Seismic Response Coefficient, C_{sc}	0.3893		
Seismic Base Shear, V	8.436	kips	2.7.7.1.1

Vertical Distribution Factors

Period Related Exponent, k:	1.858
Sum of $w_i h_i^k$	47533.60

Tower Section Loads								
Section Number	Length	Top Height	Mid Height, h_x	Section Weight, w_x	$w_x h_x^k$	C_{vx}	F_{xh}	F_{xv}
1 - 1	3.00	98.00	96.50	0.1470	716.46	0.0151	0.1271	0.0468
1 - 2	10.00	95.00	90.00	0.5366	2297.27	0.0483	0.4077	0.1708
1 - 3	10.00	85.00	80.00	0.6082	2092.08	0.0440	0.3713	0.1936
1 - 4	10.00	75.00	70.00	0.6798	1824.59	0.0384	0.3238	0.2165
1 - 5	10.00	65.00	60.00	0.7515	1514.49	0.0319	0.2688	0.2393
1 - 6	10.00	55.00	50.00	0.8231	1182.13	0.0249	0.2098	0.2621
2 - 1	9.00	49.00	44.50	0.9532	1102.45	0.0232	0.1956	0.3035
2 - 2	10.00	40.00	35.00	1.1442	846.95	0.0178	0.1503	0.3643
2 - 3	10.00	30.00	25.00	1.2337	488.69	0.0103	0.0867	0.3928
2 - 4	10.00	20.00	15.00	1.3233	202.86	0.0043	0.0360	0.4213
2 - 5	10.00	10.00	5.00	1.4128	28.12	0.0006	0.0050	0.4498
			Sum	9.6133	12296.08			

Discrete Loads						
Name	h_x	w_x	$w_x h_x^k$	C_{vx}	F_{xh}	F_{xv}
5' Pine Branches	95.24	0.2550	1212.85	0.0255	0.2152	0.0812
6' Pine Branches	86.26	0.4800	1899.26	0.0400	0.3371	0.1528
7' Pine Branches	71.07	1.1760	3246.55	0.0683	0.5762	0.3744
8' Pine Branches	55.88	0.7920	1398.55	0.0294	0.2482	0.2522
9' Pine Branches	46.90	0.6000	765.10	0.0161	0.1358	0.1910
10' Pine Branches	41.38	0.4320	436.50	0.0092	0.0775	0.1375
ericsson AIR 6419 B41_TMO_CCIV2_TIA w/ Mount Pipe	96.00	0.1000	482.71	0.0102	0.0857	0.0318
ericsson AIR 6419 B41_TMO_CCIV2_TIA w/ Mount Pipe	96.00	0.1000	482.71	0.0102	0.0857	0.0318
ericsson AIR 6419 B41_TMO_CCIV2_TIA w/ Mount Pipe	96.00	0.1000	482.71	0.0102	0.0857	0.0318
rfs celwave APXVAALL24_43-U-NA20_TMO_TIA w/ Mount Pipe	96.00	0.1800	868.87	0.0183	0.1542	0.0573
rfs celwave APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	96.00	0.1600	772.33	0.0162	0.1371	0.0509
rfs celwave APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	96.00	0.1600	772.33	0.0162	0.1371	0.0509
(2) ericsson RADIO 4449 B71/B85A	96.00	0.1400	675.79	0.0142	0.1199	0.0446
ericsson RADIO 4449 B71 B85A_T-MOBILE	96.00	0.0700	337.89	0.0071	0.0600	0.0223
ericsson RADIO 4460 B2/B25 B66_TMO	96.00	0.1100	530.98	0.0112	0.0942	0.0350
ericsson RADIO 4460 B2/B25 B66_TMO	96.00	0.1100	530.98	0.0112	0.0942	0.0350
ericsson RADIO 4460 B2/B25 B66_TMO	96.00	0.1100	530.98	0.0112	0.0942	0.0350
tower mounts T-Arm Mount [TA 601-3]	97.00	0.7260	3572.59	0.0752	0.6340	0.2312
tower mounts T-Arm Mount [TA 601-3]	95.00	0.7260	3436.92	0.0723	0.6099	0.2312
(2) cci antennas TPA65R-BU4D_TIA w/ Mount Pipe	83.00	0.1600	589.35	0.0124	0.1046	0.0509
(2) cci antennas TPA65R-BU4D_TIA w/ Mount Pipe	83.00	0.1600	589.35	0.0124	0.1046	0.0509
(2) cci antennas TPA65R-BU4D_TIA w/ Mount Pipe	83.00	0.1600	589.35	0.0124	0.1046	0.0509
ericsson RRUS 4478 B14	83.00	0.0600	221.00	0.0046	0.0392	0.0191
ericsson RRUS 4478 B14	83.00	0.0600	221.00	0.0046	0.0392	0.0191
ericsson RRUS 4478 B14	83.00	0.0600	221.00	0.0046	0.0392	0.0191
ericsson RRUS 32 B2	83.00	0.0500	184.17	0.0039	0.0327	0.0159
ericsson RRUS 32 B2	83.00	0.0500	184.17	0.0039	0.0327	0.0159
ericsson RRUS 32 B2	83.00	0.0500	184.17	0.0039	0.0327	0.0159
ericsson RRUS 4449 B5/B12	83.00	0.0700	257.84	0.0054	0.0458	0.0223
ericsson RRUS 4449 B5/B12	83.00	0.0700	257.84	0.0054	0.0458	0.0223
ericsson RRUS 4449 B5/B12	83.00	0.0700	257.84	0.0054	0.0458	0.0223
commscope CBC78T-DS-43_CCIV2	83.00	0.0100	36.83	0.0008	0.0065	0.0032
commscope CBC78T-DS-43_CCIV2	83.00	0.0100	36.83	0.0008	0.0065	0.0032
commscope CBC78T-DS-43_CCIV2	83.00	0.0100	36.83	0.0008	0.0065	0.0032
raycap DC6-48-60-18-8C-EV	83.00	0.0300	110.50	0.0023	0.0196	0.0096
raycap DC6-48-60-18-8C-EV	83.00	0.0300	110.50	0.0023	0.0196	0.0096
tower mounts T-Arm Mount [TA 702-3]	83.00	0.3390	1248.68	0.0263	0.2216	0.1079
(4) ericsson TN11/2X 131T/16X HP-2	74.00	0.0400	119.04	0.0025	0.0211	0.0127
tower mounts T-Arm Mount [TA 702-1]	74.00	0.1130	336.28	0.0071	0.0597	0.0360
gabriel electronics DFPD2-18	66.00	0.0200	48.12	0.0010	0.0085	0.0064
tower mounts Pipe Mount [PM 601-1]	66.00	0.0650	156.39	0.0033	0.0278	0.0207
jma wireless MX08FRO665-21 w/ Mount Pipe	59.00	0.1081	211.16	0.0044	0.0375	0.0344
jma wireless MX08FRO665-21 w/ Mount Pipe	59.00	0.1081	211.16	0.0044	0.0375	0.0344
jma wireless MX08FRO665-21 w/ Mount Pipe	59.00	0.1081	211.16	0.0044	0.0375	0.0344
fujitsu TA08025-B604	59.00	0.0600	117.21	0.0025	0.0208	0.0191
fujitsu TA08025-B604	59.00	0.0600	117.21	0.0025	0.0208	0.0191
fujitsu TA08025-B604	59.00	0.0600	117.21	0.0025	0.0208	0.0191
fujitsu TA08025-B605	59.00	0.0800	156.28	0.0033	0.0277	0.0255
fujitsu TA08025-B605	59.00	0.0800	156.28	0.0033	0.0277	0.0255
fujitsu TA08025-B605	59.00	0.0800	156.28	0.0033	0.0277	0.0255
raycap RDIDC-9181-PF-48	59.00	0.0200	39.07	0.0008	0.0069	0.0064
tower mounts Commscope MC-K6MHDX-9-96 (3)	59.00	1.1920	2328.50	0.0490	0.4132	0.3795
(2) tower mounts 8' x 2" Mount Pipe	59.00	0.0600	117.21	0.0025	0.0208	0.0191
(2) tower mounts 8' x 2" Mount Pipe	59.00	0.0600	117.21	0.0025	0.0208	0.0191
(2) tower mounts 8' x 2" Mount Pipe	59.00	0.0600	117.21	0.0025	0.0208	0.0191
commscope UHX4-107/B	74.00	0.1500	446.39	0.0094	0.0792	0.0478
	Sum	10.5003	33053.17			

Linear Loads								
Name	Start Height	End Height	h_x	w_x	$w_x h_x^k$	C_{vx}	F_{xh}	F_{xv}
(12) andrew LDF5-50A(7/8) From 0 to 83	78.00	83.00	80.50	0.0198	68.90	0.0014	0.0122	0.0063
(12) andrew LDF5-50A(7/8) From 0 to 83	68.00	78.00	73.00	0.0396	114.90	0.0024	0.0204	0.0126
(12) andrew LDF5-50A(7/8) From 0 to 83	58.00	68.00	63.00	0.0396	87.38	0.0018	0.0155	0.0126
(12) andrew LDF5-50A(7/8) From 0 to 83	48.00	58.00	53.00	0.0396	63.38	0.0013	0.0112	0.0126
(12) andrew LDF5-50A(7/8) From 0 to 83	38.00	48.00	43.00	0.0396	42.97	0.0009	0.0076	0.0126
(12) andrew LDF5-50A(7/8) From 0 to 83	28.00	38.00	33.00	0.0396	26.28	0.0006	0.0047	0.0126
(12) andrew LDF5-50A(7/8) From 0 to 83	18.00	28.00	23.00	0.0396	13.43	0.0003	0.0024	0.0126
(12) andrew LDF5-50A(7/8) From 0 to 83	8.00	18.00	13.00	0.0396	4.65	0.0001	0.0008	0.0126
(12) andrew LDF5-50A(7/8) From 0 to 83	0.00	8.00	4.00	0.0317	0.42	0.0000	0.0001	0.0101
(4) commscope PWRT-608-S(13/16) From 0 to 83	78.00	83.00	80.50	0.0124	43.15	0.0009	0.0077	0.0039
(4) commscope PWRT-608-S(13/16) From 0 to 83	68.00	78.00	73.00	0.0248	71.96	0.0015	0.0128	0.0079
(4) commscope PWRT-608-S(13/16) From 0 to 83	58.00	68.00	63.00	0.0248	54.73	0.0012	0.0097	0.0079
(4) commscope PWRT-608-S(13/16) From 0 to 83	48.00	58.00	53.00	0.0248	39.69	0.0008	0.0070	0.0079
(4) commscope PWRT-608-S(13/16) From 0 to 83	38.00	48.00	43.00	0.0248	26.91	0.0006	0.0048	0.0079
(4) commscope PWRT-608-S(13/16) From 0 to 83	28.00	38.00	33.00	0.0248	16.46	0.0003	0.0029	0.0079
(4) commscope PWRT-608-S(13/16) From 0 to 83	18.00	28.00	23.00	0.0248	8.41	0.0002	0.0015	0.0079
(4) commscope PWRT-608-S(13/16) From 0 to 83	8.00	18.00	13.00	0.0248	2.91	0.0001	0.0005	0.0079
(4) commscope PWRT-608-S(13/16) From 0 to 83	0.00	8.00	4.00	0.0198	0.26	0.0000	0.0000	0.0063
(2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83	78.00	83.00	80.50	0.0009	3.17	0.0001	0.0006	0.0003
(2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83	68.00	78.00	73.00	0.0018	5.28	0.0001	0.0009	0.0006
(2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83	58.00	68.00	63.00	0.0018	4.02	0.0001	0.0007	0.0006
(2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83	48.00	58.00	53.00	0.0018	2.91	0.0001	0.0005	0.0006
(2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83	38.00	48.00	43.00	0.0018	1.98	0.0000	0.0004	0.0006
(2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83	28.00	38.00	33.00	0.0018	1.21	0.0000	0.0002	0.0006
(2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83	18.00	28.00	23.00	0.0018	0.62	0.0000	0.0001	0.0006
(2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83	8.00	18.00	13.00	0.0018	0.21	0.0000	0.0000	0.0006
(2) commscope RFFT-36SM-001-XXM(3/8) From 0 to 83	0.00	8.00	4.00	0.0015	0.02	0.0000	0.0000	0.0005
miscl 2" Rigid Conduit From 0 to 83	78.00	83.00	80.50	0.0140	48.72	0.0010	0.0086	0.0045
miscl 2" Rigid Conduit From 0 to 83	68.00	78.00	73.00	0.0280	81.25	0.0017	0.0144	0.0089
miscl 2" Rigid Conduit From 0 to 83	58.00	68.00	63.00	0.0280	61.79	0.0013	0.0110	0.0089
miscl 2" Rigid Conduit From 0 to 83	48.00	58.00	53.00	0.0280	44.81	0.0009	0.0080	0.0089
miscl 2" Rigid Conduit From 0 to 83	38.00	48.00	43.00	0.0280	30.38	0.0006	0.0054	0.0089
miscl 2" Rigid Conduit From 0 to 83	28.00	38.00	33.00	0.0280	18.58	0.0004	0.0033	0.0089
miscl 2" Rigid Conduit From 0 to 83	18.00	28.00	23.00	0.0280	9.50	0.0002	0.0017	0.0089
miscl 2" Rigid Conduit From 0 to 83	8.00	18.00	13.00	0.0280	3.29	0.0001	0.0006	0.0089
miscl 2" Rigid Conduit From 0 to 83	0.00	8.00	4.00	0.0224	0.29	0.0000	0.0001	0.0071
(4) andrew CNT-400(13/32) From 0 to 74	68.00	74.00	71.00	0.0016	4.50	0.0001	0.0008	0.0005
(4) andrew CNT-400(13/32) From 0 to 74	58.00	68.00	63.00	0.0027	6.00	0.0001	0.0011	0.0009
(4) andrew CNT-400(13/32) From 0 to 74	48.00	58.00	53.00	0.0027	4.35	0.0001	0.0008	0.0009
(4) andrew CNT-400(13/32) From 0 to 74	38.00	48.00	43.00	0.0027	2.95	0.0001	0.0005	0.0009
(4) andrew CNT-400(13/32) From 0 to 74	28.00	38.00	33.00	0.0027	1.80	0.0000	0.0003	0.0009
(4) andrew CNT-400(13/32) From 0 to 74	18.00	28.00	23.00	0.0027	0.92	0.0000	0.0002	0.0009
(4) andrew CNT-400(13/32) From 0 to 74	8.00	18.00	13.00	0.0027	0.32	0.0000	0.0001	0.0009
(4) andrew CNT-400(13/32) From 0 to 74	0.00	8.00	4.00	0.0022	0.03	0.0000	0.0000	0.0007
andrew LDF4-50A(1/2) From 0 to 66	58.00	66.00	62.00	0.0012	2.57	0.0001	0.0005	0.0004
andrew LDF4-50A(1/2) From 0 to 66	48.00	58.00	53.00	0.0015	2.40	0.0001	0.0004	0.0005
andrew LDF4-50A(1/2) From 0 to 66	38.00	48.00	43.00	0.0015	1.63	0.0000	0.0003	0.0005
andrew LDF4-50A(1/2) From 0 to 66	28.00	38.00	33.00	0.0015	1.00	0.0000	0.0002	0.0005
andrew LDF4-50A(1/2) From 0 to 66	18.00	28.00	23.00	0.0015	0.51	0.0000	0.0001	0.0005
andrew LDF4-50A(1/2) From 0 to 66	8.00	18.00	13.00	0.0015	0.18	0.0000	0.0000	0.0005
andrew LDF4-50A(1/2) From 0 to 66	0.00	8.00	4.00	0.0012	0.02	0.0000	0.0000	0.0004
cui CU12PSM9P8XXX(1-3/8) From 0 to 59	58.00	59.00	58.50	0.0017	3.19	0.0001	0.0006	0.0005
cui CU12PSM9P8XXX(1-3/8) From 0 to 59	48.00	58.00	53.00	0.0166	26.57	0.0006	0.0047	0.0053
cui CU12PSM9P8XXX(1-3/8) From 0 to 59	38.00	48.00	43.00	0.0166	18.01	0.0004	0.0032	0.0053
cui CU12PSM9P8XXX(1-3/8) From 0 to 59	28.00	38.00	33.00	0.0166	11.01	0.0002	0.0020	0.0053
cui CU12PSM9P8XXX(1-3/8) From 0 to 59	18.00	28.00	23.00	0.0166	5.63	0.0001	0.0010	0.0053
cui CU12PSM9P8XXX(1-3/8) From 0 to 59	8.00	18.00	13.00	0.0166	1.95	0.0000	0.0003	0.0053
cui CU12PSM9P8XXX(1-3/8) From 0 to 59	0.00	8.00	4.00	0.0133	0.17	0.0000	0.0000	0.0042
(2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96	88.00	96.00	92.00	0.0400	178.40	0.0038	0.0317	0.0127
(2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96	78.00	88.00	83.00	0.0500	184.17	0.0039	0.0327	0.0159
(2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96	68.00	78.00	73.00	0.0500	145.08	0.0031	0.0257	0.0159
(2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96	58.00	68.00	63.00	0.0500	110.33	0.0023	0.0196	0.0159
(2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96	48.00	58.00	53.00	0.0500	80.02	0.0017	0.0142	0.0159
(2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96	38.00	48.00	43.00	0.0500	54.26	0.0011	0.0096	0.0159
(2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96	28.00	38.00	33.00	0.0500	33.18	0.0007	0.0059	0.0159
(2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96	18.00	28.00	23.00	0.0500	16.96	0.0004	0.0030	0.0159
(2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96	8.00	18.00	13.00	0.0500	5.88	0.0001	0.0010	0.0159
(2) rfs celwave HB158-21U6S24-xxM_TMO(1-5/8) From 0 to 96	0.00	8.00	4.00	0.0400	0.53	0.0000	0.0001	0.0127
ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96	88.00	96.00	92.00	0.0136	60.66	0.0013	0.0108	0.0043
ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96	78.00	88.00	83.00	0.0170	62.62	0.0013	0.0111	0.0054
ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96	68.00	78.00	73.00	0.0170	49.33	0.0010	0.0088	0.0054
ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96	58.00	68.00	63.00	0.0170	37.51	0.0008	0.0067	0.0054
ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96	48.00	58.00	53.00	0.0170	27.21	0.0006	0.0048	0.0054
ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96	38.00	48.00	43.00	0.0170	18.45	0.0004	0.0033	0.0054
ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96	28.00	38.00	33.00	0.0170	11.28	0.0002	0.0020	0.0054
ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96	18.00	28.00	23.00	0.0170	5.77	0.0001	0.0010	0.0054
ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96	8.00	18.00	13.00	0.0170	2.00	0.0000	0.0004	0.0054
ericsson HCS 6X12 6AWG(1-3/8) From 0 to 96	0.00	8.00	4.00	0.0136	0.18	0.0000	0.0000	0.0043
			Sum	1.5532	2184.35			