Northeast Site Solutions
Denise Sabo
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October 8, 2021

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
360 Gaylord Mountain Road, Hamden, CT 06518
Latitude: 41.4337
Longitude: -72.9452
Site# BOHVN00193A

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 360 Gaylord Mountain Road, Hamden, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/19005G MHz antenna and six (6) RRUs, at the 210-foot level of the existing 625-foot monopole tower, one (1) Fiber cables will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7x5 lease area. Included are plans by Infinigy, dated September 29, 2021 Exhibit C. Also included is a structural analysis prepared by Vertical Bridge Engineering, LLC, dated May 20, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by the Planning and Zoning Commission, Town of Hamden , Special Permit 99-869, March 30, 1999. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Curt Leng, Mayor for the town of Hamden, Brack Poitier, Chair Planning and Zoning Commission for the Town of Hamden, as well as the property owner Vertical Bridge Landco LLC and Vertical Bridge REIT, LLC tower owner.

The planned modifications of the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modifications will not result in an increase in the height of the existing structure. The top of the tower is 625-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 155-feet.

2.The proposed modification will not result in the increase of the site boundary as depicted on the attached site plan.

3.The proposed modification will not increase the noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. The incremental effect of the proposed changes will be negligent.

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4.The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total density of 2.85% as evidenced by Exhibit F.

Connecticut General Statutes 16-50-aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, Dish Wireless LLC respectfully indicates that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included in Exhibit D.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this support tower in Manchester. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish Wireless LLC to obtain a building permit for the proposed installation. Further, a letter of Authorization is included as Exhibit G, authorizing Dish Wireless LLC to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 155-foot level of the existing 625-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. Dish Wireless LLC will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist Dish Wireless LLC with this tower share application.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Dish Wireless LLC proposed loading. Dish Wireless LLC is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish Wireless LLC intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Manchester.

Sincerely,

Denise Sabo

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Attachments
Cc: Town Mayor, Curt Leng
Town of Hamden
Hamden Government Center
2750 Dixwell Avenue
Hamden, CT 06518

Brack Poitier, Chair
Planning and Zoning Commission
Town of Hamden
Memorial Town Hall
2372 Whitney Avenue
Legislative Council Chambers
Hamden, CT 06518

Vertical Bridge Landco LLC
750 Park of Commerce Drive, Suite 200
Boca Ratan, FL 33487

Vertical Bridge, REIT, LLC, Tower Owner

Exhibit A

Original Facility Approval

TOWN OF HAMDEN

CONNECTICUT

Revised 7/12/99

MINUTES: The Planning and Zoning Commission, Town of Hamden, held a Public Hearing and Special Meeting on Tuesday, March 30, 1999, at 7:30 p.m. in Thornton Wilder Hall, Miller Library Complex. The following issues were discussed:

Commissioners in Attendance:
Mr. Luppi
Mr. Ajello
Mr. Cesare
Mr. Sims
Mr. Pappas
Mr. Crocco
Mr. DelVecchio

Staff in Attendance:
Mr. Stoecker, Town Planner
Ms. Teixeira, Court Recorder
Ms. Tobin, Commission Clerk

Mr. Luppi called the meeting to order at 7:30 p.m. and introduced the panel. Clerk Tobin read the agenda into the record.

A. Public Hearing

1. Special Permit/WS 99-866
2 Skiff Street, CDD-1 Zone
Proposed 96 multi-family units to house displaced
tenants of companion Site Plan 99-1200
Judy Gott, Agent for owner Mix Avenue LLC., Applicant

Mr. Stoecker said based on the public hearing that was previously opened and the comments of the Commissioners and Staff, he prepared an addendum to his report. The plans were revised and address the concerns of the Commission and Staff and show the proposed parking areas south of the existing building to be renovated, topography, grades, along with retaining wall details and drainage computations. Comments were received from the Engineering and Traffic Departments. It has been determined that construction plans would need to be submitted to the Engineering

office before construction activity commences. The Traffic Department noted that sight lines are 300' to the north, and unrestricted to the corner of Shepard and Dixwell, and are therefore adequate.

With the comments noted in his memo, Mr. Stoecker said the application is consistent with the Site Plan Objectives specified in Section 844 of the Zoning Regulations and meets the Special Permit Threshold Decision criteria specified in Section 826. Upon completion of the construction, the project should have no adverse impact on the health, safety and welfare of neighboring residents.

Tom MacDonald, the architect for the applicant, addressed the Commission. He said at the close of the previous meeting there was discussion on site distances. The applicant has met with the owner of the adjoining property, and in cooperation with the property owner they have removed some of the trees and brush that was in the way. Mr. MacDonald showed photographs showing the site distances. From the driveway to Shepard Avenue, you can see the cone to the north at a distance of 350'. Mr. Stoecker pointed out the revisions on the drawing. The retaining wall will be of reinforced poured concrete. There is a DOT type guardrail existing, and wheel stops will be installed.

There were no speakers in favor. Attorney James Perito, of Sussman Duffy and Segaloff, appeared on behalf of Mr. Esposito. As a property owner and tax payer Mr. Esposito has the right to express his opinion regarding this project. All notices regarding this application, including the agenda, the actual submission and Mr. Stoecker's comments, state that it is a companion project to the 2405 Whitney Avenue/41 School Street project. Mr. Esposito cares because as an abutting property owner (on School Street) he has appealed the height variance, zone change, and site plan approval of 2405 Whitney Avenue/41 School Street, the companion project.

Attorney Perito said he looked at the file today and noted that the applicant has submitted additional information on the site lines. He said Section 719 permits the Commission to allow multi-family development with minimum lot area per dwelling unit based on a formula for one and two-bedroom units. This is an existing office building proposed to be converted to multi-family, and would have been appropriately filed under Section 702, adaptive reuse to multi- family. Attorney Perito presented figures regarding the number of units permitted (Exhibit 1). The proposal is for 96 units, with the existing building housing 22 one bedroom and 19 two-bedroom units. The proposed building would provide 35 one-bedroom and 20 two bedroom units.

With the existing building square footage, under Section 702, they would be permitted to have 88 units. If the existing structure is not large enough, an addition is permitted. The regulations require that that addition cannot exceed 50% of the gross floor area of the existing building. Assuming the numbers are correct, the new structure could have 32,000 square feet. He feels the applicant should be using that calculation for this development.

Library Complex. The following issues were discussed:

The Special Permit application states Site Plan approval and Special Permit approval is required. If the Commission decides to grant the Special Permit, detailed construction plans should be incorporated into Site Plan approval. Attorney Perito also recommends a condition be imposed stating construction on this project can not be started until the hotel is completed and they are ready to move tenants out, to prevent the applicant from keeping it as an apartment building. He feels the density and unit calculations in section 702 should be adhered to.

Bernard Pellegrino, attorney for the applicant, said concerning Section 702, adaptive reuse, yes the applicant could have filed this application under that section. It was an option, and the applicant chose not to file under that section, nor was the applicant required to file under that section. The applicant chose a different section, 719, and the app had that right, because this property is zoned to permit multi-family and that section pertains to that type of use in that zone. He believes the computations presented comply with the section under which the application was filed.

Concerning the companion application, the applicant is concerned with tenants that exist in one property and would like to try to accommodate those tenants on this property, although the applicant does not have any obligation to accommodate those tenants, nor are the tenants obliged to move to this building. He does not believe the applications are tied together in any other way except for the applicants desire to accommodate those current tenants. The law would not permit the Commission to approve one application conditioned upon approval of the other application. He does not believe it is necessary to build a before b as they are two separate developments.

There were no further speakers, and Mr. Luppi closed the Public Hearing on application 99-866.

2. Special Permit/WS 99-869
   360 Gaylord Mountain Road
   Lot #2. R-2 Zone. 33.04 Acres
   Proposed construction of 625' Tower for radio antenna
   - ZBA Variance Granted July 17, 1998 under appeal

   Property Owner: Estate of Helen Talmadge
   Bernard Pellegrino, Attorney for Owner and
   Clear Channel Communication, Applicant.

Mr. Luppi turned the meeting over to Peter Pappas to chair and recused himself from discussion and voting on this item. Mr. Pappas said this is a continuation of a meeting that was held three weeks ago, and the Public Hearing is still open. Mr. Pappas asked Mr. Stoecker to address the comments from last month. Mr. Stoecker said the meeting included a report that indicated the comments from the reviewing departments and agencies. The requirements of the Section 737 of the zoning regulations were addressed. The Special Permit Threshold Decision was discussed, and the reports in the file were indicated. The applicant presented for approximately 90 minutes, and due to time constraints, the meeting was continued.

Library Complex. The following issues were discussed:

Three letters of opposition were received by the Planning and Zoning Department. One addressed to Chairman Luppi, from David Gambardella (Exhibit 1) enclosed a letter to the Chairman of the FCC, mentioned the hardship presented at the ZBA meeting. The enclosed letter to Chairman Kennard of the FCC expressing their concerns, petitioned FCC to prohibit installation of the radio antenna tower. Another letter in opposition was received from Virginia and Werner Zukunft (Exhibit 2) and the third letter received by Planning and Zoning was from Barbara Gingarella (Exhibit 3).

Mr. Stoecker spoke with Mr. Rhinegold of the Connecticut Siting Council, who verified they do not have jurisdiction over radio towers.

Speakers in Favor:

Sgt. William Gibson of the Police Department, representing Chief Nolan, and Fire Chief Sullivan, has run central Communications for the past 14 years and always had problems in the north end of town, particularly where the tower is proposed, and also on the north side of Sleeping Giant. 7-8 years ago they put a receiver on the Bethany side of the Channel 8 tower, below the tree line, which was not much help to Hamden. When the new tower went up for Channel 8, they let them go a little higher, above the tree line, which was some improvement, but not really. This tower will be in a better location, and the town has been guaranteed the place of their choice on the tower. The new antenna will benefit the Police and Fire departments, as well as the townspeople. Sergeant Gibson said the Police and Fire Departments are in favor of this tower.

Commissioner Crocco asked if the service to Police and Fire is free of charge. Mr. Gibson said the town will pay only for the installation. Mr. Pappas said we have a letter presented at the first Public Hearing from the Police Chief stating they were in favor.

Diane Albertini, of 319 Russo Drive, asked Sgt. Gibson if they can communicate at all in that area now. Sgt. Gibson said there is communication, but with a mobil radio. When they are on portable, they have difficulty getting to a receiver site to be rebroadcast, creating dangerous situations for the officers. This will enhance the operation of the radio system. They have been searching for sites in the north end to put another receiver. They are most sparse in the north end of town.

Joanna Miller, of 39 Russo Drive said her portable telephones now pick up Channel 8. She is concerned that her reception will get worse. Mr. Gibson said the police use an old system and receiver sites are an integral part of that.

Werner Zukunft, 1333 West Woods Road, asked if the town pays anything on the Channel 8 tower, and Sgt. Gibson said no.

Library Complex. The following issues were discussed:

Mike Degally, 4 Hunting Ridge Road, asked if the problem was because of the placement or the antiquated system, and if it is the system and they plan to upgrade the system, the tower might not be necessary.

Sgt. Gibson said if they were to get a newer system, it would require more receivers. A replacement radio system would cost approximately 5 million dollars.

Richard Jaynes, 13 Broken Arrow Road, operates a nursery and Christmas tree farm, and the southwest corner of his property fronts on Gaylord Mountain Road. The owner of the property wishes to sell. Would neighbors rather have a tower or a housing development. He would rather have a tower, which is much less intrusive on the landscape regarding the removal of trees, etc. There was a tower very close to this site when he purchased this land in 1961, approximately 2/3 the height of the tower now proposed. They could see the beacon from their bedroom window. They had no concerns about the presence of a tower then or now. He considers the tower less of a threat than a single pool in someone's back yard.

Burton Talmage Jr., resides at 360 Gaylord Mountain Road, closest to the tower, and he grew up across the street. He doesn't see it as an issue. He feels it is good for the town, the open space will remain, and Gaylord Mountain Road will appear the same.

Diane Albertini, in response to Mr. Jaynes and Mr. Talmadge, said unless he plans to sell his house, devaluation of his house will not be of concern to him. Mr. Talmadge said most of the people speaking against purchased their property with the current tower existing.

Speakers opposed:

Frank Cochran, an attorney representing Sean and Laura O'Sullivan of 5 Hunting Ridge, close to the site in question, addressed the Commission. In the earlier hearing mention was made that variances were granted by the ZBA and those variances are presently on appeal, and he is the attorney handling the appeal. That appeal is ready for trial and will be tried on April 15th of this year. The variances granted by the ZBA were to four parts of Section 737 of the regulation. ZBA granted a variance of the height limitation of cell phone towers of 200' to allow 625'; two separate setback requirements; and a variance of a balloon test requirement. One of the comments read into the record was that the person did not know what sort of a hardship there was to grant the variances, and he is not asking this Commission to decide that the ZBA made a mistake, but the hardship was self created, because the applicant does not own an unsuitable piece of property that can't be used for anything. The chance of these variances being upheld on appeal is not very large. The ZBA did not vary the provisions of Section 412.3 or 416 of the regulations, relating specifically to R-2 zones. This was not a use variance. ZBA did not make a decision that Section 737 would allow a commercial radio tower in an R-2 zone. Theirs was a hypothetical decision, i.e. if a radio tower were allowed, the height variation would be allowed.

The Town Planner stated at the earlier hearing the fact of an appeal does not stay the usefulness of a variance. A variance has to be filed on the land records. If the appeal is sustained and the variance stricken, then this application could not be granted, and if the Commission chooses to proceed at all, they have two choices; denial w/o prejudice, and if the applicant prevails they could come back and reapply; or it could be granted with the condition that construction not take place until the appeal has been decided.

Attorney Cochran alluded before to whether the applicant has an option to purchase the real estate. Attorney Cochran said there have been three previous application numbers, but when he looked today there was no application in the file. The land records in Hamden have an option to purchase real estate dated 6/13/97, which grants an option for a period of one year and provides that it would terminate within one year, suggesting that there is no valid option today. (Exhibit 4)

The Town Planner in the previous hearing suggested that the license required the antenna be located in Hamden. He reviewed the license, which says nothing about that, and he is not aware of any such requirement of law.

An R-2 zone allows certain uses which include towers supporting personal wireless service facilities. This is not a tower supporting a personal wireless facility. This is a Commercial radio tower (§412.3 governs the R-2 zone). Definitions in section 737 do not include commercial radio facilities. Attorney Cochran also referred to Section 726 which allows certain public utilities and public uses, and this does not meet the normal definition of a public utility or public use.

If the Commission feels he is incorrect about that, he suggested they refer to Section 826, and people will comment as to how or why this application does not comply to those items. Property values is #1. There are a whole series of criteria, including compliance with the Plan of Development. This is a residential neighborhood. Is this Commercial facility in harmony with a residential neighborhood? The scale of the structure is vastly in excess of what is allowed for personal wireless service facilities. There has been comment about the WTNH tower, and he would suggest it is worthwhile to review some of the records relating to that. The initial WTNH tower was approved at a time when there was no height restriction applicable to that site, and the new tower was allowed to be built.

Attorney Cochran submitted his written comments and would be happy to answer any questions (Exhibit 5). He also presented a copy of the ZBA application for WTNH's tower, dated 5/22/95 (Exhibit 6). Attorney Cochran said Section 737.e has a number of documentation requirements, requiring proof that there are no other towers available to the applicant, and he does not feel what has been submitted by the applicant is sufficient.

William D'Agostino, an engineer, said he lives in the shadow of the proposed antenna. He is an inventor of a patented antenna, and very much opposed. His concerns are reduction in property value, gross eyesore, and a fault in the original presentation. He said FCC allows towers to be relocated, and does not require they stay within one mile of the old tower. This broadcast tower

can support other antennas. Everyone here has a variety of electric items in their house, with a Part 15 notice on them, devices which must accept interference. The FCC wants the buyer to beware. This is a residential community, and people have purchased their garage door openers, cell phones, etc. Approval will allow this tower, which once erected comes under the aegis of the FCC, and the residents lose their voice. They can put many other antenna on their tower. They are currently in violation, causing interference with the 15 meter band. They are not complying with good engineering judgment. Mr. D'Agostino has a petition which he has submitted to FCC, which he requested the town planner read into the record (Exhibit 7). Mr. D'Agostino said instead, he would present the highlights of his petition.

Attorney Pellegrino raised a point of order. He said this Commission is not the FCC, nor is the Commission able to judge whether FCC should approve or not. Obviously the owner would be obligated to accept the FCC's decision. The FCC decision is of no concern to this Commission.

Mr. D'Agostino said every Part 15 consumer device has a likelihood of failing, and it is unfortunate this radio station wishes to build in the middle of a residential area. Who will purchase these devices from the residents? There will be no recourse once the tower is allowed. Mr. D'Agostino referred to Mr. Jaynes' comments about the original tower. The issue regarding a violation of federal law right now shows a pattern of poor judgments in engineering. He feels they deceived the ZBA by saying they are forced by the FCC to build within one mile of the present tower. In summary, he does not think the station has done due diligence in finding a suitable location. This is not fair to residents of the area. WTNH is the oldest TV station in New England. It was built on farm lands and woodlands. Just because they were grandfathered and were there first, does not grant them the right to build another antenna in the area which is now built up with homes.

Sean O'Sullivan of 5 Hunting Ridge Road, has appealed the ZBA decision. He has two young children and feels they should not live so close to a tower. They moved to the area because it would not be dangerous, now it is going to be dangerous. He does not want his kids to be a statistic in the next 10-15 years. There are health concerns. He is prepared to do what he has to do to fight this.

Elisa Lupi, of 351 Gaylord Mountain Road, said she is not related to Chairman Luppi. She said the proposed tower is no more than a business proposition at the expense of the health of area residents. She mentioned radiation levels. She noted up to 24 antenna could be added to this tower. No one has mentioned the satellite dishes. She asked the board to consider the Y2K dilemma. She said there is no conclusive evidence that the radiation levels are harmless. Ms. Lupi said technology is new and advancing at such a high rate there are many unknowns. She said residents take responsibility for keeping their families safe and should not be subjected to more of these towers.

Rocco Carbone, 62 McDermott Circle alluded to earlier comments about the older tower (1961) when this was a farm area with no homes, and to a back yard swimming pool being more

dangerous than a tower. He said this is a preposterous comparison. They like to sit in their backyard and listen to birds and crickets, but when there is any small wind, all they hear is it whistle through the tower. Clear Channel has a tower park on Skiff Street. So much is unknown in this proposal regarding the future additions to this tower. He would support an antenna to help Police and Fire communications.

Jack Albertini of 319 Russo Drive seconds helping fire and police if an individual tower appropriate to the area was proposed. This tower amounts to the height of a 65 story building. His house faces Gaylord Mountain Road on Russo Drive, and he can see the tower lights in the distance, and hopes not to have any closer. Regarding adding equipment to the antenna, he believes this is the reason they are building the tower. The tower will diminish his enjoyment of his property, and how does he sell in good faith in the future if there are problems with interference.

Diane Nichols, of 9 Deer Hill Road, came here tonight to learn more about his proposal. The part of town they call home is really very special and dear to all of them. She knew the Channel 8 tower was there when she built her home, and she has had problems with cable reception. She urged the Commission to remember the citizens in the northern part of Hamden. They know what affect additional homes would have on the area, but do not know what this antenna will do. There are too many questions.

Randy Miller, of 580 Gaylord Mountain Road, mentioned the technical things Attorney Cochran went through. He said interference with radios and TVs is a fact and can only get worse. Those in favor will say there will be no impact on property values. Putting another tower up will not help property values. That is a special part of Hamden. Most of those talking against it moved there and were willing to overlook the old tower. The town of Bethany wrote a letter in opposition to the earlier proposal. The towers are very visible from I-91. Everyone is familiar with the towers on Meriden Mountain. This proposal is inappropriate and unfair, and a desecration of the skyline. It is over 1000% higher than allowed by zoning regulations. The protection of ridge lines and summits is addressed in a policy issued by DEP in 1997, encouraging people to be aware that these are cherished areas within the state and impact should be minimal. Regarding co-location on towers, Channel 8 has space on their tower. WKCI is there now. This transaction comes down to a business driven decision on the part of Clear Channel, with the potential for financial gain. He is adamantly opposed.

Ken Martin, 344 Sperry Road, Bethany, chairman of the Conservation Commission, speaking on behalf of Commission, said one of the state and environmental goals is the protection of ridge lines. The existing Channel 8 tower is very visible from the eastern half of the Town of Bethany, and Route 69 runs parallel to the ridge line. The towers are visible from Bethany and Woodbridge and effect more than just the Town of Hamden.

Edward Foote, of 535 Gaylord Mountain Road, is opposed. He asked the Commission to remember being out with their children and following search lights or lights. The Police Officer

Library Complex. The following issues were discussed:

spoke about his radio. Because towers attract people they might increase problems in the neighborhood.

Barry Collins, speaking on behalf of her husband and herself, live in Bethany on an extension of Gaylord Mountain Road. She is opposed because this would represent spot zoning. This is a commercial structure. The Channel 8 tower was approved in 1965. Zoning is a homeowner's best protection, and she is asking the Commission to consider Bethany residents. The Bethany zoning board has opposed two towers in the same immediate area. Cheshire only permits towers up to 100 feet and only in industrial areas, and only with approval. This is visual pollution. She asked the Commission to consider tower creep. Every tower they say does not set a precedent, does. This is the beginning of a steel forest or tower farm. Towers are hazards for area residents. Planes and helicopters zero in on the Channel 8 tower, and are ear splitting when they fly low. You can't see the lights from 100' away in fog. Towers attract lightening and collect and drop large chunks of ice in winter. Guide wires clank in high wind. The effects of electro magnetic radiation have not been proven or disproved, and the jury is still out. The legislative protection of the ridges has been mentioned. Geographically this is a continuation of the Cheshire-Prospect Ridge and West Rock Ridge, which have both been designated open space. Ms. Collins asked the Commission to deny this application.

John Scalzo, of 340 Russo Drive, has lived in the West Woods area for the last 15 years. He is against this application, especially for health reasons. He mentioned the Alice Peck School and West Woods School in the area, and the possible effect on the children. He also mentioned the effect on appliances and computers.

Applicant rebuttal:

Attorney Bernard Pellegrino, representing the applicant, Clear Channel, said regarding the ZBA court appeal, as Attorney Cochran indicated a court appeal does not stop this proceeding, and in fact he is of the opinion that the Commission would not be permitted to deny simply because a court appeal is pending, even if denying without prejudice. The scheduled hearing may or may not take place, and even after it takes place, the losing side could choose to appeal that decision, and this could go on for a long time. He believes they should continue with this hearing and decide it on its merits. Concerning hardship, that is the subject of the court case.

Concerning whether the applicant continues to have an option to purchase, yes they do. The current option has been extended and a copy of the extension was provided, for an additional year terminating on 6/13/99 (Exhibit A). Concerning whether a tower is a permitted use in this zone, Section 737.d of the regulations, Permitted and Exempted uses, he read from a., Towers are permitted in all zones subject to special permit and site plan approval. This was the subject of discussion with the Town Planner and Town Attorney, and in their opinions, this Section accomplishes what it says. Towers are permitted in all zones. Because of this section, approval would not constitute spot zoning.

and Special Meeting on Tuesday, March 30, 1999, at 7:30 p.m. in Thornton Wilder Hall, Miller Library Complex. The following issues were discussed:

Concerning the right of the public to be heard if other antennas were to be constructed on the tower, at the previous hearing that question was asked, and the Town Planner said another application, subject to a Public Hearing, would be warranted. If this is granted, no other antennas could be constructed unless the applicant applied to P & Z and a public hearing was held.

Concerning the history of this application and why the applicant is requesting a new tower to house its antenna, this was stated clearly in the previous hearing. The reason the applicant is going through the expense of constructing a new tower is they are being thrown off the existing tower. Concerning electronic interference and electro magnetic radiation, they were discussed in detail when questions were asked of Tom Ozenkowski, who is here and will answer questions of the Commission. Mr. Ozenkowski also presented a report. Property values were addressed by Mr. DePodesta at the previous hearing, and he is also in attendance. A report was also submitted by Mr. DePodesta.

Fred Beck, of 373 Joyce Road said earlier tonight people said that transmission towers were not allowed in this zone. Mr. Pellegrino states all towers are permitted. Mr. Stoecker read from Section 737 saying it was an umbrella regulation to address all tower facilities. Mr. Beck asked if that regulation covered receiving or transmission towers. Attorney Pellegrino referred the Commission to 737.d and just above it the definition of the word tower, which is defined as a lattice structure or monopole for transmission, receiving, and relaying, so the answer to the last question is both. The question regarding compliance with the Telecommunications Act of 1997, 737.b is titled Consistence with Federal Law, which Attorney Pellegrino read. That goes on to talk about co-location. Attorney Pellegrino said the only other tower that can accommodate this antenna is the existing Channel 8 where they are presently located. WTNH wishes this antenna to be removed from that tower, therefore this antenna needs another tower. It is considering building a tower, and has indicated in the previous meeting and as an exhibit which was entered into the record, the applicant has consented to permit other antennas to be located on this tower, thereby satisfying one of the main purposes of this regulation.

Felicia Tencza and Randy Miller, of 580 Gaylord Mountain Road, asked if documentation has been submitted indicating Channel 8 is throwing them off the tower. Attorney Pellegrino said the documentation was in the form of the lease renewal which is part of the record, and in that lease renewal there is a 6 month cancellation clause. WTNH can at any time and with six months notice, force his client to remove the antenna from their tower. In his opinion that is a very clear mandate that they don't want them on the tower. Mr. Miller said he does not know that that is necessarily unreasonable. Sean O'Sullivan said Channel 8 should be here to defend themselves. He read from Section 737A.9. If Channel 8 forces the applicant off of their tower, they jeopardize getting their own license renewed, if it is true that there are no other satisfactory sites they can go to. He feels Channel 8 is being falsely accused. Attorney Pellegrino said Channel 8 has refused to discuss this. The engineer of this radio station has mentioned to him waves and electronics, and perhaps this antenna is interfering with their antenna or others they might wish to put on the tower. A six month cancellation clause is not standard.

Library Complex. The following issues were discussed:

Barry Collins said it seems to her one ought to hear from the FCC about one of their lessees throwing another one off their tower and she feels that should be verified. Attorney Pellegrino said this is not a hearing before the FCC.

Jack Albertini of Russo Drive said this is an attempt to put up another tower to house other equipment. Ms. Collins mentioned other applications to put up towers on the Bethany side, which Bethany turned down.

Mr. Miller said at the time the Channel 8 tower was reconstructed, is it true WPLR put up a panel antenna on that tower? Attorney Pellegrino said this was discussed by Fred Santore in-house engineer for WKCI. At the time of the new tower's construction the Channel 8 purchased a panel antenna and offered cohabitation for a fee, and they felt they should be co-owner. There was no mutual agreement, and the corporation felt they would be throwing all their eggs in their competitor's basket, so they did not co-locate.

Mr. Crocco asked Mr. Pellegrino if his application was for one antenna plus police and fire, and did the Town Planner state that any other antenna applicant on that tower would have to appear before the Commission? Attorney Pellegrino said at the last meeting, when there were fewer people in attendance, two points that were brought up were free space for town agencies, police, fire, traffic control, public works, and compliance with FCC regulations, Title 47, part l and all other relevant sections.

Mr. D'Agostino if asked if the Commission was aware of "federal preemption" where the antenna is part of the FCC's jurisdiction, and this panel cannot prohibit an antenna on a tower that it has approved. Attorney Pellegrino said this is not a hearing before the FCC and he did not prepare for a hearing before the FCC, so that question is irrelevant. Mr. Santore said yes they had the ability to co-exist on the panel proposed by the other radio station, but the proposal was not one of sharing the panel, but of being a tenant of a competitor, which their company chose not to accept for business reasons.

John Scalzo asked would it not be cheaper for WKCI to put their own antenna on Channel 8's tower? Attorney Pellegrino said yes, a lot cheaper, and they also tried to discus with WTNH, not only having a reasonable lease, without a 6 month cancellation clause, but also relocating their antenna to improve their service. No discussions were permitted.

Norma Luppi, of 76 Gaylord Mountain Road, said the land abutting this property is owned by Capital Cities Broadcasting Company. The land where the WTNH tower is located is owned by LWCI. There is still a foundation on that land that is owned by Capitol Cities that was built years ago for the original radio tower. If there is any kind of foundation or building that is still there, would that whole area still be considered for towers? Mr. Stoecker does not believe that is addressed in the regulations and does not believe it is pertinent to this application.

and Special Meeting on Tuesday, March 30, 1999, at 7:30 p.m. in Thornton Wilder Hall, Miller Library Complex. The following issues were discussed:

Ms. Collins asked if the Channel 8 additional antennas would go before the Commission. If they come under FCC regulations, they will never come before the Commission. Mr. Stoecker said no, since the new rule 737 was not in effect at that time. The new regulations were effective in January of 1998.

Joanna Miller asked if the dispute between Channel 8 and Clear Channel has gone to FCC. Ms. Miller said FCC encourages co-location of antenna structures to the extent technically feasible.

Attorney Pellegrino said if they want to put an antenna for another radio station, it seems to him it would go before FCC and not this commission. Mr. DelVecchio explained that this is a Special Permit being requested. As far as the FCC technicalities, we do not have those answers. Our Special Permit regulations require they come to us before adding antennas.

Attorney Pellegrino said the owner will agree to accept that as a condition, and the FCC cannot change that. The owner is saying irrespective of any FCC regulations, if anyone else wants to co-locate on the tower, they will have to come before this board.

Mr. D'Agostino agrees with Attorney Pellegrino regarding approval by this Commission, but if this Commission votes no, he can go to the FCC, who has total jurisdiction. Once the tower is up it is strictly FCC governed. Attorney Pellegrino said Mr. D'Agostino might be correct, but he has submitted nothing to substantiate anything he has said.

Ms. Collins said if the FCC would turn down the antenna, what is the point of saying the local Commission can say yes or no?

Mr. Ajello said the underlying action here is under appeal, but under the statutes it is within their right to bring in the application and have the board act on it.

Werner Zukunft of 1333 West Woods Road said if we approve the tower, and they go ahead and build it, and the court case goes against the prior ruling, would they have to tear it down? Mr. Stoecker said they would not go forward with construction without the ruling on the variance. Mr. Pappas explained that this is just one of the stages the applicant has to go through.

Mr. Beck asked if a bond would be posted and the Commissioners assured him they would be required to post a bond.

Mr. Pappas closed the public hearing on application Special Permit 99-869.

B. Special Meeting

1. Special Permit/WS 99-866
2 Skiff Street, CDD-1 Zone

Proposed 96 multi-family units to house displaced
tenants of companion Site Plan 99-1200
Judy Gott, Agent for owner Mix Avenue LLC., Applicant

Mr. Crocco mentioned recommendation 2.a. Mr. Stoecker said the time period in recommendation 5. should be changed to March 30, 2004.

Mr. Crocco mentioned the traffic mirror discussed by Mr. Ajello at the last meeting. Mr. Pappas said the Traffic Department and the photos showed site lines were not an issue.

Mr. DelVecchio made a motion to approve Special Permit/WS 99-866 subject to the following conditions. The proposal conforms to the basic site plan objectives specified in §844 of the Hamden Zoning Regulations. The application also meets the Special Permit Threshold Decision criteria specified in §826. Upon completion of construction, the project should have no adverse impact on the health, safety and welfare of neighboring residents.

The Special Permit must be recorded prior to the issuance of a zoning permit, and only after the conditions necessary for the zoning permit have been met.

1. A zoning permit must be obtained prior to the commencement of work.

2. Prior to the issuance of a zoning permit the applicant must:

a. ***Submit revised construction plans at a scale of 1" = 20' to the Engineering Department for review and approval by the Town Engineer and Town Planner, if additional bonding is deemed necessary.***

b. Provide a bond in an amount approved by the Town Engineer and Town Planner, if additional bonding is deemed necessary.

3. Sedimentation and Erosion controls should be properly installed, and inspected regularly and immediately after rainfall. They must be maintained and modified as necessary to ensure optimum performance. Erosion_controls should be installed around any stockpiles of excavated material. The amount of exposed soil should be kept to a minimum and stabilized to the greatest extent possible to prevent erosion.

4. Refuse containers of an adequate capacity, which are emptied as needed by a carting service capable of meeting those demands, should be required and specified as part of any finalized plans. The solid waste dumpster should have a watertight cover and be plugged to prevent the release of any disposed liquids.

5. All site work must be completed by March 30, 2004.

6. **During construction, equipment maintenance should not be conducted on-site and all hazardous materials including, but not limited to fuel, oil, and paint should be stored within a secured secondary containment structure.**

7. **Waste material should be disposed of by a licensed waste transporter in accordance with all applicable federal, state and local regulations. Any hazardous materials should be stored indoors within secondary containment.**

8. **In accordance with §19-13-B102 (b) of the Connecticut Public Health Code, Regional Water Authority Watershed Inspectors are required to perform routine inspections of properties within public water supply watersheds and aquifers. RWA inspectors should be granted access to this property during the annual inspection program.**

Mr. Sims seconded the motion. The vote was unanimous, in favor.

2. Special Permit/WS 99-869
360 Gaylord Mountain Road
Lot #2. R-2 Zone. 33.04 Acres
Proposed construction of 625' Tower for radio antenna
- ZBA Variance Granted July 17, 1998 under appeal

Property Owner: Estate of Helen Talmadge
Bernard Pellegrino, Attorney for Owner and
Clear Channel Communication, Applicant.

Mr. Pappas again took over as acting chair of the meeting for Mr. Luppi who recused himself.

Mr. Crocco asked about the conditions of approval. He feels some things should be added to the Town Planner's recommendations, such as a Special Permit is required for any new tenants going onto the tower; and Engineered drawings documenting the structural integrity of the tower should be submitted to the Town Engineer or Town Planner prior to a zoning permit being issued. Mr. Pappas suggested on page 5, #5, all site work must be completed by 3/30/2004. Mr. Crocco asked if in our approval should we include anything about the town using the tower free of charge. Mr. Pappas said that is an agreement between the applicant and the town, and not part of our approval.

Mr. Cesare asked if the Commission should find out more information regarding the FCC discussion. He asked if any other Commissioners share his concerns. Do we reserve the right to have a new applicant come before us, and if we deny, can they appeal to the FCC. Mr. Pappas feels we can go forward doing our job as P&Z on the parameters of P&Z, not the FCC.

Mr. Crocco made a motion to approve Special Permit WS/99/869, subject to the following conditions. The application meets the requirements of §737 of the Zoning Regulations.

Library Complex. The following issues were discussed:

The proposal conforms to the basic site plan objectives specified in §844 of the Hamden Zoning Regulations. The application also meets the Special Permit Threshold Decision criteria specified in §826. Upon completion of construction the proposal should have no adverse impact on the health, safety and welfare of the surrounding area.

1. **The special permit must be recorded prior to the issuance of a zoning permit, and only after the conditions necessary for the zoning permit have been met.**

2. **Prior to the issuance of a zoning permit, the applicant must:**

   a. **Provide a bond in an amount approved by the Town Engineer and Town Planner, if additional bonding is deemed necessary.**

3. **Sedimentation and erosion controls should be properly installed, and inspected regularly and immediately after rainfall. They must be maintained and modified as necessary to ensure optimum performance. Erosion controls should be installed around any stockpiles of excavated material. The amount of exposed soil should be kept to a minimum and stabilized to the greatest extent possible to prevent erosion.**

4. **Refuse containers of an adequate capacity, which are emptied as needed by a carting service capable of meeting those demands, should be required and specified as part of any finalized plans. The solid waste dumpster should have a watertight cover and be plugged to prevent the release of any disposed liquids.**

5. **All site work must be completed by March 30, 2004.**

6. **During construction, equipment maintenance should not be conducted on-site and all hazardous materials including, but not limited to fuel, oil, and paint should be stored within a secured secondary containment structure.**

7. **Adhere to all follow-up requirements and documentation included in §737 (Personal Wireless Facilities and Towers: Other Antennae and Satellite Dishes).**

8. **In accordance with §19-13-B102 (b) of the Connecticut Public Health Code, Regional Water Authority Watershed Inspectors are required to perform routine inspections of properties within public water supply watersheds and aquifers. RWA inspectors should be granted access to this property during the annual inspection program.**

9. **Any co-locators other than WKCI and town services must apply to Planning and Zoning for Special Permit approval, requiring a Public Hearing.**

Special Meeting on Tuesday, March 30, 1999, at 7:30 p.m. in Thornton Wilder Hall, Miller Library Complex. The following issues were discussed:

10. **Engineered drawings documenting the structural integrity of the tower should be submitted to the Town Engineer or Town Planner prior to a zoning permit being issued.**

Mr. DelVecchio seconded the motion. The vote was three in favor (Mr. Crocco, Mr. DelVecchio and Mr. Sims) and two opposed (Mr. Ajello and Mr. Cesare). Mr. Pappas, acting as chairman, did not vote.

Mr. Ajello made a motion to adjourn. Mr. DelVecchio seconded the motion. The meeting adjourned at 10:40 p.m.

Submitted by: Gerry Tobin

Gerry Tobin, Clerk of the Commission

TOWN OF HAMDEN
PLANNING AND ZONING COMMISSION

SPECIAL PERMIT NO: 99-869

THE HAMDEN PLANNING AND ZONING COMMISSION HEREBY GRANTS A SPECIAL PERMIT IN ACCORDANCE WITH SECTION 737 OF THE HAMDEN ZONING REGULATIONS TO PERMIT THE FOLLOWING USE: Lot #2 Construction of 625' Tower for radio antenna

AT THE PREMISES DESCRIBED AS FOLLOWS: 360 Gaylord Mtn Rd.

THE RECORD OWNER OF WHICH IS George/Burton Talmadge

THE APPLICANT FOR WHICH IS Clear Channel Broadcasting, Inc.

THIS SPECIAL PERMIT SHALL BECOME EFFECTIVE WHEN FILED.

THIS SPECIAL PERMIT IS GRANTED IN ACCORDANCE WITH A MOTION PASSED BY THE HAMDEN PLANNING AND ZONING COMMISSION AT ITS MEETING ON April 24, 2000, AND IS SUBJECT TO THE FOLLOWING CONDITIONS AND/OR STIPULATIONS, IF ANY: see minutes

THIS SPECIAL PERMIT SHALL NOT BECOME EFFECTIVE UNTIL FILED ON THE LAND RECORDS OF THE TOWN OF HAMDEN DATED AT HAMDEN, CONNECTICUT THIS 19 DAY OF April, 2000.

PLANNING AND ZONING COMMISSION
TOWN OF HAMDEN

BY: Michael Crocco
CHAIRMAN by Amanda Mana

THIS IS TO CERTIFY THAT THIS IS A TRUE COPY OF THE SPECIAL PERMIT GRANTED, AS ABOVE INDICATED, AND IS ON FILE IN THE OFFICIAL RECORDS OF THE HAMDEN TOWN PLANNING AND ZONING COMMISSION.

PLANNING AND ZONING COMMISSION
TOWN OF HAMDEN

BY: _____
ANTOINETTE OLIVEIRA
PLANNING ADMINISTRATOR

Received for record APR 19 2001
at 9 h 29 m AM at Hamden, CT
Vera A. Morrison
Hamden Town Clerk

Exhibit B

Property Card

360 GAYLORD MT RD

Location	360 GAYLORD MT RD	**Mblu**	3224/ 025/ 01/ /
Acct#		**Owner**	VERTICAL BRIDGE LANDCO LLC
Assessment	$524,790	**Appraisal**	$749,700
PID	16925	**Building Count**	1

Current Value

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2020	$114,400	$15,900	$62,700	$556,700	$749,700
Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2020	$80,080	$11,130	$43,890	$389,690	$524,790

Owner of Record

Owner	VERTICAL BRIDGE LANDCO LLC	**Sale Price**	$10
Co-Owner		**Certificate**	
Address	750 PARK OF COMMERCE DR S200 BOCA RATON, FL 33487	**Book & Page**	4385/ 028
		Sale Date	01/19/2017

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
VERTICAL BRIDGE LANDCO LLC	$10		4385/ 028	01/19/2017
IHEARTMEDIA TOWER CO I LLC	$10		4248/ 162	08/25/2015
CLEAR CHANNEL BROADCASTING INC	$350,000		1856/ 151	06/11/1999

Building Information

Building 1 : Section 1

Year Built:	2002
Living Area:	2,400
Building Percent Good:	89

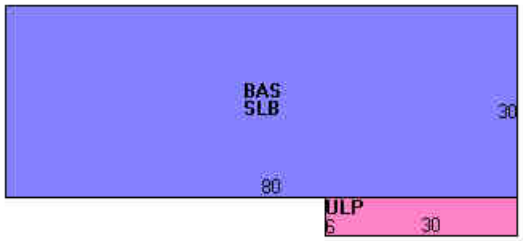
Building Attributes

Field	Description
STYLE	Pre-Eng Warehs
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Steel Frm/Trus
Roof Cover	Metal/Tin
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	None
Heating Type	None
AC Type	None
Bldg Use	RAD/TV TR M96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	4330
Heat/AC	NONE
Frame Type	STEEL
Baths/Plumbing	NONE
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	12
% Comn Wall	0

Building Photo

(http://images.vgsi.com/photos/HamdenCTPhotos//\00\02\80\92.jpg)

Building Layout



(http://images.vgsi.com/photos/HamdenCTPhotos//Sketches/16925_16925

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	2,400	2,400
SLB	Slab	0	0
ULP	Loading Platform, Unfinished	180	0
		2,580	2,400

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
SPR3	DRY	2400 S.F.	$6,800	1
A/C	AIR CONDITIONING	2400 S.F.	$9,100	1

Land

Land Use

Land Line Valuation

Use Code	4330	**Size (Acres)**	33.64
Description	RAD/TV TR M96	**Frontage**	0
Zone	R2	**Depth**	0
Neighborhood	140	**Assessed Value**	$389,690
Alt Land Appr	No	**Appraised Value**	$556,700
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	PAVING-ASPHALT			5000 S.F.	$5,500	1
FN4	FENCE-8' CHAIN			1200 L.F.	$7,200	1
CNP1	CANOPY, AV			8400 S.F.	$50,000	1

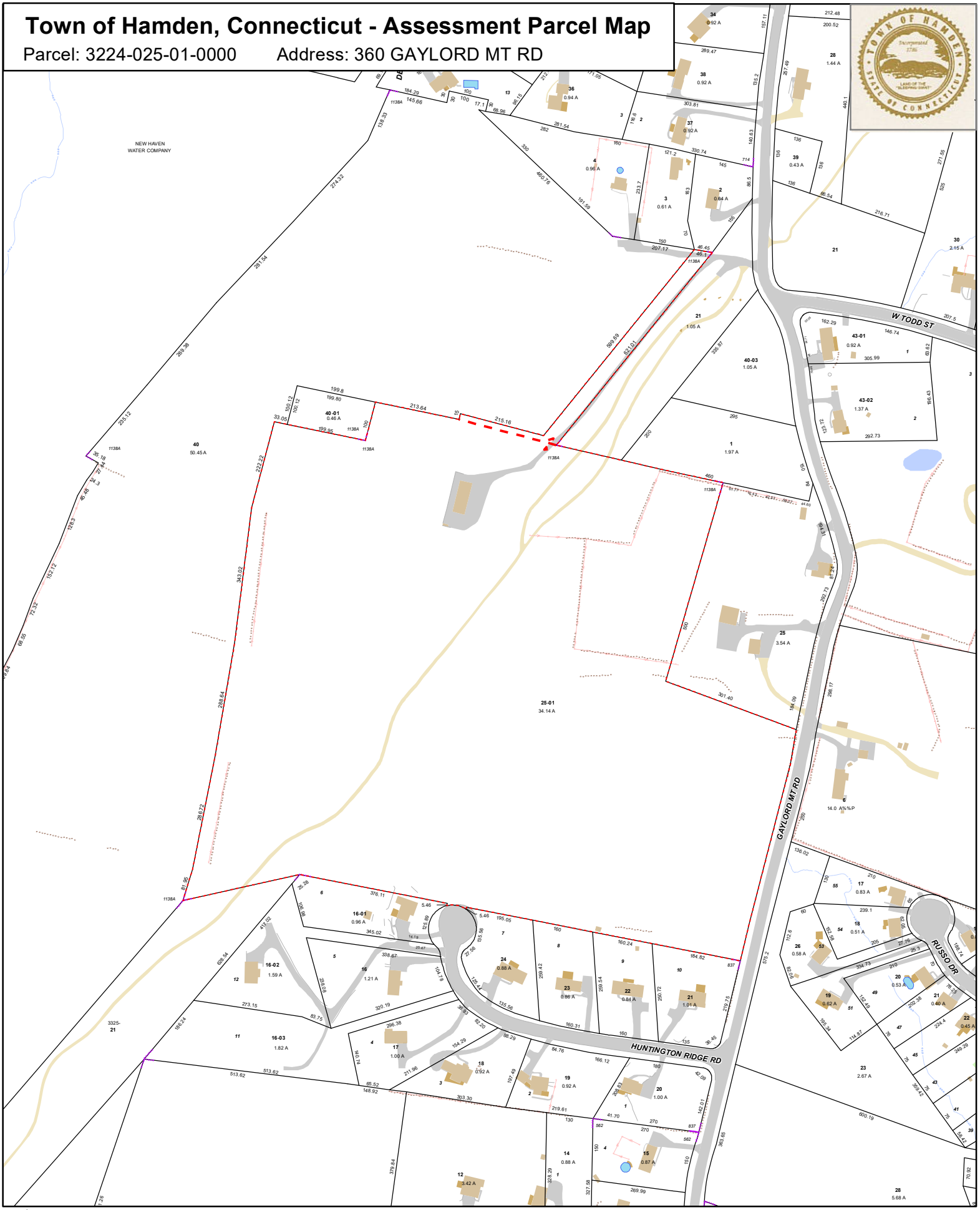
Valuation History

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
4000	$114,400	$15,900	$62,700	$556,700	$749,700
2019	$95,500	$6,600	$57,000	$500,200	$659,300
2018	$95,500	$6,600	$57,000	$500,200	$659,300

Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
4000	$80,080	$11,130	$43,890	$389,690	$524,790
2019	$66,850	$4,620	$39,900	$350,140	$461,510
2018	$66,850	$4,620	$39,900	$350,140	$461,510

Town of Hamden, Connecticut - Assessment Parcel Map

Parcel: 3224-025-01-0000 Address: 360 GAYLORD MT RD



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Approximate Scale: **1 inch = 300 feet**

0 150 300 450 600 Feet

Map Produced: October 2020

Disclaimer: This map is for informational purposes only. All information is subject to verification by any user. The Town of Hamden and its mapping contractors assume no legal responsibility for the information contained herein.

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOHVN00193A

DISH Wireless L.L.C. SITE ADDRESS:

360 GAYLORD MOUNTAIN RD
HAMDEN, CT 06518

CONNECTICUT CODE COMPLIANCE

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 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS
MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS

SHEET INDEX

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (3) PROPOSED ANTENNA MOUNTS (1 PER SECTOR)
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED CIENA BOX (IF REQUIRED)
- INSTALL (1) PROPOSED METER SOCKET

SITE PHOTO

UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

SITE INFORMATION

PROPERTY OWNER:	VERTICAL BRIDGE
ADDRESS:	360 GAYLORD MOUNTAIN RD HAMDEN, CT 06518
TOWER TYPE:	GUYED TOWER
TOWER CO SITE ID:	CT-5004
TOWER APP NUMBER:	TBD
COUNTY:	NEW HAVEN
LATITUDE (NAD 83):	41°26'01.3" N 41.433700 N
LONGITUDE (NAD 83):	72°56'42.7" W -72.945200 W
ZONING JURISDICTION:	CT – CONNECTICUT SITING COUNCIL
ZONING DISTRICT:	NEW HAVEN
PARCEL NUMBER:	TBD
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	V-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	AT&T

PROJECT DIRECTORY

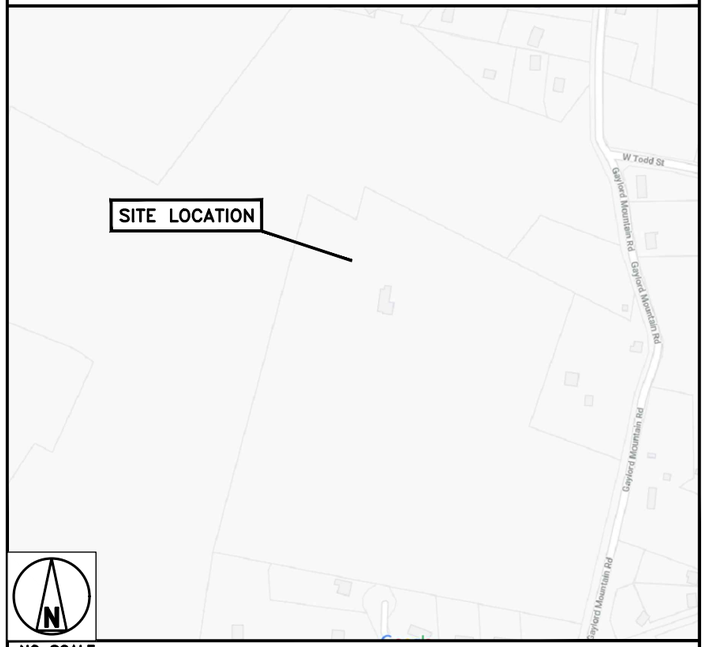
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	VERTICAL BRIDGE 750 PARK OF COMMERCE DRIVE BOCA RATON, FLORIDA 33487 (561) 948-6367
SITE DESIGNER:	INFINIGY 2500 W. HIGGINS RD. STE. 500 HOFFMAN ESTATES, IL 60169 (847) 648-4068
SITE ACQUISITION:	MATT BANDLE TBD
CONSTRUCTION MANAGER:	JAVIER SOTO TBD
RF ENGINEER:	BOSSENER CHARLES TBD

DIRECTIONS

DIRECTIONS FROM MERIDEN MARKHAM MUNICIPAL AIRPORT:

HEAD NORTH ON GAYLORD MOUNTAIN RD TOWARD W TODD ST, TURN RIGHT ONTO W TODD ST, TURN LEFT ONTO SHEPARD AVE, TURN RIGHT ONTO CT-10 / WHITNEY AVE, TURN LEFT ONTO TUTTLE AVE, TURN LEFT TO STAY ON TUTTLE AVE, TURN RIGHT ONTO COOK HILL RD, TURN LEFT ONTO SCHOOL HOUSE RD, KEEP STRAIGHT TO GET ONTO CHESHIRE RD, BEAR LEFT ONTO PARKER FARMS RD, KEEP STRAIGHT TO GET ONTO HOPE HILL RD, TURN RIGHT ONTO CT-68 / CHURCH ST, TURN LEFT ONTO HANOVER ST, ROAD NAME CHANGES TO EVANSVILLE AVE, ARRIVE AT 456 GAYLORD MOUNTAIN RD HAMDEN, CT 06518

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
2500 W. HIGGINS RD. SUITE 500 | HOFFMAN ESTATES, IL 60169
PHONE: 847-648-4068 | FAX: 518-690-0793
WWW.INFINIGY.COM

STATE OF CONNECTICUT
TSUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER
9/29/2021

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/24/21	ISSUED FOR PERMIT

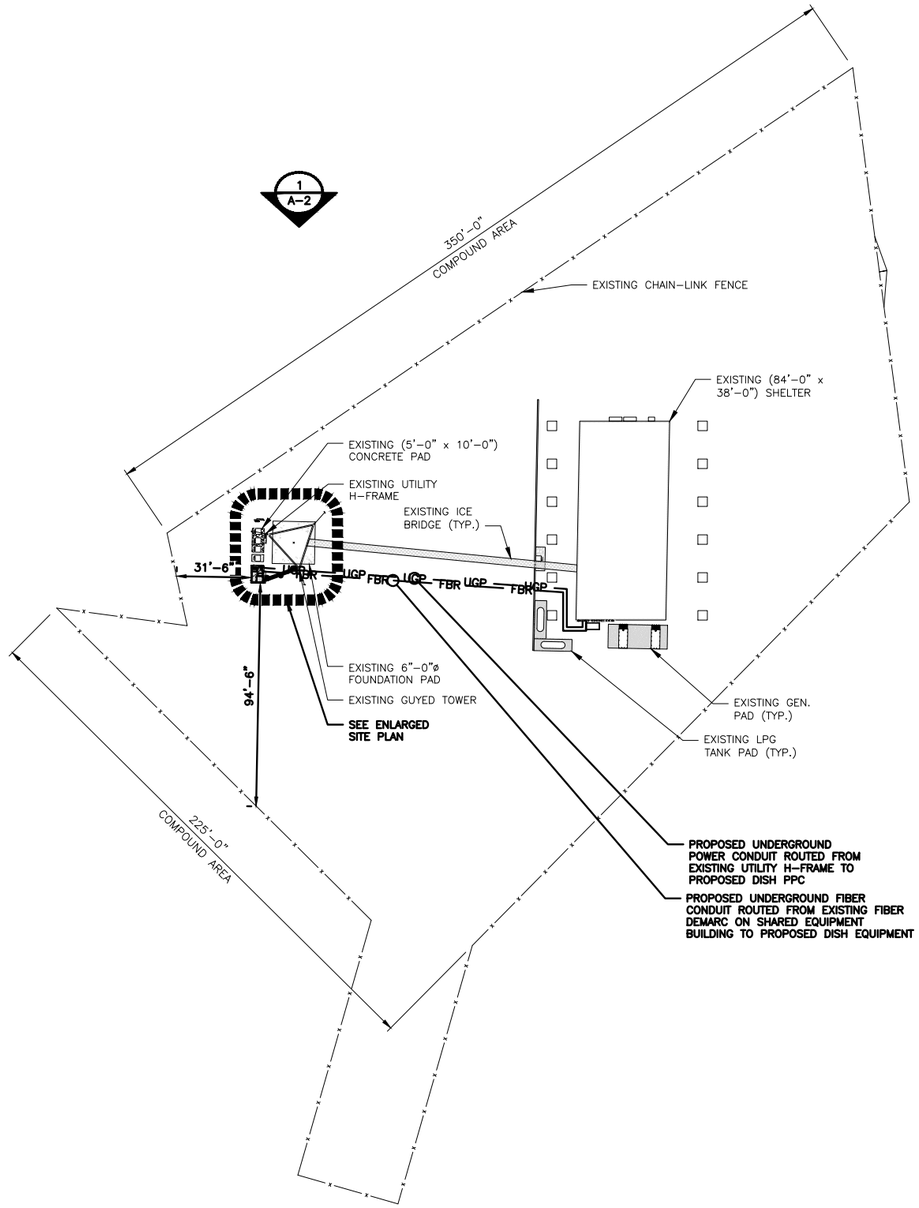
A&E PROJECT NUMBER
14197-F0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00193A
360 GAYLORD MOUNTAIN RD
HAMDEN, CT 06518

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



N

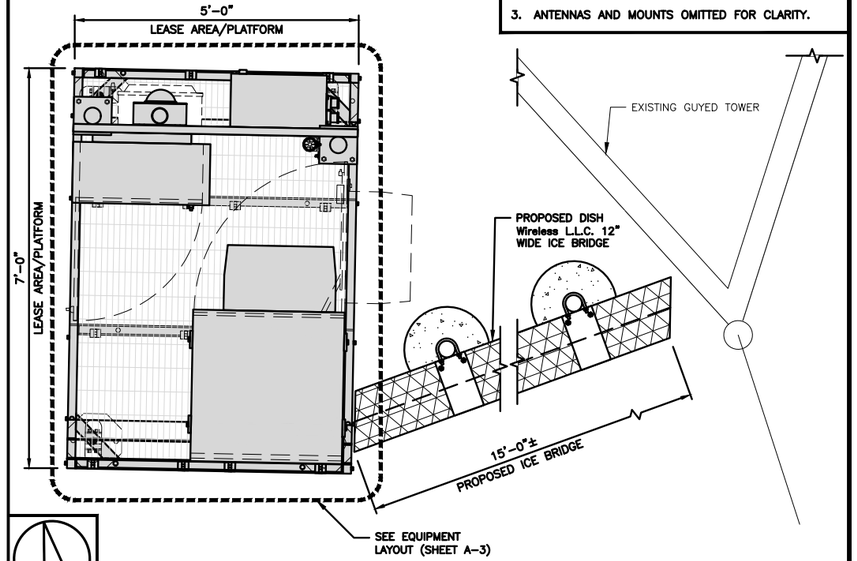
COMPOUND PLAN

32' 24'16' 8' 0 32' 64'
1/32"=1'-0"

1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



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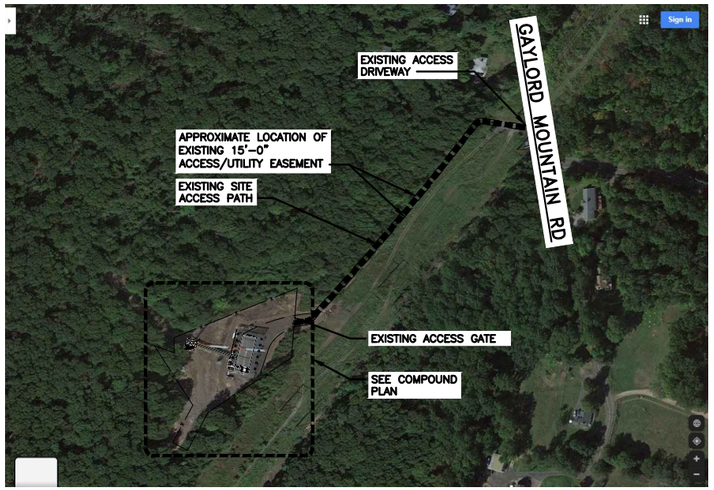
ENLARGED SITE PLAN

12" 6" 0 1' 2' 3'
3/4"=1'-0"

2



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SITE PLAN

200' 100' 0 200' 400'
1"=200'

3

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

INFINIGY
FROM ZERO TO INFINIGY
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WWW.INFINIGY.COM

STATE OF CONNECTICUT
TSUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER
9/29/2021

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/24/21	ISSUED FOR PERMIT

A&E PROJECT NUMBER
14197-F0001-C

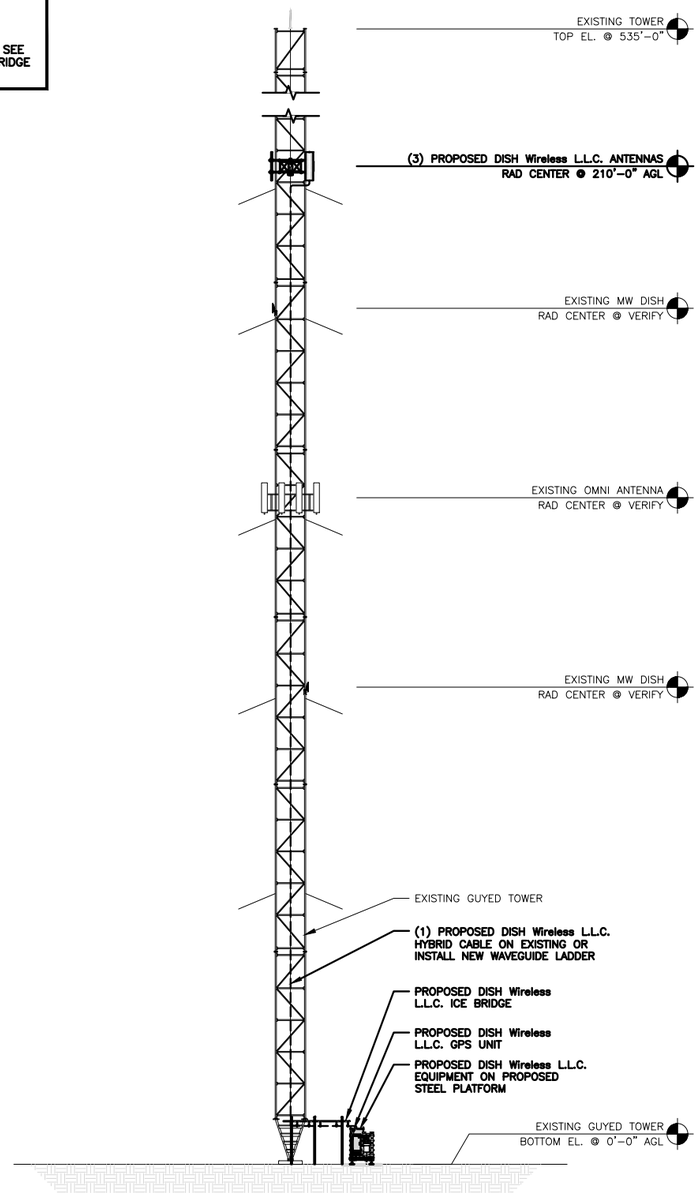
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00193A
360 GAYLORD MOUNTAIN RD
HAMDEN, CT 06518

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1

NOTES

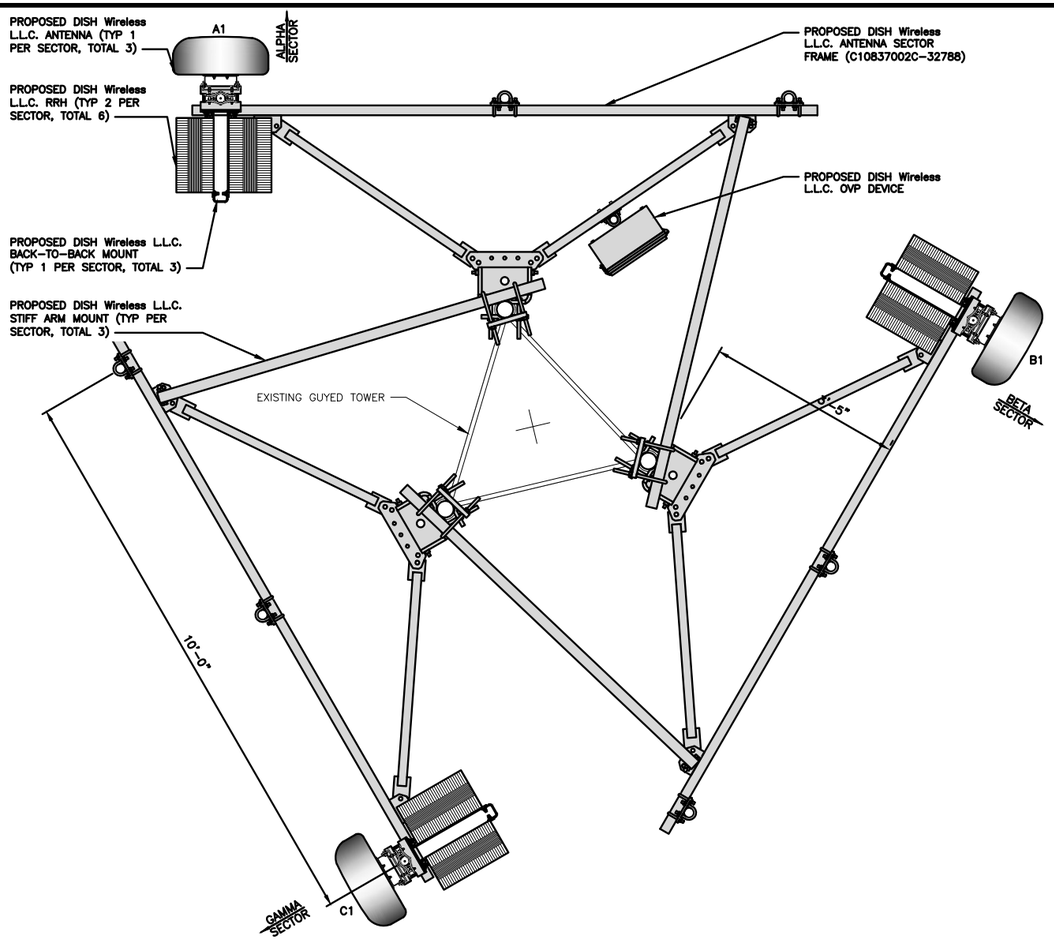
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. BASED ON THE MOUNT ANALYSIS COMPLETED BY INFINIGY DATED 08/03/2021. THE EXISTING ANTENNA MOUNTS ARE CAPABLE OF SUPPORTING THE PROPOSED EQUIPMENT CONFIGURATION
5. FOR ADDITIONAL TOWER STRUCTURAL INFORMATION SEE STRUCTURAL ANALYSIS COMPLETED BY VERTICAL BRIDGE DATED: 05/21/21



PROPOSED SOUTH ELEVATION

16' 12' 8' 4' 0 16' 32'
1/16"=1'-0"

1



ANTENNA LAYOUT

12" 6" 0 1' 2' 3'
3/4"=1'-0"

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZMUITH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS – MX08FRO665-20	5G	72.0" x 20.0"	0°	210'-0"	(1) HIGH-CAPACITY HYBRID CABLE (240' LONG)
BETA	B1	PROPOSED	JMA WIRELESS – MX08FRO665-20	5G	72.0" x 20.0"	120°	210'-0"	
GAMMA	C1	PROPOSED	JMA WIRELESS – MX08FRO665-20	5G	72.0" x 20.0"	240°	210'-0"	

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA OR RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025-B604	5G
BETA	B1	FUJITSU – TA08025-B604	5G
GAMMA	C1	FUJITSU – TA08025-B604	5G

NOTES

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2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

ANTENNA SCHEDULE

NO SCALE

3

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STATE OF CONNECTICUT
TUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER
9/29/2021

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER
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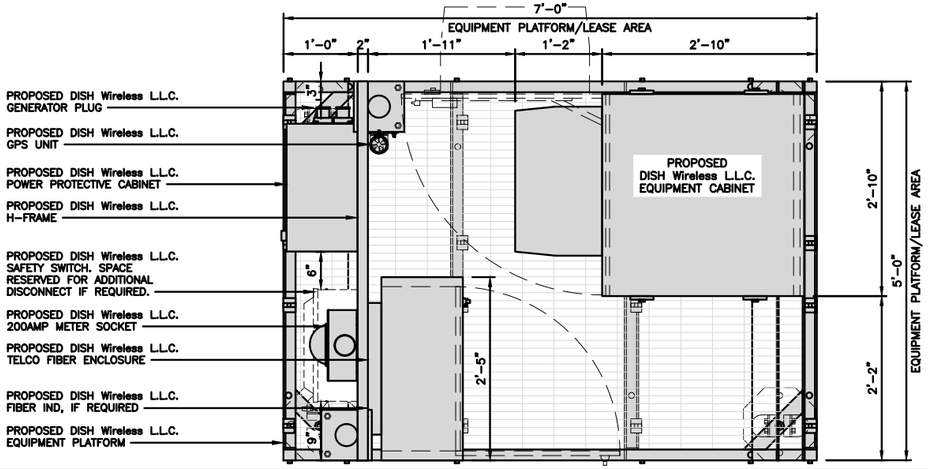
360 GAYLORD MOUNTAIN RD
HAMDEN, CT 06518

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



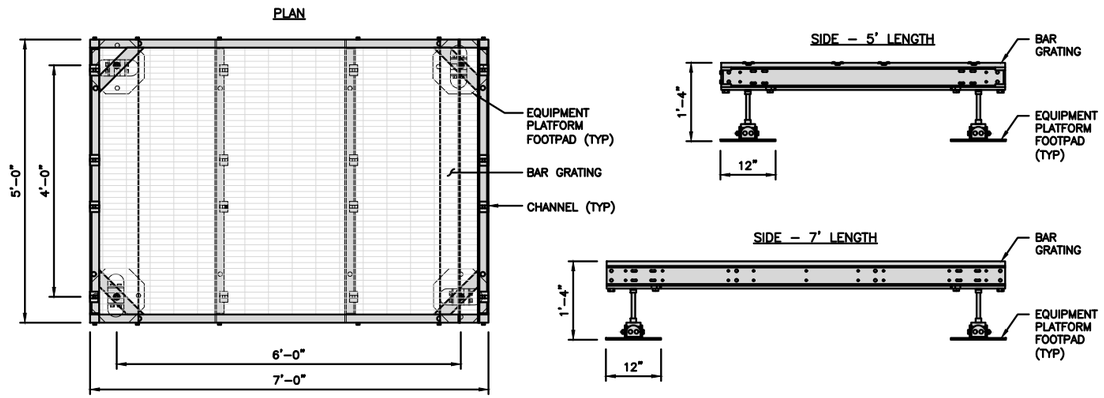
PLATFORM EQUIPMENT PLAN

12" 9" 6" 3" 0 1' 2'
1"=1'-0"

1

COMMSCOPE MTC4045LP 5X7 PLATFORM	
DIMENSIONS (HxWxD)	16"x84"x60"
TOTAL WEIGHT	423 LBS

NOTE:
GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"

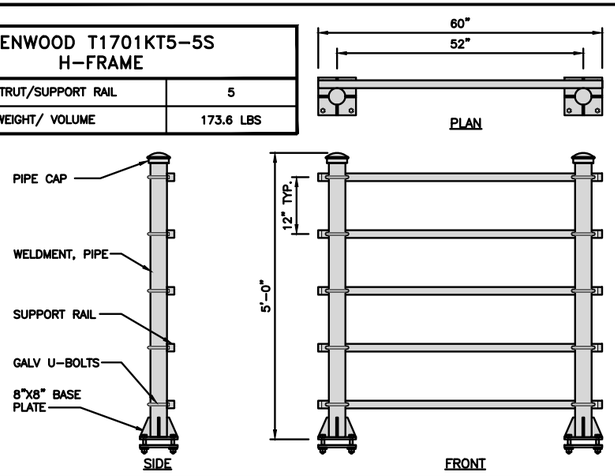


PLATFORM DETAIL

NO SCALE

2

KENWOOD T1701KT5-5S H-FRAME	
UNISTRUT/SUPPORT RAIL	5
WEIGHT/ VOLUME	173.6 LBS



H-FRAME DETAIL

NO SCALE

3

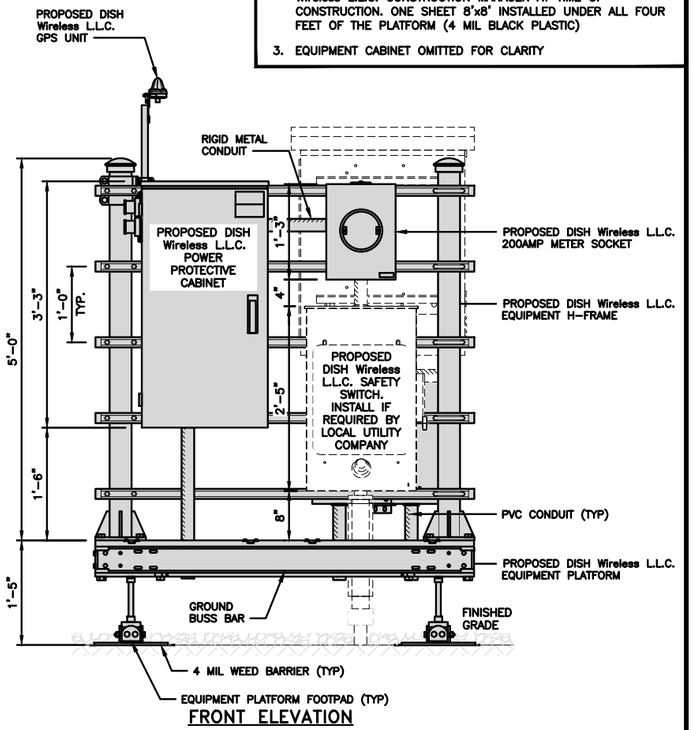
NOT USED

NO SCALE

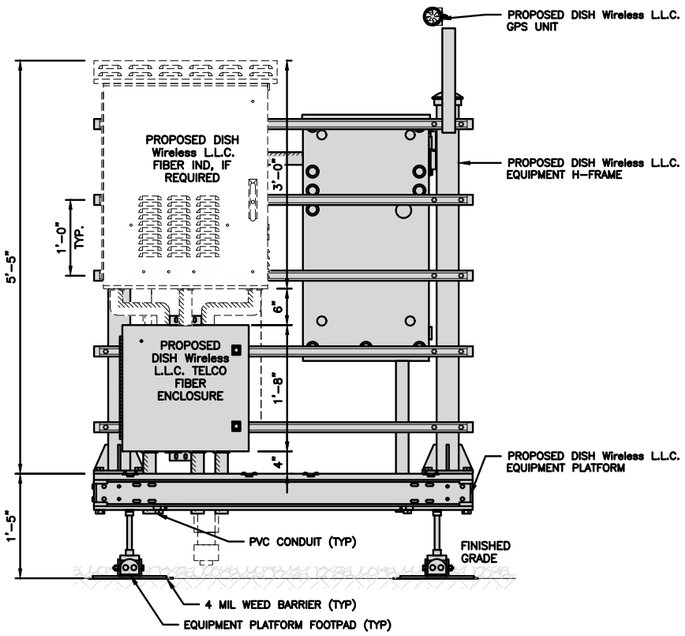
4

NOTES

1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH Wireless L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
3. EQUIPMENT CABINET OMITTED FOR CLARITY



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

12" 9" 6" 3" 0 1' 2'
1"=1'-0"

5

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LICENSED PROFESSIONAL ENGINEER
9/29/2021

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: 0

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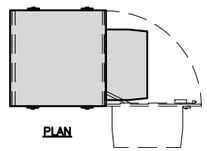
360 GAYLORD MOUNTAIN RD
HAMDEN, CT 06518

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

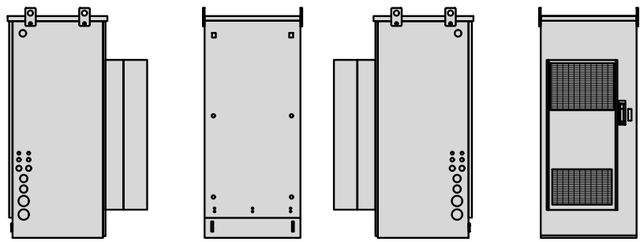
SHEET NUMBER
A-3

CHARLES INDUSTRY HEX CUBE–PM639155N4

DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 LBS



PLAN



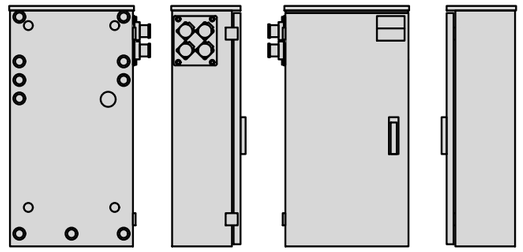
SIDE BACK SIDE FRONT

CABINET DETAIL | NO SCALE | 1

RAYCAP PPC RDIAC–2465–P–240–MTS

ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G

TOP



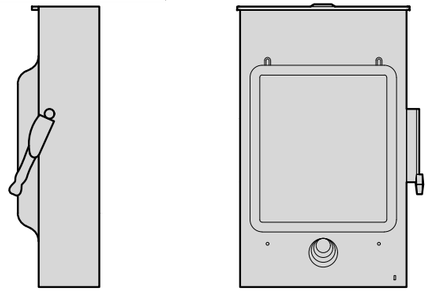
BACK SIDE FRONT SIDE

POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

SQUARE D SAFETY SWITCHES D224NRB

ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E–2875

TOP

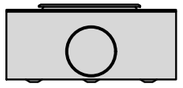


SIDE FRONT

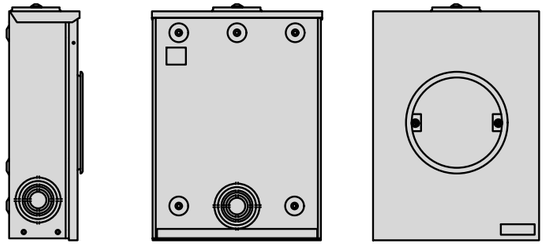
SAFETY SWITCH DETAIL | NO SCALE | 3

EATON METER SOCKET UNRRS213BEUSE

METER SOCKET TYPE	RING
ENCLOSURE DIM (HxWxD)	16"x12"x6"
MAIN AMPERE RATING	200A
WEIGHT	18 LBS



PLAN



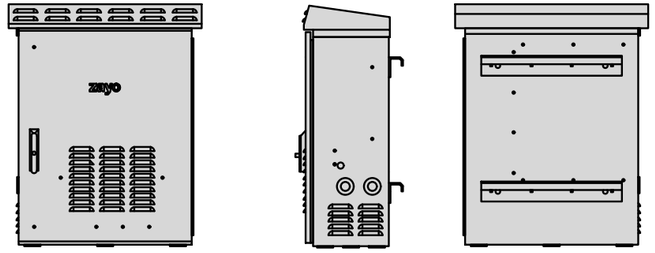
SIDE BACK FRONT

METER SOCKET DETAIL | NO SCALE | 4

ZAYO 5RU CABINET ("LIT" SITES)

DIMENSIONS (HxWxD)	36.115"x29"x12.9"
WEIGHT	85 LBS
POWER INPUT	20A, –48VDC

PLAN

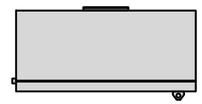


FRONT SIDE BACK

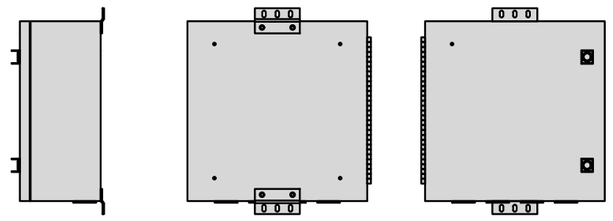
NETWORK INTERFACE UNIT DETAIL | NO SCALE | 5

CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE

ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



FRONT



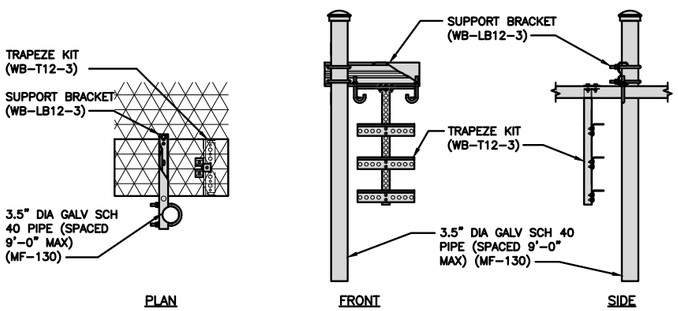
SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

COMMSCOPE WB–K110–B WAVEGUIDE BRIDGE KIT

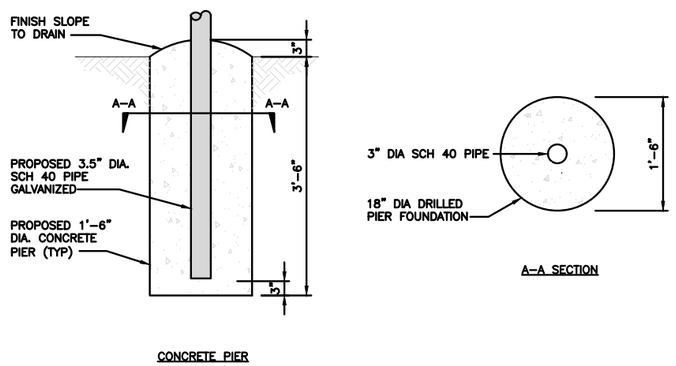
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

INCLUDED PRODUCTS:
- WB–T12–3 TRAPEZE KIT, 3 RUNGS
- WB–LB12–3 SUPPORT BRACKET
- MF–130 DIRECT BURIAL PIPE COLUMN, 13'–4"



PLAN FRONT SIDE

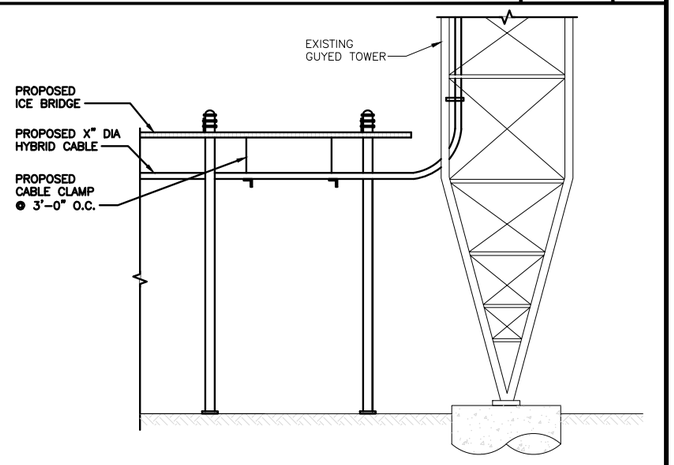
ICE BRIDGE DETAIL | NO SCALE | 7



CONCRETE PIER

A–A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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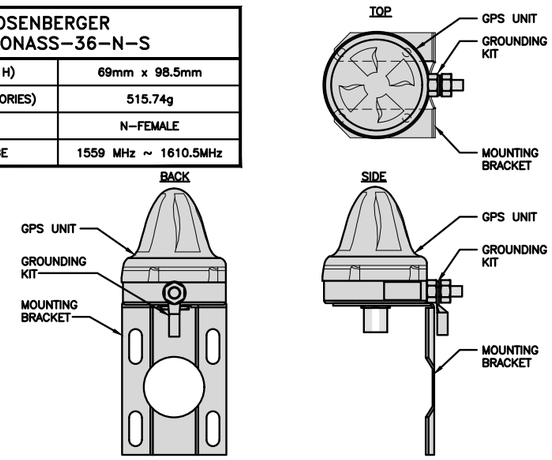
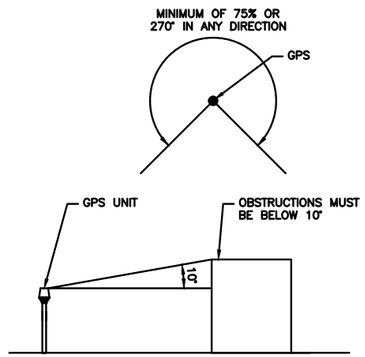
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

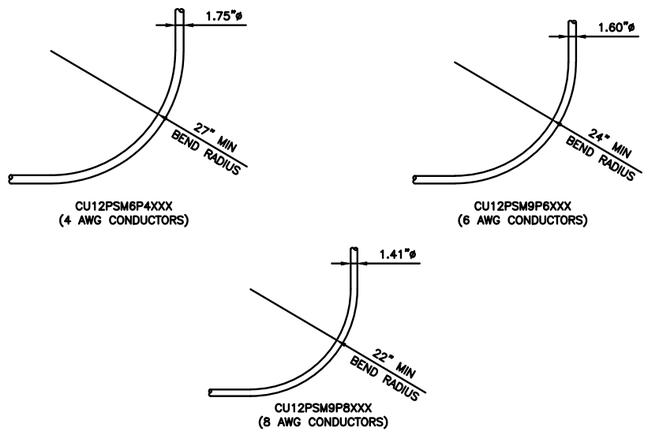
ROSENBERGER GPSGLONASS-36-N-S	
DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz



GPS ANTENNA DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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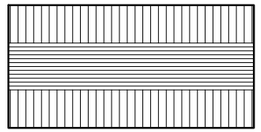
SHEET TITLE

EQUIPMENT DETAILS

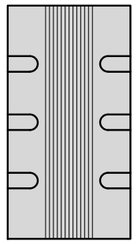
SHEET NUMBER

A-5

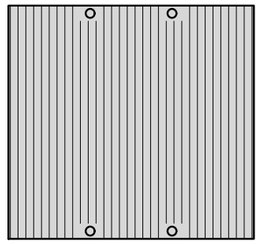
FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN



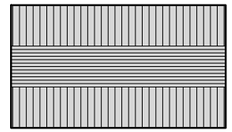
SIDE



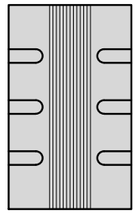
FRONT

REMOTE RADIO HEAD DETAIL | NO SCALE | 1

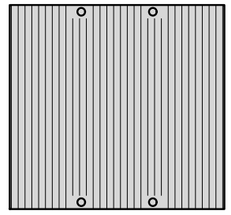
FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE

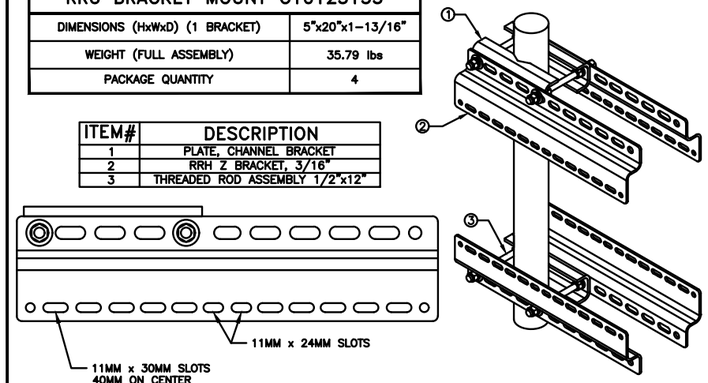


FRONT

REMOTE RADIO HEAD DETAIL | NO SCALE | 2

SABRE INDUSTRIES RRU BRACKET MOUNT C10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

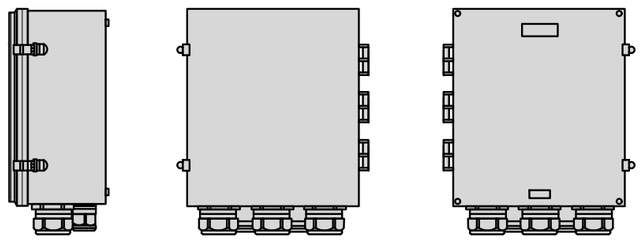
ITEM#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



REMOTE RADIO MOUNT DETAIL | NO SCALE | 3

RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS

PLAN

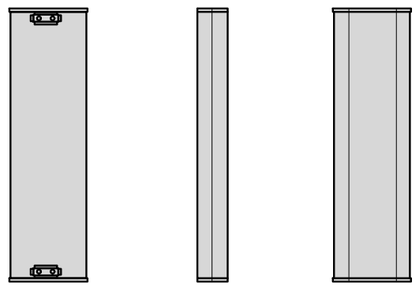


SIDE BACK FRONT

SURGE SUPPRESSION DETAIL | NO SCALE | 4

JMA WIRELESS MX08FRO665-20 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	54 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE

PLAN



BACK SIDE FRONT

ANTENNA DETAIL | NO SCALE | 5

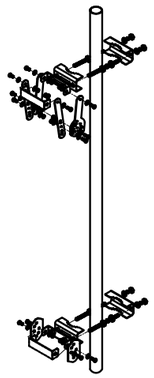
NOTES

FINAL ANTENNA SPECIFICATIONS TO BE CONFIRMED BY GC

JMA ANTENNA MOUNT BRACKET #91900318	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS

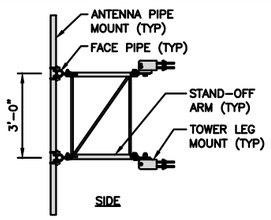
ANTENNA BRACKET NOT PART OF KIT



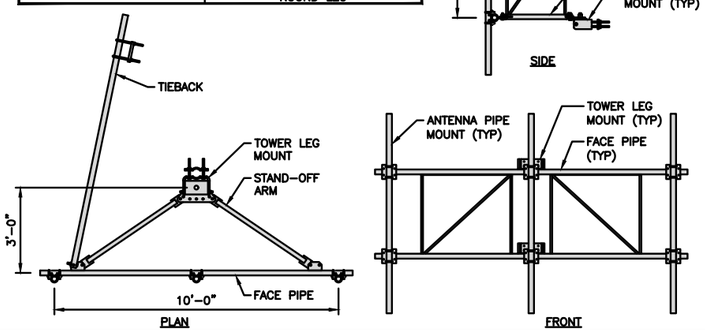
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL | NO SCALE | 6

SABRE INDUSTRIES C10837002C-32788 HD V-BOOM ASSEMBLY WITH TIEBACK	
FACE SIZE	10'-0"
WEIGHT	676 LB
TOWER LEG SIZE	1-1/2" TO 5-9/16" DIA ROUND LEG



SIDE



PLAN FRONT

ANTENNA FRAME DETAIL | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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9/29/2021

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

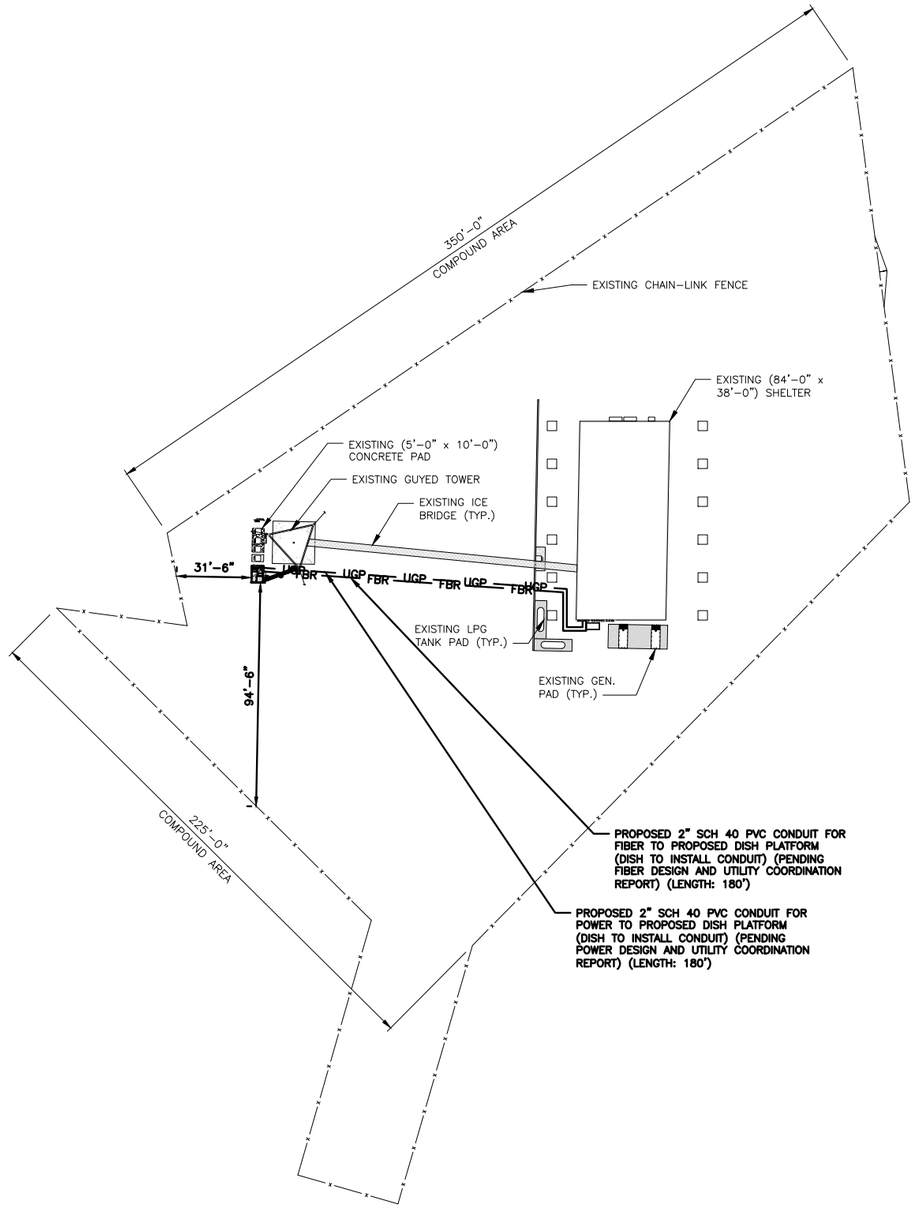
REV	DATE	DESCRIPTION
0	9/24/21	ISSUED FOR PERMIT

A&E PROJECT NUMBER
14197-F0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00193A
360 GAYLORD MOUNTAIN RD
HAMDEN, CT 06518

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6



N

UTILITY ROUTE PLAN

32' 24'16' 8' 0 32' 64'

1/32"=1'-0"

1

NOTES

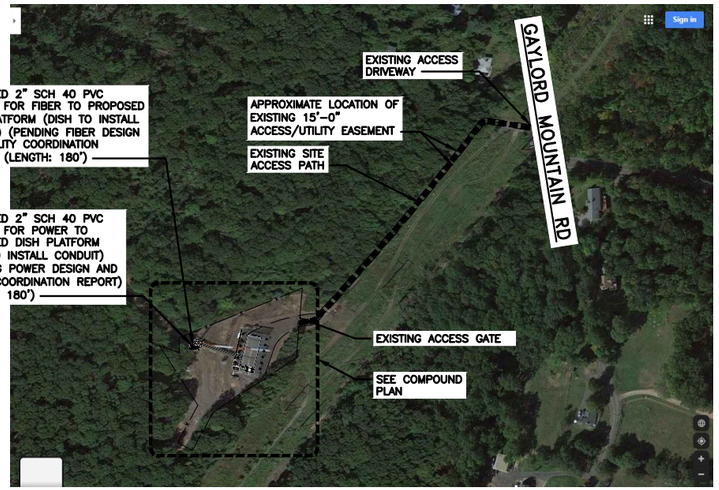
1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. FIBER ROUTE IS PRELIMINARY, FINAL FIBER ROUTE TO BE DETERMINED ONCE UCR (UTILITY COORDINATION REPORT) HAS BEEN FINALIZED.

ELECTRICAL NOTES

2



N

OVERALL UTILITY ROUTE PLAN

200' 100' 0 200' 400'

1"=200'

3

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PROJECT INFORMATION
BOHVN00193A
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HAMDEN, CT 06518

SHEET TITLE

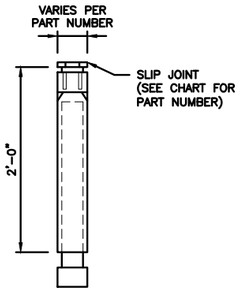
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

E-1

CARLON EXPANSION FITTINGS

COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N	E945NX	4"	5	8"
E945P	E945PX	5"	1	8"
E945R	E945RX	6"	1	8"

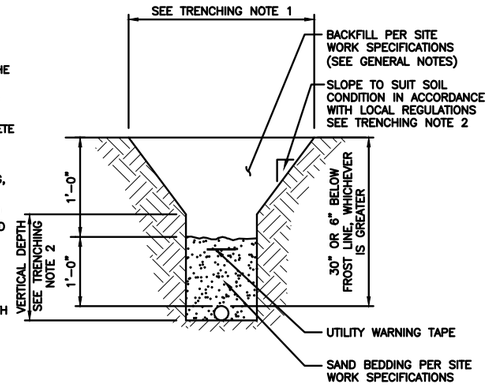


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

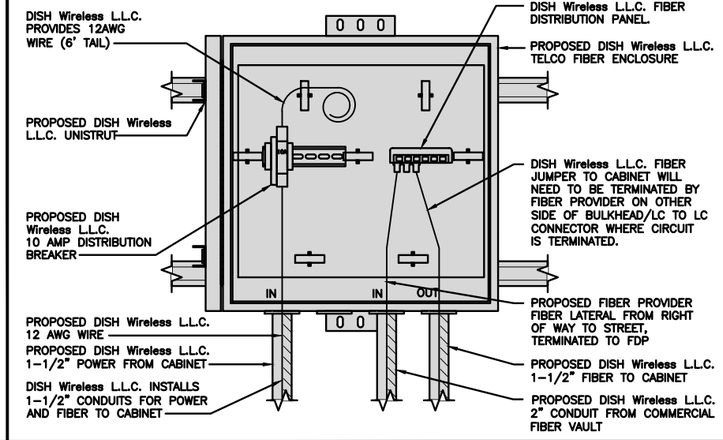
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

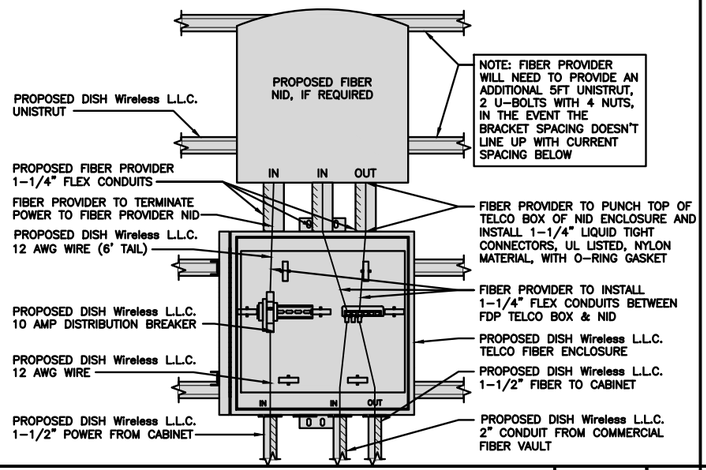
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
3. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



DARK TELCO BOX – INTERIOR WIRING LAYOUT | NO SCALE | 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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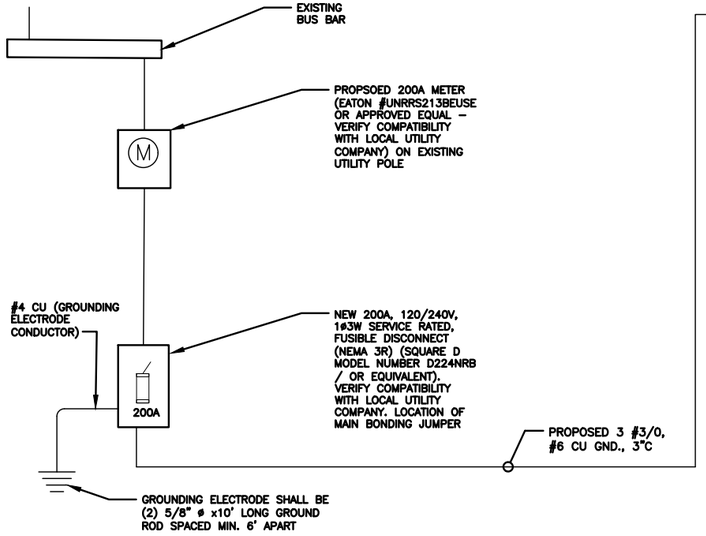
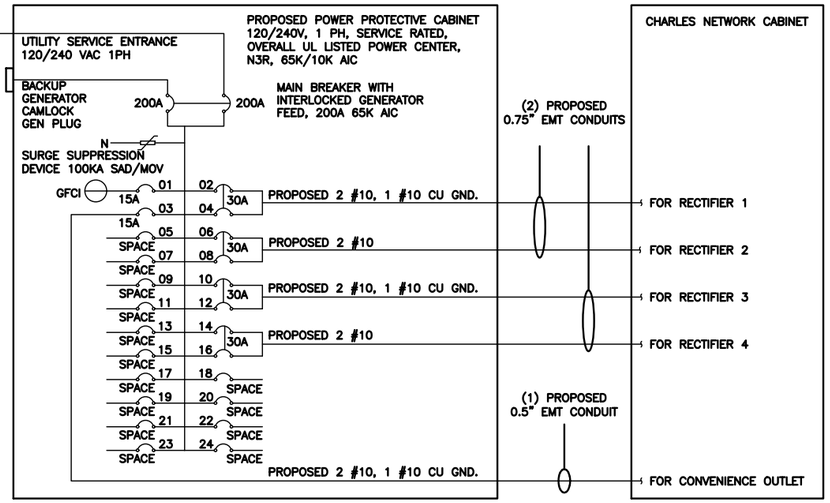
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00193A
360 GAYLORD MOUNTAIN RD
HAMDEN, CT 06518

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2





NOTE:
BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105°C, 600V, AND PVC INSULATED, IN THE SIZES SHOWN IN THE ONE-LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN-2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT.

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER – SQUARE D P/N:QO230
(1) 15A, 1P BREAKER – SQUARE D P/N:QO115

NOTES

THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.

#12 FOR 15A–20A/1P BREAKER: 0.8 x 30A = 24.0A
#10 FOR 25A–30A/2P BREAKER: 0.8 x 40A = 32.0A
#8 FOR 35A–40A/2P BREAKER: 0.8 x 55A = 44.0A
#6 FOR 45A–60A/2P BREAKER: 0.8 x 75A = 60.0A

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.
0.5" CONDUIT – 0.122 SQ. IN AREA
0.75" CONDUIT – 0.213 SQ. IN AREA
2.0" CONDUIT – 1.316 SQ. IN AREA
3.0" CONDUIT – 2.907 SQ. IN AREA

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN–2, CU.

#10 – 0.0211 SQ. IN X 2 = 0.0422 SQ. IN
#10 – 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
TOTAL = 0.0633 SQ. IN

0.5" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.

#10 – 0.0266 SQ. IN X 4 = 0.1064 SQ. IN
#10 – 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
TOTAL = 0.1146 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (5) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.

3/0 – 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
#6 – 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
TOTAL = 0.8544 SQ. IN

3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

1

PPC ONE–LINE DIAGRAM | NO SCALE | 1

PROPOSED CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
–SPACE–				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
–SPACE–				7	B	8			2880	
–SPACE–				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
–SPACE–				11	B	12			2880	
–SPACE–				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
–SPACE–				15	B	16			2880	
–SPACE–				17	A	18				–SPACE–
–SPACE–				19	B	20				–SPACE–
–SPACE–				21	A	22				–SPACE–
–SPACE–				23	B	24				–SPACE–
VOLTAGE AMPS	180	180						11520	11520	
200A MCB, 1Φ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			11700		11700		VOLTAGE AMPS			
			98		98		AMPS			
			98				MAX AMPS			
			123				MAX 125%			

PANEL SCHEDULE | NO SCALE | 2

NOT USED | NO SCALE | 3

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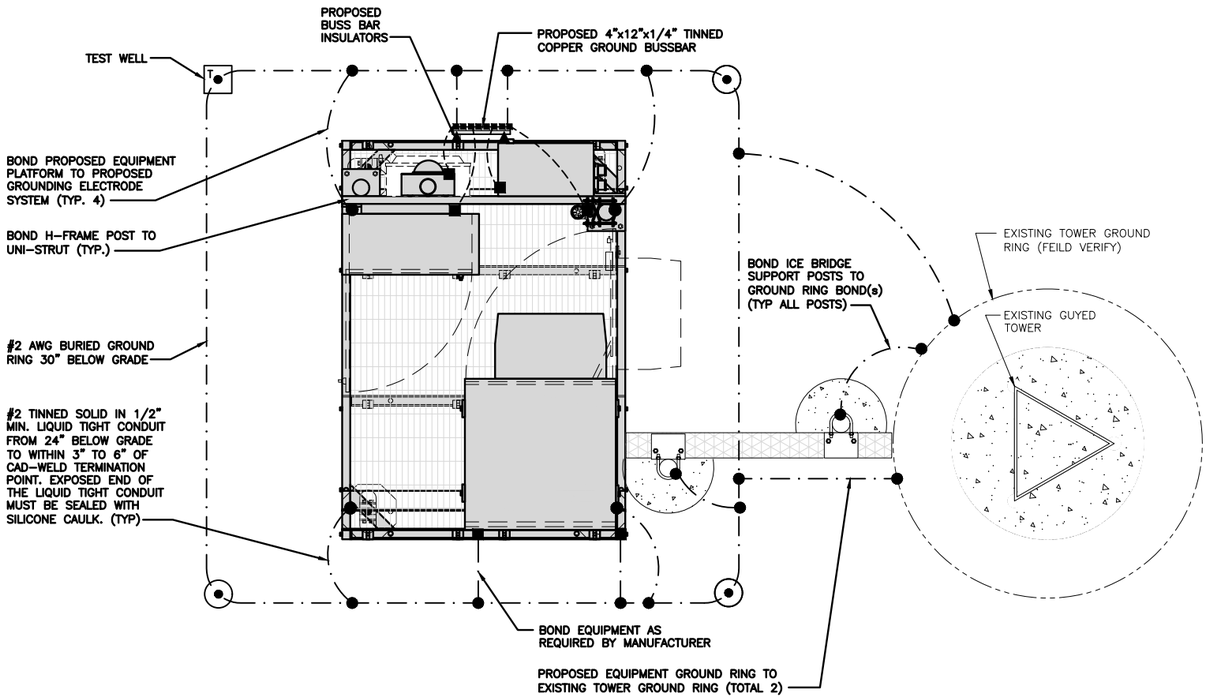
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00193A
360 GAYLORD MOUNTAIN RD
HAMDEN, CT 06518

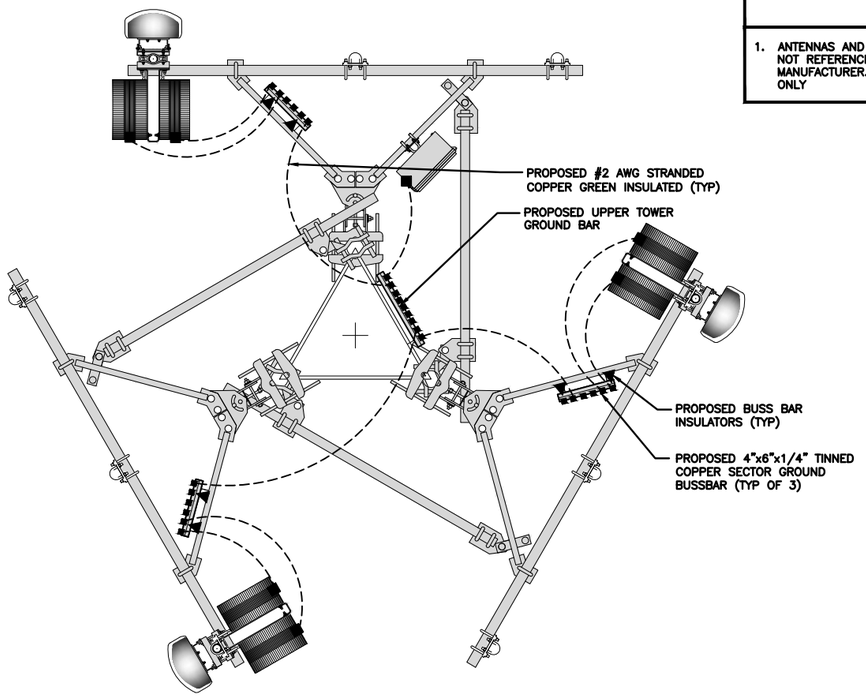
SHEET TITLE
ELECTRICAL ONE–LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

NOTES

1. ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE ONLY

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BUS BAR
- GROUND ROD
- TEST GROUND ROD WITH INSPECTION SLEEVE
- #2 AWG STRANDED & INSULATED
- #2 AWG SOLID COPPER TINNED

GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH Wireless L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.

(B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.

(C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.

(D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

(F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

(G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.

(H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.

(J) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.

(K) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.

(L) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.

(M) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

(N) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE

(P) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.

(Q) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR

(R) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR.

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE | 3

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LICENSED PROFESSIONAL ENGINEER
9/29/2021

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RCD	SS	CJW

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/24/21	ISSUED FOR PERMIT

A&E PROJECT NUMBER
14197-F0001-C

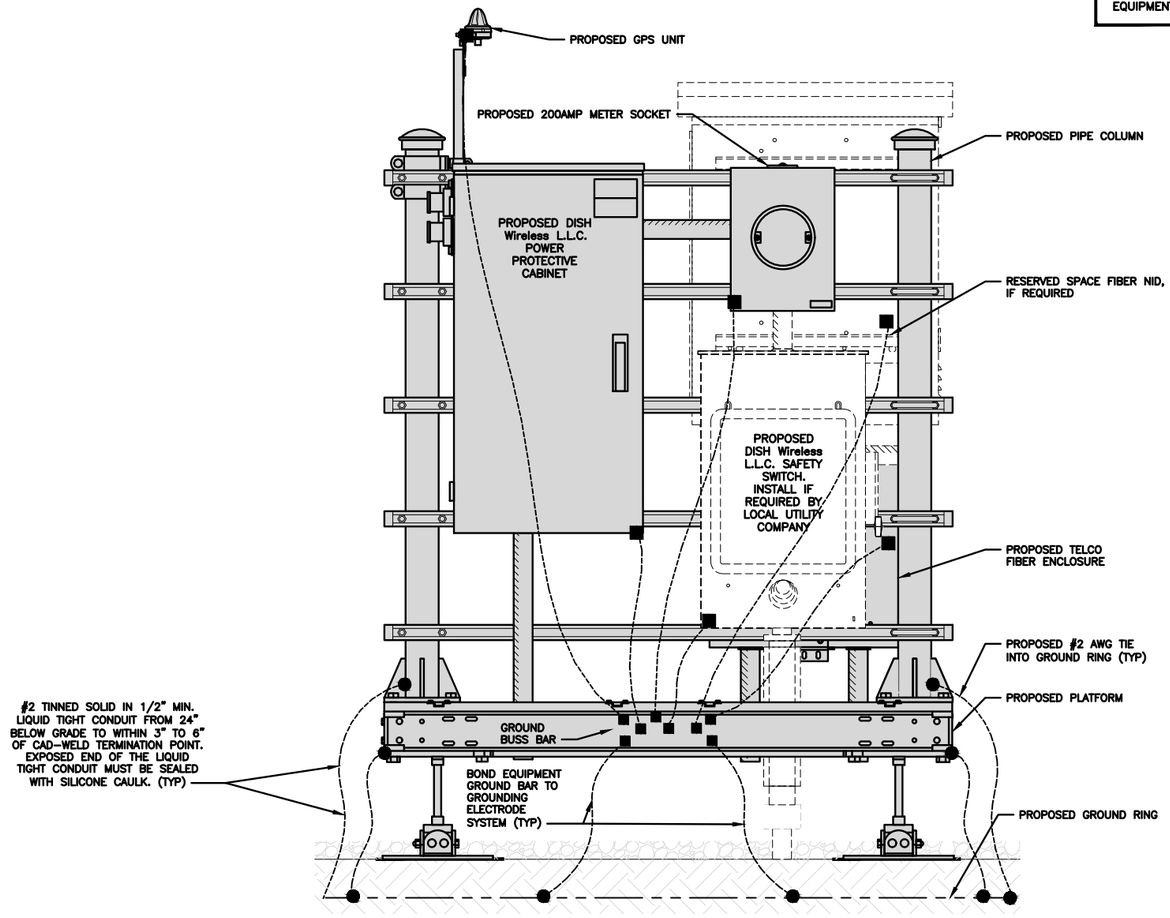
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00193A
360 GAYLORD MOUNTAIN RD
HAMDEN, CT 06518

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

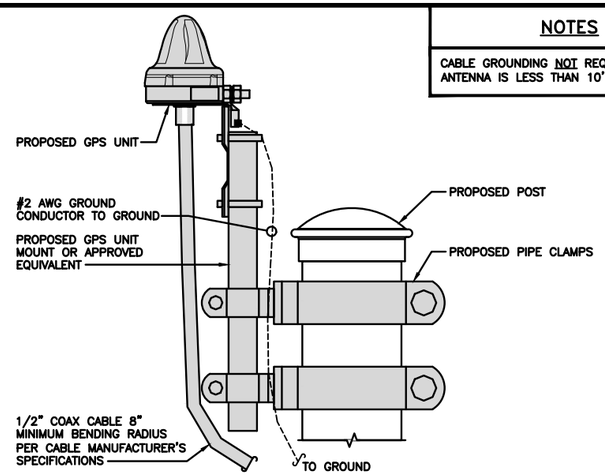
EQUIPMENT CABINET OMITTED FOR CLARITY



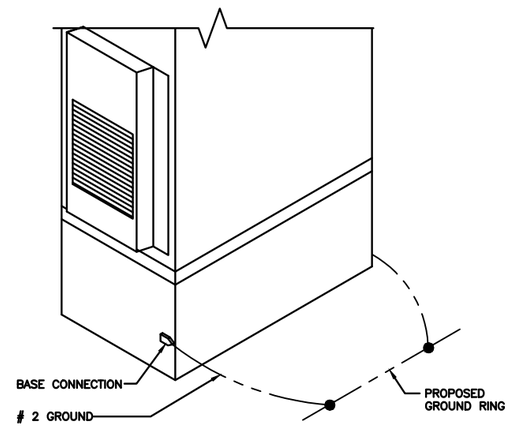
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

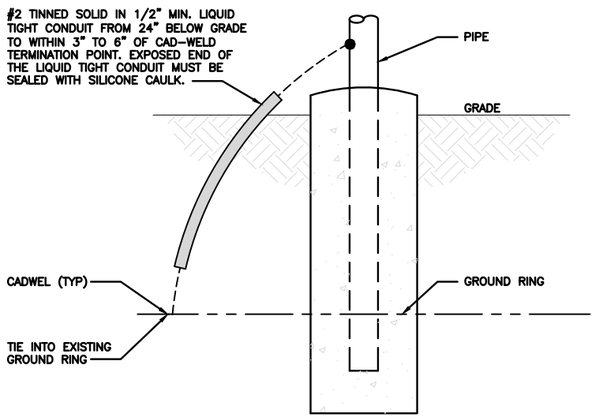
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



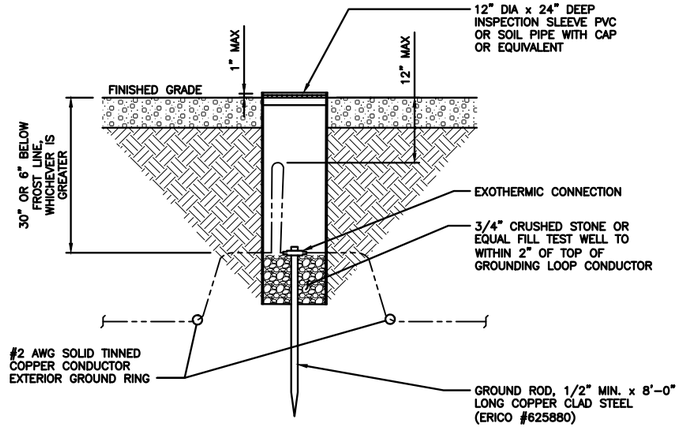
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



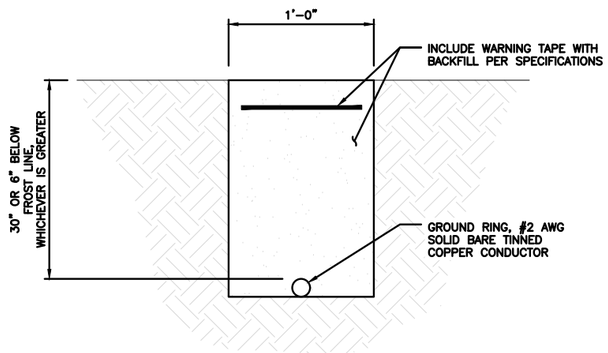
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE | NO SCALE | 5



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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SHEET TITLE

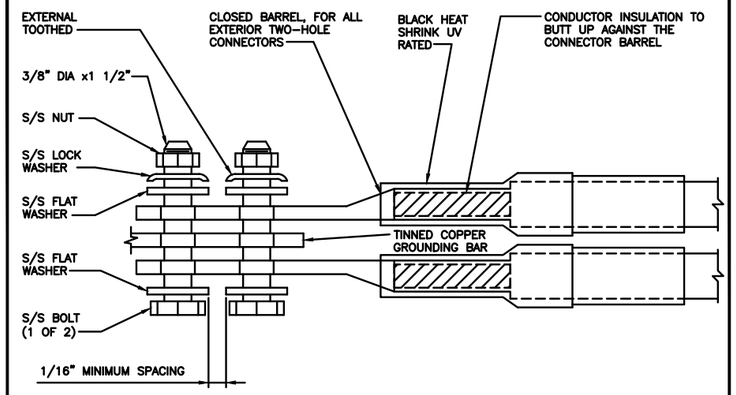
GROUNDING DETAILS

SHEET NUMBER

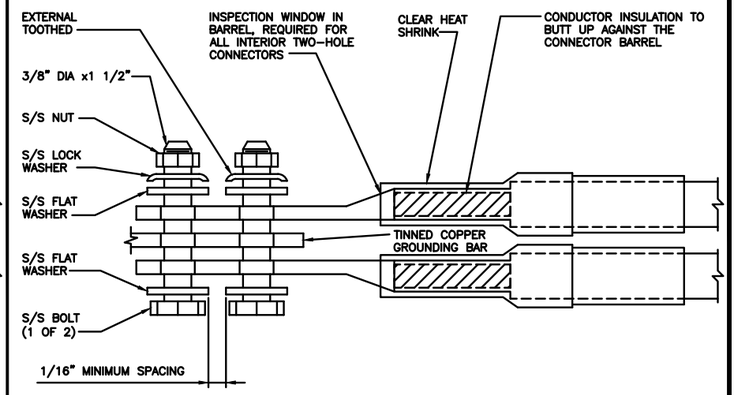
G-2

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR, ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

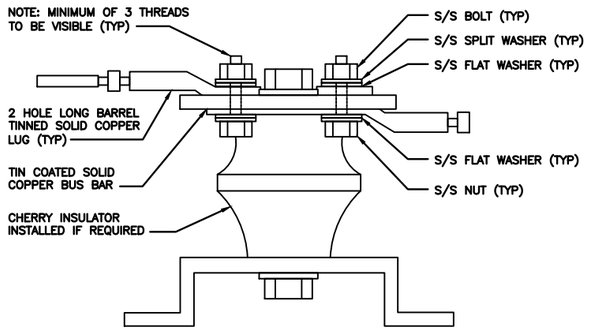
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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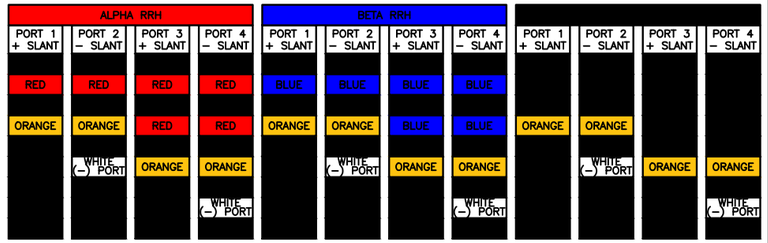
SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

HYBRID/DISCREET CABLES — 3/4" TAPE WIDTHS WITH 3/4" SPACING

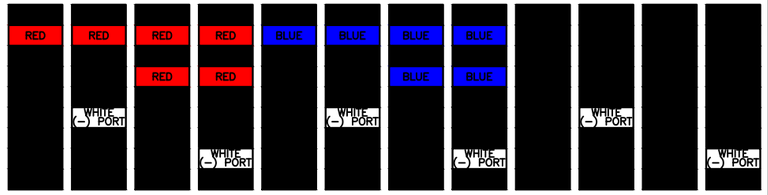
LOW–BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BAND)



MID–BAND RRH
(AWS BANDS N66+N70)

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)



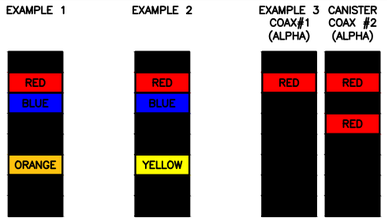
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW–BANDS AND MID–BANDS.

EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.

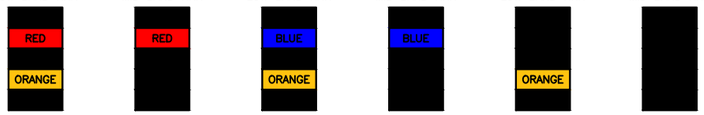


FIBER JUMPERS TO RRHs

LOW–BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.

POWER CABLES TO RRHs

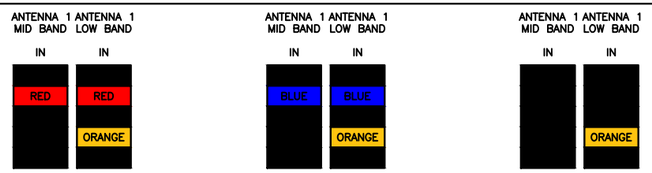
LOW–BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

RET CONTROL IS HANDLED BY THE MID–BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA.

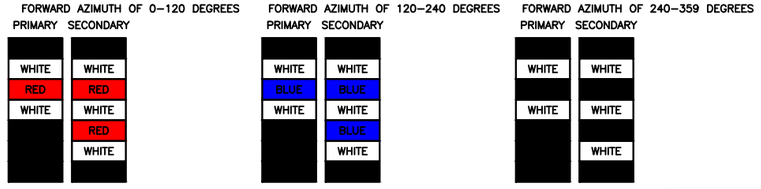
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



MICROWAVE RADIO LINKS

LINKS WILL HAVE A 1.5–2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.
ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.

MICROWAVE CABLES WILL REQUIRE P–TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID's.



RF CABLE COLOR CODES | | 1

LOW BANDS (N71+N26) OPTIONAL – (N29): ORANGE

AWS (N66+N70+H–BLOCK)

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR

COLOR IDENTIFIER | | 2

NOT USED | | 3

NOT USED | | 4

---

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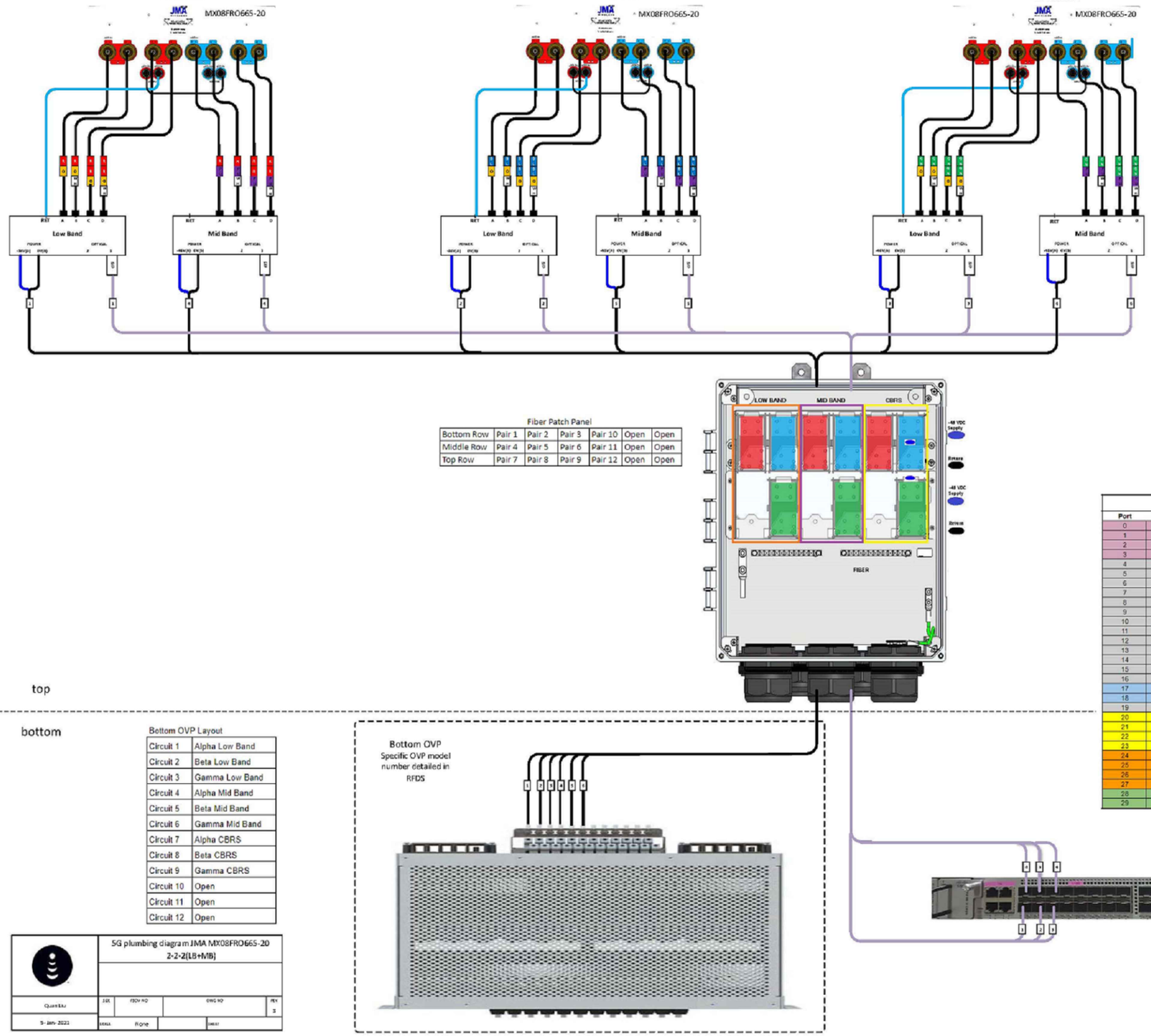
RF
CABLE COLOR CODE

SHEET NUMBER
RF-1



Fiber Patch Panel

Bottom Row	Pair 1	Pair 2	Pair 3	Pair 10	Open	Open
Middle Row	Pair 4	Pair 5	Pair 6	Pair 11	Open	Open
Top Row	Pair 7	Pair 8	Pair 9	Pair 12	Open	Open

Bottom OVP Layout

Circuit 1	Alpha Low Band
Circuit 2	Beta Low Band
Circuit 3	Gamma Low Band
Circuit 4	Alpha Mid Band
Circuit 5	Beta Mid Band
Circuit 6	Gamma Mid Band
Circuit 7	Alpha CBRS
Circuit 8	Beta CBRS
Circuit 9	Gamma CBRS
Circuit 10	Open
Circuit 11	Open
Circuit 12	Open

5G plumbing diagram JMA MX08FRO665-20
2-2-2(LB+MB)

Quantity: 1 | ISSV NO | DWG NO | REV: 3
Date: 9-Jan-2021 | Name | Sheet

CSR NCS540

Port	Interface	Description
0	Gi0/0/0/0	SiteBoss
1	Gi0/0/0/1	CBRS - Alpha
2	Gi0/0/0/2	CBRS - Beta
3	Gi0/0/0/3	CBRS - Gamma
4	Te0/0/0/4	Fujitsu Low-Band RU - Alpha
5	Te0/0/0/5	Fujitsu Mid-Band RU - Alpha
6	Te0/0/0/6	Fujitsu Low-Band RU - Beta
7	Te0/0/0/7	Fujitsu Mid-Band RU - Beta
8	Te0/0/0/8	Fujitsu Low-Band RU - Gamma
9	Te0/0/0/9	Fujitsu Mid-Band RU - Gamma
10	Te0/0/0/10	Fixed WHI
11	Te0/0/0/11	Fixed WHI
12	Te0/0/0/12	Fixed WHI
13	Te0/0/0/13	Fixed WHI
14	Te0/0/0/14	CBRS1
15	Te0/0/0/15	CBRS2
16	Te0/0/0/16	CBRS3
17	Gi0/0/0/17	SM1 - BMC
18	Gi0/0/0/18	SM2 - BMC
19	Te0/0/0/19	SM1 - Data 1
20	Te0/0/0/20	SM1 - Data 2
21	Te0/0/0/21	SM2 - Data 1
22	Te0/0/0/22	SM2 - Data 2
23	Te0/0/0/23	Reserved Uplink (EDC, LDC)
24	Te0/0/0/24	Blank/Fixture
25	Te0/0/0/25	Blank/Fixture
26	Te0/0/0/26	Fiber NIU
27	Te0/0/0/27	Fiber NIU
28	Te0/0/0/28	Blank/Fixture
29	Te0/0/0/29	Blank/Fixture

PLUMBING DIAGRAM | NO SCALE | 1

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RF
PLUMBING DIAGRAM

SHEET NUMBER
RF-2

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE
(2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
LED–1–25A400/51K–SR4–120–PE–DDBTXD

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

SECTION REFERENCE

DETAIL REFERENCE

LEGEND

AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EC	ELECTRICAL CONDUCTOR
EL.	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENG	ENGINEER
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
EW	EACH WAY
FAB	FABRICATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIF	FACILITY INTERFACE FRAME
FIN	FINISH(ED)
FLR	FLOOR
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FS	FINISH SURFACE
FT	FOOT
FTG	FOOTING
GA	GAUGE
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GLB	GLUE LAMINATED BEAM
GLV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE
HDG	HOT DIPPED GALVANIZED
HDR	HEADER
HGR	HANGER
HVAC	HEAT/VENTILATION/AIR CONDITIONING
HT	HEIGHT
IGR	INTERIOR GROUND RING
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
LF	LINEAR FEET
LTE	LONG TERM EVOLUTION
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
NEC	NATIONAL ELECTRIC CODE
NM	NEWTON METERS
NO.	NUMBER
#	NUMBER
NTS	NOT TO SCALE
OC	ON–CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG	OPENING
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PCU	PRIMARY CONTROL UNIT
PRC	PRIMARY RADIO CABINET
PP	POLARIZING PRESERVING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWR	POWER CABINET
QTY	QUANTITY
RAD	RADIUS
RECT	RECTIFIER
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	REMOTE ELECTRIC TILT
RF	RADIO FREQUENCY
RMC	RIGID METALLIC CONDUIT
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SCH	SCHEDULE
SHT	SHEET
SIAD	SMART INTEGRATED ACCESS DEVICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
TEMP	TEMPORARY
THK	THICKNESS
TMA	TOWER MOUNTED AMPLIFIER
TN	TOE NAIL
TOA	TOP OF ANTENNA
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOP	TOP OF PLATE (PARAPET)
TOS	TOP OF STEEL
TOW	TOP OF WALL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

ABBREVIATIONS

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SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER 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 DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER 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 DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, 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 DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER 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 INCLUDING PRIVATE LOCATES 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 DISH 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 DISH Wireless L.L.C. AND TOWER OWNER, 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 AND RADIOS 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:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

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 CARRIER POC AND TOWER OWNER.

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 TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, 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 DISH Wireless L.L.C. AND TOWER OWNER

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.

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YUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER
9/29/2021

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/24/21	ISSUED FOR PERMIT

A&E PROJECT NUMBER
14197–F0001–C

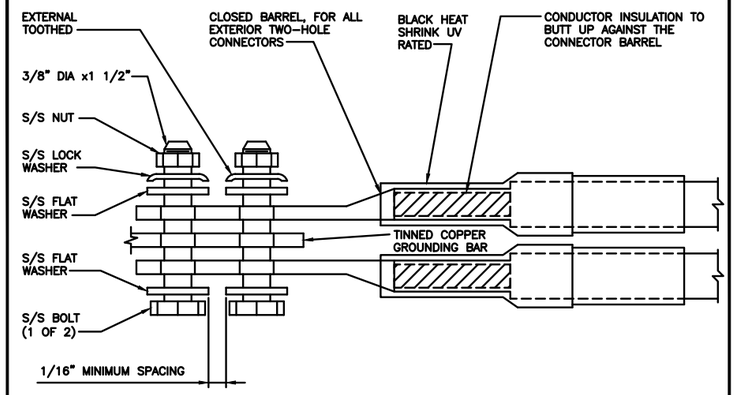
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00193A
360 GAYLORD MOUNTAIN RD
HAMDEN, CT 06518

SHEET TITLE
GENERAL NOTES

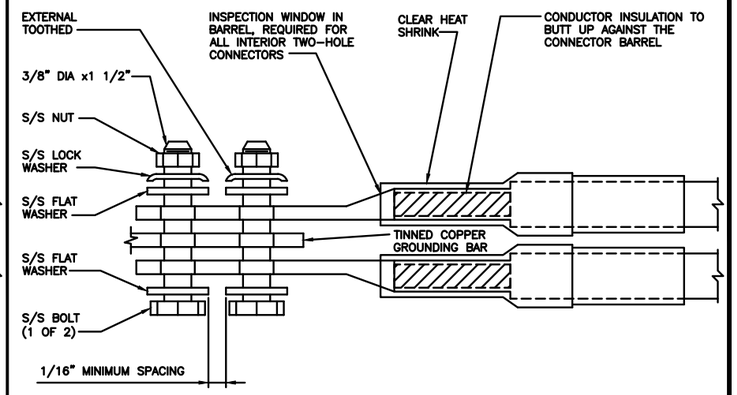
SHEET NUMBER
GN-2

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR, ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

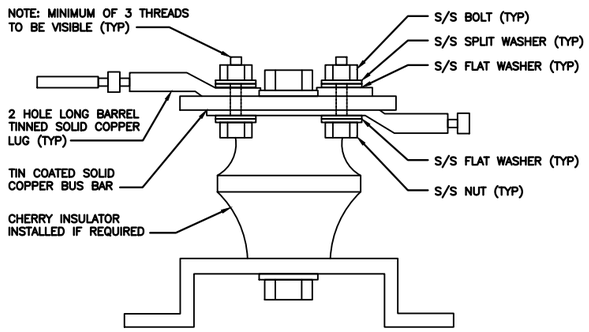
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER
14197-F0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00193A
360 GAYLORD MOUNTAIN RD
HAMDEN, CT 06518

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 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). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

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9/29/2021

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/24/21	ISSUED FOR PERMIT

A&E PROJECT NUMBER

14197-F0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00193A
360 GAYLORD MOUNTAIN RD
HAMDEN, CT 06518

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Dish Wireless

Structural Analysis Report

Structure	: 625 Foot Guyed Tower
VB Site Name	: NHA-003-FM
VB Site Number	: US-CT-5004
Deal Number	: P-006894
Proposed Carrier	: Dish Wireless
Carrier Site Name	: BOHVN00193A
Carrier Site Number	: BOHVN00193A
Site Location	: 360 Gaylord Mountain Road Hamden, CT 06518 (New Haven County) 41.4337, -72.9452
Date	: May 20, 2021
Max Member Stress Level	: 93%
Result	: **PASS**

Prepared by: 05/21/2021

VERTICAL BRIDGE ENGINEERING, LLC

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Table of Contents

Introduction

We have completed our structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the new loads proposed by **Dish Wireless**. The objective of the analysis was to determine if the tower meets the current structural codes and standards with the proposed equipment installation.

Existing Structural Information

The following documents for the existing structure were made available for our structural analysis.

Tower Information	Paul J Ford and Company Tower Drawings Job No. 37700-30 dated February 23, 2001.
Foundation Information	Paul J Ford and Company Foundation Drawings Job No. 37700-30 dated February 23, 2001.
Geotechnical Information	Geotechnical Information was not available at time of analysis.
Existing Equipment Information	Vertical Bridge Collocation Application Version 2.
Tower Reinforcement Information	Tower has not been previously reinforced.

Final Proposed Equipment Loading for Dish Wireless

The following proposed loading was obtained from the Vertical Bridge Collocation Application:

Antenna/Equipment					Coax	
Mount (Ft.)	RAD (Ft.)	Qty.	Antenna	Type	Qty.	Size/Type
210.0	-	**1**	**Sabre C10837002C-32788**	Mount	**1**	**1.75” Hybrid**
	210.0	**1**	**Raycap RDIDC9181-PF-48**	Box		
		6	**Fujitsu TA08025-B605**	Panel		
		3	**JMA MX08FRO665-20_V0F**	Panel		

Note: Proposed equipment shown in bold.
Note: Other existing loading can be found on the tower profile attached.
Note: The remainder of 8,500 Square inches for Dish loading has been considered in this analysis.

Design Criteria

The tower was analyzed using tnxTower (Version 8.0.9.0) tower analysis software using the following design criteria.

State	Connecticut
City / County Building Code	New Haven County (IBC 2018)
TIA/EIA Standard Code	TIA-222-H
Basic Wind Speed	119 MPH (V_{ult})
Basic Wind Speed w/ Ice	50 MPH w/ 1" Ice
Steel Grade	50 ksi Legs / 36 ksi all other members / A325 Bolts
Exposure Category	C
Topographic Category (height)	1 (0.0 Ft.)
Risk Category	II
S_s	0.2
Seismic design Category	B

Analysis Results

Based on the foregoing information, our structural analysis determined that **the existing tower is structurally capable of supporting the proposed equipment loads without modification.** The tower base, inner, and outer anchor foundations have also been evaluated. The foundation reactions as a result of the proposed installation are less than the original design foundation reactions and as such **the existing tower base, inner, and outer anchor foundation are considered to be structurally capable of supporting the proposed equipment loads. A seismic analysis has been performed on this site and is not controlling.**

Assumptions

The below assumptions are true, complete, and accurate.

1. The existing tower has been maintained to manufacturer's specifications and is in good condition.
2. Foundations are considered to have been properly designed for the original design loads.
3. All member connections are considered to have been designed to meet the load carrying capacity of the connected member.
4. Antenna mount loads have been estimated based on generally accepted industry standards.
5. The mounts for the proposed antennas have been analyzed and designed by others.
6. See additional assumptions contained in the report attached.
7. Tower is within acceptable engineering tolerance at 105%
8. Foundations are within acceptable engineering tolerance at 110%.

Conclusions

The existing tower described above **does have sufficient capacity** to support the proposed loading based on the governing Building Code. The tower base, inner, and outer anchor foundations **have also been evaluated and are acceptable**. **A seismic analysis has been performed on this site and is not controlling.**

We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance please call us anytime at 561-948-6367.

Sincerely,

Analysis by:

Thierry Kabore
Design Engineer

Reviewed by:

05/21/2021

Michael T. De Boer, PE
Vice President of Structural Engineering

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but not necessarily limited, to:

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and it components, or relevant information.

- Information from drawings in possession of Vertical Bridge Engineering, LLC, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Vertical Bridge Engineering, LLC and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in a un- corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222-H requested.

All services are performed, results obtained and recommendations made in accordance with the generally accepted engineering principles and practices. Vertical Bridge Engineering LLC, is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Disclaimer of Warranties

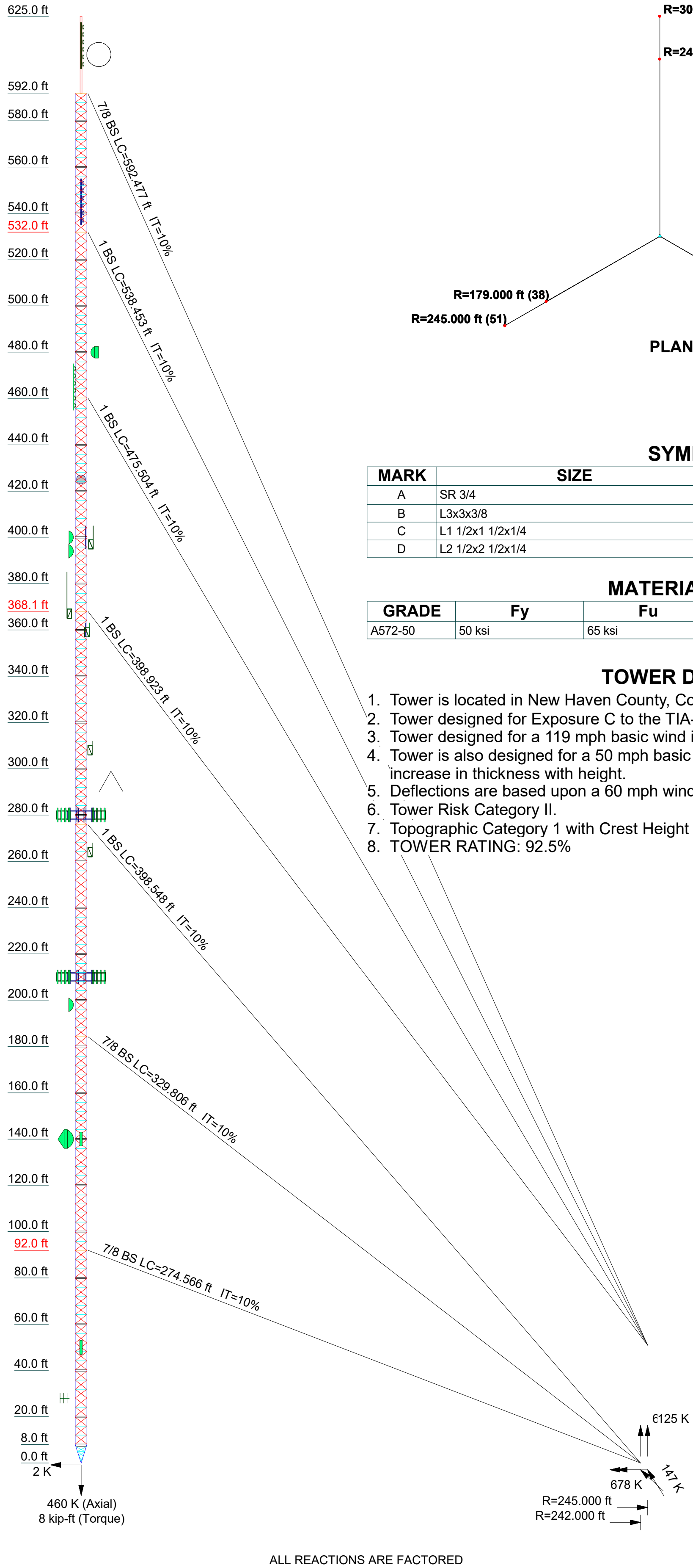
The engineering services by Vertical Bridge Engineering, LLC in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. Vertical Bridge Engineering, LLC does not analyze the fabrication, including welding, except as may be expressly included in this report.

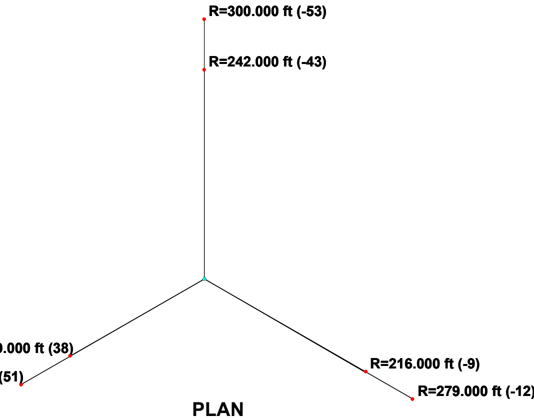
The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines. Any mention of structural modifications are reasonable estimates and should not be used a precise construction document. Precise modification drawings are obtainable from Vertical Bridge Engineering, LLC but are beyond the scope of this report.

Vertical Bridge Engineering, LLC makes no warranties, express or implied, in connection with this report and disclaims any liability arising from material, fabrication and erection of this tower, or installation and compliance with legal and permitting requirements of the proposed equipment. Vertical Bridge Engineering, LLC will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of Vertical Bridge Engineering, LLC pursuant to this report will be limited to the total fee received for preparation of this report.

Attachment 1:
Calculations

Section	Legs	Leg Grade	Diagonals	Diagonal Grade	Top Girts	Bottom Girts	Horizontals	Top Guy Pull-Offs	Face Width (ft)	# Panels @ (ft)	Weight (K)
L1	P10x.365	A572-50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.895833	N.A.	1.3
T1	SR 2 1/4	A572-50	A	A36	N.A.	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	6*1	5	G	1.1
T2	SR 2 1/4	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	1.3
T3	SR 2 1/4	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	1.3
T4	SR 2 1/2	A572-50	SR 3/4	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	6*1	5	140 @ 3.9	1.8
T5	SR 2 1/2	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	1.5
T6	SR 2 1/2	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	1.5
T7	SR 2 3/4	A572-50	SR 3/4	A36	L2 1/2x2 1/2x3/16	N.A.	L2 1/2x2 1/2x3/16	6*1	5	140 @ 3.9	2.0
T8	SR 2 3/4	A572-50	SR 3/4	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	1.8
T9	SR 2 3/4	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	1.7
T10	SR 2 3/4	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	1.7
T11	SR 2 3/4	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	1.7
T12	SR 3	A572-50	SR 7/8	A36	C	D	D	6*1	5	140 @ 3.9	2.4
T13	SR 3	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	1.9
T14	SR 3	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	1.9
T15	SR 3	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	1.9
T16	SR 3 1/4	A572-50	SR 3/4	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	2.3
T17	SR 3 1/4	A572-50	SR 3/4	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	6*1	5	140 @ 3.9	2.5
T18	SR 3 1/4	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	2.2
T19	SR 3 1/4	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	2.2
T20	SR 3 1/4	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	2.2
T21	SR 3 1/4	A572-50	SR 7/8	A36	D	D	D	6*1	5	140 @ 3.9	2.7
T22	SR 3 1/4	A572-50	SR 3/4	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	2.3
T23	SR 3 1/4	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	2.2
T24	SR 3 1/4	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	2.2
T25	SR 3 1/4	A572-50	SR 3/4	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	2.3
T26	SR 3 1/2	A572-50	SR 3/4	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	6*1	5	140 @ 3.9	2.8
T27	SR 3 1/2	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	2.4
T28	SR 3 1/2	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	2.4
T29	SR 3 1/2	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	140 @ 3.9	2.4
T30	SR 3 1/2	A572-50	SR 5/8	A36	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	N.A.	5	G	1.5
T31	SR 3 1/2	A572-50	B	A36	E	F	B	N.A.	5	H	1.5
											62.7





PLAN

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 3/4	E	C3x5
B	L3x3x3/8	F	12x3/8
C	L1 1/2x1 1/2x1/4	G	3 @ 3.83333
D	L2 1/2x2 1/2x1/4	H	4 @ 2.05556

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

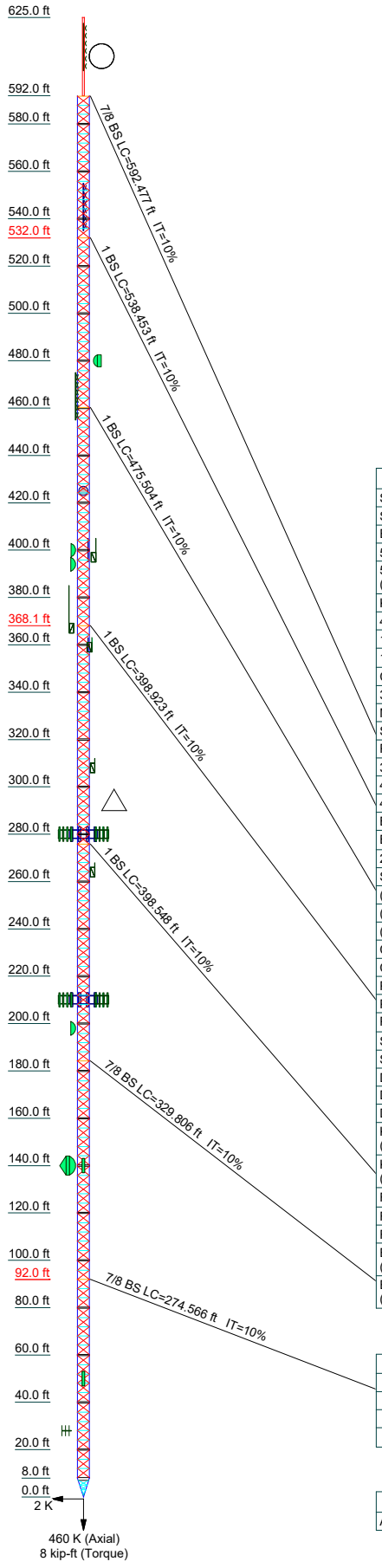
1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 119 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 92.5%

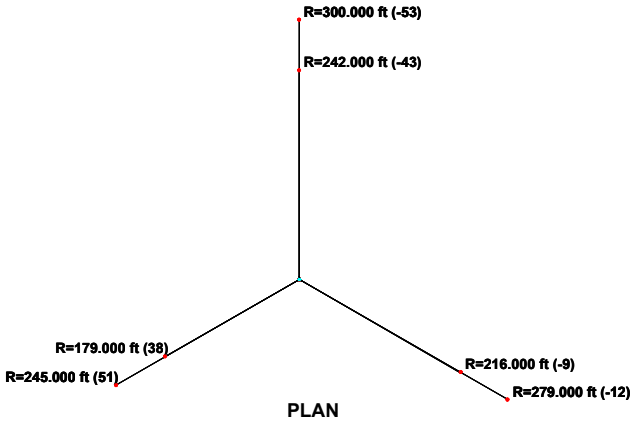
ALL REACTIONS ARE FACTORED

Vertical Bridge Engineering, LLC
750 Park of Commerce Dr. Suite 200
Boca Raton, FL 33487
Phone: 561-948-6367
FAX:

Job: **US-CT-5004**		
Project: **Guyed Tower Structural Analysis**		
Client:	Drawn by: TKabore	App'd:
Code: TIA-222-H	Date: 05/20/21	Scale: NTS
Path: C:\Users\tkabore\OneDrive - Vertical Bridge\Desktop\Tower Work\US-CT-5004 SA-06-10-2020\US-CT-5004 SA-05-20-2021 Dist\US-CT-5004_SA_052021_Dist.eri		Dwg No. E-1

Section		L1	P10x.365	
Legs		T1	SR 3 1/2	
		T2	SR 2 1/4	
		T3	SR 2 1/2	
		T4	SR 3/4	
		T5	SR 2 1/2	
		T6	SR 3/4	
		T7	SR 2 3/4	
		T8	SR 3	
		T9	SR 3 1/4	
Leg Grade		T10	A572-50	
Diagonals	B	T11	SR 5/8	A
Diagonal Grade		T12	A36	N.A.
Top Girts	E	T13	L2 1/2x2 1/2x3/16	C
Bottom Girts	F	T14	L2 1/2x2 1/2x3/16	D
Horizontals	B	T15	L2 1/2x2 1/2x3/16	D
Top Guy Pull-Offs		T16	N.A.	6*1
Face Width (ft)		T17	5	0.895833
# Panels @ (ft)	H	T18	140 @ 3.9	G
Weight (K)	62.7	T19		
		T20		
		T21		
		T22		
		T23		
		T24		
		T25		
		T26		
		T27		
		T28		
		T29		
		T30		
		T31		





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
SHPX-4AC (iHeart Media)	612.5	Ericsson 8843 B2/B66 (14.9x13.2x10.9) (ATI)	280
SHP-2AE (iHeart Media)	545	Ericsson 4449 B5/B12 (17.9x13.2x9.4) (ATI)	280
ERI ALP8L1-HSB-34 (Tyche Media)	540 - 520	Ericsson 4449 B5/B12 (17.9x13.2x9.4) (ATI)	280
5' Stand Off (Tyche Media)	520	Ericsson 4449 B5/B12 (17.9x13.2x9.4) (ATI)	280
5' HP Dish (230lbs 24.77CaAa) (Unknown)	480	Kathrein 800-10964 (59x20x6.9) (ATI)	280
Kathrein 754154 (Office Radio)	465	CCI HPA-65R-BU6AA (71.1x11.7x7.6) (ATI)	280
4' Dish w/o Radome (iHeart Media)	425	CCI HPA-65R-BU6AA (71.1x11.7x7.6) (ATI)	280
14' Omni (iHeart Media)	400	Commscope WCS-IMFQ-AMT-R40 (ATI)	280
14' Omni (Unknown)	400	20"*3" Omni (40lbs) (iHeart Media)	255
CMA-B/6519/E0-8 (Unknown)	400	Sabre C10837002C-32788 (Dish)	210
3' x 4' Side Arm (Unknown)	400	Raycap RDIDC-9181-PF-8 (16x14x8) (Dish)	210
MRC Proscann III (Meridith)	400	(2) Fujitsu TA08025-B605 (14.96x15.75x9.06) (Dish)	210
Scala PR450 (iHeart Media)	394	(2) Fujitsu TA08025-B605 (14.96x15.75x9.06) (Dish)	210
PD220 (MCLM)	375	(2) Fujitsu TA08025-B605 (14.96x15.75x9.06) (Dish)	210
3' Stand-off (MCLM)	375	JMA MX08FR0665-20 (72x20x8) (Dish)	210
4' Omni (Unknown)	360	JMA MX08FR0665-20 (72x20x8) (Dish)	210
4' Omni (Unknown)	360	JMA MX08FR0665-20 (72x20x8) (Dish)	210
Beacon (10lbs 0.5CaAa) (Tower)	310	1/3 Dish Reserved Right (Dish)	210
Beacon (10lbs 0.5CaAa) (Tower)	310	1/3 Dish Reserved Right (Dish)	210
20"*3" Omni (40lbs) (iHeart Media)	299	1/3 Dish Reserved Right (Dish)	210
Sabre C10857001C-MC (ATI)	280	3' Side Arm (Unknown)	198
(2) LGP21401 (ATI)	280	Scala PR450 (iHeart Media)	198
(2) LGP21401 (ATI)	280	Beacon (10lbs 0.5CaAa) (Tower)	159
(2) LGP21401 (ATI)	280	Beacon (10lbs 0.5CaAa) (Tower)	159
CCI HPA-65R-BUU-H6 (ATI)	280	Beacon (10lbs 0.5CaAa) (Tower)	159
CCI HPA-65R-BUU-H6 (ATI)	280	8' Dish w/ Radome (Meridith)	140
Powerwave 7770 (55x11x5) (ATI)	280	Pelco Camera (Meridith)	140
Powerwave 7770 (55x11x5) (ATI)	280	AWS (Earth Network)	50
Powerwave 7770 (55x11x5) (ATI)	280	Scala FM10 yagi (Office Radio)	28
SBNHH-1D65A w/ Mount Pipe (ATI)	280		
SBNHH-1D65A w/ Mount Pipe (ATI)	280		
DC6-48-60-18-8C (ATI)	280		
DC6-48-60-18-8C (ATI)	280		
DC6-48-60-18-8C (ATI)	280		
Kathrein 800-10965K (78.7x20x6.9) (ATI)	280		
Kathrein 800-10965K (78.7x20x6.9) (ATI)	280		
RRUS 32 (ATI)	280		
RRUS 32 (ATI)	280		
RRUS 32 (ATI)	280		
Ericsson 8843 B2/B66 (14.9x13.2x10.9) (ATI)	280		
Ericsson 8843 B2/B66 (14.9x13.2x10.9) (ATI)	280		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 3/4	E	C3x5
B	L3x3x3/8	F	12x3/8
C	L1 1/2x1 1/2x1/4	G	3 @ 3.83333
D	L2 1/2x2 1/2x1/4	H	4 @ 2.05556

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

R=242.000 ft

TOWER DESIGN NOTES

ALL REACTIONS

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 119 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to

Vertical Bridge Engineering, LLC
750 Park of Commerce Dr. Suite 200
Boca Raton, FL 33487
Phone: 561-948-6367
FAX:

Job: *US-CT-5004*		
Project: *Guyed Tower Structural Analysis*		
Client:	Drawn by: TKabore	App'd:
Code: TIA-222-H	Date: 05/20/21	Scale: NTS
Path:		Dwg No. E-1

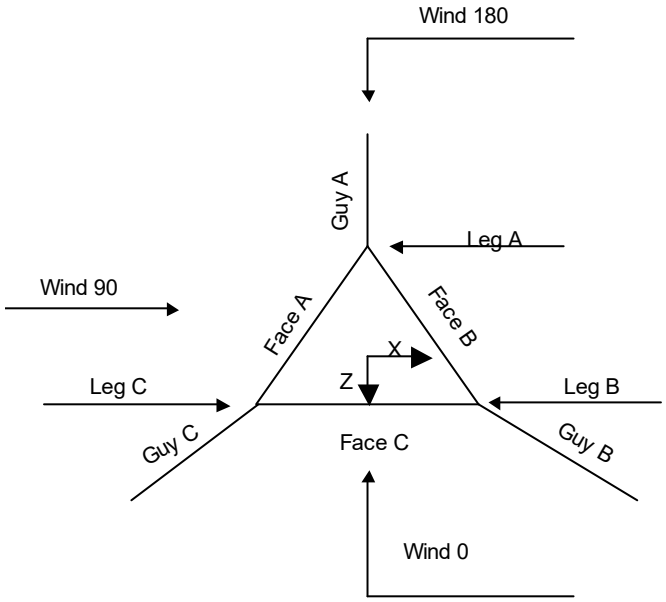
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 625.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 5.000 ft at the top and tapered at the base.
An index plate is provided at the 3x guyed -tower connection.
There is a pole section.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 637.000 ft.
Basic wind speed of 119 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
Tension only take-up is 0.0313 in.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Stress ratio used in tower member design is 1.
Safety factor used in guy design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Corner & Starmount Guyed Tower

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	625.000-592.000	33.000	P10x.365	A572-50 (50 ksi)	

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 625.000-592.000				1	1	1			

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	592.000-580.000			5.000	1	12.000
T2	580.000-560.000			5.000	1	20.000
T3	560.000-540.000			5.000	1	20.000
T4	540.000-520.000			5.000	1	20.000
T5	520.000-500.000			5.000	1	20.000
T6	500.000-480.000			5.000	1	20.000
T7	480.000-460.000			5.000	1	20.000
T8	460.000-440.000			5.000	1	20.000
T9	440.000-420.000			5.000	1	20.000
T10	420.000-400.000			5.000	1	20.000
T11	400.000-380.000			5.000	1	20.000
T12	380.000-360.000			5.000	1	20.000
T13	360.000-340.000			5.000	1	20.000
T14	340.000-320.000			5.000	1	20.000
T15	320.000-300.000			5.000	1	20.000
T16	300.000-280.000			5.000	1	20.000
T17	280.000-260.000			5.000	1	20.000
T18	260.000-240.000			5.000	1	20.000
T19	240.000-220.000			5.000	1	20.000
T20	220.000-200.000			5.000	1	20.000
T21	200.000-180.000			5.000	1	20.000
T22	180.000-160.000			5.000	1	20.000
T23	160.000-140.000			5.000	1	20.000
T24	140.000-120.000			5.000	1	20.000
T25	120.000-100.000			5.000	1	20.000
T26	100.000-80.000			5.000	1	20.000
T27	80.000-60.000			5.000	1	20.000
T28	60.000-40.000			5.000	1	20.000
T29	40.000-20.000			5.000	1	20.000
T30	20.000-8.000			5.000	1	12.000
T31	8.000-0.000			5.000	1	8.000

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	592.000-580.000	3.833	TX Brace	No	Yes	3.0000	3.0000
T2	580.000-560.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T3	560.000-540.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T4	540.000-520.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T5	520.000-500.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T6	500.000-480.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T7	480.000-460.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T8	460.000-440.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T9	440.000-420.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T10	420.000-400.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T11	400.000-380.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T12	380.000-360.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T13	360.000-340.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T14	340.000-320.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T15	320.000-300.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T16	300.000-280.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T17	280.000-260.000	3.900	TX Brace	No	Yes	3.0000	3.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T18	260.000-240.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T19	240.000-220.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T20	220.000-200.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T21	200.000-180.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T22	180.000-160.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T23	160.000-140.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T24	140.000-120.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T25	120.000-100.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T26	100.000-80.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T27	80.000-60.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T28	60.000-40.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T29	40.000-20.000	3.900	TX Brace	No	Yes	3.0000	3.0000
T30	20.000-8.000	3.833	TX Brace	No	Yes	3.0000	3.0000
T31	8.000-0.000	2.056	X Brace	No	Yes	11.0000	11.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 592.000-580.000	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T2 580.000-560.000	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T3 560.000-540.000	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T4 540.000-520.000	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T5 520.000-500.000	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T6 500.000-480.000	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T7 480.000-460.000	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T8 460.000-440.000	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T9 440.000-420.000	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T10 420.000-400.000	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T11 400.000-380.000	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T12 380.000-360.000	Solid Round	3	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T13 360.000-340.000	Solid Round	3	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T14 340.000-320.000	Solid Round	3	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T15 320.000-300.000	Solid Round	3	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T16 300.000-280.000	Solid Round	3 1/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T17 280.000-260.000	Solid Round	3 1/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T18 260.000-240.000	Solid Round	3 1/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T19	Solid Round	3 1/4	A572-50	Solid Round	5/8	A36

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
240.000-220.000			(50 ksi)			(36 ksi)
T20	Solid Round	3 1/4	A572-50	Solid Round	5/8	A36
220.000-200.000			(50 ksi)			(36 ksi)
T21	Solid Round	3 1/4	A572-50	Solid Round	7/8	A36
200.000-180.000			(50 ksi)			(36 ksi)
T22	Solid Round	3 1/4	A572-50	Solid Round	3/4	A36
180.000-160.000			(50 ksi)			(36 ksi)
T23	Solid Round	3 1/4	A572-50	Solid Round	5/8	A36
160.000-140.000			(50 ksi)			(36 ksi)
T24	Solid Round	3 1/4	A572-50	Solid Round	5/8	A36
140.000-120.000			(50 ksi)			(36 ksi)
T25	Solid Round	3 1/4	A572-50	Solid Round	3/4	A36
120.000-100.000			(50 ksi)			(36 ksi)
T26	Solid Round	3 1/2	A572-50	Solid Round	3/4	A36
100.000-80.000			(50 ksi)			(36 ksi)
T27	Solid Round	3 1/2	A572-50	Solid Round	5/8	A36
80.000-60.000			(50 ksi)			(36 ksi)
T28	Solid Round	3 1/2	A572-50	Solid Round	5/8	A36
60.000-40.000			(50 ksi)			(36 ksi)
T29	Solid Round	3 1/2	A572-50	Solid Round	5/8	A36
40.000-20.000			(50 ksi)			(36 ksi)
T30 20.000-8.000	Solid Round	3 1/2	A572-50	Solid Round	5/8	A36
			(50 ksi)			(36 ksi)
T31 8.000-0.000	Solid Round	3 1/2	A572-50	Single Angle	L3x3x3/8	A36
			(50 ksi)			(36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
592.000-580.000			(36 ksi)			(36 ksi)
T2	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
580.000-560.000			(36 ksi)			(36 ksi)
T3	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
560.000-540.000			(36 ksi)			(36 ksi)
T4	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
540.000-520.000			(36 ksi)			(36 ksi)
T5	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
520.000-500.000			(36 ksi)			(36 ksi)
T6	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
500.000-480.000			(36 ksi)			(36 ksi)
T7	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
480.000-460.000			(36 ksi)			(36 ksi)
T8	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
460.000-440.000			(36 ksi)			(36 ksi)
T9	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
440.000-420.000			(36 ksi)			(36 ksi)
T10	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
420.000-400.000			(36 ksi)			(36 ksi)
T11	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
400.000-380.000			(36 ksi)			(36 ksi)
T12	Equal Angle	L1 1/2x1 1/2x1/4	A36	Equal Angle	L2 1/2x2 1/2x1/4	A36
380.000-360.000			(36 ksi)			(36 ksi)
T13	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
360.000-340.000			(36 ksi)			(36 ksi)
T14	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
340.000-320.000			(36 ksi)			(36 ksi)
T15	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
320.000-300.000			(36 ksi)			(36 ksi)
T16	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
300.000-280.000			(36 ksi)			(36 ksi)
T17	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
280.000-260.000			(36 ksi)			(36 ksi)
T18	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
260.000-240.000			(36 ksi)			(36 ksi)
T19	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
240.000-220.000			(36 ksi)			(36 ksi)
T20	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
220.000-200.000			(36 ksi)			(36 ksi)
T21	Equal Angle	L2 1/2x2 1/2x1/4	A36	Equal Angle	L2 1/2x2 1/2x1/4	A36
200.000-180.000			(36 ksi)			(36 ksi)
T22	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
180.000-160.000			(36 ksi)			(36 ksi)
T23	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
160.000-140.000			(36 ksi)			(36 ksi)
T24	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
140.000-120.000			(36 ksi)			(36 ksi)
T25	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
120.000-100.000			(36 ksi)			(36 ksi)
T26	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
100.000-80.000			(36 ksi)			(36 ksi)
T27	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
80.000-60.000			(36 ksi)			(36 ksi)
T28	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
60.000-40.000			(36 ksi)			(36 ksi)
T29	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
40.000-20.000			(36 ksi)			(36 ksi)
T30 20.000-8.000	Equal Angle	L2 1/2x2 1/2x3/16	A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
			(36 ksi)			(36 ksi)
T31 8.000-0.000	Channel	C3x5	A36	Flat Bar	12x3/8	A36
			(36 ksi)			(36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1	None	Flat Bar		A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
592.000-580.000				(36 ksi)			(36 ksi)
T2	None	Flat Bar		A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
580.000-560.000				(36 ksi)			(36 ksi)
T3	None	Flat Bar		A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
560.000-540.000				(36 ksi)			(36 ksi)
T4	None	Flat Bar		A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
540.000-520.000				(36 ksi)			(36 ksi)
T5	None	Flat Bar		A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
520.000-500.000				(36 ksi)			(36 ksi)
T6	None	Flat Bar		A36	Equal Angle	L2 1/2x2 1/2x3/16	A36
500.000-480.000				(36 ksi)			(36 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T7 480.000-460.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T8 460.000-440.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T9 440.000-420.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T10 420.000-400.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T11 400.000-380.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T12 380.000-360.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T13 360.000-340.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T14 340.000-320.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T15 320.000-300.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T16 300.000-280.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T17 280.000-260.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T18 260.000-240.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T19 240.000-220.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T20 220.000-200.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T21 200.000-180.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T22 180.000-160.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T23 160.000-140.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T24 140.000-120.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T25 120.000-100.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T26 100.000-80.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T27 80.000-60.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T28 60.000-40.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T29 40.000-20.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T30 20.000-8.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T31 8.000-0.000	None	Flat Bar		A36 (36 ksi)	Equal Angle	L3x3x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

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
T1 592.000-580.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 580.000-560.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 560.000-540.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 540.000-520.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 520.000-500.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 500.000-480.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 480.000-460.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 460.000-440.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 440.000-420.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 420.000-400.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T11 400.000-380.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T12 380.000-360.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T13 360.000-340.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T14 340.000-320.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T15 320.000-300.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T16 300.000-280.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T17 280.000-260.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T18 260.000-240.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T19 240.000-220.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T20 220.000-200.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	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
00									
T21 200.000-180.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T22 180.000-160.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T23 160.000-140.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T24 140.000-120.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T25 120.000-100.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T26 100.000-80.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T27 80.000-60.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T28 60.000-40.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T29 40.000-20.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T30 20.000-8.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T31 8.000-0.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X X Brace Diags Y	K Brace Diags X K Brace Diags Y	Single Diags X Single Diags Y	Girts X Girts Y	Horiz. X Horiz. Y	Sec. Horiz. X Sec. Horiz. Y	Inner Brace X Inner Brace Y
T1 592.000-580.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 580.000-560.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 560.000-540.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 540.000-520.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 520.000-500.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 500.000-480.0	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	K Factors[1]							
			Legs	X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X	X	X	X	X	X	X
ft				Y	Y	Y	Y	Y	Y	Y
00										
T7	Yes	Yes	1	1	1	1	1	1	1	1
480.000-460.000				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
460.000-440.000				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1
440.000-420.000				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
420.000-400.000				1	1	1	1	1	1	1
T11	Yes	Yes	1	1	1	1	1	1	1	1
400.000-380.000				1	1	1	1	1	1	1
T12	Yes	Yes	1	1	1	1	1	1	1	1
380.000-360.000				1	1	1	1	1	1	1
T13	Yes	Yes	1	1	1	1	1	1	1	1
360.000-340.000				1	1	1	1	1	1	1
T14	Yes	Yes	1	1	1	1	1	1	1	1
340.000-320.000				1	1	1	1	1	1	1
T15	Yes	Yes	1	1	1	1	1	1	1	1
320.000-300.000				1	1	1	1	1	1	1
T16	Yes	Yes	1	1	1	1	1	1	1	1
300.000-280.000				1	1	1	1	1	1	1
T17	Yes	Yes	1	1	1	1	1	1	1	1
280.000-260.000				1	1	1	1	1	1	1
T18	Yes	Yes	1	1	1	1	1	1	1	1
260.000-240.000				1	1	1	1	1	1	1
T19	Yes	Yes	1	1	1	1	1	1	1	1
240.000-220.000				1	1	1	1	1	1	1
T20	Yes	Yes	1	1	1	1	1	1	1	1
220.000-200.000				1	1	1	1	1	1	1
T21	Yes	Yes	1	1	1	1	1	1	1	1
200.000-180.000				1	1	1	1	1	1	1
T22	Yes	Yes	1	1	1	1	1	1	1	1
180.000-160.000				1	1	1	1	1	1	1
T23	Yes	Yes	1	1	1	1	1	1	1	1
160.000-140.000				1	1	1	1	1	1	1
T24	Yes	Yes	1	1	1	1	1	1	1	1
140.000-120.000				1	1	1	1	1	1	1
T25	Yes	Yes	1	1	1	1	1	1	1	1
120.000-100.000				1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Brace Diags X	K Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T26	Yes	Yes	1	1		1		1		1		1		1		1	
100.000-80.000				1		1		1		1		1		1		1	
T27	Yes	Yes	1	1		1		1		1		1		1		1	
80.000-60.000				1		1		1		1		1		1		1	
T28	Yes	Yes	1	1		1		1		1		1		1		1	
60.000-40.000				1		1		1		1		1		1		1	
T29	Yes	Yes	1	1		1		1		1		1		1		1	
40.000-20.000				1		1		1		1		1		1		1	
T30	Yes	Yes	1	1		1		1		1		1		1		1	
20.000-8.000				1		1		1		1		1		1		1	
T31	Yes	Yes	1	1		1		1		1		1		1		1	
8.000-0.000				1		1		1		1		1		1		1	

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
592.000-580.000														
T2	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
580.000-560.000														
T3	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
560.000-540.000														
T4	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
540.000-520.000														
T5	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
520.000-500.000														
T6	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
500.000-480.000														
T7	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
480.000-460.000														
T8	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
460.000-440.000														
T9	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
440.000-420.000														

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T10 420.000-400.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 400.000-380.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 380.000-360.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 360.000-340.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 340.000-320.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 320.000-300.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 300.000-280.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T17 280.000-260.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T18 260.000-240.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T19 240.000-220.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T20 220.000-200.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T21 200.000-180.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T22 180.000-160.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T23 160.000-140.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T24 140.000-120.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T25 120.000-100.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T26 100.000-80.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T27 80.000-60.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T28 60.000-40.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T29 40.000-20.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T30 20.000-8.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T31 8.000-0.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 592.000-580.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 580.000-560.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 560.000-540.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 540.000-520.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 520.000-500.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 500.000-480.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 480.000-460.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 460.000-440.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 440.000-420.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 420.000-400.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 400.000-380.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 380.000-360.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 360.000-340.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 340.000-320.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T15 320.000-300.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 300.000-280.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T17 280.000-260.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T18 260.000-240.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T19 240.000-220.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T20 220.000-200.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T21 200.000-180.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T22 180.000-160.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T23 160.000-140.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T24 140.000-120.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T25 120.000-100.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T26 100.000-80.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T27 80.000-60.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T28 60.000-40.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T29 40.000-20.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T30 20.000-8.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T31 8.000-0.000	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 592.000-580.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 580.000-560.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 560.000-540.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 540.000-520.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 520.000-500.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 500.000-480.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 480.000-460.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 460.000-440.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 440.000-420.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 420.000-400.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 400.000-380.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T12 380.000-360.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T13 360.000-340.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T14 340.000-320.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T15 320.000-300.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T16 300.000-280.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T17 280.000-260.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T18 260.000-240.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T19 240.000-220.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T20 220.000-200.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T21 200.000-180.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T22 180.000-160.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T23 160.000-140.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T24 140.000-120.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T25 120.000-100.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T26 100.000-80.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T27 80.000-60.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T28 60.000-40.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T29 40.000-20.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T30 20.000-8.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T31 8.000-0.000	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
591.75	BS	A	7/8	9.200	10%	24000.000	1.610	709.361	300.000	0.0000	-53.000	100%
		B	7/8	9.200	10%	24000.000	1.610	663.367	279.000	0.0000	-12.000	100%
		C	7/8	9.200	10%	24000.000	1.610	592.000	245.000	0.0000	51.000	100%
531.95	BS	A	1	12.200	10%	24000.000	2.100	655.563	300.000	0.0000	-53.000	100%
		B	1	12.200	10%	24000.000	2.100	609.528	279.000	0.0000	-12.000	100%
		C	1	12.200	10%	24000.000	2.100	538.014	245.000	0.0000	51.000	100%
460.25	BS	A	1	12.200	10%	24000.000	2.100	592.580	300.000	0.0000	-53.000	100%
		B	1	12.200	10%	24000.000	2.100	546.611	279.000	0.0000	-12.000	100%
		C	1	12.200	10%	24000.000	2.100	475.120	245.000	0.0000	51.000	100%
368.05	BS	A	1	12.200	10%	24000.000	2.100	514.925	300.000	0.0000	-53.000	100%
		B	1	12.200	10%	24000.000	2.100	469.393	279.000	0.0000	-12.000	100%
		C	1	12.200	10%	24000.000	2.100	398.603	245.000	0.0000	51.000	100%
275.85	BS	A	1	12.200	10%	24000.000	2.100	398.228	242.000	0.0000	-43.000	100%
		B	1	12.200	10%	24000.000	2.100	355.459	216.000	0.0000	-9.000	100%
		C	1	12.200	10%	24000.000	2.100	295.709	179.000	0.0000	38.000	100%

184.15	BS	A	7/8	9.200	10%	24000.000	1.610	329.549	242.000	0.0000	-43.000	100%
		B	7/8	9.200	10%	24000.000	1.610	287.390	216.000	0.0000	-9.000	100%
		C	7/8	9.200	10%	24000.000	1.610	228.673	179.000	0.0000	38.000	100%
91.95	BS	A	7/8	9.200	10%	24000.000	1.610	274.354	242.000	0.0000	-43.000	100%
		B	7/8	9.200	10%	24000.000	1.610	235.629	216.000	0.0000	-9.000	100%
		C	7/8	9.200	10%	24000.000	1.610	184.044	179.000	0.0000	38.000	100%

Guy Data*(cont'd)*

Guy Elevation ft	*Mount Type*	*Torque-Arm Spread ft*	*Torque-Arm Leg Angle °*	*Torque-Arm Style*	*Torque-Arm Grade*	*Torque-Arm Type*	*Torque-Arm Size*
591.75	Corner						
531.95	Corner						
460.25	Corner						
368.05	Corner						
275.85	Corner						
184.15	Corner						
91.95	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	*Diagonal Grade*	*Diagonal Type*	*Upper Diagonal Size*	*Lower Diagonal Size*	*Is Strap.*	*Pull-Off Grade*	*Pull-Off Type*	*Pull-Off Size*
591.750	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	6*1
531.950	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	6*1
460.250	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	6*1
368.050	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	6*1
275.850	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	6*1
184.150	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	6*1
91.950	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	6*1

Guy Data *(cont'd)*

Guy Elevation ft	*Cable Weight A K*	*Cable Weight B K*	*Cable Weight C K*	*Cable Weight D K*	*Tower Intercept A ft*	*Tower Intercept B ft*	*Tower Intercept C ft*	*Tower Intercept D ft*
591.75	1.142	1.068	0.953		41.726 11.2 sec/pulse	36.613 10.4 sec/pulse	29.311 9.3 sec/pulse	
531.95	1.377	1.280	1.130		35.255	30.579	23.948	

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
					10.3 sec/pulse	9.5 sec/pulse	8.4 sec/pulse	
460.25	1.244	1.148	0.998		28.976	24.738	18.787	
					9.3 sec/pulse	8.6 sec/pulse	7.5 sec/pulse	
368.05	1.081	0.986	0.837		22.047	18.382	13.325	
					8.1 sec/pulse	7.4 sec/pulse	6.3 sec/pulse	
275.85	0.836	0.746	0.621		13.298	10.625	7.382	
					6.3 sec/pulse	5.6 sec/pulse	4.7 sec/pulse	
184.15	0.531	0.463	0.368		9.327	7.114	4.522	
					5.3 sec/pulse	4.6 sec/pulse	3.7 sec/pulse	
91.95	0.442	0.379	0.296		6.516	4.820	2.953	
					4.4 sec/pulse	3.8 sec/pulse	3.0 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
591.75	No	No			1	1	1	1
531.95	No	No			1	1	1	1
460.25	No	No			1	1	1	1
368.05	No	No			1	1	1	1
275.85	No	No			1	1	1	1
184.15	No	No			1	1	1	1
91.95	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
591.75	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
531.95	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
460.25	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
368.05	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
275.85	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
184.15	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
91.95	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
591.75	A	269.375	0.047	0.008	1.2336
	B	289.875	0.048	0.008	1.2427
	C	321.375	0.049	0.009	1.2556
531.95	A	239.475	0.046	0.008	1.2192
	B	259.975	0.047	0.008	1.2293
	C	291.475	0.048	0.008	1.2434
460.25	A	203.625	0.044	0.008	1.1996
	B	224.125	0.045	0.008	1.2111
	C	255.625	0.046	0.008	1.2272
368.05	A	157.525	0.042	0.007	1.1692
	B	178.025	0.043	0.008	1.1836
	C	209.525	0.045	0.008	1.2030
275.85	A	116.425	0.039	0.007	1.1344
	B	133.425	0.040	0.007	1.1499
	C	156.925	0.042	0.007	1.1687
184.15	A	70.575	0.035	0.006	1.0790
	B	87.575	0.037	0.007	1.1025
	C	111.075	0.039	0.007	1.1290
91.95	A	24.475	0.028	0.005	0.9706
	B	41.475	0.032	0.006	1.0231
	C	64.975	0.035	0.006	1.0701

Guy-Tensioning Information

				Temperature At Time Of Tensioning													
				0 F		20 F		40 F		60 F		80 F		100 F		120 F	
Guy Elevation ft		H ft	V ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft
591.75	A	297.11	644.75	9.824	39.19	9.613	40.01	9.406	40.86	9.200	41.73	8.997	42.62	8.796	43.55	8.599	44.50
	B	276.11	603.75	9.830	34.36	9.618	35.09	9.408	35.84	9.200	36.61	8.994	37.41	8.791	38.24	8.591	39.09
	C	242.11	540.75	9.830	27.50	9.618	28.08	9.408	28.69	9.200	29.31	8.994	29.96	8.790	30.62	8.587	31.31
531.95	A	297.11	584.95	13.162	32.78	12.837	33.57	12.517	34.40	12.200	35.26	11.888	36.14	11.580	37.06	11.277	38.01
	B	276.11	543.95	13.190	28.37	12.859	29.07	12.524	29.82	12.200	30.58	11.880	31.37	11.565	32.19	11.254	33.04
	C	242.11	480.95	13.202	22.19	12.865	22.75	12.531	23.34	12.200	23.95	11.873	24.58	11.549	25.25	11.230	25.94
460.25	A	297.11	513.25	13.378	26.51	12.980	27.30	12.587	28.12	12.200	28.98	11.820	29.87	11.447	30.81	11.081	31.78
	B	276.11	472.25	13.423	22.56	13.009	23.25	12.602	23.98	12.200	24.74	11.805	25.54	11.416	26.37	11.035	27.25
	C	242.11	409.25	13.487	17.04	13.053	17.59	12.624	18.17	12.200	18.79	11.782	19.43	11.370	20.11	10.965	20.83
368.05	A	297.11	421.05	13.765	19.61	13.233	20.37	12.711	21.19	12.200	22.05	11.700	22.96	11.213	23.92	10.739	24.94
	B	276.11	380.05	13.864	16.23	13.299	16.90	12.744	17.62	12.200	18.38	11.667	19.20	11.148	20.06	10.643	20.98
	C	242.11	317.05	14.036	11.62	13.414	12.14	12.802	12.71	12.200	13.33	11.610	13.99	11.033	14.70	10.471	15.46
275.85	A	239.11	318.85	13.998	11.62	13.390	12.14	12.790	12.70	12.200	13.30	11.621	13.94	11.055	14.64	10.503	15.39
	B	213.11	284.85	14.034	9.26	13.415	9.68	12.803	10.13	12.200	10.62	11.606	11.16	11.023	11.73	10.453	12.36
	C	176.11	237.85	14.063	6.42	13.437	6.71	12.815	7.03	12.200	7.38	11.592	7.76	10.993	8.18	10.403	8.63
184.15	A	239.11	227.15	11.217	7.67	10.531	8.17	9.858	8.71	9.200	9.33	8.562	10.01	7.947	10.77	7.360	11.61
	B	213.11	193.15	11.352	5.78	10.622	6.17	9.904	6.62	9.200	7.11	8.515	7.68	7.852	8.31	7.217	9.03
	C	176.11	146.15	11.592	3.60	10.784	3.86	9.985	4.17	9.200	4.52	8.431	4.93	7.684	5.40	6.965	5.95
91.95	A	239.11	134.95	12.131	4.95	11.128	5.40	10.149	5.91	9.200	6.52	8.292	7.22	7.436	8.04	6.646	8.98
	B	213.11	100.95	12.431	3.57	11.330	3.92	10.250	4.33	9.200	4.82	8.192	5.41	7.240	6.11	6.363	6.95
	C	176.11	53.95	12.921	2.10	11.660	2.33	10.417	2.61	9.200	2.95	8.024	3.38	6.908	3.93	5.884	4.61

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
3" Coax	C	No	No	Ar (CaAa)	590.000 -	0.5000	0	1	1	0.0000	3.0100		0.002

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
(iHeart Media) 3" Coax	A	No	No	Ar (CaAa)	8.000 550.000 - 8.000	0.5000	0.25	1	1	0.0000	3.0100		0.002
(iHeart Media) 5/8" Coax	A	No	No	Ar (CaAa)	225.000 - 8.000	0.5000	0.19	1	1	0.0000	0.7700		0.001
(Unknown) LDF5-50A (7/8" FOAM)	A	No	No	Ar (CaAa)	198.000 - 8.000	0.5000	0.16	3	3	0.0000	0.8750		0.000
(iHeart Media) LDF5-50A (7/8" FOAM)	A	No	No	Ar (CaAa)	400.000 - 198.000	0.5000	0.16	2	2	0.0000	0.8750		0.000
(iHeart Media) LDF5-50A (7/8" FOAM)	A	No	No	Ar (CaAa)	395.000 - 8.000	0.5000	0.13	1	1	0.0000	0.8750		0.000
(Unknown) LDF5-50A (7/8" FOAM)	A	No	No	Ar (CaAa)	353.000 - 8.000	0.5000	0.1	1	1	0.0000	0.8750		0.000
(Unknown) LDF5-50A (7/8" FOAM)	A	No	No	Ar (CaAa)	348.000 - 8.000	0.5000	0.07	1	1	0.0000	0.8750		0.000
(Unknown) LDF5-50A (7/8" FOAM)	A	No	No	Ar (CaAa)	300.000 - 8.000	0.5000	0.16	1	1	0.0000	0.8750		0.000
(Unknown) LDF5-50A (7/8" FOAM)	A	No	No	Ar (CaAa)	250.000 - 8.000	0.5000	0.35	1	1	0.0000	0.8750		0.000
(Unknown) LDF5-50A (7/8" FOAM)	A	No	No	Ar (CaAa)	200.000 - 8.000	0.5000	0.37	1	1	0.0000	0.8750		0.000
(Unknown) CAT5-E (1/4")	B	No	No	Ar (CaAa)	592.000 - 8.000	0.0000	0.48	12	4	0.0000	0.2500		0.000
(Unknown) LDF4-50A(1/2") Synflex Tubing (Earth Network)	C	No	No	Ar (CaAa)	50.000 - 8.000	0.0000	-0.2	3	3	0.0000	0.6300		0.000
LDF7-50A(1-5/8") (Meridith)	C	No	No	Ar (CaAa)	140.000 - 8.000	0.0000	-0.3	2	2	0.0000	1.9800		0.001
CAT6-Shielded Cable (Meridith)	C	No	No	Ar (CaAa)	140.000 - 8.000	0.0000	-0.35	1	1	0.0000	0.2500		0.000
LDF7-50A(1-5/8") (Meridith)	C	No	No	Ar (CaAa)	400.000 - 140.000	0.0000	-0.4	1	1	0.0000	1.9800		0.001
LDF5-50A(7/8") (MCLM)	C	No	No	Ar (CaAa)	375.000 - 8.000	0.0000	-0.45	1	1	0.0000	1.0900		0.000
LDF5-50A(7/8") (Office Radio)	B	No	No	Ar (CaAa)	465.000 - 8.000	0.0000	-0.2	1	1	0.0000	1.0900		0.000
LDF2-50A(3/8") (Office Radio)	B	No	No	Ar (CaAa)	28.000 - 8.000	0.0000	-0.25	1	1	0.0000	0.4400		0.000
4" Flex (Tyche)	B	No	No	Ar (CaAa)	520.000 - 8.000	0.0000	-0.35	1	1	0.0000	4.0000		0.000
LDF7-50A (1 5/8 FOAM) (AT&T)	C	No	No	Ar (CaAa)	280.000 - 8.000	0.5000	0.35	6	6	0.0000	1.9800		0.001
LDF2-50A(3/	C	No	No	Ar (CaAa)	280.000 -	0.5000	0.4	2	2	0.0000	0.4400		0.000

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
8") Fiber (AT&T)					8.000								
3/4" DC Power Cable (AT&T) ***	C	No	No	Ar (CaAa)	280.000 - 8.000	0.5000	0.45	6	6	0.0000	0.7950		0.001
1.75 Hybrid	C	No	No	Ar (CaAa)	210.000 - 8.000	0.0000	0.1	1	1	1.9800	1.9800		0.001

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	625.000-592.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
T1	592.000-580.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	3.600	0.000	0.000
		C	0.000	0.000	2.936	0.000	0.018
T2	580.000-560.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	6.000	0.000	0.000
		C	0.000	0.000	5.889	0.000	0.036
T3	560.000-540.000	A	0.000	0.000	2.958	0.000	0.018
		B	0.000	0.000	6.000	0.000	0.000
		C	0.000	0.000	5.911	0.000	0.036
T4	540.000-520.000	A	0.000	0.000	5.934	0.000	0.036
		B	0.000	0.000	6.000	0.000	0.000
		C	0.000	0.000	5.934	0.000	0.036
T5	520.000-500.000	A	0.000	0.000	5.958	0.000	0.036
		B	0.000	0.000	11.958	0.000	0.000
		C	0.000	0.000	5.958	0.000	0.036
T6	500.000-480.000	A	0.000	0.000	5.983	0.000	0.036
		B	0.000	0.000	11.983	0.000	0.000
		C	0.000	0.000	5.983	0.000	0.036
T7	480.000-460.000	A	0.000	0.000	6.009	0.000	0.036
		B	0.000	0.000	12.554	0.000	0.002
		C	0.000	0.000	6.009	0.000	0.036
T8	460.000-440.000	A	0.000	0.000	6.020	0.000	0.036
		B	0.000	0.000	14.217	0.000	0.007
		C	0.000	0.000	6.020	0.000	0.036
T9	440.000-420.000	A	0.000	0.000	6.020	0.000	0.036
		B	0.000	0.000	14.246	0.000	0.007
		C	0.000	0.000	6.020	0.000	0.036
T10	420.000-400.000	A	0.000	0.000	6.020	0.000	0.036
		B	0.000	0.000	14.277	0.000	0.007
		C	0.000	0.000	6.020	0.000	0.036
T11	400.000-380.000	A	0.000	0.000	10.833	0.000	0.054
		B	0.000	0.000	14.309	0.000	0.007
		C	0.000	0.000	9.980	0.000	0.052
T12	380.000-360.000	A	0.000	0.000	11.270	0.000	0.055
		B	0.000	0.000	14.343	0.000	0.007
		C	0.000	0.000	11.615	0.000	0.057
T13	360.000-340.000	A	0.000	0.000	13.108	0.000	0.062
		B	0.000	0.000	14.379	0.000	0.007
		C	0.000	0.000	12.160	0.000	0.059

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
T14	340.000-320.000	A	0.000	0.000	14.770	0.000	0.069
		B	0.000	0.000	14.417	0.000	0.007
		C	0.000	0.000	12.160	0.000	0.059
T15	320.000-300.000	A	0.000	0.000	14.770	0.000	0.069
		B	0.000	0.000	14.459	0.000	0.007
		C	0.000	0.000	12.160	0.000	0.059
T16	300.000-280.000	A	0.000	0.000	16.520	0.000	0.075
		B	0.000	0.000	14.503	0.000	0.007
		C	0.000	0.000	12.160	0.000	0.059
T17	280.000-260.000	A	0.000	0.000	16.520	0.000	0.075
		B	0.000	0.000	14.551	0.000	0.007
		C	0.000	0.000	47.220	0.000	0.230
T18	260.000-240.000	A	0.000	0.000	17.395	0.000	0.079
		B	0.000	0.000	14.602	0.000	0.007
		C	0.000	0.000	47.220	0.000	0.230
T19	240.000-220.000	A	0.000	0.000	18.655	0.000	0.087
		B	0.000	0.000	14.659	0.000	0.007
		C	0.000	0.000	47.220	0.000	0.230
T20	220.000-200.000	A	0.000	0.000	19.810	0.000	0.104
		B	0.000	0.000	14.721	0.000	0.007
		C	0.000	0.000	49.200	0.000	0.243
T21	200.000-180.000	A	0.000	0.000	23.135	0.000	0.116
		B	0.000	0.000	14.791	0.000	0.007
		C	0.000	0.000	51.180	0.000	0.256
T22	180.000-160.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	14.868	0.000	0.007
		C	0.000	0.000	51.180	0.000	0.256
T23	160.000-140.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	14.957	0.000	0.007
		C	0.000	0.000	51.180	0.000	0.256
T24	140.000-120.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	15.060	0.000	0.007
		C	0.000	0.000	55.640	0.000	0.279
T25	120.000-100.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	15.182	0.000	0.007
		C	0.000	0.000	55.640	0.000	0.279
T26	100.000-80.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	15.332	0.000	0.007
		C	0.000	0.000	55.640	0.000	0.279
T27	80.000-60.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	15.523	0.000	0.007
		C	0.000	0.000	55.640	0.000	0.279
T28	60.000-40.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	15.788	0.000	0.007
		C	0.000	0.000	57.530	0.000	0.284
T29	40.000-20.000	A	0.000	0.000	23.310	0.000	0.117
		B	0.000	0.000	16.532	0.000	0.007
		C	0.000	0.000	59.420	0.000	0.288
T30	20.000-8.000	A	0.000	0.000	13.986	0.000	0.070
		B	0.000	0.000	10.236	0.000	0.005
		C	0.000	0.000	35.652	0.000	0.173
T31	8.000-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	625.000-592.000	A	1.338	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
T1	592.000-580.000	A	1.333	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	7.518	0.000	0.047
		C		0.000	0.000	5.677	0.000	0.089
T2	580.000-560.000	A	1.330	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	12.503	0.000	0.078
		C		0.000	0.000	11.339	0.000	0.177
T3	560.000-540.000	A	1.325	0.000	0.000	5.660	0.000	0.088
		B		0.000	0.000	12.470	0.000	0.078
		C		0.000	0.000	11.320	0.000	0.176
T4	540.000-520.000	A	1.320	0.000	0.000	11.300	0.000	0.175
		B		0.000	0.000	12.435	0.000	0.077
		C		0.000	0.000	11.300	0.000	0.175
T5	520.000-500.000	A	1.315	0.000	0.000	11.280	0.000	0.175
		B		0.000	0.000	25.659	0.000	0.248
		C		0.000	0.000	11.280	0.000	0.175
T6	500.000-480.000	A	1.310	0.000	0.000	11.259	0.000	0.174
		B		0.000	0.000	25.601	0.000	0.246
		C		0.000	0.000	11.259	0.000	0.174
T7	480.000-460.000	A	1.304	0.000	0.000	11.237	0.000	0.173
		B		0.000	0.000	27.390	0.000	0.266
		C		0.000	0.000	11.237	0.000	0.173
T8	460.000-440.000	A	1.299	0.000	0.000	11.214	0.000	0.172
		B		0.000	0.000	32.853	0.000	0.326
		C		0.000	0.000	11.214	0.000	0.172
T9	440.000-420.000	A	1.293	0.000	0.000	11.191	0.000	0.172
		B		0.000	0.000	32.764	0.000	0.324
		C		0.000	0.000	11.191	0.000	0.172
T10	420.000-400.000	A	1.287	0.000	0.000	11.166	0.000	0.171
		B		0.000	0.000	32.671	0.000	0.322
		C		0.000	0.000	11.166	0.000	0.171
T11	400.000-380.000	A	1.280	0.000	0.000	30.073	0.000	0.325
		B		0.000	0.000	32.575	0.000	0.320
		C		0.000	0.000	20.221	0.000	0.288
T12	380.000-360.000	A	1.273	0.000	0.000	31.689	0.000	0.341
		B		0.000	0.000	32.473	0.000	0.318
		C		0.000	0.000	25.623	0.000	0.347
T13	360.000-340.000	A	1.266	0.000	0.000	38.740	0.000	0.415
		B		0.000	0.000	32.367	0.000	0.315
		C		0.000	0.000	27.356	0.000	0.364
T14	340.000-320.000	A	1.259	0.000	0.000	45.043	0.000	0.481
		B		0.000	0.000	32.255	0.000	0.313
		C		0.000	0.000	27.267	0.000	0.362
T15	320.000-300.000	A	1.251	0.000	0.000	44.863	0.000	0.477
		B		0.000	0.000	32.137	0.000	0.310
		C		0.000	0.000	27.173	0.000	0.359
T16	300.000-280.000	A	1.243	0.000	0.000	51.392	0.000	0.544
		B		0.000	0.000	32.012	0.000	0.307
		C		0.000	0.000	27.073	0.000	0.356
T17	280.000-260.000	A	1.234	0.000	0.000	51.153	0.000	0.539
		B		0.000	0.000	31.878	0.000	0.304
		C		0.000	0.000	95.455	0.000	1.046
T18	260.000-240.000	A	1.224	0.000	0.000	54.221	0.000	0.569
		B		0.000	0.000	31.736	0.000	0.301
		C		0.000	0.000	95.153	0.000	1.039
T19	240.000-220.000	A	1.214	0.000	0.000	58.829	0.000	0.617
		B		0.000	0.000	31.583	0.000	0.298
		C		0.000	0.000	94.828	0.000	1.030
T20	220.000-200.000	A	1.203	0.000	0.000	63.242	0.000	0.670

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	31.417	0.000	0.294
		C		0.000	0.000	98.864	0.000	1.081
T21	200.000-180.000	A	1.191	0.000	0.000	70.939	0.000	0.750
		B		0.000	0.000	31.236	0.000	0.290
		C		0.000	0.000	102.820	0.000	1.130
T22	180.000-160.000	A	1.178	0.000	0.000	70.604	0.000	0.742
		B		0.000	0.000	31.038	0.000	0.286
		C		0.000	0.000	102.347	0.000	1.118
T23	160.000-140.000	A	1.163	0.000	0.000	70.034	0.000	0.731
		B		0.000	0.000	30.817	0.000	0.281
		C		0.000	0.000	101.822	0.000	1.105
T24	140.000-120.000	A	1.147	0.000	0.000	69.390	0.000	0.718
		B		0.000	0.000	30.568	0.000	0.276
		C		0.000	0.000	116.705	0.000	1.195
T25	120.000-100.000	A	1.128	0.000	0.000	68.651	0.000	0.703
		B		0.000	0.000	30.282	0.000	0.270
		C		0.000	0.000	115.892	0.000	1.176
T26	100.000-80.000	A	1.106	0.000	0.000	67.779	0.000	0.686
		B		0.000	0.000	29.944	0.000	0.263
		C		0.000	0.000	114.933	0.000	1.155
T27	80.000-60.000	A	1.078	0.000	0.000	66.712	0.000	0.665
		B		0.000	0.000	29.531	0.000	0.255
		C		0.000	0.000	113.760	0.000	1.128
T28	60.000-40.000	A	1.042	0.000	0.000	65.324	0.000	0.639
		B		0.000	0.000	28.993	0.000	0.244
		C		0.000	0.000	118.252	0.000	1.131
T29	40.000-20.000	A	0.991	0.000	0.000	63.306	0.000	0.602
		B		0.000	0.000	30.148	0.000	0.243
		C		0.000	0.000	121.691	0.000	1.115
T30	20.000-8.000	A	0.918	0.000	0.000	36.288	0.000	0.331
		B		0.000	0.000	19.001	0.000	0.143
		C		0.000	0.000	70.852	0.000	0.626
T31	8.000-0.000	A	0.810	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	625.000-592.000	0.0000	0.0000	0.0000	0.0000
T1	592.000-580.000	0.7779	2.7114	1.7336	2.2682
T2	580.000-560.000	0.9027	3.6042	1.9842	2.8607
T3	560.000-540.000	0.2065	1.7105	1.5155	1.7735
T4	540.000-520.000	-0.3650	0.0599	0.9987	0.7149
T5	520.000-500.000	0.3456	-3.2115	1.5054	-1.7230
T6	500.000-480.000	0.3437	-3.2221	1.5056	-1.7271
T7	480.000-460.000	0.3652	-3.0795	1.4865	-1.8117
T8	460.000-440.000	0.5455	-3.5351	1.8168	-2.4800
T9	440.000-420.000	0.5555	-3.5969	1.8435	-2.5211
T10	420.000-400.000	1.0504	-3.8042	1.8438	-2.5259
T11	400.000-380.000	1.4951	-3.5510	1.9135	-2.7057
T12	380.000-360.000	1.7397	-3.0144	2.3536	-2.1077
T13	360.000-340.000	1.7095	-3.2873	2.1425	-2.4441
T14	340.000-320.000	1.4623	-3.4750	1.6623	-2.7888
T15	320.000-300.000	1.4656	-3.4921	1.6636	-2.7928

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T16	300.000-280.000	1.2259	-3.6621	1.2368	-3.1930
T17	280.000-260.000	-4.6231	-1.9800	-4.1159	-0.7951
T18	260.000-240.000	-4.8234	-2.2981	-4.2813	-1.1932
T19	240.000-220.000	-4.8315	-2.5730	-4.3396	-1.6669
T20	220.000-200.000	-4.8807	-2.3999	-4.4731	-1.6500
T21	200.000-180.000	-4.6768	-2.5218	-4.3567	-1.9915
T22	180.000-160.000	-4.8602	-2.6809	-4.5093	-2.0688
T23	160.000-140.000	-4.8868	-2.7381	-4.5614	-2.0903
T24	140.000-120.000	-4.3551	-2.5201	-3.7962	-1.5501
T25	120.000-100.000	-4.3088	-2.5377	-3.7904	-1.5430
T26	100.000-80.000	-4.1221	-2.4758	-3.7058	-1.5022
T27	80.000-60.000	-4.2617	-2.6465	-3.8435	-1.5559
T28	60.000-40.000	-4.0383	-2.6079	-3.6040	-1.3026
T29	40.000-20.000	-3.7830	-2.6651	-3.3151	-1.2232
T30	20.000-8.000	-4.0250	-1.6259	-3.2424	-1.4516
T31	8.000-0.000	0.0000	0.0000	0.0000	0.0000

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	3" Coax	580.00 - 590.00	1.0000	0.5396
T1	12	CAT5-E (1/4")	580.00 - 592.00	0.6000	0.5396
T2	1	3" Coax	560.00 - 580.00	1.0000	0.5796
T2	12	CAT5-E (1/4")	560.00 - 580.00	0.6000	0.5796
T3	1	3" Coax	540.00 - 560.00	1.0000	0.5805
T3	2	3" Coax	540.00 - 550.00	1.0000	0.5805
T3	12	CAT5-E (1/4")	540.00 - 560.00	0.6000	0.5805
T4	1	3" Coax	520.00 - 540.00	1.0000	0.5578
T4	2	3" Coax	520.00 - 540.00	1.0000	0.5578
T4	12	CAT5-E (1/4")	520.00 - 540.00	0.6000	0.5578
T5	1	3" Coax	500.00 - 520.00	1.0000	0.5774
T5	2	3" Coax	500.00 - 520.00	1.0000	0.5774
T5	12	CAT5-E (1/4")	500.00 - 520.00	0.6000	0.5774
T5	20	4" Flex	500.00 - 520.00	1.0000	0.5774
T6	1	3" Coax	480.00 - 500.00	1.0000	0.5784
T6	2	3" Coax	480.00 -	1.0000	0.5784

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	12	CAT5-E (1/4")	480.00 - 500.00	0.6000	0.5784
T6	20	4" Flex	480.00 - 500.00	1.0000	0.5784
T7	1	3" Coax	460.00 - 480.00	1.0000	0.5559
T7	2	3" Coax	460.00 - 480.00	1.0000	0.5559
T7	12	CAT5-E (1/4")	460.00 - 480.00	0.6000	0.5559
T7	18	LDF5-50A(7/8")	460.00 - 465.00	0.6000	0.5559
T7	20	4" Flex	460.00 - 480.00	1.0000	0.5559
T8	1	3" Coax	440.00 - 460.00	1.0000	0.5697
T8	2	3" Coax	440.00 - 460.00	1.0000	0.5697
T8	12	CAT5-E (1/4")	440.00 - 460.00	0.6000	0.5697
T8	18	LDF5-50A(7/8")	440.00 - 460.00	0.6000	0.5697
T8	20	4" Flex	440.00 - 460.00	1.0000	0.5697
T9	1	3" Coax	420.00 - 440.00	1.0000	0.5766
T9	2	3" Coax	420.00 - 440.00	1.0000	0.5766
T9	12	CAT5-E (1/4")	420.00 - 440.00	0.6000	0.5766
T9	18	LDF5-50A(7/8")	420.00 - 440.00	0.6000	0.5766
T9	20	4" Flex	420.00 - 440.00	1.0000	0.5766
T10	1	3" Coax	400.00 - 420.00	0.6000	0.5778
T10	2	3" Coax	400.00 - 420.00	0.6000	0.5778
T10	12	CAT5-E (1/4")	400.00 - 420.00	0.6000	0.5778
T10	18	LDF5-50A(7/8")	400.00 - 420.00	0.6000	0.5778
T10	20	4" Flex	400.00 - 420.00	1.0000	0.5778
T11	1	3" Coax	380.00 - 400.00	0.6000	0.5789
T11	2	3" Coax	380.00 - 400.00	0.6000	0.5789
T11	5	LDF5-50A (7/8" FOAM)	380.00 - 400.00	0.6000	0.5789
T11	6	LDF5-50A (7/8" FOAM)	380.00 - 395.00	0.6000	0.5789
T11	12	CAT5-E (1/4")	380.00 - 400.00	0.6000	0.5789
T11	16	LDF7-50A(1-5/8")	380.00 - 400.00	0.6000	0.5789
T11	18	LDF5-50A(7/8")	380.00 - 400.00	0.6000	0.5789
T11	20	4" Flex	380.00 - 400.00	1.0000	0.5789
T12	1	3" Coax	360.00 -	0.6000	0.5547

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T12	2	3" Coax	360.00 - 380.00	0.6000	0.5547
T12	5	LDF5-50A (7/8" FOAM)	360.00 - 380.00	0.6000	0.5547
T12	6	LDF5-50A (7/8" FOAM)	360.00 - 380.00	0.6000	0.5547
T12	12	CAT5-E (1/4")	360.00 - 380.00	0.6000	0.5547
T12	16	LDF7-50A(1-5/8")	360.00 - 380.00	0.6000	0.5547
T12	17	LDF5-50A(7/8")	360.00 - 375.00	0.6000	0.5547
T12	18	LDF5-50A(7/8")	360.00 - 380.00	0.6000	0.5547
T12	20	4" Flex	360.00 - 380.00	1.0000	0.5547
T13	1	3" Coax	340.00 - 360.00	0.6000	0.5766
T13	2	3" Coax	340.00 - 360.00	0.6000	0.5766
T13	5	LDF5-50A (7/8" FOAM)	340.00 - 360.00	0.6000	0.5766
T13	6	LDF5-50A (7/8" FOAM)	340.00 - 360.00	0.6000	0.5766
T13	7	LDF5-50A (7/8" FOAM)	340.00 - 353.00	0.6000	0.5766
T13	8	LDF5-50A (7/8" FOAM)	340.00 - 348.00	0.6000	0.5766
T13	12	CAT5-E (1/4")	340.00 - 360.00	0.6000	0.5766
T13	16	LDF7-50A(1-5/8")	340.00 - 360.00	0.6000	0.5766
T13	17	LDF5-50A(7/8")	340.00 - 360.00	0.6000	0.5766
T13	18	LDF5-50A(7/8")	340.00 - 360.00	0.6000	0.5766
T13	20	4" Flex	340.00 - 360.00	1.0000	0.5766
T14	1	3" Coax	320.00 - 340.00	0.6000	0.5779
T14	2	3" Coax	320.00 - 340.00	0.6000	0.5779
T14	5	LDF5-50A (7/8" FOAM)	320.00 - 340.00	0.6000	0.5779
T14	6	LDF5-50A (7/8" FOAM)	320.00 - 340.00	0.6000	0.5779
T14	7	LDF5-50A (7/8" FOAM)	320.00 - 340.00	0.6000	0.5779
T14	8	LDF5-50A (7/8" FOAM)	320.00 - 340.00	0.6000	0.5779
T14	12	CAT5-E (1/4")	320.00 - 340.00	0.6000	0.5779
T14	16	LDF7-50A(1-5/8")	320.00 - 340.00	0.6000	0.5779
T14	17	LDF5-50A(7/8")	320.00 - 340.00	0.6000	0.5779
T14	18	LDF5-50A(7/8")	320.00 - 340.00	0.6000	0.5779
T14	20	4" Flex	320.00 - 340.00	1.0000	0.5779
T15	1	3" Coax	300.00 -	0.6000	0.5794

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T15	2	3" Coax	300.00 - 320.00	0.6000	0.5794
T15	5	LDF5-50A (7/8" FOAM)	300.00 - 320.00	0.6000	0.5794
T15	6	LDF5-50A (7/8" FOAM)	300.00 - 320.00	0.6000	0.5794
T15	7	LDF5-50A (7/8" FOAM)	300.00 - 320.00	0.6000	0.5794
T15	8	LDF5-50A (7/8" FOAM)	300.00 - 320.00	0.6000	0.5794
T15	12	CAT5-E (1/4")	300.00 - 320.00	0.6000	0.5794
T15	16	LDF7-50A(1-5/8")	300.00 - 320.00	0.6000	0.5794
T15	17	LDF5-50A(7/8")	300.00 - 320.00	0.6000	0.5794
T15	18	LDF5-50A(7/8")	300.00 - 320.00	0.6000	0.5794
T15	20	4" Flex	300.00 - 320.00	1.0000	0.5794
T16	1	3" Coax	280.00 - 300.00	0.6000	0.5703
T16	2	3" Coax	280.00 - 300.00	0.6000	0.5703
T16	5	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.5703
T16	6	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.5703
T16	7	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.5703
T16	8	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.5703
T16	9	LDF5-50A (7/8" FOAM)	280.00 - 300.00	0.6000	0.5703
T16	12	CAT5-E (1/4")	280.00 - 300.00	0.6000	0.5703
T16	16	LDF7-50A(1-5/8")	280.00 - 300.00	0.6000	0.5703
T16	17	LDF5-50A(7/8")	280.00 - 300.00	0.6000	0.5703
T16	18	LDF5-50A(7/8")	280.00 - 300.00	0.6000	0.5703
T16	20	4" Flex	280.00 - 300.00	1.0000	0.5703
T17	1	3" Coax	260.00 - 280.00	0.6000	0.5593
T17	2	3" Coax	260.00 - 280.00	0.6000	0.5593
T17	5	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.5593
T17	6	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.5593
T17	7	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.5593
T17	8	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.5593
T17	9	LDF5-50A (7/8" FOAM)	260.00 - 280.00	0.6000	0.5593
T17	12	CAT5-E (1/4")	260.00 - 280.00	0.6000	0.5593
T17	16	LDF7-50A(1-5/8")	260.00 -	0.6000	0.5593

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T17	17	LDF5-50A(7/8")	260.00 - 280.00	0.6000	0.5593
T17	18	LDF5-50A(7/8")	260.00 - 280.00	0.6000	0.5593
T17	20	4" Flex	260.00 - 280.00	1.0000	0.5593
T17	21	LDF7-50A (1 5/8 FOAM)	260.00 - 280.00	0.6000	0.5593
T17	22	LDF2-50A(3/8") Fiber	260.00 - 280.00	0.6000	0.5593
T17	23	3/4" DC Power Cable	260.00 - 280.00	0.6000	0.5593
T18	1	3" Coax	240.00 - 260.00	0.6000	0.5793
T18	2	3" Coax	240.00 - 260.00	0.6000	0.5793
T18	5	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.5793
T18	6	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.5793
T18	7	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.5793
T18	8	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.5793
T18	9	LDF5-50A (7/8" FOAM)	240.00 - 260.00	0.6000	0.5793
T18	10	LDF5-50A (7/8" FOAM)	240.00 - 250.00	0.6000	0.5793
T18	12	CAT5-E (1/4")	240.00 - 260.00	0.6000	0.5793
T18	16	LDF7-50A(1-5/8")	240.00 - 260.00	0.6000	0.5793
T18	17	LDF5-50A(7/8")	240.00 - 260.00	0.6000	0.5793
T18	18	LDF5-50A(7/8")	240.00 - 260.00	0.6000	0.5793
T18	20	4" Flex	240.00 - 260.00	1.0000	0.5793
T18	21	LDF7-50A (1 5/8 FOAM)	240.00 - 260.00	0.6000	0.5793
T18	22	LDF2-50A(3/8") Fiber	240.00 - 260.00	0.6000	0.5793
T18	23	3/4" DC Power Cable	240.00 - 260.00	0.6000	0.5793
T19	1	3" Coax	220.00 - 240.00	0.6000	0.5812
T19	2	3" Coax	220.00 - 240.00	0.6000	0.5812
T19	3	5/8" Coax	220.00 - 225.00	0.6000	0.5812
T19	5	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.5812
T19	6	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.5812
T19	7	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.5812
T19	8	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.5812
T19	9	LDF5-50A (7/8" FOAM)	220.00 - 240.00	0.6000	0.5812
T19	10	LDF5-50A (7/8" FOAM)	220.00 -	0.6000	0.5812

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T19	12	CAT5-E (1/4")	220.00 - 240.00	0.6000	0.5812
T19	16	LDF7-50A(1-5/8")	220.00 - 240.00	0.6000	0.5812
T19	17	LDF5-50A(7/8")	220.00 - 240.00	0.6000	0.5812
T19	18	LDF5-50A(7/8")	220.00 - 240.00	0.6000	0.5812
T19	20	4" Flex	220.00 - 240.00	1.0000	0.5812
T19	21	LDF7-50A (1 5/8 FOAM)	220.00 - 240.00	0.6000	0.5812
T19	22	LDF2-50A(3/8") Fiber	220.00 - 240.00	0.6000	0.5812
T19	23	3/4" DC Power Cable	220.00 - 240.00	0.6000	0.5812
T20	1	3" Coax	200.00 - 220.00	0.6000	0.5832
T20	2	3" Coax	200.00 - 220.00	0.6000	0.5832
T20	3	5/8" Coax	200.00 - 220.00	0.6000	0.5832
T20	5	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.5832
T20	6	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.5832
T20	7	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.5832
T20	8	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.5832
T20	9	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.5832
T20	10	LDF5-50A (7/8" FOAM)	200.00 - 220.00	0.6000	0.5832
T20	12	CAT5-E (1/4")	200.00 - 220.00	0.6000	0.5832
T20	16	LDF7-50A(1-5/8")	200.00 - 220.00	0.6000	0.5832
T20	17	LDF5-50A(7/8")	200.00 - 220.00	0.6000	0.5832
T20	18	LDF5-50A(7/8")	200.00 - 220.00	0.6000	0.5832
T20	20	4" Flex	200.00 - 220.00	1.0000	0.5832
T20	21	LDF7-50A (1 5/8 FOAM)	200.00 - 220.00	0.6000	0.5832
T20	22	LDF2-50A(3/8") Fiber	200.00 - 220.00	0.6000	0.5832
T20	23	3/4" DC Power Cable	200.00 - 220.00	0.6000	0.5832
T20	25	1.75 Hybrid	200.00 - 210.00	0.6000	0.5832
T21	1	3" Coax	180.00 - 200.00	0.6000	0.5614
T21	2	3" Coax	180.00 - 200.00	0.6000	0.5614
T21	3	5/8" Coax	180.00 - 200.00	0.6000	0.5614
T21	4	LDF5-50A (7/8" FOAM)	180.00 - 198.00	0.6000	0.5614
T21	5	LDF5-50A (7/8" FOAM)	198.00 -	0.6000	0.5614

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T21	6	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.5614
T21	7	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.5614
T21	8	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.5614
T21	9	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.5614
T21	10	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.5614
T21	11	LDF5-50A (7/8" FOAM)	180.00 - 200.00	0.6000	0.5614
T21	12	CAT5-E (1/4")	180.00 - 200.00	0.6000	0.5614
T21	16	LDF7-50A(1-5/8")	180.00 - 200.00	0.6000	0.5614
T21	17	LDF5-50A(7/8")	180.00 - 200.00	0.6000	0.5614
T21	18	LDF5-50A(7/8")	180.00 - 200.00	0.6000	0.5614
T21	20	4" Flex	180.00 - 200.00	1.0000	0.5614
T21	21	LDF7-50A (1 5/8 FOAM)	180.00 - 200.00	0.6000	0.5614
T21	22	LDF2-50A(3/8") Fiber	180.00 - 200.00	0.6000	0.5614
T21	23	3/4" DC Power Cable	180.00 - 200.00	0.6000	0.5614
T21	25	1.75 Hybrid	180.00 - 200.00	0.6000	0.5614
T22	1	3" Coax	160.00 - 180.00	0.6000	0.5821
T22	2	3" Coax	160.00 - 180.00	0.6000	0.5821
T22	3	5/8" Coax	160.00 - 180.00	0.6000	0.5821
T22	4	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.5821
T22	6	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.5821
T22	7	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.5821
T22	8	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.5821
T22	9	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.5821
T22	10	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.5821
T22	11	LDF5-50A (7/8" FOAM)	160.00 - 180.00	0.6000	0.5821
T22	12	CAT5-E (1/4")	160.00 - 180.00	0.6000	0.5821
T22	16	LDF7-50A(1-5/8")	160.00 - 180.00	0.6000	0.5821
T22	17	LDF5-50A(7/8")	160.00 - 180.00	0.6000	0.5821
T22	18	LDF5-50A(7/8")	160.00 - 180.00	0.6000	0.5821
T22	20	4" Flex	160.00 - 180.00	1.0000	0.5821
T22	21	LDF7-50A (1 5/8 FOAM)	160.00 -	0.6000	0.5821

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T22	22	LDF2-50A(3/8") Fiber	160.00 - 180.00	0.6000	0.5821
T22	23	3/4" DC Power Cable	160.00 - 180.00	0.6000	0.5821
T22	25	1.75 Hybrid	160.00 - 180.00	0.6000	0.5821
T23	1	3" Coax	140.00 - 160.00	0.6000	0.5905
T23	2	3" Coax	140.00 - 160.00	0.6000	0.5905
T23	3	5/8" Coax	140.00 - 160.00	0.6000	0.5905
T23	4	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	6	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	7	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	8	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	9	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	10	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	11	LDF5-50A (7/8" FOAM)	140.00 - 160.00	0.6000	0.5905
T23	12	CAT5-E (1/4")	140.00 - 160.00	0.6000	0.5905
T23	16	LDF7-50A(1-5/8")	140.00 - 160.00	0.6000	0.5905
T23	17	LDF5-50A(7/8")	140.00 - 160.00	0.6000	0.5905
T23	18	LDF5-50A(7/8")	140.00 - 160.00	0.6000	0.5905
T23	20	4" Flex	140.00 - 160.00	1.0000	0.5905
T23	21	LDF7-50A (1 5/8 FOAM)	140.00 - 160.00	0.6000	0.5905
T23	22	LDF2-50A(3/8") Fiber	140.00 - 160.00	0.6000	0.5905
T23	23	3/4" DC Power Cable	140.00 - 160.00	0.6000	0.5905
T23	25	1.75 Hybrid	140.00 - 160.00	0.6000	0.5905
T24	1	3" Coax	120.00 - 140.00	0.6000	0.5935
T24	2	3" Coax	120.00 - 140.00	0.6000	0.5935
T24	3	5/8" Coax	120.00 - 140.00	0.6000	0.5935
T24	4	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.5935
T24	6	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.5935
T24	7	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.5935
T24	8	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.5935
T24	9	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.5935
T24	10	LDF5-50A (7/8" FOAM)	120.00 -	0.6000	0.5935

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T24	11	LDF5-50A (7/8" FOAM)	120.00 - 140.00	0.6000	0.5935
T24	12	CAT5-E (1/4")	120.00 - 140.00	0.6000	0.5935
T24	14	LDF7-50A(1-5/8")	120.00 - 140.00	0.6000	0.5935
T24	15	CAT6-Shielded Cable	120.00 - 140.00	0.6000	0.5935
T24	17	LDF5-50A(7/8")	120.00 - 140.00	0.6000	0.5935
T24	18	LDF5-50A(7/8")	120.00 - 140.00	0.6000	0.5935
T24	20	4" Flex	120.00 - 140.00	1.0000	0.5935
T24	21	LDF7-50A (1 5/8 FOAM)	120.00 - 140.00	0.6000	0.5935
T24	22	LDF2-50A(3/8") Fiber	120.00 - 140.00	0.6000	0.5935
T24	23	3/4" DC Power Cable	120.00 - 140.00	0.6000	0.5935
T24	25	1.75 Hybrid	120.00 - 140.00	0.6000	0.5935
T25	1	3" Coax	100.00 - 120.00	0.6000	0.5913
T25	2	3" Coax	100.00 - 120.00	0.6000	0.5913
T25	3	5/8" Coax	100.00 - 120.00	0.6000	0.5913
T25	4	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	6	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	7	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	8	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	9	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	10	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	11	LDF5-50A (7/8" FOAM)	100.00 - 120.00	0.6000	0.5913
T25	12	CAT5-E (1/4")	100.00 - 120.00	0.6000	0.5913
T25	14	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.5913
T25	15	CAT6-Shielded Cable	100.00 - 120.00	0.6000	0.5913
T25	17	LDF5-50A(7/8")	100.00 - 120.00	0.6000	0.5913
T25	18	LDF5-50A(7/8")	100.00 - 120.00	0.6000	0.5913
T25	20	4" Flex	100.00 - 120.00	1.0000	0.5913
T25	21	LDF7-50A (1 5/8 FOAM)	100.00 - 120.00	0.6000	0.5913
T25	22	LDF2-50A(3/8") Fiber	100.00 - 120.00	0.6000	0.5913
T25	23	3/4" DC Power Cable	100.00 - 120.00	0.6000	0.5913
T25	25	1.75 Hybrid	100.00 -	0.6000	0.5913

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			120.00		
T26	1	3" Coax	80.00 - 100.00	0.6000	0.5778
T26	2	3" Coax	80.00 - 100.00	0.6000	0.5778
T26	3	5/8" Coax	80.00 - 100.00	0.6000	0.5778
T26	4	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	6	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	7	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	8	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	9	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	10	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	11	LDF5-50A (7/8" FOAM)	80.00 - 100.00	0.6000	0.5778
T26	12	CAT5-E (1/4")	80.00 - 100.00	0.6000	0.5778
T26	14	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.5778
T26	15	CAT6-Shielded Cable	80.00 - 100.00	0.6000	0.5778
T26	17	LDF5-50A(7/8")	80.00 - 100.00	0.6000	0.5778
T26	18	LDF5-50A(7/8")	80.00 - 100.00	0.6000	0.5778
T26	20	4" Flex	80.00 - 100.00	1.0000	0.5778
T26	21	LDF7-50A (1 5/8 FOAM)	80.00 - 100.00	0.6000	0.5778
T26	22	LDF2-50A(3/8") Fiber	80.00 - 100.00	0.6000	0.5778
T26	23	3/4" DC Power Cable	80.00 - 100.00	0.6000	0.5778
T26	25	1.75 Hybrid	80.00 - 100.00	0.6000	0.5778
T27	1	3" Coax	60.00 - 80.00	0.6000	0.6000
T27	2	3" Coax	60.00 - 80.00	0.6000	0.6000
T27	3	5/8" Coax	60.00 - 80.00	0.6000	0.6000
T27	4	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	6	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	7	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	8	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	9	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	10	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	11	LDF5-50A (7/8" FOAM)	60.00 - 80.00	0.6000	0.6000
T27	12	CAT5-E (1/4")	60.00 - 80.00	0.6000	0.6000
T27	14	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.6000
T27	15	CAT6-Shielded Cable	60.00 - 80.00	0.6000	0.6000
T27	17	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.6000
T27	18	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.6000
T27	20	4" Flex	60.00 - 80.00	1.0000	0.6000
T27	21	LDF7-50A (1 5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T27	22	LDF2-50A(3/8") Fiber	60.00 - 80.00	0.6000	0.6000
T27	23	3/4" DC Power Cable	60.00 - 80.00	0.6000	0.6000
T27	25	1.75 Hybrid	60.00 - 80.00	0.6000	0.6000
T28	1	3" Coax	40.00 - 60.00	0.6000	0.6000
T28	2	3" Coax	40.00 - 60.00	0.6000	0.6000
T28	3	5/8" Coax	40.00 - 60.00	0.6000	0.6000
T28	4	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	6	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	7	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	8	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	9	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	10	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	11	LDF5-50A (7/8" FOAM)	40.00 - 60.00	0.6000	0.6000
T28	12	CAT5-E (1/4")	40.00 - 60.00	0.6000	0.6000
T28	13	LDF4-50A(1/2") Synflex Tubing	40.00 - 50.00	0.6000	0.6000
T28	14	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T28	15	CAT6-Shielded Cable	40.00 - 60.00	0.6000	0.6000
T28	17	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.6000
T28	18	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.6000
T28	20	4" Flex	40.00 - 60.00	1.0000	0.6000
T28	21	LDF7-50A (1 5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T28	22	LDF2-50A(3/8") Fiber	40.00 - 60.00	0.6000	0.6000
T28	23	3/4" DC Power Cable	40.00 - 60.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T28	25	1.75 Hybrid	40.00 - 60.00	0.6000	0.6000
T29	1	3" Coax	20.00 - 40.00	0.6000	0.6000
T29	2	3" Coax	20.00 - 40.00	0.6000	0.6000
T29	3	5/8" Coax	20.00 - 40.00	0.6000	0.6000
T29	4	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	6	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	7	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	8	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	9	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	10	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	11	LDF5-50A (7/8" FOAM)	20.00 - 40.00	0.6000	0.6000
T29	12	CAT5-E (1/4")	20.00 - 40.00	0.6000	0.6000
T29	13	LDF4-50A(1/2") Synflex Tubing	20.00 - 40.00	0.6000	0.6000
T29	14	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T29	15	CAT6-Shielded Cable	20.00 - 40.00	0.6000	0.6000
T29	17	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.6000
T29	18	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.6000
T29	19	LDF2-50A(3/8")	20.00 - 28.00	0.6000	0.6000
T29	20	4" Flex	20.00 - 40.00	1.0000	0.6000
T29	21	LDF7-50A (1 5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T29	22	LDF2-50A(3/8") Fiber	20.00 - 40.00	0.6000	0.6000
T29	23	3/4" DC Power Cable	20.00 - 40.00	0.6000	0.6000
T29	25	1.75 Hybrid	20.00 - 40.00	0.6000	0.6000
T30	1	3" Coax	8.00 - 20.00	0.6000	0.6000
T30	2	3" Coax	8.00 - 20.00	0.6000	0.6000
T30	3	5/8" Coax	8.00 - 20.00	0.6000	0.6000
T30	4	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	6	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	7	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	8	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	9	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	10	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	11	LDF5-50A (7/8" FOAM)	8.00 - 20.00	0.6000	0.6000
T30	12	CAT5-E (1/4")	8.00 - 20.00	0.6000	0.6000
T30	13	LDF4-50A(1/2") Synflex Tubing	8.00 - 20.00	0.6000	0.6000
T30	14	LDF7-50A(1-5/8")	8.00 - 20.00	0.6000	0.6000
T30	15	CAT6-Shielded Cable	8.00 - 20.00	0.6000	0.6000
T30	17	LDF5-50A(7/8")	8.00 - 20.00	0.6000	0.6000
T30	18	LDF5-50A(7/8")	8.00 - 20.00	0.6000	0.6000
T30	19	LDF2-50A(3/8")	8.00 - 20.00	0.6000	0.6000
T30	20	4" Flex	8.00 - 20.00	0.6000	0.6000
T30	21	LDF7-50A (1 5/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T30	22	LDF2-50A(3/8") Fiber	8.00 - 20.00	0.6000	0.6000
T30	23	3/4" DC Power Cable	8.00 - 20.00	0.6000	0.6000
T30	25	1.75 Hybrid	8.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
SHPX-4AC	A	None		0.0000	612.500	No Ice	21.720	21.750	0.476
(iHeart Media)						1/2" Ice	28.790	28.790	0.796
						1" Ice	35.860	35.860	1.116
SHP-2AE	A	From Leg	0.500	0.0000	545.000	No Ice	11.300	11.500	0.225
(iHeart Media)			0.000			1/2" Ice	14.700	15.100	0.375
			0.000			1" Ice	17.500	18.700	0.540
CMA-B/6519/E0-8	B	From Leg	2.000	0.0000	400.000	No Ice	3.825	2.592	0.024
(Unknown)			0.000			1/2" Ice	4.211	2.913	0.048
			10.000			1" Ice	4.605	3.242	0.076
14' Omni	B	From Leg	2.000	0.0000	400.000	No Ice	4.200	4.200	0.050
(Unknown)			0.000			1/2" Ice	5.630	5.630	0.065
			0.000			1" Ice	7.060	7.060	0.080
3' x 4' Side Arm	A	From Leg	2.000	0.0000	400.000	No Ice	3.000	3.000	0.050
(Unknown)			0.000			1/2" Ice	3.000	3.000	0.065
			11.000			1" Ice	3.000	3.000	0.080
14' Omni	A	From Leg	2.000	0.0000	400.000	No Ice	4.200	4.200	0.050
(iHeart Media)			0.000			1/2" Ice	5.630	5.630	0.065
			0.000			1" Ice	7.060	7.060	0.080
4' Omni	A	From Leg	1.000	0.0000	360.000	No Ice	0.600	0.600	0.020
(Unknown)			0.000			1/2" Ice	0.920	0.920	0.026
			0.000			1" Ice	1.240	1.240	0.032
4' Omni	B	From Leg	0.000	0.0000	360.000	No Ice	0.600	0.600	0.020
(Unknown)			0.000			1/2" Ice	0.920	0.920	0.026
			0.000			1" Ice	1.240	1.240	0.032
Beacon (10lbs 0.5CaAa)	B	From Leg	0.000	0.0000	310.000	No Ice	0.500	0.500	0.005
(Tower)			0.000			1/2" Ice	0.000	0.000	0.006
			0.000			1" Ice	0.000	0.000	0.008
Beacon (10lbs 0.5CaAa)	C	From Leg	1.000	0.0000	310.000	No Ice	0.500	0.500	0.005
(Tower)			0.000			1/2" Ice	0.000	0.000	0.006
			0.000			1" Ice	0.000	0.000	0.008
20'*3" Omni (40lbs)	B	From Leg	1.500	0.0000	299.000	No Ice	6.000	6.000	0.040
(iHeart Media)			0.000			1/2" Ice	8.033	8.033	0.083
			10.000			1" Ice	10.083	10.083	0.139
20'*3" Omni (40lbs)	B	From Leg	1.500	0.0000	255.000	No Ice	6.000	6.000	0.040
(iHeart Media)			0.000			1/2" Ice	8.033	8.033	0.083
			10.000			1" Ice	10.083	10.083	0.139
3' Side Arm	B	None		0.0000	198.000	No Ice	0.450	2.750	0.040
(Unknown)						1/2" Ice	0.570	3.860	0.060
						1" Ice	0.690	4.970	0.080
Beacon (10lbs 0.5CaAa)	C	From Leg	0.000	0.0000	159.000	No Ice	0.500	0.500	0.005
(Tower)			0.000			1/2" Ice	0.000	0.000	0.006
			0.000			1" Ice	0.000	0.000	0.008
Beacon (10lbs 0.5CaAa)	A	From Leg	0.000	0.0000	159.000	No Ice	0.500	0.500	0.005
(Tower)			0.000			1/2" Ice	0.000	0.000	0.006
			0.000			1" Ice	0.000	0.000	0.008
Beacon (10lbs 0.5CaAa)	B	From Leg	0.000	0.0000	159.000	No Ice	0.500	0.500	0.005
(Tower)			0.000			1/2" Ice	0.000	0.000	0.006
			0.000			1" Ice	0.000	0.000	0.008
AWS	C	None		0.0000	50.000	No Ice	1.200	0.131	0.012
(Earth Network)						1/2" Ice	1.337	0.208	0.018
						1" Ice	1.481	0.290	0.026
Pelco Camera	C	None		0.0000	140.000	No Ice	0.400	0.400	0.006
(Meridith)						1/2" Ice	0.500	0.500	0.008
						1" Ice	0.600	0.600	0.010
PD220	C	From Leg	3.000	0.0000	375.000	No Ice	3.560	3.560	0.023
(MCLM)			0.000			1/2" Ice	7.130	7.130	0.046
			0.000			1" Ice	10.700	10.700	0.069

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
3' Stand-off	C	From Leg	1.500	0.0000	375.000	No Ice	0.500	0.500	0.010
(MCLM)			0.000			1/2" Ice	0.700	0.700	0.015
			0.000			1" Ice	0.900	0.900	0.020
Kathrein 754154	C	From Leg	1.000	0.0000	465.000	No Ice	23.000	23.000	0.354
(Office Radio)			0.000			1/2" Ice	30.000	30.000	0.460
			0.000			1" Ice	37.000	37.000	0.566
Scala FM10 yagi	C	From Leg	3.000	0.0000	28.000	No Ice	4.108	2.900	0.022
(Office Radio)			0.000			1/2" Ice	4.368	3.131	0.058
			0.000			1" Ice	4.634	3.370	0.098
5' Stand Off	B	From Leg	2.500	0.0000	520.000	No Ice	5.500	5.500	0.129
(Tyche Media)			0.000			1/2" Ice	6.900	6.900	0.170
			0.000			1" Ice	8.300	8.300	0.211
ERI ALP8L1-HSB-34	B	From Leg	5.000	0.0000	540.000 -	No Ice	30.240	17.170	0.229
(Tyche Media)			0.000		520.000	1/2" Ice	40.570	26.590	0.466
			0.000			1" Ice	50.900	36.010	0.704
****ATT****									
Sabre C10857001C-MC	C	None		0.0000	280.000	No Ice	30.000	30.000	1.500
(AT&T)						1/2" Ice	35.000	35.000	1.750
						1" Ice	40.000	40.000	2.000
(2) LGP21401	A	From Leg	4.000	0.0000	280.000	No Ice	1.104	0.347	0.014
(AT&T)			0.000			1/2" Ice	1.239	0.442	0.021
			0.000			1" Ice	1.381	0.544	0.030
(2) LGP21401	B	From Leg	4.000	0.0000	280.000	No Ice	1.104	0.347	0.014
(AT&T)			0.000			1/2" Ice	1.239	0.442	0.021
			0.000			1" Ice	1.381	0.544	0.030
(2) LGP21401	C	From Leg	4.000	0.0000	280.000	No Ice	1.104	0.347	0.014
(AT&T)			0.000			1/2" Ice	1.239	0.442	0.021
			0.000			1" Ice	1.381	0.544	0.030
CCI HPA-65R-BUU-H6	B	From Leg	4.000	0.0000	280.000	No Ice	9.486	6.423	0.043
(AT&T)			0.000			1/2" Ice	9.956	6.888	0.105
			0.000			1" Ice	10.434	7.360	0.173
CCI HPA-65R-BUU-H6	C	From Leg	4.000	0.0000	280.000	No Ice	9.486	6.423	0.043
(AT&T)			0.000			1/2" Ice	9.956	6.888	0.105
			0.000			1" Ice	10.434	7.360	0.173
Powerwave 7770 (55x11x5)	A	From Leg	4.000	0.0000	280.000	No Ice	5.508	2.928	0.035
(AT&T)			0.000			1/2" Ice	5.867	3.273	0.068
			0.000			1" Ice	6.233	3.625	0.105
Powerwave 7770 (55x11x5)	B	From Leg	4.000	0.0000	280.000	No Ice	5.508	2.928	0.035
(AT&T)			0.000			1/2" Ice	5.867	3.273	0.068
			0.000			1" Ice	6.233	3.625	0.105
Powerwave 7770 (55x11x5)	C	From Leg	4.000	0.0000	280.000	No Ice	5.508	2.928	0.035
(AT&T)			0.000			1/2" Ice	5.867	3.273	0.068
			0.000			1" Ice	6.233	3.625	0.105
SBNHH-1D65A w/ Mount Pipe	A	From Leg	4.000	0.0000	280.000	No Ice	6.120	5.190	0.054
(AT&T)			0.000			1/2" Ice	6.558	5.961	0.108
			0.000			1" Ice	6.990	6.658	0.168
SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.000	0.0000	280.000	No Ice	6.120	5.190	0.054
(AT&T)			0.000			1/2" Ice	6.558	5.961	0.108
			0.000			1" Ice	6.990	6.658	0.168
DC6-48-60-18-8C	A	From Leg	4.000	0.0000	280.000	No Ice	4.818	2.901	0.019
(AT&T)			0.000			1/2" Ice	5.098	3.130	0.057
			0.000			1" Ice	5.385	3.366	0.100
DC6-48-60-18-8C	A	From Leg	4.000	0.0000	280.000	No Ice	4.818	2.901	0.019
(AT&T)			0.000			1/2" Ice	5.098	3.130	0.057
			0.000			1" Ice	5.385	3.366	0.100
DC6-48-60-18-8C	A	From Leg	4.000	0.0000	280.000	No Ice	4.818	2.901	0.019
(AT&T)			0.000			1/2" Ice	5.098	3.130	0.057

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	5.385	3.366	0.100
Kathrein 800-10965K	A	From Leg	4.000	0.0000	280.000	No Ice	15.303	5.833	0.109
(78.7x20x6.9)			0.000			1/2" Ice	15.947	6.324	0.185
(AT&T)			0.000			1" Ice	16.600	6.821	0.269
Kathrein 800-10965K	B	From Leg	4.000	0.0000	280.000	No Ice	15.303	5.833	0.109
(78.7x20x6.9)			0.000			1/2" Ice	15.947	6.324	0.185
(AT&T)			0.000			1" Ice	16.600	6.821	0.269
RRUS 32	A	From Leg	4.000	0.0000	280.000	No Ice	3.314	2.424	0.077
(AT&T)			0.000			1/2" Ice	3.558	2.638	0.105
			0.000			1" Ice	3.809	2.860	0.136
RRUS 32	B	From Leg	4.000	0.0000	280.000	No Ice	3.314	2.424	0.077
(AT&T)			0.000			1/2" Ice	3.558	2.638	0.105
			0.000			1" Ice	3.809	2.860	0.136
RRUS 32	C	From Leg	4.000	0.0000	280.000	No Ice	3.314	2.424	0.077
(AT&T)			0.000			1/2" Ice	3.558	2.638	0.105
			0.000			1" Ice	3.809	2.860	0.136
Ericsson 8843 B2/B66	A	From Leg	4.000	0.0000	280.000	No Ice	1.639	1.353	0.000
(14.9x13.2x10.9)			0.000			1/2" Ice	1.799	1.500	0.018
(AT&T)			0.000			1" Ice	1.966	1.655	0.038
Ericsson 8843 B2/B66	B	From Leg	4.000	0.0000	280.000	No Ice	1.639	1.353	0.000
(14.9x13.2x10.9)			0.000			1/2" Ice	1.799	1.500	0.018
(AT&T)			0.000			1" Ice	1.966	1.655	0.038
Ericsson 8843 B2/B66	C	From Leg	4.000	0.0000	280.000	No Ice	1.639	1.353	0.000
(14.9x13.2x10.9)			0.000			1/2" Ice	1.799	1.500	0.018
(AT&T)			0.000			1" Ice	1.966	1.655	0.038
Ericsson 4449 B5/B12	A	From Leg	4.000	0.0000	280.000	No Ice	1.969	1.626	0.072
(17.9x13.2x9.4)			0.000			1/2" Ice	2.145	1.790	0.092
(AT&T)			0.000			1" Ice	2.329	1.961	0.115
Ericsson 4449 B5/B12	B	From Leg	4.000	0.0000	280.000	No Ice	1.969	1.626	0.072
(17.9x13.2x9.4)			0.000			1/2" Ice	2.145	1.790	0.092
(AT&T)			0.000			1" Ice	2.329	1.961	0.115
Ericsson 4449 B5/B12	C	From Leg	4.000	0.0000	280.000	No Ice	1.969	1.626	0.072
(17.9x13.2x9.4)			0.000			1/2" Ice	2.145	1.790	0.092
(AT&T)			0.000			1" Ice	2.329	1.961	0.115
Kathrein 800-10964	A	From Leg	4.000	0.0000	280.000	No Ice	9.997	4.104	0.084
(59x20x6.9)			0.000			1/2" Ice	10.423	4.482	0.143
(AT&T)			0.000			1" Ice	10.856	4.867	0.207
CCI HPA-65R-BU6AA	B	From Leg	4.000	0.0000	280.000	No Ice	8.088	5.548	0.042
(71.1x11.7x7.6)			0.000			1/2" Ice	8.629	5.999	0.092
(AT&T)			0.000			1" Ice	9.178	6.457	0.149
CCI HPA-65R-BU6AA	C	From Leg	4.000	0.0000	280.000	No Ice	8.088	5.548	0.042
(71.1x11.7x7.6)			0.000			1/2" Ice	8.629	5.999	0.092
(AT&T)			0.000			1" Ice	9.178	6.457	0.149
Commscope	B	From Leg	3.000	0.0000	280.000	No Ice	0.989	0.644	0.035
WCS-IMFQ-AMT-R40			0.000			1/2" Ice	1.114	0.748	0.045
(AT&T)			0.000			1" Ice	1.246	0.860	0.056
Dish*									
Sabre C10837002C-32788	C	None		0.0000	210.000	No Ice	30.000	30.000	1.500
(Dish)						1/2" Ice	35.000	35.000	1.750
						1" Ice	40.000	40.000	2.000
Raycap RDIDC-9181-PF-8	A	From Leg	3.000	0.0000	210.000	No Ice	1.867	1.067	0.022
(16x14x8)			0.000			1/2" Ice	2.037	1.204	0.038
(Dish)			0.000			1" Ice	2.215	1.348	0.057
(2) Fujitsu TA08025-B605	A	From Leg	3.000	0.0000	210.000	No Ice	1.964	1.129	0.076
(14.96x15.75x9.06)			0.000			1/2" Ice	2.138	1.267	0.093
(Dish)			0.000			1" Ice	2.320	1.411	0.114
(2) Fujitsu TA08025-B605	B	From Leg	3.000	0.0000	210.000	No Ice	1.964	1.129	0.076

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(14.96x15.75x9.06)			0.000			1/2" Ice	2.138	1.267	0.093
(Dish)			0.000			1" Ice	2.320	1.411	0.114
(2) Fujitsu TA08025-B605	C	From Leg	3.000	0.0000	210.000	No Ice	1.964	1.129	0.076
(14.96x15.75x9.06)			0.000			1/2" Ice	2.138	1.267	0.093
(Dish)			0.000			1" Ice	2.320	1.411	0.114
JMA MX08FR0665-20	A	From Leg	3.000	0.0000	210.000	No Ice	12.489	5.867	0.054
(72x20x8)			0.000			1/2" Ice	12.986	6.325	0.128
(Dish)			0.000			1" Ice	13.490	6.790	0.208
JMA MX08FR0665-20	B	From Leg	3.000	0.0000	210.000	No Ice	12.489	5.867	0.054
(72x20x8)			0.000			1/2" Ice	12.986	6.325	0.128
(Dish)			0.000			1" Ice	13.490	6.790	0.208
JMA MX08FR0665-20	C	From Leg	3.000	0.0000	210.000	No Ice	12.489	5.867	0.054
(72x20x8)			0.000			1/2" Ice	12.986	6.325	0.128
(Dish)			0.000			1" Ice	13.490	6.790	0.208
1/3 Dish Reserved Right	A	From Leg	3.000	0.0000	210.000	No Ice	5.016	5.016	0.053
(Dish)			0.000			1/2" Ice	5.883	5.883	0.080
			0.000			1" Ice	6.750	6.750	0.107
1/3 Dish Reserved Right	B	From Leg	3.000	0.0000	210.000	No Ice	5.016	5.016	0.053
(Dish)			0.000			1/2" Ice	5.883	5.883	0.080
			0.000			1" Ice	6.750	6.750	0.107
1/3 Dish Reserved Right	C	From Leg	3.000	0.0000	210.000	No Ice	5.016	5.016	0.053
(Dish)			0.000			1/2" Ice	5.883	5.883	0.080
			0.000			1" Ice	6.750	6.750	0.107

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
4' Dish w/o Radome	A	Paraboloid w/o	From	2.000	0.0000		425.000	4.000	No Ice	12.566	0.080
(iHeart Media)		Radome	Leg	0.000					1/2" Ice	13.095	0.147
				0.000					1" Ice	13.624	0.214
5' HP Dish (230lbs	B	Paraboloid	From	2.000	0.0000		480.000	5.000	No Ice	19.630	0.230
24.77CaAa)		w/Shroud (HP)	Leg	0.000					1/2" Ice	20.290	0.334
(Unknown)				0.000					1" Ice	20.950	0.438
8' Dish w/ Radome	C	Paraboloid	From	1.000	0.0000		140.000	8.000	No Ice	50.265	0.300
(Meridith)		w/Radome	Leg	0.000					1/2" Ice	51.318	0.563
				0.000					1" Ice	52.371	0.827
Scala PR450	C	Passive Reflector	From	1.000	0.0000		394.000	6.000	No Ice	28.270	0.030
(iHeart Media)			Leg	0.000					1/2" Ice	29.070	0.170
				0.000					1" Ice	29.860	0.320
Scala PR450	C	Passive Reflector	From	1.000	0.0000		198.000	6.000	No Ice	28.270	0.030
(iHeart Media)			Leg	0.000					1/2" Ice	29.070	0.170
				0.000					1" Ice	29.860	0.320
MRC Proscann III	C	Paraboloid w/o	From	1.000	0.0000		400.000	5.610	No Ice	24.718	0.185
(Meridith)		Radome	Leg	0.000					1/2" Ice	25.458	0.316
				0.000					1" Ice	26.198	0.446

Tower Pressures - No Ice

G_H = 0.850 (base tower), 1.350 (upper structure)

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	608.524	1.851	0.056	29.563	A	0.000	29.563	29.563	100.00	0.000	0.000
625.000-592.0					B	0.000	29.563		100.00	0.000	0.000
00					C	0.000	29.563		100.00	0.000	0.000
T1	586.000	1.836	0.055	62.250	A	5.414	6.774	4.500	36.92	0.000	0.000
592.000-580.0					B	5.414	6.774		36.92	3.600	0.000
00					C	5.414	6.774		36.92	2.936	0.000
T2	570.000	1.826	0.055	103.750	A	6.016	10.679	7.500	44.93	0.000	0.000
580.000-560.0					B	6.016	10.679		44.93	6.000	0.000
00					C	6.016	10.679		44.93	5.889	0.000
T3	550.000	1.812	0.055	103.750	A	6.016	10.679	7.500	44.93	2.958	0.000
560.000-540.0					B	6.016	10.679		44.93	6.000	0.000
00					C	6.016	10.679		44.93	5.911	0.000
T4	530.000	1.798	0.054	104.167	A	7.387	12.131	8.333	42.69	5.934	0.000
540.000-520.0					B	7.387	12.131		42.69	6.000	0.000
00					C	7.387	12.131		42.69	5.934	0.000
T5	510.000	1.783	0.054	104.167	A	5.990	11.498	8.333	47.65	5.958	0.000
520.000-500.0					B	5.990	11.498		47.65	11.958	0.000
00					C	5.990	11.498		47.65	5.958	0.000
T6	490.000	1.769	0.053	104.167	A	5.990	11.498	8.333	47.65	5.983	0.000
500.000-480.0					B	5.990	11.498		47.65	11.983	0.000
00					C	5.990	11.498		47.65	5.983	0.000
T7	470.000	1.753	0.053	104.583	A	7.355	12.948	9.167	45.15	6.009	0.000
480.000-460.0					B	7.355	12.948		45.15	12.554	0.000
00					C	7.355	12.948		45.15	6.009	0.000
T8	450.000	1.737	0.052	104.583	A	5.964	12.948	9.167	48.47	6.020	0.000
460.000-440.0					B	5.964	12.948		48.47	14.217	0.000
00					C	5.964	12.948		48.47	6.020	0.000
T9	430.000	1.721	0.052	104.583	A	5.964	12.318	9.167	50.14	6.020	0.000
440.000-420.0					B	5.964	12.318		50.14	14.246	0.000
00					C	5.964	12.318		50.14	6.020	0.000
T10	410.000	1.703	0.051	104.583	A	5.964	12.318	9.167	50.14	6.020	0.000
420.000-400.0					B	5.964	12.318		50.14	14.277	0.000
00					C	5.964	12.318		50.14	6.020	0.000
T11	390.000	1.686	0.051	104.583	A	5.964	12.318	9.167	50.14	10.833	0.000
400.000-380.0					B	5.964	12.318		50.14	14.309	0.000
00					C	5.964	12.318		50.14	9.980	0.000
T12	370.000	1.667	0.050	105.000	A	6.927	14.393	10.000	46.91	11.270	0.000
380.000-360.0					B	6.927	14.393		46.91	14.343	0.000
00					C	6.927	14.393		46.91	11.615	0.000
T13	350.000	1.648	0.050	105.000	A	5.938	13.138	10.000	52.42	13.108	0.000
360.000-340.0					B	5.938	13.138		52.42	14.379	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T14	330.000	1.627	0.049	105.000	A	5.938	13.138	10.000	52.42	14.770	0.000
340.000-320.0					B	5.938	13.138		52.42	14.417	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T15	310.000	1.606	0.048	105.000	A	5.938	13.138	10.000	52.42	14.770	0.000
320.000-300.0					B	5.938	13.138		52.42	14.459	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T16	290.000	1.584	0.048	105.417	A	5.911	14.582	10.833	52.86	16.520	0.000
300.000-280.0					B	5.911	14.582		52.86	14.503	0.000
00					C	5.911	14.582		52.86	12.160	0.000
T17	270.000	1.56	0.047	105.417	A	7.291	14.582	10.833	49.53	16.520	0.000
280.000-260.0					B	7.291	14.582		49.53	14.551	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
00					C	7.291	14.582		49.53	47.220	0.000
T18	250.000	1.535	0.046	105.417	A	5.911	13.957	10.833	54.52	17.395	0.000
260.000-240.0					B	5.911	13.957		54.52	14.602	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T19	230.000	1.508	0.045	105.417	A	5.911	13.957	10.833	54.52	18.655	0.000
240.000-220.0					B	5.911	13.957		54.52	14.659	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T20	210.000	1.48	0.045	105.417	A	5.911	13.957	10.833	54.52	19.810	0.000
220.000-200.0					B	5.911	13.957		54.52	14.721	0.000
00					C	5.911	13.957		54.52	49.200	0.000
T21	190.000	1.449	0.044	105.417	A	7.291	15.207	10.833	48.15	23.135	0.000
200.000-180.0					B	7.291	15.207		48.15	14.791	0.000
00					C	7.291	15.207		48.15	51.180	0.000
T22	170.000	1.415	0.043	105.417	A	5.911	14.582	10.833	52.86	23.310	0.000
180.000-160.0					B	5.911	14.582		52.86	14.868	0.000
00					C	5.911	14.582		52.86	51.180	0.000
T23	150.000	1.378	0.042	105.417	A	5.911	13.957	10.833	54.52	23.310	0.000
160.000-140.0					B	5.911	13.957		54.52	14.957	0.000
00					C	5.911	13.957		54.52	51.180	0.000
T24	130.000	1.337	0.040	105.417	A	5.911	13.957	10.833	54.52	23.310	0.000
140.000-120.0					B	5.911	13.957		54.52	15.060	0.000
00					C	5.911	13.957		54.52	55.640	0.000
T25	110.000	1.291	0.039	105.417	A	5.911	14.582	10.833	52.86	23.310	0.000
120.000-100.0					B	5.911	14.582		52.86	15.182	0.000
00					C	5.911	14.582		52.86	55.640	0.000
T26	90.000	1.238	0.037	105.833	A	7.259	15.399	11.667	51.49	23.310	0.000
100.000-80.00					B	7.259	15.399		51.49	15.332	0.000
0					C	7.259	15.399		51.49	55.640	0.000
T27	70.000	1.174	0.035	105.833	A	5.885	14.777	11.667	56.46	23.310	0.000
80.000-60.000					B	5.885	14.777		56.46	15.523	0.000
					C	5.885	14.777		56.46	55.640	0.000
T28	50.000	1.094	0.033	105.833	A	5.885	14.777	11.667	56.46	23.310	0.000
60.000-40.000					B	5.885	14.777		56.46	15.788	0.000
					C	5.885	14.777		56.46	57.530	0.000
T29	30.000	0.982	0.030	105.833	A	5.885	14.777	11.667	56.46	23.310	0.000
40.000-20.000					B	5.885	14.777		56.46	16.532	0.000
					C	5.885	14.777		56.46	59.420	0.000
T30	14.000	0.85	0.026	63.500	A	3.924	8.854	7.000	54.78	13.986	0.000
20.000-8.000					B	3.924	8.854		54.78	10.236	0.000
					C	3.924	8.854		54.78	35.652	0.000
T31	4.000	0.85	0.026	22.445	A	6.787	4.961	4.961	42.23	0.000	0.000
8.000-0.000					B	6.787	4.961		42.23	0.000	0.000
					C	6.787	4.961		42.23	0.000	0.000

Tower Pressure - With Ice

G_H = 0.850 (base tower), 1.350 (upper structure)

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	608.524	1.851	0.010	1.3384	36.924	A	0.000	36.924	36.924	100.00	0.000	0.000
625.000-592.000						B	0.000	36.924		100.00	0.000	0.000
						C	0.000	36.924		100.00	0.000	0.000
T1	586.000	1.836	0.010	1.3333	64.917	A	5.414	24.471	9.833	32.90	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
592.000-580.000						B	5.414	24.471		32.90	7.518	0.000
						C	5.414	24.471		32.90	5.677	0.000
T2	570.000	1.826	0.010	1.3296	108.182	A	6.016	39.468	16.364	35.98	0.000	0.000
580.000-560.000						B	6.016	39.468		35.98	12.503	0.000
						C	6.016	39.468		35.98	11.339	0.000
T3	550.000	1.812	0.010	1.3249	108.166	A	6.016	39.365	16.333	35.99	5.660	0.000
560.000-540.000						B	6.016	39.365		35.99	12.470	0.000
						C	6.016	39.365		35.99	11.320	0.000
T4	530.000	1.798	0.010	1.3200	108.567	A	7.387	40.626	17.133	35.68	11.300	0.000
540.000-520.000						B	7.387	40.626		35.68	12.435	0.000
						C	7.387	40.626		35.68	11.300	0.000
T5	510.000	1.783	0.009	1.3149	108.550	A	5.990	39.883	17.100	37.28	11.280	0.000
520.000-500.000						B	5.990	39.883		37.28	25.659	0.000
						C	5.990	39.883		37.28	11.280	0.000
T6	490.000	1.769	0.009	1.3097	108.532	A	5.990	39.770	17.065	37.29	11.259	0.000
500.000-480.000						B	5.990	39.770		37.29	25.601	0.000
						C	5.990	39.770		37.29	11.259	0.000
T7	470.000	1.753	0.009	1.3042	108.931	A	7.355	41.018	17.862	36.92	11.237	0.000
480.000-460.000						B	7.355	41.018		36.92	27.390	0.000
						C	7.355	41.018		36.92	11.237	0.000
T8	450.000	1.737	0.009	1.2986	108.912	A	5.964	40.896	17.824	38.04	11.214	0.000
460.000-440.000						B	5.964	40.896		38.04	32.853	0.000
						C	5.964	40.896		38.04	11.214	0.000
T9	430.000	1.721	0.009	1.2927	108.892	A	5.964	40.139	17.785	38.58	11.191	0.000
440.000-420.000						B	5.964	40.139		38.58	32.764	0.000
						C	5.964	40.139		38.58	11.191	0.000
T10	410.000	1.703	0.009	1.2866	108.872	A	5.964	40.007	17.744	38.60	11.166	0.000
420.000-400.000						B	5.964	40.007		38.60	32.671	0.000
						C	5.964	40.007		38.60	11.166	0.000
T11	390.000	1.686	0.009	1.2801	108.850	A	5.964	39.869	17.701	38.62	30.073	0.000
400.000-380.000						B	5.964	39.869		38.62	32.575	0.000
						C	5.964	39.869		38.62	20.221	0.000
T12	370.000	1.667	0.009	1.2734	109.245	A	6.927	41.716	18.489	38.01	31.689	0.000
380.000-360.000						B	6.927	41.716		38.01	32.473	0.000
						C	6.927	41.716		38.01	25.623	0.000
T13	350.000	1.648	0.009	1.2664	109.221	A	5.938	40.309	18.442	39.88	38.740	0.000
360.000-340.000						B	5.938	40.309		39.88	32.367	0.000
						C	5.938	40.309		39.88	27.356	0.000
T14	330.000	1.627	0.009	1.2589	109.196	A	5.938	40.150	18.393	39.91	45.043	0.000
340.000-320.000						B	5.938	40.150		39.91	32.255	0.000
						C	5.938	40.150		39.91	27.267	0.000
T15	310.000	1.606	0.009	1.2511	109.170	A	5.938	39.982	18.341	39.94	44.863	0.000
320.000-300.000						B	5.938	39.982		39.94	32.137	0.000
						C	5.938	39.982		39.94	27.173	0.000
T16	290.000	1.584	0.008	1.2428	109.559	A	5.911	41.167	19.118	40.61	51.392	0.000
300.000-280.000						B	5.911	41.167		40.61	32.012	0.000
						C	5.911	41.167		40.61	27.073	0.000
T17	270.000	1.56	0.008	1.2339	109.530	A	7.291	40.978	19.059	39.49	51.153	0.000
280.000-260.000						B	7.291	40.978		39.49	31.878	0.000
						C	7.291	40.978		39.49	95.455	0.000
T18	250.000	1.535	0.008	1.2245	109.498	A	5.911	40.151	18.996	41.24	54.221	0.000
260.000-240.000						B	5.911	40.151		41.24	31.736	0.000
						C	5.911	40.151		41.24	95.153	0.000
T19	230.000	1.508	0.008	1.2143	109.464	A	5.911	39.933	18.929	41.29	58.829	0.000
240.000-220.000						B	5.911	39.933		41.29	31.583	0.000
						C	5.911	39.933		41.29	94.828	0.000
T20	210.000	1.48	0.008	1.2033	109.428	A	5.911	39.698	18.855	41.34	63.242	0.000
220.000-200.000						B	5.911	39.698		41.34	31.417	0.000
						C	5.911	39.698		41.34	98.864	0.000
T21	190.000	1.449	0.008	1.1913	109.388	A	7.291	40.691	18.775	39.13	70.939	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
200.000-180.000						B	7.291	40.691		39.13	31.236	0.000
						C	7.291	40.691		39.13	102.820	0.000
T22	170.000	1.415	0.008	1.1781	109.344	A	5.911	39.784	18.688	40.90	70.604	0.000
180.000-160.000						B	5.911	39.784		40.90	31.038	0.000
						C	5.911	39.784		40.90	102.347	0.000
T23	150.000	1.378	0.007	1.1635	109.295	A	5.911	38.846	18.590	41.53	70.034	0.000
160.000-140.000						B	5.911	38.846		41.53	30.817	0.000
						C	5.911	38.846		41.53	101.822	0.000
T24	130.000	1.337	0.007	1.1469	109.240	A	5.911	38.492	18.480	41.62	69.390	0.000
140.000-120.000						B	5.911	38.492		41.62	30.568	0.000
						C	5.911	38.492		41.62	116.705	0.000
T25	110.000	1.291	0.007	1.1279	109.176	A	5.911	38.711	18.353	41.13	68.651	0.000
120.000-100.000						B	5.911	38.711		41.13	30.282	0.000
						C	5.911	38.711		41.13	115.892	0.000
T26	90.000	1.238	0.007	1.1055	109.518	A	7.259	38.977	19.037	41.17	67.779	0.000
100.000-80.000						B	7.259	38.977		41.17	29.944	0.000
						C	7.259	38.977		41.17	114.933	0.000
T27	70.000	1.174	0.006	1.0781	109.427	A	5.885	37.769	18.854	43.19	66.712	0.000
80.000-60.000						B	5.885	37.769		43.19	29.531	0.000
						C	5.885	37.769		43.19	113.760	0.000
T28	50.000	1.094	0.006	1.0424	109.308	A	5.885	37.009	18.616	43.40	65.324	0.000
60.000-40.000						B	5.885	37.009		43.40	28.993	0.000
						C	5.885	37.009		43.40	118.252	0.000
T29	30.000	0.982	0.005	0.9905	109.135	A	5.885	35.901	18.270	43.72	63.306	0.000
40.000-20.000						B	5.885	35.901		43.72	30.148	0.000
						C	5.885	35.901		43.72	121.691	0.000
T30	14.000	0.85	0.005	0.9178	65.336	A	3.924	20.852	10.671	43.07	36.288	0.000
20.000-8.000						B	3.924	20.852		43.07	19.001	0.000
						C	3.924	20.852		43.07	70.852	0.000
T31 8.000-0.000	4.000	0.85	0.005	0.8098	23.576	A	6.787	10.807	7.257	41.25	0.000	0.000
						B	6.787	10.807		41.25	0.000	0.000
						C	6.787	10.807		41.25	0.000	0.000

Tower Pressure - Service

G_H = 0.850 (base tower), 1.350 (upper structure)

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	608.524	1.851	0.014	29.563	A	0.000	29.563	29.563	100.00	0.000	0.000
625.000-592.0					B	0.000	29.563		100.00	0.000	0.000
00					C	0.000	29.563		100.00	0.000	0.000
T1	586.000	1.836	0.014	62.250	A	5.414	6.774	4.500	36.92	0.000	0.000
592.000-580.0					B	5.414	6.774		36.92	3.600	0.000
00					C	5.414	6.774		36.92	2.936	0.000
T2	570.000	1.826	0.014	103.750	A	6.016	10.679	7.500	44.93	0.000	0.000
580.000-560.0					B	6.016	10.679		44.93	6.000	0.000
00					C	6.016	10.679		44.93	5.889	0.000
T3	550.000	1.812	0.014	103.750	A	6.016	10.679	7.500	44.93	2.958	0.000
560.000-540.0					B	6.016	10.679		44.93	6.000	0.000
00					C	6.016	10.679		44.93	5.911	0.000
T4	530.000	1.798	0.014	104.167	A	7.387	12.131	8.333	42.69	5.934	0.000
540.000-520.0					B	7.387	12.131		42.69	6.000	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
00					C	7.387	12.131		42.69	5.934	0.000
T5	510.000	1.783	0.014	104.167	A	5.990	11.498	8.333	47.65	5.958	0.000
520.000-500.0					B	5.990	11.498		47.65	11.958	0.000
00					C	5.990	11.498		47.65	5.958	0.000
T6	490.000	1.769	0.014	104.167	A	5.990	11.498	8.333	47.65	5.983	0.000
500.000-480.0					B	5.990	11.498		47.65	11.983	0.000
00					C	5.990	11.498		47.65	5.983	0.000
T7	470.000	1.753	0.013	104.583	A	7.355	12.948	9.167	45.15	6.009	0.000
480.000-460.0					B	7.355	12.948		45.15	12.554	0.000
00					C	7.355	12.948		45.15	6.009	0.000
T8	450.000	1.737	0.013	104.583	A	5.964	12.948	9.167	48.47	6.020	0.000
460.000-440.0					B	5.964	12.948		48.47	14.217	0.000
00					C	5.964	12.948		48.47	6.020	0.000
T9	430.000	1.721	0.013	104.583	A	5.964	12.318	9.167	50.14	6.020	0.000
440.000-420.0					B	5.964	12.318		50.14	14.246	0.000
00					C	5.964	12.318		50.14	6.020	0.000
T10	410.000	1.703	0.013	104.583	A	5.964	12.318	9.167	50.14	6.020	0.000
420.000-400.0					B	5.964	12.318		50.14	14.277	0.000
00					C	5.964	12.318		50.14	6.020	0.000
T11	390.000	1.686	0.013	104.583	A	5.964	12.318	9.167	50.14	10.833	0.000
400.000-380.0					B	5.964	12.318		50.14	14.309	0.000
00					C	5.964	12.318		50.14	9.980	0.000
T12	370.000	1.667	0.013	105.000	A	6.927	14.393	10.000	46.91	11.270	0.000
380.000-360.0					B	6.927	14.393		46.91	14.343	0.000
00					C	6.927	14.393		46.91	11.615	0.000
T13	350.000	1.648	0.013	105.000	A	5.938	13.138	10.000	52.42	13.108	0.000
360.000-340.0					B	5.938	13.138		52.42	14.379	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T14	330.000	1.627	0.012	105.000	A	5.938	13.138	10.000	52.42	14.770	0.000
340.000-320.0					B	5.938	13.138		52.42	14.417	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T15	310.000	1.606	0.012	105.000	A	5.938	13.138	10.000	52.42	14.770	0.000
320.000-300.0					B	5.938	13.138		52.42	14.459	0.000
00					C	5.938	13.138		52.42	12.160	0.000
T16	290.000	1.584	0.012	105.417	A	5.911	14.582	10.833	52.86	16.520	0.000
300.000-280.0					B	5.911	14.582		52.86	14.503	0.000
00					C	5.911	14.582		52.86	12.160	0.000
T17	270.000	1.56	0.012	105.417	A	7.291	14.582	10.833	49.53	16.520	0.000
280.000-260.0					B	7.291	14.582		49.53	14.551	0.000
00					C	7.291	14.582		49.53	47.220	0.000
T18	250.000	1.535	0.012	105.417	A	5.911	13.957	10.833	54.52	17.395	0.000
260.000-240.0					B	5.911	13.957		54.52	14.602	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T19	230.000	1.508	0.012	105.417	A	5.911	13.957	10.833	54.52	18.655	0.000
240.000-220.0					B	5.911	13.957		54.52	14.659	0.000
00					C	5.911	13.957		54.52	47.220	0.000
T20	210.000	1.48	0.011	105.417	A	5.911	13.957	10.833	54.52	19.810	0.000
220.000-200.0					B	5.911	13.957		54.52	14.721	0.000
00					C	5.911	13.957		54.52	49.200	0.000
T21	190.000	1.449	0.011	105.417	A	7.291	15.207	10.833	48.15	23.135	0.000
200.000-180.0					B	7.291	15.207		48.15	14.791	0.000
00					C	7.291	15.207		48.15	51.180	0.000
T22	170.000	1.415	0.011	105.417	A	5.911	14.582	10.833	52.86	23.310	0.000
180.000-160.0					B	5.911	14.582		52.86	14.868	0.000
00					C	5.911	14.582		52.86	51.180	0.000
T23	150.000	1.378	0.011	105.417	A	5.911	13.957	10.833	54.52	23.310	0.000
160.000-140.0					B	5.911	13.957		54.52	14.957	0.000
00					C	5.911	13.957		54.52	51.180	0.000
T24	130.000	1.337	0.010	105.417	A	5.911	13.957	10.833	54.52	23.310	0.000
140.000-120.0					B	5.911	13.957		54.52	15.060	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
00					C	5.911	13.957		54.52	55.640	0.000
T25	110.000	1.291	0.010	105.417	A	5.911	14.582	10.833	52.86	23.310	0.000
120.000-100.0					B	5.911	14.582		52.86	15.182	0.000
00					C	5.911	14.582		52.86	55.640	0.000
T26	90.000	1.238	0.009	105.833	A	7.259	15.399	11.667	51.49	23.310	0.000
100.000-80.00					B	7.259	15.399		51.49	15.332	0.000
0					C	7.259	15.399		51.49	55.640	0.000
T27	70.000	1.174	0.009	105.833	A	5.885	14.777	11.667	56.46	23.310	0.000
80.000-60.000					B	5.885	14.777		56.46	15.523	0.000
					C	5.885	14.777		56.46	55.640	0.000
T28	50.000	1.094	0.008	105.833	A	5.885	14.777	11.667	56.46	23.310	0.000
60.000-40.000					B	5.885	14.777		56.46	15.788	0.000
					C	5.885	14.777		56.46	57.530	0.000
T29	30.000	0.982	0.008	105.833	A	5.885	14.777	11.667	56.46	23.310	0.000
40.000-20.000					B	5.885	14.777		56.46	16.532	0.000
					C	5.885	14.777		56.46	59.420	0.000
T30	14.000	0.85	0.007	63.500	A	3.924	8.854	7.000	54.78	13.986	0.000
20.000-8.000					B	3.924	8.854		54.78	10.236	0.000
					C	3.924	8.854		54.78	35.652	0.000
T31	4.000	0.85	0.007	22.445	A	6.787	4.961	4.961	42.23	0.000	0.000
8.000-0.000					B	6.787	4.961		42.23	0.000	0.000
					C	6.787	4.961		42.23	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.6	0.056	1	1	29.563	1.335	0.040	C
625.000-592.0			B	1	0.6		1	1	29.563			
00			C	1	0.6		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.055	1	1	9.301	1.321	0.110	B
592.000-580.0			B	0.196	2.61		1	1	9.301			
00			C	0.196	2.61		1	1	9.301			
T2	0.036	1.287	A	0.161	2.732	0.055	1	1	12.089	1.888	0.094	B
580.000-560.0			B	0.161	2.732		1	1	12.089			
00			C	0.161	2.732		1	1	12.089			
T3	0.053	1.287	A	0.161	2.732	0.055	1	1	12.089	2.013	0.101	B
560.000-540.0			B	0.161	2.732		1	1	12.089			
00			C	0.161	2.732		1	1	12.089			
T4	0.071	1.825	A	0.187	2.639	0.054	1	1	14.331	2.355	0.118	B
540.000-520.0			B	0.187	2.639		1	1	14.331			
00			C	0.187	2.639		1	1	14.331			
T5	0.071	1.477	A	0.168	2.707	0.054	1	1	12.539	2.434	0.122	B
520.000-500.0			B	0.168	2.707		1	1	12.539			
00			C	0.168	2.707		1	1	12.539			
T6	0.071	1.477	A	0.168	2.707	0.053	1	1	12.539	2.417	0.121	B
500.000-480.0			B	0.168	2.707		1	1	12.539			
00			C	0.168	2.707		1	1	12.539			
T7	0.073	2.035	A	0.194	2.616	0.053	1	1	14.781	2.626	0.131	B
480.000-460.0			B	0.194	2.616		1	1	14.781			
00			C	0.194	2.616		1	1	14.781			
T8	0.078	1.775	A	0.181	2.661	0.052	1	1	13.362	2.510	0.125	B
460.000-440.0			B	0.181	2.661		1	1	13.362			
00			C	0.181	2.661		1	1	13.362			
T9	0.078	1.688	A	0.175	2.682	0.052	1	1	12.991	2.456	0.123	B

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
440.000-420.0			B	0.175	2.682		1	1	12.991			
00			C	0.175	2.682		1	1	12.991			
T10	0.078	1.688	A	0.175	2.682	0.051	1	1	12.991	2.222	0.111	B
420.000-400.0			B	0.175	2.682		1	1	12.991			
00			C	0.175	2.682		1	1	12.991			
T11	0.112	1.688	A	0.175	2.682	0.051	1	1	12.991	2.415	0.121	A
400.000-380.0			B	0.175	2.682		1	1	12.991			
00			C	0.175	2.682		1	1	12.991			
T12	0.119	2.417	A	0.203	2.586	0.050	1	1	15.203	2.634	0.132	A
380.000-360.0			B	0.203	2.586		1	1	15.203			
00			C	0.203	2.586		1	1	15.203			
T13	0.128	1.918	A	0.182	2.658	0.050	1	1	13.446	2.515	0.126	A
360.000-340.0			B	0.182	2.658		1	1	13.446			
00			C	0.182	2.658		1	1	13.446			
T14	0.134	1.918	A	0.182	2.658	0.049	1	1	13.446	2.527	0.126	A
340.000-320.0			B	0.182	2.658		1	1	13.446			
00			C	0.182	2.658		1	1	13.446			
T15	0.134	1.918	A	0.182	2.658	0.048	1	1	13.446	2.495	0.125	A
320.000-300.0			B	0.182	2.658		1	1	13.446			
00			C	0.182	2.658		1	1	13.446			
T16	0.140	2.256	A	0.194	2.615	0.048	1	1	14.235	2.565	0.128	A
300.000-280.0			B	0.194	2.615		1	1	14.235			
00			C	0.194	2.615		1	1	14.235			
T17	0.312	2.516	A	0.207	2.571	0.047	1	1	15.660	3.472	0.174	C
280.000-260.0			B	0.207	2.571		1	1	15.660			
00			C	0.207	2.571		1	1	15.660			
T18	0.315	2.169	A	0.188	2.635	0.046	1	1	13.885	3.294	0.165	C
260.000-240.0			B	0.188	2.635		1	1	13.885			
00			C	0.188	2.635		1	1	13.885			
T19	0.324	2.169	A	0.188	2.635	0.045	1	1	13.898	3.269	0.163	C
240.000-220.0			B	0.188	2.635		1	1	13.898			
00			C	0.188	2.635		1	1	13.898			
T20	0.353	2.169	A	0.188	2.635	0.045	1	1	13.903	3.281	0.164	C
220.000-200.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T21	0.379	2.693	A	0.213	2.552	0.044	1	1	16.064	3.471	0.174	C
200.000-180.0			B	0.213	2.552		1	1	16.064			
00			C	0.213	2.552		1	1	16.064			
T22	0.379	2.256	A	0.194	2.615	0.043	1	1	14.274	3.262	0.163	C
180.000-160.0			B	0.194	2.615		1	1	14.274			
00			C	0.194	2.615		1	1	14.274			
T23	0.379	2.169	A	0.188	2.635	0.042	1	1	13.903	3.156	0.158	C
160.000-140.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T24	0.403	2.169	A	0.188	2.635	0.040	1	1	13.903	3.157	0.158	C
140.000-120.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T25	0.403	2.256	A	0.194	2.615	0.039	1	1	14.274	3.075	0.154	C
120.000-100.0			B	0.194	2.615		1	1	14.274			
00			C	0.194	2.615		1	1	14.274			
T26	0.403	2.787	A	0.214	2.55	0.037	1	1	16.145	3.074	0.154	C
100.000-80.00			B	0.214	2.55		1	1	16.145			
0			C	0.214	2.55		1	1	16.145			
T27	0.403	2.439	A	0.195	2.612	0.035	1	1	14.362	2.812	0.141	C
80.000-60.000			B	0.195	2.612		1	1	14.362			
			C	0.195	2.612		1	1	14.362			
T28	0.407	2.439	A	0.195	2.612	0.033	1	1	14.362	2.659	0.133	C
60.000-40.000			B	0.195	2.612		1	1	14.362			
			C	0.195	2.612		1	1	14.362			
T29	0.412	2.439	A	0.195	2.612	0.030	1	1	14.362	2.431	0.122	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
40.000-20.000			B	0.195	2.612		1	1	14.362			
			C	0.195	2.612		1	1	14.362			
T30	0.248	1.481	A	0.201	2.592	0.026	1	1	9.012	1.243	0.104	C
20.000-8.000			B	0.201	2.592		1	1	9.012			
			C	0.201	2.592		1	1	9.012			
T31	0.000	1.466	A	0.523	1.871	0.026	1	1	10.249	0.417	0.052	C
8.000-0.000			B	0.523	1.871		1	1	10.249			
			C	0.523	1.871		1	1	10.249			
Sum Weight:	6.513	62.706								80.801		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.6	0.056	1	1	29.563	1.335	0.040	C
625.000-592.0			B	1	0.6		1	1	29.563			
00			C	1	0.6		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.055	0.8	1	8.218	1.189	0.099	C
592.000-580.0			B	0.196	2.61		0.8	1	8.218			
00			C	0.196	2.61		0.8	1	8.218			
T2	0.036	1.287	A	0.161	2.732	0.055	0.8	1	10.886	1.735	0.087	C
580.000-560.0			B	0.161	2.732		0.8	1	10.886			
00			C	0.161	2.732		0.8	1	10.886			
T3	0.053	1.287	A	0.161	2.732	0.055	0.8	1	10.886	1.860	0.093	C
560.000-540.0			B	0.161	2.732		0.8	1	10.886			
00			C	0.161	2.732		0.8	1	10.886			
T4	0.071	1.825	A	0.187	2.639	0.054	0.8	1	12.854	2.176	0.109	C
540.000-520.0			B	0.187	2.639		0.8	1	12.854			
00			C	0.187	2.639		0.8	1	12.854			
T5	0.071	1.477	A	0.168	2.707	0.054	0.8	1	11.341	2.286	0.114	C
520.000-500.0			B	0.168	2.707		0.8	1	11.341			
00			C	0.168	2.707		0.8	1	11.341			
T6	0.071	1.477	A	0.168	2.707	0.053	0.8	1	11.341	2.270	0.113	C
500.000-480.0			B	0.168	2.707		0.8	1	11.341			
00			C	0.168	2.707		0.8	1	11.341			
T7	0.073	2.035	A	0.194	2.616	0.053	0.8	1	13.310	2.453	0.123	C
480.000-460.0			B	0.194	2.616		0.8	1	13.310			
00			C	0.194	2.616		0.8	1	13.310			
T8	0.078	1.775	A	0.181	2.661	0.052	0.8	1	12.169	2.368	0.118	C
460.000-440.0			B	0.181	2.661		0.8	1	12.169			
00			C	0.181	2.661		0.8	1	12.169			
T9	0.078	1.688	A	0.175	2.682	0.052	0.8	1	11.799	2.315	0.116	C
440.000-420.0			B	0.175	2.682		0.8	1	11.799			
00			C	0.175	2.682		0.8	1	11.799			
T10	0.078	1.688	A	0.175	2.682	0.051	0.8	1	11.799	2.083	0.104	C
420.000-400.0			B	0.175	2.682		0.8	1	11.799			
00			C	0.175	2.682		0.8	1	11.799			
T11	0.112	1.688	A	0.175	2.682	0.051	0.8	1	11.799	2.277	0.114	B
400.000-380.0			B	0.175	2.682		0.8	1	11.799			
00			C	0.175	2.682		0.8	1	11.799			
T12	0.119	2.417	A	0.203	2.586	0.050	0.8	1	13.818	2.481	0.124	B
380.000-360.0			B	0.203	2.586		0.8	1	13.818			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
00			C	0.203	2.586		0.8	1	13.818			
T13	0.128	1.918	A	0.182	2.658	0.050	0.8	1	12.258	2.381	0.119	B
360.000-340.0			B	0.182	2.658		0.8	1	12.258			
00			C	0.182	2.658		0.8	1	12.258			
T14	0.134	1.918	A	0.182	2.658	0.049	0.8	1	12.258	2.395	0.120	B
340.000-320.0			B	0.182	2.658		0.8	1	12.258			
00			C	0.182	2.658		0.8	1	12.258			
T15	0.134	1.918	A	0.182	2.658	0.048	0.8	1	12.258	2.366	0.118	B
320.000-300.0			B	0.182	2.658		0.8	1	12.258			
00			C	0.182	2.658		0.8	1	12.258			
T16	0.140	2.256	A	0.194	2.615	0.048	0.8	1	13.052	2.440	0.122	B
300.000-280.0			B	0.194	2.615		0.8	1	13.052			
00			C	0.194	2.615		0.8	1	13.052			
T17	0.312	2.516	A	0.207	2.571	0.047	0.8	1	14.202	3.322	0.166	A
280.000-260.0			B	0.207	2.571		0.8	1	14.202			
00			C	0.207	2.571		0.8	1	14.202			
T18	0.315	2.169	A	0.188	2.635	0.046	0.8	1	12.703	3.172	0.159	A
260.000-240.0			B	0.188	2.635		0.8	1	12.703			
00			C	0.188	2.635		0.8	1	12.703			
T19	0.324	2.169	A	0.188	2.635	0.045	0.8	1	12.716	3.149	0.157	A
240.000-220.0			B	0.188	2.635		0.8	1	12.716			
00			C	0.188	2.635		0.8	1	12.716			
T20	0.353	2.169	A	0.188	2.635	0.045	0.8	1	12.720	3.163	0.158	A
220.000-200.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T21	0.379	2.693	A	0.213	2.552	0.044	0.8	1	14.606	3.333	0.167	A
200.000-180.0			B	0.213	2.552		0.8	1	14.606			
00			C	0.213	2.552		0.8	1	14.606			
T22	0.379	2.256	A	0.194	2.615	0.043	0.8	1	13.092	3.150	0.157	A
180.000-160.0			B	0.194	2.615		0.8	1	13.092			
00			C	0.194	2.615		0.8	1	13.092			
T23	0.379	2.169	A	0.188	2.635	0.042	0.8	1	12.720	3.046	0.152	A
160.000-140.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T24	0.403	2.169	A	0.188	2.635	0.040	0.8	1	12.720	3.051	0.153	A
140.000-120.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T25	0.403	2.256	A	0.194	2.615	0.039	0.8	1	13.092	2.973	0.149	A
120.000-100.0			B	0.194	2.615		0.8	1	13.092			
00			C	0.194	2.615		0.8	1	13.092			
T26	0.403	2.787	A	0.214	2.55	0.037	0.8	1	14.693	2.957	0.148	A
100.000-80.00			B	0.214	2.55		0.8	1	14.693			
0			C	0.214	2.55		0.8	1	14.693			
T27	0.403	2.439	A	0.195	2.612	0.035	0.8	1	13.185	2.720	0.136	A
80.000-60.000			B	0.195	2.612		0.8	1	13.185			
			C	0.195	2.612		0.8	1	13.185			
T28	0.407	2.439	A	0.195	2.612	0.033	0.8	1	13.185	2.573	0.129	A
60.000-40.000			B	0.195	2.612		0.8	1	13.185			
			C	0.195	2.612		0.8	1	13.185			
T29	0.412	2.439	A	0.195	2.612	0.030	0.8	1	13.185	2.354	0.118	A
40.000-20.000			B	0.195	2.612		0.8	1	13.185			
			C	0.195	2.612		0.8	1	13.185			
T30	0.248	1.481	A	0.201	2.592	0.026	0.8	1	8.227	1.199	0.100	A
20.000-8.000			B	0.201	2.592		0.8	1	8.227			
			C	0.201	2.592		0.8	1	8.227			
T31	0.000	1.466	A	0.523	1.871	0.026	0.8	1	8.892	0.362	0.045	C
8.000-0.000			B	0.523	1.871		0.8	1	8.892			
			C	0.523	1.871		0.8	1	8.892			
Sum Weight:	6.513	62.706								76.932		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.6	0.056	1	1	29.563	1.335	0.040	C
625.000-592.0			B	1	0.6		1	1	29.563			
00			C	1	0.6		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.055	0.85	1	8.489	1.219	0.102	C
592.000-580.0			B	0.196	2.61		0.85	1	8.489			
00			C	0.196	2.61		0.85	1	8.489			
T2	0.036	1.287	A	0.161	2.732	0.055	0.85	1	11.187	1.769	0.088	C
580.000-560.0			B	0.161	2.732		0.85	1	11.187			
00			C	0.161	2.732		0.85	1	11.187			
T3	0.053	1.287	A	0.161	2.732	0.055	0.85	1	11.187	1.894	0.095	C
560.000-540.0			B	0.161	2.732		0.85	1	11.187			
00			C	0.161	2.732		0.85	1	11.187			
T4	0.071	1.825	A	0.187	2.639	0.054	0.85	1	13.223	2.217	0.111	C
540.000-520.0			B	0.187	2.639		0.85	1	13.223			
00			C	0.187	2.639		0.85	1	13.223			
T5	0.071	1.477	A	0.168	2.707	0.054	0.85	1	11.641	2.318	0.116	C
520.000-500.0			B	0.168	2.707		0.85	1	11.641			
00			C	0.168	2.707		0.85	1	11.641			
T6	0.071	1.477	A	0.168	2.707	0.053	0.85	1	11.641	2.302	0.115	C
500.000-480.0			B	0.168	2.707		0.85	1	11.641			
00			C	0.168	2.707		0.85	1	11.641			
T7	0.073	2.035	A	0.194	2.616	0.053	0.85	1	13.677	2.492	0.125	C
480.000-460.0			B	0.194	2.616		0.85	1	13.677			
00			C	0.194	2.616		0.85	1	13.677			
T8	0.078	1.775	A	0.181	2.661	0.052	0.85	1	12.467	2.400	0.120	C
460.000-440.0			B	0.181	2.661		0.85	1	12.467			
00			C	0.181	2.661		0.85	1	12.467			
T9	0.078	1.688	A	0.175	2.682	0.052	0.85	1	12.097	2.346	0.117	C
440.000-420.0			B	0.175	2.682		0.85	1	12.097			
00			C	0.175	2.682		0.85	1	12.097			
T10	0.078	1.688	A	0.175	2.682	0.051	0.85	1	12.097	2.114	0.106	C
420.000-400.0			B	0.175	2.682		0.85	1	12.097			
00			C	0.175	2.682		0.85	1	12.097			
T11	0.112	1.688	A	0.175	2.682	0.051	0.85	1	12.097	2.320	0.116	C
400.000-380.0			B	0.175	2.682		0.85	1	12.097			
00			C	0.175	2.682		0.85	1	12.097			
T12	0.119	2.417	A	0.203	2.586	0.050	0.85	1	14.164	2.527	0.126	C
380.000-360.0			B	0.203	2.586		0.85	1	14.164			
00			C	0.203	2.586		0.85	1	14.164			
T13	0.128	1.918	A	0.182	2.658	0.050	0.85	1	12.555	2.423	0.121	C
360.000-340.0			B	0.182	2.658		0.85	1	12.555			
00			C	0.182	2.658		0.85	1	12.555			
T14	0.134	1.918	A	0.182	2.658	0.049	0.85	1	12.555	2.436	0.122	C
340.000-320.0			B	0.182	2.658		0.85	1	12.555			
00			C	0.182	2.658		0.85	1	12.555			
T15	0.134	1.918	A	0.182	2.658	0.048	0.85	1	12.555	2.406	0.120	C
320.000-300.0			B	0.182	2.658		0.85	1	12.555			
00			C	0.182	2.658		0.85	1	12.555			
T16	0.140	2.256	A	0.194	2.615	0.048	0.85	1	13.348	2.478	0.124	C
300.000-280.0			B	0.194	2.615		0.85	1	13.348			
00			C	0.194	2.615		0.85	1	13.348			
T17	0.312	2.516	A	0.207	2.571	0.047	0.85	1	14.566	3.366	0.168	B

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
280.000-260.0			B	0.207	2.571		0.85	1	14.566			
00			C	0.207	2.571		0.85	1	14.566			
T18	0.315	2.169	A	0.188	2.635	0.046	0.85	1	12.999	3.208	0.160	B
260.000-240.0			B	0.188	2.635		0.85	1	12.999			
00			C	0.188	2.635		0.85	1	12.999			
T19	0.324	2.169	A	0.188	2.635	0.045	0.85	1	13.011	3.185	0.159	B
240.000-220.0			B	0.188	2.635		0.85	1	13.011			
00			C	0.188	2.635		0.85	1	13.011			
T20	0.353	2.169	A	0.188	2.635	0.045	0.85	1	13.016	3.199	0.160	B
220.000-200.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T21	0.379	2.693	A	0.213	2.552	0.044	0.85	1	14.971	3.398	0.170	B
200.000-180.0			B	0.213	2.552		0.85	1	14.971			
00			C	0.213	2.552		0.85	1	14.971			
T22	0.379	2.256	A	0.194	2.615	0.043	0.85	1	13.388	3.210	0.160	B
180.000-160.0			B	0.194	2.615		0.85	1	13.388			
00			C	0.194	2.615		0.85	1	13.388			
T23	0.379	2.169	A	0.188	2.635	0.042	0.85	1	13.016	3.104	0.155	B
160.000-140.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T24	0.403	2.169	A	0.188	2.635	0.040	0.85	1	13.016	3.107	0.155	B
140.000-120.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T25	0.403	2.256	A	0.194	2.615	0.039	0.85	1	13.388	3.028	0.151	B
120.000-100.0			B	0.194	2.615		0.85	1	13.388			
00			C	0.194	2.615		0.85	1	13.388			
T26	0.403	2.787	A	0.214	2.55	0.037	0.85	1	15.056	3.014	0.151	B
100.000-80.00			B	0.214	2.55		0.85	1	15.056			
0			C	0.214	2.55		0.85	1	15.056			
T27	0.403	2.439	A	0.195	2.612	0.035	0.85	1	13.479	2.769	0.138	B
80.000-60.000			B	0.195	2.612		0.85	1	13.479			
			C	0.195	2.612		0.85	1	13.479			
T28	0.407	2.439	A	0.195	2.612	0.033	0.85	1	13.479	2.619	0.131	B
60.000-40.000			B	0.195	2.612		0.85	1	13.479			
			C	0.195	2.612		0.85	1	13.479			
T29	0.412	2.439	A	0.195	2.612	0.030	0.85	1	13.479	2.395	0.120	B
40.000-20.000			B	0.195	2.612		0.85	1	13.479			
			C	0.195	2.612		0.85	1	13.479			
T30	0.248	1.481	A	0.201	2.592	0.026	0.85	1	8.423	1.222	0.102	B
20.000-8.000			B	0.201	2.592		0.85	1	8.423			
			C	0.201	2.592		0.85	1	8.423			
T31	0.000	1.466	A	0.523	1.871	0.026	0.85	1	9.231	0.376	0.047	C
8.000-0.000			B	0.523	1.871		0.85	1	9.231			
			C	0.523	1.871		0.85	1	9.231			
Sum Weight:	6.513	62.706								78.195		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	1.989	A	1	1.2	0.010	1	1	36.924	0.589	0.018	C
625.000-592.0			B	1	1.2		1	1	36.924			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
00			C	1	1.2		1	1	36.924			
T1	0.136	2.235	A	0.46	1.957	0.010	1	1	21.672	0.402	0.033	B
592.000-580.0			B	0.46	1.957		1	1	21.672			
00			C	0.46	1.957		1	1	21.672			
T2	0.255	2.951	A	0.42	2.025	0.010	1	1	31.485	0.624	0.031	B
580.000-560.0			B	0.42	2.025		1	1	31.485			
00			C	0.42	2.025		1	1	31.485			
T3	0.342	2.942	A	0.42	2.027	0.010	1	1	31.403	0.645	0.032	B
560.000-540.0			B	0.42	2.027		1	1	31.403			
00			C	0.42	2.027		1	1	31.403			
T4	0.428	3.596	A	0.442	1.986	0.010	1	1	34.018	0.693	0.035	B
540.000-520.0			B	0.442	1.986		1	1	34.018			
00			C	0.442	1.986		1	1	34.018			
T5	0.597	3.139	A	0.423	2.021	0.009	1	1	31.767	0.726	0.036	B
520.000-500.0			B	0.423	2.021		1	1	31.767			
00			C	0.423	2.021		1	1	31.767			
T6	0.594	3.129	A	0.422	2.023	0.009	1	1	31.676	0.719	0.036	B
500.000-480.0			B	0.422	2.023		1	1	31.676			
00			C	0.422	2.023		1	1	31.676			
T7	0.612	3.800	A	0.444	1.983	0.009	1	1	34.279	0.744	0.037	B
480.000-460.0			B	0.444	1.983		1	1	34.279			
00			C	0.444	1.983		1	1	34.279			
T8	0.671	3.469	A	0.43	2.007	0.009	1	1	32.540	0.745	0.037	B
460.000-440.0			B	0.43	2.007		1	1	32.540			
00			C	0.43	2.007		1	1	32.540			
T9	0.667	3.333	A	0.423	2.02	0.009	1	1	31.920	0.734	0.037	B
440.000-420.0			B	0.423	2.02		1	1	31.920			
00			C	0.423	2.02		1	1	31.920			
T10	0.663	3.322	A	0.422	2.022	0.009	1	1	31.814	0.725	0.036	B
420.000-400.0			B	0.422	2.022		1	1	31.814			
00			C	0.422	2.022		1	1	31.814			
T11	0.933	3.310	A	0.421	2.024	0.009	1	1	31.703	0.824	0.041	A
400.000-380.0			B	0.421	2.024		1	1	31.703			
00			C	0.421	2.024		1	1	31.703			
T12	1.005	4.151	A	0.445	1.981	0.009	1	1	34.334	0.860	0.043	A
380.000-360.0			B	0.445	1.981		1	1	34.334			
00			C	0.445	1.981		1	1	34.334			
T13	1.095	3.539	A	0.423	2.019	0.009	1	1	32.005	0.875	0.044	A
360.000-340.0			B	0.423	2.019		1	1	32.005			
00			C	0.423	2.019		1	1	32.005			
T14	1.155	3.526	A	0.422	2.022	0.009	1	1	31.877	0.890	0.045	A
340.000-320.0			B	0.422	2.022		1	1	31.877			
00			C	0.422	2.022		1	1	31.877			
T15	1.146	3.512	A	0.421	2.025	0.009	1	1	31.742	0.877	0.044	A
320.000-300.0			B	0.421	2.025		1	1	31.742			
00			C	0.421	2.025		1	1	31.742			
T16	1.208	3.894	A	0.43	2.008	0.008	1	1	32.653	0.893	0.045	A
300.000-280.0			B	0.43	2.008		1	1	32.653			
00			C	0.43	2.008		1	1	32.653			
T17	1.890	4.195	A	0.441	1.989	0.008	1	1	34.122	1.126	0.056	C
280.000-260.0			B	0.441	1.989		1	1	34.122			
00			C	0.441	1.989		1	1	34.122			
T18	1.909	3.737	A	0.421	2.025	0.008	1	1	31.826	1.117	0.056	C
260.000-240.0			B	0.421	2.025		1	1	31.826			
00			C	0.421	2.025		1	1	31.826			
T19	1.945	3.719	A	0.419	2.028	0.008	1	1	31.652	1.115	0.056	C
240.000-220.0			B	0.419	2.028		1	1	31.652			
00			C	0.419	2.028		1	1	31.652			
T20	2.046	3.700	A	0.417	2.032	0.008	1	1	31.464	1.127	0.056	C
220.000-200.0			B	0.417	2.032		1	1	31.464			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
00			C	0.417	2.032		1	1	31.464			
T21	2.171	4.328	A	0.439	1.993	0.008	1	1	33.895	1.140	0.057	C
200.000-180.0			B	0.439	1.993		1	1	33.895			
00			C	0.439	1.993		1	1	33.895			
T22	2.147	3.777	A	0.418	2.03	0.008	1	1	31.539	1.113	0.056	C
180.000-160.0			B	0.418	2.03		1	1	31.539			
00			C	0.418	2.03		1	1	31.539			
T23	2.117	3.630	A	0.41	2.045	0.007	1	1	30.789	1.083	0.054	C
160.000-140.0			B	0.41	2.045		1	1	30.789			
00			C	0.41	2.045		1	1	30.789			
T24	2.189	3.601	A	0.406	2.051	0.007	1	1	30.511	1.091	0.055	C
140.000-120.0			B	0.406	2.051		1	1	30.511			
00			C	0.406	2.051		1	1	30.511			
T25	2.149	3.689	A	0.409	2.047	0.007	1	1	30.689	1.046	0.052	C
120.000-100.0			B	0.409	2.047		1	1	30.689			
00			C	0.409	2.047		1	1	30.689			
T26	2.104	4.253	A	0.422	2.022	0.007	1	1	32.442	0.997	0.050	C
100.000-80.00			B	0.422	2.022		1	1	32.442			
0			C	0.422	2.022		1	1	32.442			
T27	2.048	3.775	A	0.399	2.066	0.006	1	1	29.898	0.941	0.047	C
80.000-60.000			B	0.399	2.066		1	1	29.898			
			C	0.399	2.066		1	1	29.898			
T28	2.014	3.715	A	0.392	2.079	0.006	1	1	29.311	0.878	0.044	C
60.000-40.000			B	0.392	2.079		1	1	29.311			
			C	0.392	2.079		1	1	29.311			
T29	1.959	3.630	A	0.383	2.099	0.005	1	1	28.468	0.789	0.039	C
40.000-20.000			B	0.383	2.099		1	1	28.468			
			C	0.383	2.099		1	1	28.468			
T30	1.100	2.155	A	0.379	2.107	0.005	1	1	17.008	0.404	0.034	C
20.000-8.000			B	0.379	2.107		1	1	17.008			
			C	0.379	2.107		1	1	17.008			
T31	0.000	2.027	A	0.746	1.786	0.005	1	1	15.915	0.109	0.014	C
8.000-0.000			B	0.746	1.786		1	1	15.915			
			C	0.746	1.786		1	1	15.915			
Sum Weight:	39.294	109.768								26.640		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	1.989	A	1	1.2	0.010	1	1	36.924	0.589	0.018	C
625.000-592.0			B	1	1.2		1	1	36.924			
00			C	1	1.2		1	1	36.924			
T1	0.136	2.235	A	0.46	1.957	0.010	0.8	1	20.589	0.384	0.032	C
592.000-580.0			B	0.46	1.957		0.8	1	20.589			
00			C	0.46	1.957		0.8	1	20.589			
T2	0.255	2.951	A	0.42	2.025	0.010	0.8	1	30.282	0.604	0.030	C
580.000-560.0			B	0.42	2.025		0.8	1	30.282			
00			C	0.42	2.025		0.8	1	30.282			
T3	0.342	2.942	A	0.42	2.027	0.010	0.8	1	30.200	0.625	0.031	C
560.000-540.0			B	0.42	2.027		0.8	1	30.200			
00			C	0.42	2.027		0.8	1	30.200			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T4	0.428	3.596	A	0.442	1.986	0.010	0.8	1	32.541	0.669	0.033	C
540.000-520.0			B	0.442	1.986		0.8	1	32.541			
00			C	0.442	1.986		0.8	1	32.541			
T5	0.597	3.139	A	0.423	2.021	0.009	0.8	1	30.569	0.707	0.035	C
520.000-500.0			B	0.423	2.021		0.8	1	30.569			
00			C	0.423	2.021		0.8	1	30.569			
T6	0.594	3.129	A	0.422	2.023	0.009	0.8	1	30.478	0.700	0.035	C
500.000-480.0			B	0.422	2.023		0.8	1	30.478			
00			C	0.422	2.023		0.8	1	30.478			
T7	0.612	3.800	A	0.444	1.983	0.009	0.8	1	32.808	0.720	0.036	C
480.000-460.0			B	0.444	1.983		0.8	1	32.808			
00			C	0.444	1.983		0.8	1	32.808			
T8	0.671	3.469	A	0.43	2.007	0.009	0.8	1	31.347	0.726	0.036	C
460.000-440.0			B	0.43	2.007		0.8	1	31.347			
00			C	0.43	2.007		0.8	1	31.347			
T9	0.667	3.333	A	0.423	2.02	0.009	0.8	1	30.727	0.715	0.036	C
440.000-420.0			B	0.423	2.02		0.8	1	30.727			
00			C	0.423	2.02		0.8	1	30.727			
T10	0.663	3.322	A	0.422	2.022	0.009	0.8	1	30.621	0.707	0.035	C
420.000-400.0			B	0.422	2.022		0.8	1	30.621			
00			C	0.422	2.022		0.8	1	30.621			
T11	0.933	3.310	A	0.421	2.024	0.009	0.8	1	30.510	0.806	0.040	B
400.000-380.0			B	0.421	2.024		0.8	1	30.510			
00			C	0.421	2.024		0.8	1	30.510			
T12	1.005	4.151	A	0.445	1.981	0.009	0.8	1	32.948	0.839	0.042	B
380.000-360.0			B	0.445	1.981		0.8	1	32.948			
00			C	0.445	1.981		0.8	1	32.948			
T13	1.095	3.539	A	0.423	2.019	0.009	0.8	1	30.818	0.857	0.043	B
360.000-340.0			B	0.423	2.019		0.8	1	30.818			
00			C	0.423	2.019		0.8	1	30.818			
T14	1.155	3.526	A	0.422	2.022	0.009	0.8	1	30.689	0.872	0.044	B
340.000-320.0			B	0.422	2.022		0.8	1	30.689			
00			C	0.422	2.022		0.8	1	30.689			
T15	1.146	3.512	A	0.421	2.025	0.009	0.8	1	30.554	0.859	0.043	B
320.000-300.0			B	0.421	2.025		0.8	1	30.554			
00			C	0.421	2.025		0.8	1	30.554			
T16	1.208	3.894	A	0.43	2.008	0.008	0.8	1	31.471	0.876	0.044	B
300.000-280.0			B	0.43	2.008		0.8	1	31.471			
00			C	0.43	2.008		0.8	1	31.471			
T17	1.890	4.195	A	0.441	1.989	0.008	0.8	1	32.664	1.105	0.055	A
280.000-260.0			B	0.441	1.989		0.8	1	32.664			
00			C	0.441	1.989		0.8	1	32.664			
T18	1.909	3.737	A	0.421	2.025	0.008	0.8	1	30.643	1.101	0.055	A
260.000-240.0			B	0.421	2.025		0.8	1	30.643			
00			C	0.421	2.025		0.8	1	30.643			
T19	1.945	3.719	A	0.419	2.028	0.008	0.8	1	30.469	1.099	0.055	A
240.000-220.0			B	0.419	2.028		0.8	1	30.469			
00			C	0.419	2.028		0.8	1	30.469			
T20	2.046	3.700	A	0.417	2.032	0.008	0.8	1	30.281	1.111	0.056	A
220.000-200.0			B	0.417	2.032		0.8	1	30.281			
00			C	0.417	2.032		0.8	1	30.281			
T21	2.171	4.328	A	0.439	1.993	0.008	0.8	1	32.437	1.121	0.056	A
200.000-180.0			B	0.439	1.993		0.8	1	32.437			
00			C	0.439	1.993		0.8	1	32.437			
T22	2.147	3.777	A	0.418	2.03	0.008	0.8	1	30.357	1.097	0.055	A
180.000-160.0			B	0.418	2.03		0.8	1	30.357			
00			C	0.418	2.03		0.8	1	30.357			
T23	2.117	3.630	A	0.41	2.045	0.007	0.8	1	29.607	1.068	0.053	A
160.000-140.0			B	0.41	2.045		0.8	1	29.607			
00			C	0.41	2.045		0.8	1	29.607			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T24	2.189	3.601	A	0.406	2.051	0.007	0.8	1	29.329	1.076	0.054	A
140.000-120.0			B	0.406	2.051		0.8	1	29.329			
00			C	0.406	2.051		0.8	1	29.329			
T25	2.149	3.689	A	0.409	2.047	0.007	0.8	1	29.506	1.032	0.052	A
120.000-100.0			B	0.409	2.047		0.8	1	29.506			
00			C	0.409	2.047		0.8	1	29.506			
T26	2.104	4.253	A	0.422	2.022	0.007	0.8	1	30.990	0.981	0.049	A
100.000-80.00			B	0.422	2.022		0.8	1	30.990			
0			C	0.422	2.022		0.8	1	30.990			
T27	2.048	3.775	A	0.399	2.066	0.006	0.8	1	28.721	0.928	0.046	A
80.000-60.000			B	0.399	2.066		0.8	1	28.721			
			C	0.399	2.066		0.8	1	28.721			
T28	2.014	3.715	A	0.392	2.079	0.006	0.8	1	28.134	0.866	0.043	A
60.000-40.000			B	0.392	2.079		0.8	1	28.134			
			C	0.392	2.079		0.8	1	28.134			
T29	1.959	3.630	A	0.383	2.099	0.005	0.8	1	27.290	0.778	0.039	A
40.000-20.000			B	0.383	2.099		0.8	1	27.290			
			C	0.383	2.099		0.8	1	27.290			
T30	1.100	2.155	A	0.379	2.107	0.005	0.8	1	16.223	0.398	0.033	A
20.000-8.000			B	0.379	2.107		0.8	1	16.223			
			C	0.379	2.107		0.8	1	16.223			
T31	0.000	2.027	A	0.746	1.786	0.005	0.8	1	14.558	0.100	0.012	C
8.000-0.000			B	0.746	1.786		0.8	1	14.558			
			C	0.746	1.786		0.8	1	14.558			
Sum Weight:	39.294	109.768								26.116		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	1.989	A	1	1.2	0.010	1	1	36.924	0.589	0.018	C
625.000-592.0			B	1	1.2		1	1	36.924			
00			C	1	1.2		1	1	36.924			
T1	0.136	2.235	A	0.46	1.957	0.010	0.85	1	20.860	0.388	0.032	C
592.000-580.0			B	0.46	1.957		0.85	1	20.860			
00			C	0.46	1.957		0.85	1	20.860			
T2	0.255	2.951	A	0.42	2.025	0.010	0.85	1	30.582	0.608	0.030	C
580.000-560.0			B	0.42	2.025		0.85	1	30.582			
00			C	0.42	2.025		0.85	1	30.582			
T3	0.342	2.942	A	0.42	2.027	0.010	0.85	1	30.500	0.629	0.031	C
560.000-540.0			B	0.42	2.027		0.85	1	30.500			
00			C	0.42	2.027		0.85	1	30.500			
T4	0.428	3.596	A	0.442	1.986	0.010	0.85	1	32.910	0.674	0.034	C
540.000-520.0			B	0.442	1.986		0.85	1	32.910			
00			C	0.442	1.986		0.85	1	32.910			
T5	0.597	3.139	A	0.423	2.021	0.009	0.85	1	30.868	0.711	0.036	C
520.000-500.0			B	0.423	2.021		0.85	1	30.868			
00			C	0.423	2.021		0.85	1	30.868			
T6	0.594	3.129	A	0.422	2.023	0.009	0.85	1	30.777	0.704	0.035	C
500.000-480.0			B	0.422	2.023		0.85	1	30.777			
00			C	0.422	2.023		0.85	1	30.777			
T7	0.612	3.800	A	0.444	1.983	0.009	0.85	1	33.176	0.726	0.036	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
480.000-460.0			B	0.444	1.983		0.85	1	33.176			
00			C	0.444	1.983		0.85	1	33.176			
T8	0.671	3.469	A	0.43	2.007	0.009	0.85	1	31.645	0.730	0.037	C
460.000-440.0			B	0.43	2.007		0.85	1	31.645			
00			C	0.43	2.007		0.85	1	31.645			
T9	0.667	3.333	A	0.423	2.02	0.009	0.85	1	31.025	0.719	0.036	C
440.000-420.0			B	0.423	2.02		0.85	1	31.025			
00			C	0.423	2.02		0.85	1	31.025			
T10	0.663	3.322	A	0.422	2.022	0.009	0.85	1	30.919	0.710	0.036	C
420.000-400.0			B	0.422	2.022		0.85	1	30.919			
00			C	0.422	2.022		0.85	1	30.919			
T11	0.933	3.310	A	0.421	2.024	0.009	0.85	1	30.808	0.810	0.040	C
400.000-380.0			B	0.421	2.024		0.85	1	30.808			
00			C	0.421	2.024		0.85	1	30.808			
T12	1.005	4.151	A	0.445	1.981	0.009	0.85	1	33.295	0.843	0.042	C
380.000-360.0			B	0.445	1.981		0.85	1	33.295			
00			C	0.445	1.981		0.85	1	33.295			
T13	1.095	3.539	A	0.423	2.019	0.009	0.85	1	31.115	0.861	0.043	C
360.000-340.0			B	0.423	2.019		0.85	1	31.115			
00			C	0.423	2.019		0.85	1	31.115			
T14	1.155	3.526	A	0.422	2.022	0.009	0.85	1	30.986	0.876	0.044	C
340.000-320.0			B	0.422	2.022		0.85	1	30.986			
00			C	0.422	2.022		0.85	1	30.986			
T15	1.146	3.512	A	0.421	2.025	0.009	0.85	1	30.851	0.863	0.043	C
320.000-300.0			B	0.421	2.025		0.85	1	30.851			
00			C	0.421	2.025		0.85	1	30.851			
T16	1.208	3.894	A	0.43	2.008	0.008	0.85	1	31.767	0.880	0.044	C
300.000-280.0			B	0.43	2.008		0.85	1	31.767			
00			C	0.43	2.008		0.85	1	31.767			
T17	1.890	4.195	A	0.441	1.989	0.008	0.85	1	33.029	1.079	0.054	B
280.000-260.0			B	0.441	1.989		0.85	1	33.029			
00			C	0.441	1.989		0.85	1	33.029			
T18	1.909	3.737	A	0.421	2.025	0.008	0.85	1	30.939	1.073	0.054	B
260.000-240.0			B	0.421	2.025		0.85	1	30.939			
00			C	0.421	2.025		0.85	1	30.939			
T19	1.945	3.719	A	0.419	2.028	0.008	0.85	1	30.765	1.071	0.054	B
240.000-220.0			B	0.419	2.028		0.85	1	30.765			
00			C	0.419	2.028		0.85	1	30.765			
T20	2.046	3.700	A	0.417	2.032	0.008	0.85	1	30.577	1.084	0.054	B
220.000-200.0			B	0.417	2.032		0.85	1	30.577			
00			C	0.417	2.032		0.85	1	30.577			
T21	2.171	4.328	A	0.439	1.993	0.008	0.85	1	32.801	1.100	0.055	B
200.000-180.0			B	0.439	1.993		0.85	1	32.801			
00			C	0.439	1.993		0.85	1	32.801			
T22	2.147	3.777	A	0.418	2.03	0.008	0.85	1	30.653	1.075	0.054	B
180.000-160.0			B	0.418	2.03		0.85	1	30.653			
00			C	0.418	2.03		0.85	1	30.653			
T23	2.117	3.630	A	0.41	2.045	0.007	0.85	1	29.902	1.046	0.052	B
160.000-140.0			B	0.41	2.045		0.85	1	29.902			
00			C	0.41	2.045		0.85	1	29.902			
T24	2.189	3.601	A	0.406	2.051	0.007	0.85	1	29.624	1.050	0.053	B
140.000-120.0			B	0.406	2.051		0.85	1	29.624			
00			C	0.406	2.051		0.85	1	29.624			
T25	2.149	3.689	A	0.409	2.047	0.007	0.85	1	29.802	1.007	0.050	B
120.000-100.0			B	0.409	2.047		0.85	1	29.802			
00			C	0.409	2.047		0.85	1	29.802			
T26	2.104	4.253	A	0.422	2.022	0.007	0.85	1	31.353	0.958	0.048	B
100.000-80.00			B	0.422	2.022		0.85	1	31.353			
0			C	0.422	2.022		0.85	1	31.353			
T27	2.048	3.775	A	0.399	2.066	0.006	0.85	1	29.016	0.905	0.045	B

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
80.000-60.000			B	0.399	2.066		0.85	1	29.016			
			C	0.399	2.066		0.85	1	29.016			
T28	2.014	3.715	A	0.392	2.079	0.006	0.85	1	28.429	0.844	0.042	B
60.000-40.000			B	0.392	2.079		0.85	1	28.429			
			C	0.392	2.079		0.85	1	28.429			
T29	1.959	3.630	A	0.383	2.099	0.005	0.85	1	27.585	0.757	0.038	B
40.000-20.000			B	0.383	2.099		0.85	1	27.585			
			C	0.383	2.099		0.85	1	27.585			
T30	1.100	2.155	A	0.379	2.107	0.005	0.85	1	16.419	0.387	0.032	B
20.000-8.000			B	0.379	2.107		0.85	1	16.419			
			C	0.379	2.107		0.85	1	16.419			
T31	0.000	2.027	A	0.746	1.786	0.005	0.85	1	14.897	0.102	0.013	C
8.000-0.000			B	0.746	1.786		0.85	1	14.897			
			C	0.746	1.786		0.85	1	14.897			
Sum Weight:	39.294	109.768								25.859		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.647	0.014	1	1	29.563	0.366	0.011	C
625.000-592.0			B	1	0.647		1	1	29.563			
00			C	1	0.647		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.014	1	1	9.301	0.336	0.028	B
592.000-580.0			B	0.196	2.61		1	1	9.301			
00			C	0.196	2.61		1	1	9.301			
T2	0.036	1.287	A	0.161	2.732	0.014	1	1	12.089	0.480	0.024	B
580.000-560.0			B	0.161	2.732		1	1	12.089			
00			C	0.161	2.732		1	1	12.089			
T3	0.053	1.287	A	0.161	2.732	0.014	1	1	12.089	0.512	0.026	B
560.000-540.0			B	0.161	2.732		1	1	12.089			
00			C	0.161	2.732		1	1	12.089			
T4	0.071	1.825	A	0.187	2.639	0.014	1	1	14.331	0.599	0.030	B
540.000-520.0			B	0.187	2.639		1	1	14.331			
00			C	0.187	2.639		1	1	14.331			
T5	0.071	1.477	A	0.168	2.707	0.014	1	1	12.539	0.619	0.031	B
520.000-500.0			B	0.168	2.707		1	1	12.539			
00			C	0.168	2.707		1	1	12.539			
T6	0.071	1.477	A	0.168	2.707	0.014	1	1	12.539	0.614	0.031	B
500.000-480.0			B	0.168	2.707		1	1	12.539			
00			C	0.168	2.707		1	1	12.539			
T7	0.073	2.035	A	0.194	2.616	0.013	1	1	14.781	0.667	0.033	B
480.000-460.0			B	0.194	2.616		1	1	14.781			
00			C	0.194	2.616		1	1	14.781			
T8	0.078	1.775	A	0.181	2.661	0.013	1	1	13.362	0.638	0.032	B
460.000-440.0			B	0.181	2.661		1	1	13.362			
00			C	0.181	2.661		1	1	13.362			
T9	0.078	1.688	A	0.175	2.682	0.013	1	1	12.991	0.624	0.031	B
440.000-420.0			B	0.175	2.682		1	1	12.991			
00			C	0.175	2.682		1	1	12.991			
T10	0.078	1.688	A	0.175	2.682	0.013	1	1	12.991	0.565	0.028	B
420.000-400.0			B	0.175	2.682		1	1	12.991			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
00			C	0.175	2.682		1	1	12.991			
T11	0.112	1.688	A	0.175	2.682	0.013	1	1	12.991	0.614	0.031	A
400.000-380.0			B	0.175	2.682		1	1	12.991			
00			C	0.175	2.682		1	1	12.991			
T12	0.119	2.417	A	0.203	2.586	0.013	1	1	15.203	0.670	0.033	A
380.000-360.0			B	0.203	2.586		1	1	15.203			
00			C	0.203	2.586		1	1	15.203			
T13	0.128	1.918	A	0.182	2.658	0.013	1	1	13.446	0.639	0.032	A
360.000-340.0			B	0.182	2.658		1	1	13.446			
00			C	0.182	2.658		1	1	13.446			
T14	0.134	1.918	A	0.182	2.658	0.012	1	1	13.446	0.642	0.032	A
340.000-320.0			B	0.182	2.658		1	1	13.446			
00			C	0.182	2.658		1	1	13.446			
T15	0.134	1.918	A	0.182	2.658	0.012	1	1	13.446	0.634	0.032	A
320.000-300.0			B	0.182	2.658		1	1	13.446			
00			C	0.182	2.658		1	1	13.446			
T16	0.140	2.256	A	0.194	2.615	0.012	1	1	14.274	0.653	0.033	A
300.000-280.0			B	0.194	2.615		1	1	14.274			
00			C	0.194	2.615		1	1	14.274			
T17	0.312	2.516	A	0.207	2.571	0.012	1	1	15.688	0.883	0.044	C
280.000-260.0			B	0.207	2.571		1	1	15.688			
00			C	0.207	2.571		1	1	15.688			
T18	0.315	2.169	A	0.188	2.635	0.012	1	1	13.903	0.838	0.042	C
260.000-240.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T19	0.324	2.169	A	0.188	2.635	0.012	1	1	13.903	0.831	0.042	C
240.000-220.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T20	0.353	2.169	A	0.188	2.635	0.011	1	1	13.903	0.834	0.042	C
220.000-200.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T21	0.379	2.693	A	0.213	2.552	0.011	1	1	16.064	0.882	0.044	C
200.000-180.0			B	0.213	2.552		1	1	16.064			
00			C	0.213	2.552		1	1	16.064			
T22	0.379	2.256	A	0.194	2.615	0.011	1	1	14.274	0.829	0.041	C
180.000-160.0			B	0.194	2.615		1	1	14.274			
00			C	0.194	2.615		1	1	14.274			
T23	0.379	2.169	A	0.188	2.635	0.011	1	1	13.903	0.802	0.040	C
160.000-140.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T24	0.403	2.169	A	0.188	2.635	0.010	1	1	13.903	0.803	0.040	C
140.000-120.0			B	0.188	2.635		1	1	13.903			
00			C	0.188	2.635		1	1	13.903			
T25	0.403	2.256	A	0.194	2.615	0.010	1	1	14.274	0.782	0.039	C
120.000-100.0			B	0.194	2.615		1	1	14.274			
00			C	0.194	2.615		1	1	14.274			
T26	0.403	2.787	A	0.214	2.55	0.009	1	1	16.145	0.782	0.039	C
100.000-80.00			B	0.214	2.55		1	1	16.145			
0			C	0.214	2.55		1	1	16.145			
T27	0.403	2.439	A	0.195	2.612	0.009	1	1	14.362	0.715	0.036	C
80.000-60.000			B	0.195	2.612		1	1	14.362			
			C	0.195	2.612		1	1	14.362			
T28	0.407	2.439	A	0.195	2.612	0.008	1	1	14.362	0.676	0.034	C
60.000-40.000			B	0.195	2.612		1	1	14.362			
			C	0.195	2.612		1	1	14.362			
T29	0.412	2.439	A	0.195	2.612	0.008	1	1	14.362	0.618	0.031	C
40.000-20.000			B	0.195	2.612		1	1	14.362			
			C	0.195	2.612		1	1	14.362			
T30	0.248	1.481	A	0.201	2.592	0.007	1	1	9.012	0.316	0.026	C
20.000-8.000			B	0.201	2.592		1	1	9.012			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
			C	0.201	2.592		1	1	9.012			
T31	0.000	1.466	A	0.523	1.871	0.007	1	1	10.249	0.106	0.013	C
8.000-0.000			B	0.523	1.871		1	1	10.249			
			C	0.523	1.871		1	1	10.249			
Sum Weight:	6.513	62.706								20.570		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.647	0.014	1	1	29.563	0.366	0.011	C
625.000-592.0			B	1	0.647		1	1	29.563			
00			C	1	0.647		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.014	0.8	1	8.218	0.302	0.025	C
592.000-580.0			B	0.196	2.61		0.8	1	8.218			
00			C	0.196	2.61		0.8	1	8.218			
T2	0.036	1.287	A	0.161	2.732	0.014	0.8	1	10.886	0.441	0.022	C
580.000-560.0			B	0.161	2.732		0.8	1	10.886			
00			C	0.161	2.732		0.8	1	10.886			
T3	0.053	1.287	A	0.161	2.732	0.014	0.8	1	10.886	0.473	0.024	C
560.000-540.0			B	0.161	2.732		0.8	1	10.886			
00			C	0.161	2.732		0.8	1	10.886			
T4	0.071	1.825	A	0.187	2.639	0.014	0.8	1	12.854	0.553	0.028	C
540.000-520.0			B	0.187	2.639		0.8	1	12.854			
00			C	0.187	2.639		0.8	1	12.854			
T5	0.071	1.477	A	0.168	2.707	0.014	0.8	1	11.341	0.581	0.029	C
520.000-500.0			B	0.168	2.707		0.8	1	11.341			
00			C	0.168	2.707		0.8	1	11.341			
T6	0.071	1.477	A	0.168	2.707	0.014	0.8	1	11.341	0.577	0.029	C
500.000-480.0			B	0.168	2.707		0.8	1	11.341			
00			C	0.168	2.707		0.8	1	11.341			
T7	0.073	2.035	A	0.194	2.616	0.013	0.8	1	13.310	0.624	0.031	C
480.000-460.0			B	0.194	2.616		0.8	1	13.310			
00			C	0.194	2.616		0.8	1	13.310			
T8	0.078	1.775	A	0.181	2.661	0.013	0.8	1	12.169	0.602	0.030	C
460.000-440.0			B	0.181	2.661		0.8	1	12.169			
00			C	0.181	2.661		0.8	1	12.169			
T9	0.078	1.688	A	0.175	2.682	0.013	0.8	1	11.799	0.588	0.029	C
440.000-420.0			B	0.175	2.682		0.8	1	11.799			
00			C	0.175	2.682		0.8	1	11.799			
T10	0.078	1.688	A	0.175	2.682	0.013	0.8	1	11.799	0.530	0.026	C
420.000-400.0			B	0.175	2.682		0.8	1	11.799			
00			C	0.175	2.682		0.8	1	11.799			
T11	0.112	1.688	A	0.175	2.682	0.013	0.8	1	11.799	0.579	0.029	B
400.000-380.0			B	0.175	2.682		0.8	1	11.799			
00			C	0.175	2.682		0.8	1	11.799			
T12	0.119	2.417	A	0.203	2.586	0.013	0.8	1	13.818	0.631	0.032	B
380.000-360.0			B	0.203	2.586		0.8	1	13.818			
00			C	0.203	2.586		0.8	1	13.818			
T13	0.128	1.918	A	0.182	2.658	0.013	0.8	1	12.258	0.605	0.030	B
360.000-340.0			B	0.182	2.658		0.8	1	12.258			
00			C	0.182	2.658		0.8	1	12.258			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T14	0.134	1.918	A	0.182	2.658	0.012	0.8	1	12.258	0.609	0.030	B
340.000-320.0			B	0.182	2.658		0.8	1	12.258			
00			C	0.182	2.658		0.8	1	12.258			
T15	0.134	1.918	A	0.182	2.658	0.012	0.8	1	12.258	0.601	0.030	B
320.000-300.0			B	0.182	2.658		0.8	1	12.258			
00			C	0.182	2.658		0.8	1	12.258			
T16	0.140	2.256	A	0.194	2.615	0.012	0.8	1	13.092	0.621	0.031	B
300.000-280.0			B	0.194	2.615		0.8	1	13.092			
00			C	0.194	2.615		0.8	1	13.092			
T17	0.312	2.516	A	0.207	2.571	0.012	0.8	1	14.229	0.845	0.042	A
280.000-260.0			B	0.207	2.571		0.8	1	14.229			
00			C	0.207	2.571		0.8	1	14.229			
T18	0.315	2.169	A	0.188	2.635	0.012	0.8	1	12.720	0.807	0.040	A
260.000-240.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T19	0.324	2.169	A	0.188	2.635	0.012	0.8	1	12.720	0.801	0.040	A
240.000-220.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T20	0.353	2.169	A	0.188	2.635	0.011	0.8	1	12.720	0.804	0.040	A
220.000-200.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T21	0.379	2.693	A	0.213	2.552	0.011	0.8	1	14.606	0.847	0.042	A
200.000-180.0			B	0.213	2.552		0.8	1	14.606			
00			C	0.213	2.552		0.8	1	14.606			
T22	0.379	2.256	A	0.194	2.615	0.011	0.8	1	13.092	0.801	0.040	A
180.000-160.0			B	0.194	2.615		0.8	1	13.092			
00			C	0.194	2.615		0.8	1	13.092			
T23	0.379	2.169	A	0.188	2.635	0.011	0.8	1	12.720	0.774	0.039	A
160.000-140.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T24	0.403	2.169	A	0.188	2.635	0.010	0.8	1	12.720	0.776	0.039	A
140.000-120.0			B	0.188	2.635		0.8	1	12.720			
00			C	0.188	2.635		0.8	1	12.720			
T25	0.403	2.256	A	0.194	2.615	0.010	0.8	1	13.092	0.756	0.038	A
120.000-100.0			B	0.194	2.615		0.8	1	13.092			
00			C	0.194	2.615		0.8	1	13.092			
T26	0.403	2.787	A	0.214	2.55	0.009	0.8	1	14.693	0.752	0.038	A
100.000-80.00			B	0.214	2.55		0.8	1	14.693			
0			C	0.214	2.55		0.8	1	14.693			
T27	0.403	2.439	A	0.195	2.612	0.009	0.8	1	13.185	0.691	0.035	A
80.000-60.000			B	0.195	2.612		0.8	1	13.185			
			C	0.195	2.612		0.8	1	13.185			
T28	0.407	2.439	A	0.195	2.612	0.008	0.8	1	13.185	0.654	0.033	A
60.000-40.000			B	0.195	2.612		0.8	1	13.185			
			C	0.195	2.612		0.8	1	13.185			
T29	0.412	2.439	A	0.195	2.612	0.008	0.8	1	13.185	0.598	0.030	A
40.000-20.000			B	0.195	2.612		0.8	1	13.185			
			C	0.195	2.612		0.8	1	13.185			
T30	0.248	1.481	A	0.201	2.592	0.007	0.8	1	8.227	0.305	0.025	A
20.000-8.000			B	0.201	2.592		0.8	1	8.227			
			C	0.201	2.592		0.8	1	8.227			
T31	0.000	1.466	A	0.523	1.871	0.007	0.8	1	8.892	0.092	0.012	C
8.000-0.000			B	0.523	1.871		0.8	1	8.892			
			C	0.523	1.871		0.8	1	8.892			
Sum Weight:	6.513	62.706								19.587		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	1.337	A	1	0.647	0.014	1	1	29.563	0.366	0.011	C
625.000-592.0			B	1	0.647		1	1	29.563			
00			C	1	0.647		1	1	29.563			
T1	0.018	1.102	A	0.196	2.61	0.014	0.85	1	8.489	0.310	0.026	C
592.000-580.0			B	0.196	2.61		0.85	1	8.489			
00			C	0.196	2.61		0.85	1	8.489			
T2	0.036	1.287	A	0.161	2.732	0.014	0.85	1	11.187	0.450	0.022	C
580.000-560.0			B	0.161	2.732		0.85	1	11.187			
00			C	0.161	2.732		0.85	1	11.187			
T3	0.053	1.287	A	0.161	2.732	0.014	0.85	1	11.187	0.481	0.024	C
560.000-540.0			B	0.161	2.732		0.85	1	11.187			
00			C	0.161	2.732		0.85	1	11.187			
T4	0.071	1.825	A	0.187	2.639	0.014	0.85	1	13.223	0.563	0.028	C
540.000-520.0			B	0.187	2.639		0.85	1	13.223			
00			C	0.187	2.639		0.85	1	13.223			
T5	0.071	1.477	A	0.168	2.707	0.014	0.85	1	11.641	0.589	0.029	C
520.000-500.0			B	0.168	2.707		0.85	1	11.641			
00			C	0.168	2.707		0.85	1	11.641			
T6	0.071	1.477	A	0.168	2.707	0.014	0.85	1	11.641	0.585	0.029	C
500.000-480.0			B	0.168	2.707		0.85	1	11.641			
00			C	0.168	2.707		0.85	1	11.641			
T7	0.073	2.035	A	0.194	2.616	0.013	0.85	1	13.677	0.634	0.032	C
480.000-460.0			B	0.194	2.616		0.85	1	13.677			
00			C	0.194	2.616		0.85	1	13.677			
T8	0.078	1.775	A	0.181	2.661	0.013	0.85	1	12.467	0.610	0.031	C
460.000-440.0			B	0.181	2.661		0.85	1	12.467			
00			C	0.181	2.661		0.85	1	12.467			
T9	0.078	1.688	A	0.175	2.682	0.013	0.85	1	12.097	0.596	0.030	C
440.000-420.0			B	0.175	2.682		0.85	1	12.097			
00			C	0.175	2.682		0.85	1	12.097			
T10	0.078	1.688	A	0.175	2.682	0.013	0.85	1	12.097	0.537	0.027	C
420.000-400.0			B	0.175	2.682		0.85	1	12.097			
00			C	0.175	2.682		0.85	1	12.097			
T11	0.112	1.688	A	0.175	2.682	0.013	0.85	1	12.097	0.590	0.029	C
400.000-380.0			B	0.175	2.682		0.85	1	12.097			
00			C	0.175	2.682		0.85	1	12.097			
T12	0.119	2.417	A	0.203	2.586	0.013	0.85	1	14.164	0.642	0.032	C
380.000-360.0			B	0.203	2.586		0.85	1	14.164			
00			C	0.203	2.586		0.85	1	14.164			
T13	0.128	1.918	A	0.182	2.658	0.013	0.85	1	12.555	0.616	0.031	C
360.000-340.0			B	0.182	2.658		0.85	1	12.555			
00			C	0.182	2.658		0.85	1	12.555			
T14	0.134	1.918	A	0.182	2.658	0.012	0.85	1	12.555	0.619	0.031	C
340.000-320.0			B	0.182	2.658		0.85	1	12.555			
00			C	0.182	2.658		0.85	1	12.555			
T15	0.134	1.918	A	0.182	2.658	0.012	0.85	1	12.555	0.612	0.031	C
320.000-300.0			B	0.182	2.658		0.85	1	12.555			
00			C	0.182	2.658		0.85	1	12.555			
T16	0.140	2.256	A	0.194	2.615	0.012	0.85	1	13.388	0.631	0.032	C
300.000-280.0			B	0.194	2.615		0.85	1	13.388			
00			C	0.194	2.615		0.85	1	13.388			
T17	0.312	2.516	A	0.207	2.571	0.012	0.85	1	14.594	0.856	0.043	B
280.000-260.0			B	0.207	2.571		0.85	1	14.594			
00			C	0.207	2.571		0.85	1	14.594			
T18	0.315	2.169	A	0.188	2.635	0.012	0.85	1	13.016	0.816	0.041	B
260.000-240.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			

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Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T19	0.324	2.169	A	0.188	2.635	0.012	0.85	1	13.016	0.810	0.040	B
240.000-220.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T20	0.353	2.169	A	0.188	2.635	0.011	0.85	1	13.016	0.813	0.041	B
220.000-200.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T21	0.379	2.693	A	0.213	2.552	0.011	0.85	1	14.971	0.864	0.043	B
200.000-180.0			B	0.213	2.552		0.85	1	14.971			
00			C	0.213	2.552		0.85	1	14.971			
T22	0.379	2.256	A	0.194	2.615	0.011	0.85	1	13.388	0.816	0.041	B
180.000-160.0			B	0.194	2.615		0.85	1	13.388			
00			C	0.194	2.615		0.85	1	13.388			
T23	0.379	2.169	A	0.188	2.635	0.011	0.85	1	13.016	0.789	0.039	B
160.000-140.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T24	0.403	2.169	A	0.188	2.635	0.010	0.85	1	13.016	0.790	0.039	B
140.000-120.0			B	0.188	2.635		0.85	1	13.016			
00			C	0.188	2.635		0.85	1	13.016			
T25	0.403	2.256	A	0.194	2.615	0.010	0.85	1	13.388	0.770	0.038	B
120.000-100.0			B	0.194	2.615		0.85	1	13.388			
00			C	0.194	2.615		0.85	1	13.388			
T26	0.403	2.787	A	0.214	2.55	0.009	0.85	1	15.056	0.766	0.038	B
100.000-80.00			B	0.214	2.55		0.85	1	15.056			
0			C	0.214	2.55		0.85	1	15.056			
T27	0.403	2.439	A	0.195	2.612	0.009	0.85	1	13.479	0.704	0.035	B
80.000-60.000			B	0.195	2.612		0.85	1	13.479			
			C	0.195	2.612		0.85	1	13.479			
T28	0.407	2.439	A	0.195	2.612	0.008	0.85	1	13.479	0.666	0.033	B
60.000-40.000			B	0.195	2.612		0.85	1	13.479			
			C	0.195	2.612		0.85	1	13.479			
T29	0.412	2.439	A	0.195	2.612	0.008	0.85	1	13.479	0.609	0.030	B
40.000-20.000			B	0.195	2.612		0.85	1	13.479			
			C	0.195	2.612		0.85	1	13.479			
T30	0.248	1.481	A	0.201	2.592	0.007	0.85	1	8.423	0.311	0.026	B
20.000-8.000			B	0.201	2.592		0.85	1	8.423			
			C	0.201	2.592		0.85	1	8.423			
T31	0.000	1.466	A	0.523	1.871	0.007	0.85	1	9.231	0.096	0.012	C
8.000-0.000			B	0.523	1.871		0.85	1	9.231			
			C	0.523	1.871		0.85	1	9.231			
Sum Weight:	6.513	62.706								19.908		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Leg Weight	45.099			
Bracing Weight	17.607			
Total Member Self-Weight	62.706			
Guy Weight	17.926			
Total Weight	94.955			
Wind 0 deg - No Ice		2.694	-98.795	-7.579
Wind 30 deg - No Ice		50.320	-82.872	-1.330

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Wind 60 deg - No Ice		79.897	-45.600	-2.054
Wind 90 deg - No Ice		90.348	-1.591	-10.516
Wind 120 deg - No Ice		83.327	44.952	-4.494
Wind 150 deg - No Ice		47.427	81.798	13.600
Wind 180 deg - No Ice		-1.874	94.668	13.280
Wind 210 deg - No Ice		-49.043	83.233	5.684
Wind 240 deg - No Ice		-82.958	47.850	1.768
Wind 270 deg - No Ice		-89.986	0.835	4.940
Wind 300 deg - No Ice		-79.351	-43.120	-0.921
Wind 330 deg - No Ice		-47.603	-81.655	-12.379
Member Ice	47.062			
Guy Ice	29.058			
Total Weight Ice	214.099			
Wind 0 deg - Ice		0.505	-31.106	-0.911
Wind 30 deg - Ice		15.594	-26.185	0.995
Wind 60 deg - Ice		25.732	-14.745	0.552
Wind 90 deg - Ice		29.359	-0.297	-1.460
Wind 120 deg - Ice		26.269	14.567	-1.029
Wind 150 deg - Ice		15.057	26.001	1.678
Wind 180 deg - Ice		-0.350	30.535	1.983
Wind 210 deg - Ice		-15.350	26.258	-0.185
Wind 240 deg - Ice		-26.131	15.071	-0.611
Wind 270 deg - Ice		-29.292	0.153	0.410
Wind 300 deg - Ice		-25.699	-14.322	0.016
Wind 330 deg - Ice		-15.094	-25.971	-1.438
Total Weight	94.955			
Wind 0 deg - Service		0.685	-25.145	-1.927
Wind 30 deg - Service		12.807	-21.093	-0.338
Wind 60 deg - Service		20.337	-11.607	-0.522
Wind 90 deg - Service		22.997	-0.404	-2.673
Wind 120 deg - Service		21.209	11.442	-1.142
Wind 150 deg - Service		12.072	20.820	3.457
Wind 180 deg - Service		-0.477	24.095	3.376
Wind 210 deg - Service		-12.482	21.185	1.445
Wind 240 deg - Service		-21.115	12.179	0.449
Wind 270 deg - Service		-22.905	0.212	1.256
Wind 300 deg - Service		-20.198	-10.977	-0.234
Wind 330 deg - Service		-12.116	-20.783	-3.147

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2D+1.0W (pattern 1) 0 deg - No Ice+1.0 Guy
3	1.2D+1.0W (pattern 2) 0 deg - No Ice+1.0 Guy
4	1.2D+1.0W (pattern 3) 0 deg - No Ice+1.0 Guy
5	1.2D+1.0W (pattern 4) 0 deg - No Ice+1.0 Guy
6	1.2D+1.0W (pattern 1) 30 deg - No Ice+1.0 Guy
7	1.2D+1.0W (pattern 2) 30 deg - No Ice+1.0 Guy
8	1.2D+1.0W (pattern 3) 30 deg - No Ice+1.0 Guy
9	1.2D+1.0W (pattern 4) 30 deg - No Ice+1.0 Guy
10	1.2D+1.0W (pattern 1) 60 deg - No Ice+1.0 Guy
11	1.2D+1.0W (pattern 2) 60 deg - No Ice+1.0 Guy

Comb. No.	Description
12	1.2D+1.0W (pattern 3) 60 deg - No Ice+1.0 Guy
13	1.2D+1.0W (pattern 4) 60 deg - No Ice+1.0 Guy
14	1.2D+1.0W (pattern 1) 90 deg - No Ice+1.0 Guy
15	1.2D+1.0W (pattern 2) 90 deg - No Ice+1.0 Guy
16	1.2D+1.0W (pattern 3) 90 deg - No Ice+1.0 Guy
17	1.2D+1.0W (pattern 4) 90 deg - No Ice+1.0 Guy
18	1.2D+1.0W (pattern 1) 120 deg - No Ice+1.0 Guy
19	1.2D+1.0W (pattern 2) 120 deg - No Ice+1.0 Guy
20	1.2D+1.0W (pattern 3) 120 deg - No Ice+1.0 Guy
21	1.2D+1.0W (pattern 4) 120 deg - No Ice+1.0 Guy
22	1.2D+1.0W (pattern 1) 150 deg - No Ice+1.0 Guy
23	1.2D+1.0W (pattern 2) 150 deg - No Ice+1.0 Guy
24	1.2D+1.0W (pattern 3) 150 deg - No Ice+1.0 Guy
25	1.2D+1.0W (pattern 4) 150 deg - No Ice+1.0 Guy
26	1.2D+1.0W (pattern 1) 180 deg - No Ice+1.0 Guy
27	1.2D+1.0W (pattern 2) 180 deg - No Ice+1.0 Guy
28	1.2D+1.0W (pattern 3) 180 deg - No Ice+1.0 Guy
29	1.2D+1.0W (pattern 4) 180 deg - No Ice+1.0 Guy
30	1.2D+1.0W (pattern 1) 210 deg - No Ice+1.0 Guy
31	1.2D+1.0W (pattern 2) 210 deg - No Ice+1.0 Guy
32	1.2D+1.0W (pattern 3) 210 deg - No Ice+1.0 Guy
33	1.2D+1.0W (pattern 4) 210 deg - No Ice+1.0 Guy
34	1.2D+1.0W (pattern 1) 240 deg - No Ice+1.0 Guy
35	1.2D+1.0W (pattern 2) 240 deg - No Ice+1.0 Guy
36	1.2D+1.0W (pattern 3) 240 deg - No Ice+1.0 Guy
37	1.2D+1.0W (pattern 4) 240 deg - No Ice+1.0 Guy
38	1.2D+1.0W (pattern 1) 270 deg - No Ice+1.0 Guy
39	1.2D+1.0W (pattern 2) 270 deg - No Ice+1.0 Guy
40	1.2D+1.0W (pattern 3) 270 deg - No Ice+1.0 Guy
41	1.2D+1.0W (pattern 4) 270 deg - No Ice+1.0 Guy
42	1.2D+1.0W (pattern 1) 300 deg - No Ice+1.0 Guy
43	1.2D+1.0W (pattern 2) 300 deg - No Ice+1.0 Guy
44	1.2D+1.0W (pattern 3) 300 deg - No Ice+1.0 Guy
45	1.2D+1.0W (pattern 4) 300 deg - No Ice+1.0 Guy
46	1.2D+1.0W (pattern 1) 330 deg - No Ice+1.0 Guy
47	1.2D+1.0W (pattern 2) 330 deg - No Ice+1.0 Guy
48	1.2D+1.0W (pattern 3) 330 deg - No Ice+1.0 Guy
49	1.2D+1.0W (pattern 4) 330 deg - No Ice+1.0 Guy
50	1.2 Dead+1.0 Ice+1.0 Temp+Guy
51	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
52	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
53	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
54	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
55	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
56	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
57	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
58	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
59	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
60	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
61	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
62	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
63	Dead+Wind 0 deg - Service+Guy
64	Dead+Wind 30 deg - Service+Guy
65	Dead+Wind 60 deg - Service+Guy
66	Dead+Wind 90 deg - Service+Guy
67	Dead+Wind 120 deg - Service+Guy
68	Dead+Wind 150 deg - Service+Guy
69	Dead+Wind 180 deg - Service+Guy
70	Dead+Wind 210 deg - Service+Guy
71	Dead+Wind 240 deg - Service+Guy
72	Dead+Wind 270 deg - Service+Guy
73	Dead+Wind 300 deg - Service+Guy

Comb. No.	Description
74	Dead+Wind 330 deg - Service+Guy

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	53	460.463	-0.457	0.139
	Max. H_x	45	385.891	1.412	0.717
	Max. H_z	2	424.725	-0.049	0.847
	Max. M_x	1	0.000	0.017	-0.042
	Max. M_z	1	0.000	0.017	-0.042
	Max. Torsion	48	7.900	1.102	0.662
	Min. Vert	1	269.799	0.017	-0.042
	Min. H_x	13	397.172	-1.487	0.689
	Min. H_z	29	381.119	-0.115	-1.704
	Min. M_x	1	0.000	0.017	-0.042
	Min. M_z	1	0.000	0.017	-0.042
	Min. Torsion	27	-8.465	-0.106	-1.660
Guy C @ 245 ft Elev 51 ft Azimuth 240 deg	Max. Vert	37	-13.762	-4.235	2.445
	Max. H_x	37	-13.762	-4.235	2.445
	Max. H_z	9	-120.912	-63.957	39.451
	Min. Vert	13	-125.063	-67.300	38.876
	Min. H_x	13	-125.063	-67.300	38.876
	Min. H_z	37	-13.762	-4.235	2.445
Guy B @ 279 ft Elev -12 ft Azimuth 120 deg	Max. Vert	21	-15.754	5.053	2.912
	Max. H_x	45	-121.653	65.109	37.672
	Max. H_z	49	-118.695	62.231	38.657
	Min. Vert	45	-121.653	65.109	37.672
	Min. H_x	21	-15.754	5.053	2.912
	Min. H_z	25	-20.911	8.861	2.881
Guy A @ 300 ft Elev -53 ft Azimuth 0 deg	Max. Vert	5	-17.416	0.003	-6.594
	Max. H_x	41	-68.312	4.836	-40.040
	Max. H_z	5	-17.416	0.003	-6.594
	Min. Vert	29	-119.157	-0.046	-73.526
	Min. H_x	17	-70.580	-4.839	-41.114
	Min. H_z	29	-119.157	-0.046	-73.526
Guy C @ 179 ft Elev 38 ft Azimuth 240 deg	Max. Vert	36	-0.974	-1.237	0.713
	Max. H_x	35	-0.984	-1.228	0.708
	Max. H_z	7	-57.277	-60.337	35.609
	Min. Vert	7	-57.277	-60.337	35.609
	Min. H_x	7	-57.277	-60.337	35.609
	Min. H_z	35	-0.984	-1.228	0.708
Guy B @ 216 ft Elev -9 ft Azimuth 120 deg	Max. Vert	20	-1.526	1.639	0.945
	Max. H_x	47	-60.904	58.869	34.786
	Max. H_z	47	-60.904	58.869	34.786
	Min. Vert	47	-60.904	58.869	34.786
	Min. H_x	19	-1.532	1.624	0.936
	Min. H_z	19	-1.532	1.624	0.936

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy A @ 242 ft Elev -43 ft Azimuth 0 deg	Max. Vert	4	-1.809	0.000	-2.056
	Max. H_x	40	-31.580	1.515	-33.468
	Max. H_z	3	-1.815	0.000	-2.045
	Min. Vert	32	-64.360	0.785	-68.671
	Min. H_x	15	-30.909	-1.491	-33.222
	Min. H_z	31	-64.355	0.784	-68.866

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	269.799	-0.017	0.042	0.000	0.000	-0.007
1.2D+1.0W (pattern 1) 0 deg - No Ice+1.0 Guy	424.725	0.049	-0.847	0.000	0.000	-6.044
1.2D+1.0W (pattern 2) 0 deg - No Ice+1.0 Guy	427.185	0.081	-0.727	0.000	0.000	-6.120
1.2D+1.0W (pattern 3) 0 deg - No Ice+1.0 Guy	434.367	0.078	-0.758	0.000	0.000	-6.058
1.2D+1.0W (pattern 4) 0 deg - No Ice+1.0 Guy	437.282	0.076	-0.771	0.000	0.000	-6.071
1.2D+1.0W (pattern 1) 30 deg - No Ice+1.0 Guy	410.356	1.142	-0.749	0.000	0.000	-2.944
1.2D+1.0W (pattern 2) 30 deg - No Ice+1.0 Guy	412.371	1.184	-0.667	0.000	0.000	-3.195
1.2D+1.0W (pattern 3) 30 deg - No Ice+1.0 Guy	417.247	1.187	-0.696	0.000	0.000	-2.955
1.2D+1.0W (pattern 4) 30 deg - No Ice+1.0 Guy	419.134	1.184	-0.708	0.000	0.000	-2.991
1.2D+1.0W (pattern 1) 60 deg - No Ice+1.0 Guy	392.729	1.429	-0.661	0.000	0.000	-2.076
1.2D+1.0W (pattern 2) 60 deg - No Ice+1.0 Guy	393.600	1.457	-0.680	0.000	0.000	-2.539
1.2D+1.0W (pattern 3) 60 deg - No Ice+1.0 Guy	396.170	1.484	-0.687	0.000	0.000	-2.109
1.2D+1.0W (pattern 4) 60 deg - No Ice+1.0 Guy	397.172	1.487	-0.689	0.000	0.000	-2.172
1.2D+1.0W (pattern 1) 90 deg - No Ice+1.0 Guy	401.313	1.029	-0.417	0.000	0.000	-4.147
1.2D+1.0W (pattern 2) 90 deg - No Ice+1.0 Guy	402.490	0.967	-0.524	0.000	0.000	-4.484
1.2D+1.0W (pattern 3) 90 deg - No Ice+1.0 Guy	408.004	1.004	-0.505	0.000	0.000	-4.172
1.2D+1.0W (pattern 4) 90 deg - No Ice+1.0 Guy	409.908	1.017	-0.493	0.000	0.000	-4.227
1.2D+1.0W (pattern 1) 120 deg - No Ice+1.0 Guy	418.107	0.614	0.241	0.000	0.000	0.103
1.2D+1.0W (pattern 2) 120 deg - No Ice+1.0 Guy	420.103	0.499	0.122	0.000	0.000	-0.016
1.2D+1.0W (pattern 3) 120 deg - No Ice+1.0 Guy	428.108	0.530	0.139	0.000	0.000	0.172
1.2D+1.0W (pattern 4) 120 deg - No Ice+1.0 Guy	431.075	0.544	0.151	0.000	0.000	0.132
1.2D+1.0W (pattern 1) 150 deg - No Ice+1.0 Guy	404.199	0.020	1.161	0.000	0.000	7.926

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
1.2D+1.0W (pattern 2) 150 deg - No Ice+1.0 Guy	404.732	-0.087	1.095	0.000	0.000	8.046
1.2D+1.0W (pattern 3) 150 deg - No Ice+1.0 Guy	410.696	-0.066	1.109	0.000	0.000	8.079
1.2D+1.0W (pattern 4) 150 deg - No Ice+1.0 Guy	412.639	-0.055	1.115	0.000	0.000	8.053
1.2D+1.0W (pattern 1) 180 deg - No Ice+1.0 Guy	377.253	0.105	1.662	0.000	0.000	8.056
1.2D+1.0W (pattern 2) 180 deg - No Ice+1.0 Guy	377.819	0.106	1.660	0.000	0.000	8.465
1.2D+1.0W (pattern 3) 180 deg - No Ice+1.0 Guy	380.257	0.114	1.697	0.000	0.000	8.290
1.2D+1.0W (pattern 4) 180 deg - No Ice+1.0 Guy	381.119	0.115	1.704	0.000	0.000	8.291
1.2D+1.0W (pattern 1) 210 deg - No Ice+1.0 Guy	401.668	0.286	0.961	0.000	0.000	4.026
1.2D+1.0W (pattern 2) 210 deg - No Ice+1.0 Guy	405.578	0.447	0.870	0.000	0.000	4.415
1.2D+1.0W (pattern 3) 210 deg - No Ice+1.0 Guy	410.822	0.443	0.878	0.000	0.000	4.146
1.2D+1.0W (pattern 4) 210 deg - No Ice+1.0 Guy	412.697	0.431	0.883	0.000	0.000	4.190
1.2D+1.0W (pattern 1) 240 deg - No Ice+1.0 Guy	417.337	-0.153	-0.002	0.000	0.000	2.025
1.2D+1.0W (pattern 2) 240 deg - No Ice+1.0 Guy	421.739	0.036	-0.126	0.000	0.000	2.274
1.2D+1.0W (pattern 3) 240 deg - No Ice+1.0 Guy	429.370	0.019	-0.122	0.000	0.000	1.996
1.2D+1.0W (pattern 4) 240 deg - No Ice+1.0 Guy	432.383	0.004	-0.113	0.000	0.000	2.045
1.2D+1.0W (pattern 1) 270 deg - No Ice+1.0 Guy	394.918	-0.705	-0.581	0.000	0.000	3.058
1.2D+1.0W (pattern 2) 270 deg - No Ice+1.0 Guy	397.828	-0.574	-0.695	0.000	0.000	3.202
1.2D+1.0W (pattern 3) 270 deg - No Ice+1.0 Guy	403.393	-0.602	-0.693	0.000	0.000	2.890
1.2D+1.0W (pattern 4) 270 deg - No Ice+1.0 Guy	405.261	-0.617	-0.682	0.000	0.000	2.949
1.2D+1.0W (pattern 1) 300 deg - No Ice+1.0 Guy	382.326	-1.360	-0.694	0.000	0.000	-1.370
1.2D+1.0W (pattern 2) 300 deg - No Ice+1.0 Guy	382.188	-1.374	-0.694	0.000	0.000	-1.349
1.2D+1.0W (pattern 3) 300 deg - No Ice+1.0 Guy	384.975	-1.407	-0.712	0.000	0.000	-1.565
1.2D+1.0W (pattern 4) 300 deg - No Ice+1.0 Guy	385.891	-1.412	-0.717	0.000	0.000	-1.504
1.2D+1.0W (pattern 1) 330 deg - No Ice+1.0 Guy	407.984	-1.092	-0.720	0.000	0.000	-7.794
1.2D+1.0W (pattern 2) 330 deg - No Ice+1.0 Guy	408.567	-1.095	-0.630	0.000	0.000	-7.851
1.2D+1.0W (pattern 3) 330 deg - No Ice+1.0 Guy	414.088	-1.102	-0.662	0.000	0.000	-7.900
1.2D+1.0W (pattern 4) 330 deg - No Ice+1.0 Guy	416.012	-1.102	-0.674	0.000	0.000	-7.875
1.2 Dead+1.0 Ice+1.0 Temp+Guy	441.511	-0.034	0.119	0.000	0.000	-0.001
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	451.934	-0.012	-0.439	0.000	0.000	-1.509
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	456.971	0.293	-0.355	0.000	0.000	-0.472
1.2 Dead+1.0 Wind 60 deg+1.0	460.463	0.457	-0.139	0.000	0.000	-0.622

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Ice+1.0 Temp+1.0 Guy 1.2 Dead+1.0 Wind 90 deg+1.0	457.013	0.501	0.106	0.000	0.000	-1.238
Ice+1.0 Temp+1.0 Guy 1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	451.407	0.439	0.349	0.000	0.000	-0.206
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	451.935	0.238	0.566	0.000	0.000	1.692
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	453.863	-0.059	0.649	0.000	0.000	1.855
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	452.606	-0.348	0.565	0.000	0.000	0.718
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	451.435	-0.514	0.373	0.000	0.000	0.617
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	454.715	-0.558	0.153	0.000	0.000	0.984
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	456.633	-0.499	-0.101	0.000	0.000	-0.097
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	453.864	-0.328	-0.335	0.000	0.000	-1.644
Dead+Wind 0 deg - Service+Guy	275.919	-0.027	-0.661	0.000	0.000	-1.683
Dead+Wind 30 deg - Service+Guy	277.660	0.315	-0.532	0.000	0.000	-0.719
Dead+Wind 60 deg - Service+Guy	278.458	0.478	-0.235	0.000	0.000	-0.590
Dead+Wind 90 deg - Service+Guy	276.864	0.526	0.051	0.000	0.000	-1.368
Dead+Wind 120 deg - Service+Guy	274.282	0.524	0.361	0.000	0.000	-0.172
Dead+Wind 150 deg - Service+Guy	273.097	0.336	0.640	0.000	0.000	2.352
Dead+Wind 180 deg - Service+Guy	272.840	-0.003	0.699	0.000	0.000	2.225
Dead+Wind 210 deg - Service+Guy	272.313	-0.350	0.612	0.000	0.000	1.135
Dead+Wind 240 deg - Service+Guy	272.268	-0.546	0.340	0.000	0.000	0.583
Dead+Wind 270 deg - Service+Guy	273.948	-0.560	0.042	0.000	0.000	0.926
Dead+Wind 300 deg - Service+Guy	275.171	-0.518	-0.256	0.000	0.000	-0.317
Dead+Wind 330 deg - Service+Guy	275.340	-0.369	-0.558	0.000	0.000	-2.265

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-94.951	0.000	-0.008	94.951	0.017	0.019%
2	1.831	-110.421	-118.493	-1.836	110.418	118.411	0.051%
3	3.157	-110.421	-119.598	-3.164	110.419	119.511	0.053%
4	2.828	-110.421	-122.369	-2.835	110.418	122.279	0.055%
5	2.828	-110.421	-123.464	-2.835	110.418	123.372	0.056%
6	59.874	-109.638	-100.281	-59.889	109.636	100.214	0.043%
7	61.150	-109.638	-101.305	-61.167	109.636	101.235	0.045%
8	62.479	-109.638	-103.533	-62.496	109.636	103.458	0.047%
9	62.967	-109.638	-104.375	-62.985	109.636	104.299	0.048%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
10	97.253	-109.044	-55.515	-97.276	109.045	55.546	0.024%
11	98.498	-109.044	-56.549	-98.542	109.045	56.515	0.035%
12	100.934	-109.044	-57.674	-100.967	109.045	57.700	0.026%
13	101.745	-109.044	-58.141	-101.780	109.046	58.173	0.029%
14	110.440	-109.900	-1.089	-110.392	109.898	1.138	0.044%
15	111.610	-109.900	-1.945	-111.563	109.899	1.994	0.043%
16	114.484	-109.900	-1.725	-114.431	109.898	1.779	0.048%
17	115.460	-109.900	-1.725	-115.408	109.898	1.778	0.047%
18	100.251	-110.877	55.325	-100.182	110.874	-55.274	0.054%
19	101.366	-110.877	55.139	-101.295	110.874	-55.086	0.055%
20	103.987	-110.877	56.654	-103.911	110.874	-56.597	0.059%
21	104.939	-110.877	57.202	-104.860	110.874	-57.144	0.060%
22	57.804	-110.618	99.252	-57.731	110.616	-99.214	0.052%
23	57.679	-110.618	99.860	-57.605	110.616	-99.821	0.052%
24	59.303	-110.618	102.236	-59.225	110.616	-102.196	0.054%
25	59.784	-110.618	103.067	-59.705	110.616	-103.025	0.055%
26	-1.405	-110.292	114.629	1.453	110.291	-114.614	0.032%
27	-2.253	-110.292	115.749	2.265	110.291	-115.730	0.014%
28	-2.009	-110.292	118.417	2.030	110.291	-118.401	0.017%
29	-2.009	-110.292	119.337	2.031	110.291	-119.320	0.017%
30	-59.001	-111.075	100.421	58.928	111.074	-100.393	0.049%
31	-59.940	-111.075	101.628	59.859	111.074	-101.597	0.054%
32	-61.202	-111.075	103.894	61.116	111.073	-103.860	0.056%
33	-61.690	-111.075	104.736	61.600	111.073	-104.700	0.059%
34	-100.213	-111.669	57.417	100.138	111.666	-57.369	0.055%
35	-101.276	-111.669	58.733	101.195	111.667	-58.680	0.060%
36	-103.843	-111.669	59.837	103.755	111.666	-59.780	0.064%
37	-104.806	-111.669	60.391	104.719	111.666	-60.335	0.063%
38	-110.191	-110.813	0.633	110.141	110.812	-0.584	0.045%
39	-111.159	-110.813	1.216	111.104	110.812	-1.162	0.050%
40	-114.122	-110.813	0.970	114.059	110.812	-0.910	0.054%
41	-115.098	-110.813	0.970	115.035	110.812	-0.910	0.054%
42	-96.747	-109.837	-53.601	96.764	109.836	53.551	0.034%
43	-97.538	-109.837	-53.392	97.545	109.836	53.359	0.022%
44	-100.163	-109.837	-54.910	100.170	109.836	54.877	0.021%
45	-100.963	-109.837	-55.370	100.970	109.836	55.336	0.022%
46	-57.844	-110.095	-99.305	57.851	110.093	99.231	0.047%
47	-57.787	-110.095	-99.653	57.794	110.093	99.577	0.048%
48	-59.478	-110.095	-102.093	59.485	110.093	102.011	0.051%
49	-59.959	-110.095	-102.923	59.967	110.092	102.840	0.052%
50	0.000	-229.495	0.000	0.022	229.495	-0.034	0.018%
51	0.577	-229.566	-47.159	-0.557	229.566	47.133	0.014%
52	23.785	-229.096	-40.162	-23.767	229.095	40.155	0.008%
53	39.886	-228.729	-22.884	-39.872	228.729	22.868	0.009%
54	45.635	-229.236	-0.371	-45.629	229.235	0.355	0.008%
55	40.302	-229.805	22.555	-40.280	229.805	-22.578	0.014%
56	23.091	-229.635	39.852	-23.088	229.635	-39.834	0.008%
57	-0.422	-229.424	46.589	0.430	229.424	-46.572	0.008%
58	-23.542	-229.895	40.235	23.550	229.895	-40.220	0.007%
59	-40.285	-230.261	23.210	40.275	230.261	-23.225	0.008%
60	-45.569	-229.755	0.227	45.563	229.755	-0.243	0.007%
61	-39.723	-229.180	-22.302	39.714	229.180	22.283	0.009%
62	-23.128	-229.355	-39.821	23.116	229.355	39.807	0.008%
63	0.719	-94.967	-31.718	-0.720	94.967	31.710	0.009%
64	16.173	-94.768	-26.821	-16.166	94.768	26.815	0.010%
65	26.153	-94.617	-14.946	-26.143	94.617	14.939	0.013%
66	29.684	-94.835	-0.439	-29.677	94.835	0.434	0.008%
67	26.965	-95.083	14.708	-26.961	95.083	-14.706	0.004%
68	15.364	-95.018	26.489	-15.361	95.018	-26.475	0.014%
69	-0.511	-94.935	30.669	0.514	94.935	-30.656	0.013%
70	-15.849	-95.134	26.913	15.851	95.134	-26.901	0.012%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
71	-26.931	-95.285	15.518	26.923	95.285	-15.514	0.009%
72	-29.592	-95.067	0.246	29.585	95.067	-0.255	0.011%
73	-25.954	-94.819	-14.242	25.946	94.819	14.232	0.012%
74	-15.409	-94.884	-26.452	15.400	94.884	26.442	0.013%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	31	0.00020000	0.00001467
2	Yes	93	0.00019062	0.00006683
3	Yes	88	0.00019704	0.00006132
4	Yes	89	0.00019086	0.00006174
5	Yes	90	0.00019134	0.00006418
6	Yes	90	0.00019439	0.00005360
7	Yes	85	0.00019829	0.00004772
8	Yes	86	0.00019586	0.00004841
9	Yes	87	0.00019719	0.00005037
10	Yes	19	0.00018546	0.00013417
11	Yes	19	0.00019777	0.00009556
12	Yes	19	0.00018234	0.00008281
13	Yes	20	0.00018557	0.00007154
14	Yes	97	0.00019769	0.00005156
15	Yes	92	0.00019107	0.00004183
16	Yes	93	0.00019755	0.00004524
17	Yes	95	0.00019136	0.00004564
18	Yes	99	0.00019546	0.00006721
19	Yes	94	0.00019605	0.00005875
20	Yes	95	0.00019446	0.00006155
21	Yes	96	0.00019572	0.00006446
22	Yes	91	0.00019978	0.00006290
23	Yes	86	0.00019709	0.00005379
24	Yes	88	0.00019169	0.00005517
25	Yes	89	0.00019317	0.00005743
26	Yes	55	0.00019656	0.00005531
27	Yes	50	0.00019175	0.00007555
28	Yes	52	0.00019068	0.00007308
29	Yes	52	0.00019417	0.00007501
30	Yes	97	0.00019121	0.00004868
31	Yes	91	0.00019197	0.00004248
32	Yes	93	0.00019204	0.00004572
33	Yes	94	0.00019848	0.00004904
34	Yes	105	0.00019377	0.00006131
35	Yes	99	0.00019788	0.00005544
36	Yes	100	0.00019786	0.00005907
37	Yes	102	0.00019283	0.00006021
38	Yes	101	0.00019248	0.00004616
39	Yes	94	0.00019444	0.00003883
40	Yes	96	0.00019955	0.00004297
41	Yes	98	0.00019742	0.00004446
42	Yes	51	0.00019647	0.00005265
43	Yes	48	0.00019179	0.00006515
44	Yes	47	0.00019355	0.00006999
45	Yes	47	0.00019524	0.00007139
46	Yes	88	0.00019134	0.00006050
47	Yes	83	0.00019484	0.00005457

48	Yes	84	0.00019405	0.00005618
49	Yes	85	0.00019410	0.00005788
50	Yes	24	0.00020000	0.00003256
51	Yes	29	0.00020000	0.00008804
52	Yes	48	0.00019940	0.00001859
53	Yes	50	0.00018320	0.00001807
54	Yes	52	0.00018771	0.00001653
55	Yes	31	0.00020000	0.00006960
56	Yes	51	0.00019705	0.00001041
57	Yes	58	0.00019015	0.00001362
58	Yes	56	0.00019518	0.00001180
59	Yes	28	0.00020000	0.00006368
60	Yes	58	0.00018690	0.00001324
61	Yes	57	0.00019857	0.00002001
62	Yes	51	0.00018754	0.00001152
63	Yes	25	0.00016928	0.00001982
64	Yes	30	0.00017736	0.00001168
65	Yes	31	0.00019966	0.00001364
66	Yes	31	0.00018235	0.00001191
67	Yes	28	0.00019343	0.00001478
68	Yes	30	0.00019299	0.00000872
69	Yes	34	0.00018873	0.00001088
70	Yes	31	0.00018888	0.00000972
71	Yes	22	0.00018570	0.00002826
72	Yes	32	0.00019281	0.00001149
73	Yes	34	0.00018844	0.00001163
74	Yes	30	0.00019075	0.00000913

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
L1	625 - 592	7.178	65	0.3275	0.4040
T1	592 - 580	5.344	65	0.0529	0.4039
T2	580 - 560	5.215	65	0.0529	0.4060
T3	560 - 540	4.989	65	0.0537	0.4090
T4	540 - 520	4.755	65	0.0487	0.4116
T5	520 - 500	4.654	73	0.0438	0.4034
T6	500 - 480	4.545	73	0.0471	0.3660
T7	480 - 460	4.386	73	0.0486	0.3300
T8	460 - 440	4.275	69	0.0412	0.3412
T9	440 - 420	4.206	69	0.0421	0.3661
T10	420 - 400	4.090	69	0.0501	0.3943
T11	400 - 380	3.907	69	0.0580	0.4106
T12	380 - 360	3.674	69	0.0552	0.4118
T13	360 - 340	3.506	69	0.0396	0.4126
T14	340 - 320	3.401	69	0.0342	0.4150
T15	320 - 300	3.279	69	0.0358	0.4124
T16	300 - 280	3.133	69	0.0374	0.4049
T17	280 - 260	2.981	69	0.0340	0.3984
T18	260 - 240	2.882	69	0.0328	0.3876
T19	240 - 220	2.774	69	0.0402	0.3733
T20	220 - 200	2.602	69	0.0496	0.3560
T21	200 - 180	2.359	69	0.0549	0.3695
T22	180 - 160	2.123	69	0.0496	0.3828
T23	160 - 140	1.952	68	0.0491	0.3998
T24	140 - 120	1.756	68	0.0552	0.4136
T25	120 - 100	1.504	68	0.0606	0.3835
T26	100 - 80	1.231	68	0.0581	0.3557

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T27	80 - 60	1.008	68	0.0516	0.3267
T28	60 - 40	0.817	68	0.0538	0.2817
T29	40 - 20	0.587	68	0.0609	0.2288
T30	20 - 8	0.308	68	0.0683	0.1678
T31	8 - 0	0.121	68	0.0709	0.1222

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
612.500	SHPX-4AC	65	6.302	0.1899	0.4032	10299
591.750	Guy	65	5.339	0.0524	0.4039	4430
545.000	SHP-2AE	65	4.809	0.0501	0.4111	90056
540.000	ERI ALP8L1-HSB-34	65	4.755	0.0487	0.4116	88346
535.000	ERI ALP8L1-HSB-34	73	4.722	0.0472	0.4116	112094
531.950	Guy	73	4.708	0.0462	0.4112	141648
530.000	ERI ALP8L1-HSB-34	73	4.699	0.0457	0.4107	170365
525.000	ERI ALP8L1-HSB-34	73	4.677	0.0445	0.4082	354809
520.000	5' Stand Off	73	4.654	0.0438	0.4034	207650
480.000	5' HP Dish (230lbs 24.77CaAa)	73	4.386	0.0486	0.3300	114684
465.000	Kathrein 754154	69	4.299	0.0429	0.3363	63065
460.250	Guy	69	4.276	0.0413	0.3409	50752
425.000	4' Dish w/o Radome	69	4.125	0.0478	0.3878	60207
400.000	MRC Proscann III	69	3.907	0.0580	0.4106	42441
394.000	Scala PR450	69	3.838	0.0588	0.4120	80630
375.000	PD220	69	3.624	0.0517	0.4116	42038
368.050	Guy	69	3.563	0.0459	0.4118	43201
360.000	4' Omni	69	3.506	0.0396	0.4126	47037
310.000	Beacon (10lbs 0.5CaAa)	69	3.209	0.0370	0.4088	122743
299.000	20'*3" Omni (40lbs)	69	3.125	0.0373	0.4046	130156
280.000	Sabre C10857001C-MC	69	2.981	0.0340	0.3984	56159
275.850	Guy	69	2.957	0.0333	0.3967	65611
255.000	20'*3" Omni (40lbs)	69	2.859	0.0340	0.3843	99359
210.000	Sabre C10837002C-32788	69	2.486	0.0535	0.3536	99388
198.000	Scala PR450	69	2.334	0.0549	0.3717	207042
184.150	Guy	69	2.167	0.0510	0.3807	51623
159.000	Beacon (10lbs 0.5CaAa)	68	1.943	0.0493	0.4009	93689
140.000	8' Dish w/ Radome	68	1.756	0.0552	0.4136	79569
91.950	Guy	68	1.134	0.0552	0.3455	59197
50.000	AWS	68	0.708	0.0571	0.2576	92475
28.000	Scala FM10 yagi	68	0.426	0.0655	0.1869	93423

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	625 - 592	60.294	18	1.8110	1.2300
T1	592 - 580	49.721	18	0.7575	1.2300
T2	580 - 560	47.939	18	0.7584	1.2426
T3	560 - 540	44.910	18	0.7619	1.2644

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T4	540 - 520	41.824	18	0.7396	1.2820
T5	520 - 500	40.564	21	0.7132	1.2549
T6	500 - 480	39.573	21	0.7079	1.1498
T7	480 - 460	38.782	37	0.6846	1.2081
T8	460 - 440	37.994	37	0.6206	1.2558
T9	440 - 420	37.215	37	0.5610	1.3343
T10	420 - 400	36.082	37	0.5046	1.4172
T11	400 - 380	34.510	37	0.4793	1.4530
T12	380 - 360	32.499	37	0.4692	1.4478
T13	360 - 340	30.731	37	0.4081	1.4409
T14	340 - 320	29.187	37	0.3918	1.4432
T15	320 - 300	27.530	37	0.4107	1.4252
T16	300 - 280	25.728	37	0.4249	1.3874
T17	280 - 260	23.917	36	0.4109	1.3563
T18	260 - 240	22.324	36	0.4012	1.3170
T19	240 - 220	20.697	36	0.4296	1.2688
T20	220 - 200	18.886	35	0.4687	1.3097
T21	200 - 180	16.861	35	0.4921	1.4886
T22	180 - 160	14.886	31	0.4635	1.5298
T23	160 - 140	13.289	31	0.4483	1.5884
T24	140 - 120	11.657	30	0.4531	1.6310
T25	120 - 100	9.798	30	0.4528	1.5036
T26	100 - 80	7.862	30	0.4167	1.3688
T27	80 - 60	6.229	30	0.3682	1.2370
T28	60 - 40	4.844	30	0.3600	1.0337
T29	40 - 20	3.365	30	0.3758	0.8374
T30	20 - 8	1.733	30	0.3975	0.6114
T31	8 - 0	0.687	30	0.4059	0.4409

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
612.500	SHPX-4AC	18	55.594	1.2831	1.2258	2688
591.750	Guy	18	49.674	0.7556	1.2302	1155
545.000	SHP-2AE	18	42.580	0.7459	1.2789	13396
540.000	ERI ALP8L1-HSB-34	18	41.824	0.7396	1.2820	12833
535.000	ERI ALP8L1-HSB-34	21	41.156	0.7323	1.2833	13992
531.950	Guy	21	41.041	0.7277	1.2824	15139
530.000	ERI ALP8L1-HSB-34	21	40.966	0.7248	1.2808	15977
525.000	ERI ALP8L1-HSB-34	21	40.770	0.7181	1.2721	18619
520.000	5' Stand Off	21	40.564	0.7132	1.2549	21376
480.000	5' HP Dish (230lbs 24.77CaAa)	37	38.782	0.6846	1.2081	15790
465.000	Kathrein 754154	37	38.192	0.6380	1.2419	10164
460.250	Guy	37	38.004	0.6214	1.2550	8667
425.000	4' Dish w/o Radome	37	36.405	0.5191	1.3994	11655
400.000	MRC Proscann III	37	34.510	0.4793	1.4530	7520
394.000	Scala PR450	37	33.926	0.4834	1.4541	12626
375.000	PD220	37	32.021	0.4554	1.4450	7015
368.050	Guy	37	31.399	0.4324	1.4421	6963
360.000	4' Omni	37	30.731	0.4081	1.4409	7253
310.000	Beacon (10lbs 0.5CaAa)	37	26.645	0.4204	1.4067	21169
299.000	20'*3" Omni (40lbs)	37	25.635	0.4248	1.3856	24122
280.000	Sabre C10857001C-MC	36	23.917	0.4109	1.3563	13668
275.850	Guy	36	23.573	0.4069	1.3491	16168
255.000	20'*3" Omni (40lbs)	36	21.931	0.4052	1.3058	16228

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
210.000	Sabre C10837002C-32788	35	17.900	0.4857	1.4082	13981
198.000	Scala PR450	35	16.652	0.4912	1.4986	25884
184.150	Guy	31	15.241	0.4706	1.5255	11392
159.000	Beacon (10lbs 0.5CaAa)	31	13.208	0.4482	1.5925	16279
140.000	8' Dish w/ Radome	30	11.657	0.4531	1.6310	16669
91.950	Guy	30	7.160	0.3957	1.3217	11092
50.000	AWS	30	4.124	0.3730	0.9409	23343
28.000	Scala FM10 yagi	30	2.406	0.3622	0.6840	26310

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	592	Leg	A325N	0.7500	4	3.134	30.101	0.104 ✔	1	Bolt Tension
T2	580	Leg	A325N	0.7500	4	2.049	30.101	0.068 ✔	1	Bolt Tension
T3	560	Leg	A325N	0.7500	4	2.269	30.101	0.075 ✔	1	Bolt Tension
T4	540	Leg	A325N	0.7500	4	3.659	30.101	0.122 ✔	1	Bolt Tension
T5	520	Leg	A325N	0.7500	4	4.734	30.101	0.157 ✔	1	Bolt Tension
T6	500	Leg	A325N	0.7500	4	4.859	30.101	0.161 ✔	1	Bolt Tension
T7	480	Leg	A325N	0.7500	4	5.408	30.101	0.180 ✔	1	Bolt Tension
T8	460	Leg	A325N	0.7500	4	8.053	30.101	0.268 ✔	1	Bolt Tension
T9	440	Leg	A325N	0.7500	4	7.754	30.101	0.258 ✔	1	Bolt Tension
T10	420	Leg	A325N	0.7500	4	7.991	30.101	0.265 ✔	1	Bolt Tension
T11	400	Leg	A325N	0.7500	4	8.824	30.101	0.293 ✔	1	Bolt Tension
T12	380	Leg	A325N	0.7500	4	10.554	30.101	0.351 ✔	1	Bolt Tension
T13	360	Leg	A325N	0.7500	4	10.922	30.101	0.363 ✔	1	Bolt Tension
T14	340	Leg	A325N	0.7500	4	8.542	30.101	0.284 ✔	1	Bolt Tension
T15	320	Leg	A325N	0.7500	4	8.080	30.101	0.268 ✔	1	Bolt Tension
T16	300	Leg	A325N	0.7500	4	8.113	30.101	0.270 ✔	1	Bolt Tension
T17	280	Leg	A325N	0.7500	4	9.345	30.101	0.310 ✔	1	Bolt Tension
T18	260	Leg	A325N	0.7500	4	10.669	30.101	0.354 ✔	1	Bolt Tension
T19	240	Leg	A325N	0.7500	4	11.744	30.101	0.390 ✔	1	Bolt Tension
T20	220	Leg	A325N	0.7500	4	11.680	30.101	0.388 ✔	1	Bolt Tension
T21	200	Leg	A325N	0.7500	4	10.232	30.101	0.340 ✔	1	Bolt Tension
T22	180	Leg	A325N	0.7500	4	12.828	30.101	0.426 ✔	1	Bolt Tension
T23	160	Leg	A325N	0.7500	4	11.358	30.101	0.377 ✔	1	Bolt Tension
T24	140	Leg	A325N	0.7500	4	11.651	30.101	0.387 ✔	1	Bolt Tension
T25	120	Leg	A325N	0.7500	4	11.908	30.101	0.396 ✔	1	Bolt Tension
T26	100	Leg	A325N	0.7500	4	14.279	30.101	0.474 ✔	1	Bolt Tension
T27	80	Leg	A325N	0.7500	4	13.947	30.101	0.463 ✔	1	Bolt Tension
T28	60	Leg	A325N	0.7500	4	12.639	30.101	0.420 ✔	1	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T29	40	Leg	A325N	0.7500	4	12.984	30.101	0.431 ✔	1	Bolt Tension
T30	20	Leg	A325N	0.7500	4	12.947	30.101	0.430 ✔	1	Bolt Tension
T31	8	Leg	A325N	0.7500	4	13.240	30.101	0.440 ✔	1	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	591.750 (A) (1531)	7/8 BS	9.200	92.000	30.542	55.200	1.000	1.807 ✔
	591.750 (B) (1530)	7/8 BS	9.200	92.000	31.325	55.200	1.000	1.762 ✔
	591.750 (C) (1529)	7/8 BS	9.200	92.000	31.953	55.200	1.000	1.728 ✔
T4	531.950 (A) (1534)	1 BS	12.200	122.000	38.038	73.200	1.000	1.924 ✔
	531.950 (B) (1533)	1 BS	12.200	122.000	39.240	73.200	1.000	1.865 ✔
	531.950 (C) (1532)	1 BS	12.200	122.000	39.930	73.200	1.000	1.833 ✔
T7	460.250 (A) (1537)	1 BS	12.200	122.000	39.146	73.200	1.000	1.870 ✔
	460.250 (B) (1536)	1 BS	12.200	122.000	40.019	73.200	1.000	1.829 ✔
	460.250 (C) (1535)	1 BS	12.200	122.000	41.007	73.200	1.000	1.785 ✔
T12	368.050 (A) (1540)	1 BS	12.200	122.000	39.392	73.200	1.000	1.858 ✔
	368.050 (B) (1539)	1 BS	12.200	122.000	38.976	73.200	1.000	1.878 ✔
	368.050 (C) (1538)	1 BS	12.200	122.000	40.635	73.200	1.000	1.801 ✔
T17	275.850 (A) (1543)	1 BS	12.200	122.000	40.848	73.200	1.000	1.792 ✔
	275.850 (B) (1542)	1 BS	12.200	122.000	39.682	73.200	1.000	1.845 ✔
	275.850 (C) (1541)	1 BS	12.200	122.000	39.620	73.200	1.000	1.848 ✔
T21	184.150 (A) (1546)	7/8 BS	9.200	92.000	31.833	55.200	1.000	1.734 ✔
	184.150 (B) (1545)	7/8 BS	9.200	92.000	31.075	55.200	1.000	1.776 ✔
	184.150 (C) (1544)	7/8 BS	9.200	92.000	31.690	55.200	1.000	1.742 ✔
T26	91.950 (A) (1549)	7/8 BS	9.200	92.000	24.880	55.200	1.000	2.219 ✔
	91.950 (B) (1548)	7/8 BS	9.200	92.000	24.154	55.200	1.000	2.285 ✔
	91.950 (C) (1547)	7/8 BS	9.200	92.000	23.363	55.200	1.000	2.363 ✔

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	625 - 592 (1)	P10x.365	33.000	33.000	107.8	11.9083	-2.155	229.160	0.009

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	625 - 592 (1)	P10x.365	56.376	147.678	0.382	0.000	147.678	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	625 - 592 (1)	P10x.365	2.992	160.762	0.019	0.008	146.781	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	625 - 592 (1)	0.009	0.382	0.000	0.019	0.000	0.392 ✔	1.000	4.8.2 ✔

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	2 1/4	12.000	3.833	81.8 K=1.00	3.9761	1.00	-28.843	109.725	0.263 [1]
T2	580 - 560	2 1/4	20.000	3.900	83.2 K=1.00	3.9761	1.00	-29.780	107.859	0.276 [1]
T3	560 - 540	2 1/4	20.000	3.900	83.2 K=1.00	3.9761	1.00	-45.161	107.859	0.419 [1]
T4	540 - 520	2 1/2	20.000	3.900	74.9 K=1.00	4.9087	1.00	-63.985	146.600	0.436 [1]
T5	520 - 500	2 1/2	20.000	3.900	74.9 K=1.00	4.9087	1.00	-61.693	146.600	0.421 [1]
T6	500 - 480	2 1/2	20.000	3.900	74.9 K=1.00	4.9087	1.00	-67.041	146.600	0.457 [1]
T7	480 - 460	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-96.624	190.468	0.507 [1]
T8	460 - 440	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-99.961	190.468	0.525 [1]
T9	440 - 420	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-98.097	190.468	0.515 [1]
T10	420 - 400	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-106.989	190.468	0.562 [1]
T11	400 - 380	2 3/4	20.000	3.900	68.1 K=1.00	5.9396	1.00	-126.923	190.468	0.666 [1]
T12	380 - 360	3	20.000	3.900	62.4 K=1.00	7.0686	1.00	-146.812	239.277	0.614 [1]
T13	360 - 340	3	20.000	3.900	62.4 K=1.00	7.0686	1.00	-131.209	239.277	0.548 [1]
T14	340 - 320	3	20.000	3.900	62.4 K=1.00	7.0686	1.00	-103.204	239.277	0.431 [1]
T15	320 - 300	3	20.000	3.900	62.4 K=1.00	7.0686	1.00	-100.641	239.277	0.421 [1]
T16	300 - 280	3 1/4	20.000	3.900	57.6 K=1.00	8.2958	1.00	-112.067	292.897	0.383 [1]
T17	280 - 260	3 1/4	20.000	3.900	57.6 K=1.00	8.2958	1.00	-129.384	292.897	0.442 [1]
T18	260 - 240	3 1/4	20.000	3.900	57.6 K=1.00	8.2958	1.00	-142.950	292.897	0.488 [1]
T19	240 - 220	3 1/4	20.000	3.900	57.6 K=1.00	8.2958	1.00	-144.875	292.897	0.495 [1]
T20	220 - 200	3 1/4	20.000	3.900	57.6 K=1.00	8.2958	1.00	-141.954	292.897	0.485 [1]
T21	200 - 180	3 1/4	20.000	3.900	57.6 K=1.00	8.2958	1.00	-161.779	292.897	0.552 [1]
T22	180 - 160	3 1/4	20.000	3.900	57.6 K=1.00	8.2958	1.00	-154.757	292.897	0.528 [1]
T23	160 - 140	3 1/4	20.000	3.900	57.6 K=1.00	8.2958	1.00	-142.571	292.897	0.487 [1]
T24	140 - 120	3 1/4	20.000	3.900	57.6 K=1.00	8.2958	1.00	-143.223	292.897	0.489 [1]
T25	120 - 100	3 1/4	20.000	3.900	57.6 K=1.00	8.2958	1.00	-171.422	292.897	0.585 [1]
T26	100 - 80	3 1/2	20.000	3.900	53.5 K=1.00	9.6211	1.00	-188.196	351.235	0.536 [1]
T27	80 - 60	3 1/2	20.000	3.900	53.5 K=1.00	9.6211	1.00	-167.551	351.235	0.477 [1]
T28	60 - 40	3 1/2	20.000	3.900	53.5 K=1.00	9.6211	1.00	-158.158	351.235	0.450 [1]
T29	40 - 20	3 1/2	20.000	3.900	53.5 K=1.00	9.6211	1.00	-158.560	351.235	0.451 [1]
T30	20 - 8	3 1/2	12.000	3.833	52.6 K=1.00	9.6211	1.00	-159.580	353.734	0.451 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T31	8 - 0	3 1/2	8.505	2.185	30.0 K=1.00	9.6211	0.92	-164.197	372.094	0.441 [1]

[1] P_u / ϕP_n controls

Leg Bending Design Data (Compression)

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	592 - 580	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T2	580 - 560	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T3	560 - 540	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T4	540 - 520	2 1/2	0.000	9.766	0.000	0.000	9.766	0.000
T5	520 - 500	2 1/2	0.000	9.766	0.000	0.000	9.766	0.000
T6	500 - 480	2 1/2	0.000	9.766	0.000	0.000	9.766	0.000
T7	480 - 460	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T8	460 - 440	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T9	440 - 420	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T10	420 - 400	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T11	400 - 380	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T12	380 - 360	3	0.000	16.875	0.000	0.000	16.875	0.000
T13	360 - 340	3	0.000	16.875	0.000	0.000	16.875	0.000
T14	340 - 320	3	0.000	16.875	0.000	0.000	16.875	0.000
T15	320 - 300	3	0.000	16.875	0.000	0.000	16.875	0.000
T16	300 - 280	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T17	280 - 260	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T18	260 - 240	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T19	240 - 220	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T20	220 - 200	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T21	200 - 180	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T22	180 - 160	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T23	160 - 140	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T24	140 - 120	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T25	120 - 100	3 1/4	0.000	21.455	0.000	0.000	21.455	0.000
T26	100 - 80	3 1/2	0.000	26.797	0.000	0.000	26.797	0.000
T27	80 - 60	3 1/2	0.000	26.797	0.000	0.000	26.797	0.000
T28	60 - 40	3 1/2	0.000	26.797	0.000	0.000	26.797	0.000
T29	40 - 20	3 1/2	0.000	26.797	0.000	0.000	26.797	0.000
T30	20 - 8	3 1/2	0.000	26.797	0.000	0.000	26.797	0.000
T31	8 - 0	3 1/2	0.000	26.797	0.000	0.000	26.797	0.000

Leg Interaction Design Data (Compression)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	592 - 580	2 1/4	0.263	0.000	0.000	0.263 [1] ✔	1.000	4.8.1 ✔
T2	580 - 560	2 1/4	0.276	0.000	0.000	0.276 [1] ✔	1.000	4.8.1 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T3	560 - 540	2 1/4	0.419	0.000	0.000	0.419 [1] ✔	1.000	4.8.1 ✔
T4	540 - 520	2 1/2	0.436	0.000	0.000	0.436 [1] ✔	1.000	4.8.1 ✔
T5	520 - 500	2 1/2	0.421	0.000	0.000	0.421 [1] ✔	1.000	4.8.1 ✔
T6	500 - 480	2 1/2	0.457	0.000	0.000	0.457 [1] ✔	1.000	4.8.1 ✔
T7	480 - 460	2 3/4	0.507	0.000	0.000	0.507 [1] ✔	1.000	4.8.1 ✔
T8	460 - 440	2 3/4	0.525	0.000	0.000	0.525 [1] ✔	1.000	4.8.1 ✔
T9	440 - 420	2 3/4	0.515	0.000	0.000	0.515 [1] ✔	1.000	4.8.1 ✔
T10	420 - 400	2 3/4	0.562	0.000	0.000	0.562 [1] ✔	1.000	4.8.1 ✔
T11	400 - 380	2 3/4	0.666	0.000	0.000	0.666 [1] ✔	1.000	4.8.1 ✔
T12	380 - 360	3	0.614	0.000	0.000	0.614 [1] ✔	1.000	4.8.1 ✔
T13	360 - 340	3	0.548	0.000	0.000	0.548 [1] ✔	1.000	4.8.1 ✔
T14	340 - 320	3	0.431	0.000	0.000	0.431 [1] ✔	1.000	4.8.1 ✔
T15	320 - 300	3	0.421	0.000	0.000	0.421 [1] ✔	1.000	4.8.1 ✔
T16	300 - 280	3 1/4	0.383	0.000	0.000	0.383 [1] ✔	1.000	4.8.1 ✔
T17	280 - 260	3 1/4	0.442	0.000	0.000	0.442 [1] ✔	1.000	4.8.1 ✔
T18	260 - 240	3 1/4	0.488	0.000	0.000	0.488 [1] ✔	1.000	4.8.1 ✔
T19	240 - 220	3 1/4	0.495	0.000	0.000	0.495 [1] ✔	1.000	4.8.1 ✔
T20	220 - 200	3 1/4	0.485	0.000	0.000	0.485 [1] ✔	1.000	4.8.1 ✔
T21	200 - 180	3 1/4	0.552	0.000	0.000	0.552 [1] ✔	1.000	4.8.1 ✔
T22	180 - 160	3 1/4	0.528	0.000	0.000	0.528 [1] ✔	1.000	4.8.1 ✔
T23	160 - 140	3 1/4	0.487	0.000	0.000	0.487 [1] ✔	1.000	4.8.1 ✔
T24	140 - 120	3 1/4	0.489	0.000	0.000	0.489 [1] ✔	1.000	4.8.1 ✔
T25	120 - 100	3 1/4	0.585	0.000	0.000	0.585 [1] ✔	1.000	4.8.1 ✔
T26	100 - 80	3 1/2	0.536	0.000	0.000	0.536 [1] ✔	1.000	4.8.1 ✔
T27	80 - 60	3 1/2	0.477	0.000	0.000	0.477 [1] ✔	1.000	4.8.1 ✔
T28	60 - 40	3 1/2	0.450	0.000	0.000	0.450 [1] ✔	1.000	4.8.1 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T29	40 - 20	3 1/2	0.451	0.000	0.000	0.451 [1] ✔	1.000	4.8.1 ✔
T30	20 - 8	3 1/2	0.451	0.000	0.000	0.451 [1] ✔	1.000	4.8.1 ✔
T31	8 - 0	3 1/2	0.441	0.000	0.000	0.441 [1] ✔	1.000	4.8.1 ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T31	8 - 0	L3x3x3/8	2.417	1.570	54.1 K=1.68	2.1100	-26.000	68.978	0.377 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-6.877	18.174	0.378*[1] ✔
T2	580 - 560	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-4.789	18.174	0.263 [1] ✔
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-4.756	18.174	0.262 [1] ✔
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-7.292	18.235	0.400 [1] ✔
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-4.457	18.235	0.244 [1] ✔
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-4.413	18.235	0.242 [1] ✔
T7	480 - 460	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-6.301	18.296	0.344 [1] ✔
T8	460 - 440	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-5.468	18.296	0.299 [1] ✔
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-4.325	18.296	0.236 [1] ✔
T10	420 - 400	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-4.134	18.296	0.226 [1] ✔
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-5.949	18.296	0.325 [1] ✔
T12	380 - 360	L2 1/2x2 1/2x1/4	5.000	4.750	118.0	1.1900	-8.405	24.069	0.349 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-5.084	18.357	0.277 [1] ✔
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-3.892	18.357	0.212 [1] ✔
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-3.880	18.357	0.211 [1] ✔
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-5.239	18.417	0.284 [1] ✔
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-6.325	18.417	0.343 [1] ✔
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-4.620	18.417	0.251 [1] ✔
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-4.066	18.417	0.221 [1] ✔
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-6.896	18.417	0.374 [1] ✔
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	117.8 K=1.02	1.1900	-7.966	24.150	0.330 [1] ✔
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-4.630	18.417	0.251 [1] ✔
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.632	18.417	0.197 [1] ✔
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.924	18.417	0.213 [1] ✔
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-6.196	18.417	0.336 [1] ✔
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-6.755	18.478	0.366 [1] ✔
T27	80 - 60	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-5.393	18.478	0.292 [1] ✔
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-3.696	18.478	0.200 [1] ✔
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-3.685	18.478	0.199 [1] ✔
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-4.811	18.478	0.260 [1] ✔
T31	8 - 0	L3x3x3/8	3.142	2.851	89.1 K=1.53	2.1100	-2.975	56.982	0.052 [1] ✔

[*] DL controls
[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	580 - 560	L2 1/2x2 1/2x3/16	5.000	4.813	118.3	0.9020	-2.522	18.174	0.139 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
					K=1.01				✔
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	118.3	0.9020	-2.608	18.174	0.144 [1]
					K=1.01				✔
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	118.1	0.9020	-3.545	18.235	0.194 [1]
					K=1.02				✔
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	118.1	0.9020	-2.408	18.235	0.132 [1]
					K=1.02				✔
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	118.1	0.9020	-2.390	18.235	0.131 [1]
					K=1.02				✔
T7	480 - 460	L2 1/2x2 1/2x3/16	5.000	4.771	117.8	0.9020	-3.436	18.296	0.188 [1]
					K=1.02				✔
T8	460 - 440	L2 1/2x2 1/2x3/16	5.000	4.771	117.8	0.9020	-2.693	18.296	0.147 [1]
					K=1.02				✔
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	117.8	0.9020	-2.340	18.296	0.128 [1]
					K=1.02				✔
T10	420 - 400	L2 1/2x2 1/2x3/16	5.000	4.771	117.8	0.9020	-2.279	18.296	0.125 [1]
					K=1.02				✔
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	117.8	0.9020	-2.586	18.296	0.141 [1]
					K=1.02				✔
T12	380 - 360	L1 1/2x1 1/2x1/4	5.000	4.750	166.2	0.6875	-3.584	7.120	0.503 [1]
					K=0.85				✔
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	117.6	0.9020	-2.789	18.357	0.152 [1]
					K=1.02				✔
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	117.6	0.9020	-2.297	18.357	0.125 [1]
					K=1.02				✔
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	117.6	0.9020	-2.031	18.357	0.111 [1]
					K=1.02				✔
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	117.3	0.9020	-2.837	18.417	0.154 [1]
					K=1.02				✔
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	117.3	0.9020	-3.774	18.417	0.205 [1]
					K=1.02				✔
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	117.3	0.9020	-2.714	18.417	0.147 [1]
					K=1.02				✔
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	117.3	0.9020	-2.509	18.417	0.136 [1]
					K=1.02				✔
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	117.3	0.9020	-2.459	18.417	0.133 [1]
					K=1.02				✔
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	117.8	1.1900	-4.312	24.150	0.179 [1]
					K=1.02				✔
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	117.3	0.9020	-2.971	18.417	0.161 [1]
					K=1.02				✔
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	117.3	0.9020	-2.469	18.417	0.134 [1]
					K=1.02				✔
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	117.3	0.9020	-2.481	18.417	0.135 [1]
					K=1.02				✔
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	117.3	0.9020	-2.969	18.417	0.161 [1]
					K=1.02				✔
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	117.1	0.9020	-3.764	18.478	0.204 [1]
					K=1.03				✔
T27	80 - 60	L2 1/2x2 1/2x3/16	5.000	4.708	117.1	0.9020	-2.966	18.478	0.161 [1]
					K=1.03				✔
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	117.1	0.9020	-2.739	18.478	0.148 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.746	18.478	0.149 [1] ✔
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.764	18.478	0.150 [1] ✔
T31	8 - 0	C3x5	4.427	4.135	121.0 K=1.00	1.4700	-2.975	22.025	0.135 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-3.351	18.174	0.184 [1] ✔
T2	580 - 560	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-2.708	18.174	0.149 [1] ✔
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	118.3 K=1.01	0.9020	-3.161	18.174	0.174 [1] ✔
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-3.167	18.235	0.174 [1] ✔
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-2.298	18.235	0.126 [1] ✔
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	118.1 K=1.02	0.9020	-2.665	18.235	0.146 [1] ✔
T8	460 - 440	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.954	18.296	0.161 [1] ✔
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.253	18.296	0.123 [1] ✔
T10	420 - 400	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-2.359	18.296	0.129 [1] ✔
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	117.8 K=1.02	0.9020	-3.554	18.296	0.194 [1] ✔
T12	380 - 360	L2 1/2x2 1/2x1/4	5.000	4.750	118.0 K=1.02	1.1900	-3.677	24.069	0.153 [1] ✔
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.338	18.357	0.127 [1] ✔
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.100	18.357	0.114 [1] ✔
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	117.6 K=1.02	0.9020	-2.167	18.357	0.118 [1] ✔
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.272	18.417	0.178 [1] ✔
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.908	18.417	0.158 [1] ✔
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.476	18.417	0.134 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.509	18.417	0.136 [1] ✔
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.423	18.417	0.186 [1] ✔
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	117.8 K=1.02	1.1900	-3.808	24.150	0.158 [1] ✔
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.680	18.417	0.146 [1] ✔
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.469	18.417	0.134 [1] ✔
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-2.481	18.417	0.135 [1] ✔
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	117.3 K=1.02	0.9020	-3.365	18.417	0.183 [1] ✔
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-3.260	18.478	0.176 [1] ✔
T27	80 - 60	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.902	18.478	0.157 [1] ✔
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.739	18.478	0.148 [1] ✔
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.746	18.478	0.149 [1] ✔
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	117.1 K=1.03	0.9020	-2.764	18.478	0.150 [1] ✔

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	6*1	5.000	4.813	200.1 K=1.00	6.0000	-1.020	33.869	0.030 [1] ✔
		KL/R > 200 (C) - 5							
T4	540 - 520	6*1	5.000	4.792	199.2 K=1.00	6.0000	-4.209	34.164	0.123 [1] ✔
T7	480 - 460	6*1	5.000	4.771	198.3 K=1.00	6.0000	-1.850	34.464	0.054 [1] ✔
T12	380 - 360	6*1	5.000	4.750	197.5 K=1.00	6.0000	-4.864	34.766	0.140 [1] ✔
T17	280 - 260	6*1	5.000	4.729	196.6 K=1.00	6.0000	-4.094	35.073	0.117 [1] ✔
T21	200 - 180	6*1	5.000	4.729	196.6 K=1.00	6.0000	-5.615	35.073	0.160 [1] ✔
T26	100 - 80	6*1	5.000	4.708	195.7 K=1.00	6.0000	-3.280	35.385	0.093 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	2 1/4	12.000	3.833	81.8	3.9761	12.535	178.924	0.070 [1]
T3	560 - 540	2 1/4	20.000	3.900	83.2	3.9761	4.107	178.924	0.023 [1]
T4	540 - 520	2 1/2	20.000	3.900	74.9	4.9087	5.206	220.893	0.024 [1]

[1] P_u / ϕP_n controls

Leg Bending Design Data (Tension)

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	592 - 580	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T3	560 - 540	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T4	540 - 520	2 1/2	0.000	9.766	0.000	0.000	9.766	0.000

Leg Interaction Design Data (Tension)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	592 - 580	2 1/4	0.070	0.000	0.000	0.070 [1] ✔	1.000	4.8.1 ✔
T3	560 - 540	2 1/4	0.023	0.000	0.000	0.023 [1] ✔	1.000	4.8.1 ✔
T4	540 - 520	2 1/2	0.024	0.000	0.000	0.024 [1] ✔	1.000	4.8.1 ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	3/4	6.300	6.064	388.1	0.4418	5.458	14.314	0.381 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	580 - 560	5/8	6.341	6.103	468.7	0.3068	4.149	9.940	0.417 [1]
T3	560 - 540	5/8	6.341	6.103	468.7	0.3068	5.155	9.940	0.519 [1]
T4	540 - 520	3/4	6.341	6.077	388.9	0.4418	6.642	14.314	0.464 [1]
T5	520 - 500	5/8	6.341	6.077	466.7	0.3068	4.678	9.940	0.471 [1]
T6	500 - 480	5/8	6.341	6.077	466.7	0.3068	4.927	9.940	0.496 [1]
T7	480 - 460	3/4	6.341	6.051	387.2	0.4418	8.086	14.314	0.565 [1]
T8	460 - 440	3/4	6.341	6.051	387.2	0.4418	6.741	14.314	0.471 [1]
T9	440 - 420	5/8	6.341	6.051	464.7	0.3068	4.742	9.940	0.477 [1]
T10	420 - 400	5/8	6.341	6.051	464.7	0.3068	4.711	9.940	0.474 [1]
T11	400 - 380	5/8	6.341	6.051	464.7	0.3068	7.995	9.940	0.804 [1]
T12	380 - 360	7/8	6.341	6.024	330.5	0.6013	9.645	19.483	0.495 [1]
T13	360 - 340	5/8	6.341	6.024	462.6	0.3068	6.867	9.940	0.691 [1]
T14	340 - 320	5/8	6.341	6.024	462.6	0.3068	5.013	9.940	0.504 [1]
T15	320 - 300	5/8	6.341	6.024	462.6	0.3068	3.882	9.940	0.391 [1]
T16	300 - 280	3/4	6.341	5.998	383.9	0.4418	6.481	14.314	0.453 [1]
T17	280 - 260	3/4	6.341	5.998	383.9	0.4418	10.810	14.314	0.755 [1]
T18	260 - 240	5/8	6.341	5.998	460.6	0.3068	6.427	9.940	0.647 [1]
T19	240 - 220	5/8	6.341	5.998	460.6	0.3068	4.406	9.940	0.443 [1]
T20	220 - 200	5/8	6.341	5.998	460.6	0.3068	9.196	9.940	0.925 [1]
T21	200 - 180	7/8	6.341	5.998	329.0	0.6013	10.280	19.483	0.528 [1]
T22	180 - 160	3/4	6.341	5.998	383.9	0.4418	6.489	14.314	0.453 [1]
T23	160 - 140	5/8	6.341	5.998	460.6	0.3068	3.781	9.940	0.380 [1]
T24	140 - 120	5/8	6.341	5.998	460.6	0.3068	5.515	9.940	0.555 [1]
T25	120 - 100	3/4	6.341	5.998	383.9	0.4418	8.571	14.314	0.599 [1]
T26	100 - 80	3/4	6.341	5.971	382.2	0.4418	9.292	14.314	0.649 [1]
T27	80 - 60	5/8	6.341	5.971	458.6	0.3068	7.333	9.940	0.738 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T28	60 - 40	5/8	6.341	5.971	458.6	0.3068	5.193	9.940	0.522 [1]
T29	40 - 20	5/8	6.341	5.971	458.6	0.3068	4.280	9.940	0.431 [1]
T30	20 - 8	5/8	6.300	5.933	455.6	0.3068	6.912	9.940	0.695 [1]
T31	8 - 0	L3x3x3/8	4.323	2.251	29.6	2.1100	0.538	68.364	0.008 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	L2 1/2x2 1/2x3/16	5.000	4.813	74.2	0.9020	0.500	29.225	0.017 [1]
T2	580 - 560	L2 1/2x2 1/2x3/16	5.000	4.813	74.2	0.9020	0.516	29.225	0.018 [1]
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	74.2	0.9020	0.782	29.225	0.027 [1]
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.108	29.225	0.038 [1]
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.069	29.225	0.037 [1]
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.161	29.225	0.040 [1]
T7	480 - 460	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.674	29.225	0.057 [1]
T8	460 - 440	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.731	29.225	0.059 [1]
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.699	29.225	0.058 [1]
T10	420 - 400	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.853	29.225	0.063 [1]
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	2.198	29.225	0.075 [1]
T12	380 - 360	L2 1/2x2 1/2x1/4	5.000	4.750	74.1	1.1900	2.543	38.556	0.066 [1]
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	2.273	29.225	0.078 [1]
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	1.788	29.225	0.061 [1]
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	1.743	29.225	0.060 [1]
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	1.941	29.225	0.066 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.241	29.225	0.077 [1]
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.476	29.225	0.085 [1]
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.509	29.225	0.086 [1]
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.459	29.225	0.084 [1]
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	73.8	1.1900	2.802	38.556	0.073 [1]
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.680	29.225	0.092 [1]
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.469	29.225	0.084 [1]
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.481	29.225	0.085 [1]
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.969	29.225	0.102 [1]
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	3.260	29.225	0.112 [1]
T27	80 - 60	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.902	29.225	0.099 [1]
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.739	29.225	0.094 [1]
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.746	29.225	0.094 [1]
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.764	29.225	0.095 [1]
T31	8 - 0	L3x3x3/8	1.858	1.566	20.6	2.1100	14.086	68.364	0.206 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	580 - 560	L2 1/2x2 1/2x3/16	5.000	4.813	74.2	0.9020	0.516	29.225	0.018 [1]
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	74.2	0.9020	0.782	29.225	0.027 [1]
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.108	29.225	0.038 [1]
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.069	29.225	0.037 [1]
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.161	29.225	0.040 [1]
T7	480 - 460	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.674	29.225	0.057 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T8	460 - 440	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.731	29.225	0.059 [1]
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.699	29.225	0.058 [1]
T10	420 - 400	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.853	29.225	0.063 [1]
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	2.198	29.225	0.075 [1]
T12	380 - 360	L1 1/2x1 1/2x1/4	5.000	4.750	127.0	0.6875	2.543	22.275	0.114 [1]
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	2.273	29.225	0.078 [1]
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	1.788	29.225	0.061 [1]
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	1.743	29.225	0.060 [1]
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	1.941	29.225	0.066 [1]
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.241	29.225	0.077 [1]
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.476	29.225	0.085 [1]
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.509	29.225	0.086 [1]
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.459	29.225	0.084 [1]
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	73.8	1.1900	2.802	38.556	0.073 [1]
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.680	29.225	0.092 [1]
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.469	29.225	0.084 [1]
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.481	29.225	0.085 [1]
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.969	29.225	0.102 [1]
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	3.260	29.225	0.112 [1]
T27	80 - 60	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.902	29.225	0.099 [1]
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.739	29.225	0.094 [1]
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.746	29.225	0.094 [1]
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.764	29.225	0.095 [1]
T31	8 - 0	C3x5	4.427	4.135	121.0	1.4700	11.029	47.628	0.232 [1]

[1] $P_u / \phi P_n$ controls

Bottom Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	592 - 580	L2 1/2x2 1/2x3/16	5.000	4.813	74.2	0.9020	0.500	29.225	0.017 [1] ✔
T2	580 - 560	L2 1/2x2 1/2x3/16	5.000	4.813	74.2	0.9020	0.516	29.225	0.018 [1] ✔
T3	560 - 540	L2 1/2x2 1/2x3/16	5.000	4.813	74.2	0.9020	0.782	29.225	0.027 [1] ✔
T4	540 - 520	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.108	29.225	0.038 [1] ✔
T5	520 - 500	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.069	29.225	0.037 [1] ✔
T6	500 - 480	L2 1/2x2 1/2x3/16	5.000	4.792	73.9	0.9020	1.161	29.225	0.040 [1] ✔
T8	460 - 440	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.731	29.225	0.059 [1] ✔
T9	440 - 420	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.699	29.225	0.058 [1] ✔
T10	420 - 400	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	1.853	29.225	0.063 [1] ✔
T11	400 - 380	L2 1/2x2 1/2x3/16	5.000	4.771	73.6	0.9020	2.198	29.225	0.075 [1] ✔
T12	380 - 360	L2 1/2x2 1/2x1/4	5.000	4.750	74.1	1.1900	2.543	38.556	0.066 [1] ✔
T13	360 - 340	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	2.273	29.225	0.078 [1] ✔
T14	340 - 320	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	1.788	29.225	0.061 [1] ✔
T15	320 - 300	L2 1/2x2 1/2x3/16	5.000	4.750	73.3	0.9020	1.743	29.225	0.060 [1] ✔
T16	300 - 280	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	1.941	29.225	0.066 [1] ✔
T17	280 - 260	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.241	29.225	0.077 [1] ✔
T18	260 - 240	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.476	29.225	0.085 [1] ✔
T19	240 - 220	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.509	29.225	0.086 [1] ✔
T20	220 - 200	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.459	29.225	0.084 [1] ✔
T21	200 - 180	L2 1/2x2 1/2x1/4	5.000	4.729	73.8	1.1900	2.802	38.556	0.073 [1] ✔
T22	180 - 160	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.680	29.225	0.092 [1] ✔
T23	160 - 140	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.469	29.225	0.084 [1] ✔
T24	140 - 120	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.481	29.225	0.085 [1] ✔
T25	120 - 100	L2 1/2x2 1/2x3/16	5.000	4.729	72.9	0.9020	2.969	29.225	0.102 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T26	100 - 80	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	3.260	29.225	0.112 [1] ✔
T27	80 - 60	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.902	29.225	0.099 [1] ✔
T28	60 - 40	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.739	29.225	0.094 [1] ✔
T29	40 - 20	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	2.746	29.225	0.094 [1] ✔
T30	20 - 8	L2 1/2x2 1/2x3/16	5.000	4.708	72.6	0.9020	19.763	29.225	0.676 [1] ✔
T31	8 - 0	12x3/8	0.573	0.281	31.2	4.5000	14.086	145.800	0.097 [1] ✔

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	592 - 580	6*1	5.000	4.813	200.1	4.5000	20.198	219.375	0.092 [1] ✔
T4	540 - 520	6*1	5.000	4.792	199.2	4.5000	2.646	219.375	0.012 [1] ✔
T7	480 - 460	6*1	5.000	4.771	198.3	4.5000	6.782	219.375	0.031 [1] ✔
T12	380 - 360	6*1	5.000	4.750	197.5	4.5000	3.782	219.375	0.017 [1] ✔
T17	280 - 260	6*1	5.000	4.729	196.6	4.5000	6.053	219.375	0.028 [1] ✔
T21	200 - 180	6*1	5.000	4.729	196.6	4.5000	4.186	219.375	0.019 [1] ✔
T26	100 - 80	6*1	5.000	4.708	195.7	4.5000	5.695	219.375	0.026 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	625 - 592	Pole	P10x.365	1	-2.155	229.160	39.2	Pass
T1	592 - 580	Leg	2 1/4	4	-13.850	109.725	32.9	Pass
T2	580 - 560	Leg	2 1/4	37	-29.780	107.859	27.6	Pass
T3	560 - 540	Leg	2 1/4	88	-45.161	107.859	41.9	Pass
T4	540 - 520	Leg	2 1/2	139	-63.985	146.600	43.6	Pass
T5	520 - 500	Leg	2 1/2	189	-61.693	146.600	42.1	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T6	500 - 480	Leg	2 1/2	241	-67.041	146.600	45.7	Pass
T7	480 - 460	Leg	2 3/4	292	-96.624	190.468	50.7	Pass
T8	460 - 440	Leg	2 3/4	343	-99.961	190.468	52.5	Pass
T9	440 - 420	Leg	2 3/4	394	-98.097	190.468	51.5	Pass
T10	420 - 400	Leg	2 3/4	445	-106.989	190.468	56.2	Pass
T11	400 - 380	Leg	2 3/4	496	-126.923	190.468	66.6	Pass
T12	380 - 360	Leg	3	547	-146.812	239.277	61.4	Pass
T13	360 - 340	Leg	3	598	-131.209	239.277	54.8	Pass
T14	340 - 320	Leg	3	649	-103.204	239.277	43.1	Pass
T15	320 - 300	Leg	3	699	-100.641	239.277	42.1	Pass
T16	300 - 280	Leg	3 1/4	750	-112.067	292.897	38.3	Pass
T17	280 - 260	Leg	3 1/4	801	-129.384	292.897	44.2	Pass
T18	260 - 240	Leg	3 1/4	852	-142.950	292.897	48.8	Pass
T19	240 - 220	Leg	3 1/4	904	-144.875	292.897	49.5	Pass
T20	220 - 200	Leg	3 1/4	955	-141.954	292.897	48.5	Pass
T21	200 - 180	Leg	3 1/4	1005	-161.779	292.897	55.2	Pass
T22	180 - 160	Leg	3 1/4	1056	-154.757	292.897	52.8	Pass
T23	160 - 140	Leg	3 1/4	1108	-142.571	292.897	48.7	Pass
T24	140 - 120	Leg	3 1/4	1157	-143.223	292.897	48.9	Pass
T25	120 - 100	Leg	3 1/4	1210	-171.422	292.897	58.5	Pass
T26	100 - 80	Leg	3 1/2	1261	-188.196	351.235	53.6	Pass
T27	80 - 60	Leg	3 1/2	1312	-167.551	351.235	47.7	Pass
T28	60 - 40	Leg	3 1/2	1363	-158.158	351.235	45.0	Pass
T29	40 - 20	Leg	3 1/2	1414	-158.560	351.235	45.1	Pass
T30	20 - 8	Leg	3 1/2	1463	-159.580	353.734	45.1	Pass
T31	8 - 0	Leg	3 1/2	1496	-164.197	372.094	44.1	Pass
T1	592 - 580	Diagonal	3/4	29	5.458	14.314	38.1	Pass
T2	580 - 560	Diagonal	5/8	44	4.149	9.940	41.7	Pass
T3	560 - 540	Diagonal	5/8	100	5.155	9.940	51.9	Pass
T4	540 - 520	Diagonal	3/4	173	6.642	14.314	46.4	Pass
T5	520 - 500	Diagonal	5/8	238	4.678	9.940	47.1	Pass
T6	500 - 480	Diagonal	5/8	251	4.927	9.940	49.6	Pass
T7	480 - 460	Diagonal	3/4	299	8.086	14.314	56.5	Pass
T8	460 - 440	Diagonal	3/4	391	6.741	14.314	47.1	Pass
T9	440 - 420	Diagonal	5/8	442	4.742	9.940	47.7	Pass
T10	420 - 400	Diagonal	5/8	454	4.711	9.940	47.4	Pass
T11	400 - 380	Diagonal	5/8	504	7.995	9.940	80.4	Pass
T12	380 - 360	Diagonal	7/8	573	9.645	19.483	49.5	Pass
T13	360 - 340	Diagonal	5/8	645	6.867	9.940	69.1	Pass
T14	340 - 320	Diagonal	5/8	696	5.013	9.940	50.4	Pass
T15	320 - 300	Diagonal	5/8	747	3.882	9.940	39.1	Pass
T16	300 - 280	Diagonal	3/4	761	6.481	14.314	45.3	Pass
T17	280 - 260	Diagonal	3/4	848	10.810	14.314	75.5	Pass
T18	260 - 240	Diagonal	5/8	901	6.427	9.940	64.7	Pass
T19	240 - 220	Diagonal	5/8	913	4.406	9.940	44.3	Pass
T20	220 - 200	Diagonal	5/8	964	9.196	9.940	92.5	Pass
T21	200 - 180	Diagonal	7/8	1024	10.280	19.483	52.8	Pass
T22	180 - 160	Diagonal	3/4	1104	6.489	14.314	45.3	Pass
T23	160 - 140	Diagonal	5/8	1152	3.781	9.940	38.0	Pass
T24	140 - 120	Diagonal	5/8	1170	5.515	9.940	55.5	Pass
T25	120 - 100	Diagonal	3/4	1221	8.571	14.314	59.9	Pass
T26	100 - 80	Diagonal	3/4	1308	9.292	14.314	64.9	Pass
T27	80 - 60	Diagonal	5/8	1358	7.333	9.940	73.8	Pass
T28	60 - 40	Diagonal	5/8	1409	5.193	9.940	52.2	Pass
T29	40 - 20	Diagonal	5/8	1425	4.280	9.940	43.1	Pass
T30	20 - 8	Diagonal	5/8	1476	6.912	9.940	69.5	Pass
T31	8 - 0	Diagonal	L3x3x3/8	1510	-26.000	68.978	37.7	Pass
T1	592 - 580	Horizontal	L2 1/2x2 1/2x3/16	26	-6.877	18.174	37.8	Pass
T2	580 - 560	Horizontal	L2 1/2x2 1/2x3/16	50	-4.789	18.174	26.3	Pass
T3	560 - 540	Horizontal	L2 1/2x2 1/2x3/16	103	-4.756	18.174	26.2	Pass
T4	540 - 520	Horizontal	L2 1/2x2 1/2x3/16	179	-7.292	18.235	40.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T5	520 - 500	Horizontal	L2 1/2x2 1/2x3/16	203	-4.457	18.235	24.4	Pass
T6	500 - 480	Horizontal	L2 1/2x2 1/2x3/16	281	-4.413	18.235	24.2	Pass
T7	480 - 460	Horizontal	L2 1/2x2 1/2x3/16	305	-6.301	18.296	34.4	Pass
T8	460 - 440	Horizontal	L2 1/2x2 1/2x3/16	385	-5.468	18.296	29.9	Pass
T9	440 - 420	Horizontal	L2 1/2x2 1/2x3/16	407	-4.325	18.296	23.6	Pass
T10	420 - 400	Horizontal	L2 1/2x2 1/2x3/16	485	-4.134	18.296	22.6	Pass
T11	400 - 380	Horizontal	L2 1/2x2 1/2x3/16	509	-5.949	18.296	32.5	Pass
T12	380 - 360	Horizontal	L2 1/2x2 1/2x1/4	578	-8.405	24.069	34.9	Pass
T13	360 - 340	Horizontal	L2 1/2x2 1/2x3/16	640	-5.084	18.357	27.7	Pass
T14	340 - 320	Horizontal	L2 1/2x2 1/2x3/16	689	-3.892	18.357	21.2	Pass
T15	320 - 300	Horizontal	L2 1/2x2 1/2x3/16	740	-3.880	18.357	21.1	Pass
T16	300 - 280	Horizontal	L2 1/2x2 1/2x3/16	791	-5.239	18.417	28.4	Pass
T17	280 - 260	Horizontal	L2 1/2x2 1/2x3/16	835	-6.325	18.417	34.3	Pass
T18	260 - 240	Horizontal	L2 1/2x2 1/2x3/16	895	-4.620	18.417	25.1	Pass
T19	240 - 220	Horizontal	L2 1/2x2 1/2x3/16	944	-4.066	18.417	22.1	Pass
T20	220 - 200	Horizontal	L2 1/2x2 1/2x3/16	969	-6.896	18.417	37.4	Pass
T21	200 - 180	Horizontal	L2 1/2x2 1/2x1/4	1029	-7.966	24.150	33.0	Pass
T22	180 - 160	Horizontal	L2 1/2x2 1/2x3/16	1099	-4.630	18.417	25.1	Pass
T23	160 - 140	Horizontal	L2 1/2x2 1/2x3/16	1121	-3.632	18.417	19.7	Pass
T24	140 - 120	Horizontal	L2 1/2x2 1/2x3/16	1174	-3.924	18.417	21.3	Pass
T25	120 - 100	Horizontal	L2 1/2x2 1/2x3/16	1225	-6.196	18.417	33.6	Pass
T26	100 - 80	Horizontal	L2 1/2x2 1/2x3/16	1303	-6.755	18.478	36.6	Pass
T27	80 - 60	Horizontal	L2 1/2x2 1/2x3/16	1353	-5.393	18.478	29.2	Pass
T28	60 - 40	Horizontal	L2 1/2x2 1/2x3/16	1404	-3.696	18.478	20.0	Pass
T29	40 - 20	Horizontal	L2 1/2x2 1/2x3/16	1454	-3.685	18.478	19.9	Pass
T30	20 - 8	Horizontal	L2 1/2x2 1/2x3/16	1478	-4.811	18.478	26.0	Pass
T31	8 - 0	Horizontal	L3x3x3/8	1513	14.086	68.364	20.6	Pass
T2	580 - 560	Top Girt	L2 1/2x2 1/2x3/16	39	-2.522	18.174	13.9	Pass
T3	560 - 540	Top Girt	L2 1/2x2 1/2x3/16	90	-2.608	18.174	14.4	Pass
T4	540 - 520	Top Girt	L2 1/2x2 1/2x3/16	142	-3.545	18.235	19.4	Pass
T5	520 - 500	Top Girt	L2 1/2x2 1/2x3/16	192	-2.408	18.235	13.2	Pass
T6	500 - 480	Top Girt	L2 1/2x2 1/2x3/16	244	-2.390	18.235	13.1	Pass
T7	480 - 460	Top Girt	L2 1/2x2 1/2x3/16	295	-3.436	18.296	18.8	Pass
T8	460 - 440	Top Girt	L2 1/2x2 1/2x3/16	345	-2.693	18.296	14.7	Pass
T9	440 - 420	Top Girt	L2 1/2x2 1/2x3/16	396	-2.340	18.296	12.8	Pass
T10	420 - 400	Top Girt	L2 1/2x2 1/2x3/16	446	-2.279	18.296	12.5	Pass
T11	400 - 380	Top Girt	L2 1/2x2 1/2x3/16	498	-2.586	18.296	14.1	Pass
T12	380 - 360	Top Girt	L1 1/2x1 1/2x1/4	548	-3.584	7.120	50.3	Pass
T13	360 - 340	Top Girt	L2 1/2x2 1/2x3/16	599	-2.789	18.357	15.2	Pass
T14	340 - 320	Top Girt	L2 1/2x2 1/2x3/16	650	-2.297	18.357	12.5	Pass
T15	320 - 300	Top Girt	L2 1/2x2 1/2x3/16	701	-2.031	18.357	11.1	Pass
T16	300 - 280	Top Girt	L2 1/2x2 1/2x3/16	752	-2.837	18.417	15.4	Pass
T17	280 - 260	Top Girt	L2 1/2x2 1/2x3/16	804	-3.774	18.417	20.5	Pass
T18	260 - 240	Top Girt	L2 1/2x2 1/2x3/16	856	-2.714	18.417	14.7	Pass
T19	240 - 220	Top Girt	L2 1/2x2 1/2x3/16	906	-2.509	18.417	13.6	Pass
T20	220 - 200	Top Girt	L2 1/2x2 1/2x3/16	957	-2.459	18.417	13.3	Pass
T21	200 - 180	Top Girt	L2 1/2x2 1/2x1/4	1008	-4.312	24.150	17.9	Pass
T22	180 - 160	Top Girt	L2 1/2x2 1/2x3/16	1058	-2.971	18.417	16.1	Pass
T23	160 - 140	Top Girt	L2 1/2x2 1/2x3/16	1110	-2.469	18.417	13.4	Pass
T24	140 - 120	Top Girt	L2 1/2x2 1/2x3/16	1162	-2.481	18.417	13.5	Pass
T25	120 - 100	Top Girt	L2 1/2x2 1/2x3/16	1212	-2.969	18.417	16.1	Pass
T26	100 - 80	Top Girt	L2 1/2x2 1/2x3/16	1264	-3.764	18.478	20.4	Pass
T27	80 - 60	Top Girt	L2 1/2x2 1/2x3/16	1314	-2.966	18.478	16.1	Pass
T28	60 - 40	Top Girt	L2 1/2x2 1/2x3/16	1365	-2.739	18.478	14.8	Pass
T29	40 - 20	Top Girt	L2 1/2x2 1/2x3/16	1416	-2.746	18.478	14.9	Pass
T30	20 - 8	Top Girt	L2 1/2x2 1/2x3/16	1468	-2.764	18.478	15.0	Pass
T31	8 - 0	Top Girt	C3x5	1501	11.029	47.628	23.2	Pass
T1	592 - 580	Bottom Girt	L2 1/2x2 1/2x3/16	10	-3.351	18.174	18.4	Pass
T2	580 - 560	Bottom Girt	L2 1/2x2 1/2x3/16	41	-2.708	18.174	14.9	Pass
T3	560 - 540	Bottom Girt	L2 1/2x2 1/2x3/16	92	-3.161	18.174	17.4	Pass
T4	540 - 520	Bottom Girt	L2 1/2x2 1/2x3/16	143	-3.167	18.235	17.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T5	520 - 500	Bottom Girt	L2 1/2x2 1/2x3/16	194	-2.298	18.235	12.6	Pass
T6	500 - 480	Bottom Girt	L2 1/2x2 1/2x3/16	245	-2.665	18.235	14.6	Pass
T8	460 - 440	Bottom Girt	L2 1/2x2 1/2x3/16	347	-2.954	18.296	16.1	Pass
T9	440 - 420	Bottom Girt	L2 1/2x2 1/2x3/16	400	-2.253	18.296	12.3	Pass
T10	420 - 400	Bottom Girt	L2 1/2x2 1/2x3/16	451	-2.359	18.296	12.9	Pass
T11	400 - 380	Bottom Girt	L2 1/2x2 1/2x3/16	500	-3.554	18.296	19.4	Pass
T12	380 - 360	Bottom Girt	L2 1/2x2 1/2x1/4	551	-3.677	24.069	15.3	Pass
T13	360 - 340	Bottom Girt	L2 1/2x2 1/2x3/16	604	-2.338	18.357	12.7	Pass
T14	340 - 320	Bottom Girt	L2 1/2x2 1/2x3/16	653	-2.100	18.357	11.4	Pass
T15	320 - 300	Bottom Girt	L2 1/2x2 1/2x3/16	705	-2.167	18.357	11.8	Pass
T16	300 - 280	Bottom Girt	L2 1/2x2 1/2x3/16	756	-3.272	18.417	17.8	Pass
T17	280 - 260	Bottom Girt	L2 1/2x2 1/2x3/16	806	-2.908	18.417	15.8	Pass
T18	260 - 240	Bottom Girt	L2 1/2x2 1/2x3/16	857	-2.476	18.417	13.4	Pass
T19	240 - 220	Bottom Girt	L2 1/2x2 1/2x3/16	909	-2.509	18.417	13.6	Pass
T20	220 - 200	Bottom Girt	L2 1/2x2 1/2x3/16	960	-3.423	18.417	18.6	Pass
T21	200 - 180	Bottom Girt	L2 1/2x2 1/2x1/4	1010	-3.808	24.150	15.8	Pass
T22	180 - 160	Bottom Girt	L2 1/2x2 1/2x3/16	1061	-2.680	18.417	14.6	Pass
T23	160 - 140	Bottom Girt	L2 1/2x2 1/2x3/16	1113	-2.469	18.417	13.4	Pass
T24	140 - 120	Bottom Girt	L2 1/2x2 1/2x3/16	1165	-2.481	18.417	13.5	Pass
T25	120 - 100	Bottom Girt	L2 1/2x2 1/2x3/16	1216	-3.365	18.417	18.3	Pass
T26	100 - 80	Bottom Girt	L2 1/2x2 1/2x3/16	1266	-3.260	18.478	17.6	Pass
T27	80 - 60	Bottom Girt	L2 1/2x2 1/2x3/16	1317	-2.902	18.478	15.7	Pass
T28	60 - 40	Bottom Girt	L2 1/2x2 1/2x3/16	1368	-2.739	18.478	14.8	Pass
T29	40 - 20	Bottom Girt	L2 1/2x2 1/2x3/16	1419	-2.746	18.478	14.9	Pass
T30	20 - 8	Bottom Girt	L2 1/2x2 1/2x3/16	1471	19.763	29.225	67.6	Pass
T31	8 - 0	Bottom Girt	12x3/8	1504	14.086	145.800	9.7	Pass
T1	592 - 580	Guy A@591.75	7/8	1531	30.542	55.200	55.3	Pass
T4	540 - 520	Guy A@531.95	1	1534	38.038	73.200	52.0	Pass
T7	480 - 460	Guy A@460.25	1	1537	39.146	73.200	53.5	Pass
T12	380 - 360	Guy A@368.05	1	1540	39.392	73.200	53.8	Pass
T17	280 - 260	Guy A@275.85	1	1543	40.848	73.200	55.8	Pass
T21	200 - 180	Guy A@184.15	7/8	1546	31.833	55.200	57.7	Pass
T26	100 - 80	Guy A@91.95	7/8	1549	24.880	55.200	45.1	Pass
T1	592 - 580	Guy B@591.75	7/8	1530	31.325	55.200	56.7	Pass
T4	540 - 520	Guy B@531.95	1	1533	39.240	73.200	53.6	Pass
T7	480 - 460	Guy B@460.25	1	1536	40.019	73.200	54.7	Pass
T12	380 - 360	Guy B@368.05	1	1539	38.976	73.200	53.2	Pass
T17	280 - 260	Guy B@275.85	1	1542	39.682	73.200	54.2	Pass
T21	200 - 180	Guy B@184.15	7/8	1545	31.075	55.200	56.3	Pass
T26	100 - 80	Guy B@91.95	7/8	1548	24.154	55.200	43.8	Pass
T1	592 - 580	Guy C@591.75	7/8	1529	31.953	55.200	57.9	Pass
T4	540 - 520	Guy C@531.95	1	1532	39.930	73.200	54.5	Pass
T7	480 - 460	Guy C@460.25	1	1535	41.007	73.200	56.0	Pass
T12	380 - 360	Guy C@368.05	1	1538	40.635	73.200	55.5	Pass
T17	280 - 260	Guy C@275.85	1	1541	39.620	73.200	54.1	Pass
T21	200 - 180	Guy C@184.15	7/8	1544	31.690	55.200	57.4	Pass
T26	100 - 80	Guy C@91.95	7/8	1547	23.363	55.200	42.3	Pass
T1	592 - 580	Top Guy Pull-Off@591.75	6*1	6	20.198	219.375	9.2	Pass
T4	540 - 520	Top Guy Pull-Off@531.95	6*1	170	-4.209	34.164	12.3	Pass
T7	480 - 460	Top Guy Pull-Off@460.25	6*1	296	-1.850	34.464	5.4	Pass
T12	380 - 360	Top Guy Pull-Off@368.05	6*1	569	-4.864	34.766	14.0	Pass
T17	280 - 260	Top Guy Pull-Off@275.85	6*1	842	-4.094	35.073	11.7	Pass
T21	200 - 180	Top Guy Pull-Off@184.15	6*1	1019	-5.615	35.073	16.0	Pass
T26	100 - 80	Top Guy Pull-Off@91.95	6*1	1292	-3.280	35.385	9.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
						Summary		
						Pole (L1)	39.2	Pass
						Leg (T11)	66.6	Pass
						Diagonal (T20)	92.5	Pass
						Horizontal (T4)	40.0	Pass
						Top Girt (T12)	50.3	Pass
						Bottom Girt (T30)	67.6	Pass
						Guy A (T21)	57.7	Pass
						Guy B (T1)	56.7	Pass
						Guy C (T1)	57.9	Pass
						Top Guy Pull-Off (T21)	16.0	Pass
						Bolt Checks	47.4	Pass
						RATING =	**92.5**	**Pass**

Guyed Tower Foundation Reaction Comparison

Site#	US-CT-5004	Date	5/20/2021
Carrier	AT&T	Engineer	TK

TIA Rev	TIA-222-G
Conversion Factor	1.35 *Use (1) if tower was designed in Rev H

Origional Design Reactions					Current Analysis Reactions				
	Base	Inner Anchor	Middle Anchor	Outer Anchor		Base	Inner Anchor	Middle Anchor	Outer Anchor
Horizontal (kip)	6.3	127.0	0.0	68.5	Horizontal (kip)	2.0	69.0	0.0	78.0
Vertical (kip)	609.0	133.0	0.0	118.0	Vertical (kip)	460.0	64.0	0.0	125.0

Foundation Reactions	**Factored Original Design**		**Current Analysis**		**Percentage**		
	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Controlling
	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)
Base	8.5	822.2	2.0	460.0	23.5%	56.0%	84.3%
Inner Anchor	171.5	179.6	69.0	64.0	40.2%	35.6%	
Middle Anchor	0.0	0.0	0.0	0.0	0.0%	0.0%	
Outer Anchor	92.5	159.3	78.0	125.0	84.3%	78.5%	

Notes:

1. Original design reactions increased by 1.35 for conversion to Rev G
2. Foundations are within acceptable engineering tolerance at 110%.

BU:	US-CT-5004	Structure:	A
WO:			
Order:		Rev:	

Location

	Decimal Degrees		Deg	Min	Sec
Lat:	41.433708	+	41	26	1.35
Long:	-72.945189	-	72	56	42.68

Code and Site Parameters

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

USGS Seismic Reference			
	S_S:	0.2000	g
	S_1:	0.0540	g
	T_L:	6	s

Seismic Design Category Determination

Importance Factor, I_e:	1
Acceleration-based site coefficient, F_a:	1.6000
Velocity-based site coefficient, F_v:	2.4000

Design spectral response acceleration short period, S_{DS}:	0.2133	g
Design spectral response acceleration 1 s period, S_{D1}:	0.0864	g

Seismic Design Category Based on S_{DS}:	B
Seismic Design Category Based on S_{D1}:	B
Seismic Design Category Based on S_1:	N/A

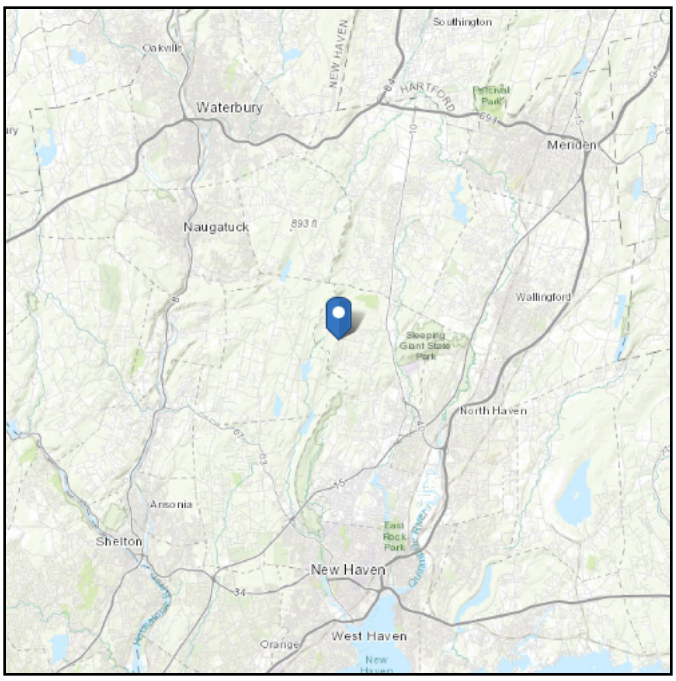
Controlling Seismic Design Category:	B

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: 637.93 ft (NAVD 88)
Latitude: 41.433708
Longitude: -72.945189



Wind

Results:

Wind Speed:	119 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph
Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4
Date Accessed:	Wed Jun 10 2020

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

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

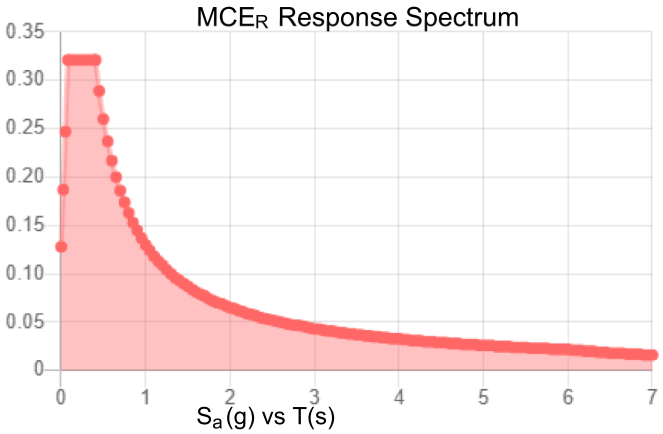
Seismic

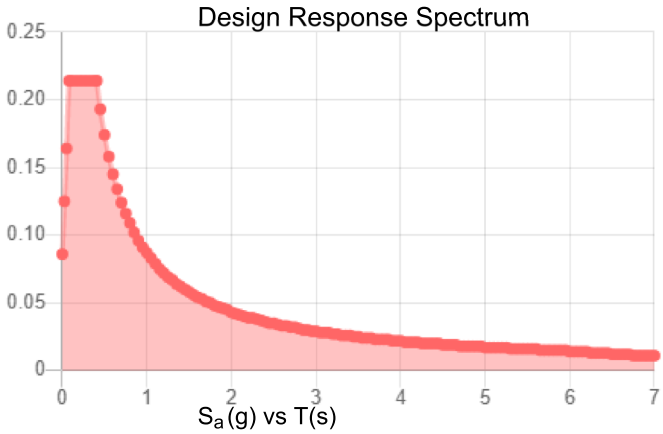
Site Soil Class: D - Default (see Section 11.4.3)

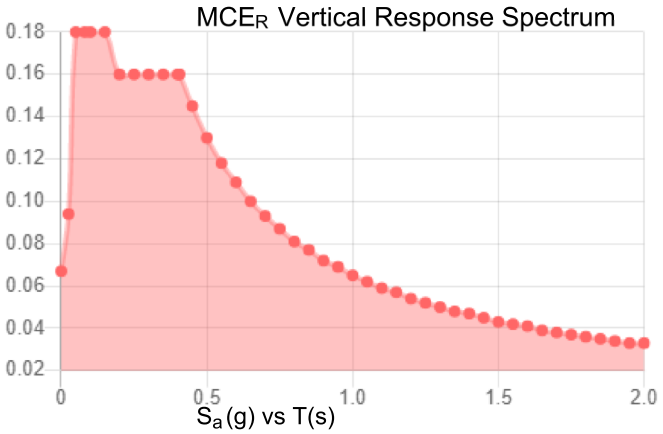
Results:

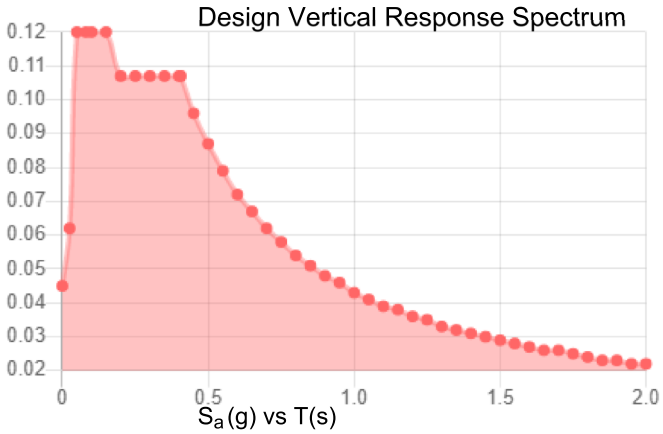
S_S :	0.2	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.112
F_v :	2.4	PGA_M :	0.176
S_{MS} :	0.321	F_{PGA} :	1.577
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.214	C_v :	0.701

Seismic Design Category B









Data Accessed: Wed Jun 10 2020

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed Jun 10 2020

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

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

Attachment 2:
Collocation Application

COLOCATION APPLICATION
US-CT-5004
Version 2
DISH Wireless L.L.C.

Vertical Bridge REIT, LLC.
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487

SUMMARY

PRIMARY INFO

Application #: P-006894

Application Version: 2 (Submitted: 3/3/2021 9:58:00 PM)

Application Type: Broadband

Application Name: DISH Application BOHVN00193A

Lease Type: New Lease

Description:
Dish proposes to place 3 antennas, 6 RRUs, 1 junction box(s), and 1 cable(s) at the 210 foot RAD. Dish will require a 5' x 7' lease area for ground equipment

VERTICAL BRIDGE SITE INFO

VB Site #: US-CT-5004

VB Site Name: NHA-003-FM

Latitude: 41.43370833

Longitude: -72.94518889

Structure Type: Guyed Tower

Structure Height: 623.3600

Site Address: 360 Gaylord Mountain Road -
Hamden, CT 06518

VERTICAL BRIDGE DEAL TEAM

RLM: Floyd Jenkins
FJenkins@verticalbridge.com
(301) 667-0069

RLS: Sam Bowden
SBowden@verticalbridge.com

ROM: Robert Lankton
RLankton@verticalbridge.com
(941) 266-6781

TENANT LEGAL INFO

Tenant Legal Name: DISH Wireless L.L.C.

State of Registration: Colorado

Type of Entity: LLC

Carrier NOC #: 2039274317

Tenant Site #: BOHVN00193A

Tenant Site Name: BOHVN00193A

APPLICANT

Name: Mai Conaway

Address 1053 Farmington Avenue
Farmington, CT 06032

Phone Number:: (410) 409-3822

Email Address: mai@northeastsitesolutions.com

FINAL LEASED RIGHTS CONFIGURATION TOTALS

This is a summary of your remaining existing equipment plus the new equipment.

FINAL EQUIPMENT

Qty	Equipment Type
1	Junction Box
3	Panel
6	RRU

FINAL LINES

Qty	Line Type
1	Hybrid

Vertical Bridge REIT, LLC.
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487

FREQUENCY & TECHNOLOGY INFO

Type of Technology: Broadband Wireless
Is TX Frequency Licensed: Yes
TX Frequency: 127.9558044
Is RX Frequency Licensed: Yes
RX Frequency: 15633.92644

MOUNT & STRUCTURAL ANALYSIS

MOUNT ANALYSIS

Provided by Tenant: No
To Be Run by VB: Yes
Include Mount Mapping: Yes

STRUCTURAL HARD COPIES

Required: No
Number of Hard Copies

CONTACTS

INVOICE CONTACT

Attention To	Name	Address	Phone Number 1	Phone Number 2	Email 1	Email 2
Real Estate	Jeanne Cottrell	5701 South Sante Fe Blvd . Littleton, CO 80120	(203) 927-4317		jean.cottrell@dish.com	

PO CONTACT

Name	Phone Number	Email
Jeanne Cottrell	(203) 927-4317	jean.cottrell@dish.com

LEASING CONTACT

Name	Phone Number	Email
Mai Conaway	(410) 409-3822	mai@northeastsitesolutions.com

NOTICE CONTACT

Notice To	Attention To	Name	Address
Real Estate	Real Estate	Jeanne Cottrell	5701 South Sante Fe Blvd Littleton, CO 80120

RF CONTACT

Name	Phone Number	Email
Jared Robinson	(978) 855-5870	jared.robinson@dish.com

Vertical Bridge REIT, LLC.
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487

TENANT CONSTRUCTION MANAGER CONTACT		
Name	**Phone Number**	**Email**
Javier Soto	(617) 839-6514	javier.soto@dish.com

LINE & EQUIPMENT

NEW LINE(S)

Qty	Line Type	Line Size(in.)	Line Location	Comments
1	Hybrid	1.75	Interior	

NEW EQUIPMENT

Qty	Equipment Type	RAD Height	Mount (H')	Mount Type	Manufacturer	Model Number	Dimensions (H"xW"xD")	Weight (Lbs.)	Azimuth	Comments
1	Junction Box	210.00	210.00	Platform	Raycap	RDIDC-9181-PF-48	16.00 x 14.00 x 8.00	21.85	na	
6	RRU	210.00	210.00	Platform	Fujitsu	TA08025-B605	15.75 x 14.96 x 9.06	74.95	0, 120, 240	
3	Panel	210.00	210.00	Platform	JMA	MX08FRO665-20_V0F	72.00 x 20.00 x 8.00	54.00	0, 120, 240	

NEW EQUIPMENT CABINET(S)

Quantity of Cabinets	Cabinet Dimensions (H x W x D)	Manufacturer	Comments
1	32.00 x 32.00 x 72.00	Charles(Amphenol) -H/EX	

ADDITIONAL SITE REQUIREMENTS

GROUND & INTERIOR SPACE REQUIREMENTS

Requirement Type	Total Lease Area (L x W)	Cabinet Required	Cabinet Area (L x W)	Shelter Required	Shelter Pad (L x W)	Comments
New	5.00 x 7.00		x		x	Commscope MTC4045LP; Charles(Amphenol) -H/EX

GENERATOR REQUIREMENTS

Requirement Type	Fuel Type	Kilowatt Size	Pad Dimensions (L x D)	Generator Manufacturer	Fuel Tank Manufacturer	Comments
Not Required			x			

AC POWER REQUIREMENTS

Meter Type	Additional Details	Comments
New Tenant Meter		

BACKHAUL REQUIREMENTS

Vertical Bridge REIT, LLC.
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487

Requirement Type	Cable Type	Number Of Points Of Entry	Riser Size (Inches)	Comments
New	Fiber	1		

Exhibit E

Mount Analysis

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1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

Mount Analysis Report

August 3, 2021

Dish Wireless Site Number	BOHVN00193A
Infinigy Job Number	2039-Z5555C
Client	Northeast Site Solutions
Carrier	Dish Wireless
Site Location	360 Gaylord Mountain Road, Hamden, CT 06518 41.4337 N NAD83 72.9452 W NAD83
Mount Centerline EL.	210 ft
Mount Classification	Sector Frame
Structural Usage Ratio	**16%**
Overall Result	**Pass**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA and ASCE code requirements. The proposed antenna mounts for the proposed carrier are therefore deemed **adequate** to support the final loading configuration as listed in this report.

08-03-21
Dmitriy Albul, P.E.
Engineering Consultant to Infinigy

Contents

Introduction

Infinigy Engineering has been requested to perform a mount analysis of proposed antenna mount from the Dish Wireless equipment. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using RISA-3D Version 19.0. analysis software.

Supporting Documentation

Mount Details	Mount Specification Sabre Industries C10837002C-32788
Construction Drawings	Infinigy Engineering PLLC, Job No. 2039-Z5555C, dated May 17, 2021
RF Design Sheet	Dish Wireless, dated February 15, 2021

Analysis Code Requirements

Wind Speed	125 mph (3-second Gust, Vult.)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 0.75” ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2018 Connecticut State Building Code (2015 IBC)
Structure Class	II
Exposure Category	B
Topographic Method	Method 2
Topographic Category	1
Spectral Response	S_s=0.186, S_1=0.062
Site Class	D – Default (Assumed)
HMSL	636.47ft.

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The proposed antenna mounts are therefore deemed adequate to support the final loading configuration as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Dmitriy Albul, P.E.
Professional Engineer | Engineering Consultant to Infinigy
1033 Watervliet Shaker Road, Albany, NY 12205
(O) (518) 690-0790 | (M) (518) 669-4428
www.infinigy.com

Final Configuration Loading

Mount CL (ft)	Rad. HT (ft)	Vert. O/S (ft)	Horiz. O/S (ft)*	Qty	Appurtenance	Carrier
210.0	210.0	-	9.5	3	JMA MX08FRO665-20	Dish Wireless
			9.5	3	Fujitsu TA08025-B605	
			9.5	3	Fujitsu TA08025-B604	
			-	1	Raycap RDIDC-9181-PF-48	

***Horizontal Offset is defined as the distance from the left most edge of the mount face horizontal when viewed facing the tower.**

Structure Usages

Plates	16%	Pass
Arms	6%	Pass
Mount Pipes	11%	Pass
Stabilizer	4%	Pass
Bracing	8%	Pass
Connections	11%	Pass
Rating	**16%**	Pass

Assumptions and Limitations

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the proposed carriers mount structure only and does not reflect adequacy of the existing tower, other mounts, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

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Date:	7/30/2021
Site Name:	BOHVN00193A
Project Engineer:	DVA
Project No:	2039-Z5555C
Customer:	Northeast Site Solutions
Carrier:	Dish Wireless

Building Code:	2015	
ASCE Standard:	ASCE 7-10	
TIA Standard:	G	
Mount Type:	Sector Frame	
	Proposed	
Mount Centerline:	210	ft
Superstructure Height:	N/A	ft
Structure Type:	Tower	

Factors	
Gh:	1.000
K_{zmin}:	0.700
K_z:	1.222
K_d:	0.950
K_{zt}:	1.000
Ka:	0.900
I wind:	1.000
I ice:	1.000

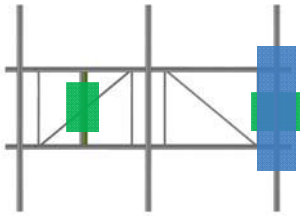
q_z:	27.85	psf
Surface Wind Pressure:	0.00	psf

Site Information		
Exposure Category:	B	
Risk Category:	II	
Ultimate Wind Speed:	125	mph
Design Wind Speed:	97	mph
Ice Thickness:	0.75	in
Ice Wind Speed:	50.0	mph
Escalated Ice Thickness:	1.80	in
Topographic Method:	2	
Topographic Category:	1	

Run Seismic?	Yes	
Site Soil:	D (Default)	
Short-Period Accel. (Ss):	0.1870	
1-Second Accel. (S1):	0.0630	
Short-Period Design (SDS):	0.2000	
1-Second Design (SD1):	0.1010	
Short-Period Coeff. (Fa):	1.6000	
1-Second Coeff. (Fv):	2.4000	
Cs	0.1000	
Cs min	0.0300	
Amplification Factor (ap):	1.00	
Response Mod. (Rp):	2.50	
Overstrength (Ωo):	1.00	

Service Wind:	30.0	mph
Lm (man live load) =	500.0	lb
Lv (man live load) =	250.0	lb

ELEVATION VIEW



PLAN VIEW

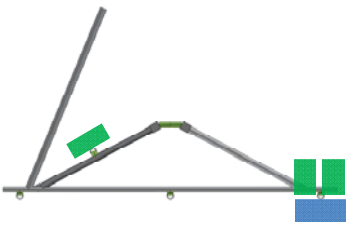


Table 1. Equipment Specifications and Wind Pressure

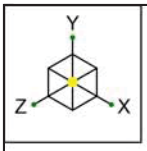
Manufacturer	Model	Elevation	Pipe Label	Weight (lb)	Height (in)	Width (in)	Depth (in)	EPA_N	EPA_T	$EPA_{N\ w/\ ice}$	$EPA_{T\ w/\ ice}$	q_z:	$q_{z\ ice}$:	$q_{z\ live}$:
JMA WIRELESS	MX08FRO665-20	210	29	54.00	72	20	8	8.01	3.21	8.80	3.90	27.85	7.43	2.67
FUJITSU	TA08025-B605	210	29	74.95	15.75	14.96	9.06	1.86	1.16	2.83	1.97	27.85	7.43	2.67
FUJITSU	TA08025-B604	210	29	63.93	15.75	14.96	7.87	1.86	1.01	2.83	1.80	27.85	7.43	2.67
RAYCAP	RDIDC-9181-PF-48	210	38	21.85	16	14	8	1.77	1.05	2.73	1.84	27.85	7.43	2.67

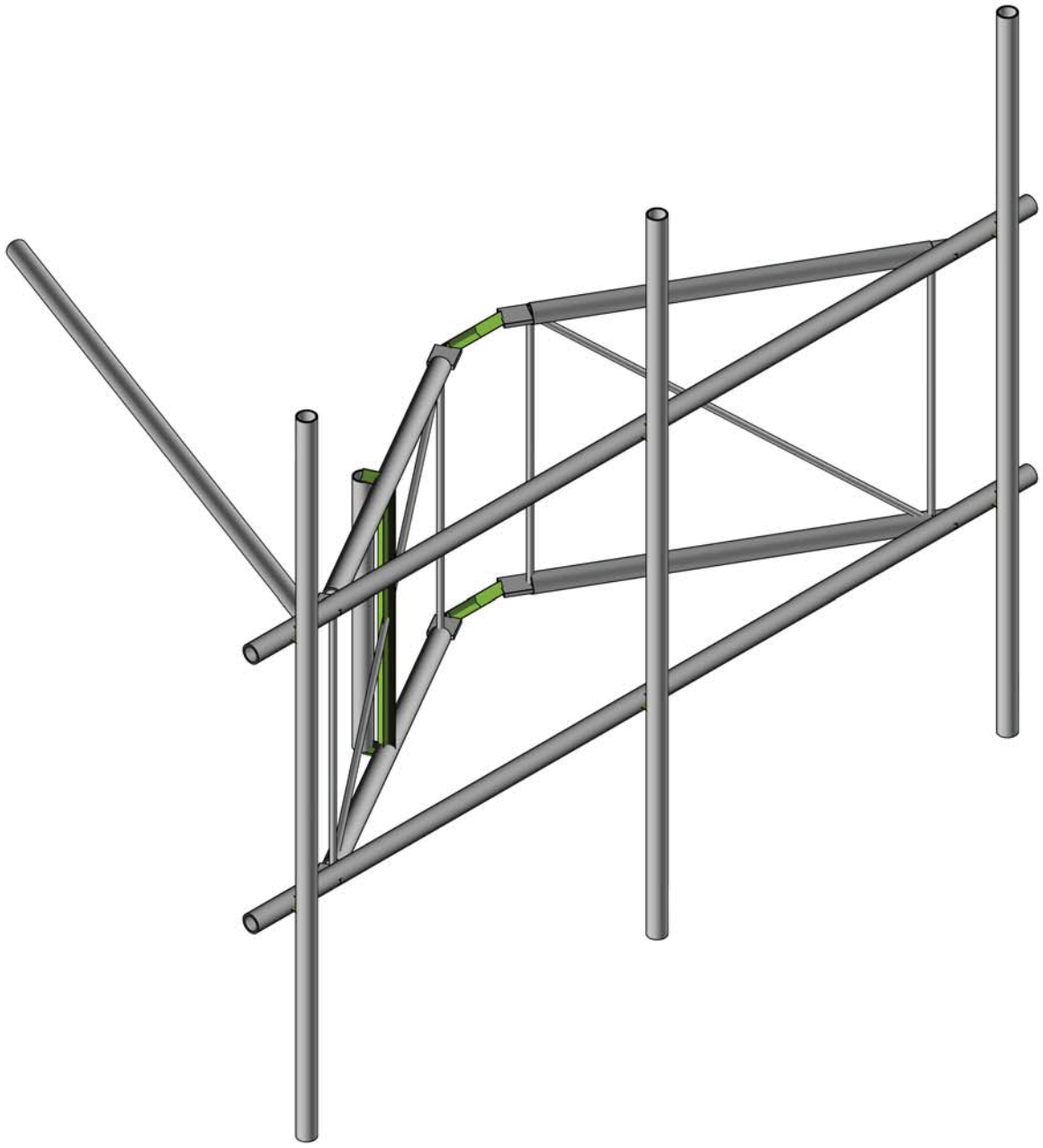
Table 2. Equipment Wind and Seismic Loads

Manufacturer	Model	Wind Load (F_A), lb		Wind Load Ice Case (F_A), lb			Wind Load Service Case		Seismic
JMA WIRELESS	MX08FRO665-20	201	80	59	26	316	19	8	5.4
FUJITSU	TA08025-B605	47	29	19	13	57	4	3	7.5
FUJITSU	TA08025-B604	47	25	19	12	55	4	2	6.4
RAYCAP	RDIDC-9181-PF-48	44	26	18	12	54	4	3	2.2

Table 3. Member Capacities

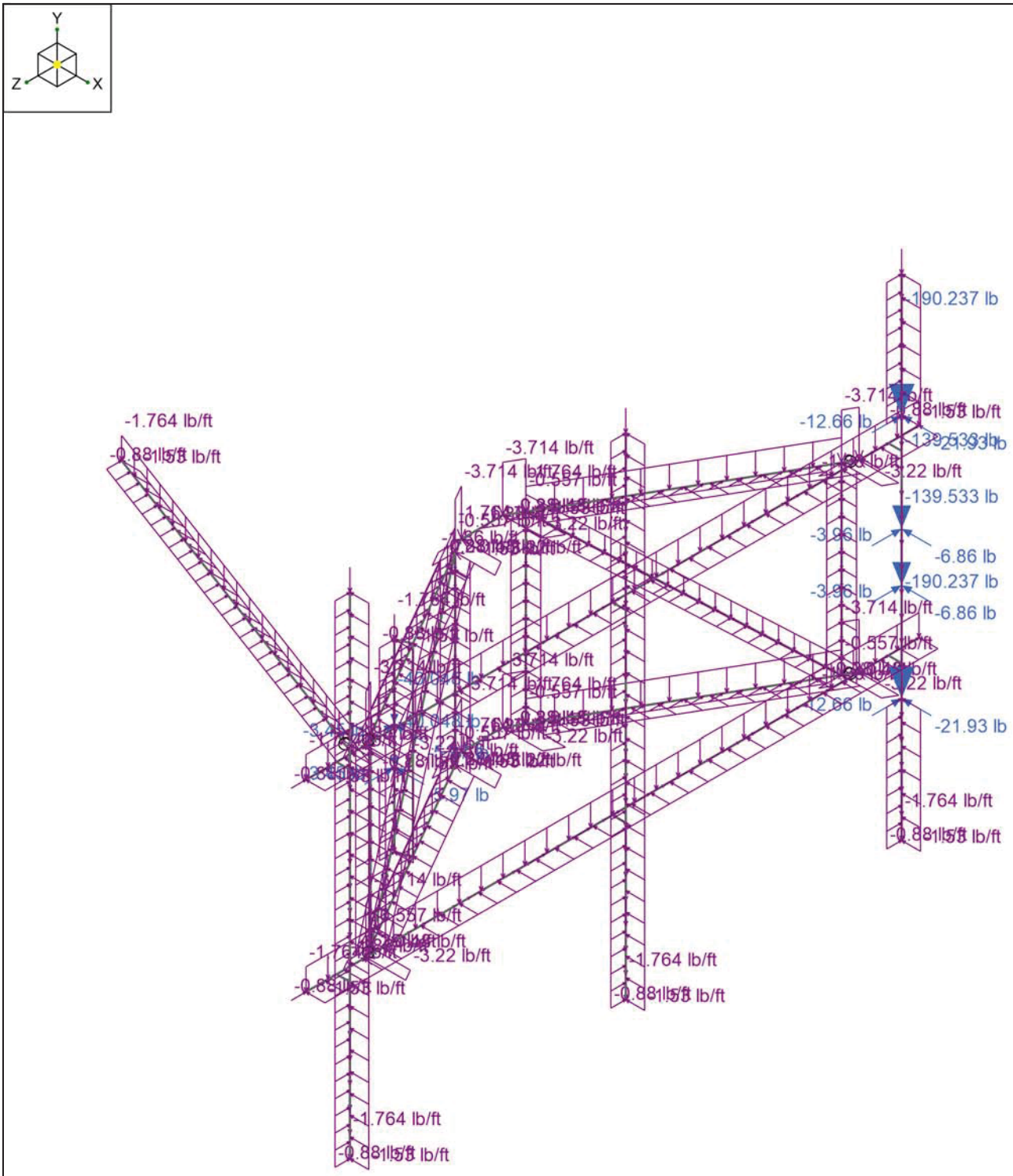
Member Name	Member Shape	Wind load (plf)	Wind Load Ice (plf)	Weight Ice (plf)	Bending Check	Shear Check	Total Capacity	Controlling Capacity
Mount Pipes	PIPE_2.0	6.61	1.76	1.12	11%	3%	11%	16%
Stabilizer	PIPE_2.0	6.61	1.76	1.12	4%	0%	4%	
Bracing	0.75" SR	2.09	0.56	0.82	8%	1%	8%	
Arm	PIPE_2.0X	6.61	1.76	1.12	6%	1%	6%	
Frame Rail	PIPE_2.0X	6.61	1.76	1.12	9%	5%	9%	
Plate	3"x.5"	13.93	3.71	1.24	16%	5%	16%	





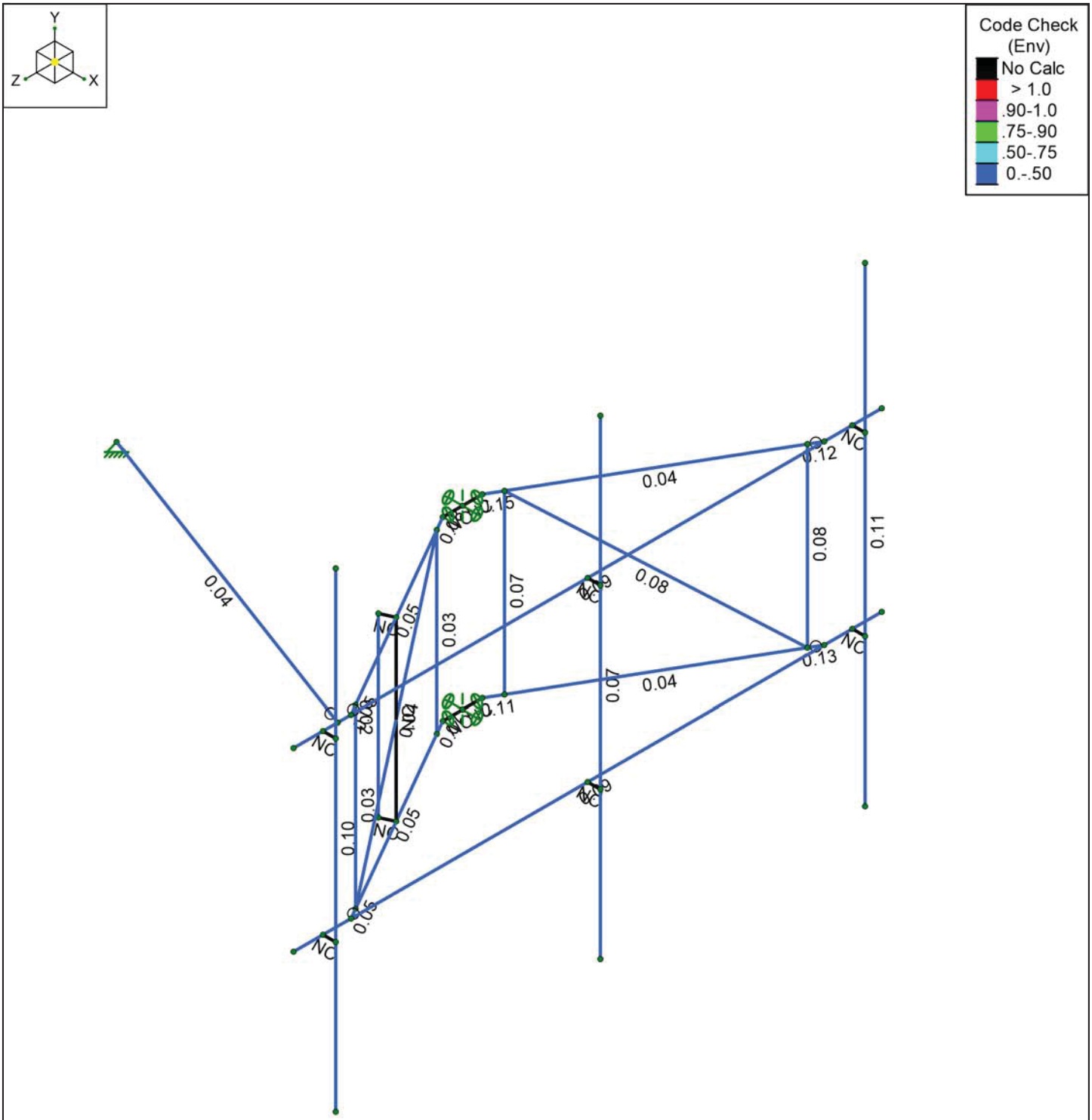
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00193A	SK-1
DVA		Jul 30, 2021
2039-Z5555C	Proposed Configuration Model	BOHVN00193A.R3D



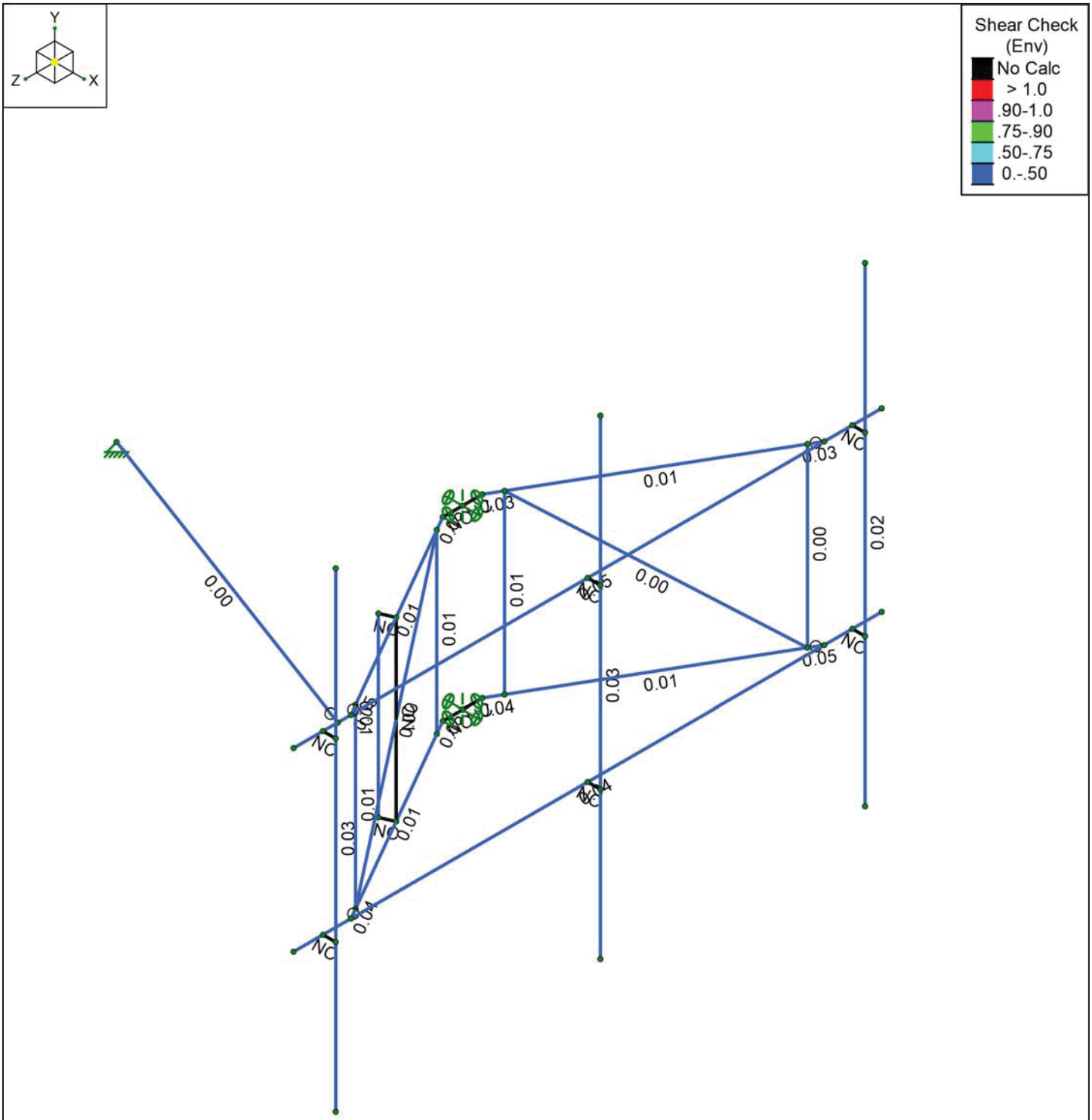
Loads: LC 28, 1.2D + 1.0Di +1.0Wi AZI 30
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00193A	SK-2
DVA		Jul 30, 2021
2039-Z5555C	Controlling Load Case	BOHVN00193A.R3D



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00193A	SK-3
DVA		Jul 30, 2021
2039-Z5555C	Member Bending Check	BOHVN00193A.R3D



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00193A	SK-4
DVA		Jul 30, 2021
2039-Z5555C	Member Shear Check	BOHVN00193A.R3D

Model Settings

Solution

Members

Number of Reported Sections	5
Number of Internal Sections	100
Member Area Load Mesh Size (in^2)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes

Wall Panels

Approximate Mesh Size (in)	12
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	Yes
Maximum Number of Iterations	3

Processor Core Utilization

Single	No
Multiple (Optimum)	Yes
Maximum	No

Axis

Vertical Global Axis

Global Axis corresponding to vertical direction	Y
Convert Existing Data	Yes

Default Member Orientation

Default Global Plane for z-axis	XZ

Plate Axis

Plate Local Axis Orientation	Nodal

Codes

Hot Rolled Steel	AISC 14th (360-10): LRFD
Stiffness Adjustment	Yes (Iterative)
Notional Annex	None
Connections	AISC 14th (360-10): LRFD
Cold Formed Steel	AISI S100-12: LRFD
Stiffness Adjustment	Yes (Iterative)
Wood	AWC NDS-12: ASD
Temperature	< 100F
Concrete	ACI 318-11
Masonry	ACI 530-11: Strength
Aluminum	AA ADM1-10: LRFD
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	AISC 14th (360-10): LRFD
Stiffness Adjustment	Yes (Iterative)

Concrete

Column Design

Analysis Methodology	Exact Integration Method
Parme Beta Factor	0.65

Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	No

Model Settings (Continued)

List forces which were ignored for design in the Detail Report	Yes

Rebar

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No

Shear Reinforcement

Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Seismic

RISA-3D Seismic Load Options

Code	ASCE 7-10
Risk Category	I or II
Drift Cat	Other
Base Elevation (ft)	
Include the weight of the structure in base shear calcs	Yes

Site Parameters

S_1 (g)	1
SD_1 (g)	1
SD_S (g)	1
T_L (sec)	5

Structure Characteristics

T Z (sec)	
T X (sec)	
C_tX	0.02
C_tExp. Z	0.75
C_tExp. X	0.75
R Z	3
R X	3
Ω_0Z	1
Ω_0X	1
C_dZ	4
C_dX	4
ρ Z	1
ρ X	1

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N1	N3		RIGID	None	None	RIGID	Typical
2	M2	N5	N8		Arm	Beam	Pipe	A500 Gr.C	Typical
3	M3	N2	N4		RIGID	None	None	RIGID	Typical
4	M4	N6	N7		Arm	Beam	Pipe	A500 Gr.C	Typical
5	M5	N8	N7		Bracing	VBrace	BAR	A572 Gr.50	Typical
6	M6	N5	N6		Bracing	VBrace	BAR	A572 Gr.50	Typical
7	M7	N6	N8		Bracing	VBrace	BAR	A572 Gr.50	Typical
8	M8	N1	N9		RIGID	None	None	RIGID	Typical
9	M9	N2	N10		RIGID	None	None	RIGID	Typical
10	M10	N16	N12		Frame Rail	Beam	Pipe	A500 Gr.C	Typical
11	M11	N15	N11		Frame Rail	Beam	Pipe	A500 Gr.C	Typical
12	M12	N7	N19	90	Plate	Beam	BAR	A572 Gr.50	Typical
13	M13	N8	N20	90	Plate	Beam	BAR	A572 Gr.50	Typical
14	M14	N4	N6	90	Plate	Beam	BAR	A572 Gr.50	Typical
15	M15	N3	N5	90	Plate	Beam	BAR	A572 Gr.50	Typical
16	M16	N21	N24		Arm	Beam	Pipe	A500 Gr.C	Typical
17	M17	N22	N23		Arm	Beam	Pipe	A500 Gr.C	Typical
18	M18	N24	N23		Bracing	VBrace	BAR	A572 Gr.50	Typical
19	M19	N21	N22		Bracing	VBrace	BAR	A572 Gr.50	Typical
20	M20	N22	N24		Bracing	VBrace	BAR	A572 Gr.50	Typical
21	M21	N23	N25	90	Plate	Beam	BAR	A572 Gr.50	Typical
22	M22	N24	N26	90	Plate	Beam	BAR	A572 Gr.50	Typical
23	M23	N10	N22	90	Plate	Beam	BAR	A572 Gr.50	Typical
24	M24	N9	N21	90	Plate	Beam	BAR	A572 Gr.50	Typical
25	M25	N28	N27		Stabilizer	HBrace	Pipe	A53 Gr.B	Typical
26	M26	N29	N30	24.12	RIGID	None	None	RIGID	Typical
27	M27	N32	N30		RIGID	None	None	RIGID	Typical
28	M28	N29	N31		RIGID	None	None	RIGID	Typical
29	M29	N37	N38		Mount Pipes	Column	Pipe	A53 Gr.B	Typical
30	M30	N41	N42		Mount Pipes	Column	Pipe	A53 Gr.B	Typical
31	M31	N45	N46		Mount Pipes	Column	Pipe	A53 Gr.B	Typical
32	M32	N17	N39		RIGID	None	None	RIGID	Typical
33	M33	N18	N40		RIGID	None	None	RIGID	Typical
34	M34	N34	N44		RIGID	None	None	RIGID	Typical
35	M35	N33	N43		RIGID	None	None	RIGID	Typical
36	M36	N14	N36		RIGID	None	None	RIGID	Typical
37	M37	N13	N35		RIGID	None	None	RIGID	Typical
38	M38	N32	N31		Mount Pipes	Column	Pipe	A53 Gr.B	Typical

Material Take-Off

	Material	Size	Pieces	Length[in]	Weight[K]
1	General Members				
2	RIGID		13	73.3	0
3	Total General		13	73.3	0
4					
5	Hot Rolled Steel				
6	A500 Gr.C	PIPE_2.0X	6	421	0.18
7	A53 Gr.B	PIPE_2.0	5	401	0.116
8	A572 Gr.50	0.75" SR	6	259.6	0.033
9	A572 Gr.50	3"x.5"	8	23.2	0.01
10	Total HR Steel		25	1104.9	0.338

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Point	Distributed
1	Self Weight	DL		-1		8	
2	Wind Load AZI 0	WLX				16	80
3	Wind Load AZI 30	None				16	80
4	Wind Load AZI 60	None				16	80
5	Wind Load AZI 90	WLZ				16	80
6	Wind Load AZI 120	None				16	80
7	Wind Load AZI 150	None				16	80
8	Wind Load AZI 180	None				16	80
9	Wind Load AZI 210	None				16	80
10	Wind Load AZI 240	None				16	80
11	Wind Load AZI 270	None				16	80
12	Wind Load AZI 300	None				16	80
13	Wind Load AZI 330	None				16	80
14	Ice Weight	OL1				8	38
15	Ice Wind Load AZI 0	OL2				16	80
16	Ice Wind Load AZI 30	None				16	80
17	Ice Wind Load AZI 60	None				16	80
18	Ice Wind Load AZI 90	OL3				16	80
19	Ice Wind Load AZI 120	None				16	80
20	Ice Wind Load AZI 150	None				16	80
21	Ice Wind Load AZI 180	None				16	80
22	Ice Wind Load AZI 210	None				16	80
23	Ice Wind Load AZI 240	None				16	80
24	Ice Wind Load AZI 270	None				16	80
25	Ice Wind Load AZI 300	None				16	80
26	Ice Wind Load AZI 330	None				16	80
27	Seismic Load X	ELX			-0.1	8	
28	Seismic Load Z	ELZ	-0.1			8	
29	Service Live Loads	LL					
30	Maintenance Load 1	LL				1	
31	Maintenance Load 2	LL				1	
32	Maintenance Load 3	LL				1	
33	Maintenance Load 4	LL				1	
34	Maintenance Load 5	LL				1	
35	Maintenance Load 6	LL				1	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4DL	Yes	Y	1	1.4				
2	1.2DL + 1.6WL AZI 0	Yes	Y	1	1.2	2	1.6		
3	1.2DL + 1.6WL AZI 30	Yes	Y	1	1.2	3	1.6		
4	1.2DL + 1.6WL AZI 60	Yes	Y	1	1.2	4	1.6		
5	1.2DL + 1.6WL AZI 90	Yes	Y	1	1.2	5	1.6		
6	1.2DL + 1.6WL AZI 120	Yes	Y	1	1.2	6	1.6		
7	1.2DL + 1.6WL AZI 150	Yes	Y	1	1.2	7	1.6		
8	1.2DL + 1.6WL AZI 180	Yes	Y	1	1.2	8	1.6		
9	1.2DL + 1.6WL AZI 210	Yes	Y	1	1.2	9	1.6		
10	1.2DL + 1.6WL AZI 240	Yes	Y	1	1.2	10	1.6		
11	1.2DL + 1.6WL AZI 270	Yes	Y	1	1.2	11	1.6		
12	1.2DL + 1.6WL AZI 300	Yes	Y	1	1.2	12	1.6		
13	1.2DL + 1.6WL AZI 330	Yes	Y	1	1.2	13	1.6		
14	0.9DL + 1.6WL AZI 0	Yes	Y	1	0.9	2	1.6		
15	0.9DL + 1.6WL AZI 30	Yes	Y	1	0.9	3	1.6		
16	0.9DL + 1.6WL AZI 60	Yes	Y	1	0.9	4	1.6		
17	0.9DL + 1.6WL AZI 90	Yes	Y	1	0.9	5	1.6		
18	0.9DL + 1.6WL AZI 120	Yes	Y	1	0.9	6	1.6		
19	0.9DL + 1.6WL AZI 150	Yes	Y	1	0.9	7	1.6		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
20	0.9DL + 1.6WL AZI 180	Yes	Y	1	0.9	8	1.6		
21	0.9DL + 1.6WL AZI 210	Yes	Y	1	0.9	9	1.6		
22	0.9DL + 1.6WL AZI 240	Yes	Y	1	0.9	10	1.6		
23	0.9DL + 1.6WL AZI 270	Yes	Y	1	0.9	11	1.6		
24	0.9DL + 1.6WL AZI 300	Yes	Y	1	0.9	12	1.6		
25	0.9DL + 1.6WL AZI 330	Yes	Y	1	0.9	13	1.6		
26	1.2D + 1.0Di	Yes	Y	1	1.2	14	1		
27	1.2D + 1.0Di +1.0Wi AZI 0	Yes	Y	1	1.2	14	1	15	1
28	1.2D + 1.0Di +1.0Wi AZI 30	Yes	Y	1	1.2	14	1	16	1
29	1.2D + 1.0Di +1.0Wi AZI 60	Yes	Y	1	1.2	14	1	17	1
30	1.2D + 1.0Di +1.0Wi AZI 90	Yes	Y	1	1.2	14	1	18	1
31	1.2D + 1.0Di +1.0Wi AZI 120	Yes	Y	1	1.2	14	1	19	1
32	1.2D + 1.0Di +1.0Wi AZI 150	Yes	Y	1	1.2	14	1	20	1
33	1.2D + 1.0Di +1.0Wi AZI 180	Yes	Y	1	1.2	14	1	21	1
34	1.2D + 1.0Di +1.0Wi AZI 210	Yes	Y	1	1.2	14	1	22	1
35	1.2D + 1.0Di +1.0Wi AZI 240	Yes	Y	1	1.2	14	1	23	1
36	1.2D + 1.0Di +1.0Wi AZI 270	Yes	Y	1	1.2	14	1	24	1
37	1.2D + 1.0Di +1.0Wi AZI 300	Yes	Y	1	1.2	14	1	25	1
38	1.2D + 1.0Di +1.0Wi AZI 330	Yes	Y	1	1.2	14	1	26	1
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	1.24	27	1	28	
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	1.24	27	0.866	28	0.5
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	1.24	27	0.5	28	0.866
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	1.24	27		28	1
43	(1.2 + 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	1.24	27	-0.5	28	0.866
44	(1.2 + 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	1.24	27	-0.866	28	0.5
45	(1.2 + 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	1.24	27	-1	28	
46	(1.2 + 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	1.24	27	-0.866	28	-0.5
47	(1.2 + 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	1.24	27	-0.5	28	-0.866
48	(1.2 + 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	1.24	27		28	-1
49	(1.2 + 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	1.24	27	0.5	28	-0.866
50	(1.2 + 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	1.24	27	0.866	28	-0.5
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	0.86	27	1	28	
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	0.86	27	0.866	28	0.5
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	0.86	27	0.5	28	0.866
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	0.86	27		28	1
55	(0.9 - 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	0.86	27	-0.5	28	0.866
56	(0.9 - 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	0.86	27	-0.866	28	0.5
57	(0.9 - 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	0.86	27	-1	28	
58	(0.9 - 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	0.86	27	-0.866	28	-0.5
59	(0.9 - 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	0.86	27	-0.5	28	-0.866
60	(0.9 - 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	0.86	27		28	-1
61	(0.9 - 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	0.86	27	0.5	28	-0.866
62	(0.9 - 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	0.86	27	0.866	28	-0.5
63	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 0	Yes	Y	1	1	2	0.096	29	1.5
64	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 30	Yes	Y	1	1	3	0.096	29	1.5
65	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 60	Yes	Y	1	1	4	0.096	29	1.5
66	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 90	Yes	Y	1	1	5	0.096	29	1.5
67	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 120	Yes	Y	1	1	6	0.096	29	1.5
68	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 150	Yes	Y	1	1	7	0.096	29	1.5
69	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 180	Yes	Y	1	1	8	0.096	29	1.5
70	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 210	Yes	Y	1	1	9	0.096	29	1.5
71	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 240	Yes	Y	1	1	10	0.096	29	1.5
72	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 270	Yes	Y	1	1	11	0.096	29	1.5
73	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 300	Yes	Y	1	1	12	0.096	29	1.5
74	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 330	Yes	Y	1	1	13	0.096	29	1.5
75	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	34	1.5	2	0.154
76	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	34	1.5	3	0.154
77	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	34	1.5	4	0.154

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
78	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	34	1.5	5	0.154
79	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	34	1.5	6	0.154
80	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	34	1.5	7	0.154
81	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	34	1.5	8	0.154
82	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	34	1.5	9	0.154
83	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	34	1.5	10	0.154
84	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	34	1.5	11	0.154
85	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	34	1.5	12	0.154
86	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	34	1.5	13	0.154
87	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	35	1.5	2	0.154
88	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	35	1.5	3	0.154
89	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	35	1.5	4	0.154
90	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	35	1.5	5	0.154
91	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	35	1.5	6	0.154
92	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	35	1.5	7	0.154
93	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	35	1.5	8	0.154
94	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	35	1.5	9	0.154
95	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	35	1.5	10	0.154
96	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	35	1.5	11	0.154
97	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	35	1.5	12	0.154
98	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	35	1.5	13	0.154
99	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	36	1.5	2	0.154
100	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	36	1.5	3	0.154
101	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	36	1.5	4	0.154
102	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	36	1.5	5	0.154
103	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	36	1.5	6	0.154
104	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	36	1.5	7	0.154
105	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	36	1.5	8	0.154
106	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	36	1.5	9	0.154
107	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	36	1.5	10	0.154
108	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	36	1.5	11	0.154
109	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	36	1.5	12	0.154
110	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	36	1.5	13	0.154
111	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	37	1.5	2	0.154
112	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	37	1.5	3	0.154
113	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	37	1.5	4	0.154
114	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	37	1.5	5	0.154
115	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	37	1.5	6	0.154
116	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	37	1.5	7	0.154
117	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	37	1.5	8	0.154
118	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	37	1.5	9	0.154
119	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	37	1.5	10	0.154
120	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	37	1.5	11	0.154
121	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	37	1.5	12	0.154
122	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	37	1.5	13	0.154
123	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	38	1.5	2	0.154
124	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	38	1.5	3	0.154
125	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	38	1.5	4	0.154
126	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	38	1.5	5	0.154
127	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	38	1.5	6	0.154
128	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	38	1.5	7	0.154
129	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	38	1.5	8	0.154
130	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	38	1.5	9	0.154
131	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	38	1.5	10	0.154
132	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	38	1.5	11	0.154
133	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	38	1.5	12	0.154
134	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	38	1.5	13	0.154
135	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	39	1.5	2	0.154

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
136	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	39	1.5	3	0.154
137	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	39	1.5	4	0.154
138	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	39	1.5	5	0.154
139	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	39	1.5	6	0.154
140	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	39	1.5	7	0.154
141	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	39	1.5	8	0.154
142	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	39	1.5	9	0.154
143	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	39	1.5	10	0.154
144	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	39	1.5	11	0.154
145	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	39	1.5	12	0.154
146	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	39	1.5	13	0.154

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-in]	LC	MY [lb-in]	LC	MZ [lb-in]	LC
1	N2	max	758.413	15	767.459	38	929.786	29	2032.345	95	0	146	721.452	34
2		min	-1457.771	9	280.181	54	-444.664	22	-115.108	16	0	1	223.626	15
3	N1	max	987.376	2	501.538	32	175.488	18	1277.987	94	0	146	474.699	37
4		min	-287.54	20	185.484	60	-886.507	37	-243.953	15	0	1	146.402	18
5	N28	max	525.886	10	19.025	28	190.481	9	0	146	0	146	0	146
6		min	-526.016	4	9.575	57	-190.589	3	0	1	0	1	0	1
7	Totals:	max	1240.262	14	1285.515	34	858.37	6						
8		min	-1240.263	8	475.492	51	-927.512	24						

Envelope AISC 14TH (360-10): LRFD Member Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-in]	phi*Mn z-z [lb-in]	Cb	Eqn
1	M14	3"x.5"	0.155	0	28	0.034	0	y	4	64929.826	67500	8460	50625	1.037	H1-1b
2	M13	3"x.5"	0.131	0	33	0.052	2.5	y	3	66023.816	67500	8460	50625	1.682	H1-1b
3	M12	3"x.5"	0.118	0	37	0.026	2.5	y	80	66023.816	67500	8460	50625	1.667	H1-1b
4	M15	3"x.5"	0.109	0	34	0.04	0	y	3	64929.826	67500	8460	50625	1.035	H1-1b
5	M29	PIPE_2.0	0.107	30	88	0.024	66		2	14916.096	32130	22459.5	22459.5	2.581	H1-1b
6	M30	PIPE_2.0	0.096	66	77	0.032	30		3	14916.096	32130	22459.5	22459.5	2.938	H1-1b
7	M10	PIPE_2.0X	0.087	60	76	0.035	108.75		3	12974.268	57960	39909.6	39909.6	1.867	H1-1b
8	M11	PIPE_2.0X	0.085	60	81	0.052	11.25		9	12974.268	57960	39909.6	39909.6	1.895	H1-1b
9	M23	3"x.5"	0.081	0	32	0.048	0	y	3	64929.826	67500	8460	50625	1.056	H1-1b
10	M5	0.75" SR	0.08	0	37	0.004	36		9	5691.919	19890	3072	3072	2.479	H1-1b*
11	M7	0.75" SR	0.075	0	34	0.002	57.824		89	2206.248	19890	3072	3072	2.627	H1-1b*
12	M31	PIPE_2.0	0.073	66	3	0.027	66		3	14916.096	32130	22459.5	22459.5	1.693	H1-1b
13	M24	3"x.5"	0.068	0	38	0.048	3.313	y	3	64929.826	67500	8460	50625	1.053	H1-1b
14	M6	0.75" SR	0.065	0	34	0.009	0		3	5691.919	19890	3072	3072	2.689	H1-1b*
15	M17	PIPE_2.0X	0.055	22.625	3	0.013	0		3	45905.544	57960	39909.6	39909.6	1.339	H1-1b
16	M22	3"x.5"	0.055	0	81	0.04	0	y	85	66023.816	67500	8460	50625	1.659	H1-1b
17	M16	PIPE_2.0X	0.05	22.625	9	0.012	22.625		3	45905.544	57960	39909.6	39909.6	1.375	H1-1b
18	M21	3"x.5"	0.047	0	3	0.046	0	y	82	66023.816	67500	8460	50625	1.693	H1-1b
19	M25	PIPE_2.0	0.042	38.498	12	0.004	76.996		12	19612.716	32130	22459.5	22459.5	1.136	H1-1b
20	M20	0.75" SR	0.04	0	6	0.004	57.824		3	2206.248	19890	3072	3072	2.2	H1-1b
21	M2	PIPE_2.0X	0.038	45.25	30	0.009	0		3	45905.544	57960	39909.6	39909.6	2.458	H1-1b
22	M4	PIPE_2.0X	0.037	0	3	0.006	45.25		79	45905.544	57960	39909.6	39909.6	2.196	H1-1b
23	M18	0.75" SR	0.031	0	3	0.009	0		9	5691.919	19890	3072	3072	2.51	H1-1b
24	M19	0.75" SR	0.028	0	4	0.009	0		3	5691.919	19890	3072	3072	2.614	H1-1b
25	M38	PIPE_2.0	0.017	36	7	0.005	36		13	28843.414	32130	22459.5	22459.5	2.341	H1-1b

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

BOLT CONNECTION CALCULATION

BOLT PROPERTIES

Date:	7/30/2021
Site:	*BOHVN00193A*
Engineer:	*DVA*
Project No:	*2039-Z5555C*
Connection Location:	*Arm to Tower*

Bolt Capacity Equation	TIA-222-G	
Connection Type	Steel	
Bolt Size, **d**	1/2	in
Threads per Inch, **n**	13	
Steel Grade	A307	
Bolt Ultimate Tensile Stress, $\mathbf{F_u}$	60	ksi
Threads Exclusion	N	
Shear Plane	1	

Net Bolt Cross-Sectional Area, **An**	0.142	in^2
Gross Bolt Cross-Sectional Area, **Ag**	0.196	in^2
Tensile Steel Strength (per bolt), $\mathbf{\varphi R_{nt}}$	6385	lbs
Shear Steel Strength (per bolt), $\mathbf{\varphi R_{nv}}$	3976	lbs

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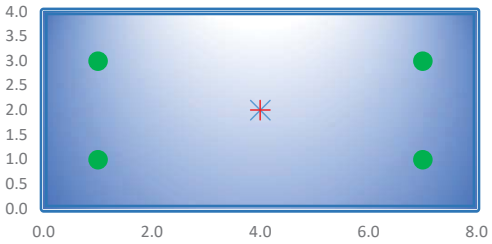
BOLT CONNECTION CALCULATION

BOLT GROUP CHECK

Date:	*7/30/2021*
Contractor:	*Infinigy Engineering, PLLC*
Site:	*BOHVN00193A*
Engineer:	*DVA*
Project No:	*2039-Z5555C*
Connection Location:	*Arm to Tower*

Bolt Group Pattern



Loads Properties					
Controlling LC:	31				
Load Point Number:	N2				
X-Coordinate (in.)	4.00				
Y-Coordinate (in.)	2.00				
Z-Coordinate (in.)	0.00				
Shear Load, Px (lbs)	-940.000	0	0	0	0
Shear Load, Py (lbs)	-782.000	0	0	0	0
Axial Load, Pz (lbs)	799.000	0	0	0	0
Moment, Mx (lb-in)	-718.000	0	0	0	0
Moment, My (lb-in)	0.000	0	0	0	0
Moment, Mz (lb-in)	1640.000	0	0	0	0

Member Properties	***X***	***Y***
Start Coordinates:	0.0	0.0
Dimentions:	8.0	4.0

Number of Bolts: 4

		Bolt Coordinates		***Bolt Loads***			***Steel Bolt Usage***		
No.	***Bolt Type***	***Xo (in)***	***Yo (in)***	***Axial (lbs)***	***Shear (lbs)***	***Tension***	***Shear***	***Combined***	***Max. Capacity***
1	Main Type	1.00	1.00	379.25	285.36	5.9%	7.2%	7.2%	7.2%
2	Main Type	7.00	3.00	20.25	372.93	0.3%	9.4%	9.4%	9.4%
3	Main Type	1.00	3.0	20.25	207.10	0.3%	5.2%	5.2%	5.2%
4	Main Type	7.00	1.0	379.25	421.45	5.9%	10.6%	10.6%	10.6%

Bolt Group Properties:

Xc =	4.00	in.
Yc =	2.00	in.
Ic.y =	7.07	in.^2
Ic.x =	0.79	in.^2
Ic.xy =	7.85	in.^2

Loads at Center of Gravity of Bolt Group:

Pz =	799.00	lbs
Px =	-940.00	lbs
Py =	-782.00	lbs
Mx =	-718.00	lb-in
My =	0.00	lb-in
Mz =	1640.00	lb-in

Total Capacity of Bolt Group: 10.6%

U-bolt Connection: No

dish wireless

Sabre Industries™

THD 10’ V-Boom Assembly with Tieback (Tier 1, 2, 3)

C10837002C

*Sector Frame Option 2- **This is a secondary approved mount if the primary is not available***

- **C10837002C-32788 V-Boom Sector Frame**
- 10’ THD V-Boom Sector Mount with Tieback
- Face Width = 10’, Stiff Arm = 1
- Includes (3) 2-7/8” OD x 8’ Antenna
- Mounting Pipes and all associated hardware
- Kit weight – 610 lbs

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: BOHVN00193A

360 Gaylord Mountain Road
Hamden, Connecticut 06518

September 1, 2021

EBI Project Number: 6221004687

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**2.85%**

September 1, 2021

Dish Wireless

Emissions Analysis for Site: BOHVN00193A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **360 Gaylord Mountain Road** in **Hamden, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 360 Gaylord Mountain Road in Hamden, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 4 n66 channels (AWS Band - 2190 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

5) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative

estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is 210 feet above ground level (AGL).

8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd
Height (AGL):	210 feet	Height (AGL):	210 feet	Height (AGL):	210 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna A1 MPE %:	**0.57%**	Antenna B1 MPE %:	**0.57%**	Antenna C1 MPE %:	**0.57%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	0.57%
AT&T	0.94%
Metro PCS	0.25%
Clear Channel	0.49%
Town	0.01%
MediaFLO	0.59%
Site Total MPE % :	2.85%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	0.57%
Dish Wireless Sector B Total:	0.57%
Dish Wireless Sector C Total:	0.57%
Site Total MPE % :	2.85%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	210.0	0.77	600 MHz n71	400	0.19%
Dish Wireless 1900 MHz n70	4	542.70	210.0	1.88	1900 MHz n70	1000	0.19%
Dish Wireless 2190 MHz n66	4	542.70	210.0	1.88	2190 MHz n66	1000	0.19%
						Total:	**0.57%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

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

The anticipated maximum composite contributions from the Dish Wireless facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Dish Wireless Sector	Power Density Value (%)
Sector A:	0.57%
Sector B:	0.57%
Sector C:	0.57%
Dish Wireless Maximum MPE % (Sector A):	0.57%
Site Total:	2.85%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **2.85%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Letter of Authorization

Vertical Bridge CC FM, LLC
750 Park of Commerce Drive, Suite 200
Boca Raton, FL 33487
Phone: 561.406.4076

Vertical Bridge CC FM, LLC - Letter of Authorization

CT - CONNECTICUT SITING COUNCIL
Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Tower Share Application
Vertical Bridge CC FM, LLC - telecommunications site at:
360 GAYLORD MOUNTAIN ROAD, HAMDEN, CT 06518

Vertical Bridge CC FM, LLC, a Delaware limited liability company, d/b/a Vertical Bridge ("VB") hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CT - CONNECTICUT SITING COUNCIL for the existing wireless communications site described below:

VB ID/Name: US-CT-5004/NHA-003-FM
Customer Site ID: BOHVN00193A / VB - MMK Airport
Site Address: 360 GAYLORD MOUNTAIN ROAD, HAMDEN, CT 06518

Vertical Bridge CC FM, LLC

DocuSigned by:
By: Tim Tuck Date: 9/30/2021
6DCD673D644D4BD...
Name: Tim Tuck
Title: Vice President - Lease Administration

Exhibit H

Recipient Mailings