

# Phoenix Partnership

May 22, 2018

***Via Electronic Mail***

Ms. Melanie Bachman, Esq.  
Acting Executive Director  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

***Re: DOCKET NO. 479 – Request of T-Mobile Northeast, LLC (“T-Mobile)  
for an order to approve the shared use of the tower at 380 Horace  
Street Bridgeport, Connecticut***

Dear Attorney Bachman:

Pursuant to Connecticut General Statutes (“CGS”) §16-50aa, The Connecticut Siting Council (“CSC”), recently approved a tower site in Docket 479, on a 13.47 acre parcel on Horace Street Bridgeport, Connecticut. The property is owned by MDL Realty, LLC (“MDL”). The tower is owned and operated by Tarpon Towers II, LLC (“Tarpon”) The site is located at 380 Horace Street Bridgeport, CT with coordinates of North Latitude 41.204342 West, Longitude 73.176561.

Background

The CSC approved a site at the above mentioned location on March 29, 2018 with Cellco Partnership, LLC d/b/a Verizon Wireless (“Verizon”) as the anchor tenant. Initially Construction Services of Branford, LLC (“CSB”) leased the site on June 16, 2014 and assigned it to Tarpon on June 19, 2017, evidence which is provided with this correspondence as Attachment 1. Tarpon is constructing the 90-foot monopole within a 2500 square foot fenced compound. Verizon has leased the 90’ level on the tower and a portion of the compound for its radio equipment and emergency generator. The tower and compound is designed to accommodate multiple wireless telecommunications providers.

T-Mobile is licensed by the Federal Communications Commission (“FCC”) to provide wireless service in the State of Connecticut. T-Mobile has identified a specific need in this area of Bridgeport. T-Mobile and Tarpon have agreed to the proposed shared use of the tower and have agreed to the terms and conditions

110 Washington Avenue North Haven, Connecticut 06473  
Phone - 203-623-3287 Fax 203-234-6398

pursuant to a lease agreement. Tarpon has authorized T-Mobile and/or its agent(s) to apply for all necessary permits and approvals that are required to share the facility. Authorization letter is attached hereto as Attachment 2.

T-Mobile proposes to install nine (9) antennas, one (1) microwave dish and 9 remote radio heads ("RRH's) on an antenna platform at the eighty (80') foot level of the tower. T-Mobile has leased ground space in the northeast corner and are installing one equipment cabinet 51.1" wide 27.6" deep and 57.1" high with a 25Kw natural gas generator on a 10'x20' pad. Attachment 3 included herein is a set of plans showing the location and equipment for all site related installations.

CGS § 16-50aa(c)(1) states if the CSC finds the tower sharing application meets the guidelines the CSC shall issue an approval for the shared use of the tower. The application satisfies all the criteria for a shared use of the tower.

1. Technically- The tower meets the structural guidelines to accommodate both Verizon and T-Mobile. Attachment 4 is a structural analysis of the tower showing Verizon antenna center line at 90' above ground level and T-Mobile antenna center line at 80' above ground level.
2. Legally- The CSC has been given authority to approved shared use of existing towers under CGS § 16-50aa.
3. Economically-T-Mobile has entered into a lease agreement with Tarpon to use the recently approved tower.
4. Public Safety- The site will be used to enhance wireless voice and data service along Routes 1 and 127 and enhance emergency service in the area for businesses and residents. The tower is structurally capable of T-Mobile's shared use as evidenced by Attachment 4.
5. Environmentally- T-Mobile's shared use will have minimal impact on the environment.
  - I. The shared use will not extend the height of tower or increase the lease area outside what has been approved by the CSC.
  - II. A noise study is provided as Attachment 5, showing the generator used by T-Mobile in the event of loss of power will meet the noise standards.
  - III. The power density report as Attachment 6, shows the site with both Verizon and T-Mobile are within the FCC guidelines.
  - IV. There are no wetlands or water resources that will be impacted by the installation of T-Mobile's equipment.

For the reasons stated above the shared use of the site will have minimal impact.

The applicant respectfully requests the approval from the CSC based on the reasons listed above and the attachments in this application.

Regards,

A handwritten signature in black ink, appearing to read "Keith Coppins", with a stylized flourish at the end.

Keith Coppins

cc: Tarpon Towers II, LLC  
City of Bridgeport  
T-Mobile

ATTACHMENT 1

110 Washington Avenue North Haven, Connecticut 06473  
Phone - 203-623-3287 Fax 203-234-6398

Prepared by and return to:  
Tarpon Towers II, LLC  
1001 Third Avenue West, Suite 420  
Bradenton, FL 34205  
Attn: Todd J Bowman

Site: CT1221 Bridgeport

### ASSIGNMENT AND ASSUMPTION OF GROUND LEASE

THIS ASSIGNMENT AND ASSUMPTION OF GROUND LEASE (this "Assignment") is made and entered into as of June 16, 2017 (the "Effective Date"), by and between **Construction Services of Branford, LLC**, a Connecticut limited liability company ("Assignor") whose address is 974 Centre Road, Wilmington, DE 19805 and **Tarpon Towers II, LLC**, a Delaware limited liability company ("Assignee") whose address is 1001 Third Avenue West, Suite 420, Bradenton, FL 34205.

WHEREAS, Assignor is the lessee and the owner of the leasehold estate under that certain Lease Agreement dated June 16, 2014 by and between MDL Realty, LLC. and Assignor, for the a portion of the property described on Exhibit "A" attached hereto and incorporated by reference herein, together with all easements, tenements, appurtenances, hereditaments, rights and privileges, in, belonging to or beneficial thereto (hereafter the "Ground Lease"); and

WHEREAS, Assignor has agreed to convey, transfer and assign to Assignee all of its right, title and interest in and to that certain Ground Lease (the "Assigned Lease") and Assignee has agreed to accept an assignment thereof; and

### OPERATIVE PROVISIONS

NOW, THEREFORE, for and in consideration of the sum of the mutual covenants and conditions contained herein, as well as other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

1. The Background Recitals hereinabove are true and correct and are incorporated herein by this reference.

2. The Assignor hereby assigns to Assignee all of its right, title and interest in and to the Assigned Lease, together with any amendments to the Assigned Lease, and Assignee hereby assumes and agrees to perform all of the Assignor's obligations under the Assigned Lease upon the terms and conditions set forth in the Assigned Lease.

3. In addition to assigning the Lease, Assignor hereby assigns and transfers to Assignee any and all studies, reports, records, investigations, drawings, zoning applications and approvals, permitting applications, approvals, and permits, applications and approvals filed and received with the Connecticut Siting Council, and any other governmental filings and approvals in Assignor's name and pertaining to the Assigned Lease and the permitted use of the Property and Premises thereunder. Assignor agrees to reasonably cooperate with Assignee in executing and filing any necessary additional documents or forms required to evidence such transfers.

4. Except as expressly set forth herein, the terms of the Assigned Lease shall remain in full force and effect, unaltered by this Assignment.

5. Assignor hereby covenants and agrees that the Assigned Lease is in full force and effect, has not otherwise been modified or extended, and that as of the date hereof, Assignor is not aware of any defaults under the Assigned Lease. Assignor further covenants that it has full right and authority to execute and deliver this instrument. Assignor covenants that it is the lawful owner of the lessee's interest in the Assigned Lease and that no other party has any interest in or claim against the lessee's interest in the Assigned Lease, that Assignor has full right and authority to execute and deliver this instrument, and to assign the Assigned Lease to Assignee.

6. Assignee hereby agrees to completely indemnify and hold harmless Assignor from and against any and all liability, claims, demands, breaches, suits or any other cause of action (collectively, the "Claims") relating to, arising out of, or otherwise in connection with the Assigned Lease, which Claims relate to the occurrence or non-occurrence of any event which post date the date of this Assignment.

7. Assignor hereby covenants, agrees and represents that all consents, approvals and authorizations necessary to consummate the transaction contemplated hereby have been procured.

8. Assignor hereby covenants and agrees that any and all rent, fees or other payments under the Assigned Lease is now fully paid and current.

9. This Assignment may be executed in any number of counterparts, each of which shall be deemed an original and all of which, taken together, shall constitute a single instrument.

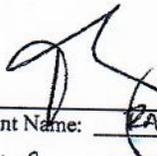
IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the Effective Date.

*[Remainder of page intentionally left blank. Signatures and acknowledgments to follow.]*

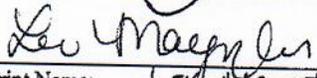
IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the Effective Date.

Witnesses:

**Assignor:**  
**Construction Services of Branford, LLC**  
a Connecticut limited liability company

  
Print Name: Raymond Lewis

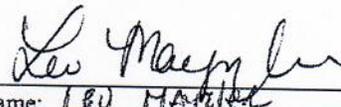
  
Name: Carlo Centore  
Its: Member

  
Print Name: Lev Mayzler

STATE OF CONNECTICUT  
COUNTY OF NEW HAVEN

PERSONALLY appeared before me, the undersigned authority in and for the said county and state, on this 16th day of June, 2017, within my jurisdiction, the within named Carlo Centore, who acknowledged that he is the sole member, of Construction Services of Branford, LLC, a Connecticut limited liability company, and as its act and deed he executed the above and foregoing instrument, after first having been duly authorized by said company so to do. He/She is personally known to me.

NOTARIAL SEAL

  
Name: LEV MAYZLER  
Notary - State of CT  
My Commission Expires: 12/31/17

**LEV MAYZLER**  
**NOTARY PUBLIC**  
**MY COMMISSION EXPIRES DEC. 31, 2017**

**ASSIGNEE:**

**Tarpon Towers II, LLC**

a Delaware limited liability company

By: [Signature]  
Name: Brett Buggen  
As its: Chief Operating Officer

Witnesses:

[Signature]  
Print Name: Rhea D. Oberly

[Signature]  
Print Name: [Signature]

STATE OF FLORIDA  
COUNTY OF Manatee

PERSONALLY appeared before me, the undersigned authority in and for the said county and state, on this 14 day of June, 2017, within my jurisdiction, the within named Brett Buggen, who acknowledged that he is COO, of Tarpon Towers II, LLC, a Delaware limited liability company, and as its act and deed he executed the above and foregoing instrument, after first having been duly authorized by said company so to do. He is personally known to me or has produced \_\_\_\_\_ (type of identification) as identification.

NOTARIAL SEAL



TODD J. BOWMAN  
MY COMMISSION # FF 122433  
EXPIRES: August 10, 2018  
Bonded Thru Budget Notary Services

[Signature]  
Name: Todd J. Bowman  
Notary - State of Florida  
My Commission Expires: 8/10/18

EXHIBIT "A"

Property

That certain piece or parcel of land with the buildings and improvements situated thereon, located in the Towns of Bridgeport and Stratford, County of Fairfield and State of Connecticut and shown on Sheet 1 of 7 through Sheet 7 of 7 on a map entitled: "PROPERTY SURVEY OF PROPERTY LOCATED ON ASYLUM STREET & BROADBRIDGE AVENUE BRIDGEPORT & STRATFORD, CONN. PREPARED FOR SPORTING GOODS PROPERTIES, INC. SCALE: 1" = 100' PREPARED BY PLH/JVS CAD DWG: 7680-M01 DRAWN BY: PLH/JVS DATE: MAY 21, 1998 CHECKED BY: PLT" prepared by Kasper Group Inc. and being more particularly described as follows:

Beginning approximately at a G.E. Monument, which point marks the southwesterly most corner of the herein described parcel and the easterly corner of land now or formerly of the General Electric Co., thence N 32° 05' 24" E, a distance of 394.74 feet to a point; thence N 07° 15' 20" E, a distance of 288.85 feet to an iron pin in a monument; thence N 20° 48' 24" W, a distance of 59.96 feet to a U.M.C. Co. Monument; thence S 75° 19' 30" W, a distance of 410.48 feet to a point; thence S 55° 28' 30" W, a distance of 66.73 feet to a point; thence S 74° 11' 51" W, a distance of 33.04 feet to a point, the last six courses being along land now or formerly of the General Electric Co.; thence N 73° 33' 06" W, a distance of 258.00 feet along land now or formerly of Windabrae Associates; thence N 73° 21' 25" W, a distance of 55.70 feet to a point; thence N 73° 35' 19" W, a distance of 44.30 feet to a point; thence N 74° 36' 36" W, a distance of 128.79 feet to a point; thence N 75° 09' 01" W, a distance of 118.77 feet to a point; thence N 81° 15' 49" W, a distance of 55.87 feet to a point; thence N 76° 31' 15" W, a distance of 56.96 feet to a point, the last six courses being along land now or formerly of the City of Bridgeport; thence N 77° 40' 07" W, a distance of 485.00 feet to a point; thence N 43° 56' 27" W, a distance of 664.05 feet to a point; the last two courses being along land now or formerly of Conco Medical Co.; thence N 75° 41' 00" W, a distance of 52.98 feet along land now or formerly of Robert D., Jr. and Cynthia Miller; thence N 03° 16' 26" E, a distance of 162.25 feet along land now or formerly of Robert D., Jr. and Cynthia Miller, land now or formerly of Luis F. Rayes and Maria L. Marrero, and the easterly street line of Foster Square, in part by each, to a point; thence N 04° 47' 29" E, a distance of 213.52 feet along land now or formerly of Yvonne and Paul A. Washington and land now or formerly of Joseph R. and Katherine E. Lynch, in part by each, to a point; thence N 04° 12' 12" E, a distance of 461.74 feet along land now or formerly of Joseph R. and Katherine E. Lynch, the easterly street line of Alpine Road, land now or formerly of Edward C. Plavnicky, land now or formerly of Joseph C. and Mary Drurilla, Joseph C. Durilla Exec., the easterly street line of Nelson Terrace, land now or formerly of Elizabeth V. Memoli and land now or formerly of Daniel Mendez, in part by each, to a point; thence S 83° 40' 01" E, a distance of 265.64 feet along land now or formerly of Daniel Mendez, land now or formerly of Frank J. and Margaret L. Grablec, land now or formerly of Helen S. Kolton and John Andrew Bacher and land now or formerly of Anna Demchak, in part by each, to a point; thence N 89° 37' 09" E, a distance of 46.14 feet along land now or formerly of Anna Demchak to a point; thence S 87° 30' 11" E, a distance of 104.49 feet along land now or formerly of Anna Demchak and land now or formerly of Janet Crockett, in part by each, to a point; thence S 84° 03' 31" E, a distance of 569.14 feet along land

EXHIBIT "A" (cont.)

Property

now or formerly by Janet Crockett and land now or formerly of North Nob Hill Corp., in part by each, to a point; thence N 15° 32' 01" W, a distance of 59.20 feet to a point; thence N 54° 23' 59" E, a distance of 92.42 feet to a point; thence N 27° 49' 59" E, a distance of 68.83 feet to Remington Monument M-24; thence N 05° 51' 59" E, a distance of 100.50 feet to Remington Monument M-25; thence N 05° 00' 01" W, a distance of 100.40 feet to Remington Monument M-26; thence N 14° 57' 01" W, a distance of 103.58 feet to Remington Monument M-27; thence N 05° 17' 59" E, a distance of 100.40 feet to Remington Monument M-28; thence N 11° 02' 59" E, a distance of 137.48 feet to Remington Monument M-29; thence S 83° 57' 01" E, a distance of 87.46 feet to Remington Monument M-30; thence N 04° 27' 01" W, a distance of 174.56 feet to Remington Monument M-31; thence N 00° 40' 01" W, a distance of 97.09 feet to a point; thence N 00° 41' 41" W, a distance of 398.12 feet to Remington Monument M-32; thence N 33° 07' 21" W, a distance of 7.84 feet to a point, the last thirteen courses being along land now or formerly of North Nob Hill Corp.; thence N 81° 33' 17" E, a distance of 312.21 feet along land now or formerly of Erich and Joan Keller, land now or formerly of Dean M. and Sandra M. D'Andrea, land now or formerly of George and Veronica Firer, land now or formerly of Richard T. and Susan M. Cannone, in part by each, to a point; thence N 81° 37' 56" E, a distance of 107.71 feet along land now or formerly of Joseph S. and Evelyn W. Marcinciyk to a point; thence N 81° 30' 21" E, a distance of 170.60 feet along land now or formerly of Sporting Goods Properties Inc. to a point; thence N 81° 37' 44" E, a distance of 34.89 feet along land now or formerly of Charles A., Fay C., Charlene B. and Mary Ann Nixon to a point; thence N 81° 33' 32" E, a distance of 367.50 feet along land now or formerly of William H. Tisdale, land now or formerly of Mildred Memoli and land now or formerly of Pasquale J. and Helen D'Amico, in part by each, to a Remington Monument; thence N 05° 26' 28" E, a distance of 163.30 feet along land now or formerly of Pasquale J. and Helen D'Amico and land now or formerly of Eleuterio and Victoria Garcia, in part by each, to a point; thence N 00° 12' 48" W, a distance of 113.43 feet along land now or formerly of Eleuterio and Victoria Garcia, land now or formerly of Julius Anthony Gillotti, et. al., and land now or formerly of Eileen S. Dibecelle, in part by each, to a Remington Monument; thence N 05° 49' 27" E, a distance of 180.20 feet along land now or formerly of Eileen S. Dibecelle, land now or formerly of Matthew Melisi and Katherine M. Filanowski and land now or formerly of Edger J. and Michelle C. Ruiz, in part by each, to a point; thence N 19° 00' 34" E, a distance of 131.92 feet along land now or formerly of Edgar J. and Michelle C. Ruiz to an iron pin; thence N 22° 04' 36" W, a distance of 30.86 feet along land now or formerly of Peter L. D'Amato to a point; thence S 70° 38' 01" E, a distance of 89.01 feet to a Remington Monument; thence N 19° 23' 40" E, a distance of 576.81 feet to a point; thence along the arc of a curve to the right having a delta angle of 34° 37' 45", radius of 178.50 feet, length of 107.88 feet and a chord of N 36° 42' 46" E, a distance of 106.25 feet to a point; thence N 54° 01' 52" E, a distance of 745.54 feet to a point; thence along the arc of a curve to the left having a delta angle of 25° 36' 17", radius of 360.08 feet, length of 160.91 feet, a chord of N 41° 15' 02" E, a distance of 159.58 feet to a point; thence N 28° 28' 10" E, a distance of 338.18 feet to a point; thence along the arc of a curve to the right having a delta angle of 44° 10' 03", radius of 248.82 feet, length of 191.58 feet, and chord of N 50° 32' 58" E, a distance of 186.87 feet to a point; thence N 72° 37' 44" E, a distance of 185.69 feet to a point; thence N 17° 32' 44" E, a distance of 6.63 feet to Remington Monument M-48, the last nine courses being along the easterly street line of Evers Street; thence N 69° 54' 46" E, a distance of 34.18 feet to a point; thence N 71° 12' 36" E, a distance of 96.10 feet to a point; thence S 77° 44' 44" E, a distance of 85.61 feet to Remington Monument M-70; thence N 80° 27' 16" E, a distance of 94.07 feet to a point; thence N 67° 35' 26" E, a distance of 32.94 feet to a point; thence N

EXHIBIT "A" (cont.)

Property

52° 13' 36" E, a distance of 4.92 feet to the Bridgeport/Stratford town line, the last six courses being along land now or formerly of Jacob Mellitz, Trustee, et. al., thence N 53° 20' 00" E, a distance of 7.00 feet to a point; thence N 51° 11' 00" E, a distance of 34.00 feet to a point; thence N 48° 26' 00" E, a distance of 37.40 feet to a point; thence N 44° 17' 00" E, a distance of 44.00 feet to a point; thence N 41° 53' 00" E, a distance of 45.60 feet to a point; thence N 43° 51' 00" E, a distance of 68.51 feet to a point; thence N 46° 56' 00" E, a distance of 39.57 feet to Remington Monument M-55; thence S 87° 51' 43" E, a distance of 34.59 feet to Remington Disk M-55, the last eight courses being along the southerly line of Evers Lane; thence S 05° 50' 11" E, a distance of 388.79 feet to Remington Monument M-57; thence S 43° 46' 02" E, a distance of 439.42 feet to Remington Monument M-58; thence S 43° 46' 02" E, a distance of 439.42 feet to Remington Monument M-58; thence S 43° 49' 02" E, a distance of 173.89 feet to a point; thence S 84° 41' 02" E, a distance of 223.39 feet to Remington Monument M-60; thence S 66° 21' 22" E, a distance of 210.85 feet to a Remington Monument; thence S 48° 05' 22" E, a distance of 149.88 feet to a Remington Monument; thence S 53° 46' 02" E, a distance of 50.29 feet to a point; thence S 56° 40' 02" E, a distance of 110.20 feet to a point; thence S 46° 15' 52" E, a distance of 158.85 feet to a point; thence S 10° 40' 42" E, a distance of 39.68 feet to a point; thence S 00° 44' 58" W, a distance of 173.61 feet to a point; thence S 06° 33' 02" E, a distance of 20.45 feet to a point; thence S 26° 58' 52" E, a distance of 18.48 feet to a point; thence S 44° 25' 52" E, a distance of 117.73 feet to Remington Monument M-70; thence S 45° 33' 59" E, a distance of 400.16 feet to a point, the last fifteen courses being along the westerly street line of Broadbridge Avenue; thence S 19° 49' 36" W, a distance of 422.46 feet to a point; thence S 19° 22' 21" W, a distance of 447.08 feet to a point; thence S 19° 01' 14" W, a distance of 486.79 feet to a point; thence S 18° 32' 20" W, a distance of 133.89 feet to a point; thence S 14° 16' 28" W, a distance of 133.34 feet to a point; thence S 74° 38' 03" E, a distance of 28.32 feet to a point; thence S 14° 08' 32" W, a distance of 142.76 feet to a point; thence S 15° 53' 26" E, a distance of 31.34 feet to a point; thence S 08° 15' 22" W, a distance of 43.33 feet to a point; thence S 17° 23' 32" W, a distance of 65.41 feet to a point; thence S 08° 12' 37" W, a distance of 643.57 feet to a Remington Arms Company Monument, the last eleven courses being along land now or formerly of Dictaphone Corp. (U.S.); thence S 10° 34' 57" E, a distance of 290.41 feet along land now or formerly of Andrew J. Vitka, land now or formerly of Michelle F. Rosario and land now or formerly of Raymond G. Kane, in part by each, to a point; thence S 68° 54' 27" W, a distance of 48.40 feet along land now or formerly of George E. and Claire T. Venables to a point; thence S 71° 54' 08" W, a distance of 49.35 feet along the northerly street line of Stoney Brook Road, to a Remington Arms Company Monument; thence S 75° 20' 23" W, a distance of 39.20 feet to a point; thence S 82° 03' 56" W, a distance of 24.07 feet to a point, the last two courses being along land now or formerly of Michael G. and Vicki L. Bonner; thence S 76° 22' 03" W, a distance of 32.97 feet along land now or formerly of Richard W. and Lynn Cook to the Stratford/Bridgeport town line; thence S 82° 38' 59" W, a distance of 132.33 feet along land now or formerly of Richard W. and Lynn Cook to a point; thence S 88° 06' 43" W, a distance of 62.21 feet along land now or formerly of Billy T. and Seflin Lee to a Remington Arms Company Monument; thence S 86° 18' 03" W, a distance of 108.71 feet along land now or formerly Billy T. and Seflin Lee, land now or formerly of Hugo Harris and land now or formerly of the Estate of Helen E. Wasko, Barbara A. Wasko, Administrator, in part by each, to a point; thence S 85° 05' 43" W, a distance of 37.81 feet along land now or formerly of the Estate of Helen E. Wasko, Barbara A. Wasko, Administrator to a point; thence S 83° 46' 43" W, a distance of 108.12 feet along land now or formerly of the Estate of Helen E. Wasko, Barbara A. Wasko, Administrator, and land now or formerly of Hugo Harris, in part by each, to a point; thence S 84° 56' 33" W, a distance of 188.23

EXHIBIT "A" (cont.)

Property

feet along land now or formerly of Hugo Harris, land now or formerly of Ronald J. and Lucille M. Demers and land now or formerly of Blanche I. Emerson, in part by each, to a point; thence S 29° 37' 20" W, a distance of 22.60 feet along land now or formerly of Blanche I. Emerson to a point; thence N 67° 33' 58" W, a distance of 400.30 feet along land now or formerly of the City of Bridgeport to U.M.C. Company Monument; thence S 66° 08' 38" W, a distance of 1254.59 feet along land now or formerly of the City of Bridgeport, land now or formerly of the Housing Authority of the City of Bridgeport and land now or formerly of the Kennedy Center, Inc., in part by each, to a point; thence S 70° 15' 53" W, a distance of 791.31 feet along land now or formerly of the Kennedy Center, Inc. and land now or formerly of the City of Bridgeport Dinan Center Property, in part by each, to a point; thence S 20° 29' 30" E, a distance of 139.49 feet to a point; thence S 05° 29' 32" W, a distance of 387.59 feet to a point; thence S 33° 06' 22" W, a distance of 351.71 feet to a G.E. Monument, the last three courses being land now or formerly of the City of Bridgeport Dinan Center Property; thence N 73° 42' 05" W, a distance of 63.60 feet to a G.E. Monument; thence N 72° 32' 37" W, a distance of 136.37 feet to a G.E. Monument which monument marks the point or place of beginning, the last two courses being along land now or formerly of the General Electric Company.

LESS AND EXCEPT that portion of property conveyed to Town of Stratford from Sporting Goods Properties, Inc., a Delaware corporation by Statutory Warranty Deed dated June 22, 2001 and recorded August 15, 2001 in Deed Book 1767, Page 065.

AND BEING the same property conveyed to Remington Arms Company, Inc. from The Remington Arms Union Metallic Cartridge Company, Incorporated, a corporation by Warranty Deed dated July 27, 1922 and recorded August 22, 1922 in Deed Book 499, Page 575.

Tax Parcel Nos. 20/13/9/9, 69-2801-39A

RECEIVED FOR RECORD  
Jun 27 2017 12:53:26P  
CHARLES D. CLEMONS JR.  
TOWN CLERK  
BRIDGEPORT, VT

ATTACHMENT 2

110 Washington Avenue North Haven, Connecticut 06473  
Phone - 203-623-3287 Fax 203-234-6398



May 1, 2018

T-Mobile  
Mr. Mark Richard  
55 Griffin Dr  
Bloomfield, CT 06002

RE: T-Mobile proposed antenna and equipment installation at 380 Horace St Bridgeport, CT Docket 479

Dear Mr. Richard:

We, Tarpon Towers II, LLC, ("Tarpon"), as owner of the above mentioned tower site, hereby authorize T-Mobile and/or its agents to apply for and obtain all necessary permits and approvals from all applicable State of Connecticut and City of Bridgeport agencies, commissions, boards and departments.

Should you have any questions please contact me at 941-757-5010.

Sincerely,

A handwritten signature in black ink, appearing to read "Brett Buggeln", written in a cursive style.

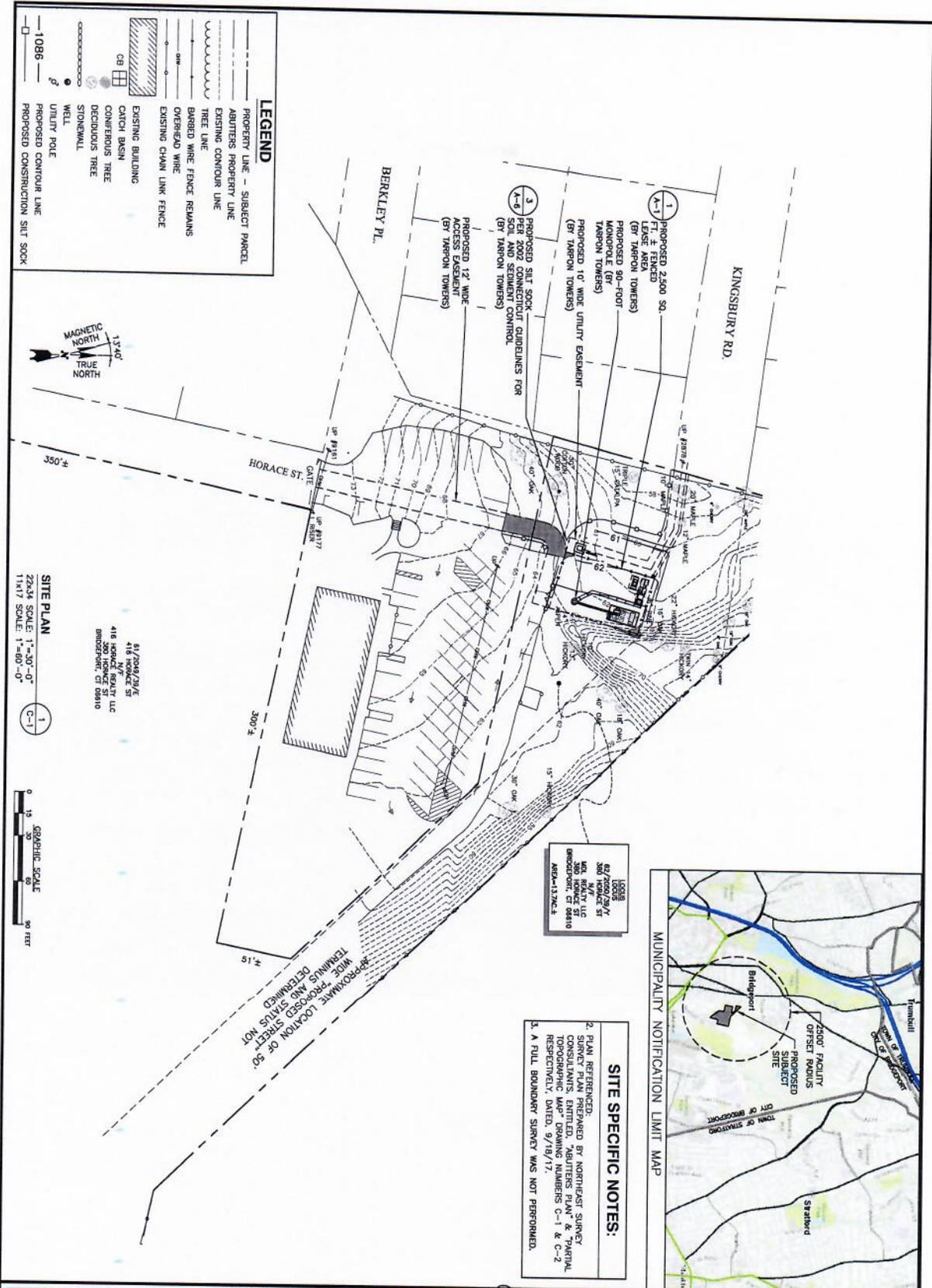
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Brett Buggeln  
COO

ATTACHMENT 3

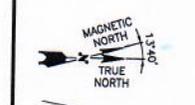
110 Washington Avenue North Haven, Connecticut 06473  
Phone - 203-623-3287 Fax 203-234-6398





**LEGEND**

- PROPERTY LINE - SUBJECT PARCEL
- ADJUTERS PROPERTY LINE
- EXISTING CONTOUR LINE
- TREE LINE
- BARBED WIRE FENCE REMAINS
- OVERHEAD WIRE
- EXISTING CHAIN LINK FENCE
- EXISTING BUILDING
- CATCH BASIN
- CONCRETE TREE
- DECIDUOUS TREE
- STONEWALL
- WELL
- UTILITY POLE
- PROPOSED CONTOUR LINE
- PROPOSED CONSTRUCTION SITE SOCK



**SITE PLAN**  
 22x34 SCALE: 1"=30'-0"  
 11x17 SCALE: 1"=60'-0"

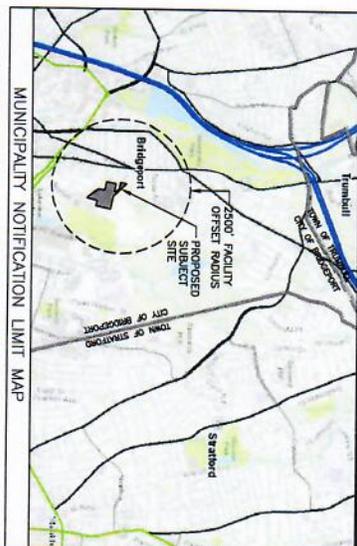


APPROXIMATE LOCATION OF 50' WIDE TRAILING AND STAIRS NOT DETAILLED

6/1/2008/29/E  
 418 HORACE ST  
 300' HORACE ST  
 BRIDGEPORT, CT 06610

**LOGS**  
 6/2/2008/29/Y  
 380 HORACE ST  
 WILLY REALTY LLC  
 BRIDGEPORT, CT 06610  
 AREA-13762.A

- SITE SPECIFIC NOTES:**
- PLAN REFERRED.
  - SURVEY PLAN PREPARED BY NORTHEAST SURVEY CONSULTANTS, ENTITLED "ADJUTERS PLAN" & "PARTIAL TOPOGRAPHIC MAP" DRAWING NUMBERS C-1 & C-2 RESPECTIVELY, DATED 9/18/17.
  - A FULL BOUNDARY SURVEY WAS NOT PERFORMED.



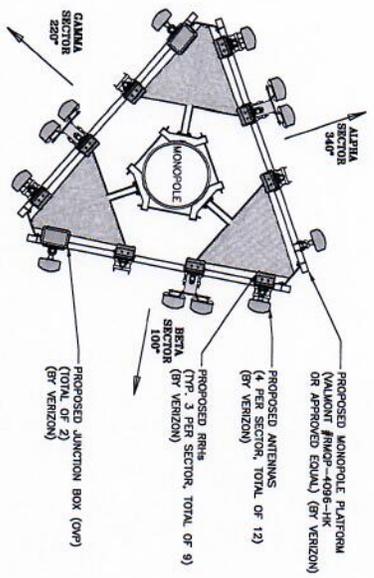
 HUDSON Design Group LLC 48 BROMFIELD DRIVE 14000 WOODBRIDGE AVENUE, SUITE 200 BRIDGEPORT, CT 06605	 TARPOON TOWERS II, LLC 1001 MC AVIGUE WEST, SUITE 400 BRIDGEPORT, CT 06605	 DEREK J. CRESCENA PROFESSIONAL ENGINEER LICENSE NO. 10023	CHECKED BY: DLR																
			APPROVED BY: DDC																
<b>SUBMITTALS</b> <table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>06/27/18</td> <td>ISSUED FOR COMMENTS</td> <td>WJM</td> </tr> <tr> <td>2</td> <td>06/27/18</td> <td>ISSUED FOR COMMENTS</td> <td>WJM</td> </tr> <tr> <td>3</td> <td>06/27/18</td> <td>ISSUED FOR REVIEW</td> <td>WJM</td> </tr> </tbody> </table>				REV	DATE	DESCRIPTION	BY	1	06/27/18	ISSUED FOR COMMENTS	WJM	2	06/27/18	ISSUED FOR COMMENTS	WJM	3	06/27/18	ISSUED FOR REVIEW	WJM
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1	06/27/18	ISSUED FOR COMMENTS	WJM																
2	06/27/18	ISSUED FOR COMMENTS	WJM																
3	06/27/18	ISSUED FOR REVIEW	WJM																
SHEET TITLE: PARTIAL SITE PLAN SHEET NUMBER: C-1																			
SITE NAME: BRIDGEPORT EAST SITE NUMBER: C11221 SITE ADDRESS: 380 HORACE STREET BRIDGEPORT, CT 06610																			



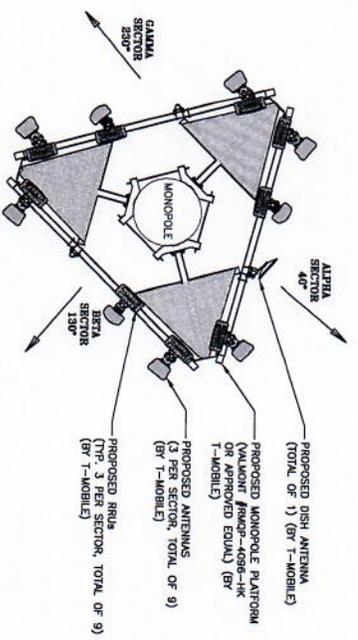




NOTE:  
1. VERIFY AZIMUTHS W/ RF ENGINEER.



ANTENNA PLAN (BY VERIZON)  
SCALE: N.T.S.  
1  
A-4



ANTENNA PLAN (T-MOBILE)  
SCALE: N.T.S.  
2  
A-4



**TARPOON TOWERS**  
TARPOON TOWERS II, LLC  
1000 BELLEVILLE AVENUE, SUITE 400  
BRIDGEPORT, CT 06610

**HDP**  
**HUDSON**  
Design Group LLC  
46 HARTFORD AVENUE  
N. AVONDALE, MA 01860  
TEL: (978) 533-8333  
FAX: (978) 234-8884



CHECKED BY: [Signature]  
APPROVED BY: [Signature]  
DATE: [Blank]  
DLC: [Blank]

**SUBMITTALS**

NO.	DATE	DESCRIPTION	BY
1	06/20/18	ISSUED FOR CONSTRUCTION	KAM
2	06/20/18	ISSUED FOR CONSTRUCTION	KAM
3	06/20/18	ISSUED FOR CONSTRUCTION	KAM
4	06/20/18	ISSUED FOR CONSTRUCTION	KAM
5	06/20/18	ISSUED FOR CONSTRUCTION	KAM
6	06/20/18	ISSUED FOR CONSTRUCTION	KAM
7	06/20/18	ISSUED FOR CONSTRUCTION	KAM
8	06/20/18	ISSUED FOR CONSTRUCTION	KAM
9	06/20/18	ISSUED FOR CONSTRUCTION	KAM

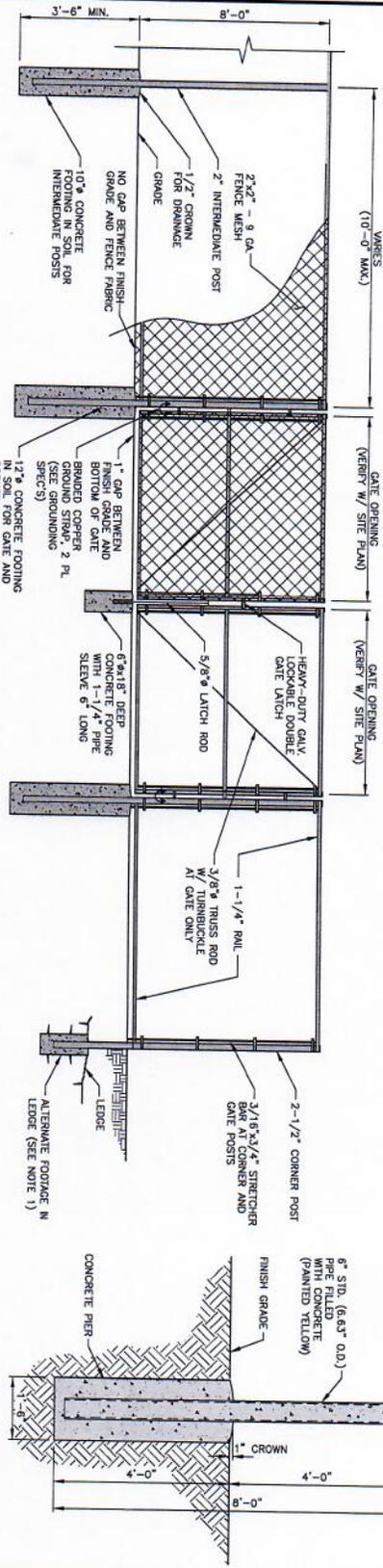
SITE NAME:  
**BRIDGEPORT EAST**  
SITE NUMBER:  
**CT17221**  
SITE ADDRESS:  
**380 HORNACRES STREET  
BRIDGEPORT, CT 06610**

SHEET TITLE:  
**ANTENNA PLAN**

SHEET NUMBER:  
**A-4**

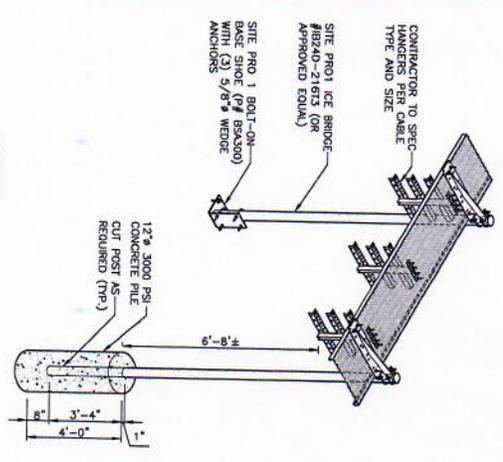
**FENCE NOTES**

1. ALTERNATE FOOTINGS FOR ALL FENCE POSTS IN LEDGE. IF LEDGE IS ENCOUNTERED AT GRADE, OR AT A DEPTH SHALLOWER THAN 3'-6", CORE DRILL AN 8" DIA HOLE 18" INTO THE LEDGE. CENTER POST IN THE HOLE AND FILL WITH CONCRETE OR GROUT. IF LEDGE IS BELOW FINISH GRADE, CAN BACKFILLED SECTION OF POST WITH COAL TANK AND BACKFILL WITH WELL-DRAINING GRAVEL.
2. ATTACH EACH GATE WITH 1-1/2" PAIR OF NON-LIFT-OFF TYPE, MULTIPLE IRON OR FORGING, PN-TYPE HINGES. ASSEMBLIES SHALL ALLOW FOR 180° OF GATE TRAVEL.

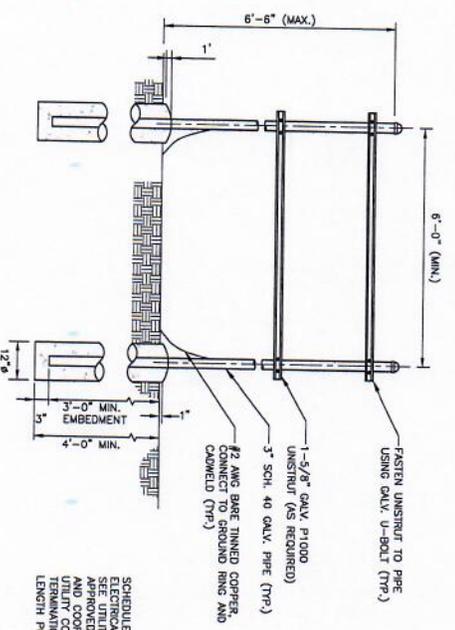


**CHAINLINK FENCE DETAIL**  
SCALE: N.T.S.

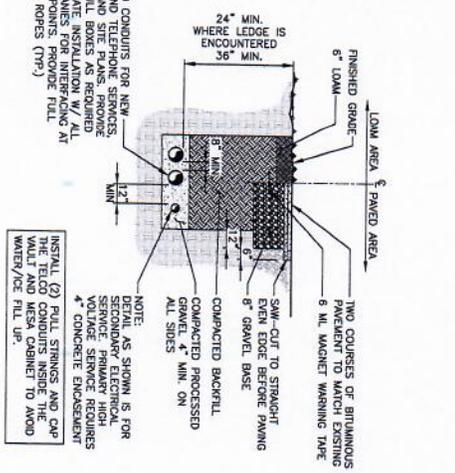
**BOLLARD DETAILS**  
22X34 SCALE: 1/2" = 1'-0"  
11X17 SCALE: 1/4" = 1'-0"



**VERIZON CABLE BRIDGE DETAIL**  
22X34 SCALE: N.T.S.



**TYPICAL H-FRAME DETAIL**  
SCALE: N.T.S.



**BURIED CONDUIT DETAIL**  
SCALE: N.T.S.

**NOTES:**

1. SCHEDULE 40 CONDUITS FOR NEW INSTALLATIONS ONLY. SEE UTILITY AND SITE PLANS. SERVICED CONDUITS SHALL BE APPROVED PULL BOXES AS REQUIRED AND COORDINATE INSTALLATION W/ ALL TERMINATION POINTS. PROVIDE TOLL LENGTH PULL ROPES (TYP).
2. DETAIL AS SHOWN IS FOR CONDUITS ONLY. SEE UTILITY AND SITE PLANS. SERVICED CONDUITS SHALL BE APPROVED PULL BOXES AS REQUIRED AND COORDINATE INSTALLATION W/ ALL TERMINATION POINTS. PROVIDE TOLL LENGTH PULL ROPES (TYP).
3. DETAIL AS SHOWN IS FOR CONDUITS ONLY. SEE UTILITY AND SITE PLANS. SERVICED CONDUITS SHALL BE APPROVED PULL BOXES AS REQUIRED AND COORDINATE INSTALLATION W/ ALL TERMINATION POINTS. PROVIDE TOLL LENGTH PULL ROPES (TYP).
4. CONCRETE ENCASEMENT SHALL BE 4" MIN. ON ALL SIDES.
5. CONCRETE ENCASEMENT SHALL BE 4" MIN. ON ALL SIDES.
6. CONCRETE ENCASEMENT SHALL BE 4" MIN. ON ALL SIDES.
7. CONCRETE ENCASEMENT SHALL BE 4" MIN. ON ALL SIDES.
8. CONCRETE ENCASEMENT SHALL BE 4" MIN. ON ALL SIDES.
9. CONCRETE ENCASEMENT SHALL BE 4" MIN. ON ALL SIDES.
10. CONCRETE ENCASEMENT SHALL BE 4" MIN. ON ALL SIDES.

**SUBMITTALS**

NO.	DATE	DESCRIPTION	BY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**BRIDGEPORT EAST**  
SITE NAME:  
SITE NUMBER:  
C11221

**380 BRIDGEPORT STREET**  
BRIDGEPORT, CT 06610

**SHEET TITLE**  
SITE DETAILS

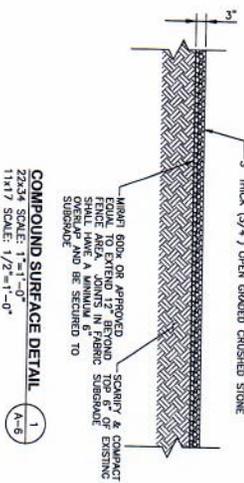
**SHEET NUMBER**  
A-5

**TARPOON TOWERS**  
TARPOON TOWERS II, LLC  
1001 BELLEVILLE ROAD, SUITE 400  
BIRMINGHAM, AL 35205

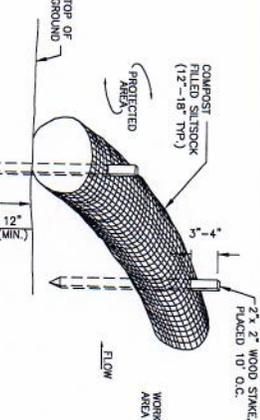
**HUDSON Design Group LLC**  
44 BRIDGEWOOD DRIVE  
ANNISTON, AL 35611  
TEL: 205.333.8800  
FAX: 205.333.8800

STATE OF CONNECTICUT  
DEREK J. CASPER  
REGISTERED PROFESSIONAL ENGINEER  
NO. 10523  
EXPIRES 12/31/2024

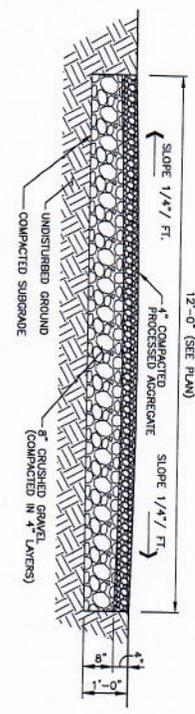
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DATE: [Blank]



CRUSHED GRAVEL		PROCESSED AGGREGATE	
SIZE	% PASSING BY WEIGHT	SIZE	% PASSING BY WEIGHT
5"	100	2 1/4"	100
3 1/2"	90-100	2"	95-100
1 1/2"	50-95	1 1/4"	50-75
#10	20-60	3/4"	25-45
#100	10-25	5-20	2-12
#200	0-5		



- NOTES:
- SILT SOCK SHALL BE FUTUREX SILT SOCK, OR APPROVED EQUAL.
  - COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
  - SILT SOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL PERFORMED PROBABLY AS NEEDED.
  - SEE SPECIFICATIONS FOR SOCK SIZE, AND COMPOST FILL REQUIREMENTS.



GRAVEL ACCESS DRIVE  
SCALE: N.T.S.

**GENERAL CONSTRUCTION SEQUENCE:**

- THIS IS A GENERAL CONSTRUCTION SEQUENCE OUTLINE SOME ITEMS OF WHICH MAY NOT APPLY TO PARTICULAR SITES.
- CLEAR AND GRUB AREAS OF PROPOSED CONSTRUCTION.
- INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AS REQUIRED.
- REMOVE AND STOCKPILE TOPSOIL. STOCKPILE SHALL BE SEED TO PREVENT EROSION.
- CONSTRUCT CLOSED DRAINAGE SYSTEM, PROTECT GUTTER INLETS AND CATCH BASINS WITH SEDIMENTATION BARRIERS.
- CONSTRUCT ROADWAYS AND PERFORM SITE GRADING, PLACING HAY BALETS AND SILTATION TRENCHES AS REQUIRED TO CONTROL SOIL EROSION.
- INSTALL UNDERGROUND UTILITIES.
- BEGIN TEMPORARY AND PERMANENT SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEED OR MULCHED LEFT UNSTABILIZED FOR A TIME PERIOD OF MORE THAN 30 DAYS.
- ONLY IF AS REQUIRED, CONSTRUCT INSPECT AND IF NECESSARY, RECONSTRUCT DITCHES, SALT FENCES AND SEDIMENT TRAPS INCLUDING MULCHING AND SEEDING.
- BEGIN EXCAVATION FOR AND CONSTRUCTION OF TOWERS AND PLATFORMS.
- FINISH PAVING ALL ROADWAYS, DRIVES, AND PARKING AREAS.
- COMPLETE PERMANENT SEEDING AND LANDSCAPING.
- NO STORM WATER FLOW SHALL BE DIRECTED TO ANY WETLANDS UNTIL A HEALTHY STAND OF GRASS HAS BEEN ESTABLISHED IN REGRADED AREAS.
- AFTER GRASS HAS BEEN FULLY GERMINATED IN ALL SEEDING AREAS, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

**EROSION CONTROL MEASURES:**

- 1) DISTURBED AREAS SHALL BE KEPT TO THE MINIMUM AREA NECESSARY TO CONSTRUCT THE ROADWAYS AND ASSOCIATED DRAINAGE FACILITIES.
- 2) HAY BALE BARRIERS AND SEDIMENT TRAPS SHALL BE INSTALLED AS REQUIRED. BARRIERS AND TRAPS ARE TO BE MAINTAINED AND CLEANED UNTIL ALL SLOPES HAVE A HEALTHY STAND OF GRASS.
- 3) BALED HAY AND MULCH SHALL BE WORKINGS OF ACCEPTABLE HERBICIDOUS GROWTH, FREE FROM NOXIOUS WEEDS OR WOODY STEMS, AND SHALL BE DRY. NO SALT HAY SHALL BE USED.
- 4) FILL MATERIAL SHALL BE FREE FROM STUMPS, WOOD, ROOTS, ETC.
- 5) STOCKPILED MATERIALS SHALL BE PLACED IN AREAS SHOWN ON THE PLANS. STOCKPILES SHALL BE PROTECTED BY SODIUM FENCE AND SEED TO PREVENT EROSION. THESE STOCKPILES SHALL REMAIN UNTIL ALL MATERIAL HAS BEEN PLACED OR DISPOSED OFF SITE.
- 6) ALL DISTURBED AREAS SHALL BE LOADED AND SEED. A MINIMUM OF 4 INCHES OF LOAM SHALL BE INSTALLED WITH NOT LESS THAN ONE POUND OF SEED PER 50 SQUARE YARDS OF AREA.
- 7) APPLICATION OF GRASS SEED, FERTILIZERS AND MULCH SHALL BE AS RECOMMENDED BY PRODUCTION SEEDING OR HYDROSEEDING AT THE RATES SHOWN BELOW.  
LIME/STONE: 75-100 LBS./1,000 SQUARE FEET.  
FERTILIZER: RECOMMENDED BY MANUFACTURER.  
LIME: 100 LBS./ACRE UNLESS OTHERWISE NOTED.  
EROSION CONTROL: WATLING IS USED.  
SEED MIX (SLOPES LESS THAN 4:1)  
CREeping RED FESCUE LBS./ACRE 20  
TALL FESCUE 20  
RENOPO 20  
48  
SLOPE LIM (SLOPES GREATER THAN 4:1)  
CREeping RED FESCUE LBS./ACRE 42  
TALL FESCUE 20  
BROMFOOT TREFOIL 8  
48  
TREATMENT SMALL PLANTING SEEDING RATINGS  
TALL FESCUE 20 LBS./ACRE OR 0.45 LBS./10,000 SF  
CREeping RED FESCUE 20 LBS./ACRE OR 0.45 LBS./10,000 SF  
BROMFOOT TREFOIL 8 LBS./ACRE OR 0.20 LBS./10,000 SF  
LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT FOLLOWING RATES ARE RECOMMENDED:  
AGRICULTURAL LIMESTONE 2 TONS/ACRE OR 100 LBS./1,000 SF  
NITROGEN 50 LBS./ACRE OR 1.1 LBS./10,000 SF  
PHOSPHORUS (P2O5) 100 LBS./ACRE OR 2.1 LBS./10,000 SF  
POTASH (K2O) 100 LBS./ACRE OR 2.2 LBS./10,000 SF  
(THIS IS EQUIVALENT TO 500 LBS./ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS./ACRE OF 5-10-10).
- 8) AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED THE FOLLOWING EROSION CONTROL MEASURES ARE TO BE REMOVED.  
PAVED ROADWAYS MUST BE KEPT CLEAN AT ALL TIMES.  
ALL CATCH BASIN INLETS WILL BE PROTECTED WITH LOW POINT SEDIMENTATION BARRIER.
- 11) ALL STORM DRAINAGE OUTLETS WILL BE STABILIZED AND CLEANED BEFORE OPERATION.
- 12) ALL DEMONSTRATION OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTER AREA.
- 13) NO DISCHARGE SHALL BE DIRECTED TOWARDS ANY PROPOSED DITCHES, SWALES, OR PONDS UNTIL THEY HAVE BEEN PROPERLY STABILIZED.

**TARPOON TOWERS**  
TARPOON TOWERS II, LLC  
1001 N. STATE ST. SUITE 400  
BRIDGEPORT, AL 36505

**HDS**  
HUDSON  
Design Group LLC  
4800 WOODBRIDGE DR. STE. 200  
N. WOODBRIDGE, AL 36505

STATE OF CONNECTICUT  
DESK J. CRASER  
REGISTERED PROFESSIONAL ENGINEER  
NO. 10000  
BRIDGEPORT, CONNECTICUT

CHECKED BY: DJR  
APPROVED BY: DJC

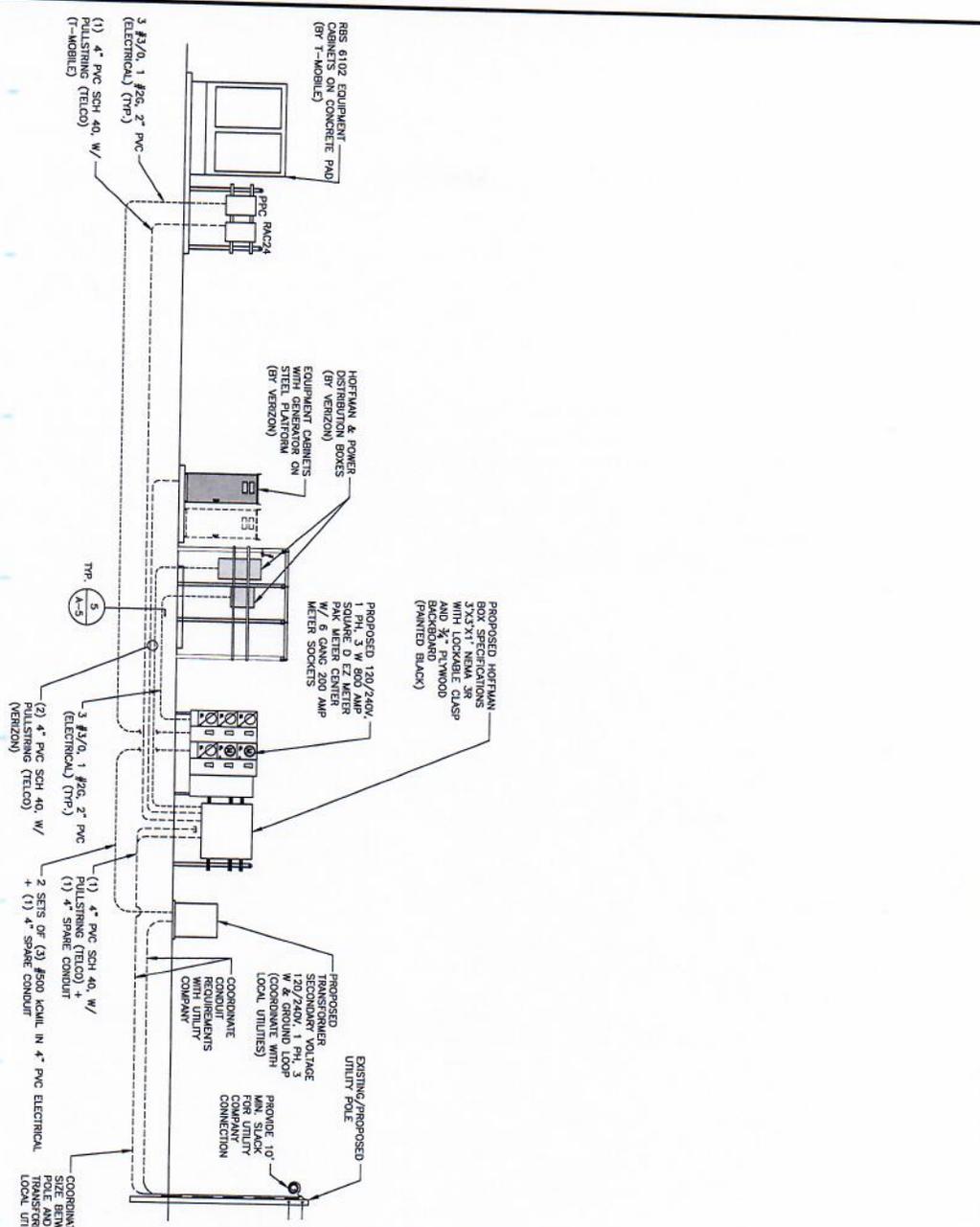
**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
1	04/24/16	ISSUED FOR PERMITS	100
2	04/24/16	ISSUED FOR PERMITS	100
3	04/24/16	ISSUED FOR PERMITS	100

SITE NAME:  
**BRIDGEPORT EAST**  
SIT. NUMBER:  
CT11221  
SIT. ADDRESS:  
3801 OAKCREST  
BRIDGEPORT CT 06610

SHEET TITLE:  
**SITE SURFACE COVER AND EROSION CONTROL DETAILS**  
SHEET NUMBER:  
**A-6**





**POWER & TELEPHONE RISER DIAGRAM**  
SCALE: N.T.S. E-1

**ELECTRICAL NOTES**

1. UTILITY SERVICES SHOWN ARE PROPOSED. THE ELECTRIC CONTRACTOR SHALL COORDINATE EXACT TELEPHONE AND ELECTRIC SERVICE CONNECTION POINTS WITH THE LOCAL UTILITY COMPANIES. REQUIREMENTS WITH LOCAL UTILITY COMPANIES.
2. VISIT SITE AND EXAMINE CONDITIONS UNDER WHICH WORK WILL BE PERFORMED. ADVISE CONTRACTOR ADVISE COMMENCEMENT OF WORK SHALL BE CONSIDERED AS COMPLETE ACCEPTANCE OF EXISTING CONDITIONS INCLUDING PREPARATORY WORK DONE BY OTHERS.
3. ALL EXISTING UNDERGROUND LINES ON SITE SHALL BE LOCATED PRIOR TO CONSTRUCTION.
4. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN ALL NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION.
5. PERFORM WORK AS REQUIRED BY BOCA AND PER LOCAL LAWS.
6. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT ROUTING WITH LOCAL UTILITY COMPANIES AND FIELD CONSTRUCTION MANAGER.
7. ALL EXTERIOR WALL PENETRATIONS SHALL BE SMOOTHED AND SEALED.
8. MATERIAL AND EQUIPMENT SHALL BE UL, NEMA, ANSI, IEEE, ADA & CSA APPROVED FOR INTENDED SERVICE. INSTALLATION SHALL MEET REQUIREMENTS OF NATIONAL AND STATE ELECTRICAL CODE.
9. ALL ELECTRICAL EQUIPMENT SHALL HAVE AN OVERCURRENT PROTECTIVE DEVICE (OCPD) THAT MAY BE SUBJECT TO A MINIMUM OF 10,000 A.I.C.
10. ALL NEW WIRING SHALL BE TYPE THHN, RATED 75°C, 600 VOLT, WET OR DRY LOCATIONS. MINIMUM BRANCH CIRCUIT WIRING SHALL BE #12 AWG SOLID COPPER.
11. ALL METALLIC CONDUITS SHALL BE PROVIDED WITH BONDING BUSINES.
12. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO THE LICENSEE PROJECT MANAGER AT JOB COMPLETION.
13. PROVIDE THE OWNER WITH ONE SET OF COMPLETE ELECTRICAL "AS BUILT" DRAWINGS AT THE COMPLETION OF THE JOB.
14. GUARANTEE WORK IN WRITING FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS OR INSTALLATION AT NO COST TO OWNER. MATERIALS AND LABOR UNDER GUARANTEE AT NO COST TO OWNER.
15. CONTRACTOR SHALL CONTACT THE STATE (1-888-DIG-SAFE) PRIOR TO COMMENCEMENT OF WORK.

**TARPON TOWERS LLC**  
1000 W. BAYVIEW BLVD., SUITE 400  
BRIDGEPORT, FL 32609

**HG DESIGN GROUP LLC**  
DESIGN GROUP LLC  
4800 WOODBINE DR. #200  
MARIETTA, GA 30067

STATE OF CONNECTICUT  
REGISTERED PROFESSIONAL ELECTRICAL ENGINEER  
DEREK J. CRASLER  
No. 10000  
EXPIRES 12/31/2011

CHECKED BY: DJR  
APPROVED BY: DJC

**SUBMITTALS**

REV	DATE	DESCRIPTION	BY
1	04/27/11	ISSUED FOR COMMENTS	HW
2	04/27/11	ISSUED FOR COMMENTS	HW
3	04/27/11	ISSUED FOR REVIEW	HW

SITE NAME: BRIDGEPORT EAST  
SITE NUMBER: CT1221  
SITE ADDRESS: 380 HODGES STREET  
BRIDGEPORT, CT 06610

SHEET TITLE: ELECTRICAL/ TELEPHONE RISER DIAGRAM AND NOTES  
SHEET NUMBER: E-1

ATTACHMENT 4

110 Washington Avenue North Haven, Connecticut 06473  
Phone - 203-623-3287 Fax 203-234-6398



DESIGN CALCULATIONS  
FOR A  
SPREAD FOOTER FOUNDATION

Tarpon Towers

Bridgeport / CT1221 Site

Bridgeport, CT

EI Project Number 18308-P01, Rev. 2

May 14, 2018

15175 Kinsman Road, Burton, Ohio 44062

Phone: (440) 970-5004\* (888) 270-3855

[www.engend.com](http://www.engend.com)

# FOUNDATION DESIGN CALCULATIONS FOR A SPREAD FOOTER FOUNDATION



CUSTOMER: Tarpon Towers

DATE: 5/14/2018

LOCATION: Bridgeport, CT

SITE NAME: Bridgeport

JOB NUMBER: 18308-P01

SITE NUMBER: CT1221

STATUS: Rev. 2

## FOUNDATION DESIGN LOADS

DESIGN CODE	TIA-222-G		
	OVERTURNING MOMENT, kip-ft	SHEAR, kips	AXIAL, kips
TIA/EIA 222F	0.0	0	0
TIA-222-G	1867.00	25.6	31.1
FACTORED w/φ=0.75	2489.3	34.1	41.5

## ANCHOR BOLT DATA

QUANTITY	LENGTH	BOLT CIRCLE Ø	PROJECTION
18	6.0 ft	52.8 in	12.0 in

SOIL UNIT WEIGHT, pcf **125.00**

CONCRETE UNIT WEIGHT, pcf **150.00**

## MINIMUM FOUNDATION PARAMETERS

PEDESTAL MINIMUM WIDTH 78.0 in  
FOUNDATION MINIMUM HEIGHT 5.50 ft

PEDESTAL PROJECTION **6.0 in**

## ACTUAL FOUNDATION SIZE

	HEIGHT, ft	WIDTH, ft
SLAB	3.00	26.00
PEDESTAL	2.50	6.50

## STABILITY

Foundation Weight, kips	320.04
Concrete, cub.yd.	79.02
Soil Weight, kips	158.44
Total weight foundation and soil (unfactored), kips	478.48

Total Vertical Load, kips	458.62
Total Overturning Moment, kip-ft	2007.80
Total Resisting Moment, kip-ft	5962.10

OVERTURNING SAFETY FACTOR **2.97**

Kern of Eccentricity, ft	4.33	
Actual Eccentricity, ft	4.38	
Allowable Gross Soil Pressure, ksf (see soil report)	5.25	uplift exists! (min SF=1.5)
Allowable Net Soil Pressure, ksf (see soil report)	6.0	Per Soil Report
Max. soil pressure, ksf per TIA-222-G	1.8	(Include. OLF)
per TIA/EIA-222-F	n/a	

## CONCRETE REINFORCEMENT

	BAR SIZE	BAR WEIGHT (lbs/ft)	QUANTITY	LENGTH (ft)	WEIGHT (lbs)
TOP PAD	# 8	2.67	70	30.50	5700.45
BOTTOM PAD	# 8	2.67	74	25.50	5038.29
VERTICAL BARS	# 8	3.40	34	6.75	780.30
HORIZONTAL TIES	# 4	1.50	5	18.95	142.14

TOTAL STEEL WEIGHT (lbs) **11661.18**

## FOOTING STRENGTH DESIGN

Concrete, psi 3000  
Steel, ksi 60

Concrete cover, in 3  
Distance, d (slab), in 32

### NOTES

### TWO-WAY SHEAR IN THE SLAB

Vertical Load, kips	31.10	
Bearing Soil Pressure, ksf	0.05	
Shear in the slab, kips	27.37	
Design shear $V_n$ , kips	1311.03	$\phi = 0.85$ OK

### ONE-WAY SHEAR IN THE SLAB

Max soil pressure, ksf	1.36	
Actual Eccentricity, ft	4.38	
Kern of Eccentricity, ft	4.33	
Pressure Distribution Zone, ft	25.87	
Effective Pressure Zone, ft	7.08	
Max Shear Force, kips	251.1	
Design Shear, kips	929.6	$\phi = 0.85$ OK

### SLAB DESIGN IN FLEXURE

Max Soil Pressure, ksf	1.36	
Actual Eccentricity, ft	4.38	
Kern of Eccentricity, ft	4.33	
Pressure Distribution Zone, ft	25.87	
Effective Pressure Zone, ft	9.75	
Soil Pressure at Effective Zone Edge	0.85	
Shear Force at Critical Section, kip	280.5	
Bending Moment, k-ft	1473.4	
Coefficient of Resistance, $R_n$	61.5	$\phi = 0.90$
Min. Required Reinf. Ratio by Analysis	0.00104	
Min. Reinf. Ratio per ACI 318, 200/Fy	0.00330	
Min. Reinf. Ratio per ACI 318	0.00138	ACI-318 Sect.10.5.3
Design Reinforcement Ratio	0.00180	
Min. Steel Area, sq.in.	17.97	
Bar size	8	
Bar section area, in <sup>2</sup>	0.79	

### BOTTOM BARS

Min. No. of Bars/One direction	23.00	
Actual No. of Bars/One direction	35	OK
Actual Steel Area, sq.in.	27.65	
Steel Ratio Actual	0.00277	OK
Revised Coefficient of Resistance, $R_n$	166.15	
Design Moment, kip-ft	3981.27	
Total bottom bars	74	
Horizontal Spacing (shor), in	9.00	OK

### TOP BARS

Min. Steel Area, sq.in (0.18%)	17.97	
Minimum Number of Bars REQUIRED	23	One Direction
Actual Number of Bars	35	OK
Top Steel Area, sq.in	27.65	
Total Top Bars	70	
Horizontal Spacing, in	9.00	OK

# PEDESTAL DESIGN

Pedestal Width, in	78
Concrete Strength, ksi	3
Reinforcement Strength, ksi	60
Actual Rebars QTY	34
Nominal Bars QTY	12
Minimum reinforcement ratio	0.0033
Actual reinforcement ratio	0.0044
Concrete cover, in	3
Rebar layout radius, in	35.50

Ultimate Moment 1931.0 ft-kips

Rebar	8
Area, sq.in	0.79
Area, sq.in	2.24
Rebar space, in	6.56
$\epsilon_u$	0.003
$\epsilon_y$	0.00207

## BENDING ABOUT THE MAJOR AXIS

Rebar Number	Angle degrees	Coordinate in	Edge Dist. in
1	0	35.50	3.50
2	30	30.74	8.26
3	60	17.75	21.25
4	90	0.00	39.00
5	120	-17.75	56.75
6	150	-30.74	69.74

Rebar Number	Angle degrees	Coordinate in	Edge Dist. in
7	180	-35.50	74.50
8	210	-30.74	69.74
9	240	-17.75	56.75
10	270	0.00	39.00
11	300	17.75	21.25
12	330	30.74	8.26

Location of Neutral Axis  
Compression Zone

c = 7.02 in  
a = 5.96 in

### Compression Zone

Rebar Number	$\epsilon$ in/in	Force kips
1	0.0015	91.87

### Tension Zone

Rebar Number	$\epsilon$ in/in	Force kips
2	0.0005	34.45
3	0.0061	134.30
4	0.0137	134.30
5	0.0213	134.30
6	0.0268	134.30
7	0.0289	134.30
8	0.0268	134.30
9	0.0213	134.30
10	0.0137	134.30
11	0.0061	134.30
12	0.0005	34.45

Concrete, kips 1185.99

Total Compression, kips 1277.86

Total Tension, kips 1277.61

### Moment Due to Compression

Rebar Number	Force kips	Arm in	Moment k-ft
1	91.87	35.50	271.78
2	0.00	30.74	0.00
12	0.00	30.74	0.00

### Moment Due to Tension

Rebar Number	Force kips	Arm in	Moment k-ft
2	34.45	30.74	-88.27
3	134.30	17.75	-198.65
4	134.30	0.00	0.00
5	134.30	-17.75	198.65
6	134.30	-30.74	344.08
7	134.30	-35.50	397.30
8	134.30	-30.74	344.08
9	134.30	-17.75	198.65
10	134.30	0.00	0.00
11	134.30	17.75	-198.65
12	34.45	30.74	-88.27

Concrete	1185.99	36.02	3559.81
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Total in Compression 3831.59

Total in Tension 908.92

Design Moment about the Major Axis, kip-ft 4266.46 OK

### BENDING ABOUT THE DIAGONAL

Rebar Number	Angle, deg phi	Coord., in c1	Edge Dist., in di
1	0	35.50	19.65
2	30	30.74	24.41
3	60	17.75	37.40
4	90	0.00	55.15
5	120	-17.75	72.90
6	150	-30.74	85.90

Rebar Number	Angle, deg phi	Coord., in c1	Edge Dist., in di
7	180	-35.50	90.65
8	210	-30.74	85.90
9	240	-17.75	72.90
10	270	0.00	55.15
11	300	17.75	37.40
12	330	30.74	24.41

Location of Neutral Axis  
Compression Zone

c = 23.76 in  
a = 20.20 in

#### Compression Zone

Rebar Number	$\epsilon$ in/in	Force kips
1	0.000518	134.30

Concrete, kips 1040.09

Total Compression, kips 1174.39

#### Tension Zone

Rebar Number	$\epsilon$ in/in	Force kips
2	0.0001	5.33
3	0.0017	111.83
4	0.0040	134.30
5	0.0062	134.30
6	0.0078	134.30
7	0.0084	134.30
8	0.0078	134.30
9	0.0062	134.30
10	0.0040	134.30
11	0.0017	111.83
12	0.0001	5.33

Total tension, kips 1174.42

#### Moment Due to Compression

Rebar Number	Force kips	Arm in	Moment k-ft
1	134.30	35.50	397.30
2	0.00	30.74	0.00
12	0.00	30.74	0.00

Concrete	1040.09	48.42	4196.96
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Total in Compression, kips 4594.27

#### Moment Due to Tension

Rebar Number	Force kips	Arm in	Moment k-ft
3	111.83	17.75	-165.41
4	134.30	17.75	-198.65
5	134.30	0.00	0.00
6	134.30	-17.75	198.65
7	134.30	-35.50	397.30
8	134.30	-30.74	344.08
9	134.30	-17.75	198.65
10	134.30	0.00	0.00
11	111.83	17.75	-165.41

Total in Tension, kips 609.21

Design Moment, kip-ft 4683.13

Pedestal Design Moment, kip-ft 4266.46 OK

90' 3C MONOPOLE W/ 53' FALL ZONE  
 TARPON TOWERS II, LLC  
 BRIDGEPORT CT1221  
 FAIRFIELD COUNTY, CT

TABLE OF CONTENTS  
 T1 - BILL OF MATERIAL & NOTES  
 S1 - ELEVATION VIEW & DETAILS  
 ABT - ANCHOR BOLTS & TEMPLATES

SYMBOL LEGEND

AGL = ABOVE GROUND LEVEL  
 BC = BOLT CIRCLE  
 CL = CENTERLINE  
 ELEV = ELEVATION  
 (E) = EXISTING  
 FV = FIELD VERIFY  
 FW = FLAT WASHER  
 HN = HEX NUT

LW = LOCK WASHER  
 OC = ON CENTER  
 OD = OUTSIDE DIAMETER  
 (P) = PROPOSED  
 TBD = TO BE DETERMINED  
 TOS = TOP OF STEEL  
 TYP = TYPICAL  
 NTS = NOT TO SCALE

DESIGN NOTES

- MONOPOLE IS DESIGNED IN ACCORDANCE WITH TIA-222G FOR 100 MPH BASIC WIND AND 50 MPH WITH 0.75" ICE. TOWER STRUCTURE CLASS - II EXPOSURE - C TOPOGRAPHIC CATEGORY - 1 WITH CREST HEIGHT OF 0.00 ft.
- MAX FALL ZONE RADIUS - 53 FT.

COATING NOTES

- ALL APPLICABLE MATERIALS SHALL BE HOT DIPPED GALVANIZED PER ASTM A123. ALL HARDWARE SHALL BE HOT DIPPED GALVANIZED PER ASTM A153, UNLESS OTHERWISE NOTED.

STRUCTURE NOTES

- EE WILL NOT HONOR ANY BACKCHARGES WHICH HAVE NOT RECEIVED PRIOR WRITTEN AUTHORIZATION. CONTACT EE AT (440) 870-5004
- THE INSTALLER SHALL THOROUGHLY REVIEW EE'S STRUCTURAL ASSEMBLY & ERECTION PROCEDURES PRIOR TO INITIATING THE INSTALLATION OF THE STRUCTURE.
- THE ORIENTATION OF THE STRUCTURE SHALL BE VERIFIED PRIOR TO INSTALLATION.
- FOR MULTIPLE SECTION MONOPOLES:
  - FOR PROPER SECTION TO SECTION ALIGNMENT A 2" HORIZONTAL WELD BEAD AND A MARK ARE POSITIONED ON EACH SECTION AT EACH SPLICE. THE 2" HORIZONTAL WELD BEAD ARE ON THE MATCHING CORNERS. THE MARK NUMBER IS ON THE ADJACENT FLAT. THE CORNERS WITH WELD BEADS SHALL BE ALIGNED FROM TOP TO BOTTOM OF THE STRUCTURE / MARK NUMBERS SHALL BE MATCHED FOR EACH SIDE & THE DISTANCE BETWEEN TWO WELD BEADS SHOULD BE 18" (84").
  - ALL SECTIONS OF THE STRUCTURE SHALL BE JACKED TOGETHER WITH A MINIMUM JACKING FORCE OF 10,000 lb APPLIED TO EACH SIDE. FOR MAXIMUM RECOMMENDED JACKING FORCE, SPLICE LENGTH TOLERANCE AND AIR GAP BETWEEN SECTIONS REFER TO EE'S STRUCTURE ASSEMBLY & ERECTION PROCEDURES.
  - 1" FIELD ASSEMBLY JACKING NUTS FOR JACKING SECTIONS TOGETHER ARE LOCATED ON OPPOSING SECTION FLATS ABOVE AND BELOW THE SPLICES. ALL JACKING EQUIPMENT SHALL BE SUPPLIED BY THE INSTALLER.
  - ALL LONGITUDINAL BEAM WELDS WITHIN THE SLIP-JOINT AREA IN THE FEMALE SECTION SHALL BE 100% PENETRATION.
- ALL BOLTED CONNECTIONS WITH A325 HIGH-STRENGTH BOLTS SHALL BE ASSEMBLED IN ACCORDANCE WITH SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS. HIGH STRENGTH BOLTS SHALL BE INSTALLED TO SNUG-TIGHT CONDITION PER ASTM A325/A490 AND THEN PRE-TENSION AS REQUIRED. TURN-OF-NUT METHOD IS RECOMMENDED BUT IS NOT LIMITED TO.
- SHMS WILL BE SUPPLIED BY EE, IF REQUIRED.
- STRUCTURE BASE PLATE SHALL HAVE FULL PENETRATION WELD TO SHAFT.
- ANCHOR RODS SHALL BE TIGHTENED AFTER THE MONOPOLE IS PLUMB. BOTH TOP & BOTTOM NUT SHALL BE TIGHTENED FOR DETAIL OF ANCHOR ROD INSTALLATION INSTRUCTIONS. REFER TO EE'S STRUCTURE ASSEMBLY & ERECTION PROCEDURES.
- MATERIALS
  - STRUCTURAL STEEL - REFER TO DRAWING.
  - BOLTS
    - STRUCTURAL STEEL: A325 HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.
    - ANCHOR RODS: A615-GR75 UNLESS OTHERWISE NOTED.
- WELDING
  - ALL WELDING SHALL MEET AWS LATEST D.1.1 EDITION
- ASSEMBLY MARKING PROCEDURE
  - EACH INDIVIDUAL ASSEMBLY SHALL HAVE A METAL TAG WELDED TO IT WHICH WILL BE ENGRAVED WITH THE ASSEMBLY MARK NO. AS SHOWN IN THE MATERIAL BLOCK. (MINIMUM OF 5/8" HIGH LETTERS).

BILL OF MATERIALS 18308-P01

Item	Part Number	Qty	Description	Weight Per	Wt Per Row
	18308-P01		90' 3C MONOPOLE W/ 53' FALL ZONE	16532.50	16532.50
1	18308-P01-GS01	1	SECTION ASSY. (5/16" A572-GR85 POLY-18)	4861.06	4861.06
2	18308-P01-GS02	1	SECTION ASSY. (7/16" A572-GR85 POLY-18)	11246.00	11246.00
3	K10062	1	BUSS BAR	7.50	7.50
4	K10333	1	7'-0" LIGHTNING ROD	28.60	28.60
5	18308-P01-P36-01	1	COVER PLATE	39.92	39.92
6	DBI-90	1	90'-0" SAFETY CLIMB KIT	24.75	24.75
7	10000-A01-A394-01	65	5/8" dia x 7" LG. BUTTON HEAD STEP BOLT w/(1) H.N. & (1) SQUARE NUT EACH	1.08	70.20
8	K11499	9	8" x 18" HANDHOLE COVER PLATE & BOLTS	10.48	94.32
9	K11497	5	10" x 30" ACCESS PORT COVER PLATE & BOLTS	31.39	156.95
10	A-BX-A325-G-1.00X3.00	2	1" DIA X 3" HEX BOLT (A325) w/ (1) HN (A194-2H) & (2) FW (F436) - GALVANIZED FINISH	1.60	3.20
11	18308-P01-ABT	1	FOR ANCHOR BOLTS REFER TO DWG. 18308-P01-ABT		
12	HD-INS-MONOPOLE	1	STRUCTURE ASSEMBLY AND ERECTION PROCEDURE		
13	18308-P01-CNT	1	GALVANIZED FINISH		



ENGINEERED ENDEAVORS  
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REVISION HISTORY

REV. #	DATE	BY	DESCRIPTION
1	5/2/18	TS	ISSUED FOR APPROVAL

90' 3C MONOPOLE W/ 53' FALL ZONE  
 TARPON TOWERS II, LLC  
 BRIDGEPORT CT1221  
 FAIRFIELD COUNTY, CT  
 BILL OF MATERIALS & NOTES

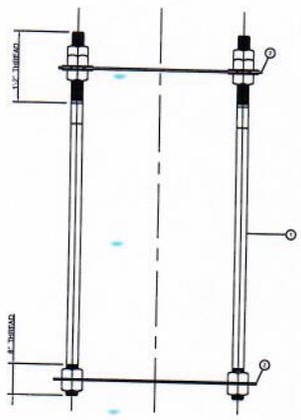
DRAWN BY: TS  
 CREATED: 5/2/18  
 PROJECT NUMBER: 18308  
 DRAWING NUMBER: 18308-P01-T1



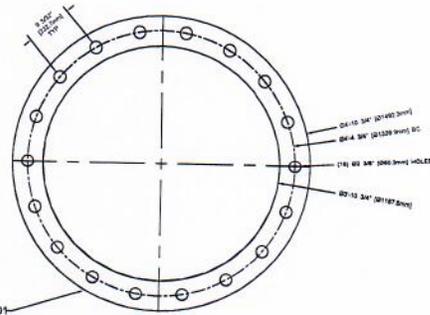
BILL OF MATERIALS				18308-P01-TS	
Item	Part Number	Qty	Description	Weight Per	Wt Per Row
1	2.25-ABR-0-SDE	18	2 1/4" x 8'-0" LG (A194-GR2H) ANCHOR ROD w/ (5) HEX NUTS (A194-GR2H) & (2) FLAT WASHERS (F.A.W.)	99.80	1796.40
2	18-52-75-2.25	2	TOP & BOTTOM SETTING TEMPLATE	97.06	194.12
UNCAGED ANCHOR RODS & TEMPLATE WEIGHT				1993.52	

TOTAL OF (1) ASSEMBLY REQ'D PER STRUCTURE

PROJECTION OF 12" ABOVE CONCRETE. ENTIRE BOLT AND ALL NUTS & WASHERS GALVANIZED PER ASTM A153.



ANCHOR BOLT CAGE ASSEMBLY



MARK: 18308-P01

TOP & BOTTOM PLATE (MIN 3/8" THICK, A36)



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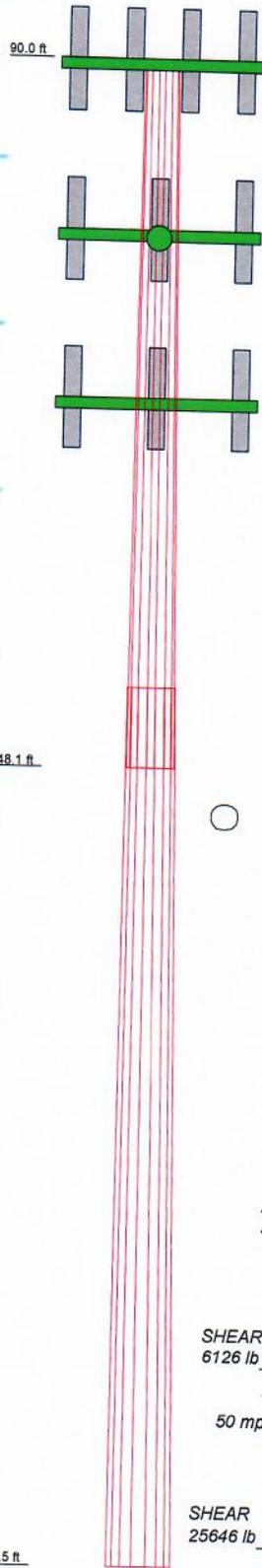
REVISION HISTORY		
REV #	DATE	DESCRIPTION
1	05/15/18	ISSUED FOR APPROVAL

90' 3C MONOPOLE W/ 53' FALL ZONE  
 TARPON TOWERS II, LLC  
 BRIDGEPORT CT1221  
 FAIRFIELD COUNTY, CT  
 ANCHOR BOLTS & TEMPLATES

DRAWN BY	TS	CREATED	5/8/18	PROJECT NUMBER	18308
DRAWING NUMBER	18308-P01-ABT				



Section	1	2
Length (ft)	41.94	52.44
Number of Sides	18	18
Thickness (in)	0.3125	0.4375
Socket Length (ft)	4.87	33.1737
Top Dia (in)	24.9600	45.5000
Bot Dia (in)	34.9600	
Grade	A572-65	A572-65
Weight (lb)	4196.2	9837.9
		13834.1



### DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(6) LNX-6514DS-T6M	90	(3) RRUS 11 B12	80
(6) HBXX-6517DS-VTMA2M	90	(3) RRUS-12	80
(6) RRH 2x60 1900-4R	90	EE 12 LOW PROFILE PLATFORM	80
(6) RRH 2x40 -07L (700 MHz)	90	(2) MW DISH 1.5'	79.5
DISTRIB. BOX DB-B1-6C	90	(3) NNVV-65B-R4	70
EE 12 LOW PROFILE PLATFORM	90	(6) 800 MHz RRH	70
(3) AIR 3246 B66	80	(3) 1900 MHz RRH	70
(3) APXVAA24-43-U-A20	80	EE 12 LOW PROFILE PLATFORM	70
(3) APX16DWV-16DWV	80	(3) Nokia AAHC	70
(3) RRUS-32 B66	80		

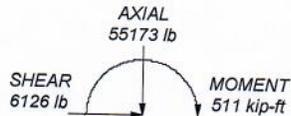
### MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65000 psi	80000 psi			

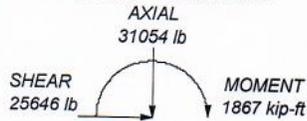
### TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 100 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Design wind speed per CT Building Code for the City of Bridgeport is 100 mph
9. Max Fall Zone radius - 53 ft
10. TOWER RATING: 44.4%

ALL REACTIONS  
ARE FACTORED



TORQUE 11 kip-ft  
50 mph WIND - 0.7500 in ICE



TORQUE 51 kip-ft  
REACTIONS - 100 mph WIND



05-15-2018

<b>Engineered Endeavors</b>		Job: <b>18308-P01</b>	
15175 Kinsman Road Burton, OH		Project: <b>90-ft Monopole, CT1221, Bridgeport.</b>	
Consulting Engineers	Phone: 440.970.5004 FAX: www.engend.com	Client: Tarpon Towers	Drawn by: bfayman
		Code: TIA-222-G	Date: 05/14/18
		Path:	Scale: NTS
			Dwg No: E-1

<b>tnxTower</b>  <b>Engineered Endeavors</b> 15175 Kinsman Road Burton, OH Phone: 440.970.5004 FAX: www.engend.com	<b>Job</b> 18308-P01	<b>Page</b> 1 of 13
	<b>Project</b> 90-ft Monopole. CT1221. Bridgeport.	<b>Date</b> 16:39:34 05/14/18
	<b>Client</b> Tarpon Towers	<b>Designed by</b> bfayman

## Tower Input Data

There is a pole section.  
 This tower is designed using the TIA-222-G standard.  
 The following design criteria apply:  
 Tower is located in Fairfield County, Connecticut.  
 Basic wind speed of 100 mph.  
 Structure Class II.  
 Exposure Category C.  
 Topographic Category 1.  
 Crest Height 0.00 ft.  
 Nominal ice thickness of 0.7500 in.  
 Ice thickness is considered to increase with height.  
 Ice density of 56.00 pcf.  
 A wind speed of 50 mph is used in combination with ice.  
 Temperature drop of 50 °F.  
 Deflections calculated using a wind speed of 60 mph.  
 Design wind speed per CT Building Code for the City of Bridgeport is 100 mph.  
 Max Fall Zone radius - 53 ft.  
 A non-linear (P-delta) analysis was used.  
 Pressures are calculated at each section.  
 Stress ratio used in pole design is 1.  
 Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

- |  |  |  |
|--|--|--|
| <ul style="list-style-type: none"> <li>Consider Moments - Legs</li> <li>Consider Moments - Horizontals</li> <li>Consider Moments - Diagonals</li> <li>Use Moment Magnification</li> <li>√ Use Code Stress Ratios</li> <li>√ Use Code Safety Factors - Guys</li> <li>Escalate Ice</li> <li>Always Use Max Kz</li> <li>Use Special Wind Profile</li> <br/> <li>Include Bolts In Member Capacity</li> <br/> <li>Leg Bolts Are At Top Of Section</li> <li>Secondary Horizontal Braces Leg</li> <li>Use Diamond Inner Bracing (4 Sided)</li> <li>SR Members Have Cut Ends</li> <li>SR Members Are Concentric</li> </ul> | <ul style="list-style-type: none"> <li>Distribute Leg Loads As Uniform</li> <li>Assume Legs Pinned</li> <li>√ Assume Rigid Index Plate</li> <li>√ Use Clear Spans For Wind Area</li> <li>Use Clear Spans For KL/r</li> <li>Retention Guys To Initial Tension</li> <li>√ Bypass Mast Stability Checks</li> <li>√ Use Azimuth Dish Coefficients</li> <li>√ Project Wind Area of Appurt.</li> <br/> <li>Autocalc Torque Arm Areas</li> <br/> <li>Add IBC .6D+W Combination</li> <li>Sort Capacity Reports By Component</li> <li>Triangulate Diamond Inner Bracing</li> <li>Treat Feed Line Bundles As Cylinder</li> </ul> | <ul style="list-style-type: none"> <li>Use ASCE 10 X-Brace Ly Rules</li> <li>Calculate Redundant Bracing Forces</li> <li>Ignore Redundant Members in FEA</li> <li>SR Leg Bolts Resist Compression</li> <li>All Leg Panels Have Same Allowable</li> <li>Offset Girt At Foundation</li> <li>√ Consider Feed Line Torque</li> <li>Include Angle Block Shear Check</li> <li>Use TIA-222-G Bracing Resist. Exemption</li> <li>Use TIA-222-G Tension Splice Exemption</li> <br/> <li style="text-align: center;"><b>Poles</b></li> <li>Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> </ul> |
|--|--|--|

## Tapered Pole Section Geometry

<b>tnxTower</b>  <b>Engineered Endeavors</b> 15175 Kinsman Road Burton, OH Phone: 440.970.5004 FAX: www.engend.com	<b>Job</b> 18308-P01	<b>Page</b> 2 of 13
	<b>Project</b> 90-ft Monopole. CT1221. Bridgeport.	<b>Date</b> 16:39:34 05/14/18
	<b>Client</b> Tarpon Towers	<b>Designed by</b> bfayman

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	90.00-48.07	41.94	4.87	18	24.9600	34.9600	0.3125	1.2500	A572-65
L2	48.07-0.50	52.44		18	33.1737	45.5000	0.4375	1.7500	(65000 psi) A572-65 (65000 psi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	I/O in <sup>2</sup>	w in	w/t
L1	25.3450	24.4472	1876.346 4	8.7499	12.6797	147.9806	3755.161 8	12.2259	3.8430	12.297
	35.4993	34.3660	5212.068 4	12.2999	17.7597	293.4776	10430.99 49	17.1863	5.6030	17.929
L2	34.8479	45.4583	6154.692 9	11.6213	16.8522	365.2154	12317.48 43	22.7335	5.0686	11.585
	46.2019	62.5749	16053.44 62	15.9972	23.1140	694.5335	32128.01 59	31.2934	7.2380	16.544

Tower Elevation ft	Gusset Area (per face) ft <sup>2</sup>	Gusset Thickness in	Gusset Grade	Adjust. Factor A <sub>f</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 90.00-48.07				1	1	1			
L2 48.07-0.50				1	1	1			

### Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Le g	Allo w Shiel d	Component Type	Placement ft	Total Numbe r	C <sub>AA</sub> ft <sup>2</sup> /ft	Weight plf
AVA7-50 (1-5/8 LOW DENS. FOAM)	C	No	Inside Pole	119.50 - 3.50	12	No Ice	0.72
						1/2" Ice	0.72
						1" Ice	0.72
AVA7-50 (1-5/8 LOW DENS. FOAM)	C	No	Inside Pole	109.50 - 3.50	12	No Ice	0.72
						1/2" Ice	0.72
						1" Ice	0.72
AVA7-50 (1-5/8 LOW DENS. FOAM)	C	No	Inside Pole	89.50 - 3.50	12	No Ice	0.72
						1/2" Ice	0.72
						1" Ice	0.72
AVA7-50 (1-5/8 LOW DENS. FOAM)	C	No	Inside Pole	79.50 - 3.50	12	No Ice	0.72
						1/2" Ice	0.72
						1" Ice	0.72
AVA7-50 (1-5/8 LOW DENS. FOAM)	C	No	Inside Pole	69.50 - 3.50	12	No Ice	0.72
						1/2" Ice	0.72
						1" Ice	0.72

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### Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	$A_R$ ft <sup>2</sup>	$A_F$ ft <sup>2</sup>	$C_{AA}$ In Face ft <sup>2</sup>	$C_{AA}$ Out Face ft <sup>2</sup>	Weight lb
L1	90.00-48.07	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	48.07-0.50	A	0.000	0.000	0.000	0.000	1539.43
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
							1925.21

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	$A_R$ ft <sup>2</sup>	$A_F$ ft <sup>2</sup>	$C_{AA}$ In Face ft <sup>2</sup>	$C_{AA}$ Out Face ft <sup>2</sup>	Weight lb
L1	90.00-48.07	A	1.613	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	48.07-0.50	A	1.455	0.000	0.000	0.000	0.000	1539.43
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
								1925.21

### Feed Line Center of Pressure

Section	Elevation ft	$CP_X$ in	$CP_Z$ in	$CP_X$ Ice in	$CP_Z$ Ice in
L1	90.00-48.07	0.0000	0.0000	0.0000	0.0000
L2	48.07-0.50	0.0000	0.0000	0.0000	0.0000

### Shielding Factor $K_a$

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

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	$C_{AA}$ Front ft <sup>2</sup>	$C_{AA}$ Side ft <sup>2</sup>	Weight lb
(6) LNX-6514DS-T6M	A	From Leg	4.00 ft ft ft	0.00	90.00 ft	No 8.17	5.41	100.00

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Tarpon Towers						bfayman		

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> A Front ft <sup>2</sup>	C <sub>AA</sub> A Side ft <sup>2</sup>	Weight lb	
			0.00			Ice	8.62	5.85	150.51
			0.00			1/2"	9.07	6.30	207.15
						Ice			
						1"			
(6) HBXX-6517DS-VTM/A2 M	A	From Leg	4.00	0.00	90.00	Ice			
			0.00			No	11.88	10.86	129.20
			0.00			Ice	12.52	12.17	230.66
						1/2"	13.14	13.30	341.36
						Ice			
						1"			
(6) RRH 2x60 1900-4R	A	From Leg	4.00	0.00	90.00	Ice			
			0.00			No	1.88	1.31	56.00
			0.00			Ice	2.05	1.47	72.51
						1/2"	2.24	1.63	91.74
						Ice			
						1"			
(6) RRH 2x40 -07L (700 MHz)	A	From Leg	4.00	0.00	90.00	Ice			
			0.00			No	2.13	1.89	51.00
			0.00			Ice	2.32	2.07	72.38
						1/2"	2.52	2.26	96.81
						Ice			
						1"			
DISTRIB. BOX DB-B1-6C	C	None		0.00	90.00	Ice			
						No	4.80	4.80	100.00
						Ice	5.07	5.07	158.37
						1/2"	5.35	5.35	221.59
						Ice			
						1"			
EE 12 LOW PROFILE PLATFORM	C	None		0.00	90.00	Ice			
						No	22.00	22.00	1100.00
						Ice	28.00	28.00	2245.00
						1/2"	34.00	34.00	2895.00
						Ice			
						1"			
*****						Ice			
(3) AIR 3246 B66	A	From Leg	4.00	0.00	80.00	No	8.06	5.42	100.00
			0.00			Ice	8.44	5.78	156.81
			0.00			1/2"	8.84	6.15	219.26
						Ice			
						1"			
(3) APXVAA24-43-U-A20	A	From Leg	4.00	0.00	80.00	Ice			
			0.00			No	20.27	8.74	150.00
			0.00			Ice	20.89	9.33	261.92
						1/2"	21.53	9.92	382.36
						Ice			
						1"			
(3) APX16DWV-16DWV	A	From Leg	4.00	0.00	80.00	Ice			
			0.00			No	7.00	8.00	121.90
			0.00			Ice	7.48	8.86	194.84
						1/2"	7.93	9.58	275.02
						Ice			
						1"			
(3) RRUS-32 B66	A	From Leg	4.00	0.00	80.00	Ice			
			0.00			No	3.67	2.22	60.00
			0.00			Ice	3.92	2.45	86.23
						1/2"	4.18	2.68	116.19

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> <sub>Front</sub>	C <sub>AA</sub> <sub>Side</sub>	Weight	
			Horz	Lateral						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	lb	
(3) RRUS 11 B12	A	From Leg	4.00	0.00	0.00	80.00	Ice 1"			
							No Ice	2.79	1.19	55.00
							Ice 3.00	3.00	1.34	75.87
							1/2"	3.21	1.50	99.78
(3) RRUS-12	A	From Leg	4.00	0.00	0.00	80.00	Ice 1"			
							No Ice	2.39	1.16	60.00
							Ice 2.58	2.58	1.30	78.93
							1/2"	2.78	1.46	100.75
EE 12 LOW PROFILE PLATFORM	A	None			0.00	80.00	Ice 1"			
							No Ice	22.00	22.00	1100.00
							Ice 28.00	28.00	28.00	2245.00
							1/2"	34.00	34.00	2895.00
***** (3) Nokia AAHC	A	From Leg	4.00	0.00	0.00	70.00	Ice 1"			
							No Ice	4.95	3.42	121.90
							Ice 5.52	5.52	4.11	169.38
							1/2"	6.02	4.66	222.24
(3) NNVV-65B-R4	A	From Leg	4.00	0.00	0.00	70.00	Ice 1"			
							No Ice	12.49	5.87	100.00
							Ice 12.97	12.97	6.31	173.79
							1/2"	13.46	6.77	254.26
(6) 800 MHz RRH	A	From Leg	4.00	0.00	0.00	70.00	Ice 1"			
							No Ice	1.69	1.28	100.00
							Ice 1.85	1.85	1.43	116.92
							1/2"	2.02	1.58	136.53
(3) 1900 Mhz RRH	A	From Leg	4.00	0.00	0.00	70.00	Ice 1"			
							No Ice	1.00	2.20	52.00
							Ice 1.13	1.13	2.39	73.03
							1/2"	1.26	2.59	97.11
EE 12 LOW PROFILE PLATFORM	A	None			0.00	70.00	Ice 1"			
							No Ice	22.00	22.00	1100.00
							Ice 28.00	28.00	28.00	2245.00
							1/2"	34.00	34.00	2895.00
*****							Ice 1"			
*****							Ice			
*****										

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### Dishes

Description	Fa ce or Le g	Dish Type	Offse t Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustme nt °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft <sup>2</sup>	Weight lb
(2) MW DISH 1.5'		Paraboloid w/Radome	None	0.00			79.50	1.50	No Ice 1/2" Ice 1" Ice	50.00 60.11 70.23

### Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp

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Comb. No.	Description
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

### Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	90 - 48.065	Pole	Max Tension	26	0.00	0.00	-0.00
			Max. Compression	26	-36210.50	0.00	84.59
			Max. Mx	8	-15900.62	-473.18	31.37
			Max. My	2	-15663.25	0.00	625.30
			Max. Vy	8	17156.23	-473.18	31.37
			Max. Vx	2	-21524.01	0.00	625.30
			Max. Torque	8			51.33
L2	48.065 - 0.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55172.90	0.00	86.71
			Max. Mx	8	-31041.65	-1487.33	32.12
			Max. My	2	-31035.37	0.00	1866.70
			Max. Vy	8	21397.00	-1487.33	32.12
			Max. Vx	2	-25668.60	0.00	1866.70
			Max. Torque	8			51.31

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	27	55172.90	0.00	6126.25
	Max. H <sub>x</sub>	21	23290.54	21378.99	0.00
	Max. H <sub>z</sub>	2	31054.06	0.00	25645.98
	Max. M <sub>x</sub>	2	1866.70	0.00	25645.98
	Max. M <sub>z</sub>	8	1487.33	-21378.99	0.00
	Max. Torsion	8	51.29	-21378.99	0.00
	Min. Vert	9	23290.54	-21378.99	0.00
	Min. H <sub>x</sub>	8	31054.06	-21378.99	0.00
	Min. H <sub>z</sub>	14	31054.06	0.00	-25645.98
	Min. M <sub>x</sub>	15	-1802.94	0.00	-25645.98
	Min. M <sub>z</sub>	20	-1487.33	21378.99	0.00
	Min. Torsion	20	-51.29	21378.99	0.00

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**Tower Mast Reaction Summary**

Load Combination	Vertical	Shear <sub>x</sub>	Shear <sub>z</sub>	Overturning Moment, M <sub>x</sub>	Overturning Moment, M <sub>z</sub>	Torque
	lb	lb	lb	kip-ft	kip-ft	kip-ft
Dead Only	25878.38	0.00	-0.00	-26.68	0.00	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	31054.06	0.00	-25645.98	-1866.70	0.00	0.00
0.9 Dead+1.6 Wind 0 deg - No Ice	23290.54	0.00	-25645.98	-1850.79	0.00	0.00
1.2 Dead+1.6 Wind 30 deg - No Ice	31054.06	10689.49	-22210.07	-1620.95	-743.63	-25.62
0.9 Dead+1.6 Wind 30 deg - No Ice	23290.54	10689.49	-22210.07	-1606.07	-740.52	-25.56
1.2 Dead+1.6 Wind 60 deg - No Ice	31054.06	18514.74	-12822.99	-949.47	-1288.05	-44.40
0.9 Dead+1.6 Wind 60 deg - No Ice	23290.54	18514.74	-12822.99	-937.42	-1282.67	-44.30
1.2 Dead+1.6 Wind 90 deg - No Ice	31054.06	21378.99	-0.00	-32.11	-1487.33	-51.29
0.9 Dead+1.6 Wind 90 deg - No Ice	23290.54	21378.99	-0.00	-23.91	-1481.13	-51.17
1.2 Dead+1.6 Wind 120 deg - No Ice	31054.06	18514.74	12822.99	885.25	-1288.01	-44.41
0.9 Dead+1.6 Wind 120 deg - No Ice	23290.54	18514.74	12822.99	889.59	-1282.64	-44.31
1.2 Dead+1.6 Wind 150 deg - No Ice	31054.06	10689.49	22210.07	1556.70	-743.59	-25.63
0.9 Dead+1.6 Wind 150 deg - No Ice	23290.54	10689.49	22210.07	1558.24	-740.49	-25.57
1.2 Dead+1.6 Wind 180 deg - No Ice	31054.06	0.00	25645.98	1802.44	0.00	0.00
0.9 Dead+1.6 Wind 180 deg - No Ice	23290.54	0.00	25645.98	1802.94	0.00	0.00
1.2 Dead+1.6 Wind 210 deg - No Ice	31054.06	-10689.49	22210.07	1556.70	743.59	25.63
0.9 Dead+1.6 Wind 210 deg - No Ice	23290.54	-10689.49	22210.07	1558.24	740.49	25.57
1.2 Dead+1.6 Wind 240 deg - No Ice	31054.06	-18514.74	12822.99	885.25	1288.01	44.41
0.9 Dead+1.6 Wind 240 deg - No Ice	23290.54	-18514.74	12822.99	889.59	1282.64	44.31
1.2 Dead+1.6 Wind 270 deg - No Ice	31054.06	-21378.99	-0.00	-32.11	1487.33	51.29
0.9 Dead+1.6 Wind 270 deg - No Ice	23290.54	-21378.99	-0.00	-23.91	1481.13	51.17
1.2 Dead+1.6 Wind 300 deg - No Ice	31054.06	-18514.74	-12822.99	-949.47	1288.05	44.40
0.9 Dead+1.6 Wind 300 deg - No Ice	23290.54	-18514.74	-12822.99	-937.42	1282.67	44.30
1.2 Dead+1.6 Wind 330 deg - No Ice	31054.06	-10689.49	-22210.07	-1620.95	743.63	25.62
0.9 Dead+1.6 Wind 330 deg - No Ice	23290.54	-10689.49	-22210.07	-1606.07	740.52	25.56
1.2 Dead+1.0 Ice+1.0 Temp	55172.90	0.00	-0.01	-86.71	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	55172.90	0.00	-6126.25	-510.96	0.00	0.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	55172.90	2767.18	-5305.49	-454.12	-187.81	-5.41
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	55172.90	4792.90	-3063.13	-298.83	-325.30	-9.37
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	55172.90	5534.37	-0.01	-86.70	-375.62	-10.82

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Load Combination	Vertical lb	Shear <sub>x</sub> lb	Shear <sub>z</sub> lb	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	55172.90	4792.90	3063.11	125.42	-325.29	-9.37
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	55172.90	2767.18	5305.47	280.71	-187.81	-5.41
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	55172.90	0.00	6126.23	337.55	0.00	0.00
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	55172.90	-2767.18	5305.47	280.71	187.81	5.41
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	55172.90	-4792.90	3063.11	125.42	325.29	9.37
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	55172.90	-5534.37	-0.01	-86.70	375.62	10.82
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	55172.90	-4792.90	-3063.13	-298.83	325.30	9.37
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	55172.90	-2767.18	-5305.49	-454.12	187.81	5.41
Dead+Wind 0 deg - Service	25878.38	0.00	-5162.94	-395.08	0.00	0.00
Dead+Wind 30 deg - Service	25878.38	2151.96	-4471.24	-345.73	-149.32	-5.16
Dead+Wind 60 deg - Service	25878.38	3727.31	-2581.47	-210.88	-258.63	-8.94
Dead+Wind 90 deg - Service	25878.38	4303.93	-0.00	-26.68	-298.64	-10.32
Dead+Wind 120 deg - Service	25878.38	3727.31	2581.47	157.52	-258.63	-8.94
Dead+Wind 150 deg - Service	25878.38	2151.96	4471.24	292.36	-149.32	-5.16
Dead+Wind 180 deg - Service	25878.38	0.00	5162.94	341.71	0.00	0.00
Dead+Wind 210 deg - Service	25878.38	-2151.96	4471.24	292.36	149.32	5.16
Dead+Wind 240 deg - Service	25878.38	-3727.31	2581.47	157.52	258.63	8.94
Dead+Wind 270 deg - Service	25878.38	-4303.93	-0.00	-26.68	298.64	10.32
Dead+Wind 300 deg - Service	25878.38	-3727.31	-2581.47	-210.88	258.63	8.94
Dead+Wind 330 deg - Service	25878.38	-2151.96	-4471.24	-345.73	149.32	5.16

### Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-25878.38	0.00	0.00	25878.38	0.00	0.000%
2	0.00	-31054.06	-25645.98	0.00	31054.06	25645.98	0.000%
3	0.00	-23290.54	-25645.98	0.00	23290.54	25645.98	0.000%
4	10689.49	-31054.06	-22210.07	-10689.49	31054.06	22210.07	0.000%
5	10689.49	-23290.54	-22210.07	-10689.49	23290.54	22210.07	0.000%
6	18514.74	-31054.06	-12822.99	-18514.74	31054.06	12822.99	0.000%
7	18514.74	-23290.54	-12822.99	-18514.74	23290.54	12822.99	0.000%
8	21378.99	-31054.06	0.00	-21378.99	31054.06	0.00	0.000%
9	21378.99	-23290.54	0.00	-21378.99	23290.54	0.00	0.000%
10	18514.74	-31054.06	12822.99	-18514.74	31054.06	-12822.99	0.000%
11	18514.74	-23290.54	12822.99	-18514.74	23290.54	-12822.99	0.000%
12	10689.49	-31054.06	22210.07	-10689.49	31054.06	-22210.07	0.000%
13	10689.49	-23290.54	22210.07	-10689.49	23290.54	-22210.07	0.000%
14	0.00	-31054.06	25645.98	0.00	31054.06	-25645.98	0.000%
15	0.00	-23290.54	25645.98	0.00	23290.54	-25645.98	0.000%
16	-10689.49	-31054.06	22210.07	10689.49	31054.06	-22210.07	0.000%

<b>tnxTower</b>  <b>Engineered Endeavors</b> 15175 Kinsman Road Burton, OH Phone: 440.970.5004 FAX: www.engend.com	<b>Job</b> 18308-P01	<b>Page</b> 10 of 13
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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
17	-10689.49	-23290.54	22210.07	10689.49	23290.54	-22210.07	0.000%
18	-18514.74	-31054.06	12822.99	18514.74	31054.06	-12822.99	0.000%
19	-18514.74	-23290.54	12822.99	18514.74	23290.54	-12822.99	0.000%
20	-21378.99	-31054.06	0.00	21378.99	31054.06	0.00	0.000%
21	-21378.99	-23290.54	0.00	21378.99	23290.54	0.00	0.000%
22	-18514.74	-31054.06	-12822.99	18514.74	31054.06	12822.99	0.000%
23	-18514.74	-23290.54	-12822.99	18514.74	23290.54	12822.99	0.000%
24	-10689.49	-31054.06	-22210.07	10689.49	31054.06	22210.07	0.000%
25	-10689.49	-23290.54	-22210.07	10689.49	23290.54	22210.07	0.000%
26	0.00	-55172.90	0.00	0.00	55172.90	0.01	0.000%
27	0.00	-55172.90	-6126.21	0.00	55172.90	6126.25	0.000%
28	2767.17	-55172.90	-5305.45	-2767.18	55172.90	5305.49	0.000%
29	4792.88	-55172.90	-3063.11	-4792.90	55172.90	3063.13	0.000%
30	5534.35	-55172.90	0.00	-5534.37	55172.90	0.01	0.000%
31	4792.88	-55172.90	3063.11	-4792.90	55172.90	-3063.11	0.000%
32	2767.17	-55172.90	5305.45	-2767.18	55172.90	-5305.47	0.000%
33	0.00	-55172.90	6126.21	0.00	55172.90	-6126.23	0.000%
34	-2767.17	-55172.90	5305.45	2767.18	55172.90	-5305.47	0.000%
35	-4792.88	-55172.90	3063.11	4792.90	55172.90	-3063.11	0.000%
36	-5534.35	-55172.90	0.00	5534.37	55172.90	0.01	0.000%
37	-4792.88	-55172.90	-3063.11	4792.90	55172.90	3063.13	0.000%
38	-2767.17	-55172.90	-5305.45	2767.18	55172.90	5305.49	0.000%
39	0.00	-25878.38	-5162.94	0.00	25878.38	5162.94	0.000%
40	2151.96	-25878.38	-4471.24	-2151.96	25878.38	4471.24	0.000%
41	3727.31	-25878.38	-2581.47	-3727.31	25878.38	2581.47	0.000%
42	4303.93	-25878.38	0.00	-4303.93	25878.38	0.00	0.000%
43	3727.31	-25878.38	2581.47	-3727.31	25878.38	-2581.47	0.000%
44	2151.96	-25878.38	4471.24	-2151.96	25878.38	-4471.24	0.000%
45	0.00	-25878.38	5162.94	0.00	25878.38	-5162.94	0.000%
46	-2151.96	-25878.38	4471.24	2151.96	25878.38	-4471.24	0.000%
47	-3727.31	-25878.38	2581.47	3727.31	25878.38	-2581.47	0.000%
48	-4303.93	-25878.38	0.00	4303.93	25878.38	0.00	0.000%
49	-3727.31	-25878.38	-2581.47	3727.31	25878.38	2581.47	0.000%
50	-2151.96	-25878.38	-4471.24	2151.96	25878.38	4471.24	0.000%

### Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000886
3	Yes	4	0.00000001	0.00000498
4	Yes	5	0.00000001	0.00002022
5	Yes	4	0.00000001	0.00064262
6	Yes	5	0.00000001	0.00004221
7	Yes	5	0.00000001	0.00002007
8	Yes	5	0.00000001	0.00004269
9	Yes	5	0.00000001	0.00002047
10	Yes	5	0.00000001	0.00003673
11	Yes	5	0.00000001	0.00001784
12	Yes	5	0.00000001	0.00002659
13	Yes	4	0.00000001	0.00084961
14	Yes	4	0.00000001	0.00000825
15	Yes	4	0.00000001	0.00000469
16	Yes	5	0.00000001	0.00002659
17	Yes	4	0.00000001	0.00084961

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18	Yes	5	0.00000001	0.00003673
19	Yes	5	0.00000001	0.00001784
20	Yes	5	0.00000001	0.00004269
21	Yes	5	0.00000001	0.00002047
22	Yes	5	0.00000001	0.00004221
23	Yes	5	0.00000001	0.00002007
24	Yes	5	0.00000001	0.00002022
25	Yes	4	0.00000001	0.00064262
26	Yes	4	0.00000001	0.00010602
27	Yes	4	0.00000001	0.00035853
28	Yes	4	0.00000001	0.00044183
29	Yes	4	0.00000001	0.00053758
30	Yes	4	0.00000001	0.00048813
31	Yes	4	0.00000001	0.00033687
32	Yes	4	0.00000001	0.00021014
33	Yes	4	0.00000001	0.00014929
34	Yes	4	0.00000001	0.00021014
35	Yes	4	0.00000001	0.00033687
36	Yes	4	0.00000001	0.00048813
37	Yes	4	0.00000001	0.00053758
38	Yes	4	0.00000001	0.00044183
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00005987
41	Yes	4	0.00000001	0.00009625
42	Yes	4	0.00000001	0.00009647
43	Yes	4	0.00000001	0.00007814
44	Yes	4	0.00000001	0.00004930
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00004930
47	Yes	4	0.00000001	0.00007814
48	Yes	4	0.00000001	0.00009647
49	Yes	4	0.00000001	0.00009625
50	Yes	4	0.00000001	0.00005987

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	90 - 48.065	5.87	39	0.57	0.06
L2	52.935 - 0.5	2.06	39	0.36	0.02

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
90.00	(6) LNX-6514DS-T6M	39	5.87	0.57	0.06	41873
80.00	(3) AIR 3246 B66	39	4.72	0.52	0.04	20936
79.50	(2) MW DISH 1.5'	39	4.66	0.51	0.04	19939
70.00	(3) Nokia AAHC	39	3.63	0.46	0.03	10468

<b>tnxTower</b>  <b>Engineered Endeavors</b> 15175 Kinsman Road Burton, OH Phone: 440.970.5004 FAX: www.engend.com	Job	18308-P01	Page	12 of 13
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### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	90 - 48.065	26.41	2	2.45	0.28
L2	52.935 - 0.5	9.57	2	1.65	0.09

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
90.00	(6) LNX-6514DS-T6M	2	26.41	2.45	0.28	9782
80.00	(3) AIR 3246 B66	2	21.34	2.25	0.22	4891
79.50	(2) MW DISH 1.5'	2	21.09	2.24	0.22	4658
70.00	(3) Nokia AAHC	2	16.52	2.05	0.17	2444

### Compression Checks

### Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	KI/r	A in <sup>2</sup>	P <sub>u</sub> lb	φP <sub>n</sub> lb	Ratio $\frac{P_u}{\phi P_n}$
L1	90 - 48.065 (1)	TP34.96x24.96x0.3125	41.94	0.00	0.0	33.214	-15663.30	2423750.00	0.006
L2	48.065 - 0.5 (2)	TP45.5x33.1737x0.4375	52.43	0.00	0.0	62.574 9	-31035.40	4614750.00	0.007

### Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ux</sub> kip-ft	φM <sub>ux</sub> kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M <sub>uy</sub> kip-ft	φM <sub>uy</sub> kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	90 - 48.065 (1)	TP34.96x24.96x0.3125	625.30	1666.53	0.375	0.00	1666.53	0.000
L2	48.065 - 0.5 (2)	TP45.5x33.1737x0.4375	1866.70	4268.35	0.437	0.00	4268.35	0.000

### Pole Shear Design Data

<b>tnxTower</b>  <b>Engineered Endeavors</b> 15175 Kinsman Road Burton, OH Phone: 440.970.5004 FAX: www.engend.com	<b>Job</b> 18308-P01	<b>Page</b> 13 of 13
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Section No.	Elevation ft	Size	Actual $V_u$ lb	$\phi V_n$ lb	Ratio $\frac{V_u}{\phi V_n}$	Actual $T_u$ kip-ft	$\phi T_n$ kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	90 - 48.065 (1)	TP34.96x24.96x0.3125	21524.00	1211870.00	0.018	0.00	3337.12	0.000
L2	48.065 - 0.5 (2)	TP45.5x33.1737x0.4375	25668.60	2307380.00	0.011	0.00	8547.17	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	90 - 48.065 (1)	0.006	0.375	0.000	0.018	0.000	0.382	1.000	4.8.2 ✓
L2	48.065 - 0.5 (2)	0.007	0.437	0.000	0.011	0.000	0.444 ✓	1.000	4.8.2 ✓

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$\phi P_{allow}$ lb	% Capaci ty	Pass Fail	
L1	90 - 48.065	Pole	TP34.96x24.96x0.3125	1	-15663.3	2423750.	38.2	Pass	
L2	48.065 - 0.5	Pole	TP45.5x33.1737x0.4375	2	-31035.4	4614750.	44.4	Pass	
							Summa ry		
							Pole (L2)	44.4	Pass
							<b>RATING</b>	<b>44.4</b>	<b>Pass</b>

EEI Job #:	18308-P01
Site Name:	CT1221. Bridgeport
Structure:	90-ft Monopole

### Pole Properties at Base

Pole Diameter =	45.5 in
Pole Thickness =	0.4375 in
Yield Strength =	65 ksi
Monopole Shape =	18-Sided

### Base Reactions

$M_u =$	1867 ft-kip
$V_u =$	25.6 kip
$P_u =$	31.1 kip

### Anchor Rod Properties

Anchor Material =	A615GR75
Anchor Diameter =	2.25 in
Anchor Length =	6 ft
No. of Anchors =	18
Weight =	1607 lbs

### Bolt Circle Diameter & Spacing

Minimum Bolt Circle $\phi =$	52.70 in
Actual Bolt Circle $\phi =$	52.75 in
Spacing =	9.21 in

### Anchor Rod Inter. Eq. 1 (4.9.9)

$P_{ub} =$	96 kip
$V_{ub} =$	1.42 kip
$\eta =$	0.5
$\Phi_t =$	0.80
$\Phi_t R_{nt} =$	260 kip
Inter. Eq. 1 =	0.38

### Anchor Rod Inter. Eq. 2 (4.9.9)

$L_{ar} =$	1.5 in
$V_{ub} =$	1.42 kip
$P_{ub} =$	96 kip
$M_{ub} =$	1.39 kip-in
$\Phi_v R_{nv} =$	134 kip
$\Phi_t R_{nt} =$	260 kip
$\Phi_f R_{nm} =$	95 kip-in
Inter. Eq. 2 =	0.38

5/14/2018

Client:	Tarpon Tower
Site #:	
Location:	Bridgeport, CT

### Base Plate Properties

Base Plate Material =	A572GR50
Outside Diameter =	58.75 in
Inside Diameter =	35.5 in
Weight =	1322 lbf

### Effective Base Plate Bend Line

Desantis' Bend Line =	37.17 in
% Reduction =	60 %
Reduced Bend Line =	16.80 in
Brinker's Bend Line =	11.46 in
Effective Bend Line =	16.80 in

### Base Plate Thickness

Section Modulus:	Plastic
$\Phi_b =$	0.9
Minimum Thickness =	1.68 in
Actual Thickness =	2.75 in
$M_{ub} =$	532 in-k
$\Phi M_n =$	1429 in-kip
Capacity Usage =	37.2%

### Setting Template Properties

Outside Diameter =	58.75 in
Inside Diameter =	46.75 in
Thickness =	0.375 in
Template Hole $\phi =$	2.375 in
Template Weight =	97.3 lbs
<i>*Bottom Template Must Be Bolted*</i>	

### Summary Table

Anchor Material =	A615GR75
Anchor Diameter =	2.25 in
Anchor Length =	6 ft
No. of Anchors =	18
Actual Bolt Circle $\phi =$	52.75 in
Base Plate Material =	A572GR50
Actual Thickness =	2.75 in
Outside Diameter =	58.75 in
Inside Diameter =	35.5 in

ATTACHMENT 5

110 Washington Avenue North Haven, Connecticut 06473  
Phone - 203-623-3287 Fax 203-234-6398

HMB Acoustics LLC

3 Cherry Tree Lane, Avon, CT 06001

**HMB**

860-677-5955

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Noise Evaluation Report

Site Number CTFF868A  
T-Mobile And Tarpon Towers / Verizon  
Wireless Communications Facility  
Bridgeport "East"  
380 Horace Street  
Bridgeport, CT

May 10, 2018

Prepared For:  
Douglas Roberts  
Hudson Design Group LLC  
110 Washington Avenue  
North Haven, CT

Prepared By:  
Allan Smardin  
HMB Acoustics LLC  
3 Cherry Tree Lane  
Avon, CT

## **Introduction**

T-Mobile has proposed to re-locate a "Delta" 25 kw emergency generator and three radio cabinets to the Tarpon Towers and Verizon Wireless Communication Facility's existing "Generac" 25 kw emergency generator and radio cabinets. All of the equipment will be at grade and housed in a fenced 2500 square foot compound area. The facility is located at 380 Horace Street, Bridgeport, CT; and is in an Industrial Noise Zone.

The purpose of this evaluation is to determine whether the new proposed T-Mobile generator and cabinets; when combined with the existing generator and cabinets, will adversely impact on the surrounding community, and will comply with the State of CT Noise Regulations.

It is important to note that each generator typically operates for approximately 15-20 minutes every other week for testing. All testing is done during daytime hours. Other than these testing periods, the generator runs only in times of emergency when commercial power to the facility is interrupted. This report and the noise regulations utilize a dBA scale. This scale is used because it closely approximates the response characteristic of the human ear to loudness, and is the scale most commonly used in the measurement of community noise.

## **Noise Regulations**

The State of CT has enacted noise regulations which limit the amount of noise which may be transferred from one property to another. In pertinent part, the Regulations provide as follows:

Daytime Hours - The hours between 7 a.m. and 10 p.m. local time (Sec.22a-69-1.1(h)).

Nighttime Hours - The hours between 10 p.m. and 7 a.m. local time. (Sec.22a-69-1.1(n)).

No person in a Class "C" Noise Zone (Industrial) shall emit noise exceeding the levels stated herein and applicable to adjacent noise zones.

<u>Emitter Zone</u>	Allowable Noise Levels (dBA) At Receptor Zones			
	<u>Industrial</u>	<u>Commercial</u>	<u>Residential Day / Night</u>	
Industrial (Sec. 22a-69-3,5(a)).	70	66	61	51

**Noise Evaluation Results**

Calculated Noise Levels (dBA)  
 T-Mobile Generator & Cabinets Running Simultaneously  
 With The Verizon Generator & Cabinets  
 The Generator Noise Level Has Been Projected  
 To The Nearest Residential Property Lines

	The Noise Level Allowed			
	By The Regulation		Projected Noise Level	
	a.m.	p.m.	a.m.	p.m.
North	61	51	48	48
South	61	51	43	43
East	61	51	37	37
West	61	51	48	48

Note: The East direction also includes open space and wetlands

The noise levels (dBA) take into account the effect of acoustical shielding provided by other structures on the property. The calculated noise data demonstrates that the noise levels meet the conditions for compliance as set forth in the State of CT Noise Regulations, when projected to the nearest residential property lines.

Additionally, the data also shows that the noise levels would not exceed the allowable limits when projected to a Commercial Noise Zone area.

ATTACHMENT 6

110 Washington Avenue North Haven, Connecticut 06473  
Phone - 203-623-3287 Fax 203-234-6398



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

T-Mobile Existing Facility

Site ID: CTFF868A

PTP Bridgeport\_Horace Street  
380 Horace Street  
Bridgeport, CT 06610

**May 11, 2018**

**Centerline Project Number: 950003-013**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>87.44 %</b>



May 11, 2018

T-Mobile USA  
Attn: Jason Overbey, RF Manager  
35 Griffin Road South  
Bloomfield, CT 06002

Emissions Analysis for Site: **CTFF868A – PTP Bridgeport\_Horace Street**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed T-Mobile facility located at **380 Horace Street, Bridgeport, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  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 ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 600 MHz and 700 MHz Band are approximately  $400 \mu\text{W}/\text{cm}^2$  and  $467 \mu\text{W}/\text{cm}^2$  respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 23 GHz Microwave bands is  $1000 \mu\text{W}/\text{cm}^2$ . 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 T-Mobile Wireless antenna facility located at **380 Horace Street, Bridgeport, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas 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) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel
- 4) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These channels have a transmit power of 30 Watts per channel.
- 5) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These channels have a transmit power of 30 Watts per channel.
- 6) 1 microwave backhaul channel (23 GHz) was considered for the proposed facility. This channel has a transmit power of 1 Watt.



- 7) 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.
- 8) 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 manufactures supplied specifications, minus 10 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.
- 9) The antennas used in this modeling are the **Ericsson AIR3246 B66A, RFS APXVAARR24\_43-U-NA20 and the RFS APX16DWV-16DWVS-E-A20** for 600 MHz, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Andrew VHLP1-23-CR4B** dish for the 23 GHz microwave backhaul. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR3246 B66A** has a maximum gain of **15.9 dBd** at its main lobe at 2100 MHz. The **RFS APXVAARR24\_43-U-NA20** has a maximum gain of **16.35 dBd** at its main lobe 2100 MHz, a maximum gain of **13.35 dBd** at its main lobe at 700 MHz and a maximum gain of **12.95 dBd** at its main lobe at 600 MHz. The **RFS APX16DWV-16DWVS-E-A20** has a maximum gain of **16.3 dBd** at its main lobe at 2100 MHz. The **Andrew VHLP1-23-CR4B** has a maximum gain of **33.45 dBd** at its main lobe at 23 GHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 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.
- 10) The antenna mounting height centerline of the proposed antennas and microwave dish is **80 feet** above ground level (AGL).
- 11) 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.
- 12) All calculations were done with respect to uncontrolled / general population threshold limits.



**T-Mobile Site Inventory and Power Data**

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR3246 B66A	Make / Model:	Ericsson AIR3246 B66A	Make / Model:	Ericsson AIR3246 B66A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	80	Height (AGL):	80	Height (AGL):	80
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	3.06	Antenna B1 MPE%	3.06	Antenna C1 MPE%	3.06
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	16.35 dBd / 13.35 dBd / 12.95 dBd	Gain:	16.35 dBd / 13.35 dBd / 12.95 dBd	Gain:	16.35 dBd / 13.35 dBd / 12.95 dBd
Height (AGL):	80	Height (AGL):	80	Height (AGL):	80
Frequency Bands	2100 MHz (AWS) / 700 MHz / 600 MHz	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	5,070.20	ERP (W):	5,070.20	ERP (W):	5,070.20
Antenna A2 MPE%	5.47	Antenna B2 MPE%	5.47	Antenna C2 MPE%	5.47
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	80	Height (AGL):	80	Height (AGL):	80
Frequency Bands	700 MHz / 600 MHz	Frequency Bands	700 MHz / 600 MHz	Frequency Bands	700 MHz / 600 MHz
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	5,118.95	ERP (W):	5,118.95	ERP (W):	5,118.95
Antenna A3 MPE%	3.36	Antenna B3 MPE%	3.36	Antenna C3 MPE%	3.36

Microwave Dish Model	Sector	TX Power (W)	Antenna Height (ft)	Antenna Gain (dBd)	ERP (W)	MPE%
Andrew VHLPI-23-CR4B	A	1	80	33.45	2,213.09	0.15%

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Sector A)	12.04 %
Verizon Wireless	75.40 %
<b>Site Total MPE %:</b>	<b>87.44 %</b>

T-Mobile Sector A Total:	12.04 %
T-Mobile Sector B Total:	11.89 %
T-Mobile Sector C Total:	11.89 %
<b>Site Total:</b>	<b>87.44%</b>



### T-Mobile Max Power Values Breakdown (Sector A)

T-Mobile_Max Power Values (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	80	30.65	AWS - 2100 MHz	1000	3.06%
T-Mobile AWS - 2100 MHz UMTS	2	1,294.56	80	17.00	AWS - 2100 MHz	1000	1.70%
T-Mobile 700 MHz LTE	2	648.82	80	8.52	700 MHz	1000	1.82%
T-Mobile 600 MHz LTE	2	591.73	80	7.77	600 MHz	1000	1.94%
T-Mobile PCS - 1900 MHz LTE	2	2,559.48	80	33.61	PCS - 1900 MHz	1000	3.36%
T-Mobile 23 GHz Microwave	1	2,213.09	80	1.45	23 GHz	1000	0.15%
						<b>Total:</b>	<b>12.04%</b>



## Summary

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

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	12.04%
Sector B:	11.89 %
Sector C:	11.89 %
T-Mobile Max (Sector A):	12.04 %
Site Total:	87.44 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **87.44 %** 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.

A handwritten signature in black ink, appearing to read 'Scott Heffernan', is written over a light blue horizontal line.

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