



April 22, 2022

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

Re: Tower Share Application – Dish Site 13733446  
Dish Wireless Telecommunications Facility @ 185 Fisk Road, Hampton, CT 06247

Dear Ms. Bachman,

Dish Wireless (“Dish”) is proposing a wireless telecommunications facility on an existing one hundred and sixty three (163) foot tall guyed tower at 185 Fisk Road, Hampton, CT 06247 (Latitude: 41.76994324, Longitude: -72.07064056) and within the existing fenced compound. The tower is owned and operated by American Tower Corporation. The subject property is owned by American Tower Corporation. The tower was originally approved by the Hampton Planning & Zoning Commission on March 22, 1999.

Dish proposes to install a five (5) foot by seven (7) foot metal platform within the existing fenced compound and install three (3) antennas, a single antenna mount, six (6) RRUs, and cables on the existing tower at one hundred twenty (120) feet as more particularly detailed and described on the enclosed Construction Drawings. No height extension or compound expansion are proposed.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish's intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A §16-50j-73, a copy of this letter is being sent to the following individuals: American Tower Corporation as Tower Operator/Owner; American Tower Corporation as Property Owner; the Honorable Allan Cahill, First Selectman of the Town of Hampton, and Hampton Zoning Enforcement Officer Jay Gigliotti.

The applicant’s proposal falls squarely within those activities explicitly provided for in R.C.S.A. §16-50j-89. Specifically:

1. The proposed modifications will NOT result in an increase in the height of the existing structure.
2. The proposed modifications will NOT require an extension of the site boundary.



3. The proposed modifications will NOT increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will NOT increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. Please see the RF emissions calculation for Dish's facility enclosed herewith.
5. The proposed modifications will NOT cause an ineligible change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading. Please see the structural analysis enclosed herewith.

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

- A. **Technical Feasibility.** The existing tower has been deemed structurally capable of supporting Dish's proposed loading (see attached Structural Analysis).
- B. **Legal Feasibility.** As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish to obtain a building permit for the proposed installation. Further, a Letter of Authorization is attached, authorizing Dish to file this application for shared use.
- C. **Environmental Feasibility.** The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish equipment on the existing tower would have an insignificant visual impact on the area around the tower. Dish ground equipment would be installed within the existing facility compound. The shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by the attached EME study, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.
- D. **Economic Feasibility.** Dish will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist Dish with this tower sharing application.
- E. **Public Safety Concerns.** As discussed above, the tower is structurally capable of supporting the proposed loading. Dish is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish's intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through the area.



For the foregoing reasons, Dish respectfully requests that the Council approve this request for the shared use of this tower located at 185 Fisk Road, Hampton, CT 06247.

If you have any questions, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Jack Andrews', is written over a circular stamp or seal.

Jack Andrews  
Zoning Manager, Centerline Communications  
10130 Donleigh Drive  
Columbia, MD 21046  
443-677-0144

Enclosures: Exhibit 1 – Letter of Authorization from tower owner  
Exhibit 2 – Property Card and GIS  
Exhibit 3 – Construction Drawings  
Exhibit 4 – Structural Analysis Report  
Exhibit 5 – Antenna Mount Analysis Report  
Exhibit 6 – EME Study Report  
Exhibit 7 – Original Tower Approval  
Exhibit 8 – (4) Notice Confirmations

cc: American Tower Corporation - Tower Operator/Owner  
American Tower Corporation - Property Owner  
The Honorable Allan Cahill - First Selectman, Town of Hampton  
Jay Gigliotti - Zoning Enforcement Officer, Town of Hampton



## LETTER OF AUTHORIZATION

**SITE NO:** See Site List Below

**SITE NAME:** See Site List Below

**ADDRESS:** See Site List Below

I, Margaret Robinson, Senior Counsel, US Tower Division on behalf of American Tower\*, owner and/or operator of the tower facilities located at the addresses identified below (the "Tower Facilities"), do hereby authorize Centerline Communications, LLC ("Centerline"), its agents, successors and assigns, to act as American Tower's non-exclusive agent for the purpose of filing and securing any zoning, land-use, building permit and/or electrical permit application(s) and approvals of the applicable jurisdiction for and to conduct the construction of the installation of antennas and related telecommunications equipment owned and operated by DISH Network on the Tower Facilities located at the addresses identified below. This installation shall not affect adjoining lands and will occur only within the areas leased or owned by American Tower.

American Tower understands that the applications may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by American Tower of conditions related to American Tower's installations. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit Centerline to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to American Tower's installations of telecommunications equipment without the prior written approval of American Tower.

Site Authorized:

| ATC PROJECT# | ATC SITE# | DISH SITE#  | ADDRESS   |
|--------------|-----------|-------------|---|
| 13683503     | 302472    | BOBDL00010A | 104 Bunker Hill Road, Andover, Connecticut                |
| 13701209     | 302470    | BOHVN00141A | 401 Wakelee Ave, Ansonia, Connecticut                     |
| 13702524     | 370641    | BOHVN00148A | 401-411 Lopus Road, Beacon Falls, Connecticut             |
| 13709244     | 88008     | BOHVN00151A | 9 Meyers Road, Bethany, Connecticut                       |
| 13694329     | 283419    | BOHVN00136A | 123 Pine Orchard Road, Branford, Connecticut              |
| 13694332     | 283422    | BOHVN00137A | 171 Short Beach Road, Branford, Connecticut               |
| 13701211     | 302484    | BOHVN00142A | 405 Brushy Plain Rd, Branford, Connecticut                |
| 13709418     | 281862    | BOHVN00200A | 111 SECOND HILL RD, BRIDGEWATER, Connecticut              |
| 13733440     | 411216    | BOBOS00893A | 123 Palmer Road, Chaplin, Connecticut                     |
| 13733449     | 208478    | BOHVN00033A | 1325 Cheshire Street, Cheshire, Connecticut               |
| 13694579     | 302496    | BOBOS00887A | Chestnut Hill Road, Colchester, Connecticut               |
| 13694582     | 302465    | BOBOS00890A | 355 Route 85, Colchester, Connecticut                     |
| 13733436     | 6270      | BOBOS00031A | Rt 101 off Rt. 395 @1385 North Rd., Dayville, Connecticut |
| 13702522     | 311305    | BOHVN00147A | 10 Tanner Marsh Road, Guilford, Connecticut               |
| 13733446     | 10029     | BOBOS00894A | 185 Fisk Road, Hampton, Connecticut                       |
| 14046283     | 302466    | BOBDL00079B | 305 W. Service Rd., Hartford, Connecticut                 |



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| 13746611  | 302503 | BOBOS00068B    | 20 Mel Road, Jewett City, Connecticut                    |
| 13702514  | 302540 | BOHVN00146A    | 8 Old 79, Madison, Connecticut                           |
| OAA745087 | 411260 | Middlefield CT | 484 Meriden Rd., Middlefield, Connecticut                |
| 13698061  | 283564 | BOHVN00139A    | 234 Melba Street, Milford, Connecticut                   |
| 13702496  | 302516 | BOHVN00144A    | 438 Bridgeport Ave, Milford, Connecticut                 |
| 13693709  | 411182 | BOHVN00005A    | 20 Antolini Road, New Hartford, Connecticut              |
| 13702509  | 302523 | BOHVN00145A    | 4 Elkington Farm Rd, New Milford, Connecticut            |
| 13693659  | 283418 | BOHVN00135A    | 50 Devine Street, North Haven, Connecticut               |
| 13694578  | 6260   | BOBOS00884A    | 118C Wintechog Hill Rd., North Stonington, Connecticut   |
| 13693124  | 311014 | BOBOS00023A    | 202 N Wawecus Hill Rd, Norwich, Connecticut              |
| 13726721  | 302532 | BOBOS00022A    | 1337 Route 85, Oakdale, Connecticut                      |
| 13693120  | 284984 | BOBOS00021A    | 166 Pawcatuck Ave, Pawcatuck, Connecticut                |
| 13701212  | 302501 | BOHVN00143A    | 297 North Street, Plymouth, Connecticut                  |
| 13693135  | 411184 | BOBOS00026A    | 399 West Road, SALEM, Connecticut                        |
| 13729958  | 208205 | BOHVN00035A    | 80 Great Hill Road, Seymour, Connecticut                 |
| 13693705  | 411188 | BOHVN00006A    | 111 Upper Fishrock Road, Southbury, Connecticut          |
| 13733433  | 415784 | BOBOS00029A    | 165 Elmwood Hill Road, THOMPSON, Connecticut             |
| 13693127  | 370623 | BOBOS00024A    | 139 Sharp Hill Road, Uncasville, Connecticut             |
| 13701206  | 302467 | BOHVN00140A    | 90 North Plains Industrial Rd., Wallingford, Connecticut |
| 13693131  | 411183 | BOBOS00025A    | 53 Dayton Rd., Waterford, Connecticut                    |
| 13693702  | 243036 | BOHVN00132A    | 668 Jones Hill Road, West Haven, Connecticut             |
| 13729960  | 207941 | BOHVN00036A    | 164 County Road, Wolcott, Connecticut                    |
| 13702538  | 411180 | BOHVN00150A    | 481 GOOD HILL ROAD, Woodbury, Connecticut                |
| 13733429  | 415439 | BOBOS00027A    | 40 Sherman Road, Woodstock, Connecticut                  |
| 13733431  | 415484 | BOBOS00028A    | 445 Prospect St, Woodstock, Connecticut                  |
| 13733434  | 418609 | BOBOS00030A    | 87 West Quasset Road, Woodstock, Connecticut             |
| 13733438  | 6300   | BOBOS00032A    | 156 Lebanon Hill Rd., Woodstock, Connecticut             |
| 13741553  | 283425 | BOBOS00019A    | 350 Route 198, WOODSTOCK VALLEY, Connecticut             |
| 13743708  | 305310 | BOPWM00004A    | 491 Court Street, Auburn, Maine                          |
| 13743725  | 371976 | BOPWM00007A    | 840 North River Rd, Auburn, Maine                        |
| 13741457  | 371989 | BOAUG00001A    | 627 Coldbrook Rd, BANGOR, Maine                          |
| 13741460  | 416485 | BOAUG00002A    | 237 Bomarc Rd, BANGOR, Maine                             |
| 13735679  | 305311 | BOBOS00433A    | 19 Little Harbor Road, Berwick, Maine                    |
| 13746623  | 416552 | BOPWM00012A    | 60 Andrews Road, Biddeford, Maine                        |
| 13741463  | 305313 | BOBOS00434A    | 71 Brixham Road, Eliot, Maine                            |
| 13743702  | 10044  | BOPWM00002A    | 26 Dorrington Drive, Freeport, Maine                     |
| 13743704  | 281252 | BOPWM00003A    | 71 Finn Parker Road, GORHAM, Maine                       |



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| 13746621 | 371994 | BOPWM00011A | 4 Burnham Rd, Gorham, Maine                               |
| 13746617 | 371990 | BOPWM00009A | 58 Buzzell Ln, Greene, Maine                              |
| 13743722 | 371965 | BOPWM00006A | 67 Commercial Street, Lewiston, Maine                     |
| 13746678 | 421397 | BOPWM00013A | 50 Potter Road, Lisbon, Maine                             |
| 13743712 | 371964 | BOPWM00005A | Pleasant Hill Rd, Sabattus, Maine                         |
| 13738176 | 371992 | BOBOS00777A | 78 York Woods Rd, Rt 236, South Berwick, Maine            |
| 13743727 | 371978 | BOPWM00008A | 988 Roosevelt Trail, Windham, Maine                       |
| 13746619 | 371993 | BOPWM00010A | 413 Roosevelt Tr, Windham, Maine                          |
| 13734197 | 222167 | BOBOS00393A | 36 Knox trail, Acton, Massachusetts                       |
| 13738223 | 371800 | BOBOS00698A | 107 South Main Street, Acushnet, Massachusetts            |
| 13738186 | 203692 | BOBOS00788A | 149 Haggets Pond Road, Andover, Massachusetts             |
| 13738208 | 371807 | BOBOS00820A | 165 South Main Street, ASSONET, Massachusetts             |
| 13728723 | 305010 | BOBOS00387C | 15 Washington Street, Attleboro, Massachusetts            |
| 13729951 | 92225  | BOBOS00135A | 55 Starkey Ave, Attleboro, Massachusetts                  |
| 13729930 | 91563  | BOBOS00133A | 21 Parker Drive, Avon, Massachusetts                      |
| 13738187 | 371838 | BOBOS00791A | 30 Shawsheen Ave, Bedford, Massachusetts                  |
| 13734227 | 91567  | BOBOS00612A | 236 Maple Street, Bellingham, Massachusetts               |
| 13738231 | 88025  | BOBOS00832A | 39 Green Street, Berkley, Massachusetts                   |
| 13746597 | 207264 | BOBOS00281A | 62R Anthony Street, Berkley, Massachusetts                |
| 13738152 | 283474 | BOBOS00658A | 347 Old Middlesex Turnpike, Billerica, Massachusetts      |
| 13734192 | 371816 | BOBOS00616A | 500 Morton Street, Boston, Massachusetts                  |
| 13735268 | 305088 | BOBOS00626A | 22 Freeport Way, Boston, Massachusetts                    |
| 13735650 | 262364 | BOBOS00016A | 53 C Pond Street, Boxford, Massachusetts                  |
| 13729495 | 371820 | BOBOS00004B | #26 Freemans Way Industrial Park, Brewster, Massachusetts |
| 13735663 | 305054 | BOBOS00111A | 240 Burrill Avenue, Bridgewater, Massachusetts            |
| 13738201 | 414820 | BOBOS00809A | 434 Elm St., BRIDGEWATER, Massachusetts                   |
| 13735259 | 371833 | BOBOS00619A | 1001 N Montello Street, Brockton, Massachusetts           |
| 13735275 | 371797 | BOBOS00629A | 500 Belmont Street, Brockton, Massachusetts               |
| 13735419 | 10008  | BOBOS00646A | 995 Belmont St., Brockton, Massachusetts                  |
| 13738182 | 10342  | BOBOS00670A | 110 Mulberry Street, Brockton, Massachusetts              |
| 13738228 | 15456  | BOBOS00389A | 51 North Avenue, Burlington, Massachusetts                |
| 13746607 | 210761 | BOBOS00139A | 8 Springdale Avenue, Canton, Massachusetts                |
| 13734206 | 5870   | BOBOS00395A | Off Montello Street, Carver, Massachusetts                |
| 13734212 | 15482  | BOBOS00396A | 31R Main Street, Carver, Massachusetts                    |
| 13741598 | 10252  | BOBOS00428A | 31 J Hammond Road, Charlton, Massachusetts                |
| 13735290 | 371819 | BOBOS00638A | 7 Doris Drive, Chelmsford, Massachusetts                  |
| 13759832 | 274893 | BOBOS00636A | 490 Stafford St., CHERRY VALLEY, Massachusetts            |



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| 13729557 | 412707 | BOBOS00125A | 40y Annursnac Hill Road, CONCORD, Massachusetts   |
| 13738190 | 240688 | BOBOS00793A | 323 Locust St, Danvers, Massachusetts             |
| 13735284 | 371805 | BOBOS00631A | 303 Broadway, Dracut, Massachusetts               |
| 13729926 | 5820   | BOBOS00131A | 32 Old County Road, East Wareham, Massachusetts   |
| 13734265 | 207267 | BOBOS00282A | Upper Union Street, Franklin, Massachusetts       |
| 13735297 | 371782 | BOBOS00644A | 119 Dean Avenue, Franklin, Massachusetts          |
| 13735315 | 16228  | BOBOS00649A | 60 EARL'S WAY, Franklin, Massachusetts            |
| 13735654 | 10321  | BOBOS00102A | 16 Kondelin Rd, Gloucester, Massachusetts         |
| 13735670 | 305111 | BOBOS00192B | 400 Blackburn Drive, Gloucester, Massachusetts    |
| 13746594 | 210758 | BOBOS00137A | 434-438 Asbury Street, Hamilton, Massachusetts    |
| 13735658 | 283651 | BOBOS00108A | 263 Winter Street, Hanover, Massachusetts         |
| 13735666 | 371796 | BOBOS00114A | 171 Phillips Street, Hanson, Massachusetts        |
| 13741290 | 283476 | BOBOS00615A | 75 Willow Avenue, Haverhill, Massachusetts        |
| 13741718 | 283472 | BOBOS01024A | 1 Masys Way, Haverhill, Massachusetts             |
| 13743700 | 15659  | BOBOS00903A | 260 River Street, Jefferson, Massachusetts        |
| 13738229 | 305004 | BOBOS00831A | 23 Freetown Steet, Lakeville, Massachusetts       |
| 13735281 | 305117 | BOBOS00630A | 670 South Union Street, LAWRENCE, Massachusetts   |
| 13735286 | 371778 | BOBOS00633A | 576 Haverhill St, Lawrence, Massachusetts         |
| 13735709 | 210759 | BOBOS00138A | 280 New Lancaster Road, Leominster, Massachusetts |
| 13743687 | 371808 | BOBOS00853A | 650 Willard Street, Leominster, Massachusetts     |
| 13735656 | 222165 | BOBOS00105A | 2005 Mass Ave, Lunenburg, Massachusetts           |
| 13734270 | 207263 | BOBOS00283A | 13 Mill Street, Marion, Massachusetts             |
| 13729921 | 412712 | BOBOS00128A | 860 BOSTON POST ROAD, Marlborough, Massachusetts  |
| 13738193 | 284981 | BOBOS00806A | 969 Ocean Street, Marshfield, Massachusetts       |
| 13746615 | 207266 | BOBOS00284A | Holyoke Avenue, Marshfield, Massachusetts         |
| 13772780 | 202550 | BOBOS01156C | 0 Snow Road, Marshfield, Massachusetts            |
| 13735659 | 305027 | BOBOS00109A | 34 Topalian Street, Mattapan, Massachusetts       |
| 13734275 | 208176 | BOBOS00285A | Summer Hill Road, Maynard, Massachusetts          |
| 13734201 | 16489  | BOBOS00391A | 31 BEDFORD ST, Middleboro, Massachusetts          |
| 13738205 | 305006 | BOBOS00813A | 164 Everett Street, Middleboro, Massachusetts     |
| 13735294 | 283071 | BOBOS00641A | 11 Natsue Way, MIDDLETON, Massachusetts           |
| 13735657 | 283070 | BOBOS00107A | 197 N. Main Street, MIDDLETON, Massachusetts      |
| 13743676 | 283767 | BOBOS00842A | 120 Highland Street, MILFORD, Massachusetts       |
| 13749484 | 91566  | BOBOS00355B | 111 Cedar Street, Milford, Massachusetts          |
| 13729925 | 412713 | BOBOS00129A | 25 Glenwood Street, Natick, Massachusetts         |
| 13734249 | 5762   | BOBOS00614A | 1555 Central Ave, Needham, Massachusetts          |
| 13735272 | 5860   | BOBOS00628A | 148 Penniman St., New Bedford, Massachusetts      |



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| 13737649 | 204458 | BOBOS00651A | 9 Eighth St, NEW BEDFORD, Massachusetts                     |
| 13742882 | 305097 | BOBOS00426A | 127 R Duchaine Blvd., New Bedford, Massachusetts            |
| 13735652 | 1028   | BOBOS00101A | 1165 Chestnut Street, Newton, Massachusetts                 |
| 13735266 | 305113 | BOBOS00624A | 20 Republic Road, North Billerica, Massachusetts            |
| 13742899 | 91886  | BOBOS00758A | 411 FAUNCE CORNER RD, North Dartmouth, Massachusetts        |
| 13738213 | 371810 | BOBOS00829A | 455 Somerset Avenue, North Dighton, Massachusetts           |
| 13741485 | 88027  | BOBOS00833A | Maple Street, North Dighton, Massachusetts                  |
| 13743644 | 91565  | BOBOS00735A | 38 Merriam District, North Oxford, Massachusetts            |
| 13735264 | 284980 | BOBOS00620A | 59 Davis Ave, Norwood, Massachusetts                        |
| 13746603 | 207726 | BOBOS00287A | 15 Locust Road, Orleans, Massachusetts                      |
| 13738197 | 15768  | BOBOS00807A | 171Mattakeesett Street, Pembroke, Massachusetts             |
| 13729507 | 371799 | BOBOS00115A | 75 Washington Street, Plainville, Massachusetts             |
| 13742871 | 10370  | BOBOS00422A | 50 Portside Drive, Pocasset, Massachusetts                  |
| 13734236 | 10341  | BOBOS00613A | 106 Mazzeo Drive, Randolph, Massachusetts                   |
| 13738200 | 305096 | BOBOS00808A | 1588 Broadway, Raynham, Massachusetts                       |
| 13738203 | 10339  | BOBOS00810A | 678 Church Street, Raynham, Massachusetts                   |
| 13738206 | 310959 | BOBOS00817A | 153 Cranberry Highway, Rochester, Massachusetts             |
| 13734282 | 207270 | BOBOS00288A | 320 Pleasant Street, Rockland, Massachusetts                |
| 13738199 | 305035 | BOBOS00673A | 488R Highland Avenue, Salem, Massachusetts                  |
| 13742875 | 273378 | BOBOS00423A | 413 Rt 130, Sandwich, Massachusetts                         |
| 13734198 | 10340  | BOBOS00394A | 1010 Chief Justice Cushing Highway, Scituate, Massachusetts |
| 13741690 | 282810 | BOBOS01155A | 361 TILDEN RD, SCITUATE, Massachusetts                      |
| 13729506 | 16459  | BOBOS00103A | 45 Vineyard Road, Seekonk, Massachusetts                    |
| 13735664 | 207271 | BOBOS00280A | 212 Lake Street, Sherborn, Massachusetts                    |
| 13738202 | 305051 | BOBOS00674A | 16 Kendall Avenue, Sherborn, Massachusetts                  |
| 13735748 | 202086 | BOBOS00659A | 271 Spring Street, Shrewsbury, Massachusetts                |
| 13743636 | 91568  | BOBOS00688A | 800 Boston Turnpike, Shrewsbury, Massachusetts              |
| 13710032 | 371813 | BOBOS00118A | 3 Redemption Rock Trail, Sterling, Massachusetts            |
| 13741607 | 416056 | BOBOS00866A | 199 Raymond Rd., Sudbury, Massachusetts                     |
| 13870803 | 371774 | BOBOS00013D | 142 North Road, Sudbury, Massachusetts                      |
| 13743641 | 305009 | BOBOS00733A | 7 Kamaitas Road, Sutton, Massachusetts                      |
| 13743672 | 305014 | BOBOS00841A | 194 Stone School Road, Sutton, Massachusetts                |
| 13742886 | 5830   | BOBOS00427A | 28 Dana Street, Taunton, Massachusetts                      |
| 13729513 | 388560 | BOBOS00122A | 89 Progress Avenue, Tyngsboro, Massachusetts                |
| 13743680 | 305104 | BOBOS00845A | 87 Adams St., Upton, Massachusetts                          |
| 13743669 | 305110 | BOBOS00838A | 70 Quaker Street, Uxbridge, Massachusetts                   |
| 13734219 | 275069 | BOBOS00601A | 110 Bear Hill, Waltham, Massachusetts                       |





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| 13737625 | 5810   | BOBOS00816A | Thatcher Street, Wareham, Massachusetts                |
| 13743683 | 274897 | BOBOS00851A | 0 Century Drive, West Boylston, Massachusetts          |
| 13749477 | 305068 | BOBOS00664B | 225 Rivermoor St., West Roxbury, Massachusetts         |
| 13682009 | 283067 | BOBDL00158A | 1201 Westfield Street, WEST SPRINGFIELD, Massachusetts |
| 13743698 | 9238   | BOBOS00878A | 972 Gilbert Road, West Warren, Massachusetts           |
| 13735736 | 305105 | BOBOS00637A | 25 Brigham Street, Westborough, Massachusetts          |
| 13743638 | 282319 | BOBOS00690A | 50 SMITH VALVE PKWY, WESTBOROUGH, Massachusetts        |
| 13734203 | 305034 | BOBOS00392A | 8 Nixon Rd., Westford, Massachusetts                   |
| 13734284 | 274896 | BOBOS00334B | 19 Oak Street, Weston, Massachusetts                   |
| 13735662 | 305041 | BOBOS00110A | 0 Nonesuch Road, Weston, Massachusetts                 |
| 13742877 | 91559  | BOBOS00425A | 251 State Road, Westport, Massachusetts                |
| 13729511 | 371818 | BOBOS00120A | 611 Pleasant Street, Weymouth, Massachusetts           |
| 13735271 | 305028 | BOBOS00627A | 106 Finnell Dr., Weymouth, Massachusetts               |
| 13735303 | 282706 | BOBOS00645A | 10 Presidential Way, Woburn, Massachusetts             |
| 13772775 | 305060 | BOBOS01068A | Green Street, Wrentham, Massachusetts                  |
| 13741478 | 15136  | BOBOS00443A | 73 State Route 111, Atkinson, New Hampshire            |
| 13743271 | 91575  | BOBOS00457A | 437 Patten Hill Road, Candia, New Hampshire            |
| 13743029 | 306604 | BOBOS00446A | 359 Chester Street, Chester, New Hampshire             |
| 13743257 | 373098 | BOBOS00449A | 50 Town Dump Road, Chester, New Hampshire              |
| 13743267 | 88065  | BOBOS00455A | 674 Haverhill Road, Chester, New Hampshire             |
| 13743035 | 373099 | BOBOS00450A | 203 Haverhill Road, East Kingston, New Hampshire       |
| 13738226 | 91574  | BOBOS00768A | 49 Shirking Road, Epping, New Hampshire                |
| 13743263 | 373114 | BOBOS00453A | 7 CONTINENTAL DRIVE, Exeter, New Hampshire             |
| 13738179 | 373094 | BOBOS00781A | 789 Main Street, Fremont, New Hampshire                |
| 13743264 | 413027 | BOBOS00454A | 169 HAYDEN ROAD, HOLLIS, New Hampshire                 |
| 13741480 | 15138  | BOBOS00444A | 36 Depot Road, Kingston, New Hampshire                 |
| 13738183 | 273268 | BOBOS00785A | 242 New Derry Rd, Litchfield, New Hampshire            |
| 13738224 | 373116 | BOBOS00705A | 94 STONEHEDGE ROAD, Londonderry, New Hampshire         |
| 13743269 | 88069  | BOBOS00456A | 187A Pillsbury Road, Londonderry, New Hampshire        |
| 13738211 | 91571  | BOBOS00683A | 20 Daniel Webster Highway, Merrimack, New Hampshire    |
| 13741468 | 10304  | BOBOS00441A | 211 Ford Farm Road, Milton, New Hampshire              |
| 13743256 | 311757 | BOBOS00448A | 61 Old Coach Road, New Boston, New Hampshire           |
| 13743258 | 373101 | BOBOS00451A | 85 South Main Street, Newton, New Hampshire            |
| 13743031 | 311755 | BOBOS00447A | 34 Tower Hill Road, Pelham, New Hampshire              |
| 13741470 | 15134  | BOBOS00442A | 36 Cross Road, Rochester, New Hampshire                |
| 13743027 | 240696 | BOBOS00445A | 40 Jessie Doe Road, Rollinsford, New Hampshire         |
| 13743259 | 373102 | BOBOS00452A | 393 Main Street, Sandown, New Hampshire                |



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| 13714952  | 307060 | SYSYR00023A | 200 Irwin Road, Buffalo, New York                            |
| 13767336  | 415364 | SYSYR00507B | 183 Saltonstall Street, Canandaigua, New York                |
| 13702046  | 373349 | ALALB00011A | 75 Van Dyke Road, Delmar, New York                           |
| 13973540  | 392593 | SYSYR00038A | 571 Main Street, East Aurora, New York                       |
| 13752077  | 413141 | SYSYR00517B | 91 Railroad Ave, Hamlin, New York                            |
| 13713785  | 16467  | SYSYR00015A | 3181 Southwestern Blvd, Orchard Park, New York               |
| 13714492  | 414560 | SYSYR00061A | 4248 S. Taylor Road, Orchard Park, New York                  |
| 13870807  | 91916  | SYSYR00081A | County Route 6 and Fox Dr, Phoenix, New York                 |
| 13712307  | 413140 | SYSYR00407A | 3830 Monroe Avenue, Pittsford, New York                      |
| 13704766  | 91936  | ALALB00020A | 1245 Kings Road, SCHENECTADY, New York                       |
| OAA745429 | 280868 | 0190112-A   | 10790 Taylors Store Rd, Nashville, North Carolina            |
| 13741714  | 91582  | BOBOS00881A | 395 Woodville Road, Ashaway, Rhode Island                    |
| 13738163  | 91983  | BOBOS00662A | 99 Tupelo Street, Bristol, Rhode Island                      |
| 13743277  | 308765 | BOBOS00586B | 6 Minturn Farm Road, Bristol, Rhode Island                   |
| 13742900  | 281265 | BOBOS00899A | 1380 Putnam Pike, CHEPACHET, Rhode Island                    |
| 13735691  | 374117 | BOBOS00522A | 149 Laten Knight Road, Cranston, Rhode Island                |
| 13738222  | 374136 | BOBOS00697A | 1000 New London Avenue, Cranston, Rhode Island               |
| 13735296  | 374138 | BOBOS00642A | 500 Veterans Memorial Parkway, East Providence, Rhode Island |
| 13738188  | 308768 | BOBOS00672A | 1 Dexter Road, East Providence, Rhode Island                 |
| 13742895  | 1031   | BOBOS00677A | 2 Sunderland Road, Exeter, Rhode Island                      |
| 13741622  | 374114 | BOBOS00898A | 2185 Putnam Pike, Glocester, Rhode Island                    |
| 13743044  | 308772 | BOBOS00519A | 1677 Maple Valley Road, Greene, Rhode Island                 |
| 13774131  | 91984  | BOBOS00518B | 2612 Victory Hwy, Harrisville, Rhode Island                  |
| 13737644  | 91985  | BOBOS00650A | 74 Maria Ave., JOHNSTON, Rhode Island                        |
| 13738150  | 273282 | BOBOS00654A | 32 Breakneck Hill Road, Lincoln, Rhode Island                |
| 13735720  | 6350   | BOBOS00525A | 1230 Chopmist Hill Rd. Rt. 102, North Scituate, Rhode Island |
| 13743039  | 308766 | BOBOS00517A | 316 South Main St., Pascoag, Rhode Island                    |
| 13738157  | 91581  | BOBOS00661A | 10 Dunnell Lane, Pawtucket, Rhode Island                     |
| 13741493  | 91584  | BOBOS00836A | 205 Farnum Pike, Smithfield, Rhode Island                    |
| 14049070  | 308759 | BOBOS00587C | 2935 Tower Hill Road, South Kingstown, Rhode Island          |
| 13738210  | 374137 | BOBOS00828A | 408 Stafford Road, Tiverton, Rhode Island                    |
| 13738221  | 91986  | BOBOS00696A | 15 New Industrial Road, Warren, Rhode Island                 |
| 13743273  | 308757 | BOBOS00584B | 289 Kilvert Street, Warwick, Rhode Island                    |
| 13735687  | 374115 | BOBOS00521A | 244 Plain Road, West Greenwich, Rhode Island                 |
| 13735723  | 91578  | BOBOS00583A | 830 Nooseneck Hill Road, West Greenwich, Rhode Island        |
| 13735700  | 374133 | BOBOS00524A | 226C Cowesett Avenue, West Warwick, Rhode Island             |
| 13735726  | 91579  | BOBOS00585B | 195 J.P. Murphy Highway, West Warwick, Rhode Island          |



**AMERICAN TOWER®**  
CORPORATION

|          |        |             |   |
|----------|--------|-------------|---|
| 13742891 | 207962 | BOBOS00552A | 37 Laurel Avenue, Westerly, Rhode Island                    |
| 13735695 | 374119 | BOBOS00523A | 9 New Kings Factory Road, Wood River Junction, Rhode Island |

Signature: \_\_\_\_\_

Margaret Robinson, Senior Counsel  
US Tower Division

**NOTARY BLOCK**

COMMONWEALTH OF MASSACHUSETTS  
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel of American Tower (owner and/or operator of the above referenced Tower Facilities), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 24th day of March, 2022.

NOTARY SEAL



**GERARD T. HEFFRON**  
Notary Public  
Commonwealth of Massachusetts  
My Commission Expires  
August 9, 2024

Notary Public Gerard T. Heffron  
My Commission Expires: August 9th, 2024

\* American Tower as used herein is defined as American Tower Corporation and any of its affiliates or subsidiaries.



necog

Necog GIS Site

This tower was originally approved by the Hampton Planning & Zoning Commission on March 22, 1999.



Legend

- Town
- Buildings 2012
- Parcels

1: 9,028



0.3 0 0.14 0.3 Miles

WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere  
© Latitude Geographics Group Ltd.

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Notes

Enter Map Description

Property Location: 185 WEST FISK RD #CELL

MAP ID: 2-9/ 25/ 28/ CELL/

Bldg Name:

State Use: 200

Vision ID: 1222

Account #00033701

Bldg #: 1 of 1

Sec #: 1 of 1 Card 1 of 1

Print Date: 04/16/2021 17:53

| CURRENT OWNER       |  | TOPO.             | UTILITIES | STRT./ROAD | LOCATION | CURRENT ASSESSMENT                         |      |                 |                |                     |
|---------------------|--|-------------------|-----------|------------|----------|--|------|-----------------|----------------|---------------------|
| AMERICAN TOWER CORP |  |                   |           |            |          | Description                                | Code | Appraised Value | Assessed Value | 6063<br>HAMPTON, CT |
| P.O. BOX 723597     |  |                   |           |            |          | COM OUTBL                                  | 2-5  | 171,900         | 120,330        |                     |
| ATLANTA, GA 31139   |  |                   |           |            |          | VAC CM LN                                  | 5-2  | 648,000         | 453,600        |                     |
| Additional Owners:  |  | SUPPLEMENTAL DATA |           |            |          | <b>VISION</b>                              |      |                 |                |                     |
| Other ID: 00033701  |  | DV Lot #          |           | EASEMENT#  |          |  |      |                 |                |                     |
| Census Tr. Survey # |  | 490 PENALTY       |           | DEV RIGHTS |          | <b>Total</b> <b>819,900</b> <b>573,930</b> |      |                 |                |                     |
| DV Map #            |  | ASSOC PID#        |           |            |          |  |      |                 |                |                     |
| GIS ID:             |  |                   |           |            |          |  |      |                 |                |                     |

| RECORD OF OWNERSHIP |  | BK-VOL/PAGE | SALE DATE  | q/u | v/i | SALE PRICE | V.C. | PREVIOUS ASSESSMENTS (HISTORY) |      |                |               |      |                |               |      |                |
|---------------------|--|-------------|------------|-----|-----|------------|------|--------------------------------|------|----------------|---------------|------|----------------|---------------|------|----------------|
| AMERICAN TOWER CORP |  | 000/ 000    | 10/01/2008 | U   | V   | 0          |      | Yr.                            | Code | Assessed Value | Yr.           | Code | Assessed Value | Yr.           | Code | Assessed Value |
|                     |  |             |            |     |     |            |      | 2020                           | 2-5  | 120,330        | 2019          | 2-5  | 120,330        | 2018          | 2-5  | 120,330        |
|                     |  |             |            |     |     |            |      | 2020                           | 5-2  | 453,600        | 2019          | 5-2  | 453,600        | 2018          | 5-2  | 453,600        |
|                     |  |             |            |     |     |            |      | <b>Total:</b>                  |      | <b>573,930</b> | <b>Total:</b> |      | <b>573,930</b> | <b>Total:</b> |      | <b>573,930</b> |

| EXEMPTIONS    |      |             |        | OTHER ASSESSMENTS |             |        |        | This signature acknowledges a visit by a Data Collector or Assessor |  |  |  |  |
|---------------|------|-------------|--------|-------------------|-------------|--------|--------|---|--|--|--|--|
| Year          | Type | Description | Amount | Code              | Description | Number | Amount | Comm. Int.  |  |  |  |  |
| <b>Total:</b> |      |             |        |                   |             |        |        |   |  |  |  |  |

| ASSESSING NEIGHBORHOOD   |           |                   |         |       | APPRAISED VALUE SUMMARY                 |  |  |  |                |
|--|-----------|-------------------|---------|-------|---|--|--|--|----------------|
| NBHD/ SUB  | NBHD Name | Street Index Name | Tracing | Batch |   |  |  |  |                |
| 0001/A   |           |                   |         |       |   |  |  |  |                |
| NOTES  |           |                   |         |       | Appraised Bldg. Value (Card)            |  |  |  | 0              |
| PARCEL CREATED FOR 08' REVALUATION<br><br>4 SITES@1500/MONTH<br>4 X 1500=6000 X 12=72000<br>72000-7200(10%EXP)=64,800<br>64,800/.1 CAP=\$648,000 |           |                   |         |       | Appraised XF (B) Value (Bldg)           |  |  |  | 0              |
|  |           |                   |         |       | Appraised OB (L) Value (Bldg)           |  |  |  | 171,900        |
|  |           |                   |         |       | Appraised Land Value (Bldg)             |  |  |  | 648,000        |
|  |           |                   |         |       | Special Land Value                      |  |  |  | 0              |
|  |           |                   |         |       | Total Appraised Parcel Value            |  |  |  | 819,900        |
|  |           |                   |         |       | Valuation Method:                       |  |  |  | C              |
|  |           |                   |         |       | Adjustment:                             |  |  |  | 0              |
|  |           |                   |         |       | <b>Net Total Appraised Parcel Value</b> |  |  |  | <b>819,900</b> |

| BUILDING PERMIT RECORD |            |      |             |        |            |         |            |                   | VISIT/ CHANGE HISTORY |      |    |    |     |                |
|------------------------|------------|------|-------------|--------|------------|---------|------------|-------------------|-----------------------|------|----|----|-----|----------------|
| Permit ID              | Issue Date | Type | Description | Amount | Insp. Date | % Comp. | Date Comp. | Comments          | Date                  | Type | IS | ID | Cd. | Purpose/Result |
| 5553                   | 01/18/2020 | OT   | TELECOM     | 20,000 |            | 1       |            |                   | 06/26/2018            |      |    | JW | 09  | Review         |
| 3528                   | 09/13/2012 | OT   | Other       | 15,000 | 05/22/2013 | 100     | 10/01/2012 | REPLACE 12 ANTENN | 05/22/2013            |      |    | JW | 09  | Review         |

| LAND LINE VALUATION SECTION |          |                   |      |   |       |       |       |            |           |      |           |           |         |      |              |                 |            |                 |            |
|-----------------------------|----------|-------------------|------|---|-------|-------|-------|------------|-----------|------|-----------|-----------|---------|------|--------------|-----------------|------------|-----------------|------------|
| B #                         | Use Code | Use Description   | Zone | D | Front | Depth | Units | Unit Price | I. Factor | S.A. | Acre Disc | C. Factor | ST. Idx | Adj. | Notes- Adj   | Special Pricing | S Adj Fact | Adj. Unit Price | Land Value |
|                             |          |                   |      |   |       |       |       |            |           |      |           |           |         |      | Spec Use     | Spec Calc       |            |                 |            |
| 1                           | 200      | Commercial Vacant |      |   |       |       | 1 SF  | 648,000.00 | 1.0000    | 0    | 1.0000    | 1.00      |         | 0.00 | 4 CELL SITES |                 |            | 1.00            | 648,000    |

Total Card Land Units: 0.00 AC Parcel Total Land Area: 0 AC Total Land Value: 648,000

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

Dish Wireless Existing Facility

Site ID: BOBOS00894A

BOBOS00894A  
185 Fisk Road  
Hampton, Connecticut 06247

**February 8, 2022**

**EBI Project Number: 6222000525**

| Site Compliance Summary   |                  |
|---|------------------|
| Compliance Status:  | <b>COMPLIANT</b> |
| Site total MPE% of<br>FCC general<br>population<br>allowable limit: | <b>26.82%</b>    |

February 8, 2022

Dish Wireless

Emissions Analysis for Site: BOBOS00894A - BOBOS00894A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **185 Fisk Road in Hampton, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 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 frequency bands 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 11 GHz frequency 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 Dish Wireless antenna facility located at 185 Fisk Road in Hampton, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 4 n66 channels (AWS Band - 2190 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 5) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative



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

- 6) The antennas used in this modeling are the Commscope FFVV-65B-R2 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the Commscope FFVV-65B-R2 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the Commscope FFVV-65B-R2 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline of the proposed antennas is 120 feet above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 9) All calculations were done with respect to uncontrolled / general population threshold limits.

## Dish Wireless Site Inventory and Power Data

|                     |                                   |                     |                                   |                     |                                   |
|---------------------|-----------------------------------|---------------------|-----------------------------------|---------------------|-----------------------------------|
| Sector:             | A                                 | Sector:             | B                                 | Sector:             | C                                 |
| Antenna #:          | I                                 | Antenna #:          | I                                 | Antenna #:          | I                                 |
| Make / Model:       | Commscope FFVV-65B-R2             | Make / Model:       | Commscope FFVV-65B-R2             | Make / Model:       | Commscope FFVV-65B-R2             |
| Frequency Bands:    | 600 MHz / 1900 MHz / 2190 MHz     | Frequency Bands:    | 600 MHz / 1900 MHz / 2190 MHz     | Frequency Bands:    | 600 MHz / 1900 MHz / 2190 MHz     |
| Gain:               | 17.55 dBd / 22.05 dBd / 22.05 dBd | Gain:               | 17.55 dBd / 22.05 dBd / 22.05 dBd | Gain:               | 17.55 dBd / 22.05 dBd / 22.05 dBd |
| Height (AGL):       | 120 feet                          | Height (AGL):       | 120 feet                          | Height (AGL):       | 120 feet                          |
| Channel Count:      | 12                                | Channel Count:      | 12                                | Channel Count:      | 12                                |
| Total TX Power (W): | 440 Watts                         | Total TX Power (W): | 440 Watts                         | Total TX Power (W): | 440 Watts                         |
| ERP (W):            | 4,956.89                          | ERP (W):            | 4,956.89                          | ERP (W):            | 4,956.89                          |
| Antenna AI MPE %:   | <b>1.75%</b>                      | Antenna BI MPE %:   | <b>1.75%</b>                      | Antenna CI MPE %:   | <b>1.75%</b>                      |

| Site Composite MPE %             |               |
|----------------------------------|---------------|
| Carrier                          | MPE %         |
| Dish Wireless (Max at Sector A): | 1.75%         |
| AT&T                             | 5.33%         |
| Verizon                          | 9.46%         |
| T-Mobile                         | 10.04%        |
| Nextel                           | 0.24%         |
| <b>Site Total MPE % :</b>        | <b>26.82%</b> |

| Dish Wireless MPE % Per Sector |               |
|--------------------------------|---------------|
| Dish Wireless Sector A Total:  | 1.75%         |
| Dish Wireless Sector B Total:  | 1.75%         |
| Dish Wireless Sector C Total:  | 1.75%         |
|                                |               |
| <b>Site Total MPE % :</b>      | <b>26.82%</b> |

| Dish Wireless Maximum MPE Power Values (Sector A)    |            |                         |               |   |                 |   |                  |
|--|------------|-------------------------|---------------|---|-----------------|---|------------------|
| Dish Wireless Frequency Band / Technology (Sector A) | # Channels | Watts ERP (Per Channel) | Height (feet) | Total Power Density ( $\mu\text{W}/\text{cm}^2$ ) | Frequency (MHz) | Allowable MPE ( $\mu\text{W}/\text{cm}^2$ ) | Calculated % MPE |
| Dish Wireless 600 MHz n71                            | 4          | 226.27                  | 120.0         | 2.50  | 600 MHz n71     | 400   | 0.63%            |
| Dish Wireless 1900 MHz n70                           | 4          | 506.48                  | 120.0         | 5.60  | 1900 MHz n70    | 1000  | 0.56%            |
| Dish Wireless 2190 MHz n66                           | 4          | 506.48                  | 120.0         | 5.60  | 2190 MHz n66    | 1000  | 0.56%            |
|  |            |                         |               |   |                 | <b>Total:</b>                               | <b>1.75%</b>     |

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

## Summary

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

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

| Dish Wireless Sector                          | Power Density Value (%) |
|---|-------------------------|
| Sector A:                                     | 1.75%                   |
| Sector B:                                     | 1.75%                   |
| Sector C:                                     | 1.75%                   |
| Dish Wireless<br>Maximum MPE %<br>(Sector A): | 1.75%                   |
|   |                         |
| Site Total:                                   | 26.82%                  |
|   |                         |
| Site Compliance Status:                       | <b>COMPLIANT</b>        |

The anticipated composite MPE value for this site assuming all carriers present is **26.82%** 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.

# INFINIGY

---

## MOUNT ANALYSIS REPORT

September 20, 2021

|                           |   |
|---------------------------|---|
| Dish Wireless Site Name   | BOBOS00894A   |
| Dish Wireless Site Number | BOBOS00894A   |
| Infinigy Job Number       | 1197-F0001-B  |
| Client                    | NSS/DISH  |
| Carrier                   | Dish Wireless   |
| Site Location             | 185 Fisk Road<br>Hampton, CT 06247<br>Windham County<br>41.7699 N NAD83<br>72.0706 W NAD83  |
| Mount Type                | 8.0 ft Sector Frames  |
| Mount Elevation           | 120.0 ft AGL  |
| Structural Usage Ratio    | 40.1  |
| <b>Overall Result</b>     | <b>Pass</b>   |
| <b>Notes:</b>             | <b>Tower information was not provided so Option 1 Mount was considered for the mount analysis and the DISH rad height was assumed to be the tower height.</b> |

The enclosed mount structural analysis has been performed in accordance with the 2018 Connecticut State Building Code (2015 IBC) based on an ultimate 3-second gust wind speed of 121 mph. The evaluation criteria and applicable codes are presented in the next section of this report.



**CONTENTS**

1. Introduction
2. Design/Analysis Parameters
3. Proposed Loading Configuration
4. Supporting Documentation
5. Results
6. Recommendations
7. Assumptions
8. Liability Waiver and Limitations
9. Calculations

## 1. INTRODUCTION

Infinigy performed a structural analysis on the Dish Wireless proposed telecommunication equipment supporting Sector Frames mounted to the existing structure located at the aforementioned address. All referenced supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using Risa-3D version 17.0.4 analysis software.

## 2. DESIGN/ANALYSIS PARAMETERS

|                                 |   |
|---------------------------------|---|
| Wind Speed                      | 121 mph (3-Second Gust)                         |
| Wind Speed w/ ice               | 50 mph (3-Second Gust) w/ 1.0" ice              |
| Code / Standard                 | TIA-222-H                                       |
| Adopted Code                    | 2018 Connecticut State Building Code (2015 IBC) |
| Risk Category                   | II  |
| Exposure Category               | C   |
| Topographic Category            | 1   |
| Calculated Crest Height         | 0 ft.   |
| Seismic Spectral Response       | $S_s = 0.185 \text{ g} / S_1 = 0.054 \text{ g}$ |
| Live Load Wind Speed            | 60 mph  |
| Man Live Load at Mid/End Points | 250 lbs   |
| Man Live Load at Mount Pipes    | 500 lbs   |

## 3. PROPOSED LOADING CONFIGURATION - 120.0 ft. AGL Sector Frames

| Antenna Centerline (ft) | Qty. | Appurtenance Manufacturers | Appurtenance Models |
|-------------------------|------|----------------------------|---------------------|
| 120.0                   | 3    | JMA WIRELESS               | MX08FRO665-21       |
|                         | 3    | FUJITSU                    | TA08025-B605        |
|                         | 3    | FUJITSU                    | TA08025-B604        |
|                         | 1    | RAYCAP                     | RDIDC-9181-PF-48    |

## 4. SUPPORTING DOCUMENTATION

|                             |   |
|-----------------------------|---|
| Proposed Loading            | Dish Wireless, Asset ID CT-ATC-T-10029, dated June 14, 2021 |
| Mount Manufacturer Drawings | Commscope Document # MTC3975083, dated March 17, 2021       |

## 5. RESULTS

| Components            | Capacity     | Pass/Fail   |
|-----------------------|--------------|-------------|
| Mount Pipes           | 25.7%        | Pass        |
| Horizontals           | 13.7%        | Pass        |
| Standoffs             | 40.1%        | Pass        |
| Connections           | 6.2%         | Pass        |
| <b>MOUNT RATING =</b> | <b>40.1%</b> | <b>Pass</b> |

Notes:

1. See additional documentation in Appendix for calculations supporting the capacity consumed and detailed mount connection calculations.

## 6. RECOMMENDATIONS

Infinigy recommends installing Dish Wireless's proposed equipment loading configuration on the mount at 120.0 ft. The installation shall be performed in accordance with the construction documents issued for this site.

Pradin Suinyal Magar  
Project Engineer II | **INFINIGY**



**7. ASSUMPTIONS**

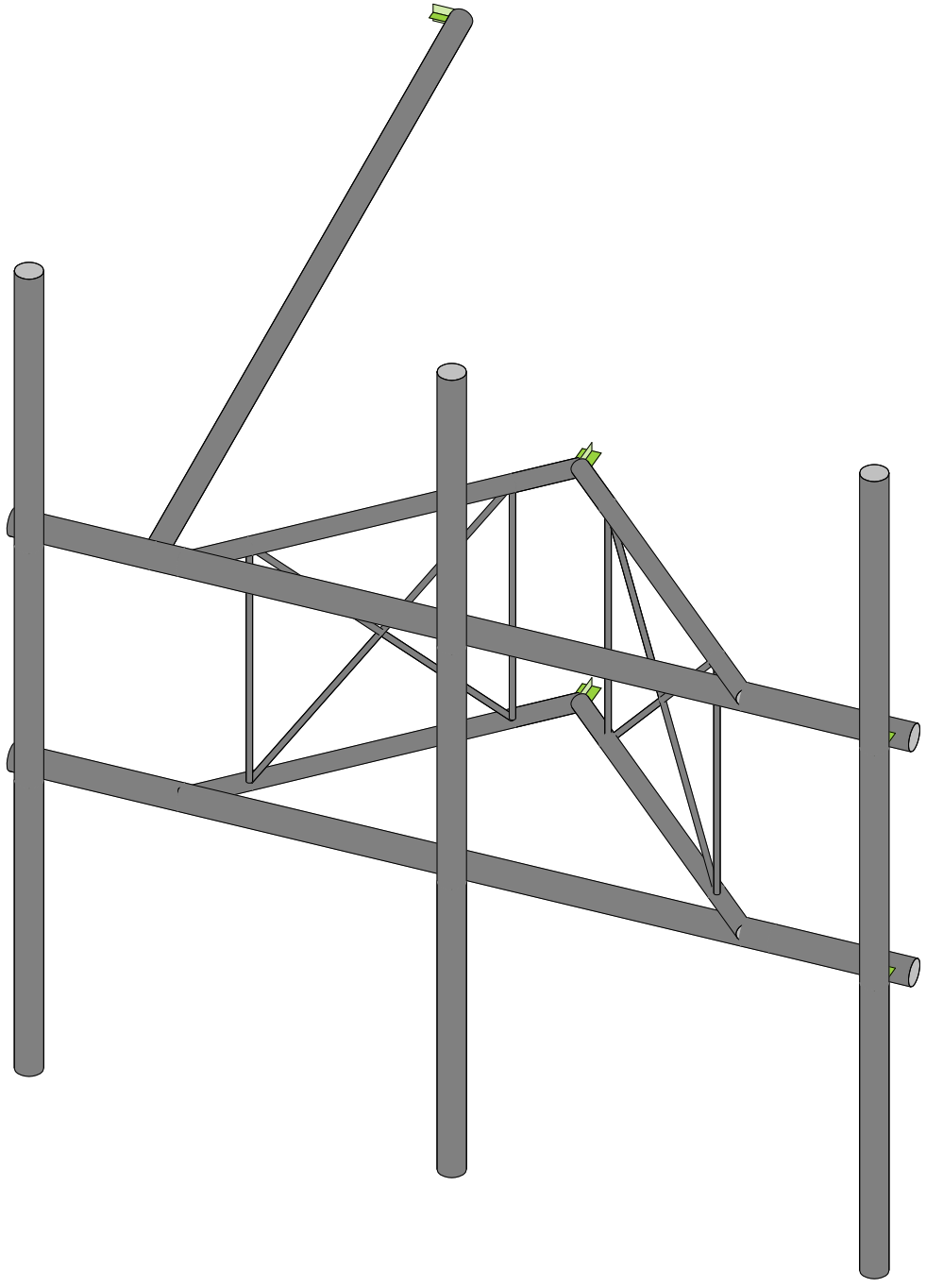
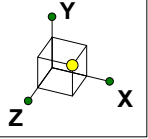
|   |                   |
|---|-------------------|
| The antenna mounting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.   |                   |
| The configuration of antennas, mounts, and other appurtenances are as specified in the proposed loading configuration table.  |                   |
| All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.  |                   |
| The analysis will require revisions if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members. |                   |
| Steel grades have been assumed as follows, unless noted otherwise:  |                   |
| Channel, Plate, Built-up Angle  | ASTM A1011 36 KSI |
| Solid Round   | ASTM A529 Gr 50   |
| Structural Angle  | ASTM A529 Gr. 50  |
| HSS (Rectangular)   | ASTM A500-B GR 46 |
| HSS (Circular)  | ASTM A500-B GR 42 |
| Pipe  | ASTM A500 Gr 46   |
| Connection Bolts  | ASTM A449         |
| U-Bolts   | ASTM A307         |
| All bolted connections are pretensioned in accordance with Table 8.2 of the RCSC 2014 Standard  |                   |

**8. LIABILITY WAIVER AND LIMITATIONS**

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

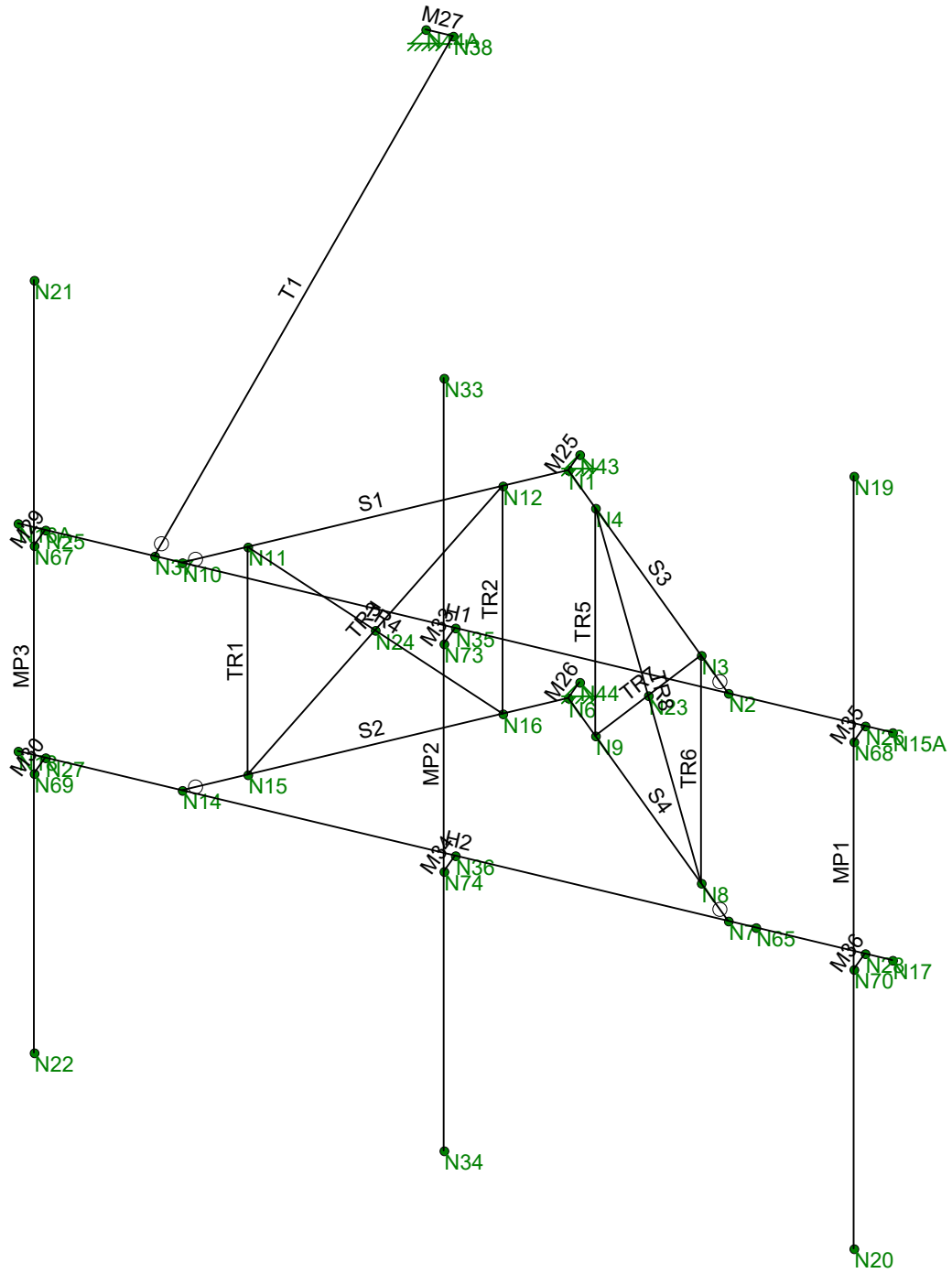
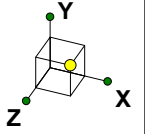
Our evaluation is completed using industry standard methods and procedures. The structural results, conclusions and recommendations contained in this report are proprietary and should not be used by others as their own. Infinigy is not responsible for decisions made by others that are or are not based on the stated assumptions and conclusions in this report.

This report is an evaluation of the mount structure only and does not determine the adequacy of the supporting structure, other carrier mounts or cable mounting attachments. The analysis of these elements is outside the scope of this analysis, are assumed to be adequate for the purpose of this report and to have been installed per their manufacturer requirements. This document is not for construction purposes.



Envelope Only Solution

|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Rendered                  |
| PSM                        |             | Sept 20, 2021 at 11:42 AM |
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Envelope Only Solution

Infinigy Engineering, PLLC

PSM

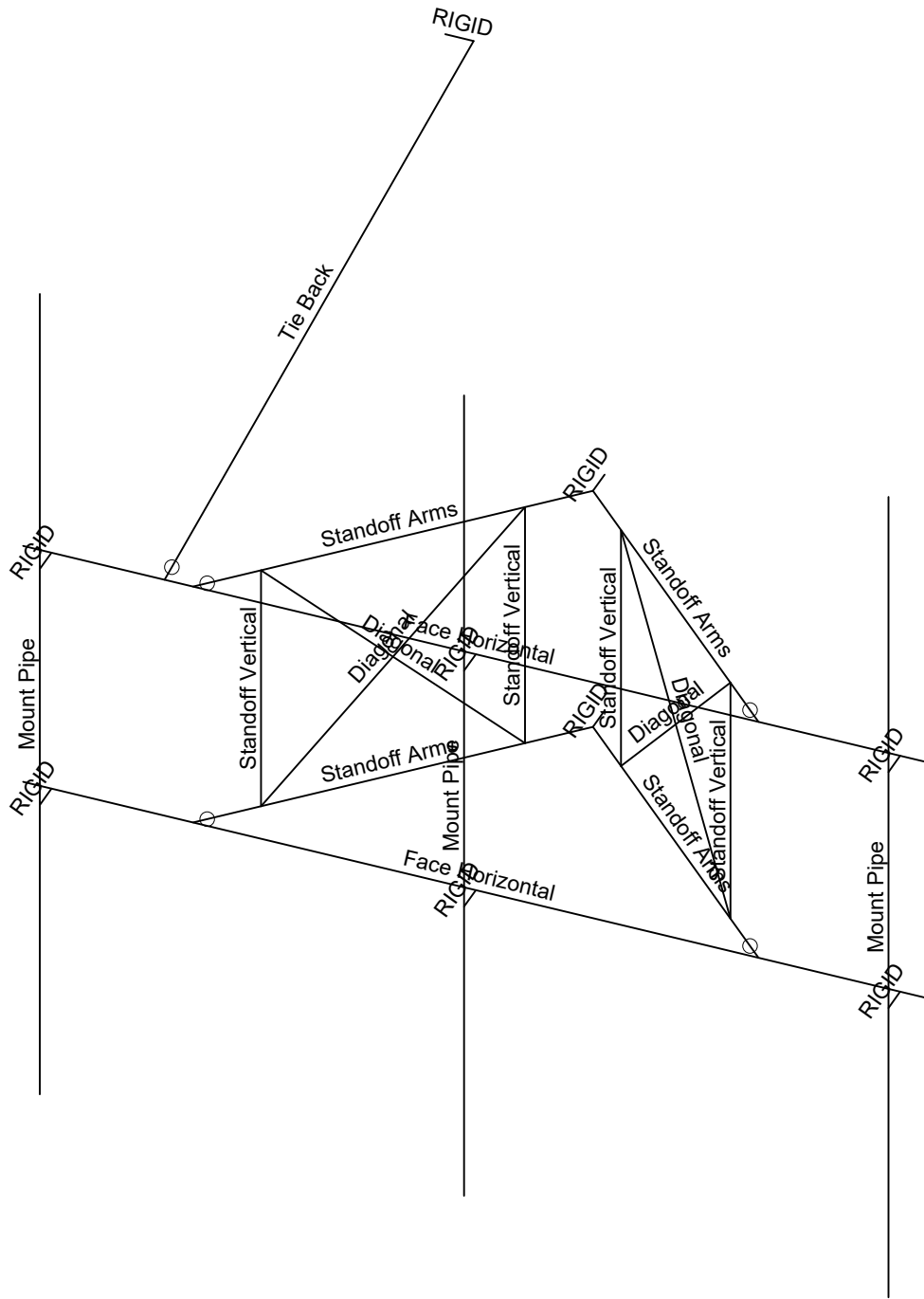
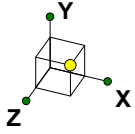
1197-F0001-B

BOBOS00894A

WireFrame

Sept 20, 2021 at 11:43 AM

BOBOS00894A\_loaded.r3d



Envelope Only Solution

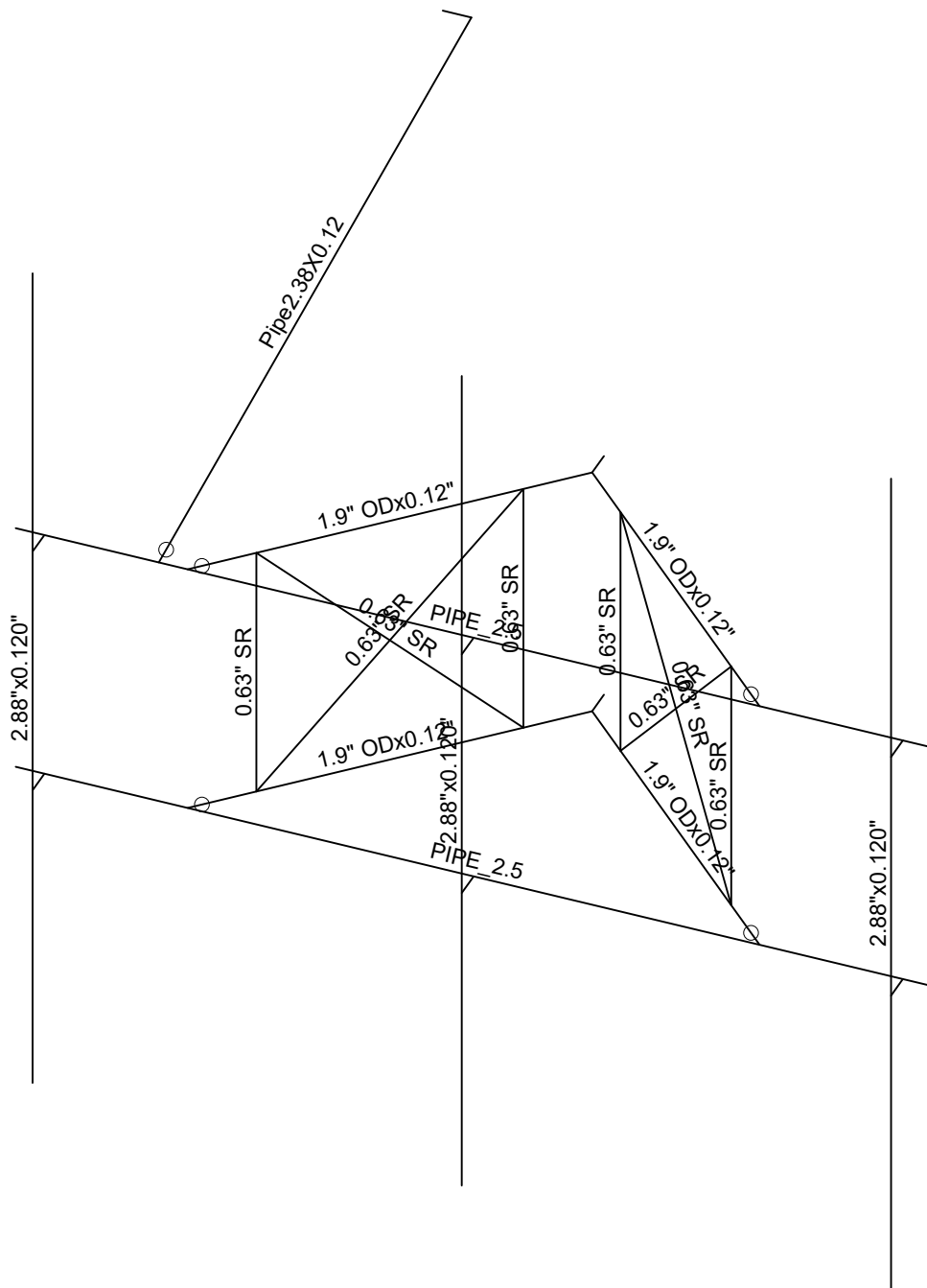
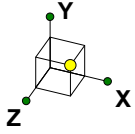
Infinigy Engineering, PLLC  
 PSM  
 1197-F0001-B

BOBOS00894A

Section Sets

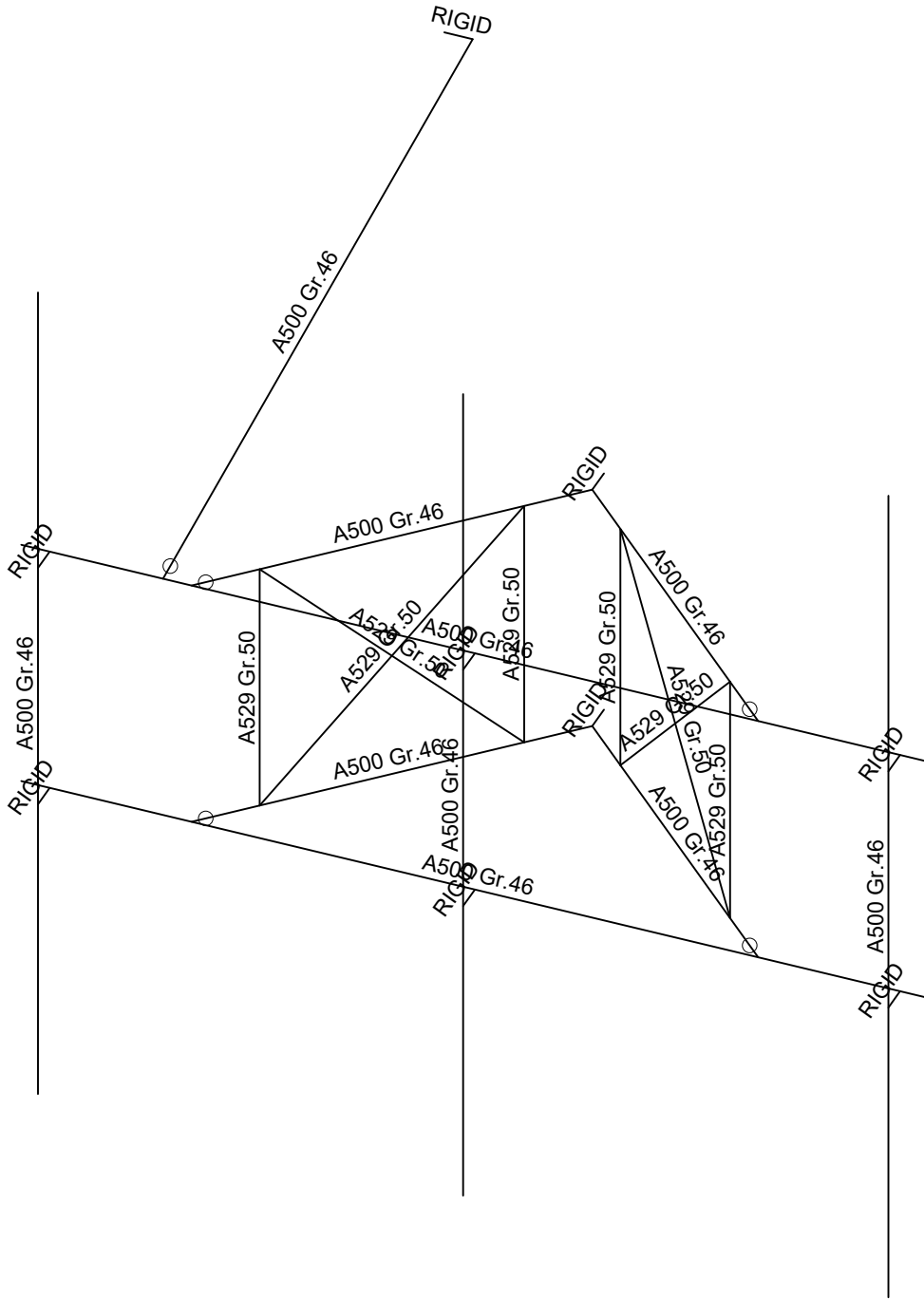
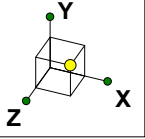
Sept 20, 2021 at 11:43 AM

BOBOS00894A\_loaded.r3d



Envelope Only Solution

|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Member Shapes             |
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Envelope Only Solution

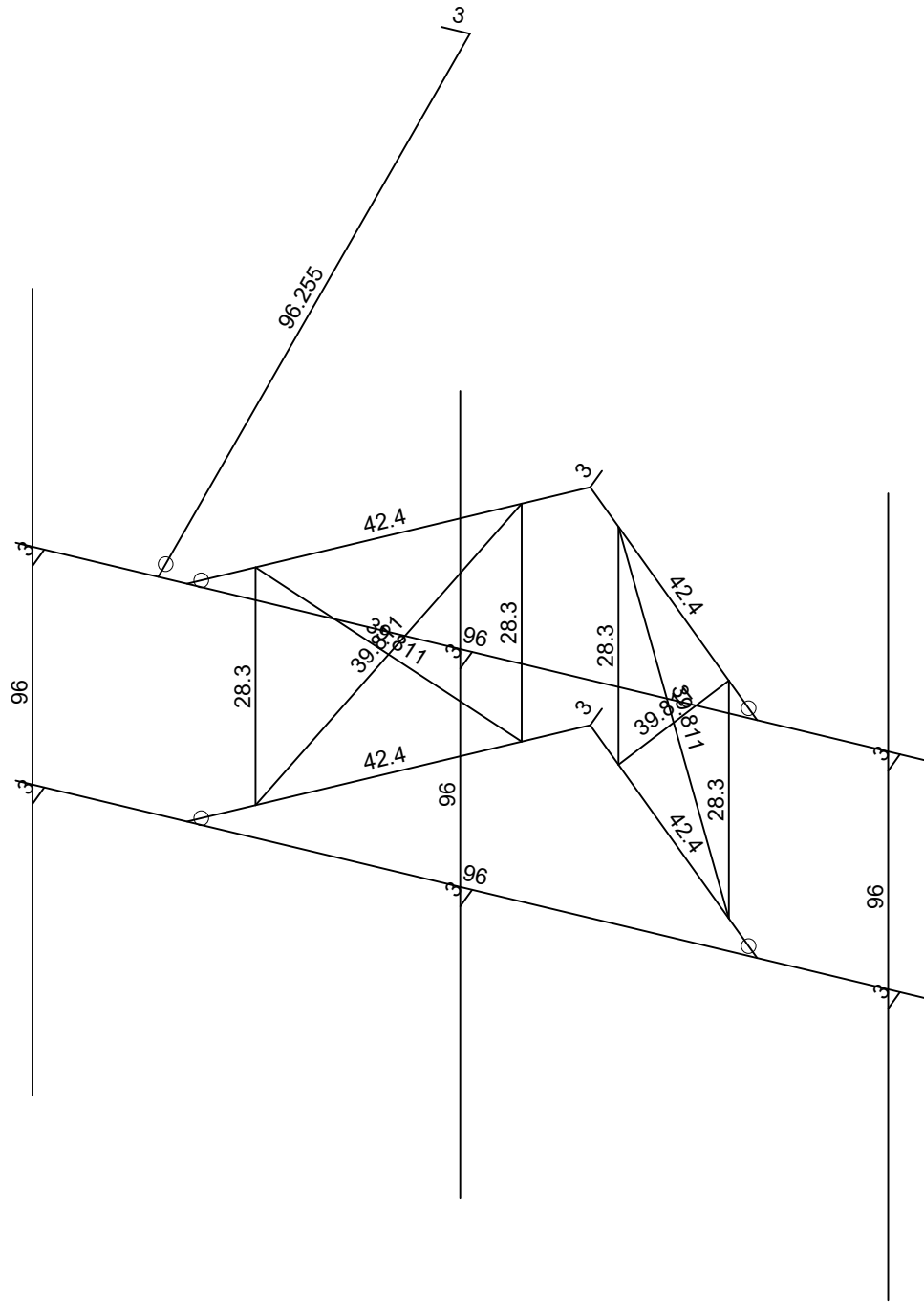
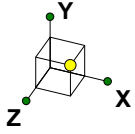
Infinigy Engineering, PLLC  
 PSM  
 1197-F0001-B

BOBOS00894A

Material Sets

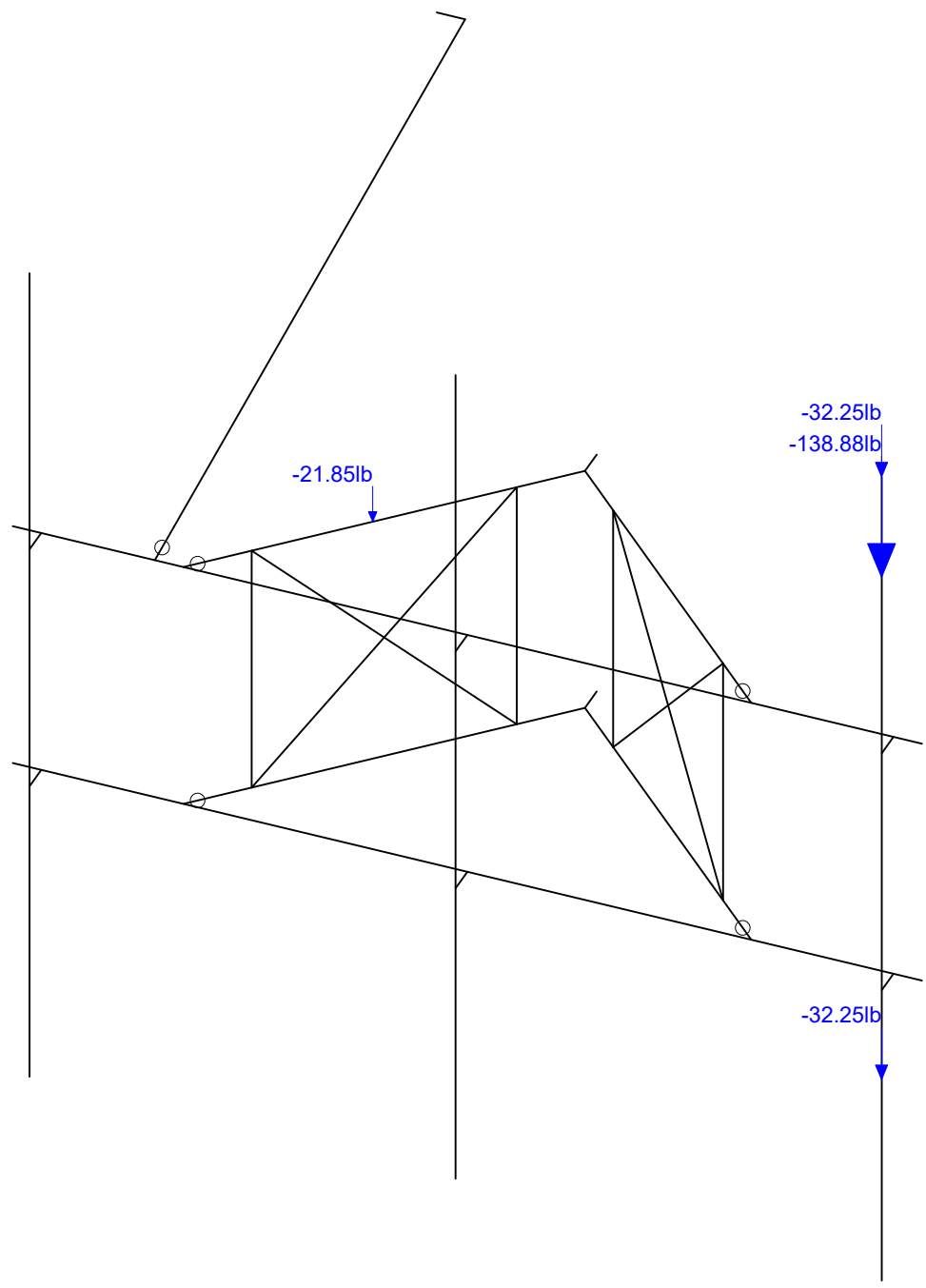
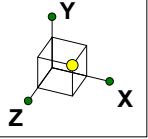
Sept 20, 2021 at 11:43 AM

BOBOS00894A\_loaded.r3d



Member Length (in) Displayed  
Envelope Only Solution

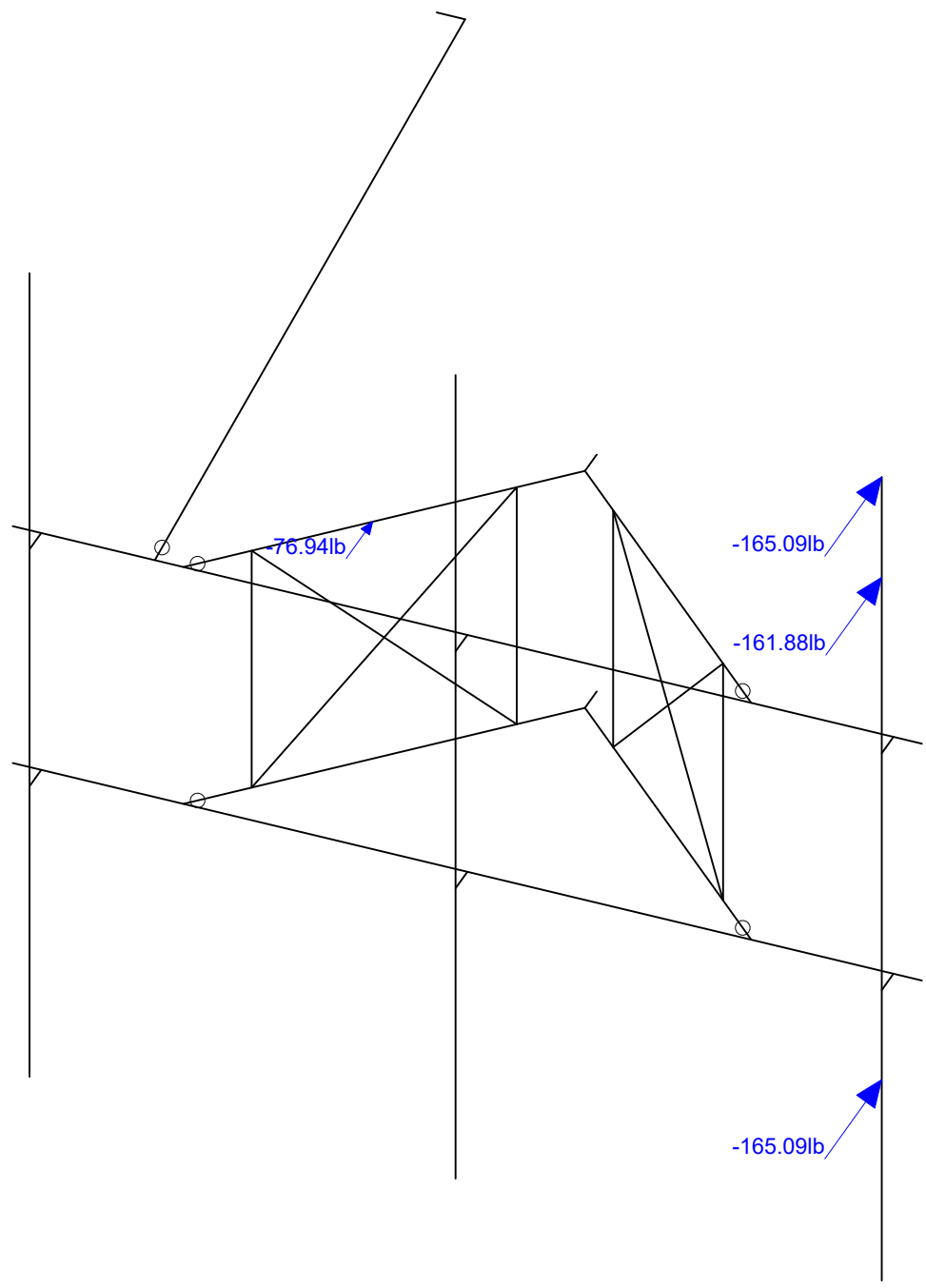
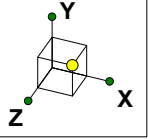
|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Member Lengths            |
| PSM                        |             | Sept 20, 2021 at 11:44 AM |
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Loads: BLC 1, Self Weight  
Envelope Only Solution

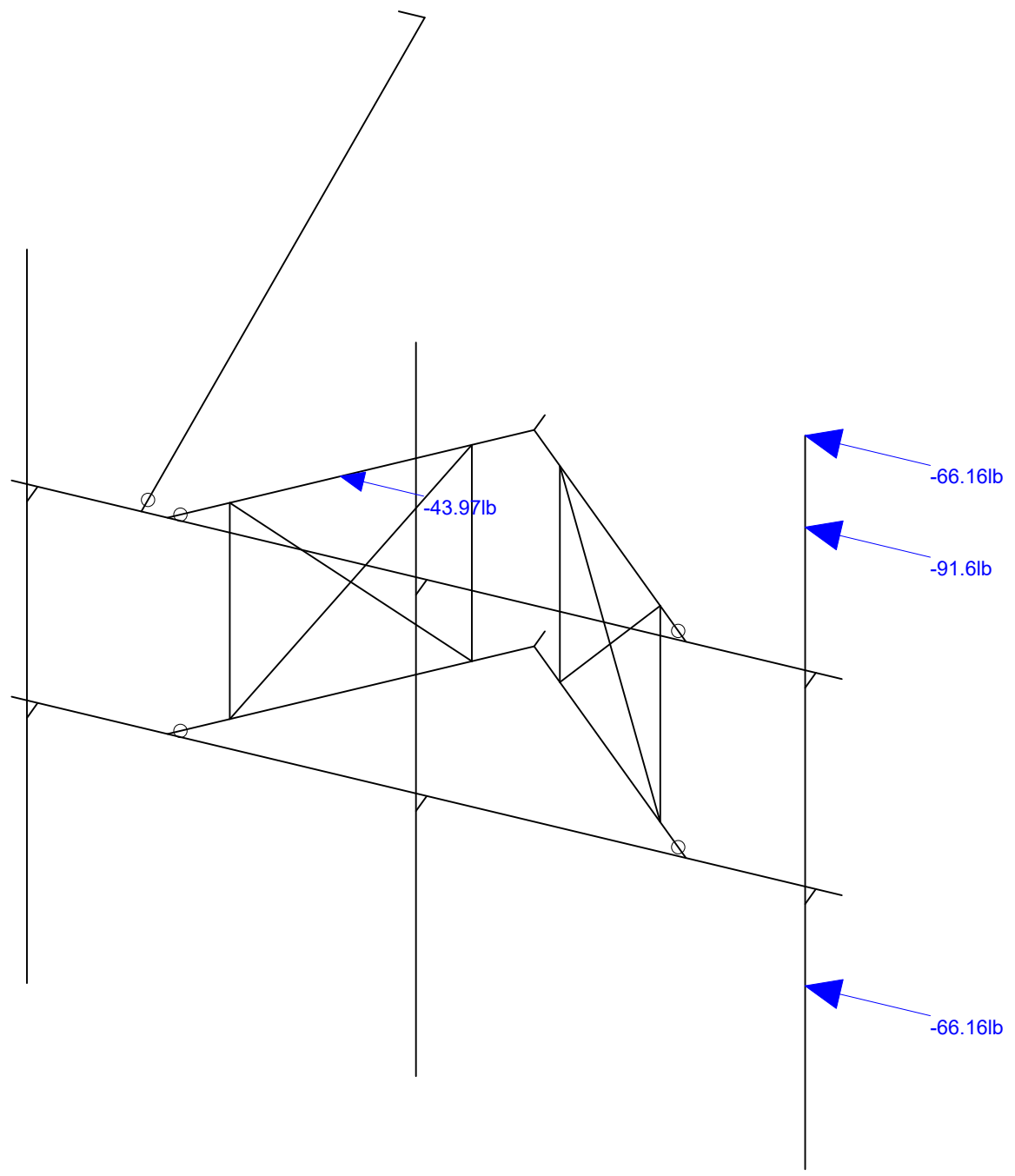
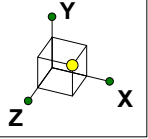
|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Self Weight               |
| PSM                        |             | Sept 20, 2021 at 11:45 AM |
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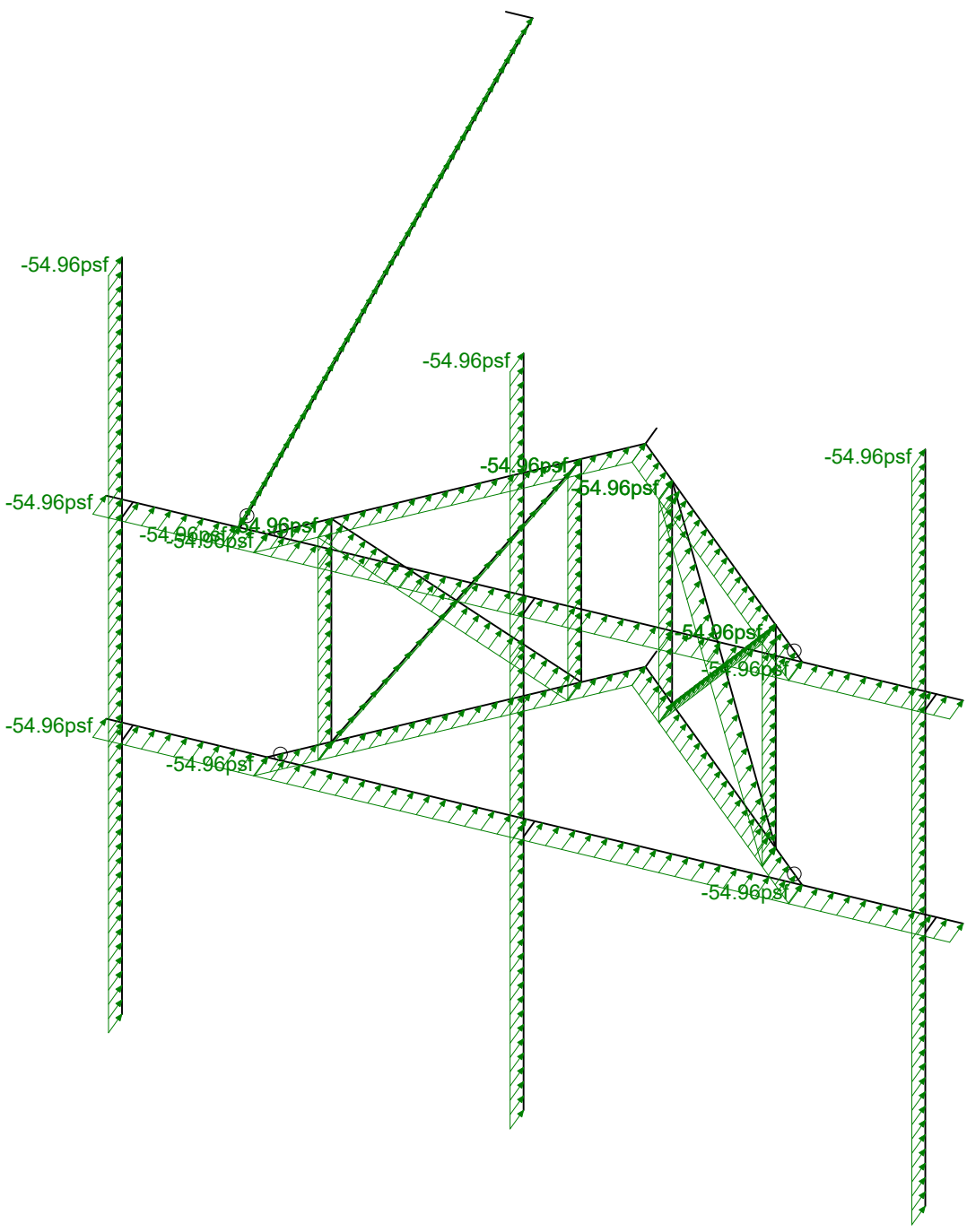
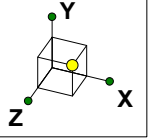
Loads: BLC 2, Wind Load AZI 0  
Envelope Only Solution

|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Wind Load AZI 000         |
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| 1197-F0001-B               |             | BOBOS00894A_loaded.r3d    |



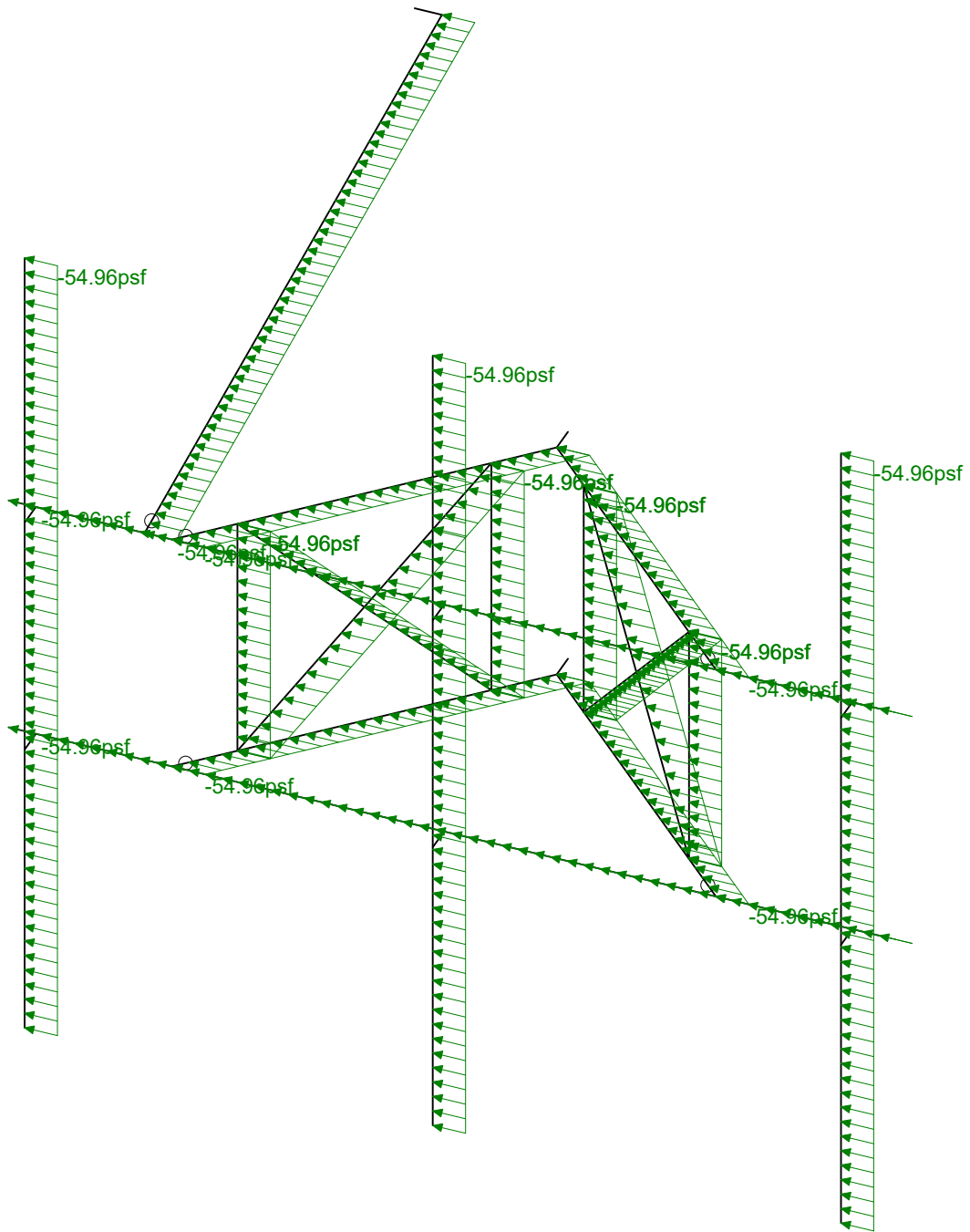
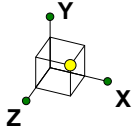
Loads: BLC 5, Wind Load AZI 90  
Envelope Only Solution

|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Wind Load AZI 090         |
| PSM                        |             | Sept 20, 2021 at 11:45 AM |
| 1197-F0001-B               |             | BOBOS00894A_loaded.r3d    |



Loads: BLC 14, Distr. Wind Load Z  
Envelope Only Solution

|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Distr Wind Load AZI 000   |
| PSM                        |             | Sept 20, 2021 at 11:46 AM |
| 1197-F0001-B               |             | BOBOS00894A_loaded.r3d    |



Loads: BLC 15, Distr. Wind Load X  
Envelope Only Solution

Infinigy Engineering, PLLC

PSM

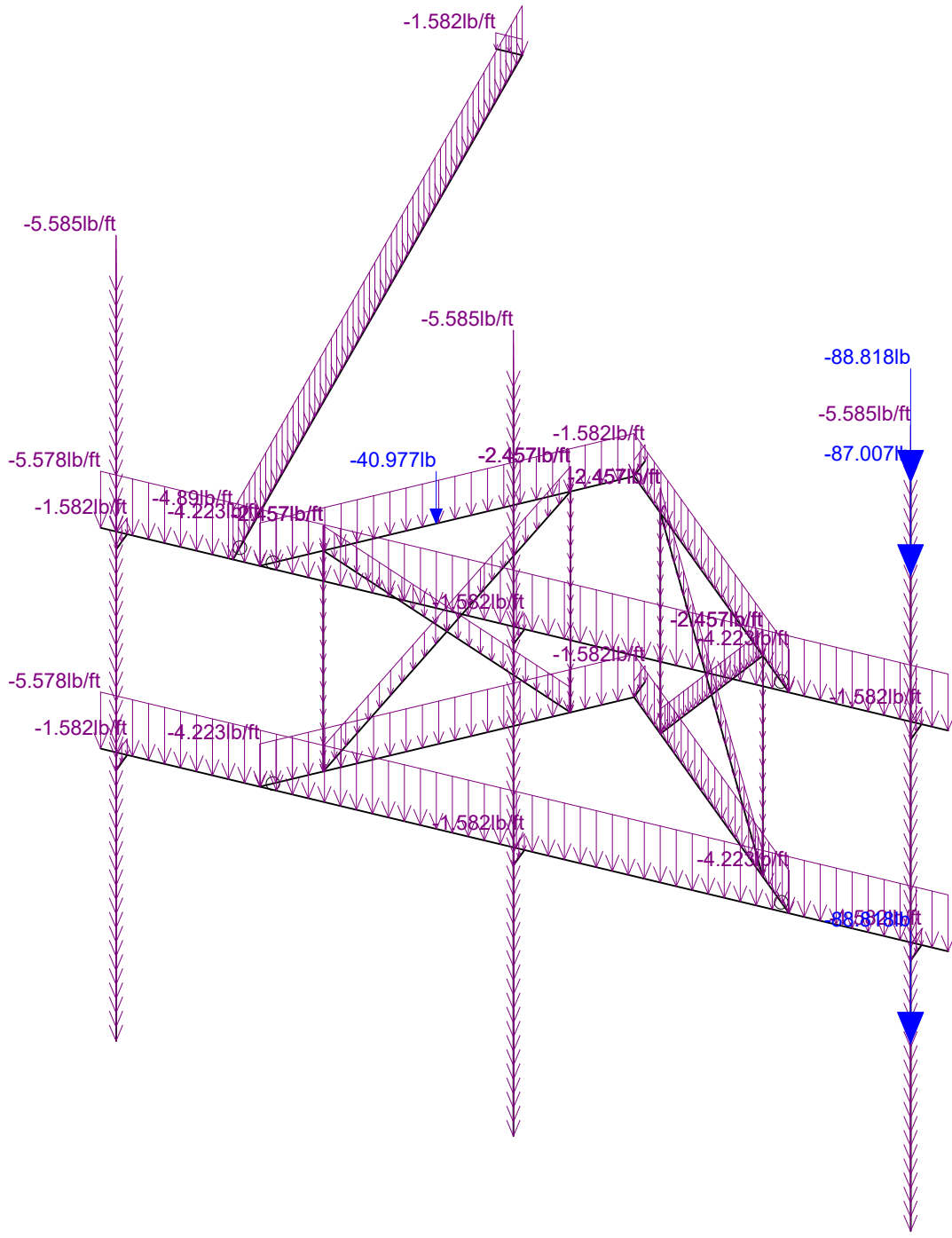
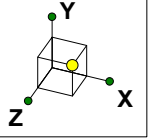
1197-F0001-B

BOBOS00894A

Distr Wind Load AZI 090

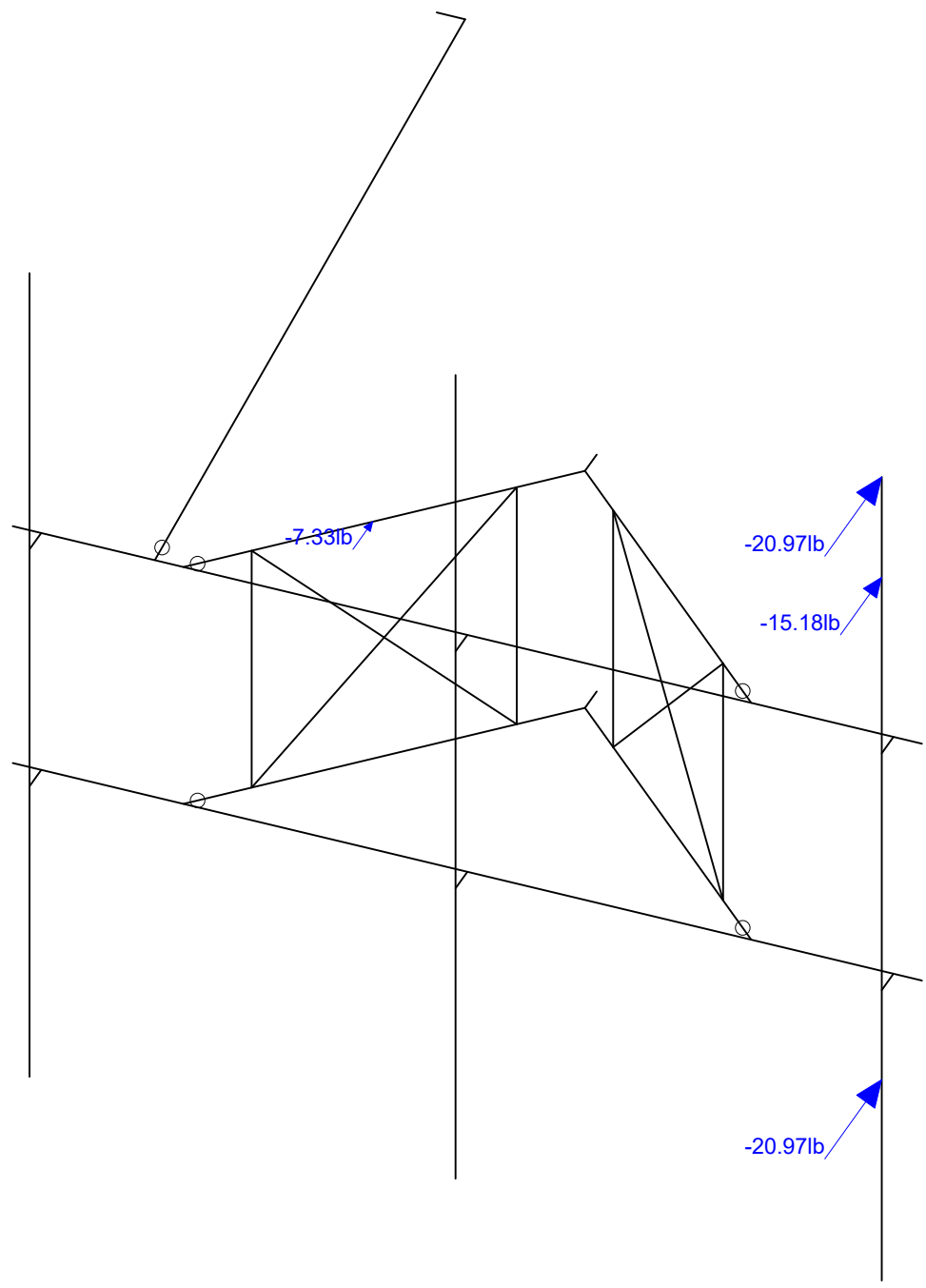
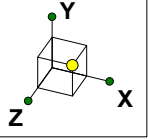
Sept 20, 2021 at 11:46 AM

BOBOS00894A\_loaded.r3d



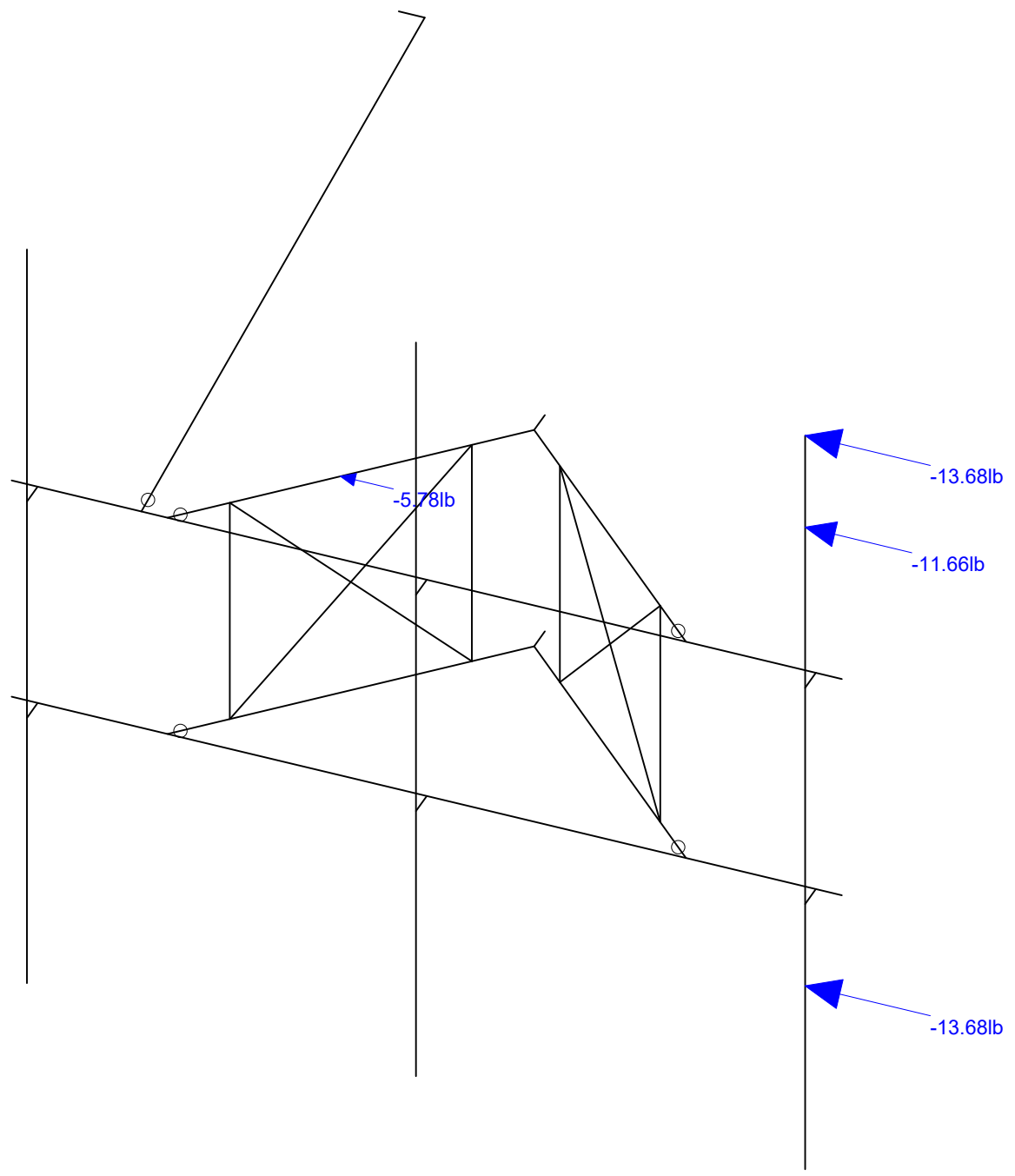
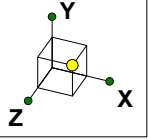
Loads: BLC 16, Ice Weight  
Envelope Only Solution

|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Ice Weight                |
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| 1197-F0001-B               |             | BOBOS00894A_loaded.r3d    |



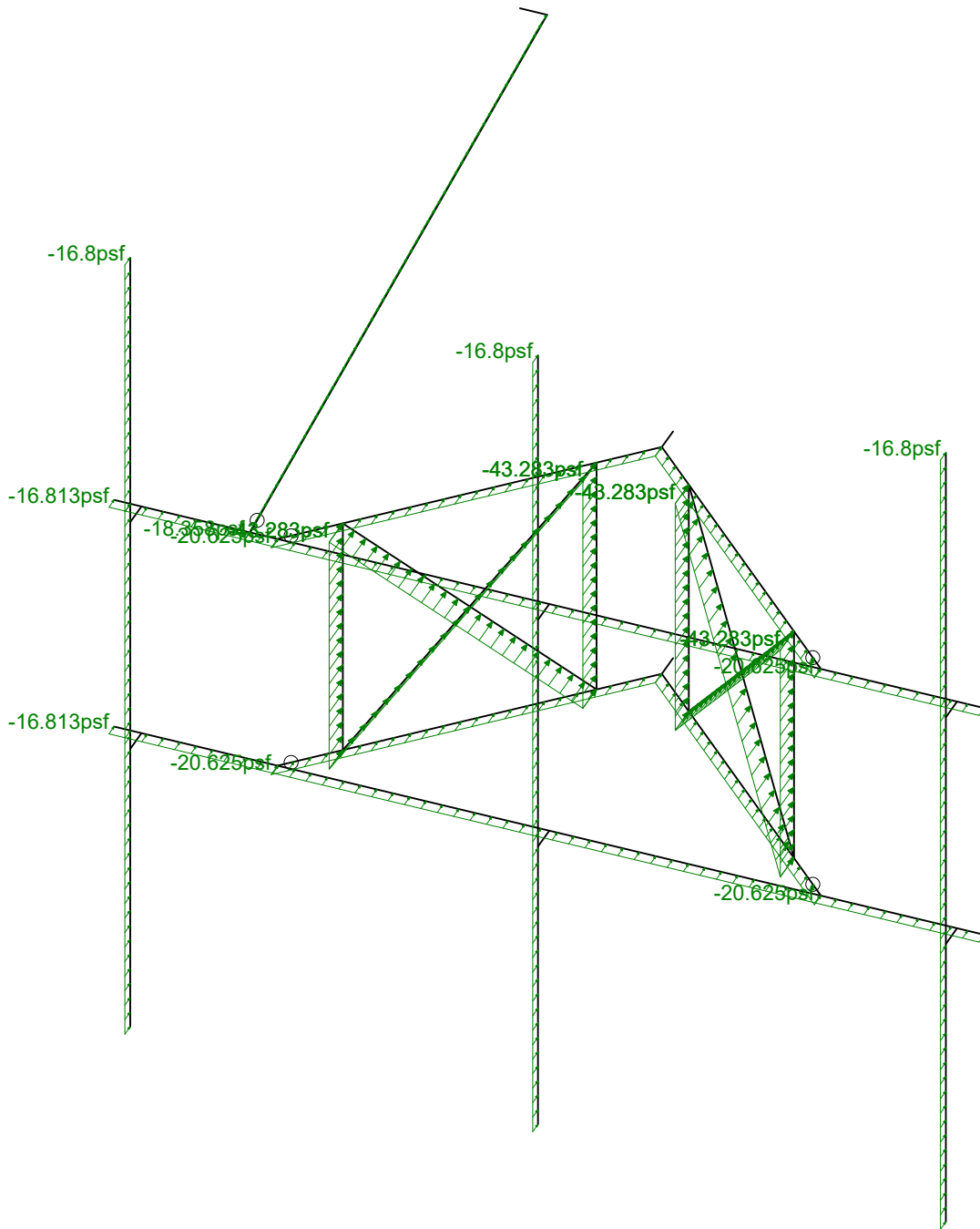
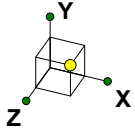
Loads: BLC 17, Ice Wind Load AZI 0  
Envelope Only Solution

|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Ice + Wind Load AZI 000   |
| PSM                        |             | Sept 20, 2021 at 11:48 AM |
| 1197-F0001-B               |             | BOBOS00894A_loaded.r3d    |



Loads: BLC 20, Ice Wind Load AZI 90  
Envelope Only Solution

|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Ice + Wind Load AZI 090   |
| PSM                        |             | Sept 20, 2021 at 11:49 AM |
| 1197-F0001-B               |             | BOBOS00894A_loaded.r3d    |



Loads: BLC 29, Distr. Ice Wind Load Z  
Envelope Only Solution

Infinigy Engineering, PLLC  
PSM  
1197-F0001-B

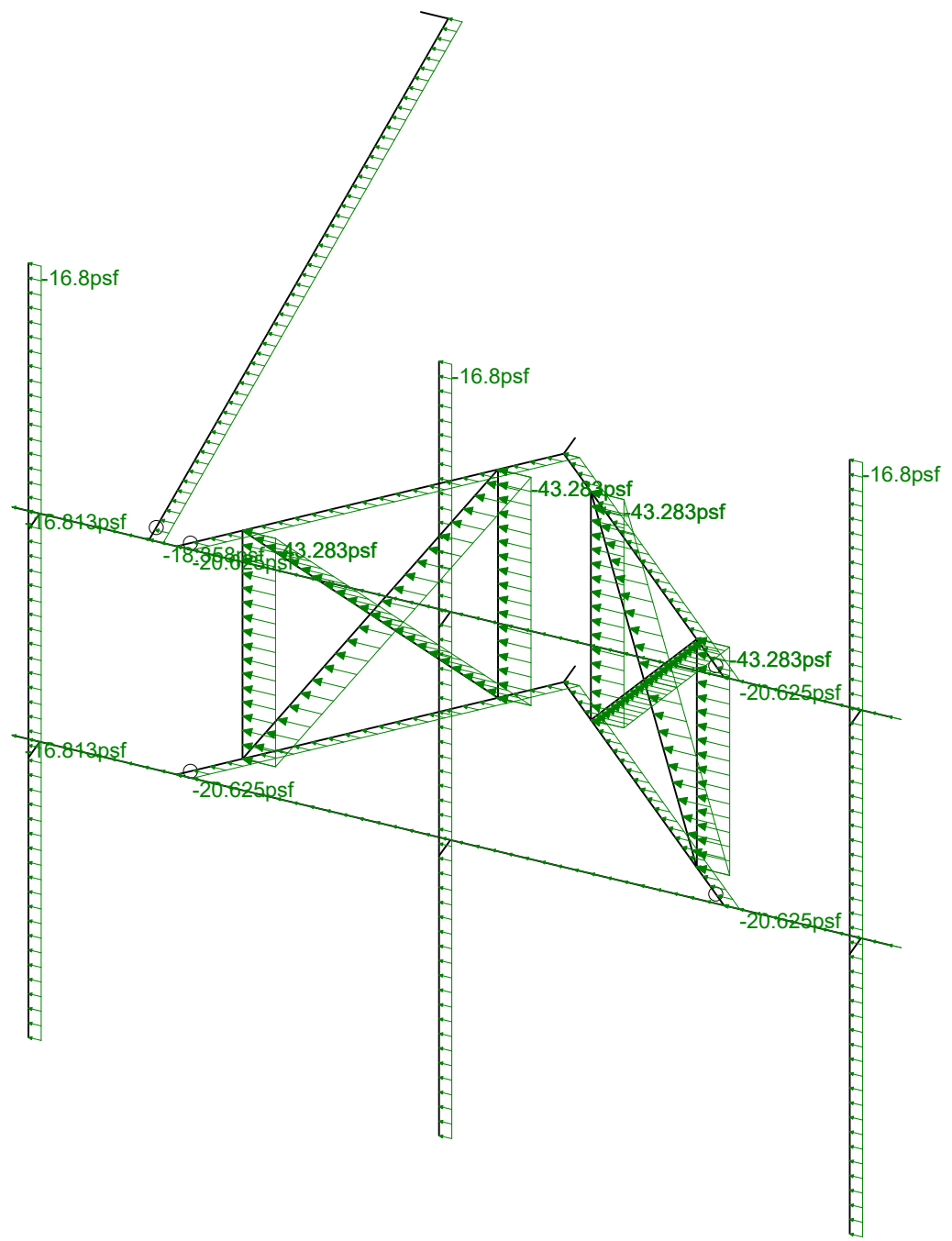
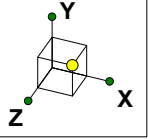
BOBOS00894A

Distr Ice + Wind Load AZI 000

Sept 20, 2021 at 11:49 AM

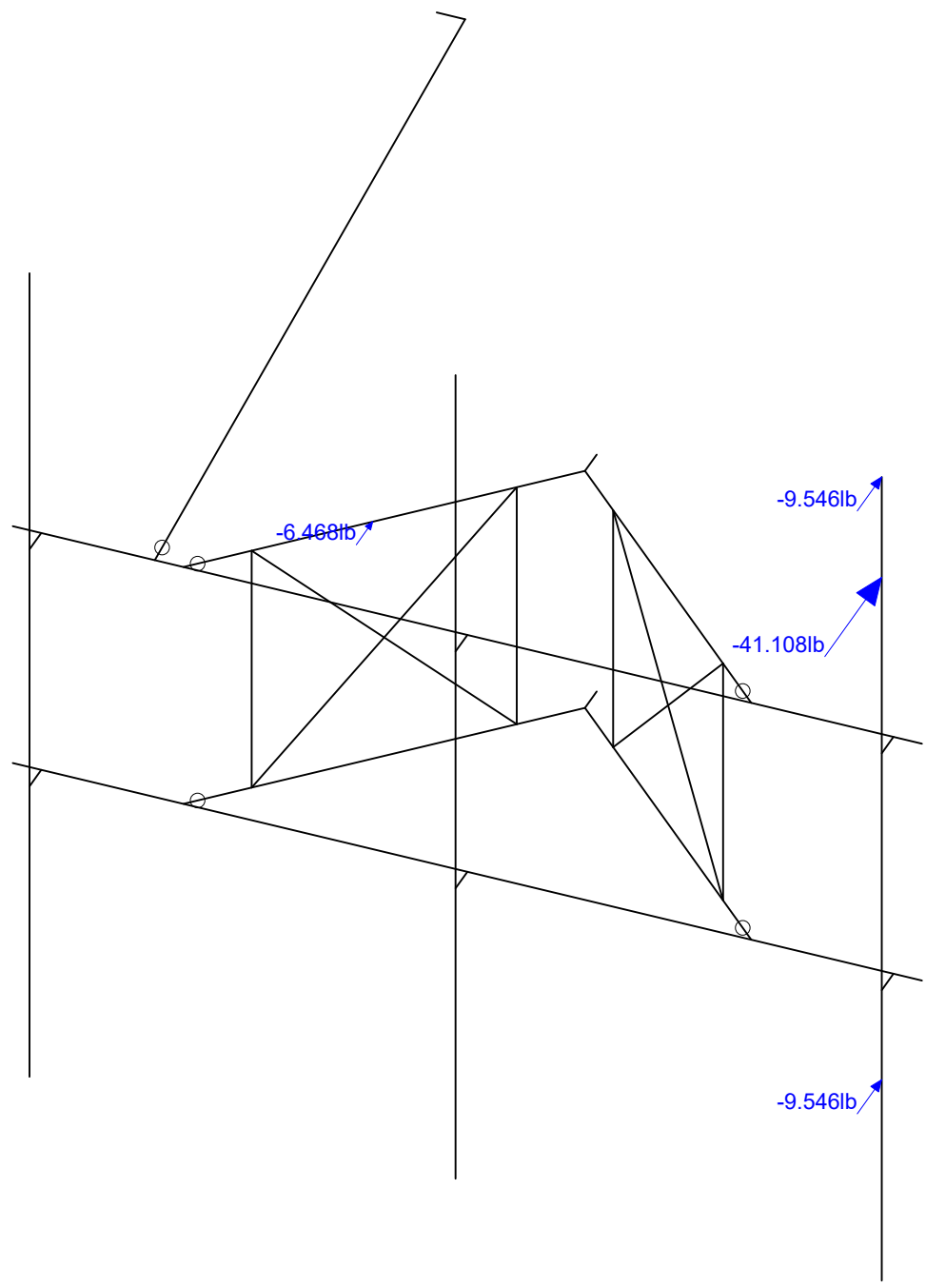
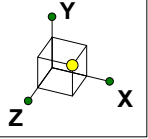
BOBOS00894A\_loaded.r3d





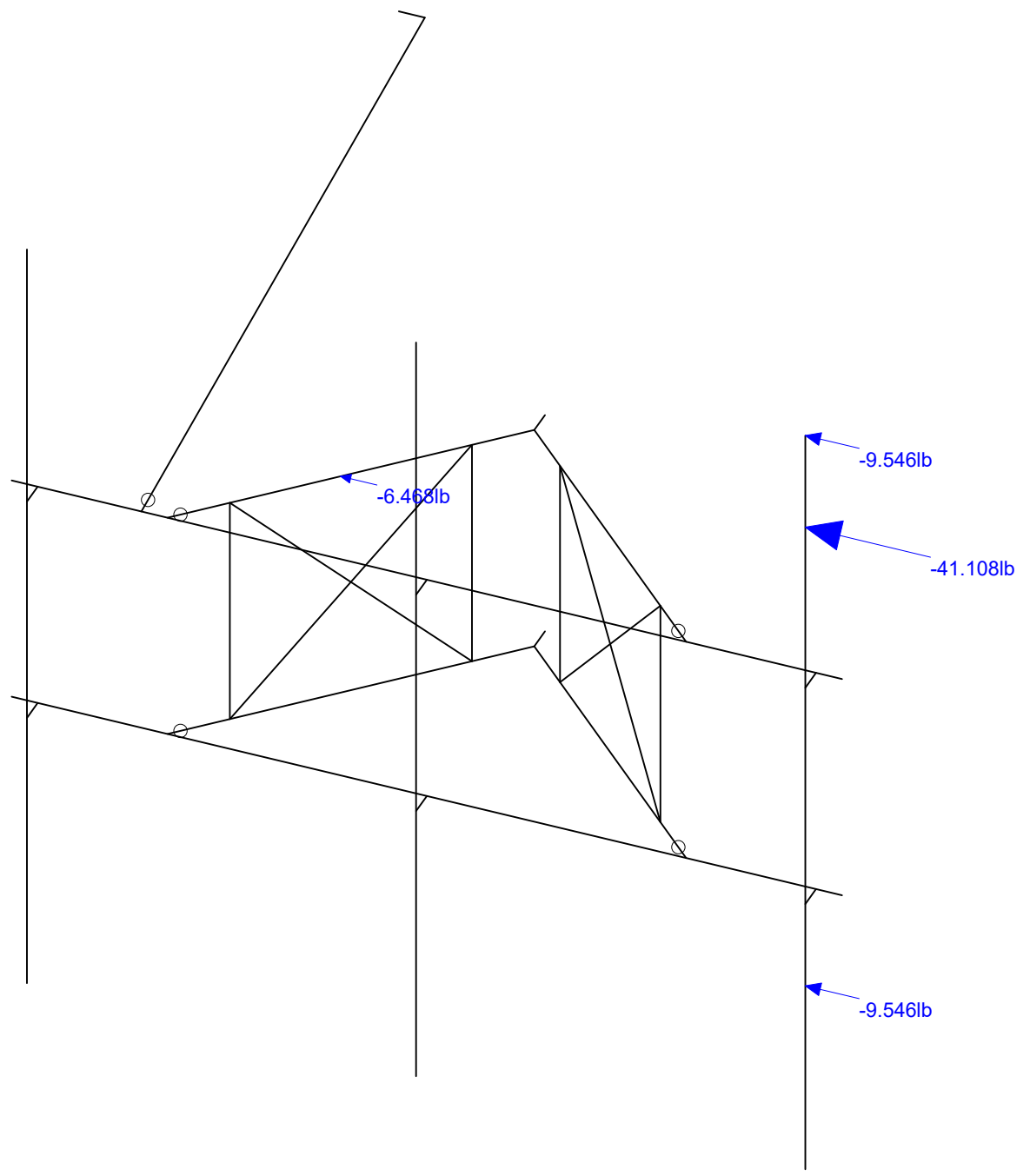
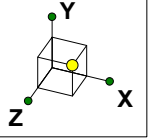
Loads: BLC 30, Distr. Ice Wind Load X  
Envelope Only Solution

|                            |             |                               |
|----------------------------|-------------|-------------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Distr Ice + Wind Load AZI 090 |
| PSM                        |             | Sept 20, 2021 at 11:49 AM     |
| 1197-F0001-B               |             | BOBOS00894A_loaded.r3d        |



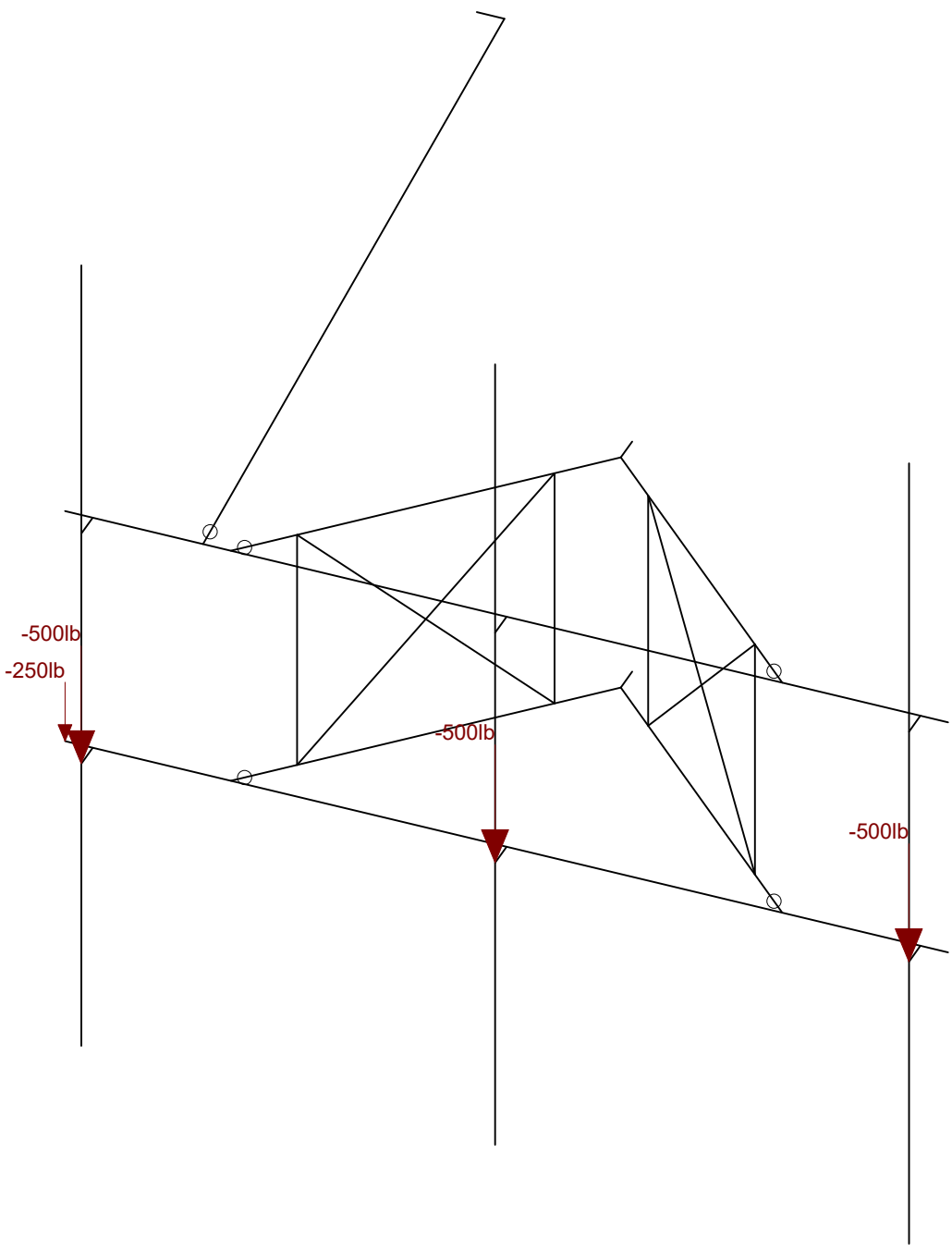
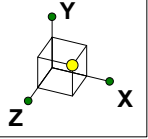
Loads: BLC 31, Seismic Load Z  
Envelope Only Solution

|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Seismic Load AZI 000      |
| PSM                        |             | Sept 20, 2021 at 11:50 AM |
| 1197-F0001-B               |             | BOBOS00894A_loaded.r3d    |



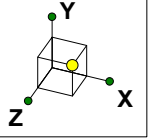
Loads: BLC 32, Seismic Load X  
Envelope Only Solution

|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Seismic Load AZI 090      |
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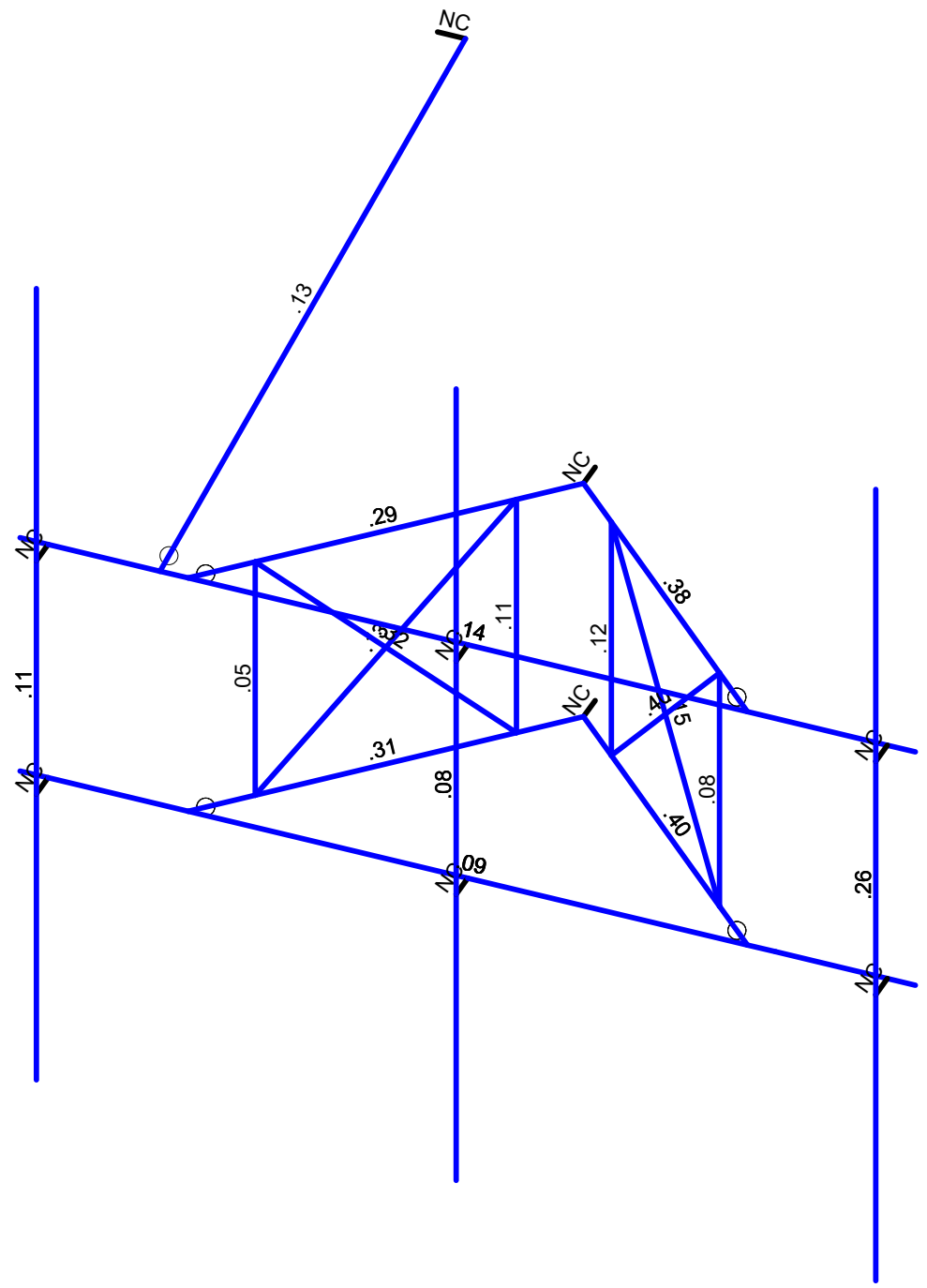


Loads: LL - Live Load  
Envelope Only Solution

|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Non-concurrent Live Loads |
| PSM                        |             | Sept 20, 2021 at 11:51 AM |
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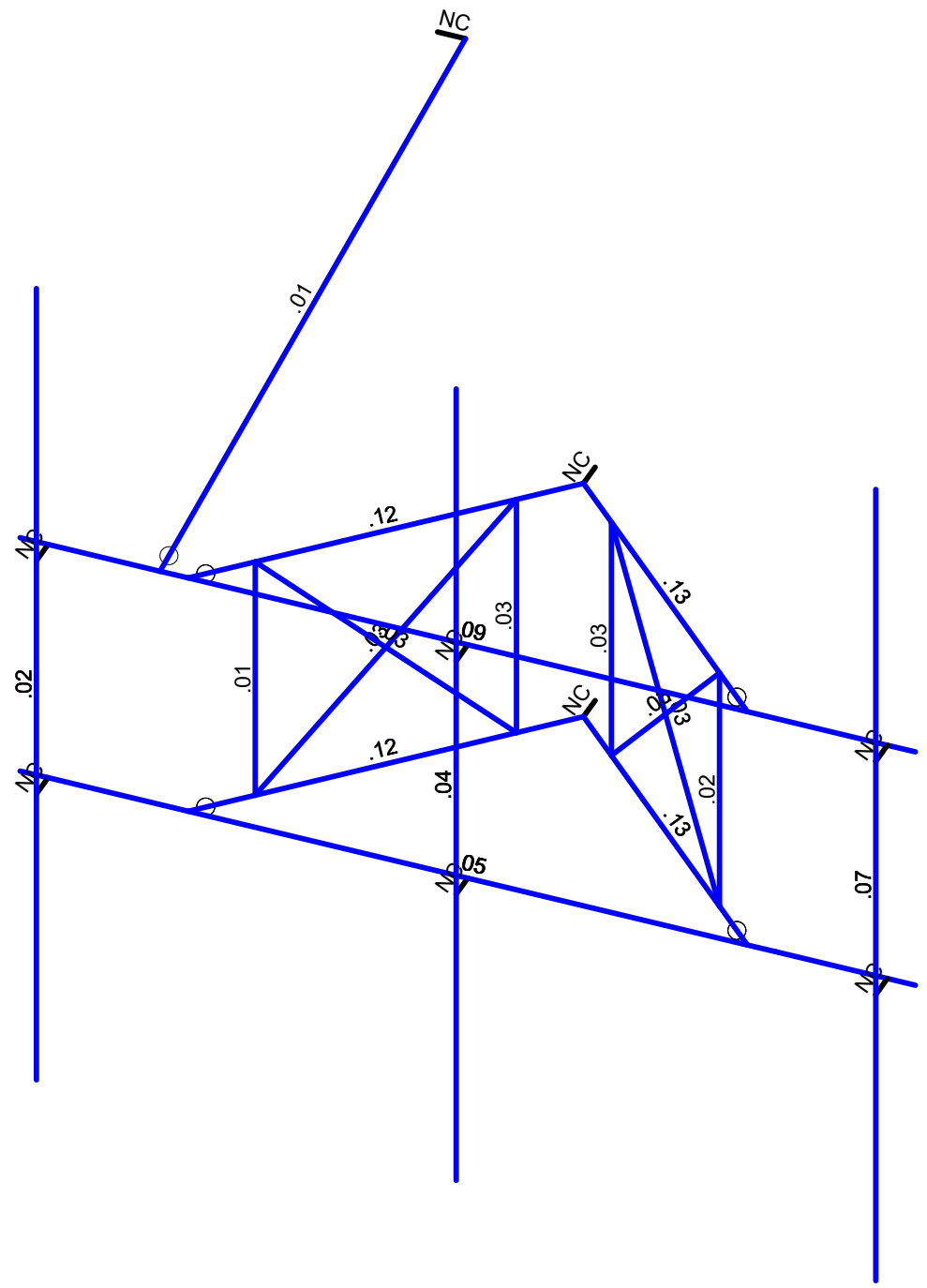
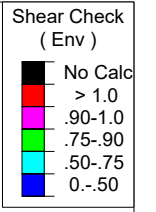
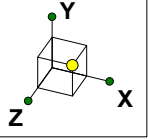


| Code Check ( Env ) |         |
|--------------------|---------|
| Black              | No Calc |
| Red                | > 1.0   |
| Magenta            | .90-1.0 |
| Green              | .75-.90 |
| Cyan               | .50-.75 |
| Blue               | 0.-.50  |



Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Bending Check             |
| PSM                        |             | Sept 20, 2021 at 11:52 AM |
| 1197-F0001-B               |             | BOBOS00894A_loaded.r3d    |



Member Shear Checks Displayed (Enveloped)  
Envelope Only Solution

|                            |             |                           |
|----------------------------|-------------|---------------------------|
| Infinigy Engineering, PLLC | BOBOS00894A | Shear Check               |
| PSM                        |             | Sept 20, 2021 at 11:52 AM |
| 1197-F0001-B               |             | BOBOS00894A_loaded.r3d    |

## Program Inputs

| PROJECT INFORMATION |                           |  |
|---------------------|---------------------------|--|
| Client:             | ATC                       |  |
| Carrier:            | Dish Wireless             |  |
| Engineer:           | Pradin Suinyal Magar, M.S |  |

| SITE INFORMATION       |                          |           |
|------------------------|--------------------------|-----------|
| Risk Category:         | II                       |           |
| Exposure Category:     | C                        |           |
| Topo Factor Procedure: | Method 1, Category 1     |           |
| Site Class:            | D - Stiff Soil (Assumed) |           |
| Ground Elevation:      | 613.07                   | ft *Rev H |

| MOUNT INFORMATION |              |    |
|-------------------|--------------|----|
| Mount Type:       | Sector Frame |    |
| Num Sectors:      | 3            |    |
| Centerline AGL:   | 120.00       | ft |
| Tower Height AGL: | 120.00       | ft |

| TOPOGRAPHIC DATA |     |    |
|------------------|-----|----|
| Topo Feature:    | N/A |    |
| Slope Distance:  | N/A | ft |
| Crest Distance:  | N/A | ft |
| Crest Height:    | N/A | ft |

| FACTORS                          |       |             |
|----------------------------------|-------|-------------|
| Directionality Fact. ( $K_d$ ):  | 0.950 |             |
| Ground Ele. Factor ( $K_e$ ):    | 0.978 | *Rev H Only |
| Rooftop Speed-Up ( $K_s$ ):      | 1.000 | *Rev H Only |
| Topographic Factor ( $K_{zt}$ ): | 1.000 |             |
| Gust Effect Factor ( $G_h$ ):    | 1.000 |             |

| CODE STANDARDS |           |  |
|----------------|-----------|--|
| Building Code: | 2015 IBC  |  |
| TIA Standard:  | TIA-222-H |  |
| ASCE Standard: | ASCE 7-16 |  |

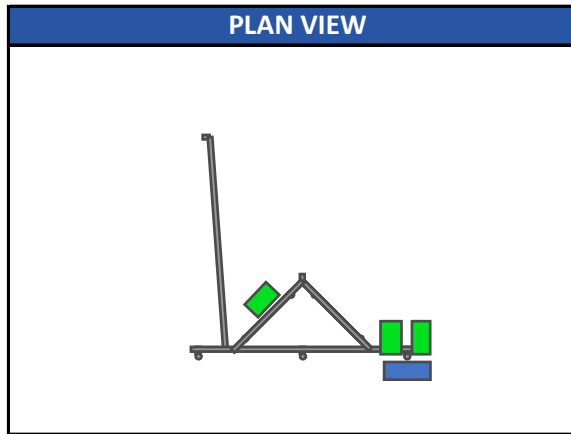
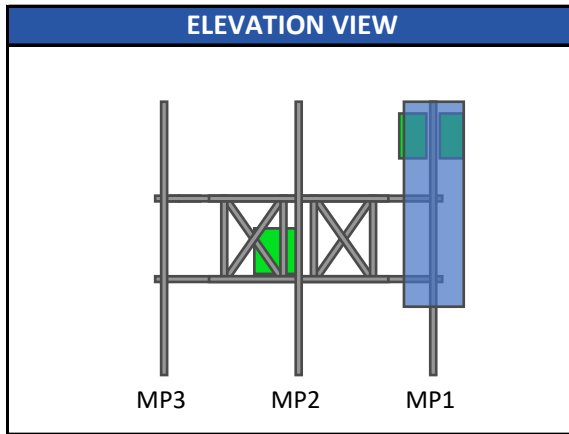
| WIND AND ICE DATA             |        |     |
|-------------------------------|--------|-----|
| Ultimate Wind ( $V_{ult}$ ):  | 121    | mph |
| Design Wind ( $V$ ):          | N/A    | mph |
| Ice Wind ( $V_{ice}$ ):       | 50     | mph |
| Base Ice Thickness ( $t_i$ ): | 1      | in  |
| Flat Pressure:                | 91.601 | psf |
| Round Pressure:               | 54.960 | psf |
| Ice Wind Pressure:            | 9.385  | psf |

| SEISMIC DATA                      |       |   |
|-----------------------------------|-------|---|
| Short-Period Accel. ( $S_s$ ):    | 0.185 | g |
| 1-Second Accel. ( $S_1$ ):        | 0.054 | g |
| Short-Period Design ( $S_{DS}$ ): | 0.197 |   |
| 1-Second Design ( $S_{D1}$ ):     | 0.086 |   |
| Short-Period Coeff. ( $F_a$ ):    | 1.600 |   |
| 1-Second Coeff. ( $F_v$ ):        | 2.400 |   |
| Amplification Factor ( $A_s$ ):   | 3.000 |   |
| Response Mod. Coeff. ( $R$ ):     | 2.000 |   |



Infinigy Load Calculator V2.1.7

## Program Inputs



Infinigy Load Calculator V2.1.7

| APPURTENANCE INFORMATION   |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|----------------------------|-----------|------|-------|-------------|----------------------------|----------------------------|------------------|------------------|--------------|-----------------|---------------------------|
| Appurtenance Name          | Elevation | Qty. | $K_a$ | $q_z$ (psf) | $EPA_N$ (ft <sup>2</sup> ) | $EPA_T$ (ft <sup>2</sup> ) | Wind $F_z$ (lbs) | Wind $F_x$ (lbs) | Weight (lbs) | Seismic F (lbs) | Member ( $\alpha$ sector) |
| JMA WIRELESS MX08FRO665-21 | 120.0     | 3    | 0.90  | 45.80       | 8.01                       | 3.21                       | 330.17           | 132.32           | 64.50        | 19.09           | MP1                       |
| FUJITSU TA08025-B605       | 120.0     | 3    | 0.90  | 45.80       | 1.96                       | 1.19                       | 80.94            | 49.02            | 74.95        | 22.19           | MP1                       |
| FUJITSU TA08025-B604       | 120.0     | 3    | 0.90  | 45.80       | 1.96                       | 1.03                       | 80.94            | 42.58            | 63.93        | 18.92           | MP1                       |
| RAYCAP RDIDC-9181-PF-48    | 120.0     | 1    | 0.90  | 45.80       | 1.87                       | 1.07                       | 76.94            | 43.97            | 21.85        | 6.47            | S1                        |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |
|                            |           |      |       |             |                            |                            |                  |                  |              |                 |                           |

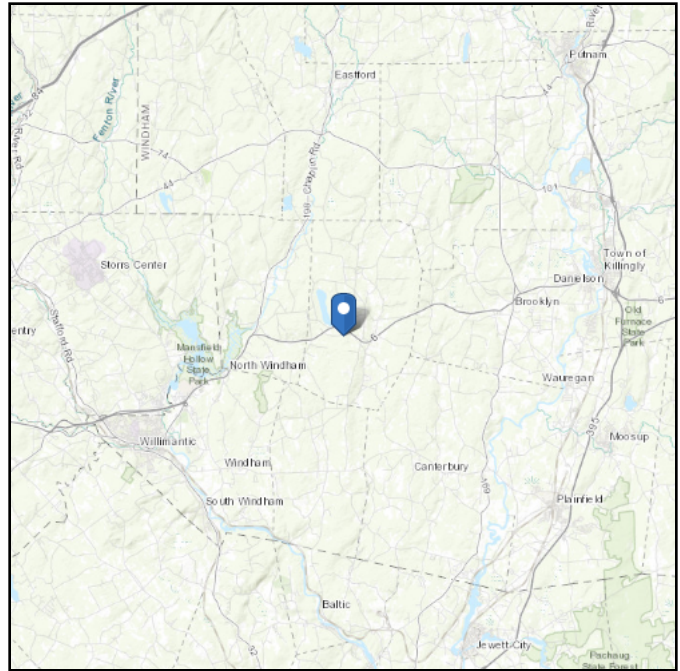


# ASCE 7 Hazards Report

**Address:**  
No Address at This Location

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

**Elevation:** 613.07 ft (NAVD 88)  
**Latitude:** 41.7699  
**Longitude:** -72.0706



## Wind

### Results:

|              |          |
|--------------|----------|
| Wind Speed:  | 121 Vmph |
| 10-year MRI  | 75 Vmph  |
| 25-year MRI  | 84 Vmph  |
| 50-year MRI  | 94 Vmph  |
| 100-year MRI | 99 Vmph  |

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2  
Date Accessed: Mon Sep 20 2021

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

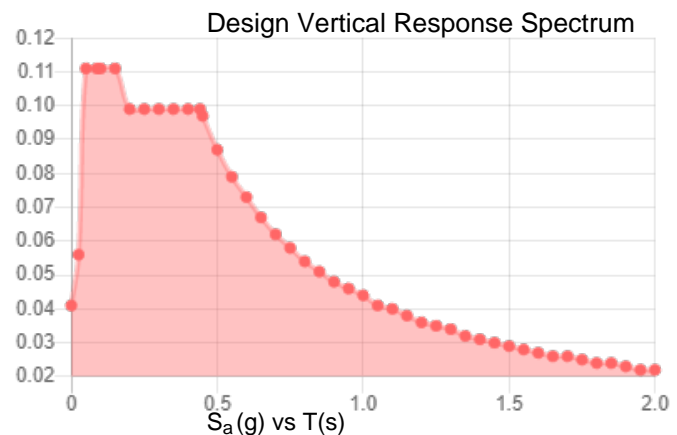
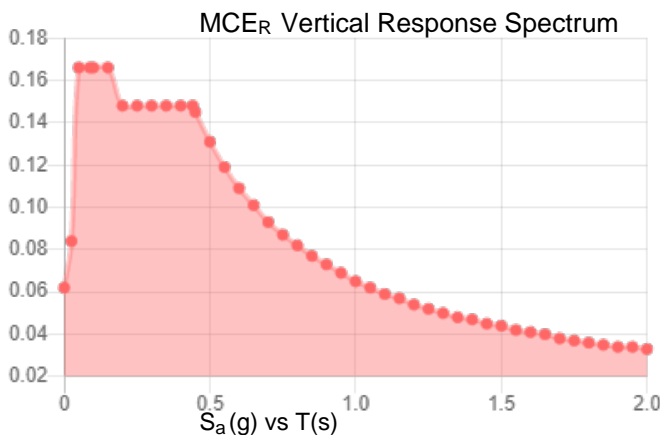
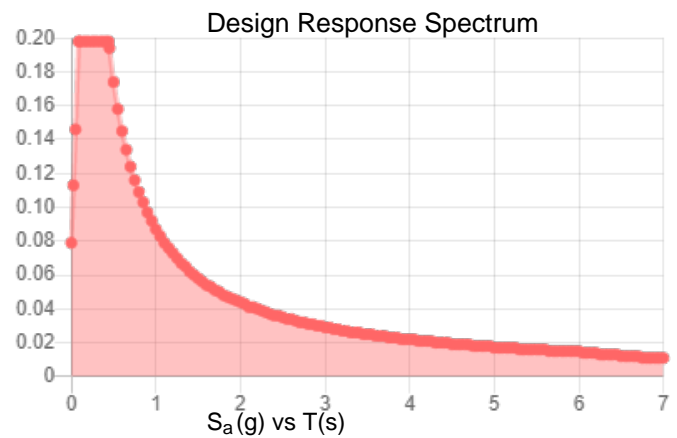
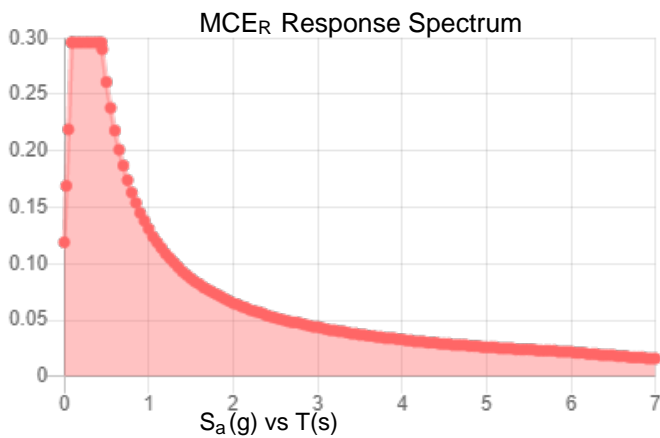
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

**Results:**

|            |       |                    |       |
|------------|-------|--------------------|-------|
| $S_s$ :    | 0.185 | $S_{D1}$ :         | 0.087 |
| $S_1$ :    | 0.054 | $T_L$ :            | 6     |
| $F_a$ :    | 1.6   | PGA :              | 0.1   |
| $F_v$ :    | 2.4   | PGA <sub>M</sub> : | 0.16  |
| $S_{MS}$ : | 0.296 | $F_{PGA}$ :        | 1.6   |
| $S_{M1}$ : | 0.131 | $I_e$ :            | 1     |
| $S_{DS}$ : | 0.198 | $C_v$ :            | 0.7   |

**Seismic Design Category** B



**Data Accessed:** Mon Sep 20 2021  
**Date Source:** USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

## Ice

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**Results:**

Ice Thickness: 1.00 in.  
Concurrent Temperature: 15 F  
Gust Speed: 50 mph

**Data Source:** Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

**Date Accessed:** Mon Sep 20 2021

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

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

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**Member Primary Data**

|    | Label | I Joint | J Joint | K Joint | Rotate(...) | Section/Shape     | Type    | Design List | Material   | Design Rules |
|----|-------|---------|---------|---------|-------------|-------------------|---------|-------------|------------|--------------|
| 1  | S3    | N2      | N1      |         |             | Standoff Arms     | Beam    | Pipe        | A500 Gr.46 | Typical      |
| 2  | S4    | N7      | N6      |         |             | Standoff Arms     | Beam    | Pipe        | A500 Gr.46 | Typical      |
| 3  | TR6   | N3      | N8      |         |             | Standoff Vertical | None    | None        | A529 Gr.50 | Typical      |
| 4  | TR5   | N4      | N9      |         |             | Standoff Vertical | None    | None        | A529 Gr.50 | Typical      |
| 5  | TR8   | N4      | N8      |         |             | Diagonal          | None    | None        | A529 Gr.50 | Typical      |
| 6  | TR7   | N3      | N9      |         |             | Diagonal          | None    | None        | A529 Gr.50 | Typical      |
| 7  | S1    | N10     | N1      |         |             | Standoff Arms     | Beam    | Pipe        | A500 Gr.46 | Typical      |
| 8  | S2    | N14     | N6      |         |             | Standoff Arms     | Beam    | Pipe        | A500 Gr.46 | Typical      |
| 9  | TR1   | N11     | N15     |         |             | Standoff Vertical | None    | None        | A529 Gr.50 | Typical      |
| 10 | TR2   | N12     | N16     |         |             | Standoff Vertical | None    | None        | A529 Gr.50 | Typical      |
| 11 | TR3   | N12     | N15     |         |             | Diagonal          | None    | None        | A529 Gr.50 | Typical      |
| 12 | TR4   | N11     | N16     |         |             | Diagonal          | None    | None        | A529 Gr.50 | Typical      |
| 13 | H1    | N16A    | N15A    |         |             | Face Horizontal   | Beam    | Pipe        | A500 Gr.46 | Typical      |
| 14 | H2    | N18     | N17     |         |             | Face Horizontal   | Beam    | Pipe        | A500 Gr.46 | Typical      |
| 15 | MP3   | N21     | N22     |         |             | Mount Pipe        | Colu... | Pipe        | A500 Gr.46 | Typical      |
| 16 | MP1   | N19     | N20     |         |             | Mount Pipe        | Colu... | Pipe        | A500 Gr.46 | Typical      |
| 17 | MP2   | N33     | N34     |         |             | Mount Pipe        | Colu... | Pipe        | A500 Gr.46 | Typical      |
| 18 | T1    | N37     | N38     |         |             | Tie Back          | None    | None        | A500 Gr.46 | Typical      |
| 19 | M29   | N25     | N67     |         |             | RIGID             | None    | None        | RIGID      | Typical      |
| 20 | M30   | N27     | N69     |         |             | RIGID             | None    | None        | RIGID      | Typical      |
| 21 | M33   | N35     | N73     |         |             | RIGID             | None    | None        | RIGID      | Typical      |
| 22 | M34   | N36     | N74     |         |             | RIGID             | None    | None        | RIGID      | Typical      |
| 23 | M35   | N26     | N68     |         |             | RIGID             | None    | None        | RIGID      | Typical      |
| 24 | M36   | N28     | N70     |         |             | RIGID             | None    | None        | RIGID      | Typical      |
| 25 | M25   | N43     | N1      |         |             | RIGID             | None    | None        | RIGID      | Typical      |
| 26 | M26   | N44     | N6      |         |             | RIGID             | None    | None        | RIGID      | Typical      |
| 27 | M27   | N44A    | N38     |         |             | RIGID             | None    | None        | RIGID      | Typical      |

**Hot Rolled Steel Design Parameters**

|    | Label | Shape             | Lengt... | Lbyy[in] | Lbzz[in] | Lcomp t... | Lcomp b... | L-tor... | Kyy | Kzz | Cb | Func... |
|----|-------|-------------------|----------|----------|----------|------------|------------|----------|-----|-----|----|---------|
| 1  | S3    | Standoff Arms     | 42.4     |          |          | Lbyy       |            |          |     |     |    | Late... |
| 2  | S4    | Standoff Arms     | 42.4     |          |          | Lbyy       |            |          |     |     |    | Late... |
| 3  | TR6   | Standoff Vertical | 28.3     |          |          | Lbyy       |            |          | .65 | .65 |    | Late... |
| 4  | TR5   | Standoff Vertical | 28.3     |          |          | Lbyy       |            |          | .65 | .65 |    | Late... |
| 5  | TR8   | Diagonal          | 39.811   |          |          | Lbyy       |            |          | .7  | .7  |    | Late... |
| 6  | TR7   | Diagonal          | 39.811   |          |          | Lbyy       |            |          | .5  | .5  |    | Late... |
| 7  | S1    | Standoff Arms     | 42.4     |          |          | Lbyy       |            |          |     |     |    | Late... |
| 8  | S2    | Standoff Arms     | 42.4     |          |          | Lbyy       |            |          |     |     |    | Late... |
| 9  | TR1   | Standoff Vertical | 28.3     |          |          | Lbyy       |            |          | .65 | .65 |    | Late... |
| 10 | TR2   | Standoff Vertical | 28.3     |          |          | Lbyy       |            |          | .65 | .65 |    | Late... |

**Hot Rolled Steel Design Parameters (Continued)**

|    | Label | Shape           | Lengt... | Lbyy[in] | Lbzz[in] | Lcomp t... | Lcomp b... | L-tor... | Kyy | Kzz | Cb | Func... |
|----|-------|-----------------|----------|----------|----------|------------|------------|----------|-----|-----|----|---------|
| 11 | TR3   | Diagonal        | 39.811   |          |          | Lbyy       |            |          | .7  | .7  |    | Late... |
| 12 | TR4   | Diagonal        | 39.811   |          |          | Lbyy       |            |          | .5  | .5  |    | Late... |
| 13 | H1    | Face Horizontal | 96       |          |          | Lbyy       |            |          |     |     |    | Late... |
| 14 | H2    | Face Horizontal | 96       |          |          | Lbyy       |            |          |     |     |    | Late... |
| 15 | MP3   | Mount Pipe      | 96       |          |          | Lbyy       |            |          |     |     |    | Late... |
| 16 | MP1   | Mount Pipe      | 96       |          |          | Lbyy       |            |          |     |     |    | Late... |
| 17 | MP2   | Mount Pipe      | 96       |          |          | Lbyy       |            |          |     |     |    | Late... |
| 18 | T1    | Tie Back        | 96.255   |          |          | Lbyy       |            |          |     |     |    | Late... |

**Member Advanced Data**

|    | Label | I Release | J Release | I Offset[in] | J Offset[in] | T/C Only | Physical | Defl Ra... | Analysis ... | Inactive | Seismi... |
|----|-------|-----------|-----------|--------------|--------------|----------|----------|------------|--------------|----------|-----------|
| 1  | S3    | BenPIN    |           |              |              |          | Yes      | Default    |              |          | None      |
| 2  | S4    | BenPIN    |           |              |              |          | Yes      | Default    |              |          | None      |
| 3  | TR6   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 4  | TR5   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 5  | TR8   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 6  | TR7   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 7  | S1    | BenPIN    |           |              |              |          | Yes      | Default    |              |          | None      |
| 8  | S2    | BenPIN    |           |              |              |          | Yes      | Default    |              |          | None      |
| 9  | TR1   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 10 | TR2   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 11 | TR3   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 12 | TR4   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 13 | H1    |           |           |              |              |          | Yes      |            |              |          | None      |
| 14 | H2    |           |           |              |              |          | Yes      |            |              |          | None      |
| 15 | MP3   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 16 | MP1   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 17 | MP2   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 18 | T1    | BenPIN    |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 19 | M29   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 20 | M30   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 21 | M33   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 22 | M34   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 23 | M35   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 24 | M36   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 25 | M25   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 26 | M26   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |
| 27 | M27   |           |           |              |              |          | Yes      | ** NA **   |              |          | None      |

### Material Takeoff

|    | Material         | Size          | Pieces | Length[in] | Weight[LB] |
|----|------------------|---------------|--------|------------|------------|
| 1  | General          |               |        |            |            |
| 2  | RIGID            |               | 9      | 27         | 0          |
| 3  | Total General    |               | 9      | 27         | 0          |
| 4  |                  |               |        |            |            |
| 5  | Hot Rolled Steel |               |        |            |            |
| 6  | A500 Gr.46       | 1.9" ODx0.12" | 4      | 169.6      | 32.27      |
| 7  | A500 Gr.46       | PIPE 2.5      | 2      | 192        | 87.656     |
| 8  | A500 Gr.46       | 2.88"x0.120"  | 3      | 288        | 84.933     |
| 9  | A500 Gr.46       | Pipe2.38X0.12 | 1      | 96.3       | 23.255     |
| 10 | A529 Gr.50       | 0.63" SR      | 8      | 272.4      | 24.082     |
| 11 | Total HR Steel   |               | 18     | 1018.3     | 252.196    |

### Hot Rolled Steel Section Sets

|   | Label             | Shape         | Type    | Design List | Material  | Design... | A [in2] | Iyy [in...] | Izz [in...] | J [in4] |
|---|-------------------|---------------|---------|-------------|-----------|-----------|---------|-------------|-------------|---------|
| 1 | Face Horizontal   | PIPE 2.5      | Beam    | Pipe        | A500 G... | Typical   | 1.61    | 1.45        | 1.45        | 2.89    |
| 2 | Standoff Arms     | 1.9" ODx0.12" | Beam    | Pipe        | A500 G... | Typical   | .671    | .267        | .267        | .534    |
| 3 | Diagonal          | 0.63" SR      | None    | None        | A529 G... | Typical   | .312    | .008        | .008        | .015    |
| 4 | Mount Pipe        | 2.88"x0.120"  | Colu... | Pipe        | A500 G... | Typical   | 1.04    | .993        | .993        | 1.985   |
| 5 | Tie Back          | Pipe2.38X0.12 | None    | None        | A500 G... | Typical   | .852    | .545        | .545        | 1.091   |
| 6 | End Support Pipe  | 3.5"x0.120    | None    | None        | A500 G... | Typical   | 1.274   | 1.822       | 1.822       | 3.644   |
| 7 | Standoff Vertical | 0.63" SR      | None    | None        | A529 G... | Typical   | .312    | .008        | .008        | .015    |

### Basic Load Cases

|    | BLC Description    | Category | X Gr... | Y Gr... | Z Gr... | Joint | Point | Distributed | Area(Memb... | Surface(Plate/Wall) |
|----|--------------------|----------|---------|---------|---------|-------|-------|-------------|--------------|---------------------|
| 1  | Self Weight        | DL       |         | -1      |         |       | 5     |             |              |                     |
| 2  | Wind Load AZI 0    | WLZ      |         |         |         |       | 10    |             |              |                     |
| 3  | Wind Load AZI 30   | None     |         |         |         |       | 10    |             |              |                     |
| 4  | Wind Load AZI 60   | None     |         |         |         |       | 10    |             |              |                     |
| 5  | Wind Load AZI 90   | WLX      |         |         |         |       | 10    |             |              |                     |
| 6  | Wind Load AZI 1... | None     |         |         |         |       | 10    |             |              |                     |
| 7  | Wind Load AZI 1... | None     |         |         |         |       | 10    |             |              |                     |
| 8  | Wind Load AZI 1... | None     |         |         |         |       | 10    |             |              |                     |
| 9  | Wind Load AZI 2... | None     |         |         |         |       | 10    |             |              |                     |
| 10 | Wind Load AZI 2... | None     |         |         |         |       | 10    |             |              |                     |
| 11 | Wind Load AZI 2... | None     |         |         |         |       | 10    |             |              |                     |
| 12 | Wind Load AZI 3... | None     |         |         |         |       | 10    |             |              |                     |
| 13 | Wind Load AZI 3... | None     |         |         |         |       | 10    |             |              |                     |
| 14 | Distr. Wind Load Z | WLZ      |         |         |         |       |       | 27          |              |                     |



**Basic Load Cases (Continued)**

|    | BLC Description      | Category | X Gr... | Y Gr... | Z Gr... | Joint | Point | Distributed | Area(Memb... | Surface(Plate/Wall) |
|----|----------------------|----------|---------|---------|---------|-------|-------|-------------|--------------|---------------------|
| 15 | Distr. Wind Load X   | WLX      |         |         |         |       |       | 27          |              |                     |
| 16 | Ice Weight           | OL1      |         |         |         |       | 5     | 27          |              |                     |
| 17 | Ice Wind Load A...   | OL2      |         |         |         |       | 10    |             |              |                     |
| 18 | Ice Wind Load A...   | None     |         |         |         |       | 10    |             |              |                     |
| 19 | Ice Wind Load A...   | None     |         |         |         |       | 10    |             |              |                     |
| 20 | Ice Wind Load A...   | OL3      |         |         |         |       | 10    |             |              |                     |
| 21 | Ice Wind Load A...   | None     |         |         |         |       | 10    |             |              |                     |
| 22 | Ice Wind Load A...   | None     |         |         |         |       | 10    |             |              |                     |
| 23 | Ice Wind Load A...   | None     |         |         |         |       | 10    |             |              |                     |
| 24 | Ice Wind Load A...   | None     |         |         |         |       | 10    |             |              |                     |
| 25 | Ice Wind Load A...   | None     |         |         |         |       | 10    |             |              |                     |
| 26 | Ice Wind Load A...   | None     |         |         |         |       | 10    |             |              |                     |
| 27 | Ice Wind Load A...   | None     |         |         |         |       | 10    |             |              |                     |
| 28 | Ice Wind Load A...   | None     |         |         |         |       | 10    |             |              |                     |
| 29 | Distr. Ice Wind L... | OL2      |         |         |         |       |       | 27          |              |                     |
| 30 | Distr. Ice Wind L... | OL3      |         |         |         |       |       | 27          |              |                     |
| 31 | Seismic Load Z       | ELZ      |         |         | -.296   |       | 5     |             |              |                     |
| 32 | Seismic Load X       | ELX      | -.296   |         |         |       | 5     |             |              |                     |
| 33 | Service Live Loa...  | LL       |         |         |         | 1     |       |             |              |                     |
| 34 | Maintenance Loa...   | LL       |         |         |         | 1     |       |             |              |                     |
| 35 | Maintenance Loa...   | LL       |         |         |         | 1     |       |             |              |                     |
| 36 | Maintenance Loa...   | LL       |         |         |         | 1     |       |             |              |                     |

**Load Combinations**

|    | Description         | S...  | P... | S...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... |
|----|---------------------|-------|------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1  | 1.4DL               | Y...Y |      | 1        | 1.4       |           |           |           |           |           |           |           |           |           |           |           |           |
| 2  | 1.2DL + 1WL AZI 0   | Y...Y |      | 1        | 1.2       | 2         | 1         | 14        | 1         | 15        |           |           |           |           |           |           |           |
| 3  | 1.2DL + 1WL AZI 30  | Y...Y |      | 1        | 1.2       | 3         | 1         | 14        | .866      | 15        | .5        |           |           |           |           |           |           |
| 4  | 1.2DL + 1WL AZI 60  | Y...Y |      | 1        | 1.2       | 4         | 1         | 14        | .5        | 15        | .866      |           |           |           |           |           |           |
| 5  | 1.2DL + 1WL AZI 90  | Y...Y |      | 1        | 1.2       | 5         | 1         | 14        |           | 15        | 1         |           |           |           |           |           |           |
| 6  | 1.2DL + 1WL AZI 120 | Y...Y |      | 1        | 1.2       | 6         | 1         | 14        | -.5       | 15        | .866      |           |           |           |           |           |           |
| 7  | 1.2DL + 1WL AZI 150 | Y...Y |      | 1        | 1.2       | 7         | 1         | 14        | -.8...    | 15        | .5        |           |           |           |           |           |           |
| 8  | 1.2DL + 1WL AZI 180 | Y...Y |      | 1        | 1.2       | 8         | 1         | 14        | -1        | 15        |           |           |           |           |           |           |           |
| 9  | 1.2DL + 1WL AZI 210 | Y...Y |      | 1        | 1.2       | 9         | 1         | 14        | -.8...    | 15        | -.5       |           |           |           |           |           |           |
| 10 | 1.2DL + 1WL AZI 240 | Y...Y |      | 1        | 1.2       | 10        | 1         | 14        | -.5       | 15        | -.8...    |           |           |           |           |           |           |
| 11 | 1.2DL + 1WL AZI 270 | Y...Y |      | 1        | 1.2       | 11        | 1         | 14        |           | 15        | -1        |           |           |           |           |           |           |
| 12 | 1.2DL + 1WL AZI 300 | Y...Y |      | 1        | 1.2       | 12        | 1         | 14        | .5        | 15        | -.8...    |           |           |           |           |           |           |
| 13 | 1.2DL + 1WL AZI 330 | Y...Y |      | 1        | 1.2       | 13        | 1         | 14        | .866      | 15        | -.5       |           |           |           |           |           |           |
| 14 | 0.9DL + 1WL AZI 0   | Y...Y |      | 1        | .9        | 2         | 1         | 14        | 1         | 15        |           |           |           |           |           |           |           |
| 15 | 0.9DL + 1WL AZI 30  | Y...Y |      | 1        | .9        | 3         | 1         | 14        | .866      | 15        | .5        |           |           |           |           |           |           |
| 16 | 0.9DL + 1WL AZI 60  | Y...Y |      | 1        | .9        | 4         | 1         | 14        | .5        | 15        | .866      |           |           |           |           |           |           |



**Load Combinations (Continued)**

| Description                        | S... | P... | S...B... | Fa...    | B... | Fa... | B... | Fa... | B... | Fa... | B... | Fa... | B... | Fa... | B... | Fa... | B... | Fa... | B... | Fa... | B... |
|------------------------------------|------|------|----------|----------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| 17 0.9DL + 1WL AZI 90              | Y... | Y    | 1 .9     | 5 1      | 14   | 15    | 1    |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 18 0.9DL + 1WL AZI 120             | Y... | Y    | 1 .9     | 6 1      | 14   | -.5   | 15   | .866  |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 19 0.9DL + 1WL AZI 150             | Y... | Y    | 1 .9     | 7 1      | 14   | -.8   | 15   | .5    |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 20 0.9DL + 1WL AZI 180             | Y... | Y    | 1 .9     | 8 1      | 14   | -.1   | 15   |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 21 0.9DL + 1WL AZI 210             | Y... | Y    | 1 .9     | 9 1      | 14   | -.8   | 15   | -.5   |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 22 0.9DL + 1WL AZI 240             | Y... | Y    | 1 .9     | 10 1     | 14   | -.5   | 15   | -.8   |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 23 0.9DL + 1WL AZI 270             | Y... | Y    | 1 .9     | 11 1     | 14   |       | 15   | -.1   |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 24 0.9DL + 1WL AZI 300             | Y... | Y    | 1 .9     | 12 1     | 14   | .5    | 15   | -.8   |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 25 0.9DL + 1WL AZI 330             | Y... | Y    | 1 .9     | 13 1     | 14   | .866  | 15   | -.5   |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 26 1.2D + 1.0Di                    | Y... | Y    | 1 1.2    | 16 1     |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 27 1.2D + 1.0Di + 1.0Wi AZI 0      | Y... | Y    | 1 1.2    | 16 1     | 17   | 1     | 29   | 1     | 30   |       |      |       |      |       |      |       |      |       |      |       |      |
| 28 1.2D + 1.0Di + 1.0Wi AZI 30     | Y... | Y    | 1 1.2    | 16 1     | 18   | 1     | 29   | .866  | 30   | .5    |      |       |      |       |      |       |      |       |      |       |      |
| 29 1.2D + 1.0Di + 1.0Wi AZI 60     | Y... | Y    | 1 1.2    | 16 1     | 19   | 1     | 29   | .5    | 30   | .866  |      |       |      |       |      |       |      |       |      |       |      |
| 30 1.2D + 1.0Di + 1.0Wi AZI 90     | Y... | Y    | 1 1.2    | 16 1     | 20   | 1     | 29   |       | 30   | 1     |      |       |      |       |      |       |      |       |      |       |      |
| 31 1.2D + 1.0Di + 1.0Wi AZI 120    | Y... | Y    | 1 1.2    | 16 1     | 21   | 1     | 29   | -.5   | 30   | .866  |      |       |      |       |      |       |      |       |      |       |      |
| 32 1.2D + 1.0Di + 1.0Wi AZI 150    | Y... | Y    | 1 1.2    | 16 1     | 22   | 1     | 29   | -.8   | 30   | .5    |      |       |      |       |      |       |      |       |      |       |      |
| 33 1.2D + 1.0Di + 1.0Wi AZI 180    | Y... | Y    | 1 1.2    | 16 1     | 23   | 1     | 29   | -.1   | 30   |       |      |       |      |       |      |       |      |       |      |       |      |
| 34 1.2D + 1.0Di + 1.0Wi AZI 210    | Y... | Y    | 1 1.2    | 16 1     | 24   | 1     | 29   | -.8   | 30   | -.5   |      |       |      |       |      |       |      |       |      |       |      |
| 35 1.2D + 1.0Di + 1.0Wi AZI 240    | Y... | Y    | 1 1.2    | 16 1     | 25   | 1     | 29   | -.5   | 30   | -.8   |      |       |      |       |      |       |      |       |      |       |      |
| 36 1.2D + 1.0Di + 1.0Wi AZI 270    | Y... | Y    | 1 1.2    | 16 1     | 26   | 1     | 29   |       | 30   | -.1   |      |       |      |       |      |       |      |       |      |       |      |
| 37 1.2D + 1.0Di + 1.0Wi AZI 300    | Y... | Y    | 1 1.2    | 16 1     | 27   | 1     | 29   | .5    | 30   | -.8   |      |       |      |       |      |       |      |       |      |       |      |
| 38 1.2D + 1.0Di + 1.0Wi AZI 330    | Y... | Y    | 1 1.2    | 16 1     | 28   | 1     | 29   | .866  | 30   | -.5   |      |       |      |       |      |       |      |       |      |       |      |
| 39 (1.2 + 0.2Sds)DL + 1.0E AZI 0   | Y... | Y    | 1 1.2    | .31 1    | 32   |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 40 (1.2 + 0.2Sds)DL + 1.0E AZI 30  | Y... | Y    | 1 1.2    | .31 .866 | 32   | .5    |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 41 (1.2 + 0.2Sds)DL + 1.0E AZI 60  | Y... | Y    | 1 1.2    | .31 .5   | 32   | .866  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 42 (1.2 + 0.2Sds)DL + 1.0E AZI 90  | Y... | Y    | 1 1.2    | .31      | 32   | 1     |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 43 (1.2 + 0.2Sds)DL + 1.0E AZI 1.. | Y... | Y    | 1 1.2    | .31 -.5  | 32   | .866  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 44 (1.2 + 0.2Sds)DL + 1.0E AZI 1.. | Y... | Y    | 1 1.2    | .31 -.8  | 32   | .5    |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 45 (1.2 + 0.2Sds)DL + 1.0E AZI 1.. | Y... | Y    | 1 1.2    | .31 -.1  | 32   |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 46 (1.2 + 0.2Sds)DL + 1.0E AZI 2.. | Y... | Y    | 1 1.2    | .31 -.8  | 32   | -.5   |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 47 (1.2 + 0.2Sds)DL + 1.0E AZI 2.. | Y... | Y    | 1 1.2    | .31 -.5  | 32   | -.8   |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 48 (1.2 + 0.2Sds)DL + 1.0E AZI 2.. | Y... | Y    | 1 1.2    | .31      | 32   | -.1   |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 49 (1.2 + 0.2Sds)DL + 1.0E AZI 3.. | Y... | Y    | 1 1.2    | .31 .5   | 32   | -.8   |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 50 (1.2 + 0.2Sds)DL + 1.0E AZI 3.. | Y... | Y    | 1 1.2    | .31 .866 | 32   | -.5   |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 51 (0.9 - 0.2Sds)DL + 1.0E AZI 0   | Y... | Y    | 1 .861   | 31 1     | 32   |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 52 (0.9 - 0.2Sds)DL + 1.0E AZI 30  | Y... | Y    | 1 .861   | 31 .866  | 32   | .5    |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 53 (0.9 - 0.2Sds)DL + 1.0E AZI 60  | Y... | Y    | 1 .861   | 31 .5    | 32   | .866  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 54 (0.9 - 0.2Sds)DL + 1.0E AZI 90  | Y... | Y    | 1 .861   | 31       | 32   | 1     |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 55 (0.9 - 0.2Sds)DL + 1.0E AZI 1.. | Y... | Y    | 1 .861   | 31 -.5   | 32   | .866  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 56 (0.9 - 0.2Sds)DL + 1.0E AZI 1.. | Y... | Y    | 1 .861   | 31 -.8   | 32   | .5    |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 57 (0.9 - 0.2Sds)DL + 1.0E AZI 1.. | Y... | Y    | 1 .861   | 31 -.1   | 32   |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |
| 58 (0.9 - 0.2Sds)DL + 1.0E AZI 2.. | Y... | Y    | 1 .861   | 31 -.8   | 32   | -.5   |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |





**Load Combinations (Continued)**

|     | Description                      | S... | P... | S...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... |
|-----|----------------------------------|------|------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 59  | (0.9 - 0.2Sds)DL + 1.0E AZI 2... | Y... | Y    | 1        | .861      | 31        | -.5       | 32        | -8...     |           |           |           |           |           |           |           |           |           |
| 60  | (0.9 - 0.2Sds)DL + 1.0E AZI 2... | Y... | Y    | 1        | .861      | 31        |           | 32        | -1        |           |           |           |           |           |           |           |           |           |
| 61  | (0.9 - 0.2Sds)DL + 1.0E AZI 3... | Y... | Y    | 1        | .861      | 31        | .5        | 32        | -8...     |           |           |           |           |           |           |           |           |           |
| 62  | (0.9 - 0.2Sds)DL + 1.0E AZI 3... | Y... | Y    | 1        | .861      | 31        | .866      | 32        | -.5       |           |           |           |           |           |           |           |           |           |
| 63  | 1.0DL + 1.5LL + 1.0SWL (60 ...   | Y... | Y    | 1        | 1         | 2         | .246      | 14        | .246      | 15        |           | 33        | 1.5       |           |           |           |           |           |
| 64  | 1.0DL + 1.5LL + 1.0SWL (60 ...   | Y... | Y    | 1        | 1         | 3         | .246      | 14        | .213      | 15        | .123      | 33        | 1.5       |           |           |           |           |           |
| 65  | 1.0DL + 1.5LL + 1.0SWL (60 ...   | Y... | Y    | 1        | 1         | 4         | .246      | 14        | .123      | 15        | .213      | 33        | 1.5       |           |           |           |           |           |
| 66  | 1.0DL + 1.5LL + 1.0SWL (60 ...   | Y... | Y    | 1        | 1         | 5         | .246      | 14        |           | 15        | .246      | 33        | 1.5       |           |           |           |           |           |
| 67  | 1.0DL + 1.5LL + 1.0SWL (60 ...   | Y... | Y    | 1        | 1         | 6         | .246      | 14        | -.1...    | 15        | .213      | 33        | 1.5       |           |           |           |           |           |
| 68  | 1.0DL + 1.5LL + 1.0SWL (60 ...   | Y... | Y    | 1        | 1         | 7         | .246      | 14        | -.2...    | 15        | .123      | 33        | 1.5       |           |           |           |           |           |
| 69  | 1.0DL + 1.5LL + 1.0SWL (60 ...   | Y... | Y    | 1        | 1         | 8         | .246      | 14        | -.2...    | 15        |           | 33        | 1.5       |           |           |           |           |           |
| 70  | 1.0DL + 1.5LL + 1.0SWL (60 ...   | Y... | Y    | 1        | 1         | 9         | .246      | 14        | -.2...    | 15        | -.1...    | 33        | 1.5       |           |           |           |           |           |
| 71  | 1.0DL + 1.5LL + 1.0SWL (60 ...   | Y... | Y    | 1        | 1         | 10        | .246      | 14        | -.1...    | 15        | -.2...    | 33        | 1.5       |           |           |           |           |           |
| 72  | 1.0DL + 1.5LL + 1.0SWL (60 ...   | Y... | Y    | 1        | 1         | 11        | .246      | 14        |           | 15        | -.2...    | 33        | 1.5       |           |           |           |           |           |
| 73  | 1.0DL + 1.5LL + 1.0SWL (60 ...   | Y... | Y    | 1        | 1         | 12        | .246      | 14        | .123      | 15        | -.2...    | 33        | 1.5       |           |           |           |           |           |
| 74  | 1.0DL + 1.5LL + 1.0SWL (60 ...   | Y... | Y    | 1        | 1         | 13        | .246      | 14        | .213      | 15        | -.1...    | 33        | 1.5       |           |           |           |           |           |
| 75  | 1.2DL + 1.5LL                    | Y... | Y    | 1        | 1.2       | 33        | 1.5       |           |           |           |           |           |           |           |           |           |           |           |
| 76  | 1.2DL + 1.5LM-MP1 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 34        | 1.5       | 2         | .061      | 14        | .061      | 15        |           |           |           |           |           |           |
| 77  | 1.2DL + 1.5LM-MP1 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 34        | 1.5       | 3         | .061      | 14        | .053      | 15        | .031      |           |           |           |           |           |
| 78  | 1.2DL + 1.5LM-MP1 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 34        | 1.5       | 4         | .061      | 14        | .031      | 15        | .053      |           |           |           |           |           |
| 79  | 1.2DL + 1.5LM-MP1 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 34        | 1.5       | 5         | .061      | 14        |           | 15        | .061      |           |           |           |           |           |
| 80  | 1.2DL + 1.5LM-MP1 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 34        | 1.5       | 6         | .061      | 14        | -.0...    | 15        | .053      |           |           |           |           |           |
| 81  | 1.2DL + 1.5LM-MP1 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 34        | 1.5       | 7         | .061      | 14        | -.0...    | 15        | .031      |           |           |           |           |           |
| 82  | 1.2DL + 1.5LM-MP1 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 34        | 1.5       | 8         | .061      | 14        | -.0...    | 15        |           |           |           |           |           |           |
| 83  | 1.2DL + 1.5LM-MP1 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 34        | 1.5       | 9         | .061      | 14        | -.0...    | 15        | -.0...    |           |           |           |           |           |
| 84  | 1.2DL + 1.5LM-MP1 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 34        | 1.5       | 10        | .061      | 14        | -.0...    | 15        | -.0...    |           |           |           |           |           |
| 85  | 1.2DL + 1.5LM-MP1 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 34        | 1.5       | 11        | .061      | 14        |           | 15        | -.0...    |           |           |           |           |           |
| 86  | 1.2DL + 1.5LM-MP1 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 34        | 1.5       | 12        | .061      | 14        | .031      | 15        | -.0...    |           |           |           |           |           |
| 87  | 1.2DL + 1.5LM-MP1 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 34        | 1.5       | 13        | .061      | 14        | .053      | 15        | -.0...    |           |           |           |           |           |
| 88  | 1.2DL + 1.5LM-MP2 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 35        | 1.5       | 2         | .061      | 14        | .061      | 15        |           |           |           |           |           |           |
| 89  | 1.2DL + 1.5LM-MP2 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 35        | 1.5       | 3         | .061      | 14        | .053      | 15        | .031      |           |           |           |           |           |
| 90  | 1.2DL + 1.5LM-MP2 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 35        | 1.5       | 4         | .061      | 14        | .031      | 15        | .053      |           |           |           |           |           |
| 91  | 1.2DL + 1.5LM-MP2 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 35        | 1.5       | 5         | .061      | 14        |           | 15        | .061      |           |           |           |           |           |
| 92  | 1.2DL + 1.5LM-MP2 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 35        | 1.5       | 6         | .061      | 14        | -.0...    | 15        | .053      |           |           |           |           |           |
| 93  | 1.2DL + 1.5LM-MP2 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 35        | 1.5       | 7         | .061      | 14        | -.0...    | 15        | .031      |           |           |           |           |           |
| 94  | 1.2DL + 1.5LM-MP2 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 35        | 1.5       | 8         | .061      | 14        | -.0...    | 15        |           |           |           |           |           |           |
| 95  | 1.2DL + 1.5LM-MP2 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 35        | 1.5       | 9         | .061      | 14        | -.0...    | 15        | -.0...    |           |           |           |           |           |
| 96  | 1.2DL + 1.5LM-MP2 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 35        | 1.5       | 10        | .061      | 14        | -.0...    | 15        | -.0...    |           |           |           |           |           |
| 97  | 1.2DL + 1.5LM-MP2 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 35        | 1.5       | 11        | .061      | 14        |           | 15        | -.0...    |           |           |           |           |           |
| 98  | 1.2DL + 1.5LM-MP2 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 35        | 1.5       | 12        | .061      | 14        | .031      | 15        | -.0...    |           |           |           |           |           |
| 99  | 1.2DL + 1.5LM-MP2 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 35        | 1.5       | 13        | .061      | 14        | .053      | 15        | -.0...    |           |           |           |           |           |
| 100 | 1.2DL + 1.5LM-MP3 + 1SWL (...    | Y... | Y    | 1        | 1.2       | 36        | 1.5       | 2         | .061      | 14        | .061      | 15        |           |           |           |           |           |           |

**Load Combinations (Continued)**

| Description                            | S... | P... | S...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... | Fa...B... |
|--|------|------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 101 1.2DL + 1.5LM-MP3 + 1SWL (...Y...) | Y    |      | 1        | 1.2       | 36        | 1.5       | 3         | .061      | 14        | .053      | 15        | .031      |           |           |           |           |           |           |
| 102 1.2DL + 1.5LM-MP3 + 1SWL (...Y...) | Y    |      | 1        | 1.2       | 36        | 1.5       | 4         | .061      | 14        | .031      | 15        | .053      |           |           |           |           |           |           |
| 103 1.2DL + 1.5LM-MP3 + 1SWL (...Y...) | Y    |      | 1        | 1.2       | 36        | 1.5       | 5         | .061      | 14        |           | 15        | .061      |           |           |           |           |           |           |
| 104 1.2DL + 1.5LM-MP3 + 1SWL (...Y...) | Y    |      | 1        | 1.2       | 36        | 1.5       | 6         | .061      | 14        | -.0...    | 15        | .053      |           |           |           |           |           |           |
| 105 1.2DL + 1.5LM-MP3 + 1SWL (...Y...) | Y    |      | 1        | 1.2       | 36        | 1.5       | 7         | .061      | 14        | -.0...    | 15        | .031      |           |           |           |           |           |           |
| 106 1.2DL + 1.5LM-MP3 + 1SWL (...Y...) | Y    |      | 1        | 1.2       | 36        | 1.5       | 8         | .061      | 14        | -.0...    | 15        |           |           |           |           |           |           |           |
| 107 1.2DL + 1.5LM-MP3 + 1SWL (...Y...) | Y    |      | 1        | 1.2       | 36        | 1.5       | 9         | .061      | 14        | -.0...    | 15        | -.0...    |           |           |           |           |           |           |
| 108 1.2DL + 1.5LM-MP3 + 1SWL (...Y...) | Y    |      | 1        | 1.2       | 36        | 1.5       | 10        | .061      | 14        | -.0...    | 15        | -.0...    |           |           |           |           |           |           |
| 109 1.2DL + 1.5LM-MP3 + 1SWL (...Y...) | Y    |      | 1        | 1.2       | 36        | 1.5       | 11        | .061      | 14        |           | 15        | -.0...    |           |           |           |           |           |           |
| 110 1.2DL + 1.5LM-MP3 + 1SWL (...Y...) | Y    |      | 1        | 1.2       | 36        | 1.5       | 12        | .061      | 14        | .031      | 15        | -.0...    |           |           |           |           |           |           |

**Joint Boundary Conditions**

| Joint Label | X [k/in] | Y [k/in] | Z [k/in] | X Rot.[k-ft/rad] | Y Rot.[k-ft/rad] | Z Rot.[k-ft/rad] |
|-------------|----------|----------|----------|------------------|------------------|------------------|
| 1 N1        |          |          |          |                  |                  |                  |
| 2 N6        |          |          |          |                  |                  |                  |
| 3 N38       |          |          |          |                  |                  |                  |
| 4 N43       | Reaction | Reaction | Reaction |                  |                  |                  |
| 5 N44       | Reaction | Reaction | Reaction |                  |                  |                  |
| 6 N44A      | Reaction | Reaction | Reaction |                  |                  |                  |

**Envelope Joint Reactions**

| Joint     | X [lb]    | LC | Y [lb]    | LC  | Z [lb]     | LC | MX [lb-ft] | LC  | MY [lb-ft] | LC  | MZ [lb-ft] | LC  |
|-----------|-----------|----|-----------|-----|------------|----|------------|-----|------------|-----|------------|-----|
| 1 N43     | 865.347   | 78 | 667.8     | 89  | 1158.2...  | 25 | 0          | 110 | 0          | 110 | 0          | 110 |
| 2         | -1581.636 | 96 | 177.972   | 20  | -2274.5... | 7  | 0          | 1   | 0          | 1   | 0          | 1   |
| 3 N44     | 1560.374  | 91 | 648.832   | 107 | 1610.0...  | 88 | 0          | 110 | 0          | 110 | 0          | 110 |
| 4         | -843.739  | 85 | 179.484   | 14  | 220.348    | 20 | 0          | 1   | 0          | 1   | 0          | 1   |
| 5 N44A    | 120.09    | 6  | 33.917    | 37  | 854.599    | 7  | 0          | 110 | 0          | 110 | 0          | 110 |
| 6         | -120.562  | 12 | 9.974     | 55  | -856.198   | 25 | 0          | 1   | 0          | 1   | 0          | 1   |
| 7 Totals: | 785.707   | 17 | 1322.9... | 91  | 1243.8...  | 14 |            |     |            |     |            |     |
| 8         | -785.707  | 23 | 410.842   | 53  | -1243.8... | 8  |            |     |            |     |            |     |

**Member Point Loads (BLC 1 : Self Weight)**

| Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|--------------|-----------|---------------------|----------------|
| 1 MP1        | Y         | -32.25              | 0              |
| 2 MP1        | Y         | -32.25              | 72             |
| 3 MP1        | Y         | -74.95              | 12             |
| 4 MP1        | Y         | -63.93              | 12             |
| 5 S1         | Y         | -21.85              | 20             |



**Member Point Loads (BLC 2 : Wind Load AZI 0)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | 0                   | 0              |
| 2  | MP1          | Z         | -165.09             | 0              |
| 3  | MP1          | X         | 0                   | 72             |
| 4  | MP1          | Z         | -165.09             | 72             |
| 5  | MP1          | X         | 0                   | 12             |
| 6  | MP1          | Z         | -80.94              | 12             |
| 7  | MP1          | X         | 0                   | 12             |
| 8  | MP1          | Z         | -80.94              | 12             |
| 9  | S1           | X         | 0                   | 20             |
| 10 | S1           | Z         | -76.94              | 20             |

**Member Point Loads (BLC 3 : Wind Load AZI 30)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | -70.18              | 0              |
| 2  | MP1          | Z         | -121.55             | 0              |
| 3  | MP1          | X         | -70.18              | 72             |
| 4  | MP1          | Z         | -121.55             | 72             |
| 5  | MP1          | X         | -36.48              | 12             |
| 6  | MP1          | Z         | -63.18              | 12             |
| 7  | MP1          | X         | -35.67              | 12             |
| 8  | MP1          | Z         | -61.79              | 12             |
| 9  | S1           | X         | -34.35              | 20             |
| 10 | S1           | Z         | -59.5               | 20             |

**Member Point Loads (BLC 4 : Wind Load AZI 60)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | -78.71              | 0              |
| 2  | MP1          | Z         | -45.45              | 0              |
| 3  | MP1          | X         | -78.71              | 72             |
| 4  | MP1          | Z         | -45.45              | 72             |
| 5  | MP1          | X         | -49.36              | 12             |
| 6  | MP1          | Z         | -28.5               | 12             |
| 7  | MP1          | X         | -45.18              | 12             |
| 8  | MP1          | Z         | -26.08              | 12             |
| 9  | S1           | X         | -45.22              | 20             |
| 10 | S1           | Z         | -26.11              | 20             |

**Member Point Loads (BLC 5 : Wind Load AZI 90)**

|   | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|---|--------------|-----------|---------------------|----------------|
| 1 | MP1          | X         | -66.16              | 0              |
| 2 | MP1          | Z         | 0                   | 0              |

**Member Point Loads (BLC 5 : Wind Load AZI 90) (Continued)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 3  | MP1          | X         | -66.16              | 72             |
| 4  | MP1          | Z         | 0                   | 72             |
| 5  | MP1          | X         | -49.02              | 12             |
| 6  | MP1          | Z         | 0                   | 12             |
| 7  | MP1          | X         | -42.58              | 12             |
| 8  | MP1          | Z         | 0                   | 12             |
| 9  | S1           | X         | -43.97              | 20             |
| 10 | S1           | Z         | 0                   | 20             |

**Member Point Loads (BLC 6 : Wind Load AZI 120)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | -78.71              | 0              |
| 2  | MP1          | Z         | 45.45               | 0              |
| 3  | MP1          | X         | -78.71              | 72             |
| 4  | MP1          | Z         | 45.45               | 72             |
| 5  | MP1          | X         | -49.36              | 12             |
| 6  | MP1          | Z         | 28.5                | 12             |
| 7  | MP1          | X         | -45.18              | 12             |
| 8  | MP1          | Z         | 26.08               | 12             |
| 9  | S1           | X         | -45.22              | 20             |
| 10 | S1           | Z         | 26.11               | 20             |

**Member Point Loads (BLC 7 : Wind Load AZI 150)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | -70.18              | 0              |
| 2  | MP1          | Z         | 121.55              | 0              |
| 3  | MP1          | X         | -70.18              | 72             |
| 4  | MP1          | Z         | 121.55              | 72             |
| 5  | MP1          | X         | -36.48              | 12             |
| 6  | MP1          | Z         | 63.18               | 12             |
| 7  | MP1          | X         | -35.67              | 12             |
| 8  | MP1          | Z         | 61.79               | 12             |
| 9  | S1           | X         | -34.35              | 20             |
| 10 | S1           | Z         | 59.5                | 20             |

**Member Point Loads (BLC 8 : Wind Load AZI 180)**

|   | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|---|--------------|-----------|---------------------|----------------|
| 1 | MP1          | X         | 0                   | 0              |
| 2 | MP1          | Z         | 165.09              | 0              |
| 3 | MP1          | X         | 0                   | 72             |
| 4 | MP1          | Z         | 165.09              | 72             |



**Member Point Loads (BLC 8 : Wind Load AZI 180) (Continued)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 5  | MP1          | X         | 0                   | 12             |
| 6  | MP1          | Z         | 80.94               | 12             |
| 7  | MP1          | X         | 0                   | 12             |
| 8  | MP1          | Z         | 80.94               | 12             |
| 9  | S1           | X         | 0                   | 20             |
| 10 | S1           | Z         | 76.94               | 20             |

**Member Point Loads (BLC 9 : Wind Load AZI 210)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | 70.18               | 0              |
| 2  | MP1          | Z         | 121.55              | 0              |
| 3  | MP1          | X         | 70.18               | 72             |
| 4  | MP1          | Z         | 121.55              | 72             |
| 5  | MP1          | X         | 36.48               | 12             |
| 6  | MP1          | Z         | 63.18               | 12             |
| 7  | MP1          | X         | 35.67               | 12             |
| 8  | MP1          | Z         | 61.79               | 12             |
| 9  | S1           | X         | 34.35               | 20             |
| 10 | S1           | Z         | 59.5                | 20             |

**Member Point Loads (BLC 10 : Wind Load AZI 240)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | 78.71               | 0              |
| 2  | MP1          | Z         | 45.45               | 0              |
| 3  | MP1          | X         | 78.71               | 72             |
| 4  | MP1          | Z         | 45.45               | 72             |
| 5  | MP1          | X         | 49.36               | 12             |
| 6  | MP1          | Z         | 28.5                | 12             |
| 7  | MP1          | X         | 45.18               | 12             |
| 8  | MP1          | Z         | 26.08               | 12             |
| 9  | S1           | X         | 45.22               | 20             |
| 10 | S1           | Z         | 26.11               | 20             |

**Member Point Loads (BLC 11 : Wind Load AZI 270)**

|   | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|---|--------------|-----------|---------------------|----------------|
| 1 | MP1          | X         | 66.16               | 0              |
| 2 | MP1          | Z         | 0                   | 0              |
| 3 | MP1          | X         | 66.16               | 72             |
| 4 | MP1          | Z         | 0                   | 72             |
| 5 | MP1          | X         | 49.02               | 12             |
| 6 | MP1          | Z         | 0                   | 12             |



**Member Point Loads (BLC 11 : Wind Load AZI 270) (Continued)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 7  | MP1          | X         | 42.58               | 12             |
| 8  | MP1          | Z         | 0                   | 12             |
| 9  | S1           | X         | 43.97               | 20             |
| 10 | S1           | Z         | 0                   | 20             |

**Member Point Loads (BLC 12 : Wind Load AZI 300)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | 78.71               | 0              |
| 2  | MP1          | Z         | -45.45              | 0              |
| 3  | MP1          | X         | 78.71               | 72             |
| 4  | MP1          | Z         | -45.45              | 72             |
| 5  | MP1          | X         | 49.36               | 12             |
| 6  | MP1          | Z         | -28.5               | 12             |
| 7  | MP1          | X         | 45.18               | 12             |
| 8  | MP1          | Z         | -26.08              | 12             |
| 9  | S1           | X         | 45.22               | 20             |
| 10 | S1           | Z         | -26.11              | 20             |

**Member Point Loads (BLC 13 : Wind Load AZI 330)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | 70.18               | 0              |
| 2  | MP1          | Z         | -121.55             | 0              |
| 3  | MP1          | X         | 70.18               | 72             |
| 4  | MP1          | Z         | -121.55             | 72             |
| 5  | MP1          | X         | 36.48               | 12             |
| 6  | MP1          | Z         | -63.18              | 12             |
| 7  | MP1          | X         | 35.67               | 12             |
| 8  | MP1          | Z         | -61.79              | 12             |
| 9  | S1           | X         | 34.35               | 20             |
| 10 | S1           | Z         | -59.5               | 20             |

**Member Point Loads (BLC 16 : Ice Weight)**

|   | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|---|--------------|-----------|---------------------|----------------|
| 1 | MP1          | Y         | -88.818             | 0              |
| 2 | MP1          | Y         | -88.818             | 72             |
| 3 | MP1          | Y         | -44.951             | 12             |
| 4 | MP1          | Y         | -42.056             | 12             |
| 5 | S1           | Y         | -40.977             | 20             |

**Member Point Loads (BLC 17 : Ice Wind Load AZI 0)**

|  | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|--|--------------|-----------|---------------------|----------------|
|--|--------------|-----------|---------------------|----------------|



**Member Point Loads (BLC 17 : Ice Wind Load AZI 0) (Continued)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | 0                   | 0              |
| 2  | MP1          | Z         | -20.97              | 0              |
| 3  | MP1          | X         | 0                   | 72             |
| 4  | MP1          | Z         | -20.97              | 72             |
| 5  | MP1          | X         | 0                   | 12             |
| 6  | MP1          | Z         | -7.59               | 12             |
| 7  | MP1          | X         | 0                   | 12             |
| 8  | MP1          | Z         | -7.59               | 12             |
| 9  | S1           | X         | 0                   | 20             |
| 10 | S1           | Z         | -7.33               | 20             |

**Member Point Loads (BLC 18 : Ice Wind Load AZI 30)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | -9.57               | 0              |
| 2  | MP1          | Z         | -16.58              | 0              |
| 3  | MP1          | X         | -9.57               | 72             |
| 4  | MP1          | Z         | -16.58              | 72             |
| 5  | MP1          | X         | -3.6                | 12             |
| 6  | MP1          | Z         | -6.23               | 12             |
| 7  | MP1          | X         | -3.56               | 12             |
| 8  | MP1          | Z         | -6.16               | 12             |
| 9  | S1           | X         | -3.47               | 20             |
| 10 | S1           | Z         | -6.01               | 20             |

**Member Point Loads (BLC 19 : Ice Wind Load AZI 60)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | -13.43              | 0              |
| 2  | MP1          | Z         | -7.75               | 0              |
| 3  | MP1          | X         | -13.43              | 72             |
| 4  | MP1          | Z         | -7.75               | 72             |
| 5  | MP1          | X         | -5.54               | 12             |
| 6  | MP1          | Z         | -3.2                | 12             |
| 7  | MP1          | X         | -5.32               | 12             |
| 8  | MP1          | Z         | -3.07               | 12             |
| 9  | S1           | X         | -5.34               | 20             |
| 10 | S1           | Z         | -3.08               | 20             |

**Member Point Loads (BLC 20 : Ice Wind Load AZI 90)**

|   | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|---|--------------|-----------|---------------------|----------------|
| 1 | MP1          | X         | -13.68              | 0              |
| 2 | MP1          | Z         | 0                   | 0              |

**Member Point Loads (BLC 20 : Ice Wind Load AZI 90) (Continued)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 3  | MP1          | X         | -13.68              | 72             |
| 4  | MP1          | Z         | 0                   | 72             |
| 5  | MP1          | X         | -6                  | 12             |
| 6  | MP1          | Z         | 0                   | 12             |
| 7  | MP1          | X         | -5.66               | 12             |
| 8  | MP1          | Z         | 0                   | 12             |
| 9  | S1           | X         | -5.78               | 20             |
| 10 | S1           | Z         | 0                   | 20             |

**Member Point Loads (BLC 21 : Ice Wind Load AZI 120)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | -13.43              | 0              |
| 2  | MP1          | Z         | 7.75                | 0              |
| 3  | MP1          | X         | -13.43              | 72             |
| 4  | MP1          | Z         | 7.75                | 72             |
| 5  | MP1          | X         | -5.54               | 12             |
| 6  | MP1          | Z         | 3.2                 | 12             |
| 7  | MP1          | X         | -5.32               | 12             |
| 8  | MP1          | Z         | 3.07                | 12             |
| 9  | S1           | X         | -5.34               | 20             |
| 10 | S1           | Z         | 3.08                | 20             |

**Member Point Loads (BLC 22 : Ice Wind Load AZI 150)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | -9.57               | 0              |
| 2  | MP1          | Z         | 16.58               | 0              |
| 3  | MP1          | X         | -9.57               | 72             |
| 4  | MP1          | Z         | 16.58               | 72             |
| 5  | MP1          | X         | -3.6                | 12             |
| 6  | MP1          | Z         | 6.23                | 12             |
| 7  | MP1          | X         | -3.56               | 12             |
| 8  | MP1          | Z         | 6.16                | 12             |
| 9  | S1           | X         | -3.47               | 20             |
| 10 | S1           | Z         | 6.01                | 20             |

**Member Point Loads (BLC 23 : Ice Wind Load AZI 180)**

|   | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|---|--------------|-----------|---------------------|----------------|
| 1 | MP1          | X         | 0                   | 0              |
| 2 | MP1          | Z         | 20.97               | 0              |
| 3 | MP1          | X         | 0                   | 72             |
| 4 | MP1          | Z         | 20.97               | 72             |



**Member Point Loads (BLC 23 : Ice Wind Load AZI 180) (Continued)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 5  | MP1          | X         | 0                   | 12             |
| 6  | MP1          | Z         | 7.59                | 12             |
| 7  | MP1          | X         | 0                   | 12             |
| 8  | MP1          | Z         | 7.59                | 12             |
| 9  | S1           | X         | 0                   | 20             |
| 10 | S1           | Z         | 7.33                | 20             |

**Member Point Loads (BLC 24 : Ice Wind Load AZI 210)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | 9.57                | 0              |
| 2  | MP1          | Z         | 16.58               | 0              |
| 3  | MP1          | X         | 9.57                | 72             |
| 4  | MP1          | Z         | 16.58               | 72             |
| 5  | MP1          | X         | 3.6                 | 12             |
| 6  | MP1          | Z         | 6.23                | 12             |
| 7  | MP1          | X         | 3.56                | 12             |
| 8  | MP1          | Z         | 6.16                | 12             |
| 9  | S1           | X         | 3.47                | 20             |
| 10 | S1           | Z         | 6.01                | 20             |

**Member Point Loads (BLC 25 : Ice Wind Load AZI 240)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | 13.43               | 0              |
| 2  | MP1          | Z         | 7.75                | 0              |
| 3  | MP1          | X         | 13.43               | 72             |
| 4  | MP1          | Z         | 7.75                | 72             |
| 5  | MP1          | X         | 5.54                | 12             |
| 6  | MP1          | Z         | 3.2                 | 12             |
| 7  | MP1          | X         | 5.32                | 12             |
| 8  | MP1          | Z         | 3.07                | 12             |
| 9  | S1           | X         | 5.34                | 20             |
| 10 | S1           | Z         | 3.08                | 20             |

**Member Point Loads (BLC 26 : Ice Wind Load AZI 270)**

|   | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|---|--------------|-----------|---------------------|----------------|
| 1 | MP1          | X         | 13.68               | 0              |
| 2 | MP1          | Z         | 0                   | 0              |
| 3 | MP1          | X         | 13.68               | 72             |
| 4 | MP1          | Z         | 0                   | 72             |
| 5 | MP1          | X         | 6                   | 12             |
| 6 | MP1          | Z         | 0                   | 12             |



**Member Point Loads (BLC 26 : Ice Wind Load AZI 270) (Continued)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 7  | MP1          | X         | 5.66                | 12             |
| 8  | MP1          | Z         | 0                   | 12             |
| 9  | S1           | X         | 5.78                | 20             |
| 10 | S1           | Z         | 0                   | 20             |

**Member Point Loads (BLC 27 : Ice Wind Load AZI 300)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | 13.43               | 0              |
| 2  | MP1          | Z         | -7.75               | 0              |
| 3  | MP1          | X         | 13.43               | 72             |
| 4  | MP1          | Z         | -7.75               | 72             |
| 5  | MP1          | X         | 5.54                | 12             |
| 6  | MP1          | Z         | -3.2                | 12             |
| 7  | MP1          | X         | 5.32                | 12             |
| 8  | MP1          | Z         | -3.07               | 12             |
| 9  | S1           | X         | 5.34                | 20             |
| 10 | S1           | Z         | -3.08               | 20             |

**Member Point Loads (BLC 28 : Ice Wind Load AZI 330)**

|    | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|----|--------------|-----------|---------------------|----------------|
| 1  | MP1          | X         | 9.57                | 0              |
| 2  | MP1          | Z         | -16.58              | 0              |
| 3  | MP1          | X         | 9.57                | 72             |
| 4  | MP1          | Z         | -16.58              | 72             |
| 5  | MP1          | X         | 3.6                 | 12             |
| 6  | MP1          | Z         | -6.23               | 12             |
| 7  | MP1          | X         | 3.56                | 12             |
| 8  | MP1          | Z         | -6.16               | 12             |
| 9  | S1           | X         | 3.47                | 20             |
| 10 | S1           | Z         | -6.01               | 20             |

**Member Point Loads (BLC 31 : Seismic Load Z)**

|   | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|---|--------------|-----------|---------------------|----------------|
| 1 | MP1          | Z         | -9.546              | 0              |
| 2 | MP1          | Z         | -9.546              | 72             |
| 3 | MP1          | Z         | -22.185             | 12             |
| 4 | MP1          | Z         | -18.923             | 12             |
| 5 | S1           | Z         | -6.468              | 20             |

**Member Point Loads (BLC 32 : Seismic Load X)**

|  | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|--|--------------|-----------|---------------------|----------------|
|--|--------------|-----------|---------------------|----------------|

**Member Point Loads (BLC 32 : Seismic Load X) (Continued)**

|   | Member Label | Direction | Magnitude[lb,lb-ft] | Location[in,%] |
|---|--------------|-----------|---------------------|----------------|
| 1 | MP1          | X         | -9.546              | 0              |
| 2 | MP1          | X         | -9.546              | 72             |
| 3 | MP1          | X         | -22.185             | 12             |
| 4 | MP1          | X         | -18.923             | 12             |
| 5 | S1           | X         | -6.468              | 20             |

**Joint Loads and Enforced Displacements (BLC 33 : Service Live Loads)**

|   | Joint Label | L,D,M | Direction | Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)] |
|---|-------------|-------|-----------|---|
| 1 | N18         | L     | Y         | -250  |

**Joint Loads and Enforced Displacements (BLC 34 : Maintenance Load 1)**

|   | Joint Label | L,D,M | Direction | Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)] |
|---|-------------|-------|-----------|---|
| 1 | N69         | L     | Y         | -500  |

**Joint Loads and Enforced Displacements (BLC 35 : Maintenance Load 2)**

|   | Joint Label | L,D,M | Direction | Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)] |
|---|-------------|-------|-----------|---|
| 1 | N70         | L     | Y         | -500  |

**Joint Loads and Enforced Displacements (BLC 36 : Maintenance Load 3)**

|   | Joint Label | L,D,M | Direction | Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)] |
|---|-------------|-------|-----------|---|
| 1 | N74         | L     | Y         | -500  |

**Member Distributed Loads (BLC 14 : Distr. Wind Load Z)**

|    | Member Label | Direction | Start Magnitude[lb/ft,.... | End Magn... | Start Location... | End Location[in,%] |
|----|--------------|-----------|----------------------------|-------------|-------------------|--------------------|
| 1  | S3           | SZ        | -54.96                     | -54.96      | 0                 | %100               |
| 2  | S4           | SZ        | -54.96                     | -54.96      | 0                 | %100               |
| 3  | TR6          | SZ        | -54.96                     | -54.96      | 0                 | %100               |
| 4  | TR5          | SZ        | -54.96                     | -54.96      | 0                 | %100               |
| 5  | TR8          | SZ        | -54.96                     | -54.96      | 0                 | %100               |
| 6  | TR7          | SZ        | -54.96                     | -54.96      | 0                 | %100               |
| 7  | S1           | SZ        | -54.96                     | -54.96      | 0                 | %100               |
| 8  | S2           | SZ        | -54.96                     | -54.96      | 0                 | %100               |
| 9  | TR1          | SZ        | -54.96                     | -54.96      | 0                 | %100               |
| 10 | TR2          | SZ        | -54.96                     | -54.96      | 0                 | %100               |
| 11 | TR3          | SZ        | -54.96                     | -54.96      | 0                 | %100               |
| 12 | TR4          | SZ        | -54.96                     | -54.96      | 0                 | %100               |
| 13 | H1           | SZ        | -54.96                     | -54.96      | 0                 | %100               |
| 14 | H2           | SZ        | -54.96                     | -54.96      | 0                 | %100               |



**Member Distributed Loads (BLC 14 : Distr. Wind Load Z) (Continued)**

|    | Member Label | Direction | Start Magnitude[lb/ft,... | End Magn... | Start Location... | End Location[in,%] |
|----|--------------|-----------|---------------------------|-------------|-------------------|--------------------|
| 15 | MP3          | SZ        | -54.96                    | -54.96      | 0                 | %100               |
| 16 | MP1          | SZ        | -54.96                    | -54.96      | 0                 | %100               |
| 17 | MP2          | SZ        | -54.96                    | -54.96      | 0                 | %100               |
| 18 | T1           | SZ        | -54.96                    | -54.96      | 0                 | %100               |
| 19 | M29          | SZ        | 0                         | 0           | 0                 | %100               |
| 20 | M30          | SZ        | 0                         | 0           | 0                 | %100               |
| 21 | M33          | SZ        | 0                         | 0           | 0                 | %100               |
| 22 | M34          | SZ        | 0                         | 0           | 0                 | %100               |
| 23 | M35          | SZ        | 0                         | 0           | 0                 | %100               |
| 24 | M36          | SZ        | 0                         | 0           | 0                 | %100               |
| 25 | M25          | SZ        | 0                         | 0           | 0                 | %100               |
| 26 | M26          | SZ        | 0                         | 0           | 0                 | %100               |
| 27 | M27          | SZ        | 0                         | 0           | 0                 | %100               |

**Member Distributed Loads (BLC 15 : Distr. Wind Load X)**

|    | Member Label | Direction | Start Magnitude[lb/ft,... | End Magn... | Start Location... | End Location[in,%] |
|----|--------------|-----------|---------------------------|-------------|-------------------|--------------------|
| 1  | S3           | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 2  | S4           | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 3  | TR6          | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 4  | TR5          | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 5  | TR8          | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 6  | TR7          | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 7  | S1           | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 8  | S2           | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 9  | TR1          | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 10 | TR2          | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 11 | TR3          | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 12 | TR4          | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 13 | H1           | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 14 | H2           | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 15 | MP3          | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 16 | MP1          | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 17 | MP2          | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 18 | T1           | SX        | -54.96                    | -54.96      | 0                 | %100               |
| 19 | M29          | SX        | 0                         | 0           | 0                 | %100               |
| 20 | M30          | SX        | 0                         | 0           | 0                 | %100               |
| 21 | M33          | SX        | 0                         | 0           | 0                 | %100               |
| 22 | M34          | SX        | 0                         | 0           | 0                 | %100               |
| 23 | M35          | SX        | 0                         | 0           | 0                 | %100               |
| 24 | M36          | SX        | 0                         | 0           | 0                 | %100               |
| 25 | M25          | SX        | 0                         | 0           | 0                 | %100               |
| 26 | M26          | SX        | 0                         | 0           | 0                 | %100               |



**Member Distributed Loads (BLC 15 : Distr. Wind Load X) (Continued)**

|    | Member Label | Direction | Start Magnitude[lb/ft,... | End Magn... | Start Location... | End Location[in, %] |
|----|--------------|-----------|---------------------------|-------------|-------------------|---------------------|
| 27 | M27          | SX        | 0                         | 0           | 0                 | %100                |

**Member Distributed Loads (BLC 16 : Ice Weight)**

|    | Member Label | Direction | Start Magnitude[lb/ft,... | End Magn... | Start Location... | End Location[in, %] |
|----|--------------|-----------|---------------------------|-------------|-------------------|---------------------|
| 1  | S3           | Y         | -4.223                    | -4.223      | 0                 | %100                |
| 2  | S4           | Y         | -4.223                    | -4.223      | 0                 | %100                |
| 3  | TR6          | Y         | -2.457                    | -2.457      | 0                 | %100                |
| 4  | TR5          | Y         | -2.457                    | -2.457      | 0                 | %100                |
| 5  | TR8          | Y         | -2.457                    | -2.457      | 0                 | %100                |
| 6  | TR7          | Y         | -2.457                    | -2.457      | 0                 | %100                |
| 7  | S1           | Y         | -4.223                    | -4.223      | 0                 | %100                |
| 8  | S2           | Y         | -4.223                    | -4.223      | 0                 | %100                |
| 9  | TR1          | Y         | -2.457                    | -2.457      | 0                 | %100                |
| 10 | TR2          | Y         | -2.457                    | -2.457      | 0                 | %100                |
| 11 | TR3          | Y         | -2.457                    | -2.457      | 0                 | %100                |
| 12 | TR4          | Y         | -2.457                    | -2.457      | 0                 | %100                |
| 13 | H1           | Y         | -5.578                    | -5.578      | 0                 | %100                |
| 14 | H2           | Y         | -5.578                    | -5.578      | 0                 | %100                |
| 15 | MP3          | Y         | -5.585                    | -5.585      | 0                 | %100                |
| 16 | MP1          | Y         | -5.585                    | -5.585      | 0                 | %100                |
| 17 | MP2          | Y         | -5.585                    | -5.585      | 0                 | %100                |
| 18 | T1           | Y         | -4.89                     | -4.89       | 0                 | %100                |
| 19 | M29          | Y         | -1.582                    | -1.582      | 0                 | %100                |
| 20 | M30          | Y         | -1.582                    | -1.582      | 0                 | %100                |
| 21 | M33          | Y         | -1.582                    | -1.582      | 0                 | %100                |
| 22 | M34          | Y         | -1.582                    | -1.582      | 0                 | %100                |
| 23 | M35          | Y         | -1.582                    | -1.582      | 0                 | %100                |
| 24 | M36          | Y         | -1.582                    | -1.582      | 0                 | %100                |
| 25 | M25          | Y         | -1.582                    | -1.582      | 0                 | %100                |
| 26 | M26          | Y         | -1.582                    | -1.582      | 0                 | %100                |
| 27 | M27          | Y         | -1.582                    | -1.582      | 0                 | %100                |

**Member Distributed Loads (BLC 29 : Distr. Ice Wind Load Z)**

|   | Member Label | Direction | Start Magnitude[lb/ft,... | End Magn... | Start Location... | End Location[in, %] |
|---|--------------|-----------|---------------------------|-------------|-------------------|---------------------|
| 1 | S3           | SZ        | -20.625                   | -20.625     | 0                 | %100                |
| 2 | S4           | SZ        | -20.625                   | -20.625     | 0                 | %100                |
| 3 | TR6          | SZ        | -43.283                   | -43.283     | 0                 | %100                |
| 4 | TR5          | SZ        | -43.283                   | -43.283     | 0                 | %100                |
| 5 | TR8          | SZ        | -43.283                   | -43.283     | 0                 | %100                |
| 6 | TR7          | SZ        | -43.283                   | -43.283     | 0                 | %100                |
| 7 | S1           | SZ        | -20.625                   | -20.625     | 0                 | %100                |



**Member Distributed Loads (BLC 29 : Distr. Ice Wind Load Z) (Continued)**

|    | Member Label | Direction | Start Magnitude[lb/ft,... | End Magn... | Start Location... | End Location[in, %] |
|----|--------------|-----------|---------------------------|-------------|-------------------|---------------------|
| 8  | S2           | SZ        | -20.625                   | -20.625     | 0                 | %100                |
| 9  | TR1          | SZ        | -43.283                   | -43.283     | 0                 | %100                |
| 10 | TR2          | SZ        | -43.283                   | -43.283     | 0                 | %100                |
| 11 | TR3          | SZ        | -43.283                   | -43.283     | 0                 | %100                |
| 12 | TR4          | SZ        | -43.283                   | -43.283     | 0                 | %100                |
| 13 | H1           | SZ        | -16.813                   | -16.813     | 0                 | %100                |
| 14 | H2           | SZ        | -16.813                   | -16.813     | 0                 | %100                |
| 15 | MP3          | SZ        | -16.8                     | -16.8       | 0                 | %100                |
| 16 | MP1          | SZ        | -16.8                     | -16.8       | 0                 | %100                |
| 17 | MP2          | SZ        | -16.8                     | -16.8       | 0                 | %100                |
| 18 | T1           | SZ        | -18.358                   | -18.358     | 0                 | %100                |
| 19 | M29          | SZ        | 0                         | 0           | 0                 | %100                |
| 20 | M30          | SZ        | 0                         | 0           | 0                 | %100                |
| 21 | M33          | SZ        | 0                         | 0           | 0                 | %100                |
| 22 | M34          | SZ        | 0                         | 0           | 0                 | %100                |
| 23 | M35          | SZ        | 0                         | 0           | 0                 | %100                |
| 24 | M36          | SZ        | 0                         | 0           | 0                 | %100                |
| 25 | M25          | SZ        | 0                         | 0           | 0                 | %100                |
| 26 | M26          | SZ        | 0                         | 0           | 0                 | %100                |
| 27 | M27          | SZ        | 0                         | 0           | 0                 | %100                |

**Member Distributed Loads (BLC 30 : Distr. Ice Wind Load X)**

|    | Member Label | Direction | Start Magnitude[lb/ft,... | End Magn... | Start Location... | End Location[in, %] |
|----|--------------|-----------|---------------------------|-------------|-------------------|---------------------|
| 1  | S3           | SX        | -20.625                   | -20.625     | 0                 | %100                |
| 2  | S4           | SX        | -20.625                   | -20.625     | 0                 | %100                |
| 3  | TR6          | SX        | -43.283                   | -43.283     | 0                 | %100                |
| 4  | TR5          | SX        | -43.283                   | -43.283     | 0                 | %100                |
| 5  | TR8          | SX        | -43.283                   | -43.283     | 0                 | %100                |
| 6  | TR7          | SX        | -43.283                   | -43.283     | 0                 | %100                |
| 7  | S1           | SX        | -20.625                   | -20.625     | 0                 | %100                |
| 8  | S2           | SX        | -20.625                   | -20.625     | 0                 | %100                |
| 9  | TR1          | SX        | -43.283                   | -43.283     | 0                 | %100                |
| 10 | TR2          | SX        | -43.283                   | -43.283     | 0                 | %100                |
| 11 | TR3          | SX        | -43.283                   | -43.283     | 0                 | %100                |
| 12 | TR4          | SX        | -43.283                   | -43.283     | 0                 | %100                |
| 13 | H1           | SX        | -16.813                   | -16.813     | 0                 | %100                |
| 14 | H2           | SX        | -16.813                   | -16.813     | 0                 | %100                |
| 15 | MP3          | SX        | -16.8                     | -16.8       | 0                 | %100                |
| 16 | MP1          | SX        | -16.8                     | -16.8       | 0                 | %100                |
| 17 | MP2          | SX        | -16.8                     | -16.8       | 0                 | %100                |
| 18 | T1           | SX        | -18.358                   | -18.358     | 0                 | %100                |
| 19 | M29          | SX        | 0                         | 0           | 0                 | %100                |



**Member Distributed Loads (BLC 30 : Distr. Ice Wind Load X) (Continued)**

|    | Member Label | Direction | Start Magnitude[lb/ft,... | End Magn... | Start Location... | End Location[in, %] |
|----|--------------|-----------|---------------------------|-------------|-------------------|---------------------|
| 20 | M30          | SX        | 0                         | 0           | 0                 | %100                |
| 21 | M33          | SX        | 0                         | 0           | 0                 | %100                |
| 22 | M34          | SX        | 0                         | 0           | 0                 | %100                |
| 23 | M35          | SX        | 0                         | 0           | 0                 | %100                |
| 24 | M36          | SX        | 0                         | 0           | 0                 | %100                |
| 25 | M25          | SX        | 0                         | 0           | 0                 | %100                |
| 26 | M26          | SX        | 0                         | 0           | 0                 | %100                |
| 27 | M27          | SX        | 0                         | 0           | 0                 | %100                |

**Member Area Loads**

| Joint A              | Joint B | Joint C | Joint D | Direction | Distribution | Magnitude[psf] |
|----------------------|---------|---------|---------|-----------|--------------|----------------|
| No Data to Print ... |         |         |         |           |              |                |

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

| Member | Shape | Code Check     | Loc[in] | LC     | She... | Loc[in] | Dir    | LC | phi*P... | phi*P... | phi*M... | phi*Mn z-z [lb... | Cb      | Eqn   |       |
|--------|-------|----------------|---------|--------|--------|---------|--------|----|----------|----------|----------|-------------------|---------|-------|-------|
| 1      | TR7   | 0.63" SR       | .401    | 39.811 | 88     | .026    | 19.905 |    | 85       | 4409...  | 1402...  | 147.2...          | 147.295 | 2.... | H1-1a |
| 2      | S4    | 1.9" ODx0.1... | .396    | 35.333 | 91     | .134    | 42.4   |    | 94       | 2049...  | 2777...  | 1314...           | 1314.45 | 1.... | H1-1b |
| 3      | S3    | 1.9" ODx0.1... | .378    | 35.333 | 94     | .135    | 42.4   |    | 88       | 2049...  | 2777...  | 1314...           | 1314.45 | 1.... | H1-1b |
| 4      | TR4   | 0.63" SR       | .318    | 39.811 | 87     | .030    | 19.905 |    | 90       | 4409...  | 1402...  | 147.2...          | 147.295 | 2.... | H1-1a |
| 5      | S2    | 1.9" ODx0.1... | .308    | 35.333 | 85     | .119    | 42.4   |    | 84       | 2049...  | 2777...  | 1314...           | 1314.45 | 1.... | H1-1b |
| 6      | S1    | 1.9" ODx0.1... | .292    | 35.333 | 81     | .118    | 42.4   |    | 87       | 2049...  | 2777...  | 1314...           | 1314.45 | 1.79  | H1-1b |
| 7      | MP1   | 2.88"x0.120"   | .257    | 33     | 2      | .071    | 33     |    | 8        | 2249...  | 43056    | 3156...           | 3156.75 | 3.... | H1-1b |
| 8      | TR8   | 0.63" SR       | .154    | 0      | 94     | .026    | 19.905 |    | 81       | 2249...  | 1402...  | 147.2...          | 147.295 | 2.... | H1-1b |
| 9      | H1    | PIPE 2.5       | .137    | 77     | 8      | .085    | 78     |    | 2        | 3348...  | 66654    | 4726.5            | 4726.5  | 2.... | H1-1b |
| 10     | T1    | Pipe2.38X0...  | .133    | 96.255 | 7      | .008    | 96.255 |    | 30       | 1328...  | 3527...  | 2114...           | 2114.85 | 1.... | H1-1b |
| 11     | TR3   | 0.63" SR       | .126    | 0      | 81     | .030    | 19.905 |    | 96       | 2249...  | 1402...  | 147.2...          | 147.295 | 2.... | H1-1b |
| 12     | TR5   | 0.63" SR       | .119    | 0      | 94     | .033    | 0      |    | 95       | 5162...  | 1402...  | 147.2...          | 147.295 | 2.... | H1-1b |
| 13     | TR2   | 0.63" SR       | .110    | 0      | 81     | .034    | 0      |    | 95       | 5162...  | 1402...  | 147.2...          | 147.295 | 2.... | H1-1b |
| 14     | MP3   | 2.88"x0.120"   | .109    | 33     | 81     | .023    | 61     |    | 87       | 2249...  | 43056    | 3156...           | 3156.75 | 4.... | H1-1b |
| 15     | H2    | PIPE 2.5       | .088    | 93     | 96     | .047    | 78     |    | 94       | 3348...  | 66654    | 4726.5            | 4726.5  | 2.... | H1-1b |
| 16     | MP2   | 2.88"x0.120"   | .081    | 33     | 8      | .038    | 33     |    | 93       | 2249...  | 43056    | 3156...           | 3156.75 | 4.... | H1-1b |
| 17     | TR6   | 0.63" SR       | .076    | 0      | 93     | .016    | 0      |    | 96       | 5162...  | 1402...  | 147.2...          | 147.295 | 2.... | H1-1b |
| 18     | TR1   | 0.63" SR       | .053    | 28.3   | 77     | .015    | 28.3   |    | 96       | 5162...  | 1402...  | 147.2...          | 147.295 | 2.... | H1-1b |

## Bolt Calculation Tool, V1.5.1

| PROJECT DATA            |                           |
|-------------------------|---------------------------|
| Site Name:              | BOBOS00894A               |
| Site Number:            | BOBOS00894A               |
| Connection Description: | Sector Frame to Tower Leg |

| MAXIMUM BOLT LOADS |         |     |
|--------------------|---------|-----|
| Bolt Tension:      | 1137.26 | lbs |
| Bolt Shear:        | 852.03  | lbs |

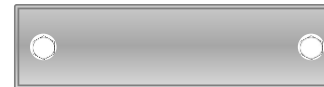
| WORST CASE BOLT LOADS <sup>1</sup> |        |     |
|------------------------------------|--------|-----|
| Bolt Tension:                      | 794.53 | lbs |
| Bolt Shear:                        | 852.03 | lbs |

| BOLT PROPERTIES     |              |    |
|---------------------|--------------|----|
| Bolt Type:          | Threaded Rod | -  |
| Bolt Diameter:      | 0.625        | in |
| Bolt Grade:         | A449         | -  |
| # of Threaded Rods: | 2            | -  |
| Threads Excluded?   | No           | -  |

<sup>1</sup> Worst case bolt loads correspond to Load combination #96 on member M25 in RISA-3D, which causes the maximum demand on the bolts.

| Member Information  |
|---------------------|
| I nodes of M25, M26 |

| BOLT CHECK                     |          |       |
|--------------------------------|----------|-------|
| Tensile Strength               | 20340.15 |       |
| Shear Strength                 | 13805.83 |       |
| Max Tensile Usage              | 5.6%     |       |
| Max Shear Usage                | 6.2%     |       |
| Interaction Check (Worst Case) | 0.01     | ≤1.05 |
| Result                         | Pass     |       |





## Bolt Calculation Tool, V1.5.1

| PROJECT DATA            |                      |
|-------------------------|----------------------|
| Site Name:              | BOBOS00894A          |
| Site Number:            | BOBOS00894A          |
| Connection Description: | Tieback to Tower Leg |

| MAXIMUM BOLT LOADS |        |     |
|--------------------|--------|-----|
| Bolt Tension:      | 60.28  | lbs |
| Bolt Shear:        | 427.87 | lbs |

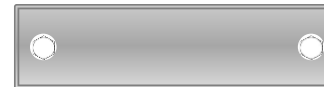
| WORST CASE BOLT LOADS <sup>1</sup> |        |     |
|------------------------------------|--------|-----|
| Bolt Tension:                      | 55.74  | lbs |
| Bolt Shear:                        | 427.87 | lbs |

| BOLT PROPERTIES     |              |    |
|---------------------|--------------|----|
| Bolt Type:          | Threaded Rod | -  |
| Bolt Diameter:      | 0.5          | in |
| Bolt Grade:         | A449         | -  |
| # of Threaded Rods: | 2            | -  |
| Threads Excluded?   | No           | -  |

<sup>1</sup> Worst case bolt loads correspond to Load combination #13 on member M27 in RISA-3D, which causes the maximum demand on the bolts.

| Member Information |
|--------------------|
| I nodes of M27     |

| BOLT CHECK                     |          |       |
|--------------------------------|----------|-------|
| Tensile Strength               | 12770.86 |       |
| Shear Strength                 | 8835.73  |       |
| Max Tensile Usage              | 0.5%     |       |
| Max Shear Usage                | 4.8%     |       |
| Interaction Check (Worst Case) | 0.00     | ≤1.05 |
| Result                         | Pass     |       |





**AMERICAN TOWER®**  
CORPORATION

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## Structural Analysis Report

**Structure** : 160 ft Guyed Tower  
**ATC Site Name** : HAMPTON CT,CT  
**ATC Site Number** : 10029  
**Engineering Number** : 13733446\_C3\_03  
**Proposed Carrier** : DISH WIRELESS L.L.C.  
**Carrier Site Name** : BOBOS00894A  
**Carrier Site Number** : BOBOS00894A  
**Site Location** : 185 Fisk Road  
Hampton, CT 06247-1305  
41.7699, -72.0706  
**County** : Windham  
**Date** : November 5, 2021  
**Max Usage** : 61%  
**Result** : Pass

Prepared By:

Nicholas Beam  
Structural Engineer

Reviewed By:



**COA : PEC.0001553**



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## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 160 ft Guyed tower to reflect the change in loading by DISH WIRELESS L.L.C..

## Supporting Documents

|                            |  |
|----------------------------|--|
| <b>Tower Drawings</b>      | Fred A. Nudd Corporation Project #6606, dated February 17, 1999  |
| <b>Foundation Drawing</b>  | Fred A. Nudd Corporation Dwg #99-6606-2, dated February 17, 1999<br>ATC Pier Measurements, dated January 3, 2013 |
| <b>Geotechnical Report</b> | GEOServices Project #21-07254, dated February 16, 2008   |

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

|                                      |  |
|--------------------------------------|--|
| <b>Basic Wind Speed:</b>             | 121 mph (3-second gust)  |
| <b>Basic Wind Speed w/ Ice:</b>      | 50 mph (3-second gust) w/ 1.00" radial ice concurrent            |
| <b>Code:</b>                         | ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code |
| <b>Exposure Category:</b>            | B  |
| <b>Risk Category:</b>                | II   |
| <b>Topographic Factor Procedure:</b> | Method 1   |
| <b>Topographic Category:</b>         | 1  |
| <b>Crest Height (H):</b>             | 0 ft   |
| <b>Crest Length (L):</b>             | 0 ft   |
| <b>Spectral Response:</b>            | $S_s = 0.18, S_i = 0.05$   |
| <b>Site Class:</b>                   | D - Stiff Soil - Default   |

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

**Existing and Reserved Equipment**

| Elev. <sup>1</sup> (ft) | Qty | Equipment                                | Mount Type   | Lines   | Carrier          |
|-------------------------|-----|--|--------------|---|------------------|
| 162.0                   | 9   | Allgon 7120.16.05.00 / A-800-110-131-0-N | Sector Frame | (9) 1 1/4" Coax<br>(3) 1.99" (50.7mm)<br>Hybrid   | SPRINT NEXTEL    |
| 155.0                   | 3   | Ericsson Air6449 B41                     |              |   |                  |
|                         | 3   | Ericsson Radio 4480 B71+B85A             |              |   |                  |
|                         | 3   | Ericsson Radio 4460 B25+B66              |              |   |                  |
|                         | 3   | RFS APXVAALL24 43-U-NA20                 |              |   |                  |
| 140.0                   | 1   | Raycap RCMD-6627-PF-48                   | Sector Frame | (10) 1 5/8" Coax<br>(2) 1 5/8" Hybriflex  | VERIZON WIRELESS |
|                         | 3   | Samsung B5/B13 RRH-BR04C                 |              |   |                  |
|                         | 3   | Samsung B2/B66A RRH-BR049                |              |   |                  |
|                         | 3   | Commscope CBC78T-DS-43-2X                |              |   |                  |
|                         | 3   | Samsung MT6407-77A                       |              |   |                  |
|                         | 6   | Commscope JAHH-65B-R3B                   |              |   |                  |
| 130.0                   | 2   | Raycap DC6-48-60-18-8F(32.8 lbs)         | Sector Frame | (2) 0.39" (10mm)<br>Fiber Trunk<br>(2) 0.78" (19.7mm)<br>8 AWG 6<br>(2) 0.95" (24.2mm)<br>Cable<br>(12) 1 1/4" Coax | AT&T MOBILITY    |
|                         | 3   | Ericsson Radio 8843 - B2 + B66A          |              |   |                  |
|                         | 6   | Powerwave Allgon LGP17201                |              |   |                  |
|                         | 3   | Ericsson RRUS 4449 B5, B12               |              |   |                  |
|                         | 3   | Allgon 7770.00                           |              |   |                  |
|                         | 3   | CCI DMP65R-BU8D                          |              |   |                  |
|                         | 3   | CCI HPA65R-BU8A                          |              |   |                  |
| 75.0                    | 1   | Lucent KS-24019                          | Leg          | (1) 7/8" Coax   | VERIZON WIRELESS |

**Equipment to be Removed**

| Elev. <sup>1</sup> (ft)  | Qty | Equipment | Mount Type | Lines | Carrier |
|--|-----|-----------|------------|-------|---------|
| No loading was considered as removed as part of this analysis. |     |           |            |       |         |

**Proposed Equipment**

| Elev. <sup>1</sup> (ft) | Qty | Equipment               | Mount Type   | Lines                        | Carrier              |
|-------------------------|-----|-------------------------|--------------|------------------------------|----------------------|
| 120.0                   | 1   | Raycap RDIDC-9181-PF-48 | Sector Frame | (1) 1.60" (40.6mm)<br>Hybrid | DISH WIRELESS L.L.C. |
|                         | 3   | Fujitsu TA08025-B605    |              |                              |                      |
|                         | 3   | Fujitsu TA08025-B604    |              |                              |                      |
|                         | 3   | Commscope FFVV-65B-R2   |              |                              |                      |

<sup>1</sup> Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines on the tower face with the least amount of existing lines.

### Structure Usages

| Structural Component | Controlling Usage | Pass/Fail |
|----------------------|-------------------|-----------|
| Legs                 | 47%               | Pass      |
| Diagonals            | 45%               | Pass      |
| Horizontals          | 61%               | Pass      |
| Guys                 | 42%               | Pass      |

### Foundations

| Reaction Component     | Original Design Reactions | Factored Design Reactions* | Analysis Reactions | % of Design |
|------------------------|---------------------------|----------------------------|--------------------|-------------|
| Base Axial (kips)      | -                         | -                          | 109.5              | 49%         |
| Anchor 1 Uplift (kips) | 52.5                      | 70.9                       | 27.5               | 39%         |
| Anchor 1 Shear (kips)  | 63.2                      | 85.3                       | 34.3               | 40%         |

\* The design reactions are factored by 1.35 per ANSI/TIA-222-H, Sec. 15.6.2

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required. The guy anchor reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

### Deflection, Twist and Sway\*

| Antenna Elevation (ft) | Antenna                 | Carrier              | Deflection (ft) | Twist (°) | Sway (Rotation) (°) |
|------------------------|-------------------------|----------------------|-----------------|-----------|---------------------|
| 120.0                  | Commscope FFVV-65B-R2   | DISH WIRELESS L.L.C. | 0.049           | 0.003     | 0.065               |
|                        | Fujitsu TA08025-B604    |                      |                 |           |                     |
|                        | Fujitsu TA08025-B605    |                      |                 |           |                     |
|                        | Raycap RDIDC-9181-PF-48 |                      |                 |           |                     |

\*Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H

## **Standard Conditions**

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

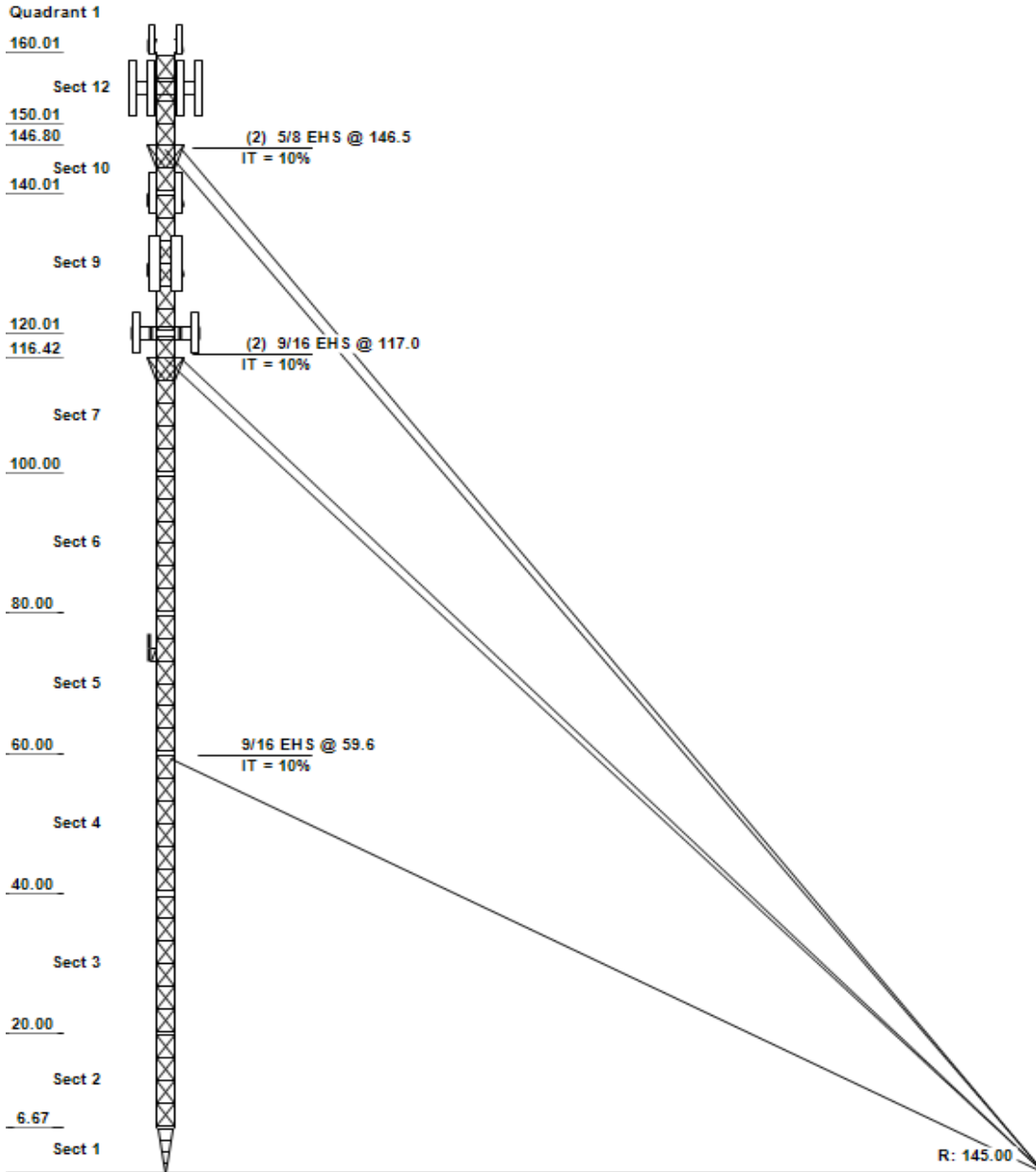
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively “American Tower”) are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

Asset: 10029, HAMPTON CT  
 Client: DISH WIRELESS L.L.C.  
 Code: ANSI/TIA-222-H

Height : 160 ft  
 Base Width : 3.5 ft  
 Shape : Triangle



| SITE PARAMETERS                         |                       |   |
|---|-----------------------|---|
| Nominal Wind : 121 mph wind with no ice | Exposure : B          | Site Class : D                                |
| Ice Wind: 50 mph wind with 1" radial    | Topo Method: Method 1 | Risk Cat : II                                 |
| Service Wind : 60 mph Serviceability    | Topo Feature :        | S <sub>3</sub> : 0.185 S <sub>1</sub> : 0.054 |

| SECTION PROPERTIES |                              |                       |                           |
|--------------------|------------------------------|-----------------------|---------------------------|
| Section            | Leg Members                  | Diagonal Members      | Horizontal Members        |
|                    | 1 PST 55 ksi 2-1/2" DIA      |                       | SAE 36 ksi 2.5X2.5X0.25   |
|                    | 2 - 12 PST 55 ksi 2-1/2" DIA | SOL 36 ksi 5/8" SOLID | SAE 36 ksi 1.5X1.5X0.1875 |

| REDUNDANT SECONDARY BRACING |            |             |            |             |            |             |
|-----------------------------|------------|-------------|------------|-------------|------------|-------------|
| Section                     | Sub Diag 1 | Sub Horiz 1 | Sub Diag 2 | Sub Horiz 2 | Sub Diag 3 | Sub Horiz 3 |
| 1 - 12                      | -          | -           | -          | -           | -          | -           |

| DISCRETE APPURTENANCE |                       |     |                                |
|-----------------------|-----------------------|-----|--------------------------------|
| Elev (ft)             | Type                  | Qty | Description                    |
| 162.00                | PANEL                 | 9   | Allgon 7120.16.05.00 / A-800-1 |
| 160.00                | Sector Frame          | 3   | Flat Light Sector Frames       |
| 160.00                | T-Arm                 | 3   | Delta Mount                    |
| 155.00                | PANEL                 | 3   | Ericsson Air6449 B41           |
| 155.00                | PANEL                 | 3   | RFS APXVAALL24 43-U-NA20       |
| 155.00                | RRU/RRH               | 3   | Ericsson Radio 4460 B25+B66    |
| 155.00                | RRU/RRH               | 3   | Ericsson Radio 4480 B71+B85A   |
| 155.00                | Sector Frame          | 3   | VFA10-HD3L4NP Sector Frame     |
| 147.00                | Other                 | 1   | Torque Arms                    |
| 144.00                | Sector Frame          | 3   | Flat Light Sector Frames       |
| 140.00                | BOB/SSB               | 1   | Raycap RCMDC-6627-PF-48        |
| 140.00                | DIPLEXER/DUAL COUPLER | 3   | Commscope CBC78T-DS-43-2X      |
| 140.00                | PANEL                 | 3   | Samsung MT6407-77A             |
| 140.00                | PANEL                 | 6   | Amphenol Antel LPA-80080-4CF-E |
| 140.00                | PANEL                 | 6   | Commscope JAHH-65B-R3B         |
| 140.00                | RRU/RRH               | 3   | Samsung B5/B13 RRH-BR04C       |
| 140.00                | RRU/RRH               | 3   | Samsung B2/B66A RRH-BR049      |
| 133.00                | Sector Frame          | 3   | Flat Light Sector Frames       |
| 130.00                | BOB/SSB               | 2   | Raycap DC6-48-60-18-8F(32.8 lb |
| 130.00                | PANEL                 | 3   | Allgon 7770.00                 |
| 130.00                | PANEL                 | 3   | CCI HPA65R-BU8A                |
| 130.00                | PANEL                 | 3   | CCI DMP65R-BU8D                |
| 130.00                | RRU/RRH               | 3   | Ericsson Radio 8843 - B2 + B66 |
| 130.00                | RRU/RRH               | 3   | Ericsson RRUS 4449 B5, B12     |
| 130.00                | TTA                   | 6   | Powerwave Allgon LGP17201      |
| 120.00                | BOB/SSB               | 1   | Raycap RDIDC-9181-PF-48        |
| 120.00                | PANEL                 | 3   | Commscope FFVV-65B-R2          |
| 120.00                | RRU/RRH               | 3   | Fujitsu TA08025-B605           |
| 120.00                | RRU/RRH               | 3   | Fujitsu TA08025-B604           |
| 120.00                | Sector Frame          | 3   | Generic Flat Light Sector Fram |
| 117.00                | Other                 | 1   | Torque Arms                    |
| 75.00                 | GPS                   | 1   | Lucent KS-24019                |

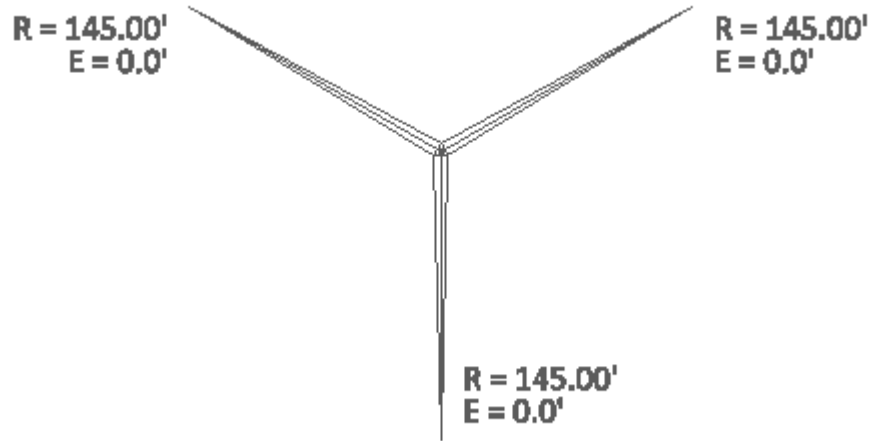


Asset: 10029, HAMPTON CT  
 Client: DISH WIRELESS L.L.C.  
 Code: ANSI/TIA-222-H

Height : 160 ft  
 Base Width : 3.5 ft  
 Shape : Triangle

LINEAR APPURTENANCE

| Elev (ft) | From   | To | Qty | Description              |
|-----------|--------|----|-----|--------------------------|
| 10.00     | 162.00 |    | 9   | 1 1/4" Coax              |
| 0.00      | 155.00 |    | 3   | 1.99" (50.7mm) Hybrid    |
| 0.00      | 140.00 |    | 2   | 1 5/8" Hybriflex         |
| 10.00     | 140.00 |    | 10  | 1 5/8" Coax              |
| 10.00     | 130.00 |    | 12  | 1 1/4" Coax              |
| 0.00      | 130.00 |    | 2   | 0.95" (24.2mm) Cable     |
| 10.00     | 130.00 |    | 2   | 0.78" (19.7mm) 8 AWG 6   |
| 10.00     | 130.00 |    | 2   | 0.39" (10mm) Fiber Trunk |
| 0.00      | 120.00 |    | 1   | 1.60" (40.6mm) Hybrid    |
| 10.00     | 75.00  |    | 1   | 7/8" Coax                |



GUY ANCHOR DESIGN LOADS

| Radius (ft) | Drop (ft) | Azimuth (o) | Uplift (kip) | Shear (kip) |
|-------------|-----------|-------------|--------------|-------------|
| 145.00      | 0.00      | 0           | 14.46        | 18.73       |
| 145.00      | 0.00      | 120         | 21.54        | 26.89       |
| 145.00      | 0.00      | 240         | 27.49        | 34.26       |

GLOBAL BASE FOUNDATION DESIGN LOADS

| Vertical (kip) | Horizontal (kip) |
|----------------|------------------|
| 109.48         | 1.19             |

ASSET: # 10029, HAMPTON CT  
CUSTOMER DISH WIRELESS L.L.C.

STANDARD ANSI/TIA-222-H  
ENG NO.: 13733446\_C3\_03

ANALYSIS PARAMETERS

|                 |                    |                    |         |
|-----------------|--------------------|--------------------|---------|
| Location:       | Windham County, CT | Height:            | 160 ft  |
| Type and Shape: | Guyed, Triangle    | Base Elevation:    | 0.00 ft |
| Manufacturer:   | Undetermined       | Bottom Face Width: | 3.50 ft |
| Kd              | 0.85               | Top Face Width:    | 3.50 ft |
| Ke:             | 0.98               |                    |         |

ICE & WIND PARAMETERS

|                               |          |                                |         |
|-------------------------------|----------|--------------------------------|---------|
| Exposure Category:            | B        | Design Wind Speed Without Ice: | 121 mph |
| Risk Category:                | II       | Design Wind Speed with Ice:    | 50 mph  |
| Topographic Factor Procedure: | Method 1 | Operational Windspeed:         | 60 mph  |
| Topographic Category:         | Flat     | Design Ice Thickness:          | 1.00 in |
| Crest Height:                 | 0 ft     | HMSL:                          | 620 ft  |

SEISMIC PARAMETERS

|                       |                                 |  |       |
|-----------------------|---------------------------------|--|-------|
| Analysis Method:      | Equivalent Lateral Force Method |  |       |
| Site Class:           | D - Stiff Soil                  | Period Based on Rayleigh Method (sec): | 0.66  |
| T <sub>L</sub> (sec): | 6                               | P:                                     | 1.3   |
| S <sub>s</sub> :      | 0.185                           | S <sub>t1</sub> :                      | 0.054 |
| F <sub>a</sub> :      | 1.600                           | F <sub>v</sub> :                       | 2.400 |
| S <sub>ds</sub> :     | 0.197                           | S <sub>d1</sub> :                      | 0.086 |
|                       |                                 | C <sub>s</sub> :                       | 0.044 |
|                       |                                 | C <sub>s, Max</sub> :                  | 0.044 |
|                       |                                 | C <sub>s, Min</sub> :                  | 0.030 |

LOAD CASES

|                             |                                |
|-----------------------------|--------------------------------|
| 1.2D + 1.0W Normal          | 121 mph wind with no ice       |
| 1.2D + 1.0W 60°             | 121 mph wind with no ice       |
| 1.2D + 1.0W 90°             | 121 mph wind with no ice       |
| 1.2D + 1.0Di + 1.0Wi Normal | 50 mph wind with 1" radial ice |
| 1.2D + 1.0Di + 1.0Wi 60°    | 50 mph wind with 1" radial ice |
| 1.2D + 1.0Di + 1.0Wi 90°    | 50 mph wind with 1" radial ice |
| 1.2D + 1.0Ev + 1.0Eh Normal | Seismic                        |
| 1.2D + 1.0Ev + 1.0Eh 60°    | Seismic                        |
| 1.2D + 1.0Ev + 1.0Eh 90°    | Seismic                        |
| 1.0D + 1.0W Service Normal  | 60 mph Wind with No Ice        |
| 1.0D + 1.0W Service 60°     | 60 mph Wind with No Ice        |
| 1.0D + 1.0W Service 90°     | 60 mph Wind with No Ice        |

TOWER LOADING

Discrete Appurtenance Properties 1.2D + 1.0W

| Elev (ft) | Description                    | Qty | Wt. (lb) | EPA Length (sf) | Width (in) | Depth (in) | K <sub>a</sub> | Orient Factor | Vert Ecc (ft) | M <sub>u</sub> (lb-ft) | Q <sub>z</sub> (psf) | F <sub>a</sub> (WL) (lb) | P <sub>a</sub> (DL) (lb) |        |
|-----------|--------------------------------|-----|----------|-----------------|------------|------------|----------------|---------------|---------------|------------------------|----------------------|--------------------------|--------------------------|--------|
| 162.0     | Allgon 7120.16.05.00 / A-800-1 | 9   | 15       | 5.3             | 4.3        | 7.9        | 11.4           | 0.80          | 0.70          | 0.0                    | 0.00                 | 35.33                    | 805                      | 166    |
| 160.0     | Delta Mount                    | 3   | 150      | 6.3             | 0.0        | 0.0        | 0.0            | 0.75          | 0.67          | 0.0                    | 0.00                 | 35.21                    | 284                      | 540    |
| 160.0     | Flat Light Sector Frames       | 3   | 400      | 17.9            | 0.0        | 0.0        | 0.0            | 0.75          | 0.67          | 0.0                    | 0.00                 | 35.21                    | 808                      | 1440   |
| 155.0     | Ericsson Radio 4460 B25+B66    | 3   | 109      | 2.6             | 1.6        | 15.7       | 12.1           | 0.80          | 0.67          | 0.0                    | 0.00                 | 34.89                    | 122                      | 392    |
| 155.0     | Ericsson Radio 4480 B71+B85A   | 3   | 84       | 2.9             | 1.8        | 15.7       | 7.5            | 0.80          | 0.67          | 0.0                    | 0.00                 | 34.89                    | 136                      | 302    |
| 155.0     | Ericsson Air6449 B41           | 3   | 104      | 5.7             | 2.8        | 20.6       | 8.6            | 0.80          | 0.63          | 0.0                    | 0.00                 | 34.89                    | 255                      | 374    |
| 155.0     | RFS APXVAALL24 43-U-NA20       | 3   | 123      | 20.2            | 8.0        | 24.0       | 8.5            | 0.80          | 0.63          | 0.0                    | 0.00                 | 34.89                    | 908                      | 442    |
| 155.0     | VFA10-HD3L4NP Sector Frame     | 3   | 500      | 29.3            | 0.0        | 0.0        | 0.0            | 0.75          | 0.67          | 0.0                    | 0.00                 | 34.89                    | 1310                     | 1800   |
| 147.0     | Torque Arms                    | 1   | 500      | 15.0            | 0.0        | 0.0        | 0.0            | 1.00          | 1.00          | 0.0                    | 0.00                 | 34.37                    | 438                      | 600    |
| 144.0     | Flat Light Sector Frames       | 3   | 400      | 17.9            | 0.0        | 0.0        | 0.0            | 0.75          | 0.67          | 0.0                    | 0.00                 | 34.17                    | 784                      | 1440   |
| 140.0     | Commscope CBC78T-DS-43-2X      | 3   | 21       | 0.6             | 0.8        | 6.9        | 6.4            | 0.80          | 0.50          | 0.0                    | 0.00                 | 33.89                    | 19                       | 75     |
| 140.0     | Samsung B2/B66A RRH-BR049      | 3   | 84       | 1.9             | 1.3        | 15.0       | 10.0           | 0.80          | 0.50          | 0.0                    | 0.00                 | 33.89                    | 65                       | 304    |
| 140.0     | Samsung B5/B13 RRH-BR04C       | 3   | 70       | 1.9             | 1.3        | 15.0       | 8.1            | 0.80          | 0.50          | 0.0                    | 0.00                 | 33.89                    | 65                       | 253    |
| 140.0     | Raycap RCMDC-6627-PF-48        | 1   | 32       | 4.1             | 2.5        | 16.5       | 12.6           | 0.80          | 1.00          | 0.0                    | 0.00                 | 33.89                    | 93                       | 38     |
| 140.0     | Samsung MT6407-77A             | 3   | 82       | 4.7             | 2.9        | 16.1       | 5.5            | 0.80          | 0.61          | 0.0                    | 0.00                 | 33.89                    | 199                      | 294    |
| 140.0     | Amphenol Intel LPA-80080-4CF-E | 6   | 12       | 5.4             | 3.9        | 5.5        | 13.2           | 0.80          | 0.62          | 2.0                    | 929.50               | 34.03                    | 465                      | 86     |
| 140.0     | Commscope JAHH-65B-R3B         | 6   | 61       | 9.1             | 6.0        | 13.8       | 8.2            | 0.80          | 0.69          | 0.0                    | 0.00                 | 33.89                    | 869                      | 436    |
| 133.0     | Flat Light Sector Frames       | 3   | 400      | 17.9            | 0.0        | 0.0        | 0.0            | 0.75          | 0.67          | 0.0                    | 0.00                 | 33.40                    | 766                      | 1440   |
| 130.0     | Raycap DC6-48-60-18-8F(32.8 lb | 2   | 33       | 1.5             | 2.0        | 11.0       | 11.0           | 0.80          | 1.00          | 0.0                    | 0.00                 | 33.18                    | 66                       | 79     |
| 130.0     | Ericsson Radio 8843 - B2 + B66 | 3   | 72       | 1.6             | 1.3        | 13.2       | 10.9           | 0.80          | 0.50          | 0.0                    | 0.00                 | 33.18                    | 56                       | 259    |
| 130.0     | Powerwave Allgon LGP17201      | 6   | 31       | 1.7             | 1.2        | 14.4       | 3.7            | 0.80          | 0.50          | 0.0                    | 0.00                 | 33.18                    | 113                      | 223    |
| 130.0     | Ericsson RRUS 4449 B5, B12     | 3   | 71       | 2.0             | 1.5        | 13.2       | 9.4            | 0.80          | 0.50          | 0.0                    | 0.00                 | 33.18                    | 67                       | 256    |
| 130.0     | Allgon 7770.00                 | 3   | 35       | 5.5             | 4.6        | 11.0       | 5.0            | 0.80          | 0.65          | 0.0                    | 0.00                 | 33.18                    | 242                      | 126    |
| 130.0     | CCI HPA65R-BU8A                | 3   | 54       | 11.2            | 8.0        | 11.7       | 7.6            | 0.80          | 0.71          | 0.0                    | 0.00                 | 33.18                    | 540                      | 194    |
| 130.0     | CCI DMP65R-BU8D                | 3   | 96       | 17.9            | 8.0        | 20.7       | 7.7            | 0.80          | 0.63          | 0.0                    | 0.00                 | 33.18                    | 762                      | 345    |
| 120.0     | Raycap RDIDC-9181-PF-48        | 1   | 22       | 1.9             | 1.3        | 14.0       | 8.0            | 0.80          | 1.00          | 0.0                    | 0.00                 | 32.43                    | 41                       | 26     |
| 120.0     | Fujitsu TA08025-B605           | 3   | 75       | 2.0             | 1.3        | 15.0       | 9.1            | 0.80          | 0.50          | 0.0                    | 0.00                 | 32.43                    | 65                       | 270    |
| 120.0     | Fujitsu TA08025-B604           | 3   | 64       | 2.0             | 1.3        | 15.0       | 7.9            | 0.80          | 0.50          | 0.0                    | 0.00                 | 32.43                    | 65                       | 230    |
| 120.0     | Commscope FFFV-65B-R2          | 3   | 71       | 12.3            | 6.0        | 19.6       | 7.8            | 0.80          | 0.64          | 0.0                    | 0.00                 | 32.43                    | 520                      | 255    |
| 120.0     | Generic Flat Light Sector Fram | 3   | 400      | 17.9            | 0.0        | 0.0        | 0.0            | 0.75          | 0.75          | 0.0                    | 0.00                 | 32.43                    | 833                      | 1440   |
| 117.0     | Torque Arms                    | 1   | 500      | 15.0            | 0.0        | 0.0        | 0.0            | 1.00          | 1.00          | 0.0                    | 0.00                 | 32.20                    | 411                      | 600    |
| 75.0      | Lucent KS-24019                | 1   | 4        | 0.9             | 2.2        | 3.5        | 3.2            | 1.00          | 1.00          | 2.0                    | 44.20                | 28.57                    | 22                       | 5      |
| Totals    |                                | 100 | 12,276   | 790.6           |            |            |                |               |               |                        |                      |                          | 12,192                   | 14,731 |

TOWER LOADING

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

| Elev (ft) | Description                    | Qty | Ice Wt (lb) | Ice EPA Length (sf) | Width (in) | Depth (in) | K <sub>a</sub> | Orient Factor | Vert Ecc (ft) | M <sub>u</sub> (lb-ft) | Q <sub>z</sub> (psf) | F <sub>a</sub> (WL) (lb) | P <sub>a</sub> (DL) (lb) |      |
|-----------|--------------------------------|-----|-------------|---------------------|------------|------------|----------------|---------------|---------------|------------------------|----------------------|--------------------------|--------------------------|------|
| 162.0     | Allgon 7120.16.05.00 / A-800-1 | 9   | 111         | 4.5                 | 4.3        | 7.9        | 11.4           | 0.80          | 0.70          | 0.0                    | 0.00                 | 6.03                     | 118                      | 1028 |
| 160.0     | Delta Mount                    | 3   | 199         | 7.9                 | 0.0        | 0.0        | 0.0            | 0.75          | 0.67          | 0.0                    | 0.00                 | 6.01                     | 61                       | 687  |
| 160.0     | Flat Light Sector Frames       | 3   | 602         | 28.0                | 0.0        | 0.0        | 0.0            | 0.75          | 0.67          | 0.0                    | 0.00                 | 6.01                     | 216                      | 2045 |
| 155.0     | Ericsson Radio 4460 B25+B66    | 3   | 168         | 3.3                 | 1.6        | 15.7       | 12.1           | 0.80          | 0.67          | 0.0                    | 0.00                 | 5.96                     | 27                       | 570  |
| 155.0     | Ericsson Radio 4480 B71+B85A   | 3   | 135         | 3.6                 | 1.8        | 15.7       | 7.5            | 0.80          | 0.67          | 0.0                    | 0.00                 | 5.96                     | 29                       | 454  |
| 155.0     | Ericsson Air6449 B41           | 3   | 195         | 6.7                 | 2.8        | 20.6       | 8.6            | 0.80          | 0.63          | 0.0                    | 0.00                 | 5.96                     | 52                       | 648  |
| 155.0     | RFS APXVAALL24 43-U-NA20       | 3   | 384         | 22.7                | 8.0        | 24.0       | 8.5            | 0.80          | 0.63          | 0.0                    | 0.00                 | 5.96                     | 174                      | 1225 |
| 155.0     | VFA10-HD3L4NP Sector Frame     | 3   | 869         | 40.9                | 0.0        | 0.0        | 0.0            | 0.75          | 0.67          | 0.0                    | 0.00                 | 5.96                     | 312                      | 2907 |
| 147.0     | Torque Arms                    | 1   | 732         | 22.0                | 0.0        | 0.0        | 0.0            | 1.00          | 1.00          | 0.0                    | 0.00                 | 5.87                     | 109                      | 832  |
| 144.0     | Flat Light Sector Frames       | 3   | 600         | 27.9                | 0.0        | 0.0        | 0.0            | 0.75          | 0.67          | 0.0                    | 0.00                 | 5.83                     | 209                      | 2040 |
| 140.0     | Commscope CBC78T-DS-43-2X      | 3   | 35          | 0.9                 | 0.8        | 6.9        | 6.4            | 0.80          | 0.50          | 0.0                    | 0.00                 | 5.79                     | 5                        | 118  |
| 140.0     | Samsung B2/B66A RRH-BR049      | 3   | 126         | 2.5                 | 1.3        | 15.0       | 10.0           | 0.80          | 0.50          | 0.0                    | 0.00                 | 5.79                     | 15                       | 430  |
| 140.0     | Samsung B5/B13 RRH-BR04C       | 3   | 108         | 2.5                 | 1.3        | 15.0       | 8.1            | 0.80          | 0.50          | 0.0                    | 0.00                 | 5.79                     | 15                       | 366  |
| 140.0     | Raycap RCMDC-6627-PF-48        | 1   | 116         | 5.0                 | 2.5        | 16.5       | 12.6           | 0.80          | 1.00          | 0.0                    | 0.00                 | 5.79                     | 19                       | 122  |
| 140.0     | Samsung MT6407-77A             | 3   | 149         | 5.7                 | 2.9        | 16.1       | 5.5            | 0.80          | 0.61          | 0.0                    | 0.00                 | 5.79                     | 41                       | 495  |
| 140.0     | Amphenol Intel LPA-80080-4CF-E | 6   | 88          | 6.6                 | 3.9        | 5.5        | 13.2           | 0.80          | 0.62          | 2.0                    | 194.61               | 5.81                     | 97                       | 542  |
| 140.0     | Commscope JAHH-65B-R3B         | 6   | 194         | 10.9                | 6.0        | 13.8       | 8.2            | 0.80          | 0.69          | 0.0                    | 0.00                 | 5.79                     | 178                      | 1236 |
| 133.0     | Flat Light Sector Frames       | 3   | 598         | 27.8                | 0.0        | 0.0        | 0.0            | 0.75          | 0.67          | 0.0                    | 0.00                 | 5.70                     | 203                      | 2035 |
| 130.0     | Raycap DC6-48-60-18-8F(32.8 lb | 2   | 73          | 1.9                 | 2.0        | 11.0       | 11.0           | 0.80          | 1.00          | 0.0                    | 0.00                 | 5.67                     | 15                       | 160  |
| 130.0     | Ericsson Radio 8843 - B2 + B66 | 3   | 112         | 2.2                 | 1.3        | 13.2       | 10.9           | 0.80          | 0.50          | 0.0                    | 0.00                 | 5.67                     | 13                       | 381  |
| 130.0     | Powerwave Allgon LGP17201      | 6   | 56          | 2.2                 | 1.2        | 14.4       | 3.7            | 0.80          | 0.50          | 0.0                    | 0.00                 | 5.67                     | 26                       | 374  |
| 130.0     | Ericsson RRUS 4449 B5, B12     | 3   | 113         | 2.6                 | 1.5        | 13.2       | 9.4            | 0.80          | 0.50          | 0.0                    | 0.00                 | 5.67                     | 15                       | 383  |
| 130.0     | Allgon 7770.00                 | 3   | 117         | 6.2                 | 4.6        | 11.0       | 5.0            | 0.80          | 0.65          | 0.0                    | 0.00                 | 5.67                     | 46                       | 372  |

| Elev (ft) | Description                    | Qty | Ice Wt (lb) | Ice EPA (sf) | Length (ft) | Width (in) | Depth (in) | K <sub>a</sub> | Orient Factor | Vert Ecc (ft) | M <sub>u</sub> (lb-ft) | Q <sub>z</sub> (psf) | F <sub>a</sub> (WL) (lb) | P <sub>a</sub> (DL) (lb) |      |        |
|-----------|--------------------------------|-----|-------------|--------------|-------------|------------|------------|----------------|---------------|---------------|------------------------|----------------------|--------------------------|--------------------------|------|--------|
| 130.0     | CCI HPA65R-BU8A                | 3   | 207         | 13.4         | 8.0         | 11.7       | 7.6        | 0.80           | 0.71          | 0.0           | 0.00                   | 5.67                 | 110                      | 653                      |      |        |
| 130.0     | CCI DMP65R-BU8D                | 3   | 320         | 20.3         | 8.0         | 20.7       | 7.7        | 0.80           | 0.63          | 0.0           | 0.00                   | 5.67                 | 148                      | 1016                     |      |        |
| 120.0     | Raycap RDIDC-9181-PF-48        | 1   | 59          | 2.5          | 1.3         | 14.0       | 8.0        | 0.80           | 1.00          | 0.0           | 0.00                   | 5.54                 | 9                        | 63                       |      |        |
| 120.0     | Fujitsu TA08025-B605           | 3   | 116         | 2.6          | 1.3         | 15.0       | 9.1        | 0.80           | 0.50          | 0.0           | 0.00                   | 5.54                 | 14                       | 393                      |      |        |
| 120.0     | Fujitsu TA08025-B604           | 3   | 102         | 2.6          | 1.3         | 15.0       | 7.9        | 0.80           | 0.50          | 0.0           | 0.00                   | 5.54                 | 14                       | 344                      |      |        |
| 120.0     | Commscope FFFV-65B-R2          | 3   | 235         | 14.1         | 6.0         | 19.6       | 7.8        | 0.80           | 0.64          | 0.0           | 0.00                   | 5.54                 | 102                      | 747                      |      |        |
| 120.0     | Generic Flat Light Sector Fram | 3   | 596         | 27.7         | 0.0         | 0.0        | 0.0        | 0.75           | 0.75          | 0.0           | 0.00                   | 5.54                 | 220                      | 2029                     |      |        |
| 117.0     | Torque Arms                    | 1   | 725         | 21.8         | 0.0         | 0.0        | 0.0        | 1.00           | 1.00          | 0.0           | 0.00                   | 5.50                 | 102                      | 825                      |      |        |
| 75.0      | Lucent KS-24019                | 1   | 20          | 1.5          | 2.2         | 3.5        | 3.2        | 1.00           | 1.00          | 2.0           | 12.70                  | 4.88                 | 6                        | 20                       |      |        |
| Totals    |                                | 100 | 23,086      | 1032.6       |             |            |            |                |               |               |                        |                      |                          |                          | 2722 | 25,541 |

TOWER LOADING

Discrete Appurtenance Properties 1.0D + 1.0W Service

| Elev (ft) | Description                    | Qty | Wt. (lb) | EPA (sf) | Length (ft) | Width (in) | Depth (in) | K <sub>a</sub> | Orient Factor | Vert Ecc (ft) | M <sub>u</sub> (lb-ft) | Q <sub>z</sub> (psf) | F <sub>a</sub> (WL) (lb) | P <sub>a</sub> (DL) (lb) |       |        |
|-----------|--------------------------------|-----|----------|----------|-------------|------------|------------|----------------|---------------|---------------|------------------------|----------------------|--------------------------|--------------------------|-------|--------|
| 162.0     | Allgon 7120.16.05.00 / A-800-1 | 9   | 15       | 5.3      | 4.3         | 7.9        | 11.4       | 0.80           | 0.70          | 0.0           | 0.00                   | 8.69                 | 198                      | 139                      |       |        |
| 160.0     | Delta Mount                    | 3   | 150      | 6.3      | 0.0         | 0.0        | 0.0        | 0.75           | 0.67          | 0.0           | 0.00                   | 8.66                 | 70                       | 450                      |       |        |
| 160.0     | Flat Light Sector Frames       | 3   | 400      | 17.9     | 0.0         | 0.0        | 0.0        | 0.75           | 0.67          | 0.0           | 0.00                   | 8.66                 | 199                      | 1200                     |       |        |
| 155.0     | Ericsson Radio 4460 B25+B66    | 3   | 109      | 2.6      | 1.6         | 15.7       | 12.1       | 0.80           | 0.67          | 0.0           | 0.00                   | 8.58                 | 30                       | 327                      |       |        |
| 155.0     | Ericsson Radio 4480 B71+B85A   | 3   | 84       | 2.9      | 1.8         | 15.7       | 7.5        | 0.80           | 0.67          | 0.0           | 0.00                   | 8.58                 | 33                       | 252                      |       |        |
| 155.0     | Ericsson Air6449 B41           | 3   | 104      | 5.7      | 2.8         | 20.6       | 8.6        | 0.80           | 0.63          | 0.0           | 0.00                   | 8.58                 | 63                       | 312                      |       |        |
| 155.0     | RFS APXVAALL24 43-U-NA20       | 3   | 123      | 20.2     | 8.0         | 24.0       | 8.5        | 0.80           | 0.63          | 0.0           | 0.00                   | 8.58                 | 223                      | 368                      |       |        |
| 155.0     | VFA10-HD3L4NP Sector Frame     | 3   | 500      | 29.3     | 0.0         | 0.0        | 0.0        | 0.75           | 0.67          | 0.0           | 0.00                   | 8.58                 | 322                      | 1500                     |       |        |
| 147.0     | Torque Arms                    | 1   | 500      | 15.0     | 0.0         | 0.0        | 0.0        | 1.00           | 1.00          | 0.0           | 0.00                   | 8.45                 | 108                      | 500                      |       |        |
| 144.0     | Flat Light Sector Frames       | 3   | 400      | 17.9     | 0.0         | 0.0        | 0.0        | 0.75           | 0.67          | 0.0           | 0.00                   | 8.40                 | 193                      | 1200                     |       |        |
| 140.0     | Commscope CBC78T-DS-43-2X      | 3   | 21       | 0.6      | 0.8         | 6.9        | 6.4        | 0.80           | 0.50          | 0.0           | 0.00                   | 8.33                 | 5                        | 62                       |       |        |
| 140.0     | Samsung B2/B66A RRH-BR049      | 3   | 84       | 1.9      | 1.3         | 15.0       | 10.0       | 0.80           | 0.50          | 0.0           | 0.00                   | 8.33                 | 16                       | 253                      |       |        |
| 140.0     | Samsung B5/B13 RRH-BR04C       | 3   | 70       | 1.9      | 1.3         | 15.0       | 8.1        | 0.80           | 0.50          | 0.0           | 0.00                   | 8.33                 | 16                       | 211                      |       |        |
| 140.0     | Raycap RCMD-6627-PF-48         | 1   | 32       | 4.1      | 2.5         | 16.5       | 12.6       | 0.80           | 1.00          | 0.0           | 0.00                   | 8.33                 | 23                       | 32                       |       |        |
| 140.0     | Samsung MT6407-77A             | 3   | 82       | 4.7      | 2.9         | 16.1       | 5.5        | 0.80           | 0.61          | 0.0           | 0.00                   | 8.33                 | 49                       | 245                      |       |        |
| 140.0     | Amphenol Antel LPA-80080-4CF-E | 6   | 12       | 5.4      | 3.9         | 5.5        | 13.2       | 0.80           | 0.62          | 2.0           | 228.55                 | 8.37                 | 114                      | 72                       |       |        |
| 140.0     | Commscope JAHH-65B-R3B         | 6   | 61       | 9.1      | 6.0         | 13.8       | 8.2        | 0.80           | 0.69          | 0.0           | 0.00                   | 8.33                 | 214                      | 364                      |       |        |
| 133.0     | Flat Light Sector Frames       | 3   | 400      | 17.9     | 0.0         | 0.0        | 0.0        | 0.75           | 0.67          | 0.0           | 0.00                   | 8.21                 | 188                      | 1200                     |       |        |
| 130.0     | Raycap DC6-48-60-18-8F(32.8 lb | 2   | 33       | 1.5      | 2.0         | 11.0       | 11.0       | 0.80           | 1.00          | 0.0           | 0.00                   | 8.16                 | 16                       | 66                       |       |        |
| 130.0     | Ericsson Radio 8843 - B2 + B66 | 3   | 72       | 1.6      | 1.3         | 13.2       | 10.9       | 0.80           | 0.50          | 0.0           | 0.00                   | 8.16                 | 14                       | 216                      |       |        |
| 130.0     | Powerwave Allgon LGP17201      | 6   | 31       | 1.7      | 1.2         | 14.4       | 3.7        | 0.80           | 0.50          | 0.0           | 0.00                   | 8.16                 | 28                       | 186                      |       |        |
| 130.0     | Ericsson RRUS 4449 B5, B12     | 3   | 71       | 2.0      | 1.5         | 13.2       | 9.4        | 0.80           | 0.50          | 0.0           | 0.00                   | 8.16                 | 16                       | 213                      |       |        |
| 130.0     | Allgon 7770.00                 | 3   | 35       | 5.5      | 4.6         | 11.0       | 5.0        | 0.80           | 0.65          | 0.0           | 0.00                   | 8.16                 | 60                       | 105                      |       |        |
| 130.0     | CCI HPA65R-BU8A                | 3   | 54       | 11.2     | 8.0         | 11.7       | 7.6        | 0.80           | 0.71          | 0.0           | 0.00                   | 8.16                 | 133                      | 162                      |       |        |
| 130.0     | CCI DMP65R-BU8D                | 3   | 96       | 17.9     | 8.0         | 20.7       | 7.7        | 0.80           | 0.63          | 0.0           | 0.00                   | 8.16                 | 187                      | 287                      |       |        |
| 120.0     | Raycap RDIDC-9181-PF-48        | 1   | 22       | 1.9      | 1.3         | 14.0       | 8.0        | 0.80           | 1.00          | 0.0           | 0.00                   | 7.97                 | 10                       | 22                       |       |        |
| 120.0     | Fujitsu TA08025-B605           | 3   | 75       | 2.0      | 1.3         | 15.0       | 9.1        | 0.80           | 0.50          | 0.0           | 0.00                   | 7.97                 | 16                       | 225                      |       |        |
| 120.0     | Fujitsu TA08025-B604           | 3   | 64       | 2.0      | 1.3         | 15.0       | 7.9        | 0.80           | 0.50          | 0.0           | 0.00                   | 7.97                 | 16                       | 192                      |       |        |
| 120.0     | Commscope FFFV-65B-R2          | 3   | 71       | 12.3     | 6.0         | 19.6       | 7.8        | 0.80           | 0.64          | 0.0           | 0.00                   | 7.97                 | 128                      | 212                      |       |        |
| 120.0     | Generic Flat Light Sector Fram | 3   | 400      | 17.9     | 0.0         | 0.0        | 0.0        | 0.75           | 0.75          | 0.0           | 0.00                   | 7.97                 | 205                      | 1200                     |       |        |
| 117.0     | Torque Arms                    | 1   | 500      | 15.0     | 0.0         | 0.0        | 0.0        | 1.00           | 1.00          | 0.0           | 0.00                   | 7.92                 | 101                      | 500                      |       |        |
| 75.0      | Lucent KS-24019                | 1   | 4        | 0.9      | 2.2         | 3.5        | 3.2        | 1.00           | 1.00          | 2.0           | 10.87                  | 7.02                 | 5                        | 4                        |       |        |
| Totals    |                                | 100 | 12,276   | 790.6    |             |            |            |                |               |               |                        |                      |                          |                          | 2,998 | 12,276 |

ASSET: # 10029, HAMPTON CT  
 CUSTOMER DISH WIRELESS L.L.C.

STANDARD ANSI/TIA-222-H  
 ENG NO.: 13733446\_C3\_03

TOWER LOADING

Linear Appurtenance Properties

| Elev From (ft) | Elev To (ft) | Description              | Qty | Width (in) | Weight (lb/ft) | % In Wind | Spread On Faces | Bundling   | Cluster Dia (in) | Out of Zone | Spacing (in) | Orient Factor | K <sub>a</sub> Override |
|----------------|--------------|--------------------------|-----|------------|----------------|-----------|-----------------|------------|------------------|-------------|--------------|---------------|-------------------------|
| 10.0           | 162.0        | 1 1/4" Coax              | 9   | 1.55       | 0.63           | 100       | 2               | Individual | 0.00             | N           | 1.00         | 1.00          | 0.00                    |
| 10.0           | 140.0        | 1 5/8" Coax              | 10  | 1.98       | 0.82           | 40        | 1               | Block      | 0.00             | N           | 1.00         | 1.00          | 0.48                    |
| 10.0           | 130.0        | 1 1/4" Coax              | 12  | 1.55       | 0.63           | 50        | Lin App         | Block      | 0.00             | Y           | 1.00         | 1.00          | 0.28                    |
| 10.0           | 130.0        | 0.39" (10mm) Fiber Trunk | 2   | 0.39       | 0.06           | 100       | 3               | Individual | 0.00             | N           | 1.00         | 1.00          | 0.01                    |
| 10.0           | 130.0        | 0.78" (19.7mm) 8 AWG 6   | 2   | 0.78       | 0.59           | 100       | 3               | Individual | 0.00             | N           | 1.00         | 1.00          | 0.01                    |
| 10.0           | 75.0         | 7/8" Coax                | 1   | 1.09       | 0.33           | 100       | 1               | Individual | 0.00             | N           | 1.00         | 1.00          | 0.00                    |
| 0.0            | 155.0        | 1.99" (50.7mm) Hybrid    | 3   | 1.99       | 1.90           | 100       | 2               | Individual | 0.00             | N           | 1.00         | 1.00          | 0.00                    |
| 0.0            | 140.0        | 1 5/8" Hybriflex         | 2   | 1.98       | 1.30           | 100       | 1               | Individual | 0.00             | N           | 1.00         | 1.00          | 0.01                    |
| 0.0            | 130.0        | 0.95" (24.2mm) Cable     | 2   | 0.95       | 0.73           | 100       | 3               | Individual | 0.00             | N           | 1.00         | 1.00          | 0.01                    |
| 0.0            | 120.0        | 1.60" (40.6mm) Hybrid    | 1   | 1.60       | 2.34           | 100       | 1               | Individual | 0.00             | N           | 1.00         | 1.00          | 0.00                    |

SECTION FORCES

1.2D + 1.0W Normal Gust Response Factor (Gh): 0.85  
 121 mph wind with no ice Wind Importance Factor (Iw): 1.00

| Sect # | Elev (ft) | Qz (psf) | Af (sf) | Ar (sf) | Ice Ar (sf) | e     | Cr   | Df   | Dr   | Tiz (in) | Ae (sf) | EPAa (sf) | EPAAi (sf) | Wt. (lb) | Ice Wt (lb) | Fst (lb) | Fa (lb) | Force (lb) |
|--------|-----------|----------|---------|---------|-------------|-------|------|------|------|----------|---------|-----------|------------|----------|-------------|----------|---------|------------|
| 12     | 155       | 34.89    | 1.223   | 6.201   | 0.00        | 0.198 | 2.60 | 1.00 | 1.00 | 0.0      | 4.83    | 12.56     | 0.00       | 486      | 0           | 372      | 301     | 674        |
| 11     | 148       | 34.46    | 0.408   | 2.008   | 0.00        | 0.201 | 2.59 | 1.00 | 1.00 | 0.0      | 1.58    | 4.09      | 0.00       | 169      | 0           | 120      | 112     | 232        |
| 10     | 143       | 34.13    | 1.223   | 4.193   | 0.00        | 0.213 | 2.55 | 1.00 | 1.00 | 0.0      | 3.67    | 9.37      | 0.00       | 374      | 0           | 272      | 235     | 507        |
| 9      | 130       | 33.18    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 1.00 | 1.00 | 0.0      | 10.07   | 26.02     | 0.00       | 1446     | 0           | 734      | 1188    | 1922       |
| 8      | 118       | 32.29    | 0.408   | 2.190   | 0.00        | 0.193 | 2.62 | 1.00 | 1.00 | 0.0      | 1.68    | 4.39      | 0.00       | 283      | 0           | 121      | 242     | 362        |
| 7      | 108       | 31.49    | 2.447   | 10.217  | 0.00        | 0.206 | 2.58 | 1.00 | 1.00 | 0.0      | 8.40    | 21.63     | 0.00       | 1343     | 0           | 579      | 1079    | 1658       |
| 6      | 90        | 29.87    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 1.00 | 1.00 | 0.0      | 10.07   | 26.02     | 0.00       | 1626     | 0           | 661      | 1247    | 1907       |
| 5      | 70        | 27.80    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 1.00 | 1.00 | 0.0      | 10.07   | 26.02     | 0.00       | 1632     | 0           | 615      | 1184    | 1799       |
| 4      | 50        | 25.25    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 1.00 | 1.00 | 0.0      | 10.07   | 26.02     | 0.00       | 1634     | 0           | 559      | 1082    | 1641       |
| 3      | 30        | 21.82    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 1.00 | 1.00 | 0.0      | 10.07   | 26.02     | 0.00       | 1634     | 0           | 483      | 935     | 1418       |
| 2      | 13        | 21.81    | 2.039   | 8.266   | 0.00        | 0.207 | 2.57 | 1.00 | 1.00 | 0.0      | 6.85    | 17.64     | 0.00       | 1004     | 0           | 327      | 496     | 823        |
| 1      | 3         | 21.81    | 1.522   | 3.340   | 0.00        | 0.366 | 2.13 | 1.00 | 1.00 | 0.0      | 3.60    | 7.69      | 0.00       | 364      | 0           | 142      | 57      | 199        |
|        |           |          |         |         |             |       |      |      |      |          |         |           |            | 11,994   | 0           |          |         | 13,142     |

1.2D + 1.0W 60° Gust Response Factor (Gh): 0.85  
 121 mph wind with no ice Wind Importance Factor (Iw): 1.00

| Sect # | Elev (ft) | Qz (psf) | Af (sf) | Ar (sf) | Ice Ar (sf) | e     | Cr   | Df   | Dr   | Tiz (in) | Ae (sf) | EPAa (sf) | EPAAi (sf) | Wt. (lb) | Ice Wt (lb) | Fst (lb) | Fa (lb) | Force (lb) |
|--------|-----------|----------|---------|---------|-------------|-------|------|------|------|----------|---------|-----------|------------|----------|-------------|----------|---------|------------|
| 12     | 155       | 34.89    | 1.223   | 6.201   | 0.00        | 0.198 | 2.60 | 0.80 | 1.00 | 0.0      | 4.58    | 11.92     | 0.00       | 486      | 0           | 354      | 301     | 655        |
| 11     | 148       | 34.46    | 0.408   | 2.008   | 0.00        | 0.201 | 2.59 | 0.80 | 1.00 | 0.0      | 1.49    | 3.87      | 0.00       | 169      | 0           | 113      | 112     | 226        |
| 10     | 143       | 34.13    | 1.223   | 4.193   | 0.00        | 0.213 | 2.55 | 0.80 | 1.00 | 0.0      | 3.43    | 8.75      | 0.00       | 374      | 0           | 254      | 235     | 489        |
| 9      | 130       | 33.18    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 0.80 | 1.00 | 0.0      | 9.50    | 24.55     | 0.00       | 1446     | 0           | 692      | 1188    | 1880       |
| 8      | 118       | 32.29    | 0.408   | 2.190   | 0.00        | 0.193 | 2.62 | 0.80 | 1.00 | 0.0      | 1.60    | 4.18      | 0.00       | 283      | 0           | 115      | 242     | 357        |
| 7      | 108       | 31.49    | 2.447   | 10.217  | 0.00        | 0.206 | 2.58 | 0.80 | 1.00 | 0.0      | 7.91    | 20.37     | 0.00       | 1343     | 0           | 545      | 1079    | 1624       |
| 6      | 90        | 29.87    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 0.80 | 1.00 | 0.0      | 9.50    | 24.55     | 0.00       | 1626     | 0           | 623      | 1247    | 1870       |
| 5      | 70        | 27.80    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 0.80 | 1.00 | 0.0      | 9.50    | 24.55     | 0.00       | 1632     | 0           | 580      | 1184    | 1764       |
| 4      | 50        | 25.25    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 0.80 | 1.00 | 0.0      | 9.50    | 24.55     | 0.00       | 1634     | 0           | 527      | 1082    | 1609       |
| 3      | 30        | 21.82    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 0.80 | 1.00 | 0.0      | 9.50    | 24.55     | 0.00       | 1634     | 0           | 455      | 935     | 1391       |
| 2      | 13        | 21.81    | 2.039   | 8.266   | 0.00        | 0.207 | 2.57 | 0.80 | 1.00 | 0.0      | 6.45    | 16.60     | 0.00       | 1004     | 0           | 308      | 496     | 803        |
| 1      | 3         | 21.81    | 1.522   | 3.340   | 0.00        | 0.366 | 2.13 | 0.80 | 1.00 | 0.0      | 3.30    | 7.04      | 0.00       | 364      | 0           | 130      | 57      | 187        |
|        |           |          |         |         |             |       |      |      |      |          |         |           |            | 11,994   | 0           |          |         | 12,855     |

1.2D + 1.0W 90° Gust Response Factor (Gh): 0.85  
 121 mph wind with no ice Wind Importance Factor (Iw): 1.00

| Sect # | Elev (ft) | Qz (psf) | Af (sf) | Ar (sf) | Ice Ar (sf) | e     | Cr   | Df   | Dr   | Tiz (in) | Ae (sf) | EPAa (sf) | EPAAi (sf) | Wt. (lb) | Ice Wt (lb) | Fst (lb) | Fa (lb) | Force (lb) |
|--------|-----------|----------|---------|---------|-------------|-------|------|------|------|----------|---------|-----------|------------|----------|-------------|----------|---------|------------|
| 12     | 155       | 34.89    | 1.223   | 6.201   | 0.00        | 0.198 | 2.60 | 0.85 | 1.00 | 0.0      | 4.64    | 12.08     | 0.00       | 486      | 0           | 358      | 301     | 659        |
| 11     | 148       | 34.46    | 0.408   | 2.008   | 0.00        | 0.201 | 2.59 | 0.85 | 1.00 | 0.0      | 1.51    | 3.93      | 0.00       | 169      | 0           | 115      | 112     | 227        |
| 10     | 143       | 34.13    | 1.223   | 4.193   | 0.00        | 0.213 | 2.55 | 0.85 | 1.00 | 0.0      | 3.49    | 8.90      | 0.00       | 374      | 0           | 258      | 235     | 494        |
| 9      | 130       | 33.18    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 0.85 | 1.00 | 0.0      | 9.65    | 24.92     | 0.00       | 1446     | 0           | 703      | 1188    | 1891       |
| 8      | 118       | 32.29    | 0.408   | 2.190   | 0.00        | 0.193 | 2.62 | 0.85 | 1.00 | 0.0      | 1.62    | 4.23      | 0.00       | 283      | 0           | 116      | 242     | 358        |
| 7      | 108       | 31.49    | 2.447   | 10.217  | 0.00        | 0.206 | 2.58 | 0.85 | 1.00 | 0.0      | 8.03    | 20.69     | 0.00       | 1343     | 0           | 554      | 1079    | 1633       |
| 6      | 90        | 29.87    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 0.85 | 1.00 | 0.0      | 9.65    | 24.92     | 0.00       | 1626     | 0           | 633      | 1247    | 1879       |
| 5      | 70        | 27.80    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 0.85 | 1.00 | 0.0      | 9.65    | 24.92     | 0.00       | 1632     | 0           | 589      | 1184    | 1772       |
| 4      | 50        | 25.25    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 0.85 | 1.00 | 0.0      | 9.65    | 24.92     | 0.00       | 1634     | 0           | 535      | 1082    | 1617       |
| 3      | 30        | 21.82    | 2.854   | 12.402  | 0.00        | 0.204 | 2.58 | 0.85 | 1.00 | 0.0      | 9.65    | 24.92     | 0.00       | 1634     | 0           | 462      | 935     | 1397       |
| 2      | 13        | 21.81    | 2.039   | 8.266   | 0.00        | 0.207 | 2.57 | 0.85 | 1.00 | 0.0      | 6.55    | 16.86     | 0.00       | 1004     | 0           | 312      | 496     | 808        |
| 1      | 3         | 21.81    | 1.522   | 3.340   | 0.00        | 0.366 | 2.13 | 0.85 | 1.00 | 0.0      | 3.37    | 7.20      | 0.00       | 364      | 0           | 133      | 57      | 190        |
|        |           |          |         |         |             |       |      |      |      |          |         |           |            | 11,994   | 0           |          |         | 12,926     |

1.2D + 1.0Di + 1.0Wi Normal Gust Response Factor (Gh): 0.85 Ice Importance Factor: 1.00

SECTION FORCES

50 mph wind with 1" radial ice Wind Importance Factor (Iw): 1.00 Ice Dead Load Factor: 1.00

| Sect # | Elev (ft) | Qz (psf) | Af (sf) | Ar (sf) | Ice Ar (sf) | e     | Cf   | Df   | Dr   | Tiz (in) | Ae (sf) | EPAa (sf) | EPAAi (sf) | Wt. (lb) | Ice Wt (lb) | Fst (lb) | Fa (lb) | Force (lb) |
|--------|-----------|----------|---------|---------|-------------|-------|------|------|------|----------|---------|-----------|------------|----------|-------------|----------|---------|------------|
| 12     | 155       | 5.96     | 1.223   | 17.680  | 11.48       | 0.480 | 1.93 | 1.00 | 1.00 | 1.2      | 13.20   | 25.44     | 11.48      | 1413     | 927         | 129      | 109     | 238        |
| 11     | 148       | 5.88     | 0.408   | 5.770   | 3.76        | 0.489 | 1.91 | 1.00 | 1.00 | 1.2      | 4.34    | 8.32      | 3.76       | 491      | 321         | 42       | 39      | 81         |
| 10     | 143       | 5.83     | 1.223   | 12.509  | 8.32        | 0.514 | 1.88 | 1.00 | 1.00 | 1.2      | 9.92    | 18.68     | 8.32       | 1077     | 703         | 93       | 78      | 171        |
| 9      | 130       | 5.67     | 2.854   | 35.629  | 23.23       | 0.489 | 1.91 | 1.00 | 1.00 | 1.1      | 27.16   | 51.99     | 23.23      | 4418     | 2972        | 250      | 339     | 590        |
| 8      | 118       | 5.51     | 0.408   | 6.013   | 3.82        | 0.455 | 1.97 | 1.00 | 1.00 | 1.1      | 4.40    | 8.65      | 3.82       | 883      | 599         | 41       | 70      | 111        |
| 7      | 108       | 5.38     | 2.447   | 29.238  | 19.02       | 0.491 | 1.91 | 1.00 | 1.00 | 1.1      | 22.42   | 42.86     | 19.02      | 4138     | 2795        | 196      | 299     | 495        |
| 6      | 90        | 5.10     | 2.854   | 34.790  | 22.39       | 0.480 | 1.93 | 1.00 | 1.00 | 1.1      | 26.41   | 50.92     | 22.39      | 4934     | 3309        | 221      | 348     | 568        |
| 5      | 70        | 4.75     | 2.854   | 34.234  | 21.83       | 0.473 | 1.94 | 1.00 | 1.00 | 1.1      | 25.92   | 50.22     | 21.83      | 4881     | 3249        | 203      | 333     | 536        |
| 4      | 50        | 4.31     | 2.854   | 33.512  | 21.11       | 0.464 | 1.95 | 1.00 | 1.00 | 1.0      | 25.29   | 49.32     | 21.11      | 4763     | 3129        | 181      | 304     | 485        |
| 3      | 30        | 3.73     | 2.854   | 32.461  | 20.06       | 0.452 | 1.97 | 1.00 | 1.00 | 1.0      | 24.39   | 48.05     | 20.06      | 4572     | 2938        | 152      | 261     | 414        |
| 2      | 13        | 3.72     | 2.039   | 20.773  | 12.51       | 0.440 | 1.99 | 1.00 | 1.00 | 0.9      | 15.69   | 31.25     | 12.51      | 2548     | 1544        | 99       | 137     | 236        |
| 1      | 3         | 3.72     | 1.522   | 6.282   | 2.94        | 0.551 | 1.84 | 1.00 | 1.00 | 0.8      | 6.01    | 11.07     | 2.94       | 656      | 292         | 35       | 13      | 48         |
|        |           |          |         |         |             |       |      |      |      |          |         |           |            | 34,772   | 22,778      |          |         | 3,972      |

1.2D + 1.0Di + 1.0Wi 60° Gust Response Factor (Gh): 0.85 Ice Importance Factor: 1.00  
 50 mph wind with 1" radial ice Wind Importance Factor (Iw): 1.00 Ice Dead Load Factor: 1.00

| Sect # | Elev (ft) | Qz (psf) | Af (sf) | Ar (sf) | Ice Ar (sf) | e     | Cf   | Df   | Dr   | Tiz (in) | Ae (sf) | EPAa (sf) | EPAAi (sf) | Wt. (lb) | Ice Wt (lb) | Fst (lb) | Fa (lb) | Force (lb) |
|--------|-----------|----------|---------|---------|-------------|-------|------|------|------|----------|---------|-----------|------------|----------|-------------|----------|---------|------------|
| 12     | 155       | 5.96     | 1.223   | 17.680  | 11.48       | 0.480 | 1.93 | 0.80 | 1.00 | 1.2      | 12.95   | 24.96     | 11.48      | 1413     | 927         | 126      | 109     | 235        |
| 11     | 148       | 5.88     | 0.408   | 5.770   | 3.76        | 0.489 | 1.91 | 0.80 | 1.00 | 1.2      | 4.26    | 8.16      | 3.76       | 491      | 321         | 41       | 39      | 80         |
| 10     | 143       | 5.83     | 1.223   | 12.509  | 8.32        | 0.514 | 1.88 | 0.80 | 1.00 | 1.2      | 9.68    | 18.22     | 8.32       | 1077     | 703         | 90       | 78      | 168        |
| 9      | 130       | 5.67     | 2.854   | 35.629  | 23.23       | 0.489 | 1.91 | 0.80 | 1.00 | 1.1      | 26.59   | 50.90     | 23.23      | 4418     | 2972        | 245      | 339     | 584        |
| 8      | 118       | 5.51     | 0.408   | 6.013   | 3.82        | 0.455 | 1.97 | 0.80 | 1.00 | 1.1      | 4.32    | 8.49      | 3.82       | 883      | 599         | 40       | 70      | 110        |
| 7      | 108       | 5.38     | 2.447   | 29.238  | 19.02       | 0.491 | 1.91 | 0.80 | 1.00 | 1.1      | 21.93   | 41.93     | 19.02      | 4138     | 2795        | 192      | 299     | 490        |
| 6      | 90        | 5.10     | 2.854   | 34.790  | 22.39       | 0.480 | 1.93 | 0.80 | 1.00 | 1.1      | 25.84   | 49.82     | 22.39      | 4934     | 3309        | 216      | 348     | 564        |
| 5      | 70        | 4.75     | 2.854   | 34.234  | 21.83       | 0.473 | 1.94 | 0.80 | 1.00 | 1.1      | 25.35   | 49.11     | 21.83      | 4881     | 3249        | 198      | 333     | 531        |
| 4      | 50        | 4.31     | 2.854   | 33.512  | 21.11       | 0.464 | 1.95 | 0.80 | 1.00 | 1.0      | 24.72   | 48.21     | 21.11      | 4763     | 3129        | 177      | 304     | 481        |
| 3      | 30        | 3.73     | 2.854   | 32.461  | 20.06       | 0.452 | 1.97 | 0.80 | 1.00 | 1.0      | 23.81   | 46.92     | 20.06      | 4572     | 2938        | 149      | 261     | 410        |
| 2      | 13        | 3.72     | 2.039   | 20.773  | 12.51       | 0.440 | 1.99 | 0.80 | 1.00 | 0.9      | 15.29   | 30.44     | 12.51      | 2548     | 1544        | 96       | 137     | 234        |
| 1      | 3         | 3.72     | 1.522   | 6.282   | 2.94        | 0.551 | 1.84 | 0.80 | 1.00 | 0.8      | 5.70    | 10.51     | 2.94       | 656      | 292         | 33       | 13      | 47         |
|        |           |          |         |         |             |       |      |      |      |          |         |           |            | 34,772   | 22,778      |          |         | 3,935      |

1.2D + 1.0Di + 1.0Wi 90° Gust Response Factor (Gh): 0.85 Ice Importance Factor: 1.00  
 50 mph wind with 1" radial ice Wind Importance Factor (Iw): 1.00 Ice Dead Load Factor: 1.00

| Sect # | Elev (ft) | Qz (psf) | Af (sf) | Ar (sf) | Ice Ar (sf) | e     | Cf   | Df   | Dr   | Tiz (in) | Ae (sf) | EPAa (sf) | EPAAi (sf) | Wt. (lb) | Ice Wt (lb) | Fst (lb) | Fa (lb) | Force (lb) |
|--------|-----------|----------|---------|---------|-------------|-------|------|------|------|----------|---------|-----------|------------|----------|-------------|----------|---------|------------|
| 12     | 155       | 5.96     | 1.223   | 17.680  | 11.48       | 0.480 | 1.93 | 0.85 | 1.00 | 1.2      | 13.02   | 25.08     | 11.48      | 1413     | 927         | 127      | 109     | 236        |
| 11     | 148       | 5.88     | 0.408   | 5.770   | 3.76        | 0.489 | 1.91 | 0.85 | 1.00 | 1.2      | 4.28    | 8.20      | 3.76       | 491      | 321         | 41       | 39      | 80         |
| 10     | 143       | 5.83     | 1.223   | 12.509  | 8.32        | 0.514 | 1.88 | 0.85 | 1.00 | 1.2      | 9.74    | 18.33     | 8.32       | 1077     | 703         | 91       | 78      | 169        |
| 9      | 130       | 5.67     | 2.854   | 35.629  | 23.23       | 0.489 | 1.91 | 0.85 | 1.00 | 1.1      | 26.73   | 51.17     | 23.23      | 4418     | 2972        | 246      | 339     | 586        |
| 8      | 118       | 5.51     | 0.408   | 6.013   | 3.82        | 0.455 | 1.97 | 0.85 | 1.00 | 1.1      | 4.34    | 8.53      | 3.82       | 883      | 599         | 40       | 70      | 110        |
| 7      | 108       | 5.38     | 2.447   | 29.238  | 19.02       | 0.491 | 1.91 | 0.85 | 1.00 | 1.1      | 22.05   | 42.16     | 19.02      | 4138     | 2795        | 193      | 299     | 491        |
| 6      | 90        | 5.10     | 2.854   | 34.790  | 22.39       | 0.480 | 1.93 | 0.85 | 1.00 | 1.1      | 25.98   | 50.09     | 22.39      | 4934     | 3309        | 217      | 348     | 565        |
| 5      | 70        | 4.75     | 2.854   | 34.234  | 21.83       | 0.473 | 1.94 | 0.85 | 1.00 | 1.1      | 25.49   | 49.39     | 21.83      | 4881     | 3249        | 199      | 333     | 532        |
| 4      | 50        | 4.31     | 2.854   | 33.512  | 21.11       | 0.464 | 1.95 | 0.85 | 1.00 | 1.0      | 24.86   | 48.49     | 21.11      | 4763     | 3129        | 178      | 304     | 482        |
| 3      | 30        | 3.73     | 2.854   | 32.461  | 20.06       | 0.452 | 1.97 | 0.85 | 1.00 | 1.0      | 23.96   | 47.20     | 20.06      | 4572     | 2938        | 150      | 261     | 411        |
| 2      | 13        | 3.72     | 2.039   | 20.773  | 12.51       | 0.440 | 1.99 | 0.85 | 1.00 | 0.9      | 15.39   | 30.64     | 12.51      | 2548     | 1544        | 97       | 137     | 234        |
| 1      | 3         | 3.72     | 1.522   | 6.282   | 2.94        | 0.551 | 1.84 | 0.85 | 1.00 | 0.8      | 5.78    | 10.65     | 2.94       | 656      | 292         | 34       | 13      | 47         |
|        |           |          |         |         |             |       |      |      |      |          |         |           |            | 34,772   | 22,778      |          |         | 3,944      |

1.0D + 1.0W Service Normal Gust Response Factor (Gh): 0.85  
 60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

SECTION FORCES

| Sect # | Elev (ft) | Q <sub>Z</sub> (psf) | A <sub>f</sub> (sf) | A <sub>r</sub> (sf) | Ice A <sub>r</sub> (sf) | e     | C <sub>r</sub> | D <sub>f</sub> | D <sub>r</sub> | T <sub>iz</sub> (in) | A <sub>e</sub> (sf) | EPA <sub>a</sub> (sf) | EPA <sub>ai</sub> (sf) | Wt. (lb) | Ice Wt (lb) | F <sub>st</sub> (lb) | F <sub>a</sub> (lb) | Force (lb) |
|--------|-----------|----------------------|---------------------|---------------------|-------------------------|-------|----------------|----------------|----------------|----------------------|---------------------|-----------------------|------------------------|----------|-------------|----------------------|---------------------|------------|
| 12     | 155       | 8.58                 | 1.223               | 6.201               | 0.00                    | 0.198 | 2.60           | 1.00           | 1.00           | 0.0                  | 4.83                | 12.56                 | 0.00                   | 405      | 0           | 92                   | 74                  | 166        |
| 11     | 148       | 8.47                 | 0.408               | 2.008               | 0.00                    | 0.201 | 2.59           | 1.00           | 1.00           | 0.0                  | 1.58                | 4.09                  | 0.00                   | 141      | 0           | 29                   | 28                  | 57         |
| 10     | 143       | 8.39                 | 1.223               | 4.193               | 0.00                    | 0.213 | 2.55           | 1.00           | 1.00           | 0.0                  | 3.67                | 9.37                  | 0.00                   | 311      | 0           | 67                   | 58                  | 125        |
| 9      | 130       | 8.16                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 1.00           | 1.00           | 0.0                  | 10.07               | 26.02                 | 0.00                   | 1205     | 0           | 180                  | 292                 | 473        |
| 8      | 118       | 7.94                 | 0.408               | 2.190               | 0.00                    | 0.193 | 2.62           | 1.00           | 1.00           | 0.0                  | 1.68                | 4.39                  | 0.00                   | 236      | 0           | 30                   | 59                  | 89         |
| 7      | 108       | 7.74                 | 2.447               | 10.217              | 0.00                    | 0.206 | 2.58           | 1.00           | 1.00           | 0.0                  | 8.40                | 21.63                 | 0.00                   | 1119     | 0           | 142                  | 265                 | 408        |
| 6      | 90        | 7.35                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 1.00           | 1.00           | 0.0                  | 10.07               | 26.02                 | 0.00                   | 1355     | 0           | 162                  | 307                 | 469        |
| 5      | 70        | 6.84                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 1.00           | 1.00           | 0.0                  | 10.07               | 26.02                 | 0.00                   | 1360     | 0           | 151                  | 291                 | 442        |
| 4      | 50        | 6.21                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 1.00           | 1.00           | 0.0                  | 10.07               | 26.02                 | 0.00                   | 1361     | 0           | 137                  | 266                 | 403        |
| 3      | 30        | 5.37                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 1.00           | 1.00           | 0.0                  | 10.07               | 26.02                 | 0.00                   | 1361     | 0           | 119                  | 230                 | 349        |
| 2      | 13        | 5.36                 | 2.039               | 8.266               | 0.00                    | 0.207 | 2.57           | 1.00           | 1.00           | 0.0                  | 6.85                | 17.64                 | 0.00                   | 837      | 0           | 80                   | 122                 | 202        |
| 1      | 3         | 5.36                 | 1.522               | 3.340               | 0.00                    | 0.366 | 2.13           | 1.00           | 1.00           | 0.0                  | 3.60                | 7.69                  | 0.00                   | 303      | 0           | 35                   | 14                  | 49         |
|        |           |                      |                     |                     |                         |       |                |                |                |                      |                     |                       |                        | 9,995    | 0           |                      |                     | 3,231      |

1.0D + 1.0W Service 60°  
60 mph Wind with No Ice

Gust Response Factor (G<sub>h</sub>): 0.85  
Wind Importance Factor (I<sub>w</sub>): 1.00

| Sect # | Elev (ft) | Q <sub>Z</sub> (psf) | A <sub>f</sub> (sf) | A <sub>r</sub> (sf) | Ice A <sub>r</sub> (sf) | e     | C <sub>r</sub> | D <sub>f</sub> | D <sub>r</sub> | T <sub>iz</sub> (in) | A <sub>e</sub> (sf) | EPA <sub>a</sub> (sf) | EPA <sub>ai</sub> (sf) | Wt. (lb) | Ice Wt (lb) | F <sub>st</sub> (lb) | F <sub>a</sub> (lb) | Force (lb) |
|--------|-----------|----------------------|---------------------|---------------------|-------------------------|-------|----------------|----------------|----------------|----------------------|---------------------|-----------------------|------------------------|----------|-------------|----------------------|---------------------|------------|
| 12     | 155       | 8.58                 | 1.223               | 6.201               | 0.00                    | 0.198 | 2.60           | 0.80           | 1.00           | 0.0                  | 4.58                | 11.92                 | 0.00                   | 405      | 0           | 87                   | 74                  | 161        |
| 11     | 148       | 8.47                 | 0.408               | 2.008               | 0.00                    | 0.201 | 2.59           | 0.80           | 1.00           | 0.0                  | 1.49                | 3.87                  | 0.00                   | 141      | 0           | 28                   | 28                  | 56         |
| 10     | 143       | 8.39                 | 1.223               | 4.193               | 0.00                    | 0.213 | 2.55           | 0.80           | 1.00           | 0.0                  | 3.43                | 8.75                  | 0.00                   | 311      | 0           | 62                   | 58                  | 120        |
| 9      | 130       | 8.16                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 0.80           | 1.00           | 0.0                  | 9.50                | 24.55                 | 0.00                   | 1205     | 0           | 170                  | 292                 | 462        |
| 8      | 118       | 7.94                 | 0.408               | 2.190               | 0.00                    | 0.193 | 2.62           | 0.80           | 1.00           | 0.0                  | 1.60                | 4.18                  | 0.00                   | 236      | 0           | 28                   | 59                  | 88         |
| 7      | 108       | 7.74                 | 2.447               | 10.217              | 0.00                    | 0.206 | 2.58           | 0.80           | 1.00           | 0.0                  | 7.91                | 20.37                 | 0.00                   | 1119     | 0           | 134                  | 265                 | 399        |
| 6      | 90        | 7.35                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 0.80           | 1.00           | 0.0                  | 9.50                | 24.55                 | 0.00                   | 1355     | 0           | 153                  | 307                 | 460        |
| 5      | 70        | 6.84                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 0.80           | 1.00           | 0.0                  | 9.50                | 24.55                 | 0.00                   | 1360     | 0           | 143                  | 291                 | 434        |
| 4      | 50        | 6.21                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 0.80           | 1.00           | 0.0                  | 9.50                | 24.55                 | 0.00                   | 1361     | 0           | 130                  | 266                 | 396        |
| 3      | 30        | 5.37                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 0.80           | 1.00           | 0.0                  | 9.50                | 24.55                 | 0.00                   | 1361     | 0           | 112                  | 230                 | 342        |
| 2      | 13        | 5.36                 | 2.039               | 8.266               | 0.00                    | 0.207 | 2.57           | 0.80           | 1.00           | 0.0                  | 6.45                | 16.60                 | 0.00                   | 837      | 0           | 76                   | 122                 | 197        |
| 1      | 3         | 5.36                 | 1.522               | 3.340               | 0.00                    | 0.366 | 2.13           | 0.80           | 1.00           | 0.0                  | 3.30                | 7.04                  | 0.00                   | 303      | 0           | 32                   | 14                  | 46         |
|        |           |                      |                     |                     |                         |       |                |                |                |                      |                     |                       |                        | 9,995    | 0           |                      |                     | 3,161      |

1.0D + 1.0W Service 90°  
60 mph Wind with No Ice

Gust Response Factor (G<sub>h</sub>): 0.85  
Wind Importance Factor (I<sub>w</sub>): 1.00

| Sect # | Elev (ft) | Q <sub>Z</sub> (psf) | A <sub>f</sub> (sf) | A <sub>r</sub> (sf) | Ice A <sub>r</sub> (sf) | e     | C <sub>r</sub> | D <sub>f</sub> | D <sub>r</sub> | T <sub>iz</sub> (in) | A <sub>e</sub> (sf) | EPA <sub>a</sub> (sf) | EPA <sub>ai</sub> (sf) | Wt. (lb) | Ice Wt (lb) | F <sub>st</sub> (lb) | F <sub>a</sub> (lb) | Force (lb) |
|--------|-----------|----------------------|---------------------|---------------------|-------------------------|-------|----------------|----------------|----------------|----------------------|---------------------|-----------------------|------------------------|----------|-------------|----------------------|---------------------|------------|
| 12     | 155       | 8.58                 | 1.223               | 6.201               | 0.00                    | 0.198 | 2.60           | 0.85           | 1.00           | 0.0                  | 4.64                | 12.08                 | 0.00                   | 405      | 0           | 88                   | 74                  | 162        |
| 11     | 148       | 8.47                 | 0.408               | 2.008               | 0.00                    | 0.201 | 2.59           | 0.85           | 1.00           | 0.0                  | 1.51                | 3.93                  | 0.00                   | 141      | 0           | 28                   | 28                  | 56         |
| 10     | 143       | 8.39                 | 1.223               | 4.193               | 0.00                    | 0.213 | 2.55           | 0.85           | 1.00           | 0.0                  | 3.49                | 8.90                  | 0.00                   | 311      | 0           | 63                   | 58                  | 121        |
| 9      | 130       | 8.16                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 0.85           | 1.00           | 0.0                  | 9.65                | 24.92                 | 0.00                   | 1205     | 0           | 173                  | 292                 | 465        |
| 8      | 118       | 7.94                 | 0.408               | 2.190               | 0.00                    | 0.193 | 2.62           | 0.85           | 1.00           | 0.0                  | 1.62                | 4.23                  | 0.00                   | 236      | 0           | 29                   | 59                  | 88         |
| 7      | 108       | 7.74                 | 2.447               | 10.217              | 0.00                    | 0.206 | 2.58           | 0.85           | 1.00           | 0.0                  | 8.03                | 20.69                 | 0.00                   | 1119     | 0           | 136                  | 265                 | 401        |
| 6      | 90        | 7.35                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 0.85           | 1.00           | 0.0                  | 9.65                | 24.92                 | 0.00                   | 1355     | 0           | 156                  | 307                 | 462        |
| 5      | 70        | 6.84                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 0.85           | 1.00           | 0.0                  | 9.65                | 24.92                 | 0.00                   | 1360     | 0           | 145                  | 291                 | 436        |
| 4      | 50        | 6.21                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 0.85           | 1.00           | 0.0                  | 9.65                | 24.92                 | 0.00                   | 1361     | 0           | 132                  | 266                 | 398        |
| 3      | 30        | 5.37                 | 2.854               | 12.402              | 0.00                    | 0.204 | 2.58           | 0.85           | 1.00           | 0.0                  | 9.65                | 24.92                 | 0.00                   | 1361     | 0           | 114                  | 230                 | 344        |
| 2      | 13        | 5.36                 | 2.039               | 8.266               | 0.00                    | 0.207 | 2.57           | 0.85           | 1.00           | 0.0                  | 6.55                | 16.86                 | 0.00                   | 837      | 0           | 77                   | 122                 | 199        |
| 1      | 3         | 5.36                 | 1.522               | 3.340               | 0.00                    | 0.366 | 2.13           | 0.85           | 1.00           | 0.0                  | 3.37                | 7.20                  | 0.00                   | 303      | 0           | 33                   | 14                  | 47         |
|        |           |                      |                     |                     |                         |       |                |                |                |                      |                     |                       |                        | 9,995    | 0           |                      |                     | 3,178      |



EQUIVALENT LATERAL FORCE METHOD

|  |         |
|--|---------|
| Spectral Response Acceleration for Short Period ( $S_S$ ):               | 0.18    |
| Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):           | 0.05    |
| Long-Period Transition Period ( $T_L$ – Seconds):                        | 6       |
| Importance Factor ( $I_a$ ):   | 1.00    |
| Site Coefficient $F_a$ :   | 1.60    |
| Site Coefficient $F_v$ :   | 2.40    |
| Response Modification Coefficient (R):                                   | 3.00    |
| Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):      | 0.20    |
| Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ): | 0.09    |
| Seismic Response Coefficient ( $C_s$ ):                                  | 0.04    |
| Upper Limit $C_s$ :  | 0.04    |
| Lower Limit $C_s$ :  | 0.03    |
| Period based on Rayleigh Method (sec):                                   | 0.66    |
| Redundancy Factor ( $\rho$ ):  | 1.30    |
| Seismic Force Distribution Exponent (k):                                 | 1.08    |
| Total Unfactored Dead Load:  | 22.27 k |
| Seismic Base Shear (E):  | 1.26 k  |

SEISMIC

Load Case: 1.2D + 1.0Ev + 1.0Eh

Seismic

| Section                                  | Height Above Base (ft) | Weight (lb) | $W_z$ (lb-ft) | $C_{vx}$ | Horizontal Force (lb) | Vertical Force (lb) |
|--|------------------------|-------------|---------------|----------|-----------------------|---------------------|
| 12                                       | 155.01                 | 405         | 93,944        | 0.026    | 32                    | 502                 |
| 11                                       | 148.40                 | 141         | 31,200        | 0.008    | 11                    | 175                 |
| 10                                       | 143.40                 | 311         | 66,432        | 0.018    | 23                    | 386                 |
| 9  | 130.01                 | 1,205       | 231,192       | 0.063    | 79                    | 1,493               |
| 8  | 118.22                 | 236         | 40,882        | 0.011    | 14                    | 293                 |
| 7  | 108.21                 | 1,119       | 176,193       | 0.048    | 60                    | 1,387               |
| 6  | 90.00                  | 1,355       | 174,781       | 0.047    | 60                    | 1,679               |
| 5  | 70.00                  | 1,360       | 133,721       | 0.036    | 46                    | 1,685               |
| 4  | 50.00                  | 1,361       | 93,091        | 0.025    | 32                    | 1,687               |
| 3  | 30.00                  | 1,361       | 53,618        | 0.014    | 18                    | 1,687               |
| 2  | 13.34                  | 837         | 13,731        | 0.004    | 5                     | 1,037               |
| 1  | 3.34                   | 303         | 1,114         | 0.000    | 0                     | 376                 |
| Allgon 7120.16.05.00 / A-800-110-131-0-N | 160.00                 | 139         | 33,284        | 0.009    | 11                    | 172                 |
| Delta Mount                              | 160.00                 | 450         | 108,064       | 0.029    | 37                    | 558                 |
| Flat Light Sector Frames                 | 160.00                 | 1,200       | 288,170       | 0.078    | 99                    | 1,487               |
| Ericsson Radio 4460 B25+B66              | 155.00                 | 327         | 75,879        | 0.021    | 26                    | 405                 |
| Ericsson Radio 4480 B71+B85A             | 155.00                 | 252         | 58,476        | 0.016    | 20                    | 312                 |
| Ericsson Air6449 B41                     | 155.00                 | 312         | 72,399        | 0.020    | 25                    | 387                 |
| RFS APXVAALL24 43-U-NA20                 | 155.00                 | 368         | 85,486        | 0.023    | 29                    | 457                 |
| VFA10-HD3L4NP Sector Frame               | 155.00                 | 1,500       | 348,070       | 0.094    | 119                   | 1,859               |
| Torque Arms                              | 147.00                 | 500         | 109,570       | 0.030    | 38                    | 620                 |
| Flat Light Sector Frames                 | 144.00                 | 1,200       | 257,176       | 0.070    | 88                    | 1,487               |
| Commscope CBC78T-DS-43-2X                | 140.00                 | 62          | 12,910        | 0.004    | 4                     | 77                  |
| Samsung B2/B66A RRH-BR049                | 140.00                 | 253         | 52,638        | 0.014    | 18                    | 314                 |
| Samsung B5/B13 RRH-BR04C                 | 140.00                 | 211         | 43,844        | 0.012    | 15                    | 261                 |
| Raycap RCMD-6627-PF-48                   | 140.00                 | 32          | 6,653         | 0.002    | 2                     | 40                  |
| Samsung MT6407-77A                       | 140.00                 | 245         | 50,892        | 0.014    | 17                    | 303                 |
| Amphenol Antel LPA-80080-4CF-EDIN-0      | 140.00                 | 72          | 14,968        | 0.004    | 5                     | 89                  |
| Commscope JAHH-65B-R3B                   | 140.00                 | 364         | 75,589        | 0.020    | 26                    | 451                 |
| Flat Light Sector Frames                 | 133.00                 | 1,200       | 236,025       | 0.064    | 81                    | 1,487               |
| Raycap DC6-48-60-18-8F(32.8 lbs)         | 130.00                 | 66          | 12,589        | 0.003    | 4                     | 81                  |
| Ericsson Radio 8843 - B2 + B66A          | 130.00                 | 216         | 41,393        | 0.011    | 14                    | 267                 |

ASSET: # 10029, HAMPTON CT

STANDARD

ANSI/TIA-222-H

CUSTOMER DISH WIRELESS L.L.C.

ENG NO.:

13733446\_C3\_03

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|                                 |        |        |           |       |       |        |
|---------------------------------|--------|--------|-----------|-------|-------|--------|
| Powerwave Allgon LGP17201       | 130.00 | 186    | 35,693    | 0.010 | 12    | 231    |
| Ericsson RRUS 4449 B5, B12      | 130.00 | 213    | 40,875    | 0.011 | 14    | 264    |
| Allgon 7770.00                  | 130.00 | 105    | 20,150    | 0.006 | 7     | 130    |
| CCI HPA65R-BU8A                 | 130.00 | 162    | 31,088    | 0.008 | 11    | 201    |
| CCI DMP65R-BU8D                 | 130.00 | 287    | 55,095    | 0.015 | 19    | 356    |
| Raycap RDIDC-9181-PF-48         | 120.00 | 22     | 3,855     | 0.001 | 1     | 27     |
| Fujitsu TA08025-B605            | 120.00 | 225    | 39,602    | 0.011 | 14    | 279    |
| Fujitsu TA08025-B604            | 120.00 | 192    | 33,741    | 0.009 | 12    | 238    |
| Commscope FFVV-65B-R2           | 120.00 | 212    | 37,384    | 0.010 | 13    | 263    |
| Generic Flat Light Sector Frame | 120.00 | 1,200  | 211,209   | 0.057 | 72    | 1,487  |
| Torque Arms                     | 117.00 | 500    | 85,630    | 0.023 | 29    | 620    |
| Lucent KS-24019                 | 75.00  | 4      | 424       | 0.000 | 0     | 5      |
| <hr/>                           |        |        |           |       |       |        |
| Totals                          |        | 22,271 | 3,688,715 | 1.000 | 1,263 | 27,604 |

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FORCE/STRESS SUMMARY

Section 1 – Bolt Elevation 0.0 (ft) and Height 6.67 (ft)

|                           | Pu          |                        | Len<br>(ft) | Bracing %                            |                                     |  | KL/R      | F <sub>y</sub><br>(ksi) | Φ <sub>c</sub> P <sub>n</sub><br>(kip) | Shear                                |          | Bear         |           | #<br>Bolt | #<br>Hole | Use<br>% Controls |
|---------------------------|-------------|------------------------|-------------|--------------------------------------|-------------------------------------|--|-----------|-------------------------|--|--------------------------------------|----------|--------------|-----------|-----------|-----------|-------------------|
|                           | (kip)       | Load Case              |             | Φ <sub>R<sub>nv</sub></sub><br>(kip) | Φ <sub>R<sub>n</sub></sub><br>(kip) | Φ <sub>t</sub> P <sub>n</sub><br>(kip) |           |                         |  | Φ <sub>R<sub>nt</sub></sub><br>(kip) | Use<br>% | Num<br>Bolts | Bolt Type |           |           |                   |
| <b>Max Compression</b>    |             |                        |             |                                      |                                     |  |           |                         |  |                                      |          |              |           |           |           |                   |
| L PST - 2-1/2" DIA PIPE   | -38.66      | 1.2D + 1.0Di + 1.0Wi N | 1.645       | 100                                  | 100                                 | 100                                    | 20.84     | 55.0                    | 81.45                                  | 0.00                                 | 0.00     | 0.00         | 0.00      | 0         | 0         | 47 Member X       |
| H SAE - 2.5X2.5X0.25      | -0.05       | 1.2D + 1.0W N          | 0.826       | 100                                  | 100                                 | 100                                    | 13.12     | 36.0                    | 42.61                                  | 0.00                                 | 0.00     | 0.00         | 0.00      | 0         | 0         | 0 Member Z        |
| <b>Max Tension Member</b> |             |                        |             |                                      |                                     |  |           |                         |  |                                      |          |              |           |           |           |                   |
| H SAE - 2.5X2.5X0.25      | 3.26        | 1.2D + 1.0Di + 1.0Wi N |             |                                      |                                     |  |           | 36.0                    | 58                                     | 38.56                                | 0.00     | 0.00         | 0.00      | 0         | 0         | 8 Member          |
| <b>Max Splice Forces</b>  |             |                        |             |                                      |                                     |  |           |                         |  |                                      |          |              |           |           |           |                   |
|                           | Pu<br>(kip) | Load Case              |             | Φ <sub>R<sub>nt</sub></sub><br>(kip) | Use<br>%                            | Num<br>Bolts                           | Bolt Type |                         |  |                                      |          |              |           |           |           |                   |

Section 2 – Bolt Elevation 6.7 (ft) and Height 13.33 (ft)

|                           | Pu          |                         | Len<br>(ft) | Bracing %                            |                                     |  | KL/R      | F <sub>y</sub><br>(ksi) | Φ <sub>c</sub> P <sub>n</sub><br>(kip) | Shear                                |          | Bear         |           | #<br>Bolt | #<br>Hole | Use<br>% Controls |
|---------------------------|-------------|-------------------------|-------------|--------------------------------------|-------------------------------------|--|-----------|-------------------------|--|--------------------------------------|----------|--------------|-----------|-----------|-----------|-------------------|
|                           | (kip)       | Load Case               |             | Φ <sub>R<sub>nv</sub></sub><br>(kip) | Φ <sub>R<sub>n</sub></sub><br>(kip) | Φ <sub>t</sub> P <sub>n</sub><br>(kip) |           |                         |  | Φ <sub>R<sub>nt</sub></sub><br>(kip) | Use<br>% | Num<br>Bolts | Bolt Type |           |           |                   |
| <b>Max Compression</b>    |             |                         |             |                                      |                                     |  |           |                         |  |                                      |          |              |           |           |           |                   |
| L PST - 2-1/2" DIA PIPE   | -34.96      | 1.2D + 1.0Di + 1.0Wi 60 | 3.208       | 100                                  | 100                                 | 100                                    | 40.64     | 55.0                    | 73.85                                  | 0.00                                 | 0.00     | 0.00         | 0.00      | 0         | 0         | 47 Member X       |
| D SOL - 5/8" SOLID        | -1.54       | 1.2D + 1.0W N           | 4.749       | 50                                   | 50                                  | 50                                     | 164.38    | 36.0                    | 2.57                                   | 0.00                                 | 0.00     | 0.00         | 0.00      | 0         | 0         | 0 Member X        |
| <b>Max Tension Member</b> |             |                         |             |                                      |                                     |  |           |                         |  |                                      |          |              |           |           |           |                   |
| H SAE - 1.5X1.5X0.1875    | 4.47        | 1.2D + 1.0Di + 1.0Wi N  |             |                                      |                                     |  |           | 36.0                    | 58                                     | 17.17                                | 0.00     | 0.00         | 0.00      | 0         | 0         | 26 Member         |
| <b>Max Splice Forces</b>  |             |                         |             |                                      |                                     |  |           |                         |  |                                      |          |              |           |           |           |                   |
|                           | Pu<br>(kip) | Load Case               |             | Φ <sub>R<sub>nt</sub></sub><br>(kip) | Use<br>%                            | Num<br>Bolts                           | Bolt Type |                         |  |                                      |          |              |           |           |           |                   |

Section 3 – Bolt Elevation 20.0 (ft) and Height 20.00 (ft)

|                           | Pu          |                         | Len<br>(ft) | Bracing %                            |                                     |  | KL/R      | F <sub>y</sub><br>(ksi) | Φ <sub>c</sub> P <sub>n</sub><br>(kip) | Shear                                |          | Bear         |           | #<br>Bolt | #<br>Hole | Use<br>% Controls |
|---------------------------|-------------|-------------------------|-------------|--------------------------------------|-------------------------------------|--|-----------|-------------------------|--|--------------------------------------|----------|--------------|-----------|-----------|-----------|-------------------|
|                           | (kip)       | Load Case               |             | Φ <sub>R<sub>nv</sub></sub><br>(kip) | Φ <sub>R<sub>n</sub></sub><br>(kip) | Φ <sub>t</sub> P <sub>n</sub><br>(kip) |           |                         |  | Φ <sub>R<sub>nt</sub></sub><br>(kip) | Use<br>% | Num<br>Bolts | Bolt Type |           |           |                   |
| <b>Max Compression</b>    |             |                         |             |                                      |                                     |  |           |                         |  |                                      |          |              |           |           |           |                   |
| L PST - 2-1/2" DIA PIPE   | -34.81      | 1.2D + 1.0Di + 1.0Wi 60 | 3.208       | 100                                  | 100                                 | 100                                    | 40.65     | 55.0                    | 73.85                                  | 0.00                                 | 0.00     | 0.00         | 0.00      | 0         | 0         | 47 Member X       |
| D SOL - 5/8" SOLID        | -1.36       | 1.2D + 1.0W N           | 4.749       | 50                                   | 50                                  | 50                                     | 164.40    | 36.0                    | 2.56                                   | 0.00                                 | 0.00     | 0.00         | 0.00      | 0         | 0         | 0 Member X        |
| <b>Max Tension Member</b> |             |                         |             |                                      |                                     |  |           |                         |  |                                      |          |              |           |           |           |                   |
| H SAE - 1.5X1.5X0.1875    | 2.94        | 1.2D + 1.0Di + 1.0Wi N  |             |                                      |                                     |  |           | 36.0                    | 58                                     | 17.17                                | 0.00     | 0.00         | 0.00      | 0         | 0         | 17 Member         |
| <b>Max Splice Forces</b>  |             |                         |             |                                      |                                     |  |           |                         |  |                                      |          |              |           |           |           |                   |
|                           | Pu<br>(kip) | Load Case               |             | Φ <sub>R<sub>nt</sub></sub><br>(kip) | Use<br>%                            | Num<br>Bolts                           | Bolt Type |                         |  |                                      |          |              |           |           |           |                   |

Section 4 – Bolt Elevation 40.0 (ft) and Height 20.00 (ft)

|                           | Pu     |                         | Len<br>(ft) | Bracing %                            |                                     |  | KL/R   | F <sub>y</sub><br>(ksi) | Φ <sub>c</sub> P <sub>n</sub><br>(kip) | Shear                                |          | Bear         |           | #<br>Bolt | #<br>Hole | Use<br>% Controls |
|---------------------------|--------|-------------------------|-------------|--------------------------------------|-------------------------------------|--|--------|-------------------------|--|--------------------------------------|----------|--------------|-----------|-----------|-----------|-------------------|
|                           | (kip)  | Load Case               |             | Φ <sub>R<sub>nv</sub></sub><br>(kip) | Φ <sub>R<sub>n</sub></sub><br>(kip) | Φ <sub>t</sub> P <sub>n</sub><br>(kip) |        |                         |  | Φ <sub>R<sub>nt</sub></sub><br>(kip) | Use<br>% | Num<br>Bolts | Bolt Type |           |           |                   |
| <b>Max Compression</b>    |        |                         |             |                                      |                                     |  |        |                         |  |                                      |          |              |           |           |           |                   |
| L PST - 2-1/2" DIA PIPE   | -32.88 | 1.2D + 1.0Di + 1.0Wi 60 | 3.208       | 100                                  | 100                                 | 100                                    | 40.65  | 55.0                    | 73.85                                  | 0.00                                 | 0.00     | 0.00         | 0.00      | 0         | 0         | 44 Member X       |
| D SOL - 5/8" SOLID        | -0.70  | 1.2D + 1.0W N           | 4.749       | 50                                   | 50                                  | 50                                     | 164.40 | 36.0                    | 2.56                                   | 0.00                                 | 0.00     | 0.00         | 0.00      | 0         | 0         | 0 Member X        |
| <b>Max Tension Member</b> |        |                         |             |                                      |                                     |  |        |                         |  |                                      |          |              |           |           |           |                   |
| H SAE - 1.5X1.5X0.1875    | 3.98   | 1.2D + 1.0Di + 1.0Wi N  |             |                                      |                                     |  |        | 36.0                    | 58                                     | 17.17                                | 0.00     | 0.00         | 0.00      | 0         | 0         | 23 Member         |

**FORCE/STRESS SUMMARY**

| Max Splice Forces | Pu (kip) | Load Case | $\Phi R_{nt}$ (kip) | Use % | Num Bolts | Bolt Type |
|-------------------|----------|-----------|---------------------|-------|-----------|-----------|
|-------------------|----------|-----------|---------------------|-------|-----------|-----------|

Section 5 – Bolt Elevation 60.0 (ft) and Height 20.00 (ft)

| Max Compression         | Pu (kip) | Load Case              | Len (ft) | Bracing % |     |     |        | F <sub>y</sub> (ksi) | $\Phi_c P_n$ (kip) | Shear               |                  | Bear |   | # Bolt | # Hole   | Use % | Controls |
|-------------------------|----------|------------------------|----------|-----------|-----|-----|--------|----------------------|--------------------|---------------------|------------------|------|---|--------|----------|-------|----------|
|                         |          |                        |          | X         | Y   | Z   | KL/R   |                      |                    | $\Phi R_{nv}$ (kip) | $\Phi R_n$ (kip) |      |   |        |          |       |          |
| L PST - 2-1/2" DIA PIPE | -28.16   | 1.2D + 1.0Di + 1.0Wi N | 3.208    | 100       | 100 | 100 | 40.65  | 55.0                 | 73.85              | 0.00                | 0.00             | 0    | 0 | 38     | Member X |       |          |
| D SOL - 5/8" SOLID      | -2.10    | 1.2D + 1.0W N          | 4.749    | 50        | 50  | 50  | 164.40 | 36.0                 | 2.56               | 0.00                | 0.00             | 0    | 0 | 0      | Member X |       |          |

| Max Tension Member     | Pu (kip) | Load Case              | F <sub>y</sub> (ksi) | F <sub>u</sub> (ksi) | $\Phi_c P_n$ (kip) | $\Phi R_{nv}$ (kip) | $\Phi R_n$ (kip) | Blk Shear          |                  | # Bolt | # Hole | Use % | Controls |
|------------------------|----------|------------------------|----------------------|----------------------|--------------------|---------------------|------------------|--------------------|------------------|--------|--------|-------|----------|
|                        |          |                        |                      |                      |                    |                     |                  | $\Phi_t P_n$ (kip) | $\Phi R_n$ (kip) |        |        |       |          |
| H SAE - 1.5X1.5X0.1875 | 2.41     | 1.2D + 1.0Di + 1.0Wi N | 36.0                 | 58                   | 17.17              | 0.00                | 0.00             | 0.00               | 0.00             | 0      | 0      | 14    | Member   |

| Max Splice Forces | Pu (kip) | Load Case | $\Phi R_{nt}$ (kip) | Use % | Num Bolts | Bolt Type |
|-------------------|----------|-----------|---------------------|-------|-----------|-----------|
|-------------------|----------|-----------|---------------------|-------|-----------|-----------|

Section 6 – Bolt Elevation 80.0 (ft) and Height 20.00 (ft)

| Max Compression         | Pu (kip) | Load Case              | Len (ft) | Bracing % |     |     |        | F <sub>y</sub> (ksi) | $\Phi_c P_n$ (kip) | Shear               |                  | Bear |   | # Bolt | # Hole   | Use % | Controls |
|-------------------------|----------|------------------------|----------|-----------|-----|-----|--------|----------------------|--------------------|---------------------|------------------|------|---|--------|----------|-------|----------|
|                         |          |                        |          | X         | Y   | Z   | KL/R   |                      |                    | $\Phi R_{nv}$ (kip) | $\Phi R_n$ (kip) |      |   |        |          |       |          |
| L PST - 2-1/2" DIA PIPE | -27.34   | 1.2D + 1.0Di + 1.0Wi N | 3.208    | 100       | 100 | 100 | 40.65  | 55.0                 | 73.85              | 0.00                | 0.00             | 0    | 0 | 37     | Member X |       |          |
| D SOL - 5/8" SOLID      | -1.18    | 1.2D + 1.0W N          | 4.749    | 50        | 50  | 50  | 164.40 | 36.0                 | 2.56               | 0.00                | 0.00             | 0    | 0 | 0      | Member X |       |          |

| Max Tension Member     | Pu (kip) | Load Case              | F <sub>y</sub> (ksi) | F <sub>u</sub> (ksi) | $\Phi_c P_n$ (kip) | $\Phi R_{nv}$ (kip) | $\Phi R_n$ (kip) | Blk Shear          |                  | # Bolt | # Hole | Use % | Controls |
|------------------------|----------|------------------------|----------------------|----------------------|--------------------|---------------------|------------------|--------------------|------------------|--------|--------|-------|----------|
|                        |          |                        |                      |                      |                    |                     |                  | $\Phi_t P_n$ (kip) | $\Phi R_n$ (kip) |        |        |       |          |
| H SAE - 1.5X1.5X0.1875 | 2.37     | 1.2D + 1.0Di + 1.0Wi N | 36.0                 | 58                   | 17.17              | 0.00                | 0.00             | 0.00               | 0.00             | 0      | 0      | 13    | Member   |

| Max Splice Forces | Pu (kip) | Load Case | $\Phi R_{nt}$ (kip) | Use % | Num Bolts | Bolt Type |
|-------------------|----------|-----------|---------------------|-------|-----------|-----------|
|-------------------|----------|-----------|---------------------|-------|-----------|-----------|

Section 7 – Bolt Elevation 100.0 (ft) and Height 16.42 (ft)

| Max Compression         | Pu (kip) | Load Case     | Len (ft) | Bracing % |     |     |        | F <sub>y</sub> (ksi) | $\Phi_c P_n$ (kip) | Shear               |                  | Bear |   | # Bolt | # Hole   | Use % | Controls |
|-------------------------|----------|---------------|----------|-----------|-----|-----|--------|----------------------|--------------------|---------------------|------------------|------|---|--------|----------|-------|----------|
|                         |          |               |          | X         | Y   | Z   | KL/R   |                      |                    | $\Phi R_{nv}$ (kip) | $\Phi R_n$ (kip) |      |   |        |          |       |          |
| L PST - 2-1/2" DIA PIPE | -30.84   | 1.2D + 1.0W N | 3.209    | 100       | 100 | 100 | 40.66  | 55.0                 | 73.84              | 0.00                | 0.00             | 0    | 0 | 41     | Member X |       |          |
| H SAE - 1.5X1.5X0.1875  | -3.66    | 1.2D + 1.0W N | 3.502    | 100       | 100 | 100 | 134.40 | 36.0                 | 8.40               | 0.00                | 0.00             | 0    | 0 | 43     | Member Z |       |          |
| D SOL - 5/8" SOLID      | -0.37    | 1.2D + 1.0W N | 4.75     | 50        | 50  | 50  | 164.41 | 36.0                 | 2.56               | 0.00                | 0.00             | 0    | 0 | 0      | Member X |       |          |

| Max Tension Member      | Pu (kip) | Load Case       | F <sub>y</sub> (ksi) | F <sub>u</sub> (ksi) | $\Phi_c P_n$ (kip) | $\Phi R_{nv}$ (kip) | $\Phi R_n$ (kip) | Blk Shear          |                  | # Bolt | # Hole | Use % | Controls |
|-------------------------|----------|-----------------|----------------------|----------------------|--------------------|---------------------|------------------|--------------------|------------------|--------|--------|-------|----------|
|                         |          |                 |                      |                      |                    |                     |                  | $\Phi_t P_n$ (kip) | $\Phi R_n$ (kip) |        |        |       |          |
| L PST - 2-1/2" DIA PIPE | 2.68     | 1.2D + 1.0W 60° | 55.0                 | 70                   | 84.35              | 0.00                | 0.00             | 0.00               | 0.00             | 0      | 0      | 3     | Member   |
| H SAE - 1.5X1.5X0.1875  | 5.31     | 1.2D + 1.0W 60° | 36.0                 | 58                   | 17.17              | 0.00                | 0.00             | 0.00               | 0.00             | 0      | 0      | 30    | Member   |
| D SOL - 5/8" SOLID      | 0.24     | 1.2D + 1.0W N   | 36.0                 | 58                   | 9.94               | 0.00                | 0.00             | 0.00               | 0.00             | 0      | 0      | 2     | Member   |

| Max Splice Forces | Pu (kip) | Load Case | $\Phi R_{nt}$ (kip) | Use % | Num Bolts | Bolt Type |
|-------------------|----------|-----------|---------------------|-------|-----------|-----------|
|-------------------|----------|-----------|---------------------|-------|-----------|-----------|

Section 8 – Bolt Elevation 116.4 (ft) and Height 3.59 (ft)

| Max Compression         | Pu (kip) | Load Case     | Len (ft) | Bracing % |     |     |        | F <sub>y</sub> (ksi) | $\Phi_c P_n$ (kip) | Shear               |                  | Bear |   | # Bolt | # Hole   | Use % | Controls |
|-------------------------|----------|---------------|----------|-----------|-----|-----|--------|----------------------|--------------------|---------------------|------------------|------|---|--------|----------|-------|----------|
|                         |          |               |          | X         | Y   | Z   | KL/R   |                      |                    | $\Phi R_{nv}$ (kip) | $\Phi R_n$ (kip) |      |   |        |          |       |          |
| L PST - 2-1/2" DIA PIPE | -33.49   | 1.2D + 1.0W N | 3.215    | 100       | 100 | 100 | 40.74  | 55.0                 | 73.81              | 0.00                | 0.00             | 0    | 0 | 45     | Member X |       |          |
| H SAE - 1.5X1.5X0.1875  | -1.63    | 1.2D + 1.0W N | 3.502    | 100       | 100 | 100 | 134.40 | 36.0                 | 8.40               | 0.00                | 0.00             | 0    | 0 | 19     | Member Z |       |          |
| D SOL - 5/8" SOLID      | -0.93    | 1.2D + 1.0W N | 4.754    | 50        | 50  | 50  | 164.55 | 36.0                 | 2.56               | 0.00                | 0.00             | 0    | 0 | 0      | Member X |       |          |

FORCE/STRESS SUMMARY

| Max Tension Member     | Pu    |                 | F <sub>y</sub><br>(ksi) | F <sub>u</sub><br>(ksi) | Φ <sub>c</sub> P <sub>n</sub><br>(kip) | Shear<br>ΦR <sub>nv</sub><br>(kip) | Bear<br>ΦR <sub>n</sub><br>(kip) | Blk Shear<br>Φ <sub>t</sub> P <sub>n</sub><br>(kip) | # Bolt | # Hole | Use % | Controls |
|------------------------|-------|-----------------|-------------------------|-------------------------|--|------------------------------------|----------------------------------|---|--------|--------|-------|----------|
|                        | (kip) | Load Case       |                         |                         |  |                                    |                                  |   |        |        |       |          |
| H SAE - 1.5X1.5X0.1875 | 1.12  | 1.2D + 1.0W N   | 36.0                    | 58                      | 17.17                                  | 0.00                               | 0.00                             | 0.00  | 0      | 0      | 6     | Member   |
| D SOL - 5/8" SOLID     | 4.51  | 1.2D + 1.0W 90° | 36.0                    | 58                      | 9.94                                   | 0.00                               | 0.00                             | 0.00  | 0      | 0      | 45    | Member   |

| Max Splice Forces | Pu<br>(kip) | Load Case | ΦR <sub>nt</sub><br>(kip) | Use % | Num Bolts | Bolt Type |
|-------------------|-------------|-----------|---------------------------|-------|-----------|-----------|
|-------------------|-------------|-----------|---------------------------|-------|-----------|-----------|

Section 9 – Bolt Elevation 120.0 (ft) and Height 20.00 (ft)

| Max Compression         | Pu     |               | Len<br>(ft) | Bracing % |     |     | F' <sub>y</sub><br>(ksi) | Φ <sub>c</sub> P <sub>n</sub><br>(kip) | Shear<br>ΦR <sub>nv</sub><br>(kip) | Bear<br>ΦR <sub>n</sub><br>(kip) | # Bolt | # Hole | Use % | Controls |          |
|-------------------------|--------|---------------|-------------|-----------|-----|-----|--------------------------|--|------------------------------------|----------------------------------|--------|--------|-------|----------|----------|
|                         | (kip)  | Load Case     |             | X         | Y   | Z   |                          |  |                                    |                                  |        |        |       |          | KL/R     |
| L PST - 2-1/2" DIA PIPE | -26.92 | 1.2D + 1.0W N | 0.375       | 100       | 100 | 100 | 4.75                     | 55.0                                   | 84.20                              | 0.00                             | 0.00   | 0      | 0     | 31       | Member X |
| D SOL - 5/8" SOLID      | -2.49  | 1.2D + 1.0W N | 4.749       | 50        | 50  | 50  | 164.40                   | 36.0                                   | 2.56                               | 0.00                             | 0.00   | 0      | 0     | 0        | Member X |

| Max Tension Member     | Pu    |                        | F <sub>y</sub><br>(ksi) | F <sub>u</sub><br>(ksi) | Φ <sub>c</sub> P <sub>n</sub><br>(kip) | Shear<br>ΦR <sub>nv</sub><br>(kip) | Bear<br>ΦR <sub>n</sub><br>(kip) | Blk Shear<br>Φ <sub>t</sub> P <sub>n</sub><br>(kip) | # Bolt | # Hole | Use % | Controls |
|------------------------|-------|------------------------|-------------------------|-------------------------|--|------------------------------------|----------------------------------|---|--------|--------|-------|----------|
|                        | (kip) | Load Case              |                         |                         |  |                                    |                                  |   |        |        |       |          |
| H SAE - 1.5X1.5X0.1875 | 1.39  | 1.2D + 1.0Di + 1.0Wi N | 36.0                    | 58                      | 17.17                                  | 0.00                               | 0.00                             | 0.00  | 0      | 0      | 8     | Member   |
| D SOL - 5/8" SOLID     | 0.90  | 1.2D + 1.0W 90°        | 36.0                    | 58                      | 9.94                                   | 0.00                               | 0.00                             | 0.00  | 0      | 0      | 9     | Member   |

| Max Splice Forces | Pu<br>(kip) | Load Case | ΦR <sub>nt</sub><br>(kip) | Use % | Num Bolts | Bolt Type |
|-------------------|-------------|-----------|---------------------------|-------|-----------|-----------|
|-------------------|-------------|-----------|---------------------------|-------|-----------|-----------|

Section 10 – Bolt Elevation 140.0 (ft) and Height 6.79 (ft)

| Max Compression         | Pu     |               | Len<br>(ft) | Bracing % |     |     | F' <sub>y</sub><br>(ksi) | Φ <sub>c</sub> P <sub>n</sub><br>(kip) | Shear<br>ΦR <sub>nv</sub><br>(kip) | Bear<br>ΦR <sub>n</sub><br>(kip) | # Bolt | # Hole | Use % | Controls |          |
|-------------------------|--------|---------------|-------------|-----------|-----|-----|--------------------------|--|------------------------------------|----------------------------------|--------|--------|-------|----------|----------|
|                         | (kip)  | Load Case     |             | X         | Y   | Z   |                          |  |                                    |                                  |        |        |       |          | KL/R     |
| L PST - 2-1/2" DIA PIPE | -19.41 | 1.2D + 1.0W N | 3.208       | 100       | 100 | 100 | 40.64                    | 55.0                                   | 73.85                              | 0.00                             | 0.00   | 0      | 0     | 26       | Member X |
| H SAE - 1.5X1.5X0.1875  | -5.20  | 1.2D + 1.0W N | 3.502       | 100       | 100 | 100 | 134.40                   | 36.0                                   | 8.40                               | 0.00                             | 0.00   | 0      | 0     | 61       | Member Z |
| D SOL - 5/8" SOLID      | -0.37  | 1.2D + 1.0W N | 4.749       | 50        | 50  | 50  | 164.38                   | 36.0                                   | 2.57                               | 0.00                             | 0.00   | 0      | 0     | 0        | Member X |

| Max Tension Member      | Pu    |                 | F <sub>y</sub><br>(ksi) | F <sub>u</sub><br>(ksi) | Φ <sub>c</sub> P <sub>n</sub><br>(kip) | Shear<br>ΦR <sub>nv</sub><br>(kip) | Bear<br>ΦR <sub>n</sub><br>(kip) | Blk Shear<br>Φ <sub>t</sub> P <sub>n</sub><br>(kip) | # Bolt | # Hole | Use % | Controls |
|-------------------------|-------|-----------------|-------------------------|-------------------------|--|------------------------------------|----------------------------------|---|--------|--------|-------|----------|
|                         | (kip) | Load Case       |                         |                         |  |                                    |                                  |   |        |        |       |          |
| L PST - 2-1/2" DIA PIPE | 14.91 | 1.2D + 1.0W 60° | 55.0                    | 70                      | 84.35                                  | 0.00                               | 0.00                             | 0.00  | 0      | 0      | 17    | Member   |
| H SAE - 1.5X1.5X0.1875  | 5.53  | 1.2D + 1.0W 60° | 36.0                    | 58                      | 17.17                                  | 0.00                               | 0.00                             | 0.00  | 0      | 0      | 32    | Member   |
| D SOL - 5/8" SOLID      | 1.75  | 1.2D + 1.0W 90° | 36.0                    | 58                      | 9.94                                   | 0.00                               | 0.00                             | 0.00  | 0      | 0      | 17    | Member   |

| Max Splice Forces | Pu<br>(kip) | Load Case | ΦR <sub>nt</sub><br>(kip) | Use % | Num Bolts | Bolt Type |
|-------------------|-------------|-----------|---------------------------|-------|-----------|-----------|
|-------------------|-------------|-----------|---------------------------|-------|-----------|-----------|

Section 11 – Bolt Elevation 146.8 (ft) and Height 3.21 (ft)

| Max Compression         | Pu     |               | Len<br>(ft) | Bracing % |     |     | F' <sub>y</sub><br>(ksi) | Φ <sub>c</sub> P <sub>n</sub><br>(kip) | Shear<br>ΦR <sub>nv</sub><br>(kip) | Bear<br>ΦR <sub>n</sub><br>(kip) | # Bolt | # Hole | Use % | Controls |          |
|-------------------------|--------|---------------|-------------|-----------|-----|-----|--------------------------|--|------------------------------------|----------------------------------|--------|--------|-------|----------|----------|
|                         | (kip)  | Load Case     |             | X         | Y   | Z   |                          |  |                                    |                                  |        |        |       |          | KL/R     |
| L PST - 2-1/2" DIA PIPE | -18.58 | 1.2D + 1.0W N | 3.21        | 100       | 100 | 100 | 40.68                    | 55.0                                   | 73.84                              | 0.00                             | 0.00   | 0      | 0     | 25       | Member X |
| H SAE - 1.5X1.5X0.1875  | -0.10  | 1.2D + 1.0W N | 3.502       | 100       | 100 | 100 | 134.40                   | 36.0                                   | 8.40                               | 0.00                             | 0.00   | 0      | 0     | 1        | Member Z |
| D SOL - 5/8" SOLID      | -2.05  | 1.2D + 1.0W N | 4.75        | 50        | 50  | 50  | 164.44                   | 36.0                                   | 2.56                               | 0.00                             | 0.00   | 0      | 0     | 0        | Member X |

| Max Tension Member      | Pu    |                 | F <sub>y</sub><br>(ksi) | F <sub>u</sub><br>(ksi) | Φ <sub>c</sub> P <sub>n</sub><br>(kip) | Shear<br>ΦR <sub>nv</sub><br>(kip) | Bear<br>ΦR <sub>n</sub><br>(kip) | Blk Shear<br>Φ <sub>t</sub> P <sub>n</sub><br>(kip) | # Bolt | # Hole | Use % | Controls |
|-------------------------|-------|-----------------|-------------------------|-------------------------|--|------------------------------------|----------------------------------|---|--------|--------|-------|----------|
|                         | (kip) | Load Case       |                         |                         |  |                                    |                                  |   |        |        |       |          |
| L PST - 2-1/2" DIA PIPE | 14.75 | 1.2D + 1.0W 60° | 55.0                    | 70                      | 84.35                                  | 0.00                               | 0.00                             | 0.00  | 0      | 0      | 17    | Member   |
| H SAE - 1.5X1.5X0.1875  | 0.41  | 1.2D + 1.0W 60° | 36.0                    | 58                      | 17.17                                  | 0.00                               | 0.00                             | 0.00  | 0      | 0      | 2     | Member   |
| D SOL - 5/8" SOLID      | 2.24  | 1.2D + 1.0W 90° | 36.0                    | 58                      | 9.94                                   | 0.00                               | 0.00                             | 0.00  | 0      | 0      | 22    | Member   |

FORCE/STRESS SUMMARY

| Max Splice Forces | Pu (kip) | Load Case | $\Phi R_{nt}$ (kip) | Use % | Num Bolts | Bolt Type |
|-------------------|----------|-----------|---------------------|-------|-----------|-----------|
|-------------------|----------|-----------|---------------------|-------|-----------|-----------|

Section 12 – Bolt Elevation 150.0 (ft) and Height 10.00 (ft)

| Max Compression         | Pu (kip) | Load Case       | Len (ft) | Bracing % |     |     |        | $F'_y$ (ksi) | $\Phi_c P_n$ (kip) | Shear $\Phi R_{nv}$ (kip) | Bear $\Phi R_n$ (kip) | # Bolt | # Hole | Use % | Controls |
|-------------------------|----------|-----------------|----------|-----------|-----|-----|--------|--------------|--------------------|---------------------------|-----------------------|--------|--------|-------|----------|
|                         |          |                 |          | X         | Y   | Z   | KL/R   |              |                    |                           |                       |        |        |       |          |
| L PST - 2-1/2" DIA PIPE | -12.52   | 1.2D + 1.0W N   | 3.208    | 100       | 100 | 100 | 40.65  | 55.0         | 73.85              | 0.00                      | 0.00                  | 0      | 0      | 16    | Member X |
| H SAE - 1.5X1.5X0.1875  | -0.36    | 1.2D + 1.0W 60° | 3.502    | 100       | 100 | 100 | 134.40 | 36.0         | 8.40               | 0.00                      | 0.00                  | 0      | 0      | 4     | Member Z |
| D SOL - 5/8" SOLID      | -2.41    | 1.2D + 1.0W N   | 4.749    | 50        | 50  | 50  | 164.40 | 36.0         | 2.56               | 0.00                      | 0.00                  | 0      | 0      | 0     | Member X |

| Max Tension Member     | Pu (kip) | Load Case       | $F_y$ (ksi) | $F_u$ (ksi) | $\Phi_c P_n$ (kip) | Shear $\Phi R_{nv}$ (kip) | Bear $\Phi R_n$ (kip) | Blk Shear $\Phi_t P_n$ (kip) | # Bolt | # Hole | Use % | Controls |
|------------------------|----------|-----------------|-------------|-------------|--------------------|---------------------------|-----------------------|------------------------------|--------|--------|-------|----------|
|                        |          |                 |             |             |                    |                           |                       |                              |        |        |       |          |
| H SAE - 1.5X1.5X0.1875 | 0.42     | 1.2D + 1.0W N   | 36.0        | 58          | 17.17              | 0.00                      | 0.00                  | 0.00                         | 0      | 0      | 2     | Member   |
| D SOL - 5/8" SOLID     | 2.35     | 1.2D + 1.0W 90° | 36.0        | 58          | 9.94               | 0.00                      | 0.00                  | 0.00                         | 0      | 0      | 23    | Member   |

| Max Splice Forces | Pu (kip) | Load Case | $\Phi R_{nt}$ (kip) | Use % | Num Bolts | Bolt Type |
|-------------------|----------|-----------|---------------------|-------|-----------|-----------|
|-------------------|----------|-----------|---------------------|-------|-----------|-----------|

DETAILED REACTIONS

| Load Case                   | Radius (ft) | Elevation (ft) | Azimuth (deg) | Node | *(-) Uplift and (+) Down |           |           |
|-----------------------------|-------------|----------------|---------------|------|--------------------------|-----------|-----------|
|                             |             |                |               |      | *Fx (kip)                | *Fy (kip) | *Fz (kip) |
| 1.2D + 1.0W Normal          | 0.00        | 0.00           |               | 1    | 0.00                     | 72.93     | -1.19     |
|                             | 145.00      | 0.00           | 0             | A1   | 0.00                     | -0.95     | 1.15      |
|                             | 145.00      | 0.00           | 240           | A1a  | -22.95                   | -21.54    | -14.01    |
| 1.2D + 1.0W 60°             | 145.00      | 0.00           | 120           | A1b  | 22.95                    | -21.54    | -14.01    |
|                             | 0.00        | 0.00           |               | 1    | -1.02                    | 70.18     | -0.59     |
|                             | 145.00      | 0.00           | 0             | A1   | -0.62                    | -7.09     | 8.75      |
| 1.2D + 1.0W 90°             | 145.00      | 0.00           | 240           | A1a  | -29.67                   | -27.49    | -17.13    |
|                             | 145.00      | 0.00           | 120           | A1b  | 7.27                     | -7.10     | -4.91     |
|                             | 0.00        | 0.00           |               | 1    | -1.15                    | 72.11     | -0.04     |
| 1.2D + 1.0Di + 1.0Wi Normal | 145.00      | 0.00           | 0             | A1   | -0.79                    | -14.46    | 17.93     |
|                             | 145.00      | 0.00           | 240           | A1a  | -28.53                   | -26.29    | -16.10    |
|                             | 145.00      | 0.00           | 120           | A1b  | 2.59                     | -2.66     | -1.82     |
| 1.2D + 1.0Di + 1.0Wi 60°    | 0.00        | 0.00           |               | 1    | 0.00                     | 109.48    | -0.37     |
|                             | 145.00      | 0.00           | 0             | A1   | 0.00                     | -9.89     | 13.76     |
|                             | 145.00      | 0.00           | 240           | A1a  | -18.30                   | -15.60    | -11.11    |
| 1.2D + 1.0Di + 1.0Wi 90°    | 145.00      | 0.00           | 120           | A1b  | 18.30                    | -15.60    | -11.11    |
|                             | 0.00        | 0.00           |               | 1    | -0.28                    | 108.96    | -0.16     |
|                             | 145.00      | 0.00           | 0             | A1   | -0.48                    | -11.73    | 16.10     |
| 1.2D + 1.0Ev + 1.0Eh Normal | 145.00      | 0.00           | 240           | A1a  | -20.54                   | -17.41    | -11.86    |
|                             | 145.00      | 0.00           | 120           | A1b  | 13.70                    | -11.73    | -8.46     |
|                             | 0.00        | 0.00           |               | 1    | -0.34                    | 109.18    | 0.02      |
| 1.2D + 1.0Ev + 1.0Eh 60°    | 145.00      | 0.00           | 0             | A1   | -0.59                    | -13.65    | 18.72     |
|                             | 145.00      | 0.00           | 240           | A1a  | -20.14                   | -16.92    | -11.37    |
|                             | 145.00      | 0.00           | 120           | A1b  | 12.31                    | -10.38    | -7.36     |
| 1.2D + 1.0Ev + 1.0Eh 90°    | 0.00        | 0.00           |               | 1    | 0.00                     | 58.04     | 0.00      |
|                             | 145.00      | 0.00           | 0             | A1   | 0.00                     | -8.75     | 11.48     |
|                             | 145.00      | 0.00           | 240           | A1a  | -10.98                   | -9.85     | -6.34     |
| 1.0D + 1.0W Service Normal  | 145.00      | 0.00           | 120           | A1b  | 10.98                    | -9.85     | -6.34     |
|                             | 0.00        | 0.00           |               | 1    | 0.00                     | 58.03     | 0.00      |
|                             | 145.00      | 0.00           | 0             | A1   | 0.00                     | -9.13     | 11.89     |
| 1.0D + 1.0W Service 60°     | 145.00      | 0.00           | 240           | A1a  | -11.31                   | -10.20    | -6.53     |
|                             | 145.00      | 0.00           | 120           | A1b  | 10.30                    | -9.13     | -5.95     |
|                             | 0.00        | 0.00           |               | 1    | 0.00                     | 58.04     | 0.00      |
| 1.0D + 1.0W Service 90°     | 145.00      | 0.00           | 0             | A1   | 0.00                     | -9.48     | 12.28     |
|                             | 145.00      | 0.00           | 240           | A1a  | -11.24                   | -10.12    | -6.49     |
|                             | 145.00      | 0.00           | 120           | A1b  | 10.03                    | -8.85     | -5.79     |
| 1.0D + 1.0W Service Normal  | 0.00        | 0.00           |               | 1    | 0.00                     | 53.57     | -0.33     |
|                             | 145.00      | 0.00           | 0             | A1   | 0.00                     | -6.40     | 8.44      |
|                             | 145.00      | 0.00           | 240           | A1a  | -12.66                   | -11.44    | -7.48     |
| 1.0D + 1.0W Service 60°     | 145.00      | 0.00           | 120           | A1b  | 12.66                    | -11.44    | -7.48     |
|                             | 0.00        | 0.00           |               | 1    | -0.26                    | 53.54     | -0.15     |
|                             | 145.00      | 0.00           | 0             | A1   | -0.15                    | -8.13     | 10.54     |
| 1.0D + 1.0W Service 90°     | 145.00      | 0.00           | 240           | A1a  | -14.47                   | -13.09    | -8.35     |
|                             | 145.00      | 0.00           | 120           | A1b  | 9.06                     | -8.13     | -5.40     |
|                             | 0.00        | 0.00           |               | 1    | -0.31                    | 53.54     | 0.00      |
| 1.0D + 1.0W Service Normal  | 145.00      | 0.00           | 0             | A1   | -0.19                    | -9.76     | 12.60     |
|                             | 145.00      | 0.00           | 240           | A1a  | -14.04                   | -12.63    | -8.02     |
|                             | 145.00      | 0.00           | 120           | A1b  | 7.79                     | -6.90     | -4.58     |

ASSET: # 10029, HAMPTON CT

STANDARD ANSI/TIA-222-H

CUSTOMER DISH WIRELESS L.L.C.

ENG NO.: 13733446\_C3\_03

GUY ANCHOR DESIGN LOADS

| Radius<br>(ft) | Drop<br>(ft) | Azimuth<br>(deg) | Uplift<br>(kip) | Shear<br>(kip) |
|----------------|--------------|------------------|-----------------|----------------|
| 145.00         | 0.00         | 0                | 14.46           | 18.73          |
| 145.00         | 0.00         | 120              | 21.54           | 26.89          |
| 145.00         | 0.00         | 240              | 27.49           | 34.26          |



DETAILED CABLE FORCES

| Load Case                   | Elev (ft) | Cable    | Anchor Node | Tower Node | Allow Tension (kip) | Applied Tension (kip) | Use% |
|-----------------------------|-----------|----------|-------------|------------|---------------------|-----------------------|------|
| 1.2D + 1.0W Normal          | 59.63     | 9/16 EHS | A1          | 27         | 21                  | 0.55                  | 3    |
|                             |           | 9/16 EHS | A1b         | 27a        | 21                  | 5.91                  | 28   |
|                             |           | 9/16 EHS | A1a         | 27b        | 21                  | 5.91                  | 28   |
|                             | 116.42    | 9/16 EHS | A1b         | T2         | 21                  | 6.26                  | 30   |
|                             |           | 9/16 EHS | A1          | T2         | 21                  | 0.2                   | 1    |
|                             |           | 9/16 EHS | A1b         | T2a        | 21                  | 6.28                  | 30   |
|                             |           | 9/16 EHS | A1a         | T2a        | 21                  | 6.28                  | 30   |
|                             |           | 9/16 EHS | A1          | T2b        | 21                  | 0.2                   | 1    |
|                             |           | 9/16 EHS | A1a         | T2b        | 21                  | 6.26                  | 30   |
|                             | 146.80    | 5/8 EHS  | A1b         | T3         | 25.44               | 8.28                  | 33   |
|                             |           | 5/8 EHS  | A1          | T3         | 25.44               | 0.51                  | 2    |
|                             |           | 5/8 EHS  | A1a         | T3a        | 25.44               | 8.5                   | 33   |
|                             |           | 5/8 EHS  | A1b         | T3a        | 25.44               | 8.5                   | 33   |
|                             |           | 5/8 EHS  | A1a         | T3b        | 25.44               | 8.28                  | 33   |
|                             |           | 5/8 EHS  | A1          | T3b        | 25.44               | 0.51                  | 2    |
| 1.2D + 1.0W 60°             | 59.63     | 9/16 EHS | A1          | 27         | 21                  | 2.1                   | 10   |
|                             |           | 9/16 EHS | A1b         | 27a        | 21                  | 2.09                  | 10   |
|                             |           | 9/16 EHS | A1a         | 27b        | 21                  | 7.52                  | 36   |
|                             | 116.42    | 9/16 EHS | A1b         | T2         | 21                  | 2.25                  | 11   |
|                             |           | 9/16 EHS | A1          | T2         | 21                  | 2.26                  | 11   |
|                             |           | 9/16 EHS | A1b         | T2a        | 21                  | 2.17                  | 10   |
|                             |           | 9/16 EHS | A1a         | T2a        | 21                  | 7.95                  | 38   |
|                             |           | 9/16 EHS | A1          | T2b        | 21                  | 2.18                  | 10   |
|                             |           | 9/16 EHS | A1a         | T2b        | 21                  | 7.94                  | 38   |
|                             | 146.80    | 5/8 EHS  | A1          | T3         | 25.44               | 2.67                  | 11   |
|                             |           | 5/8 EHS  | A1b         | T3         | 25.44               | 2.68                  | 11   |
|                             |           | 5/8 EHS  | A1a         | T3a        | 25.44               | 10.69                 | 42   |
|                             |           | 5/8 EHS  | A1b         | T3a        | 25.44               | 2.64                  | 10   |
|                             |           | 5/8 EHS  | A1a         | T3b        | 25.44               | 10.68                 | 42   |
|                             |           | 5/8 EHS  | A1          | T3b        | 25.44               | 2.63                  | 10   |
| 1.2D + 1.0W 90°             | 59.63     | 9/16 EHS | A1          | 27         | 21                  | 3.92                  | 19   |
|                             |           | 9/16 EHS | A1b         | 27a        | 21                  | 0.81                  | 4    |
|                             |           | 9/16 EHS | A1a         | 27b        | 21                  | 7.12                  | 34   |
|                             | 116.42    | 9/16 EHS | A1b         | T2         | 21                  | 0.86                  | 4    |
|                             |           | 9/16 EHS | A1          | T2         | 21                  | 4.37                  | 21   |
|                             |           | 9/16 EHS | A1b         | T2a        | 21                  | 0.79                  | 4    |
|                             |           | 9/16 EHS | A1a         | T2a        | 21                  | 7.55                  | 36   |
|                             |           | 9/16 EHS | A1          | T2b        | 21                  | 4.29                  | 20   |
|                             |           | 9/16 EHS | A1a         | T2b        | 21                  | 7.68                  | 37   |
|                             | 146.80    | 5/8 EHS  | A1          | T3         | 25.44               | 5.5                   | 22   |
|                             |           | 5/8 EHS  | A1b         | T3         | 25.44               | 1.12                  | 4    |
|                             |           | 5/8 EHS  | A1a         | T3a        | 25.44               | 10.16                 | 40   |
|                             |           | 5/8 EHS  | A1b         | T3a        | 25.44               | 1.04                  | 4    |
|                             |           | 5/8 EHS  | A1          | T3b        | 25.44               | 5.63                  | 22   |
|                             |           | 5/8 EHS  | A1a         | T3b        | 25.44               | 10.33                 | 41   |
| 1.2D + 1.0Di + 1.0Wi Normal | 59.63     | 9/16 EHS | A1          | 27         | 21                  | 3.89                  | 19   |
|                             |           | 9/16 EHS | A1b         | 27a        | 21                  | 5.6                   | 27   |
|                             |           | 9/16 EHS | A1a         | 27b        | 21                  | 5.6                   | 27   |
|                             | 116.42    | 9/16 EHS | A1          | T2         | 21                  | 3.58                  | 17   |
|                             |           | 9/16 EHS | A1b         | T2         | 21                  | 5.33                  | 25   |
|                             |           | 9/16 EHS | A1a         | T2a        | 21                  | 5.28                  | 25   |
|                             |           | 9/16 EHS | A1b         | T2a        | 21                  | 5.28                  | 25   |
|                             |           | 9/16 EHS | A1a         | T2b        | 21                  | 5.33                  | 25   |
|                             |           | 9/16 EHS | A1          | T2b        | 21                  | 3.58                  | 17   |
|                             | 146.80    | 5/8 EHS  | A1          | T3         | 25.44               | 3.89                  | 15   |
|                             |           | 5/8 EHS  | A1b         | T3         | 25.44               | 6.15                  | 24   |
|                             |           | 5/8 EHS  | A1a         | T3a        | 25.44               | 6.1                   | 24   |
|                             |           | 5/8 EHS  | A1b         | T3a        | 25.44               | 6.1                   | 24   |
|                             |           | 5/8 EHS  | A1          | T3b        | 25.44               | 3.89                  | 15   |
|                             |           | 5/8 EHS  | A1a         | T3b        | 25.44               | 6.15                  | 24   |
| 1.2D + 1.0Di + 1.0Wi 60°    | 59.63     | 9/16 EHS | A1          | 27         | 21                  | 4.39                  | 21   |
|                             |           | 9/16 EHS | A1b         | 27a        | 21                  | 4.39                  | 21   |
|                             |           | 9/16 EHS | A1a         | 27b        | 21                  | 6.1                   | 29   |
|                             | 116.42    | 9/16 EHS | A1b         | T2         | 21                  | 4.13                  | 20   |
|                             |           | 9/16 EHS | A1          | T2         | 21                  | 4.14                  | 20   |
|                             |           | 9/16 EHS | A1b         | T2a        | 21                  | 4.06                  | 19   |

DETAILED CABLE FORCES

| Load Case                   | Elev (ft) | Cable    | Anchor Node | Tower Node | Allow Tension (kip) | Applied Tension (kip) | Use% |    |
|-----------------------------|-----------|----------|-------------|------------|---------------------|-----------------------|------|----|
| 1.2D + 1.0Di + 1.0Wi 90°    | 146.80    | 9/16 EHS | A1a         | T2a        | 21                  | 5.82                  | 28   |    |
|                             |           | 9/16 EHS | A1a         | T2b        | 21                  | 5.82                  | 28   |    |
|                             |           | 9/16 EHS | A1          | T2b        | 21                  | 4.07                  | 19   |    |
|                             |           | 5/8 EHS  | A1b         | T3         | 25.44               | 4.66                  | 18   |    |
|                             |           | 5/8 EHS  | A1          | T3         | 25.44               | 4.66                  | 18   |    |
|                             |           | 5/8 EHS  | A1b         | T3a        | 25.44               | 4.59                  | 18   |    |
|                             |           | 5/8 EHS  | A1a         | T3a        | 25.44               | 6.84                  | 27   |    |
|                             | 59.63     | 116.42   | 5/8 EHS     | A1a        | T3b                 | 25.44                 | 6.84 | 27 |
|                             |           |          | 5/8 EHS     | A1         | T3b                 | 25.44                 | 4.59 | 18 |
|                             |           |          | 9/16 EHS    | A1         | 27                  | 21                    | 4.98 | 24 |
|                             |           |          | 9/16 EHS    | A1b        | 27a                 | 21                    | 4.02 | 19 |
|                             |           |          | 9/16 EHS    | A1a        | 27b                 | 21                    | 5.97 | 28 |
|                             |           |          | 9/16 EHS    | A1         | T2                  | 21                    | 4.74 | 23 |
|                             |           |          | 9/16 EHS    | A1b        | T2                  | 21                    | 3.71 | 18 |
| 1.2D + 1.0Ev + 1.0Eh Normal | 146.80    | 9/16 EHS | A1b         | T2a        | 21                  | 3.69                  | 18   |    |
|                             |           | 9/16 EHS | A1a         | T2a        | 21                  | 5.69                  | 27   |    |
|                             |           | 9/16 EHS | A1a         | T2b        | 21                  | 5.68                  | 27   |    |
|                             |           | 9/16 EHS | A1          | T2b        | 21                  | 4.66                  | 22   |    |
|                             |           | 5/8 EHS  | A1b         | T3         | 25.44               | 4.1                   | 16   |    |
|                             |           | 5/8 EHS  | A1          | T3         | 25.44               | 5.41                  | 21   |    |
|                             |           | 5/8 EHS  | A1b         | T3a        | 25.44               | 4.08                  | 16   |    |
|                             | 59.63     | 116.42   | 5/8 EHS     | A1a        | T3a                 | 25.44                 | 6.65 | 26 |
|                             |           |          | 5/8 EHS     | A1a        | T3b                 | 25.44                 | 6.65 | 26 |
|                             |           |          | 5/8 EHS     | A1         | T3b                 | 25.44                 | 5.33 | 21 |
|                             |           |          | 9/16 EHS    | A1         | 27                  | 21                    | 3.21 | 15 |
|                             |           |          | 9/16 EHS    | A1b        | 27a                 | 21                    | 3.3  | 16 |
|                             |           |          | 9/16 EHS    | A1a        | 27b                 | 21                    | 3.3  | 16 |
|                             |           |          | 9/16 EHS    | A1         | T2                  | 21                    | 2.77 | 13 |
| 1.2D + 1.0Ev + 1.0Eh 60°    | 146.80    | 9/16 EHS | A1b         | T2         | 21                  | 3.03                  | 14   |    |
|                             |           | 9/16 EHS | A1b         | T2a        | 21                  | 3.04                  | 14   |    |
|                             |           | 9/16 EHS | A1a         | T2a        | 21                  | 3.04                  | 14   |    |
|                             |           | 9/16 EHS | A1a         | T2b        | 21                  | 3.03                  | 14   |    |
|                             |           | 9/16 EHS | A1          | T2b        | 21                  | 2.77                  | 13   |    |
|                             |           | 5/8 EHS  | A1b         | T3         | 25.44               | 3.63                  | 14   |    |
|                             |           | 5/8 EHS  | A1          | T3         | 25.44               | 3.14                  | 12   |    |
|                             | 59.63     | 116.42   | 5/8 EHS     | A1a        | T3a                 | 25.44                 | 3.65 | 14 |
|                             |           |          | 5/8 EHS     | A1b        | T3a                 | 25.44                 | 3.65 | 14 |
|                             |           |          | 5/8 EHS     | A1a        | T3b                 | 25.44                 | 3.63 | 14 |
|                             |           |          | 5/8 EHS     | A1a        | T3b                 | 25.44                 | 3.14 | 12 |
|                             |           |          | 9/16 EHS    | A1         | 27                  | 21                    | 3.24 | 15 |
|                             |           |          | 9/16 EHS    | A1b        | 27a                 | 21                    | 3.24 | 15 |
|                             |           |          | 9/16 EHS    | A1a        | 27b                 | 21                    | 3.33 | 16 |
| 1.2D + 1.0Ev + 1.0Eh 90°    | 146.80    | 9/16 EHS | A1          | T2         | 21                  | 2.86                  | 14   |    |
|                             |           | 9/16 EHS | A1b         | T2         | 21                  | 2.86                  | 14   |    |
|                             |           | 9/16 EHS | A1a         | T2a        | 21                  | 3.12                  | 15   |    |
|                             |           | 9/16 EHS | A1b         | T2a        | 21                  | 2.87                  | 14   |    |
|                             |           | 9/16 EHS | A1a         | T2b        | 21                  | 3.12                  | 15   |    |
|                             |           | 9/16 EHS | A1          | T2b        | 21                  | 2.87                  | 14   |    |
|                             |           | 5/8 EHS  | A1          | T3         | 25.44               | 3.3                   | 13   |    |
|                             | 59.63     | 116.42   | 5/8 EHS     | A1b        | T3                  | 25.44                 | 3.3  | 13 |
|                             |           |          | 5/8 EHS     | A1b        | T3a                 | 25.44                 | 3.32 | 13 |
|                             |           |          | 5/8 EHS     | A1a        | T3a                 | 25.44                 | 3.81 | 15 |
|                             |           |          | 5/8 EHS     | A1         | T3b                 | 25.44                 | 3.32 | 13 |
|                             |           |          | 5/8 EHS     | A1a        | T3b                 | 25.44                 | 3.81 | 15 |
|                             |           |          | 9/16 EHS    | A1         | 27                  | 21                    | 3.27 | 16 |
|                             |           |          | 9/16 EHS    | A1b        | 27a                 | 21                    | 3.22 | 15 |
| 1.2D + 1.0Ev + 1.0Eh 90°    | 146.80    | 9/16 EHS | A1a         | 27b        | 21                  | 3.32                  | 16   |    |
|                             |           | 9/16 EHS | A1b         | T2         | 21                  | 2.79                  | 13   |    |
|                             |           | 9/16 EHS | A1          | T2         | 21                  | 2.94                  | 14   |    |
|                             |           | 9/16 EHS | A1a         | T2a        | 21                  | 3.1                   | 15   |    |
|                             |           | 9/16 EHS | A1b         | T2a        | 21                  | 2.8                   | 13   |    |
|                             |           | 9/16 EHS | A1          | T2b        | 21                  | 2.96                  | 14   |    |
|                             |           | 9/16 EHS | A1a         | T2b        | 21                  | 3.11                  | 15   |    |
|                             | 59.63     | 116.42   | 5/8 EHS     | A1         | T3                  | 25.44                 | 3.46 | 14 |
|                             |           |          | 5/8 EHS     | A1b        | T3                  | 25.44                 | 3.18 | 12 |
|                             |           |          | 5/8 EHS     | A1b        | T3a                 | 25.44                 | 3.19 | 13 |
|                             |           |          | 5/8 EHS     | A1a        | T3a                 | 25.44                 | 3.76 | 15 |
|                             |           |          | 5/8 EHS     | A1         | T3b                 | 25.44                 | 3.49 | 14 |

DETAILED CABLE FORCES

| Load Case                  | Elev (ft) | Cable    | Anchor Node | Tower Node | Allow Tension (kip) | Applied Tension (kip) | Use% |    |
|----------------------------|-----------|----------|-------------|------------|---------------------|-----------------------|------|----|
| 1.0D + 1.0W Service Normal | 59.63     | 5/8 EHS  | A1a         | T3b        | 25.44               | 3.77                  | 15   |    |
|                            |           | 9/16 EHS | A1          | 27         | 21                  | 2.44                  | 12   |    |
|                            |           | 9/16 EHS | A1b         | 27a        | 21                  | 3.76                  | 18   |    |
|                            | 116.42    | 9/16 EHS | A1a         | 27b        | 21                  | 3.76                  | 18   |    |
|                            |           | 9/16 EHS | A1b         | T2         | 21                  | 3.51                  | 17   |    |
|                            |           | 9/16 EHS | A1          | T2         | 21                  | 2.1                   | 10   |    |
|                            |           | 9/16 EHS | A1a         | T2a        | 21                  | 3.49                  | 17   |    |
|                            |           | 9/16 EHS | A1b         | T2a        | 21                  | 3.49                  | 17   |    |
|                            |           | 9/16 EHS | A1          | T2b        | 21                  | 2.1                   | 10   |    |
|                            | 146.80    | 9/16 EHS | A1a         | T2b        | 21                  | 3.51                  | 17   |    |
|                            |           | 5/8 EHS  | A1          | T3         | 25.44               | 2.25                  | 9    |    |
|                            |           | 5/8 EHS  | A1b         | T3         | 25.44               | 4.25                  | 17   |    |
|                            |           | 5/8 EHS  | A1b         | T3a        | 25.44               | 4.25                  | 17   |    |
|                            |           | 5/8 EHS  | A1a         | T3a        | 25.44               | 4.25                  | 17   |    |
|                            |           | 5/8 EHS  | A1          | T3b        | 25.44               | 2.25                  | 9    |    |
| 5/8 EHS                    |           | A1a      | T3b         | 25.44      | 4.25                | 17                    |      |    |
| 1.0D + 1.0W Service 60°    |           | 59.63    | 9/16 EHS    | A1         | 27                  | 21                    | 2.88 | 14 |
|                            |           |          | 9/16 EHS    | A1b        | 27a                 | 21                    | 2.88 | 14 |
|                            | 9/16 EHS  |          | A1a         | 27b        | 21                  | 4.16                  | 20   |    |
|                            | 116.42    | 9/16 EHS | A1          | T2         | 21                  | 2.58                  | 12   |    |
|                            |           | 9/16 EHS | A1b         | T2         | 21                  | 2.58                  | 12   |    |
|                            |           | 9/16 EHS | A1b         | T2a        | 21                  | 2.55                  | 12   |    |
|                            |           | 9/16 EHS | A1a         | T2a        | 21                  | 3.95                  | 19   |    |
|                            |           | 9/16 EHS | A1          | T2b        | 21                  | 2.56                  | 12   |    |
|                            |           | 9/16 EHS | A1a         | T2b        | 21                  | 3.95                  | 19   |    |
|                            | 146.80    | 5/8 EHS  | A1b         | T3         | 25.44               | 2.94                  | 12   |    |
|                            |           | 5/8 EHS  | A1          | T3         | 25.44               | 2.94                  | 12   |    |
|                            |           | 5/8 EHS  | A1b         | T3a        | 25.44               | 2.94                  | 12   |    |
|                            |           | 5/8 EHS  | A1a         | T3a        | 25.44               | 4.91                  | 19   |    |
|                            |           | 5/8 EHS  | A1a         | T3b        | 25.44               | 4.91                  | 19   |    |
|                            |           | 5/8 EHS  | A1          | T3b        | 25.44               | 2.93                  | 12   |    |
| 1.0D + 1.0W Service 90°    |           | 59.63    | 9/16 EHS    | A1         | 27                  | 21                    | 3.31 | 16 |
|                            |           |          | 9/16 EHS    | A1b        | 27a                 | 21                    | 2.57 | 12 |
|                            |           |          | 9/16 EHS    | A1a        | 27b                 | 21                    | 4.05 | 19 |
|                            | 116.42    | 9/16 EHS | A1b         | T2         | 21                  | 2.24                  | 11   |    |
|                            |           | 9/16 EHS | A1          | T2         | 21                  | 3.05                  | 15   |    |
|                            |           | 9/16 EHS | A1b         | T2a        | 21                  | 2.23                  | 11   |    |
|                            |           | 9/16 EHS | A1a         | T2a        | 21                  | 3.83                  | 18   |    |
|                            |           | 9/16 EHS | A1a         | T2b        | 21                  | 3.83                  | 18   |    |
|                            |           | 9/16 EHS | A1          | T2b        | 21                  | 3.01                  | 14   |    |
|                            | 146.80    | 5/8 EHS  | A1          | T3         | 25.44               | 3.59                  | 14   |    |
|                            |           | 5/8 EHS  | A1b         | T3         | 25.44               | 2.45                  | 10   |    |
|                            |           | 5/8 EHS  | A1a         | T3a        | 25.44               | 4.72                  | 19   |    |
|                            |           | 5/8 EHS  | A1b         | T3a        | 25.44               | 2.45                  | 10   |    |
|                            |           | 5/8 EHS  | A1a         | T3b        | 25.44               | 4.73                  | 19   |    |
|                            |           | 5/8 EHS  | A1          | T3b        | 25.44               | 3.59                  | 14   |    |

MAXIMUM CABLE FORCES SUMMARY

| Load Case       | Elevation (ft) | Cable    | Anchor Node | Tower Node | Allowed Tension (kip) | Applied Tension (kip) | Use (%) |
|-----------------|----------------|----------|-------------|------------|-----------------------|-----------------------|---------|
| 1.2D + 1.0W 60° | 59.63          | 9/16 EHS | A1a         | 27b        | 21.00                 | 7.52                  | 36      |
| 1.2D + 1.0W 60° | 116.42         | 9/16 EHS | A1a         | T2a        | 21.00                 | 7.95                  | 38      |
| 1.2D + 1.0W 60° | 146.80         | 5/8 EHS  | A1a         | T3a        | 25.44                 | 10.69                 | 42      |

MAXIMUM TORQUE ARM STRESS SUMMARY

| Load Case       | Elevation (ft) | Member     | Type   | Compression % | Tension % |
|-----------------|----------------|------------|--------|---------------|-----------|
| 1.2D + 1.0W 60° | 117.00         | 3X3X0.25   | Horiz  | 0             | 15        |
| 1.2D + 1.0W 60° | 117.00         | 2X2X0.3125 | Kicker | 49            | 0         |
| 1.2D + 1.0W 60° | 146.50         | 2X2X0.3125 | Kicker | 63            | 0         |
| 1.2D + 1.0W 90° | 146.50         | 3X3X0.25   | Horiz  | 0             | 21        |

DEFLECTIONS AND ROTATIONS

| Load Case  | Elevation (ft) | Deflection (ft) | Twist (deg) | Sway (deg) | Resultant (deg) |
|--|----------------|-----------------|-------------|------------|-----------------|
| 1.2D + 1.0W Normal 121 mph wind with no ice                | 76.42          | 0.2208          | 0.0001      | 0.1453     | 0.1453          |
| 1.2D + 1.0W Normal 121 mph wind with no ice                | 116.42         | 0.3122          | 0.0037      | 0.2135     | 0.2135          |
| 1.2D + 1.0W Normal 121 mph wind with no ice                | 120.01         | 0.3323          | 0.0021      | 0.4592     | 0.4592          |
| 1.2D + 1.0W Normal 121 mph wind with no ice                | 130.01         | 0.3835          | 0.0000      | 0.2976     | 0.2976          |
| 1.2D + 1.0W Normal 121 mph wind with no ice                | 133.22         | 0.4001          | 0.0000      | 0.2939     | 0.2939          |
| 1.2D + 1.0W Normal 121 mph wind with no ice                | 140.01         | 0.4352          | 0.0011      | 0.2916     | 0.2916          |
| 1.2D + 1.0W Normal 121 mph wind with no ice                | 143.59         | 0.4535          | 0.0031      | 0.3024     | 0.3024          |
| 1.2D + 1.0W Normal 121 mph wind with no ice                | 146.80         | 0.4712          | 0.0066      | 0.3511     | 0.3511          |
| 1.2D + 1.0W Normal 121 mph wind with no ice                | 156.43         | 0.5412          | 0.0007      | 0.4234     | 0.4234          |
| 1.2D + 1.0W Normal 121 mph wind with no ice                | 160.01         | 0.5682          | 0.0007      | 0.4763     | 0.4763          |
| 1.2D + 1.0W 60° 121 mph wind with no ice                   | 76.42          | 0.1852          | 0.0008      | 0.1180     | 0.118           |
| 1.2D + 1.0W 60° 121 mph wind with no ice                   | 116.42         | 0.2501          | 0.0059      | 0.1564     | 0.1564          |
| 1.2D + 1.0W 60° 121 mph wind with no ice                   | 120.01         | 0.2651          | 0.0017      | 0.3426     | 0.3426          |
| 1.2D + 1.0W 60° 121 mph wind with no ice                   | 130.01         | 0.3015          | 0.0014      | 0.2070     | 0.207           |
| 1.2D + 1.0W 60° 121 mph wind with no ice                   | 133.22         | 0.3128          | 0.0015      | 0.1968     | 0.1968          |
| 1.2D + 1.0W 60° 121 mph wind with no ice                   | 140.01         | 0.336           | 0.0025      | 0.1345     | 0.1345          |
| 1.2D + 1.0W 60° 121 mph wind with no ice                   | 143.59         | 0.3477          | 0.0041      | 0.2165     | 0.2166          |
| 1.2D + 1.0W 60° 121 mph wind with no ice                   | 146.80         | 0.3599          | 0.0072      | 0.2474     | 0.2474          |
| 1.2D + 1.0W 60° 121 mph wind with no ice                   | 156.43         | 0.4133          | 0.0025      | 0.3248     | 0.3248          |
| 1.2D + 1.0W 60° 121 mph wind with no ice                   | 160.01         | 0.4342          | 0.0025      | 0.3775     | 0.3775          |
| 1.2D + 1.0W 90° 121 mph wind with no ice                   | 76.42          | 0.2035          | 0.0399      | 0.1412     | 0.1467          |
| 1.2D + 1.0W 90° 121 mph wind with no ice                   | 116.42         | 0.2908          | 0.0352      | 0.2013     | 0.2033          |
| 1.2D + 1.0W 90° 121 mph wind with no ice                   | 120.01         | 0.3084          | -0.0049     | 0.4112     | 0.4112          |
| 1.2D + 1.0W 90° 121 mph wind with no ice                   | 130.01         | 0.3547          | -0.0122     | 0.2707     | 0.2709          |
| 1.2D + 1.0W 90° 121 mph wind with no ice                   | 133.22         | 0.3695          | -0.0107     | 0.2606     | 0.2607          |
| 1.2D + 1.0W 90° 121 mph wind with no ice                   | 140.01         | 0.4             | -0.0067     | 0.1896     | 0.1897          |
| 1.2D + 1.0W 90° 121 mph wind with no ice                   | 143.59         | 0.4156          | -0.0055     | 0.2778     | 0.2778          |
| 1.2D + 1.0W 90° 121 mph wind with no ice                   | 146.80         | 0.4311          | -0.0067     | 0.3116     | 0.3116          |
| 1.2D + 1.0W 90° 121 mph wind with no ice                   | 156.43         | 0.4953          | -0.0038     | 0.3878     | 0.3878          |
| 1.2D + 1.0W 90° 121 mph wind with no ice                   | 160.01         | 0.52            | -0.0039     | 0.4398     | 0.4398          |
| 1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice | 76.42          | 0.0554          | 0.0002      | 0.0121     | 0.0121          |
| 1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice | 116.42         | 0.0462          | 0.0012      | 0.0202     | 0.0202          |
| 1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice | 120.01         | 0.0464          | 0.0005      | 0.0284     | 0.0284          |
| 1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice | 130.01         | 0.0464          | 0.0002      | 0.0008     | 0.0008          |
| 1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice | 133.22         | 0.0463          | 0.0002      | 0.0031     | 0.0031          |
| 1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice | 140.01         | 0.0459          | 0.0004      | 0.0119     | 0.0119          |
| 1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice | 143.59         | 0.0455          | 0.0009      | 0.0079     | 0.008           |
| 1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice | 146.80         | 0.0451          | 0.0018      | 0.0073     | 0.0073          |
| 1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice | 156.43         | 0.049           | 0.0003      | 0.0235     | 0.0235          |
| 1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice | 160.01         | 0.0506          | 0.0003      | 0.0351     | 0.0351          |
| 1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice    | 76.42          | 0.0601          | 0.0002      | 0.0278     | 0.0278          |
| 1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice    | 116.42         | 0.0665          | 0.0012      | 0.0078     | 0.0078          |
| 1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice    | 120.01         | 0.0682          | 0.0005      | 0.0573     | 0.0573          |
| 1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice    | 130.01         | 0.073           | 0.0002      | 0.0274     | 0.0274          |
| 1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice    | 133.22         | 0.0745          | 0.0002      | 0.0245     | 0.0245          |
| 1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice    | 140.01         | 0.0774          | 0.0004      | 0.0115     | 0.0115          |
| 1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice    | 143.59         | 0.0786          | 0.0009      | 0.0269     | 0.0269          |
| 1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice    | 146.80         | 0.0802          | 0.0017      | 0.0325     | 0.0326          |
| 1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice    | 156.43         | 0.0886          | 0.0004      | 0.0515     | 0.0515          |
| 1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice    | 160.01         | 0.0919          | 0.0003      | 0.0632     | 0.0632          |
| 1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice    | 76.42          | 0.0567          | 0.0134      | 0.0216     | 0.0253          |
| 1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice    | 116.42         | 0.0562          | 0.0109      | 0.0160     | 0.0182          |
| 1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice    | 120.01         | 0.0573          | 0.0100      | 0.0454     | 0.0463          |
| 1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice    | 130.01         | 0.0604          | 0.0096      | 0.0196     | 0.0217          |
| 1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice    | 133.22         | 0.0613          | 0.0096      | 0.0176     | 0.0201          |
| 1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice    | 140.01         | 0.0628          | 0.0099      | 0.0207     | 0.0227          |
| 1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice    | 143.59         | 0.0634          | 0.0104      | 0.0207     | 0.0225          |
| 1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice    | 146.80         | 0.0643          | 0.0114      | 0.0232     | 0.0254          |
| 1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice    | 156.43         | 0.0707          | 0.0097      | 0.0397     | 0.0409          |
| 1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice    | 160.01         | 0.0733          | 0.0097      | 0.0507     | 0.0516          |
| 1.2D + 1.0Ev + 1.0Eh Normal Seismic                        | 76.42          | 0.0039          | 0.0000      | 0.0066     | 0.0066          |
| 1.2D + 1.0Ev + 1.0Eh Normal Seismic                        | 116.42         | 0.0097          | 0.0002      | 0.0130     | 0.013           |
| 1.2D + 1.0Ev + 1.0Eh Normal Seismic                        | 120.01         | 0.0106          | 0.0001      | 0.0221     | 0.0221          |
| 1.2D + 1.0Ev + 1.0Eh Normal Seismic                        | 130.01         | 0.0136          | 0.0000      | 0.0174     | 0.0174          |
| 1.2D + 1.0Ev + 1.0Eh Normal Seismic                        | 133.22         | 0.0146          | 0.0000      | 0.0176     | 0.0176          |
| 1.2D + 1.0Ev + 1.0Eh Normal Seismic                        | 140.01         | 0.0167          | 0.0001      | 0.0152     | 0.0152          |
| 1.2D + 1.0Ev + 1.0Eh Normal Seismic                        | 143.59         | 0.0178          | 0.0002      | 0.0192     | 0.0192          |

DEFLECTIONS AND ROTATIONS

| Load Case  | Elevation (ft) | Deflection (ft) | Twist (deg) | Sway (deg) | Resultant (deg) |
|--|----------------|-----------------|-------------|------------|-----------------|
| 1.2D + 1.0Ev + 1.0Eh Normal Seismic                | 146.80         | 0.0189          | 0.0004      | 0.0236     | 0.0236          |
| 1.2D + 1.0Ev + 1.0Eh Normal Seismic                | 156.43         | 0.0235          | 0.0001      | 0.0278     | 0.0278          |
| 1.2D + 1.0Ev + 1.0Eh Normal Seismic                | 160.01         | 0.0253          | 0.0001      | 0.0306     | 0.0306          |
| 1.2D + 1.0Ev + 1.0Eh 60° Seismic                   | 76.42          | 0.0035          | 0.0000      | 0.0066     | 0.0066          |
| 1.2D + 1.0Ev + 1.0Eh 60° Seismic                   | 116.42         | 0.0091          | 0.0002      | 0.0127     | 0.0127          |
| 1.2D + 1.0Ev + 1.0Eh 60° Seismic                   | 120.01         | 0.0101          | 0.0001      | 0.0224     | 0.0224          |
| 1.2D + 1.0Ev + 1.0Eh 60° Seismic                   | 130.01         | 0.013           | 0.0000      | 0.0168     | 0.0168          |
| 1.2D + 1.0Ev + 1.0Eh 60° Seismic                   | 133.22         | 0.0139          | 0.0000      | 0.0171     | 0.0171          |
| 1.2D + 1.0Ev + 1.0Eh 60° Seismic                   | 140.01         | 0.016           | 0.0001      | 0.0145     | 0.0145          |
| 1.2D + 1.0Ev + 1.0Eh 60° Seismic                   | 143.59         | 0.0171          | 0.0002      | 0.0198     | 0.0198          |
| 1.2D + 1.0Ev + 1.0Eh 60° Seismic                   | 146.80         | 0.0181          | 0.0004      | 0.0219     | 0.0219          |
| 1.2D + 1.0Ev + 1.0Eh 60° Seismic                   | 156.43         | 0.0226          | 0.0001      | 0.0270     | 0.027           |
| 1.2D + 1.0Ev + 1.0Eh 60° Seismic                   | 160.01         | 0.0243          | 0.0001      | 0.0297     | 0.0297          |
| 1.2D + 1.0Ev + 1.0Eh 90° Seismic                   | 76.42          | 0.0039          | 0.0000      | 0.0068     | 0.0068          |
| 1.2D + 1.0Ev + 1.0Eh 90° Seismic                   | 116.42         | 0.0096          | 0.0003      | 0.0129     | 0.0129          |
| 1.2D + 1.0Ev + 1.0Eh 90° Seismic                   | 120.01         | 0.0106          | 0.0001      | 0.0226     | 0.0226          |
| 1.2D + 1.0Ev + 1.0Eh 90° Seismic                   | 130.01         | 0.0135          | 0.0000      | 0.0172     | 0.0172          |
| 1.2D + 1.0Ev + 1.0Eh 90° Seismic                   | 133.22         | 0.0145          | 0.0000      | 0.0174     | 0.0174          |
| 1.2D + 1.0Ev + 1.0Eh 90° Seismic                   | 140.01         | 0.0165          | 0.0001      | 0.0151     | 0.0151          |
| 1.2D + 1.0Ev + 1.0Eh 90° Seismic                   | 143.59         | 0.0177          | 0.0002      | 0.0197     | 0.0197          |
| 1.2D + 1.0Ev + 1.0Eh 90° Seismic                   | 146.80         | 0.0188          | 0.0005      | 0.0231     | 0.0231          |
| 1.2D + 1.0Ev + 1.0Eh 90° Seismic                   | 156.43         | 0.0233          | 0.0001      | 0.0276     | 0.0276          |
| 1.2D + 1.0Ev + 1.0Eh 90° Seismic                   | 160.01         | 0.0251          | 0.0001      | 0.0304     | 0.0304          |
| 1.0D + 1.0W Service Normal 60 mph Wind with No Ice | 76.42          | 0.0375          | 0.0001      | 0.0181     | 0.0181          |
| 1.0D + 1.0W Service Normal 60 mph Wind with No Ice | 116.42         | 0.0429          | 0.0010      | 0.0126     | 0.0126          |
| 1.0D + 1.0W Service Normal 60 mph Wind with No Ice | 120.01         | 0.0447          | 0.0004      | 0.0580     | 0.058           |
| 1.0D + 1.0W Service Normal 60 mph Wind with No Ice | 130.01         | 0.0504          | 0.0001      | 0.0323     | 0.0323          |
| 1.0D + 1.0W Service Normal 60 mph Wind with No Ice | 133.22         | 0.0521          | 0.0001      | 0.0302     | 0.0302          |
| 1.0D + 1.0W Service Normal 60 mph Wind with No Ice | 140.01         | 0.0557          | 0.0003      | 0.0260     | 0.026           |
| 1.0D + 1.0W Service Normal 60 mph Wind with No Ice | 143.59         | 0.0574          | 0.0008      | 0.0312     | 0.0312          |
| 1.0D + 1.0W Service Normal 60 mph Wind with No Ice | 146.80         | 0.0594          | 0.0015      | 0.0437     | 0.0437          |
| 1.0D + 1.0W Service Normal 60 mph Wind with No Ice | 156.43         | 0.0693          | 0.0003      | 0.0611     | 0.0611          |
| 1.0D + 1.0W Service Normal 60 mph Wind with No Ice | 160.01         | 0.0733          | 0.0003      | 0.0741     | 0.0741          |
| 1.0D + 1.0W Service 60° 60 mph Wind with No Ice    | 76.42          | 0.0374          | 0.0001      | 0.0211     | 0.0211          |
| 1.0D + 1.0W Service 60° 60 mph Wind with No Ice    | 116.42         | 0.0464          | 0.0010      | 0.0191     | 0.0191          |
| 1.0D + 1.0W Service 60° 60 mph Wind with No Ice    | 120.01         | 0.0488          | 0.0004      | 0.0653     | 0.0653          |
| 1.0D + 1.0W Service 60° 60 mph Wind with No Ice    | 130.01         | 0.0556          | 0.0001      | 0.0390     | 0.039           |
| 1.0D + 1.0W Service 60° 60 mph Wind with No Ice    | 133.22         | 0.0577          | 0.0001      | 0.0363     | 0.0363          |
| 1.0D + 1.0W Service 60° 60 mph Wind with No Ice    | 140.01         | 0.062           | 0.0004      | 0.0213     | 0.0213          |
| 1.0D + 1.0W Service 60° 60 mph Wind with No Ice    | 143.59         | 0.0641          | 0.0007      | 0.0414     | 0.0414          |
| 1.0D + 1.0W Service 60° 60 mph Wind with No Ice    | 146.80         | 0.0664          | 0.0015      | 0.0477     | 0.0477          |
| 1.0D + 1.0W Service 60° 60 mph Wind with No Ice    | 156.43         | 0.0774          | 0.0003      | 0.0674     | 0.0674          |
| 1.0D + 1.0W Service 60° 60 mph Wind with No Ice    | 160.01         | 0.0818          | 0.0003      | 0.0803     | 0.0803          |
| 1.0D + 1.0W Service 90° 60 mph Wind with No Ice    | 76.42          | 0.0367          | 0.0033      | 0.0193     | 0.0195          |
| 1.0D + 1.0W Service 90° 60 mph Wind with No Ice    | 116.42         | 0.0441          | 0.0033      | 0.0165     | 0.0168          |
| 1.0D + 1.0W Service 90° 60 mph Wind with No Ice    | 120.01         | 0.0463          | 0.0026      | 0.0612     | 0.0612          |
| 1.0D + 1.0W Service 90° 60 mph Wind with No Ice    | 130.01         | 0.0526          | 0.0023      | 0.0360     | 0.0361          |
| 1.0D + 1.0W Service 90° 60 mph Wind with No Ice    | 133.22         | 0.0545          | 0.0023      | 0.0329     | 0.033           |
| 1.0D + 1.0W Service 90° 60 mph Wind with No Ice    | 140.01         | 0.0584          | 0.0025      | 0.0119     | 0.0122          |
| 1.0D + 1.0W Service 90° 60 mph Wind with No Ice    | 143.59         | 0.0602          | 0.0030      | 0.0376     | 0.0376          |
| 1.0D + 1.0W Service 90° 60 mph Wind with No Ice    | 146.80         | 0.0621          | 0.0039      | 0.0452     | 0.0453          |
| 1.0D + 1.0W Service 90° 60 mph Wind with No Ice    | 156.43         | 0.0728          | 0.0025      | 0.0641     | 0.0642          |
| 1.0D + 1.0W Service 90° 60 mph Wind with No Ice    | 160.01         | 0.0769          | 0.0025      | 0.0770     | 0.0771          |

MAXIMUM REACTIONS SUMMARY

| Anchor Group | Uplift | Shear |
|--------------|--------|-------|
| BASE         | 109.48 | 1.19  |
| A1           | 27.49  | 34.26 |

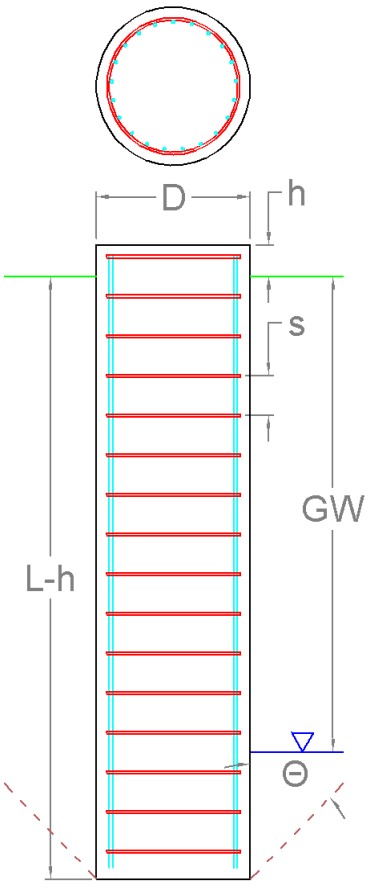
# Pier Foundation Analysis (ANSI/TIA-222-H)

| Foundation Analysis Parameters |          |       |     |
|--------------------------------|----------|-------|-----|
| Pier Diameter                  | $D$      | 5.80  | ft  |
| Pier Embedment                 | $L-h$    | 5.4   | ft  |
| Pier Height above Ground       | $H$      | 2.60  | ft  |
| Water Table Depth [BGL]        | $GW$     | 4     | ft  |
| Pullout Angle                  | $\Theta$ | 30    | °   |
| Unit Weight of Concrete        |          | 150   | pcf |
| Uplift Skin Friction Factor    |          | 1.000 |     |

| Reactions     |       |      |
|---------------|-------|------|
| Moment, $M_u$ | 0.0   | k-ft |
| Shear, $V_u$  | 1.2   | k    |
| Axial, $P_u$  | 109.5 | k    |
| Uplift, $T_u$ | 0.0   | k    |

| Soil Properties  |     |             |          |                |                        |                           |
|------------------|-----|-------------|----------|----------------|------------------------|---------------------------|
| Layer Depth (ft) |     | Unit Weight | Cohesion | Friction Angle | Ultimate Skin Friction | Ultimate Bearing Pressure |
| TOP              | BTM | pcf         | psf      | °              | psf                    | psf                       |
| 0.0              | 2.0 | 105         | 0        | 0              | 0                      | 0                         |
| 2.0              | 7.0 | 120         | 0        | 35             | 0                      | 15,000                    |

| Soil Strength Capacities                   |              |                 |
|--|--------------|-----------------|
| Volume of Concrete                         | 211.4        | ft <sup>3</sup> |
| Weight of Concrete [Buoyancy Considered]   | 29.4         | k               |
| Average Soil Unit Weight                   | 90.9         | pcf             |
| Skin Friction Resistance                   | 0.0          | k               |
| Compressive Bearing Resistance             | 396.3        | k               |
| Pullout Weight [Minus Concrete Weight]     | 18.9         | k               |
| Compressive Force, $P_u$                   | 116.8        | k               |
| Nominal Compressive Capacity, $\phi_s P_n$ | 237.8        | k               |
| $P_u / \phi_s P_n$                         | <b>49.1%</b> |                 |
| Total Lateral Resistance                   | 65.5         | k               |
| Inflection Point [BGL]                     | 3.7          | ft              |
| Moment at Inflection Point, $M_D$          | 7.5          | k-ft            |
| Nominal Moment Capacity, $\phi_s M_n$      | 39.4         | k-ft            |
| $M_D / \phi_s M_n$                         | <b>19.0%</b> |                 |





DISH WIRELESS L.L.C. SITE ID:  
**BOBOS00894A**  
 DISH WIRELESS L.L.C. SITE ADDRESS:  
**185 FISK ROAD  
 HAMPTON, CT 06247**

**CONNECTICUT CODE COMPLIANCE**

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

- CODE TYPE BUILDING CODE/2015 IRC W/ CT AMENDMENTS
- MECHANICAL BUILDING CODE/2015 IMC W/ CT AMENDMENTS
- ELECTRICAL BUILDING CODE/2017 NEC W/ CT AMENDMENTS

**SHEET INDEX**

| SHEET NO. | SHEET TITLE                                      |
|-----------|--|
| T-1       | TITLE SHEET                                      |
| A-1       | OVERALL AND ENLARGED SITE PLAN                   |
| A-2       | ELEVATION, ANTENNA LAYOUT AND SCHEDULE           |
| A-3       | EQUIPMENT PLATFORM AND H-FRAME DETAILS           |
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| E-1       | ELECTRICAL/FIBER ROUTE PLAN AND NOTES            |
| E-2       | ELECTRICAL DETAILS                               |
| E-3       | ELECTRICAL ONE-LINE, FAULT CALC & PANEL SCHEDULE |
| G-1       | GROUNDING PLANS AND NOTES                        |
| G-2       | GROUNDING DETAILS                                |
| G-3       | GROUNDING DETAILS                                |
| RF-1      | RF CABLE COLOR CODE                              |
| GN-1      | LEGEND AND ABBREVIATIONS                         |
| GN-2      | GENERAL NOTES                                    |
| GN-3      | GENERAL NOTES                                    |
| GN-4      | GENERAL NOTES                                    |

**SCOPE OF WORK**

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

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

GROUND SCOPE OF WORK:

- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PRC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED CIEMA BOX (IF REQUIRED)

**SITE PHOTO**



UNDERGROUND SERVICE ALERT CBYD 811  
 UTILITY NOTIFICATION CENTER OF CONNECTICUT  
 (800) 922-4455  
 WWW.CBYD.COM  
 CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

**GENERAL NOTES**

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

THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (b)(7).

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

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

**SITE INFORMATION**

PROPERTY OWNER: HALMORA LLC  
 185 FISK ROAD  
 HAMPTON, CT 06247

TOWER TYPE: GUYED TOWER

TOWER CO SITE ID: 10029

TOWER APP NUMBER: 13733446\_D2

COUNTY: WINDHAM

LATITUDE (NAD 83): 41° 46' 11.796" N  
 LONGITUDE (NAD 83): 72° 4' 14.306" W  
 -72.07064056

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: EVERSOURCE

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS

**PROJECT DIRECTORY**

APPLICANT: DISH WIRELESS L.L.C.  
 5701 SOUTH SANTA FE DRIVE  
 LITTLETON, CO 80120

TOWER OWNER: AMERICAN TOWER  
 10 PRESIDENTIAL WAY  
 WOBURN, MA 01801

ENGINEER: ATC TOWER SERVICES, LLC  
 3500 REGENCY PARKWAY SUITE 100  
 CARY, NC 27518

SITE ACQUISITION: DAVID GOODFELLOW  
 DAVID.GOODFELLOW@DISH.COM

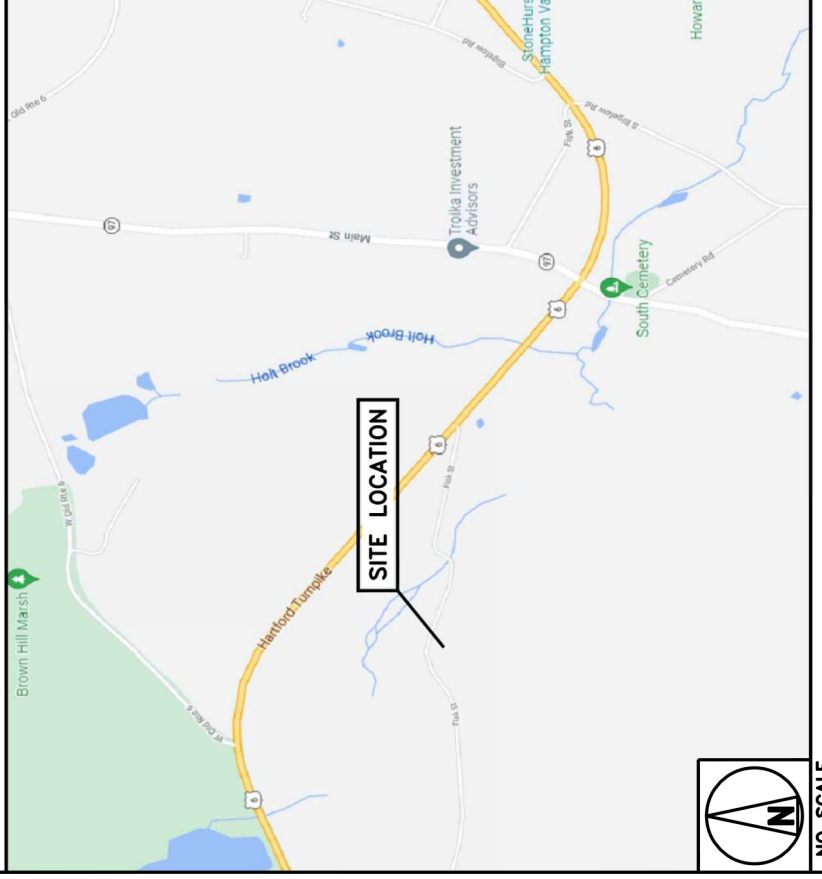
CONSTRUCTION MANAGER: CHAD WILCOX  
 CHAD.WILCOX@DISH.COM

RF ENGINEER: ARVIN SEBASTIAN  
 ARVIN.SEBASTIAN@DISH.COM

**DIRECTIONS**

1. 395 SOUTH TO RTE 6 WEST.
2. FOLLOW TO FISK RD. ON LEFT.
3. TOWER IS DOWN ON LEFT.

**VICINITY MAP**



5701 SOUTH SANTA FE DRIVE  
 LITTLETON, CO 80120



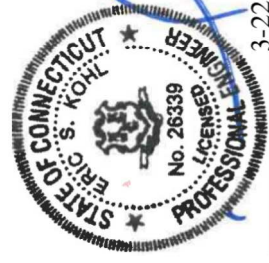
KCI TECHNOLOGIES, INC.  
 11630 VICTORY BLVD, SUITE F  
 ELLEN, MD 20759  
 Phone: 410.792.8888

|             |             |              |
|-------------|-------------|--------------|
| DRAWN BY:   | CHECKED BY: | APPROVED BY: |
| RPA         | IE          | IE           |
| RFDS REV #: | ---         | ---          |

**CONSTRUCTION DOCUMENTS**

**SUBMITTALS**

| REV | DATE       | DESCRIPTION             |
|-----|------------|-------------------------|
| A   | 10/28/2021 | ISSUED FOR REVIEW       |
| 0   | 03/22/2022 | ISSUED FOR CONSTRUCTION |



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A&E PROJECT NUMBER  
 10029-13733446\_D2

DISH WIRELESS L.L.C.  
 PROJECT INFORMATION  
 BOBOS00894A  
 185 FISK ROAD  
 HAMPTON, CT 06247

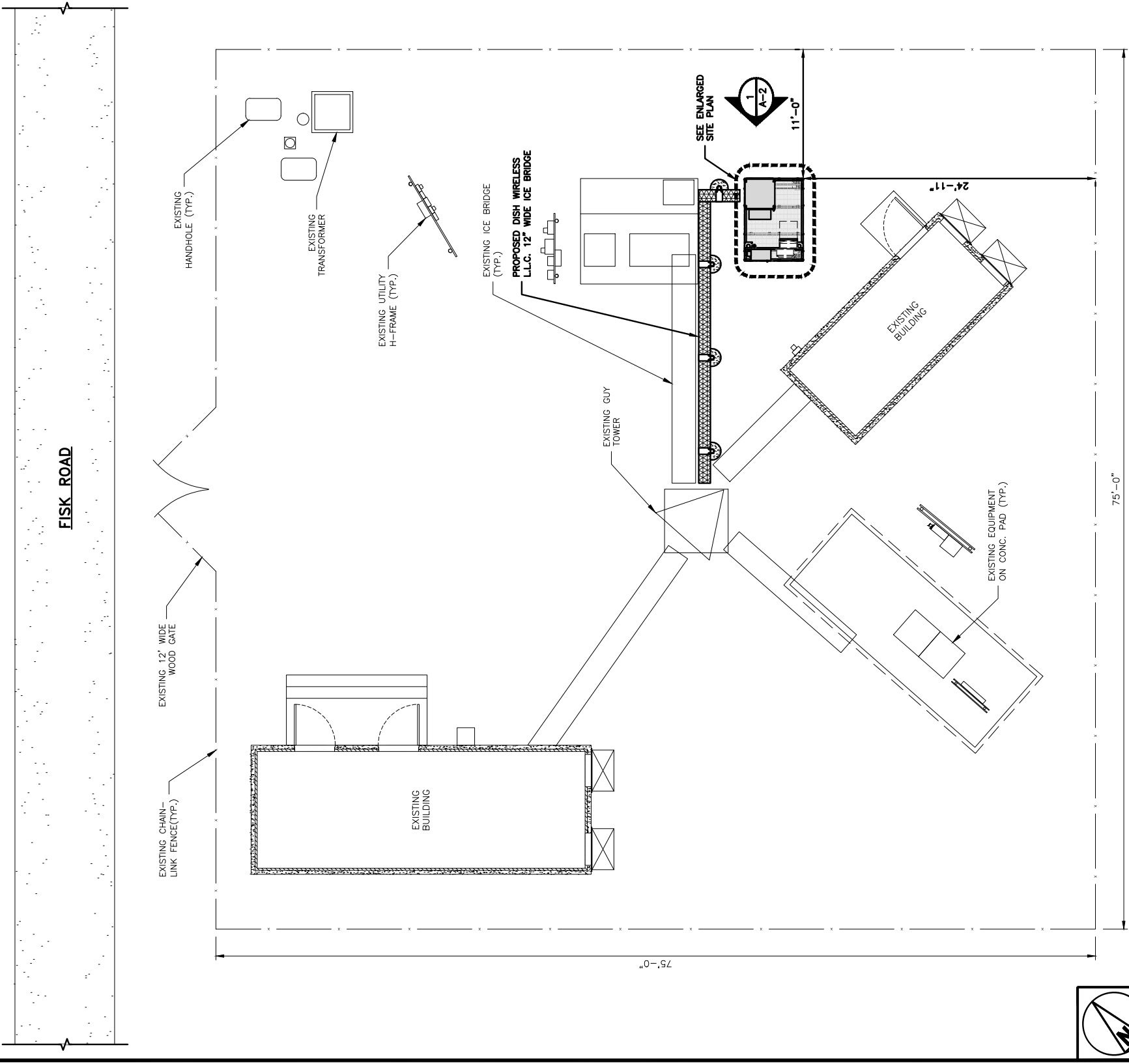
SHEET TITLE  
 TITLE SHEET

SHEET NUMBER

**T-1**

**NOTES**

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



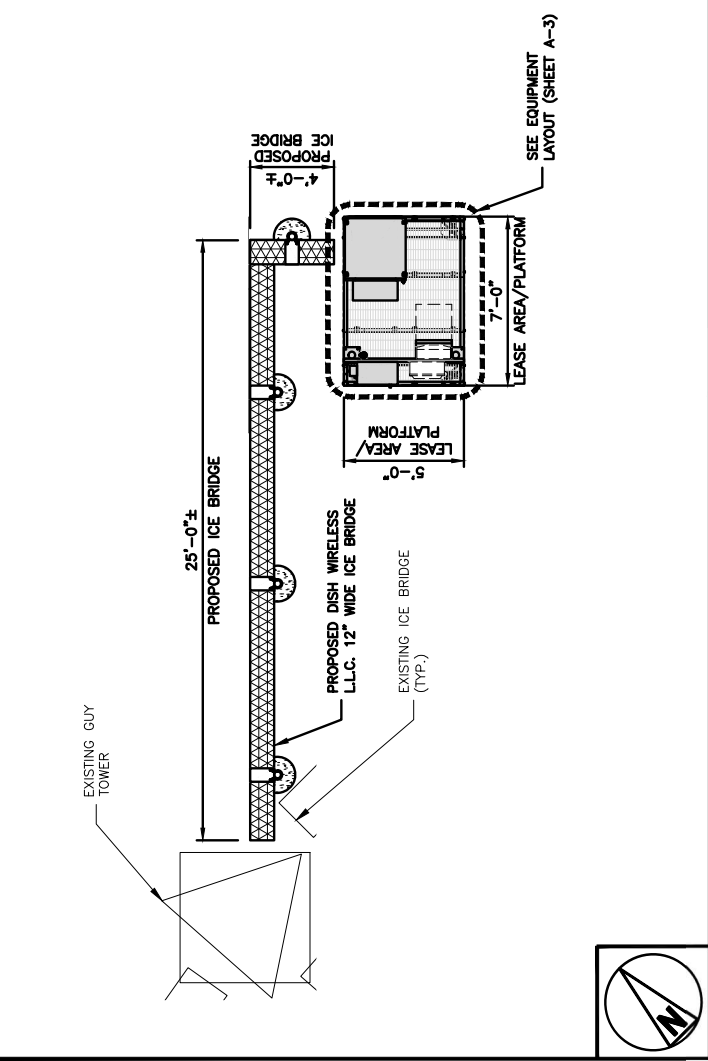
**OVERALL SITE PLAN**

1

NO SCALE

**NOTES**

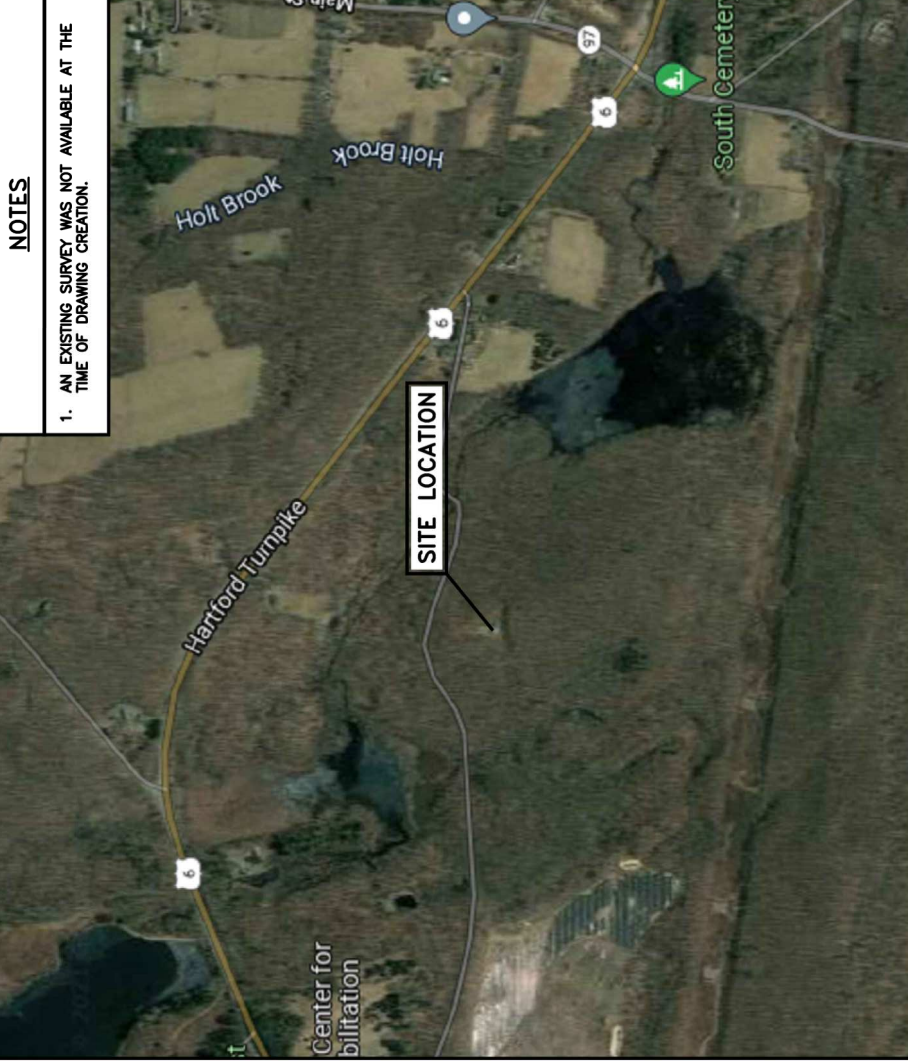
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



**ENLARGED SITE PLAN**

2

NO SCALE



**AERIAL VIEW**

3

NO SCALE



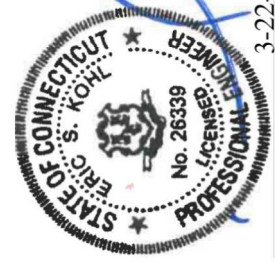
5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



DRAWN BY: \_\_\_\_\_  
RPA \_\_\_\_\_ IE \_\_\_\_\_ IE \_\_\_\_\_  
RFDS REV # \_\_\_\_\_

**CONSTRUCTION DOCUMENTS**

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3-22-22

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10029-13733446\_D2

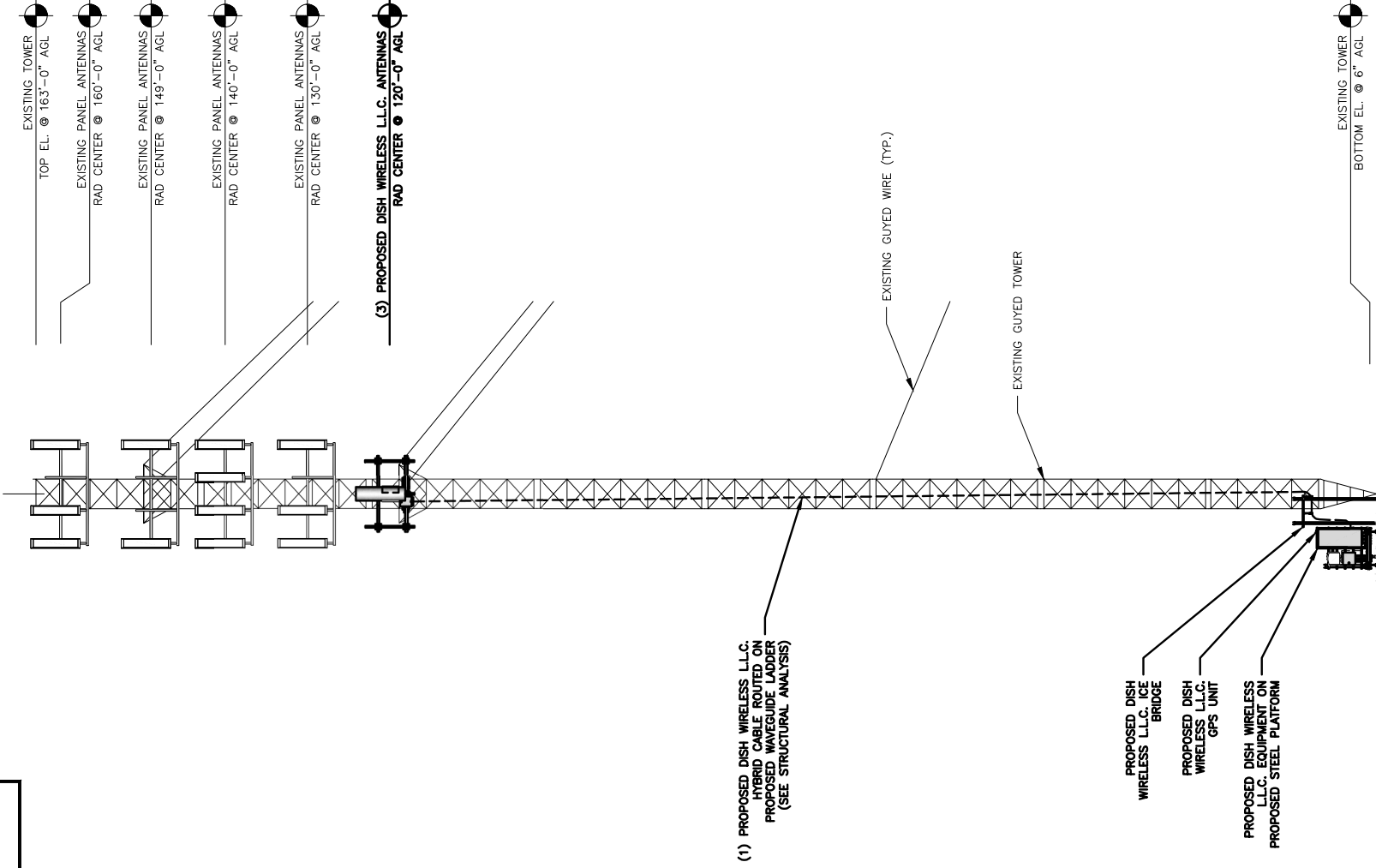
DISH WIRELESS LLC.  
PROJECT INFORMATION  
BOBOS000894A  
185 FISK ROAD  
HAMPTON, CT 06247

SHEET TITLE  
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER  
A-1

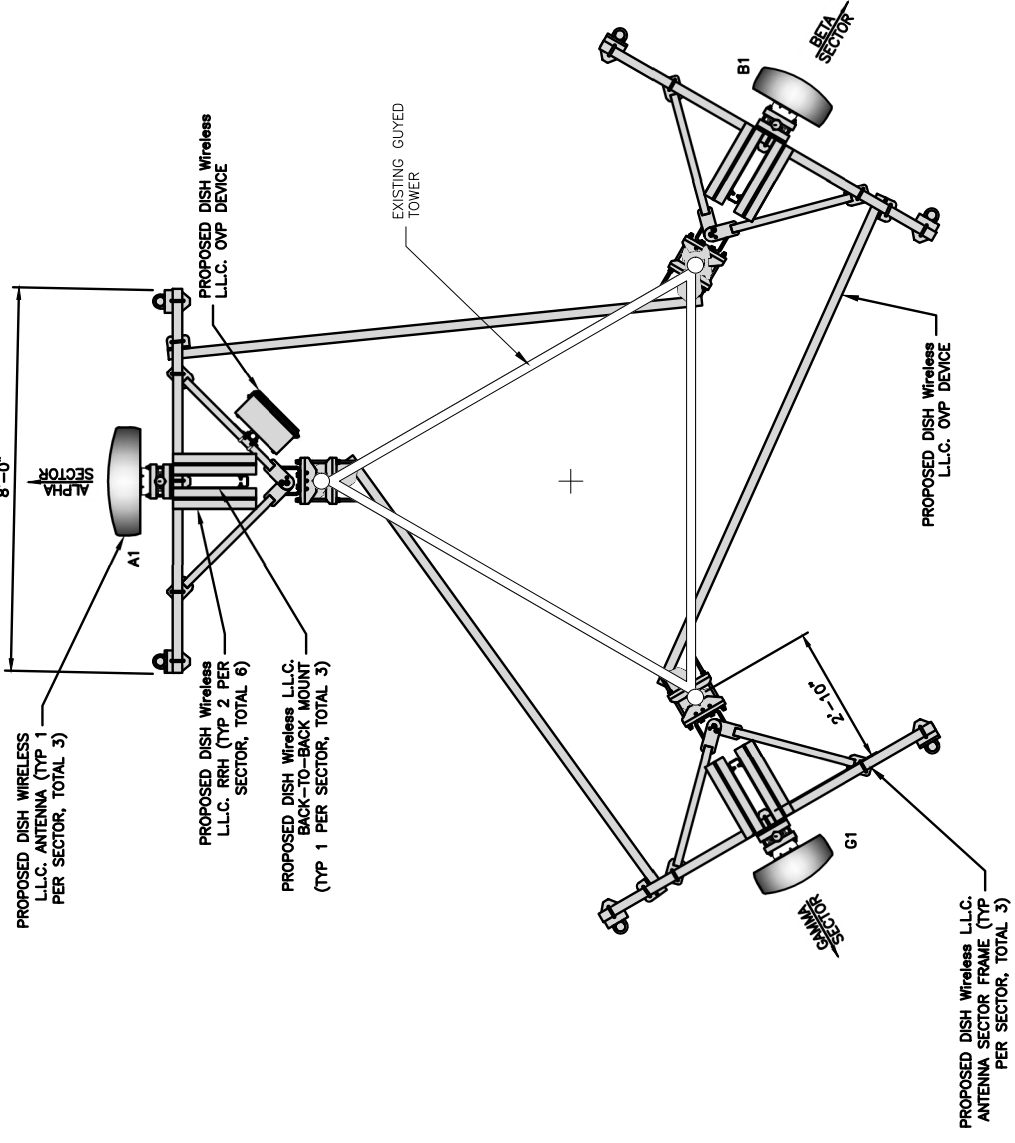


- NOTES**
- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
  - ANTENNA AND MW DISH SPECIFICATIONS REFER TO FINAL ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
  - EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



**PROPOSED WEST ELEVATION**

NO SCALE 1



ANTENNA LAYOUT

NO SCALE 2

| SECTOR POS. | ANTENNA              |                             | RRH  |         | TRANSMISSION CABLE |  | RRH                         |      | OVP  |                            |
|-------------|----------------------|-----------------------------|------|---------|--------------------|--|-----------------------------|------|------|----------------------------|
|             | EXISTING OR PROPOSED | MANUFACTURER - MODEL NUMBER | TECH | AZIMUTH | RAD CENTER         | FEED LINE TYPE AND LENGTH                  | MANUFACTURER - MODEL NUMBER | TECH | POS. | MANUFACTURER MODEL         |
| A1          | ---                  | ---                         | ---  | ---     | ---                | (1) HIGH-CAPACITY HYBRID CABLE (175' LONG) | TA08025-B604                | 5G   | A2   | (1) RAYCAP RD0C-9181-PF-48 |
| A2          | PROPOSED             | COMMSCOPE - FFW-65B-R2      | 5G   | 0°      | 120'-0"            |  | TA08025-B605                | 5G   | A2   |                            |
| A3          | ---                  | ---                         | ---  | ---     | ---                |  | ---                         | ---  | ---  |                            |
| B1          | ---                  | ---                         | ---  | ---     | ---                | SHARED W/ALPHA                             | TA08025-B604                | 5G   | B2   | SHARED W/ALPHA             |
| B2          | PROPOSED             | COMMSCOPE - FFW-65B-R2      | 5G   | 120°    | 120'-0"            |  | TA08025-B605                | 5G   | B2   |                            |
| B3          | ---                  | ---                         | ---  | ---     | ---                |  | ---                         | ---  | ---  |                            |
| C1          | ---                  | ---                         | ---  | ---     | ---                | SHARED W/ALPHA                             | TA08025-B604                | 5G   | C2   | SHARED W/ALPHA             |
| C2          | PROPOSED             | COMMSCOPE - FFW-65B-R2      | 5G   | 240°    | 120'-0"            |  | TA08025-B605                | 5G   | C2   |                            |
| C3          | ---                  | ---                         | ---  | ---     | ---                |  | ---                         | ---  | ---  |                            |

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

**ANTENNA SCHEDULE**

NO SCALE 3



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

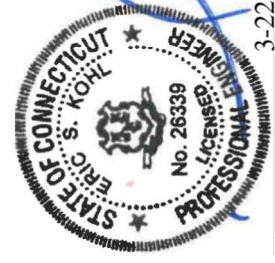


DRAWN BY: CHECKED BY: APPROVED BY:  
RPA IE IE IE  
RFDS REV #:

**CONSTRUCTION DOCUMENTS**

**SUBMITTALS**

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A&E PROJECT NUMBER  
10029-13733446\_D2

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
BOBOS00894A  
185 FISK ROAD  
HAMPTON, CT 06247

SHEET TITLE  
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

**A-2**

|                                    |     |
|------------------------------------|-----|
| DRAWN BY: CHECKED BY: APPROVED BY: |     |
| RPA                                | IE  |
| RFDS REV #:                        | --- |

## CONSTRUCTION DOCUMENTS

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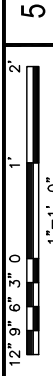
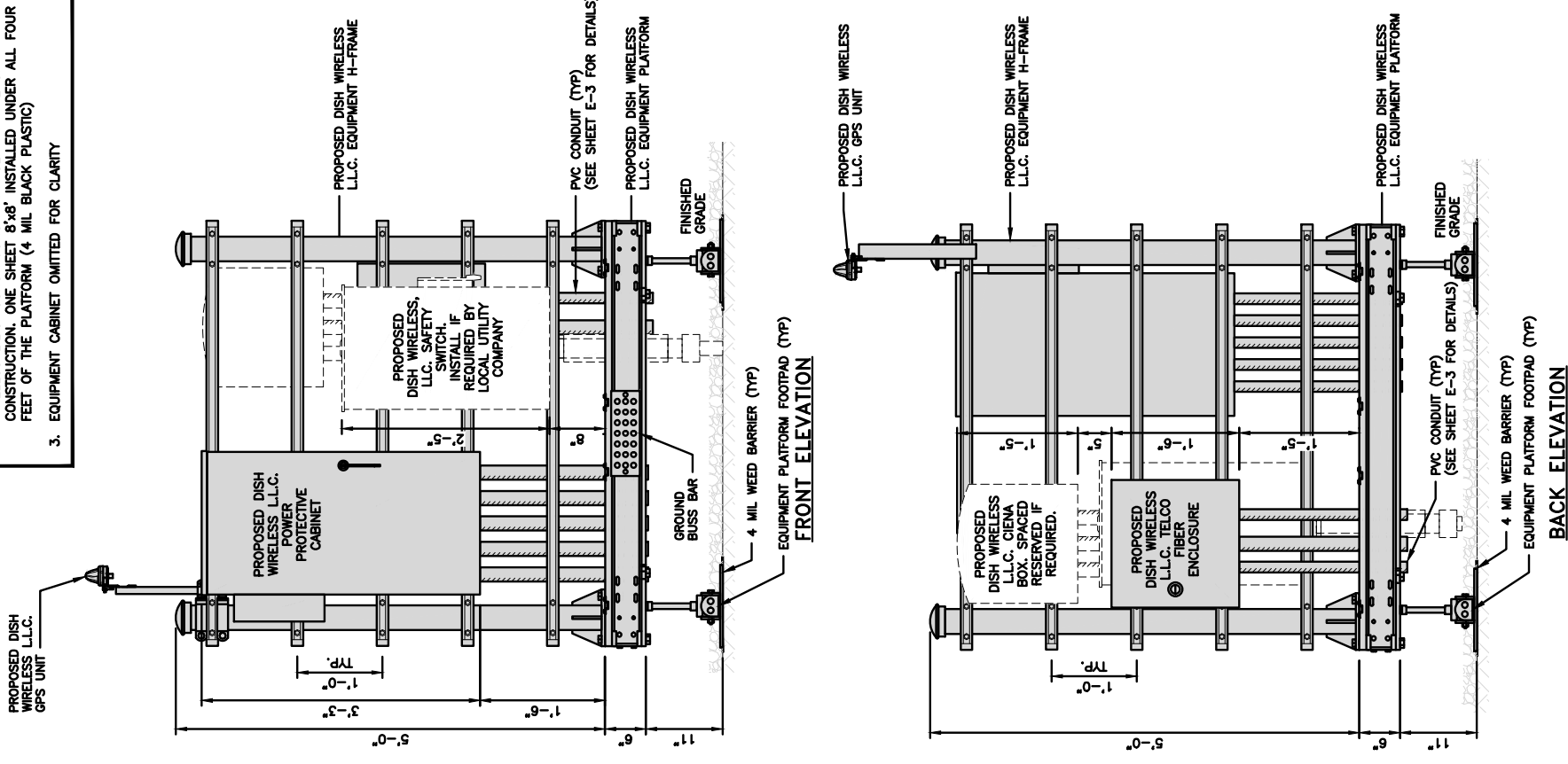
DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
BOBOS00894A  
185 FISK ROAD  
HAMPTON, CT 06247

EQUIPMENT PLATFORM AND H-FRAME DETAILS  
SHEET TITLE

A-3  
SHEET NUMBER

### NOTES

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



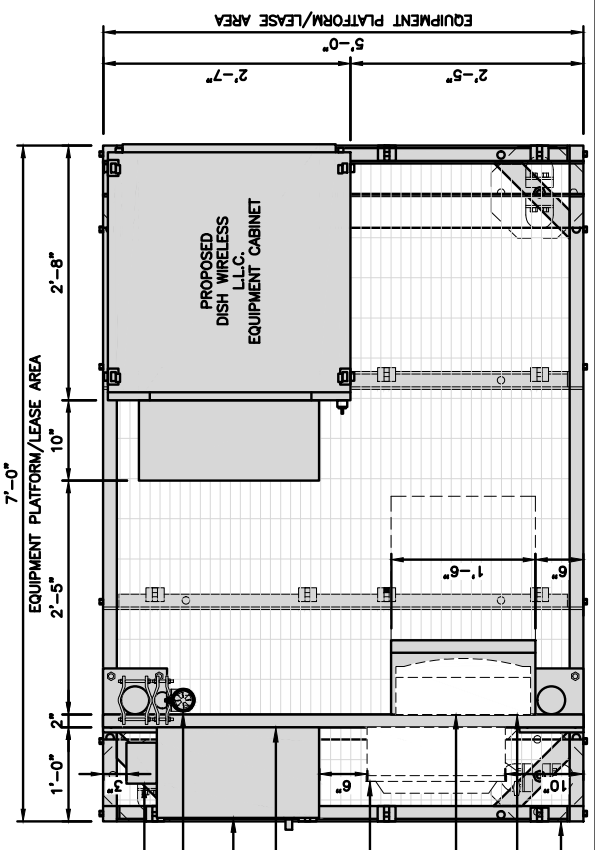
H-FRAME EQUIPMENT ELEVATION

NO SCALE

NOT USED

NO SCALE

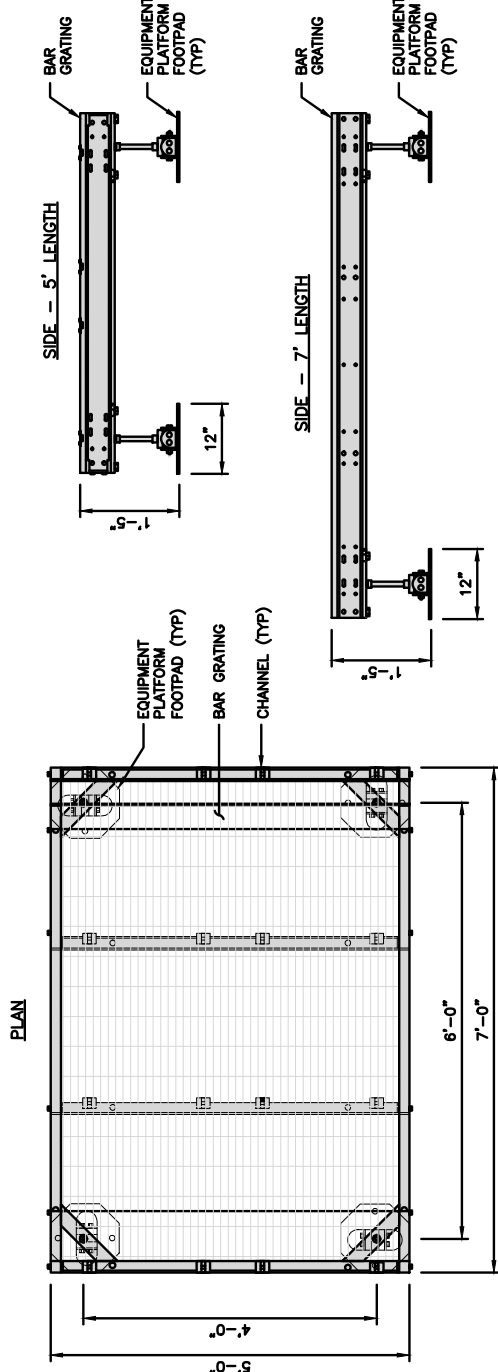
H-FRAME DETAIL



PLATFORM EQUIPMENT PLAN

|   |             |
|---|-------------|
| <b>COMMSCOPE MTC4045LP 5X7 PLATFORM</b> |             |
| DIMENSIONS (HxWxD)                      | 16"x84"x60" |
| TOTAL WEIGHT                            | 423 LBS     |

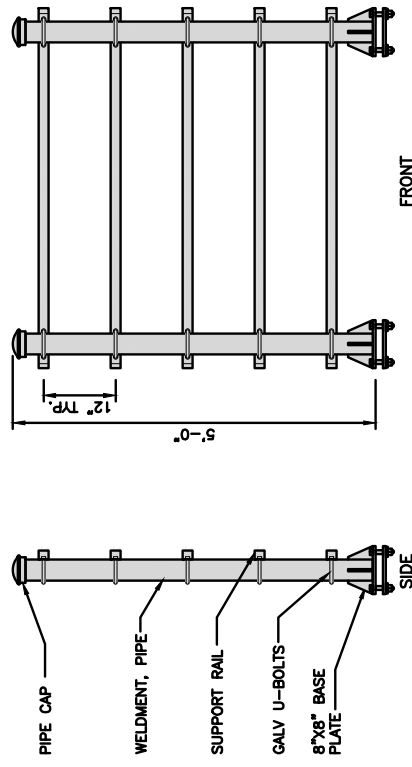
NOTE: PROVIDE EXTENDED GC TO PLATFORM IF THREAD HEIGHT EXCEEDS 17" PLATFORM TO BE WITHIN 1' OF LEVEL



PLATFORM DETAIL

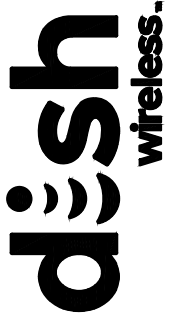
NO SCALE

|                                    |           |
|------------------------------------|-----------|
| <b>KENWOOD T1701KT5-5S H-FRAME</b> |           |
| UNISTRUT/SUPPORT RAIL              | 5         |
| WEIGHT/ VOLUME                     | 173.6 LBS |



NO SCALE

H-FRAME DETAIL



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



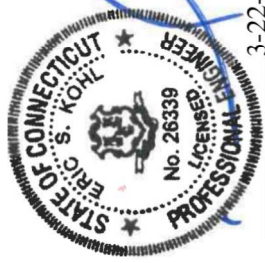
KCI TECHNOLOGIES, INC.  
11630 W. WASHINGTON AVE. Suite F  
Fallon, MO 20759  
Phone: 410.792.8888

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RFDS REV #:

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3-22-22

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A&E PROJECT NUMBER  
10029-13733446\_D2

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
BOBOS00894A  
185 FISK ROAD  
HAMPTON, CT 06247

EQUIPMENT DETAILS  
SHEET TITLE

SHEET NUMBER  
**A-4**

| SQUARE D SAFETY SWITCH<br>D324NRB |                     |
|-----------------------------------|---------------------|
| ENCLOSURE DIM (HxWxD)             | 29.25"x17.25"x8.25" |
| TOTAL WEIGHT (EMPTY)              | 45.33 LBS           |
| MAX VOLTAGE/AMPS/WATT             | 240V/200A/48000W    |
| ENCLOSURE RATING                  | OUTDOOR NEMA 3R     |

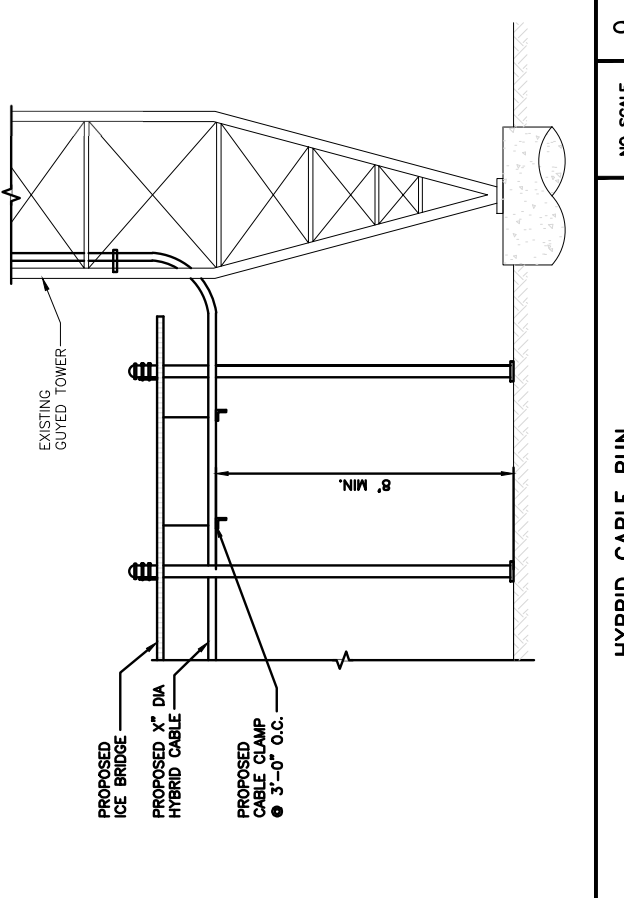
PLAN  
SIDE  
FRONT

NO SCALE  
**SAFETY SWITCH**  
3

| CHARLES<br>FIBER TELCO ENCLOSURE<br>CUBE-MP1818WB-A |                   |
|---|-------------------|
| ENCLOSURE DIM (HxWxD)                               | 18.0"x18.0"x9.25" |
| NEMA RATING   | 4X                |
| THERMAL   | SEALED            |
| MOUNTING BACKBOARD                                  | WOOD              |

PLAN  
SIDE  
FRONT

NO SCALE  
**FIBER TELCO ENCLOSURE DETAIL**  
6



| RAYCAP RDIAC-6512-P-240-MTS<br>POWER & TELCO PROTECTION CABINET |                            |
|---|----------------------------|
| DIMENSIONS (HxWxD)  | 40"x20"x10"                |
| WEIGHT/ VOLUME  | 124 LBS                    |
| MANUAL TRANSFER SWITCH  | 200A                       |
| LOAD CENTER   | 30 POSITION                |
| MAIN BREAKER  | 200A, 65KA AIC             |
| GENERATOR RECEPTACLE  | CAMLOCK                    |
| NEMA RATING   | 3R POWDER COATED ALUMINUM  |
| SURGE PROTECTION DEVICE   | UL 1449 4TH EDITION LISTED |

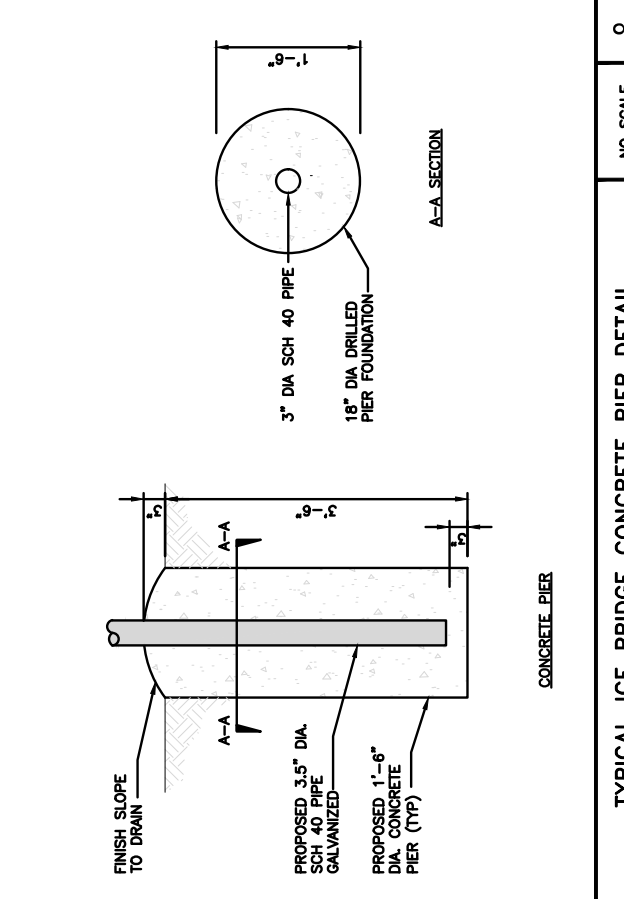
PLAN  
SIDE  
FRONT

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

| CIENA 3931<br>SERVICE DELIVERY SWITCH |                  |
|---------------------------------------|------------------|
| DIMENSIONS (HxWxD)                    | 17.0"x16.8"x7.0" |
| WEIGHT                                | 431x427x179mm    |
| POWER INPUT                           | 28.6 LBS/13.0 KG |
|                                       | 60W MAX          |

PLAN  
SIDE  
FRONT

NO SCALE  
**CIENA DETAIL**  
5



NO SCALE  
**TYPICAL ICE BRIDGE CONCRETE PIER DETAIL**  
8

| ENERSYS HEX<br>2000005996 |                 |
|---------------------------|-----------------|
| DIMENSIONS (HxWxD)        | 73"x30"x32"     |
| POWER SYSTEM              | -48V ALPHA/600A |
| HEATER                    | 800W            |
| TOTAL WEIGHT (EMPTY)      | 376 lbs         |

PLAN  
SIDE  
FRONT

NO SCALE  
**CABINET DETAIL**  
1

**NOT USED**

NO SCALE  
**NOT USED**  
4

| COMMSCOPE WB-K110-B<br>WAVEGUIDE BRIDGE KIT |           |
|---|-----------|
| DIMENSIONS (HxL)                            | 160"x10'  |
| WEIGHT/ VOLUME                              | 325.0 LBS |
| CABLE RUN (QTY)                             | 12        |

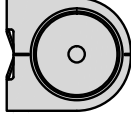
INCLUDED PRODUCTS:  
WB-T12-3 TRAPEZE KIT, 3 RUNGS  
WB-LB12-3 SUPPORT BRACKET  
MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"

TRAPEZE KIT (WB-T12-3)  
SUPPORT BRACKET (WB-LB12-3)  
3.5" DIA GALV SCH 40 PIPE (SPACED 9'-0" MAX) (MF-130)

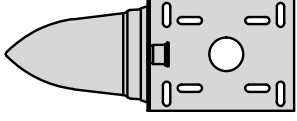
PLAN  
FRONT  
SIDE

NO SCALE  
**ICE BRIDGE DETAIL**  
7

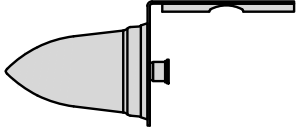
|                            |                       |
|----------------------------|-----------------------|
| <b>PCTEL</b>               |                       |
| <b>GPSGL-TMG-SPI-40NCB</b> |                       |
| DIMENSIONS (DIAM) MM/INCH  | 81x184mm<br>3.2x7.25" |
| WEIGHT W/ACCESSORIES       | 075 lbs               |
| CONNECTOR                  | N-FEMALE              |
| FREQUENCY RANGE            | 1590 ± 30MHz          |



TOP



SIDE

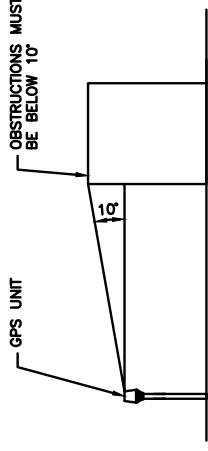
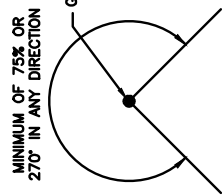


BACK

**GPS DETAIL**

NO SCALE

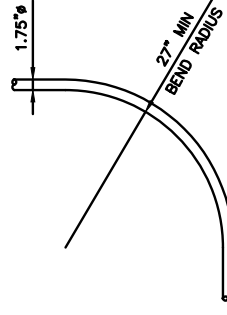
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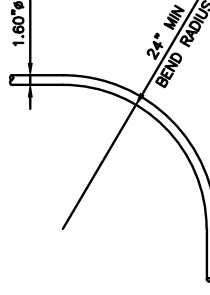
**GPS MINIMUM SKY VIEW REQUIREMENTS**

NO SCALE

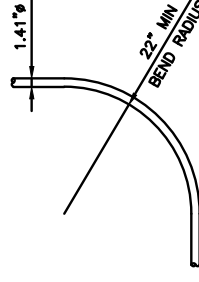
2



CU12F5M6P-4XXX  
(4 AWG CONDUCTORS)



CU12F5M6P6XXX  
(6 AWG CONDUCTORS)



CU12F5M6P8XXX  
(8 AWG CONDUCTORS)

**CABLES UNLIMITED HYBRID CABLE  
MINIMUM BEND RADII**

NO SCALE

3



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



A.T. ENGINEERING SERVICE, PLLC  
3500 REGENCY PARKWAY  
SUITE 100  
CASA GRANDE, AZ 85122  
PHONE: (910) 468-2112



KCI TECHNOLOGIES, INC.  
11630 WILSON ROAD, SUITE F  
FALLS CHURCH, VA 22028  
PHONE: 410.922.8888

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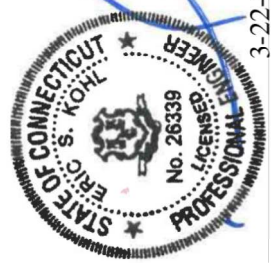
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RFDS REV #:

**CONSTRUCTION DOCUMENTS**

**SUBMITTALS**

| REV | DATE       | DESCRIPTION             |
|-----|------------|-------------------------|
| A   | 10/28/2021 | ISSUED FOR REVIEW       |
| 0   | 03/22/2022 | ISSUED FOR CONSTRUCTION |
|     |            |                         |
|     |            |                         |
|     |            |                         |
|     |            |                         |
|     |            |                         |
|     |            |                         |
|     |            |                         |



3-22-22

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A&E PROJECT NUMBER  
10029-13733446\_D2

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
BOBOS00894A

185 FISK ROAD  
HAMPTON, CT 06247

EQUIPMENT DETAILS

SHEET NUMBER

**A-5**

NOT USED

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

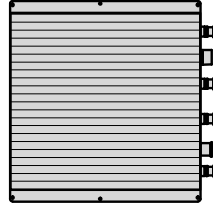
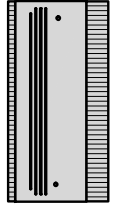
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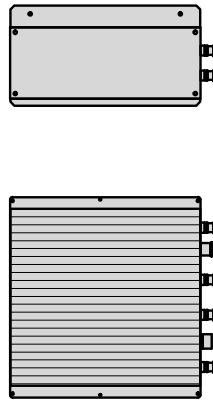
NO SCALE

9

|   |                     |
|---|---------------------|
| <b>FUJITSU DUAL BAND<br/>TA08025-B604</b> |                     |
| DIMENSIONS (HxWxD)                        | 14.9"x15.7"x7.8"    |
| WEIGHT                                    | 63.9 lbs            |
| CONNECTOR TYPE                            | 4.3-10 RF CONNECTOR |
| POWER SUPPLY                              | DC -58--36V         |



BACK SIDE FRONT

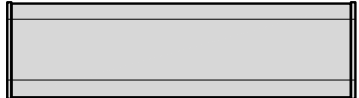


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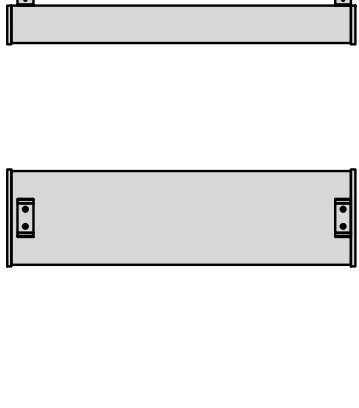
1

RRH DETAIL

|   |                   |
|---|-------------------|
| <b>COMMSCOPE WIRELESS<br/>FFVW-65B-R2 ANTENNA</b> |                   |
| DIMENSIONS (HxWxD)                                | 72.0"x20.0"x8.0"  |
| TOTAL WEIGHT                                      | 70.5 LB           |
| RF PORTS, CONNECTOR TYPE                          | 8 x 4.3-10 FEMALE |



BACK SIDE FRONT

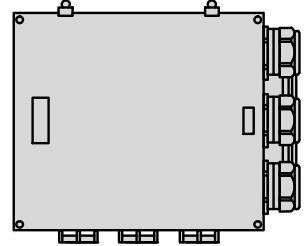
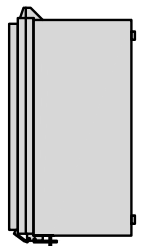


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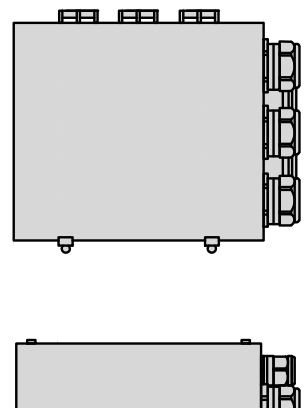
4

ANTENNA DETAIL

|   |                     |
|---|---------------------|
| <b>RAYCAP RDIC-9181-PF-48<br/>DC SURGE PROTECTION (OVP)</b> |                     |
| DIMENSIONS (HxWxD)  | 18.98"x14.39"x8.15" |
| WEIGHT  | 21.82 LBS           |



BACK SIDE FRONT

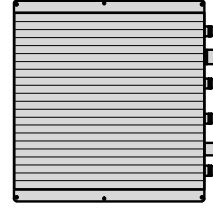
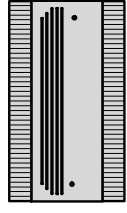


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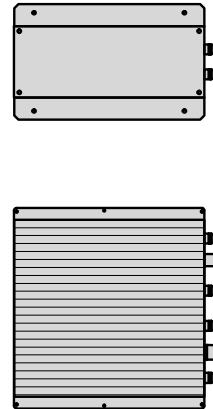
7

SURGE SUPPRESSION DETAIL (OVP)

|   |                     |
|---|---------------------|
| <b>FUJITSU TRIPLE BAND<br/>TA08025-B605</b> |                     |
| DIMENSIONS (HxWxD)                          | 14.9"x15.7"x8"      |
| WEIGHT                                      | 74.95 lbs           |
| CONNECTOR TYPE                              | 4.3-10 RF CONNECTOR |
| POWER SUPPLY                                | DC -58--36V         |



BACK SIDE FRONT



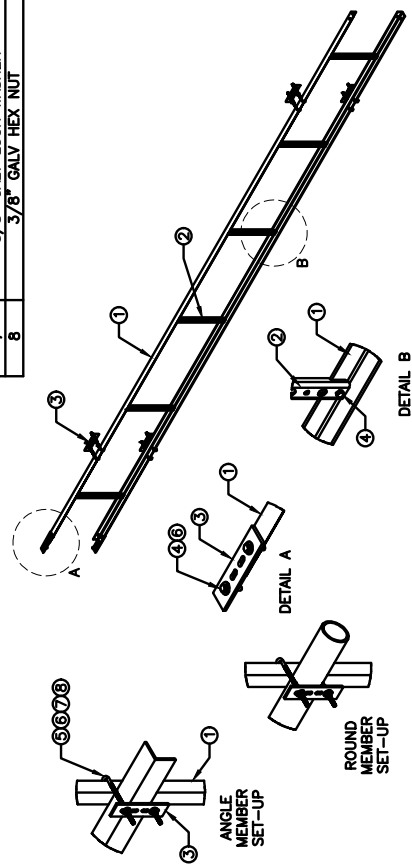
NO SCALE

2

RRH DETAIL

|  |            |
|--|------------|
| <b>COMMSCOPE 20' CABLE LADDER<br/>6 HOLE RUNGS</b> |            |
| DIMENSIONS (WxL)                                   | 20.5"x240" |
| WEIGHT   | 84.94 lbs  |

| ITEM# | DESCRIPTION               |
|-------|---------------------------|
| 1     | 20' ANGLE SIDE RAIL       |
| 2     | 20' LADDER RUNG           |
| 3     | BACKING PLATE             |
| 4     | 3/8"x1-1/2" GALV BOLT KIT |
| 5     | 8" GALV L-BOLT KIT        |
| 6     | 3/8" GALV FLAT WASHER     |
| 7     | 3/8" GALV LOCK WASHER     |
| 8     | 3/8" GALV HEX NUT         |



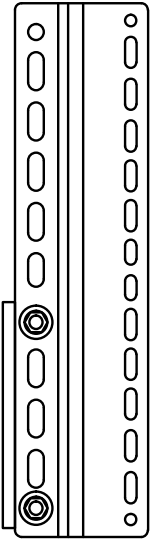
NO SCALE

8

CABLE LADDER DETAIL

|   |                 |
|---|-----------------|
| <b>SABRE DOUBLE Z-BRACKET<br/>G10123155</b> |                 |
| DIMENSIONS (HxWxD) (1 BRACKET)              | 5"x20"x1-13/16" |
| WEIGHT (FULL ASSEMBLY)                      | 35.79 lbs       |
| PACKAGE QUANTITY                            | 4               |

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



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

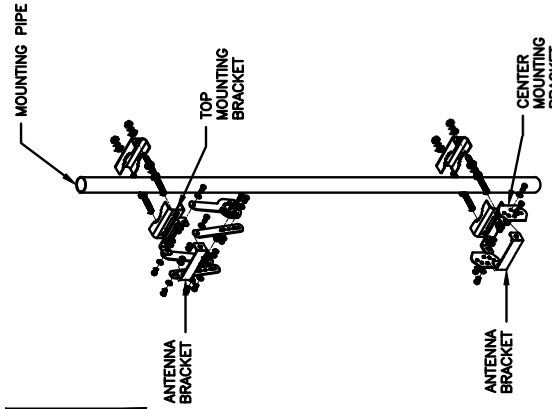
NO SCALE

3

RRH MOUNT DETAIL

|  |                  |
|--|------------------|
| <b>JMA ANTENNA MOUNT BRACKET<br/>#91900318</b> |                  |
| TOTAL WEIGHT (WITH BRACKETS)                   | 18 lbs (8.18 Kg) |
| POLE DIAMETER RANGE                            | 2.5" TO 4.5"     |

NOTE:  
KIT #91900318: TOP AND BOTTOM BRACKETS  
FOR 4'-6", AND 8-FOOT ANTENNAS  
ANTENNA BRACKET NOT PART OF KIT



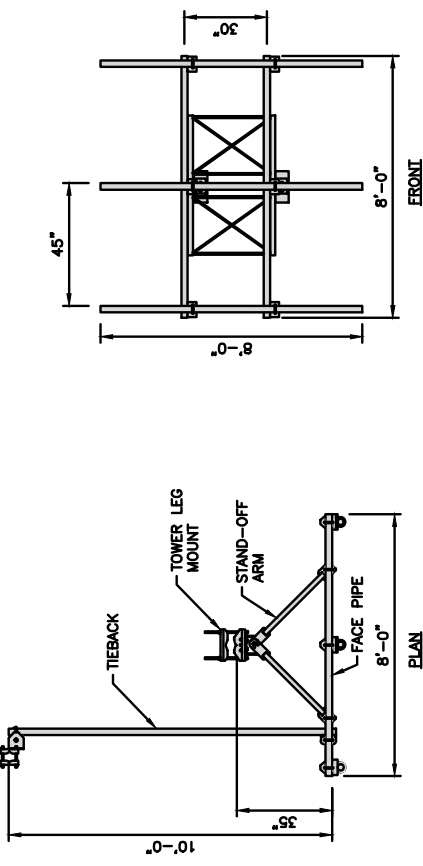
NOTE:  
OR DISH Wireless L.L.C.  
APPROVED EQUIVALENT

NO SCALE

6

ANTENNA BRACKET DETAIL

|   |             |
|---|-------------|
| <b>COMMSCOPE V-FRAME<br/>MTG3975083</b> |             |
| FACE SIZE                               | 8'-0"       |
| WEIGHT                                  | 352.136 lbs |



NO SCALE

9

ANTENNA FRAME DETAIL



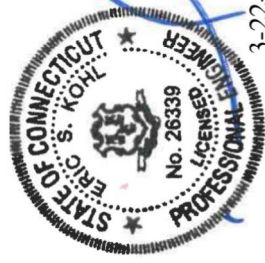
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LITTLETON, CO 80120



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RFDS REV #:

CONSTRUCTION DOCUMENTS

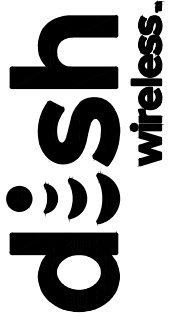
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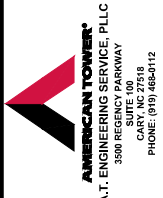
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|                     |   |
|---------------------|---|
| A&E PROJECT NUMBER  | 10029-13733446_D2   |
| PROJECT INFORMATION | DISH WIRELESS L.L.C.<br>BOBOS00894A<br>185 FISK ROAD<br>HAMPTON, CT 06247 |
| SHEET TITLE         | EQUIPMENT DETAILS   |
| SHEET NUMBER        | A-6   |



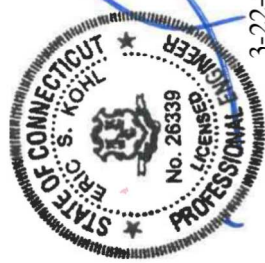
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LITTLETON, CO 80120



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10029-13733446\_D2

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
BOBOS00894A

185 FISK ROAD  
HAMPTON, CT 06247

SHEET TITLE  
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

**E-1**

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

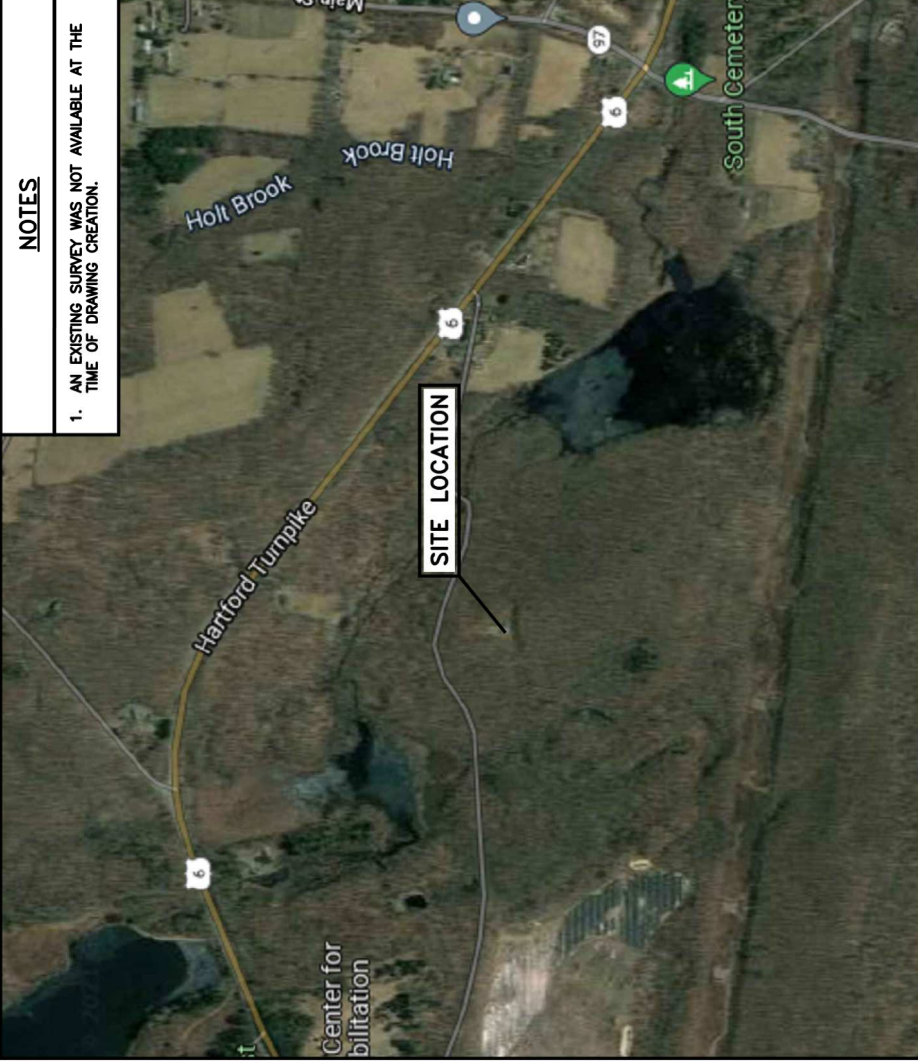
- CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION,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

**ELECTRICAL NOTES**

NO SCALE

**NOTES**

- AN EXISTING SURVEY WAS NOT AVAILABLE AT THE TIME OF DRAWING CREATION.



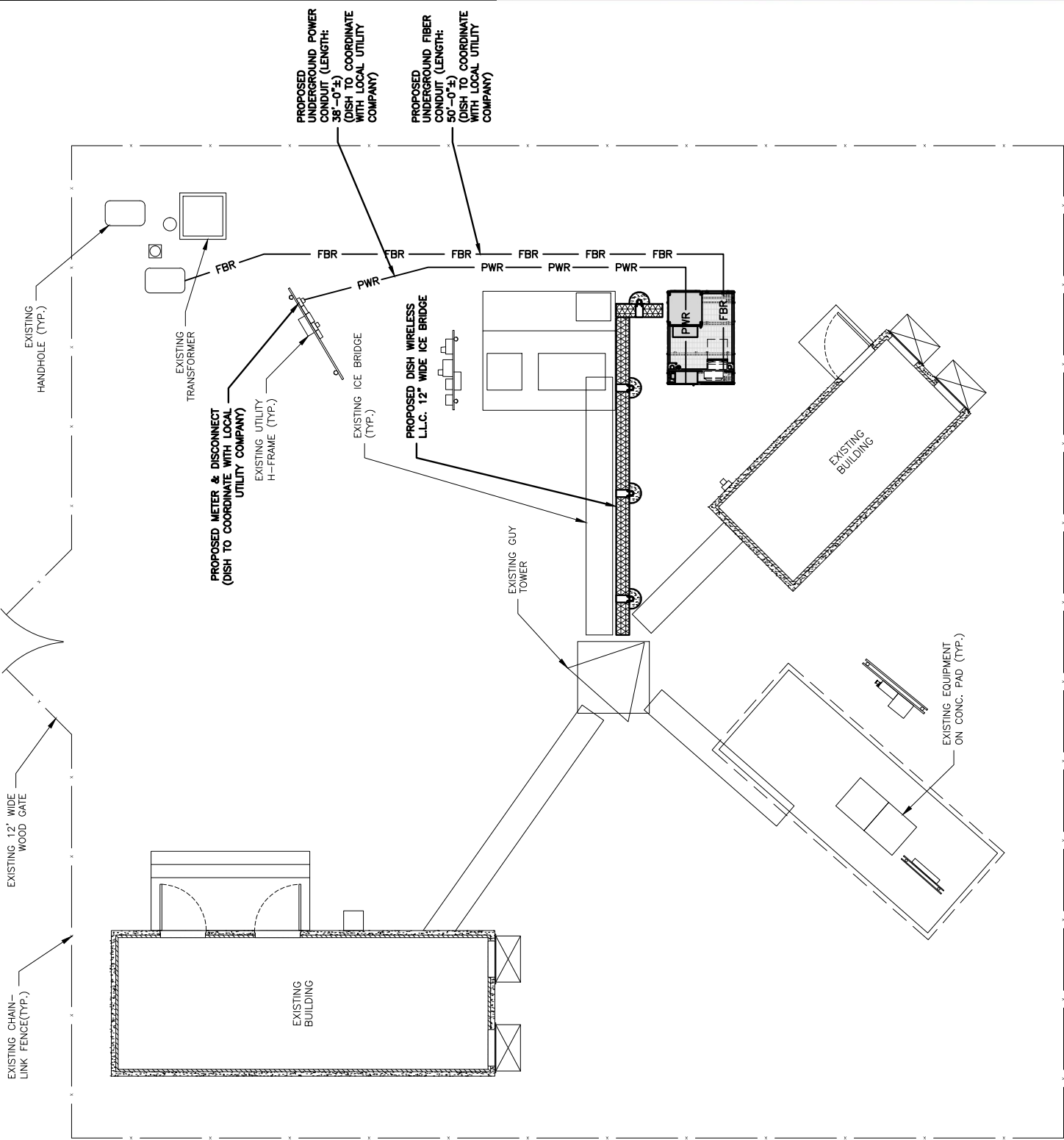
NO SCALE

**AERIAL VIEW**

3

**NOTES**

- A BOUNDARY SURVEY OF THE EXISTING EASEMENT WAS NOT AVAILABLE AT CONSTRUCTION DRAWING CREATION. CONSTRUCTION CONTRACTOR MUST FIELD VERIFY THAT THE PROPOSED UTILITY ROUTES ARE WITHIN AMERICAN TOWER'S EASEMENT.
- ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

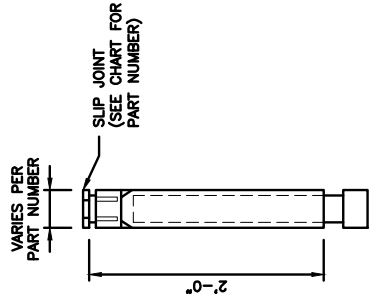


1

**UTILITY ROUTE PLAN**



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



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

EXPANSION JOINT DETAIL

NO SCALE

1

TYPICAL UNDERGROUND TRENCH DETAIL

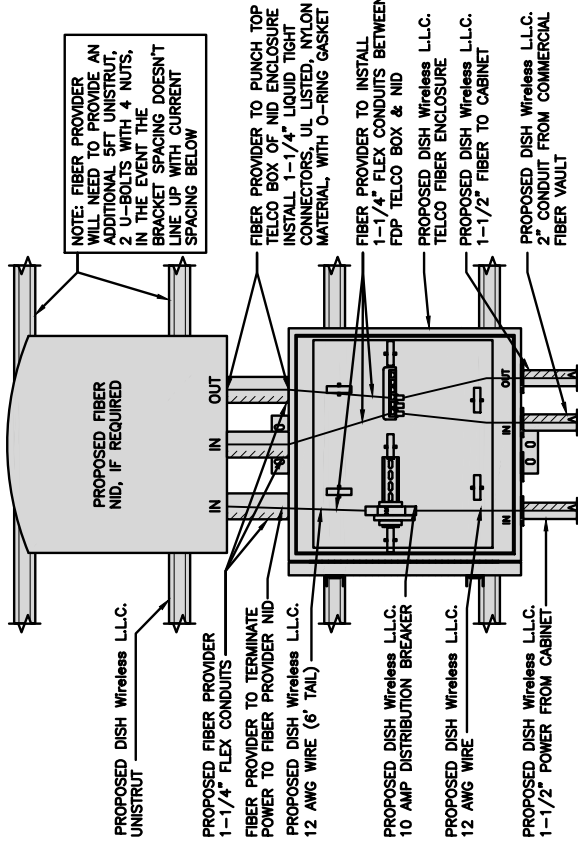
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2

DARK TELCO BOX - INTERIOR WIRING LAYOUT

NO SCALE

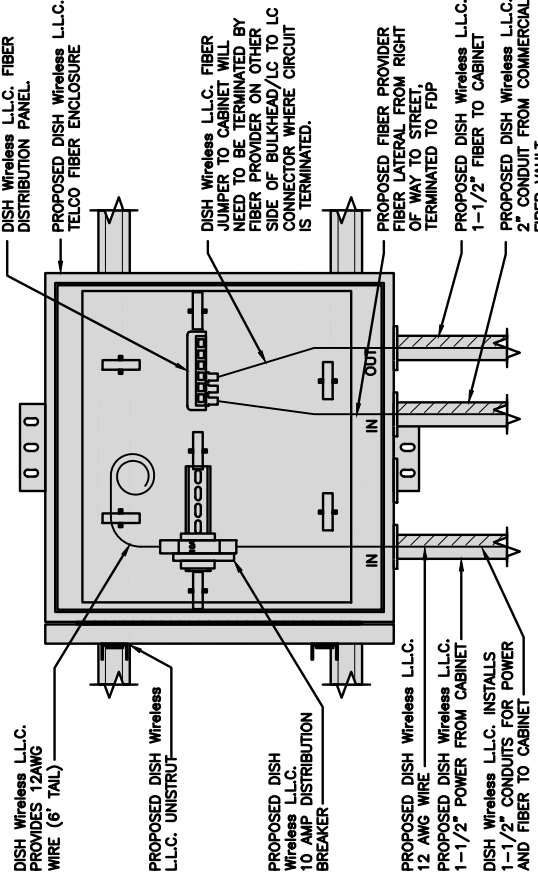
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LIT TELCO BOX - INTERIOR WIRING LAYOUT (OPTIONAL)

NO SCALE

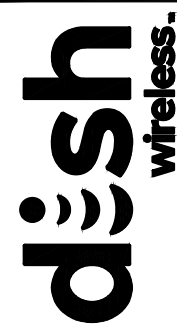
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DARK TELCO BOX - INTERIOR WIRING LAYOUT

NO SCALE

3



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LITTLETON, CO 80120



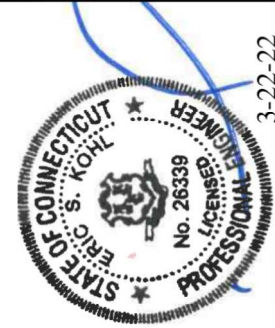
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PROJECT INFORMATION  
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185 FISK ROAD  
HAMPTON, CT 06247

SHEET TITLE  
ELECTRICAL  
DETAILS

SHEET NUMBER  
E-2

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9



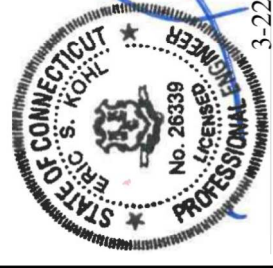
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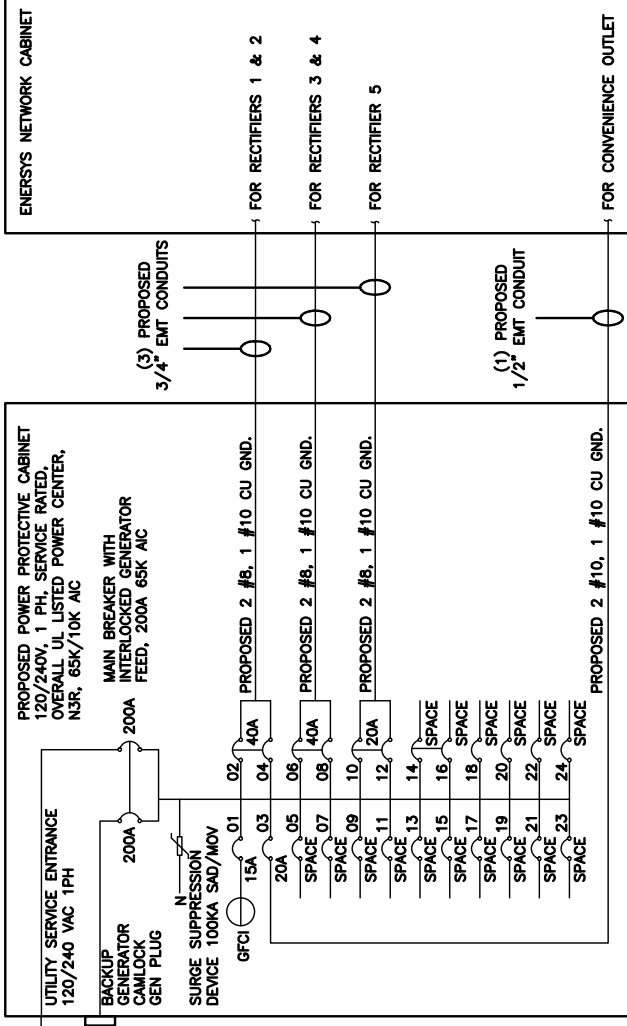
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DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
BOBOS00894A  
185 FISK ROAD  
HAMPTON, CT 06247

ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER

E-3

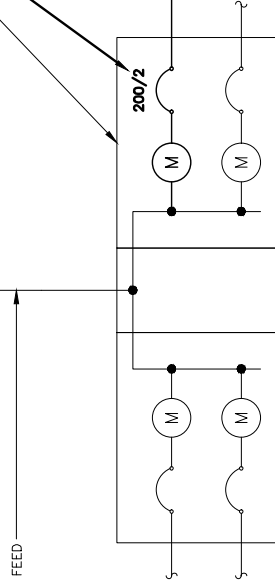


NOTE: BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105°C, 600V, AND PVC INSULATED, IN THE SIZES SHOWN IN THE ONE-LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN-2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT.

- BREAKERS REQUIRED:
- (2) 40A, 2P BREAKER - SQUARE D P/N:Q0240
  - (1) 20A, 2P BREAKER - SQUARE D P/N:Q0220
  - (1) 20A, 1P BREAKER - SQUARE D P/N:Q0120
  - (1) 15A, 1P BREAKER - SQUARE D P/N:Q0115

(3) 3/0 WITH #6 GROUND IN 3" SCH 40 CONDUIT  
CONTRACTOR TO REFER TO FINAL UTILITY DESIGN DETAILS

EXISTING 120/240V, 1Ø3W, MULTI-METER ELECTRICAL SERVICE  
IF NO BREAKER IS INSTALLED THE CONTRACTOR IS TO INSTALL A PROPOSED 200A, 2-POLE MAIN BREAKER. THE BREAKER IS TO BE THE SAME TYPE AND AC RATING AS THE EXISTING BREAKERS.



### PPC ONE-LINE DIAGRAM

NO SCALE 1

#### PROPOSED ENERSYS PANEL SCHEDULE

| LOAD SERVED          | VOLT AMPS (WATTS) |          | GK# | PHASE | TRIP | GK# | LOAD SERVED                           |
|----------------------|-------------------|----------|-----|-------|------|-----|---------------------------------------|
|                      | L1                | L2       |     |       |      |     |                                       |
| PPC GFCI OUTLET      | 180               | 180      | 1   | A     | 2    | 1   | ENERSYS ALPHA CORDEX RECTIFIERS 1 & 2 |
| ENERSYS GFCI OUTLET  | 180               | 180      | 3   | B     | 4    | 3   | ENERSYS ALPHA CORDEX RECTIFIER 3 & 4  |
| SPACE                |                   |          | 5   | A     | 6    | 5   | ENERSYS ALPHA CORDEX RECTIFIER 5      |
| SPACE                |                   |          | 7   | B     | 8    | 7   | SPACE                                 |
| SPACE                |                   |          | 9   | A     | 10   | 9   | SPACE                                 |
| SPACE                |                   |          | 11  | B     | 12   | 11  | SPACE                                 |
| SPACE                |                   |          | 13  | A     | 14   | 13  | SPACE                                 |
| SPACE                |                   |          | 15  | B     | 16   | 15  | SPACE                                 |
| SPACE                |                   |          | 17  | A     | 18   | 17  | SPACE                                 |
| SPACE                |                   |          | 19  | B     | 20   | 19  | SPACE                                 |
| SPACE                |                   |          | 21  | A     | 22   | 21  | SPACE                                 |
| SPACE                |                   |          | 23  | B     | 24   | 23  | SPACE                                 |
| VOLTAGE AMPS         | 180               | 180      |     |       |      |     | 9600                                  |
| 200A MCB             | SPACE             | 120/240V | L1  | L2    |      |     | VOLTAGE AMPS                          |
| MB RATING: 65,000 AC |                   |          | 82  | 82    |      |     | AMPS                                  |
|                      |                   |          | 82  | 82    |      |     | MAX AMPS                              |
|                      |                   |          | 102 |       |      |     | MAX 125%                              |

### PANEL SCHEDULE

NO SCALE 2

NOT USED

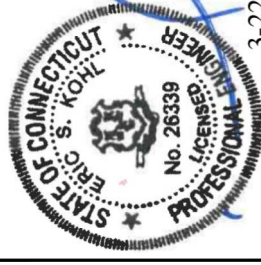
NO SCALE 3



|                 |    |                   |    |                    |    |
|-----------------|----|-------------------|----|--------------------|----|
| DRAWN BY: _____ |    | CHECKED BY: _____ |    | APPROVED BY: _____ |    |
| RPA             | IE | IE                | IE | IE                 | IE |
| RFDS REV #:     |    |                   |    |                    |    |

## CONSTRUCTION DOCUMENTS

| SUBMITTALS |            |                         |
|------------|------------|-------------------------|
| REV        | DATE       | DESCRIPTION             |
| A          | 10/26/2021 | ISSUED FOR REVIEW       |
| 0          | 03/22/2022 | ISSUED FOR CONSTRUCTION |



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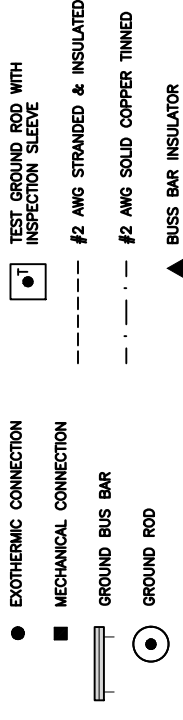
A&E PROJECT NUMBER  
10029-13733446\_D2

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
BOBOS00894A  
185 FISK ROAD  
HAMPTON, CT 06247

SHEET TITLE  
GROUNDING PLANS  
AND NOTES

SHEET NUMBER

**G-1**



### GROUNDING LEGEND

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

### GROUNDING KEY NOTES

- EXTERIOR GROUND RING:** #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- TOWER GROUND RING:** THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- INTERIOR GROUND RING:** #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.

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

**E** GROUND ROD: UL LISTED COPPER CLAD STEEL, MINIMUM 5/8" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

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

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

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

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

**K** FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENT'S METAL FRAMEWORK.

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

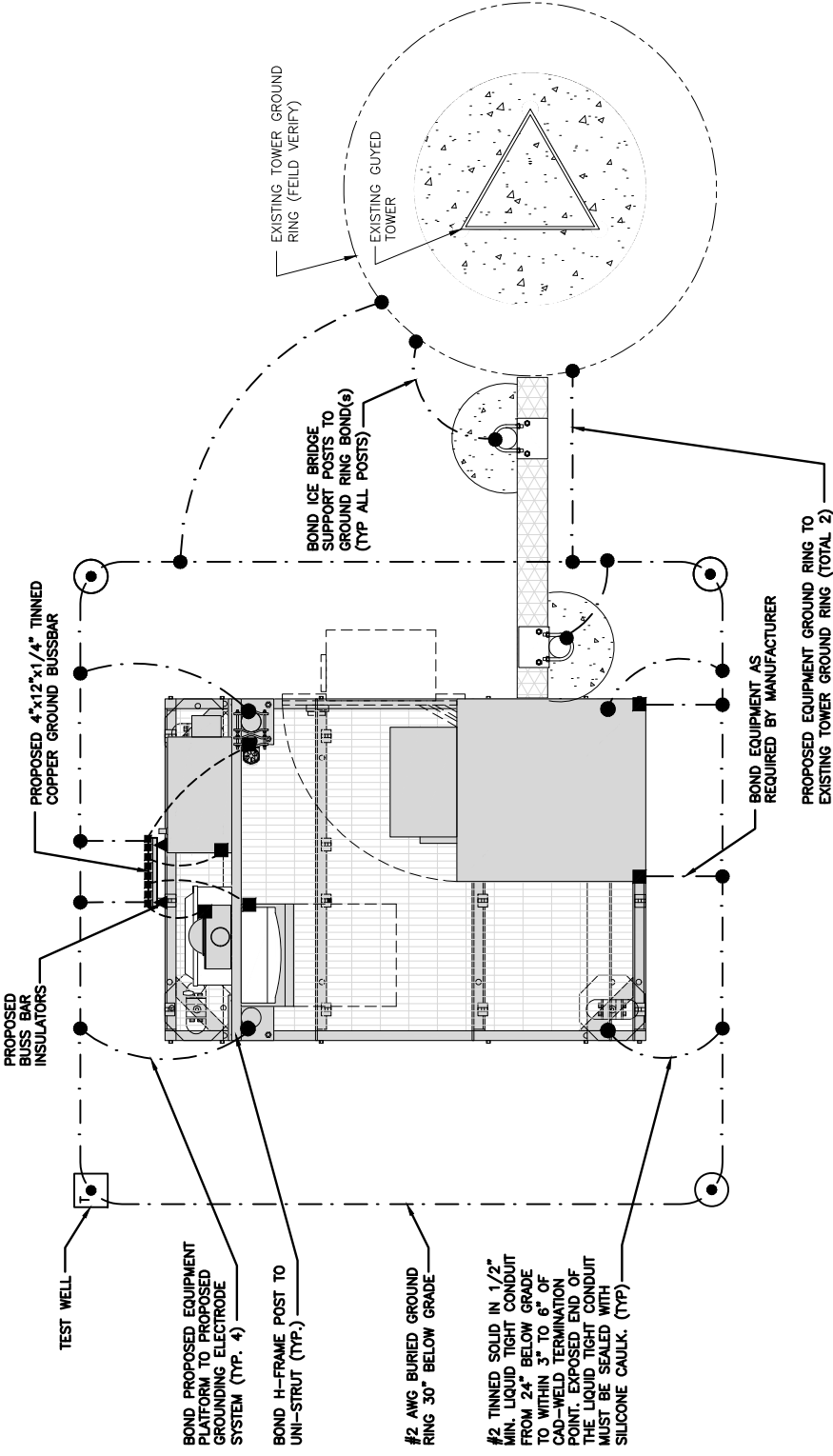
**M** FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE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

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

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

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

**R** TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR. REFER TO DISH WIRELESS L.L.C. GROUNDING NOTES.

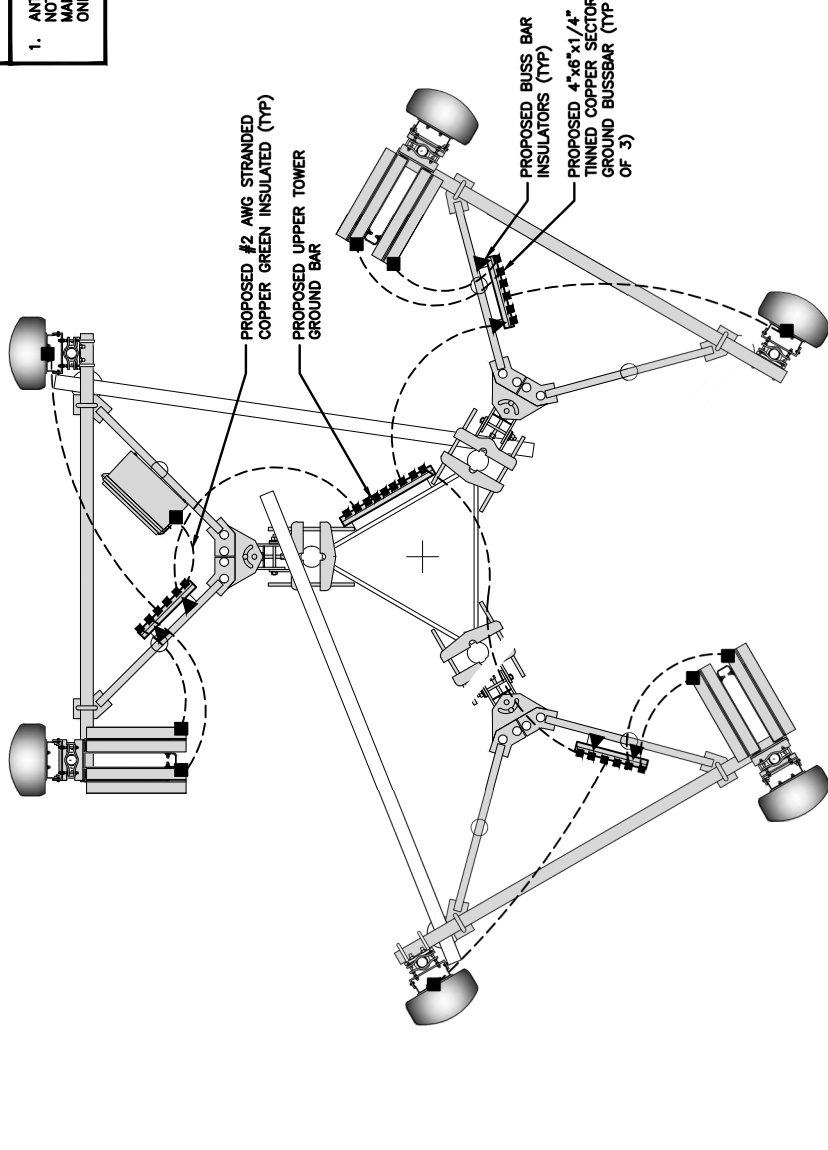


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1

### NOTES

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



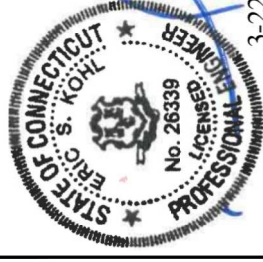
TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2

### GROUNDING KEY NOTES

NO SCALE 3

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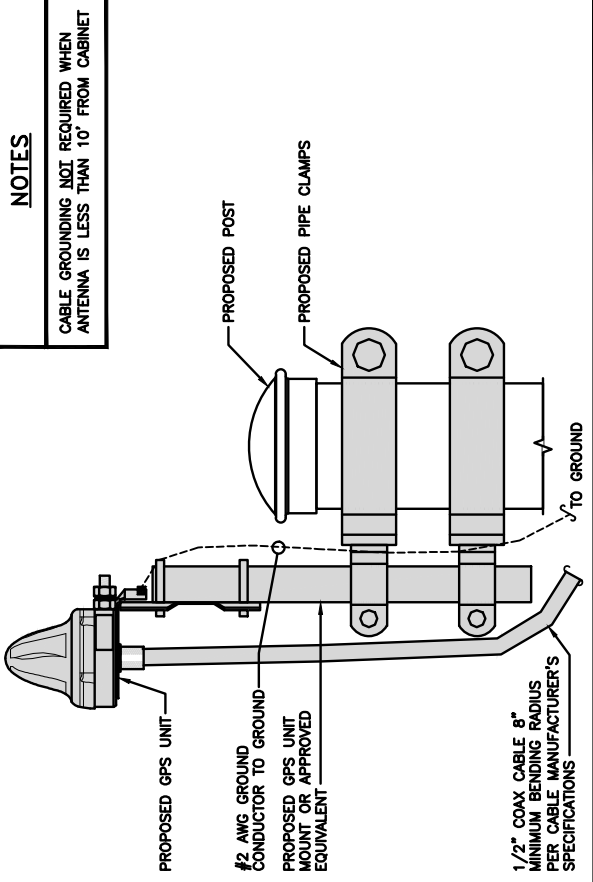
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DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
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HAMPTON, CT 06247

GROUNDING DETAILS  
SHEET TITLE

SHEET NUMBER

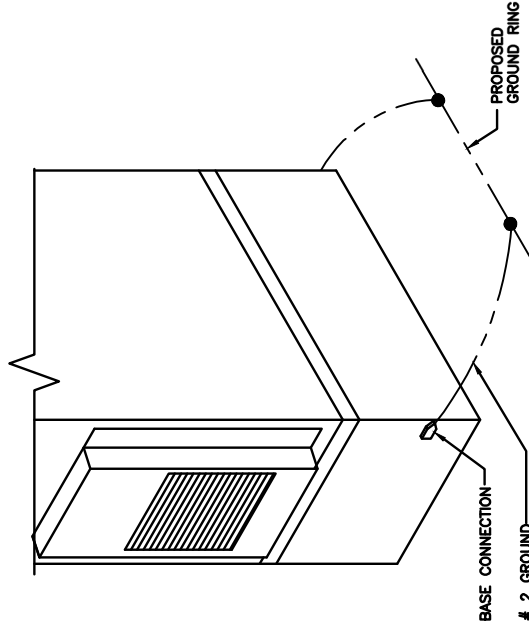
**G-2**



TYPICAL GPS UNIT GROUNDING

NO SCALE

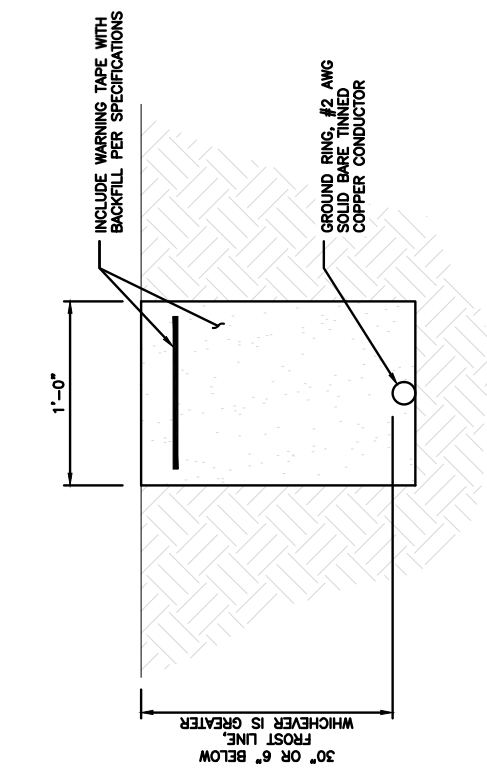
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OUTDOOR CABINET GROUNDING

NO SCALE

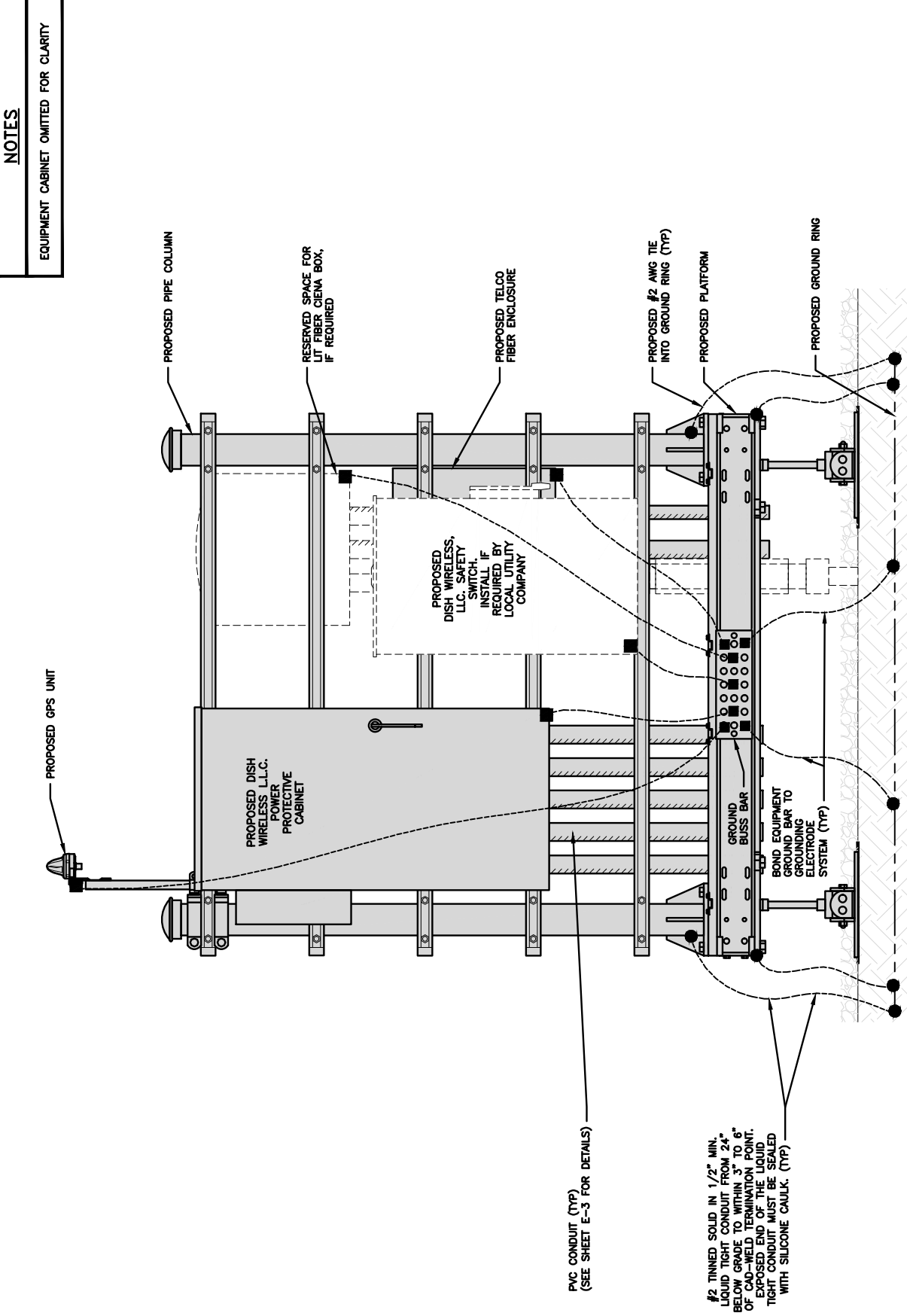
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TYPICAL GROUND RING TRENCH

NO SCALE

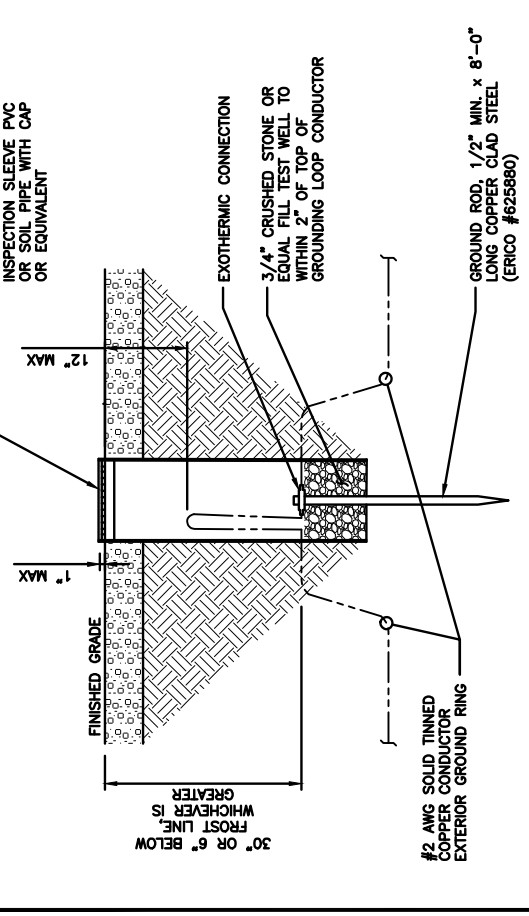
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H-FRAME GROUNDING DETAIL

NO SCALE

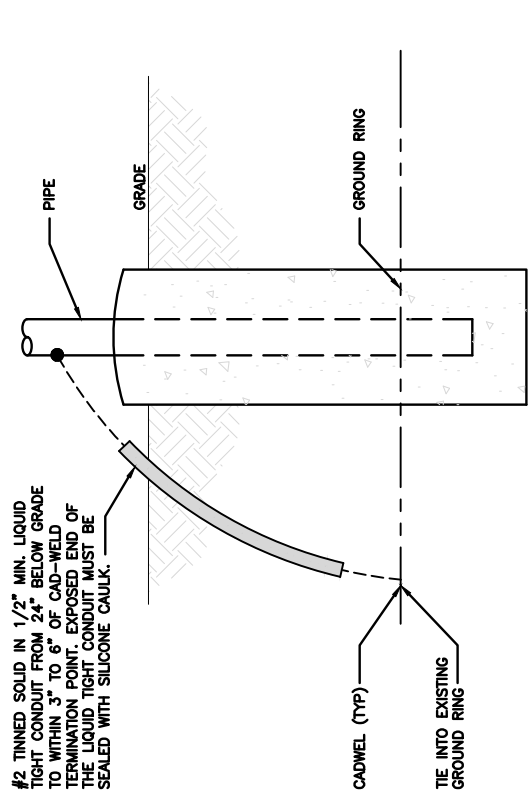
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TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE

5



TRANSITIONING GROUND DETAIL

NO SCALE

4

NOTES

EQUIPMENT CABINET OMITTED FOR CLARITY

NOTES

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



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



KCI TECHNOLOGIES, INC.  
11630 WINDSOR LANE, SUITE F  
FALLS CHURCH, VA 22024  
PHONE: 410.92.8086

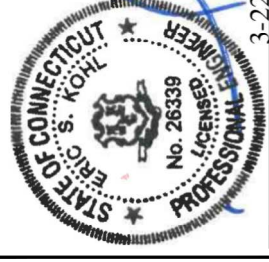
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3-22-22

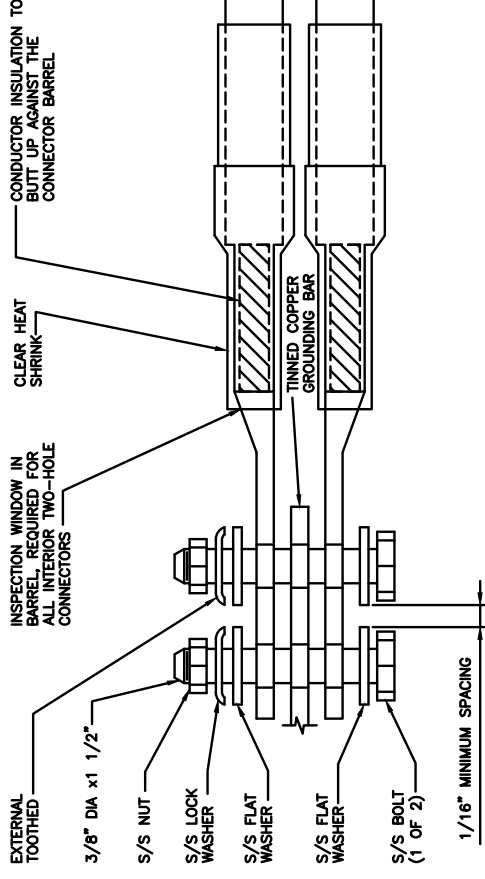
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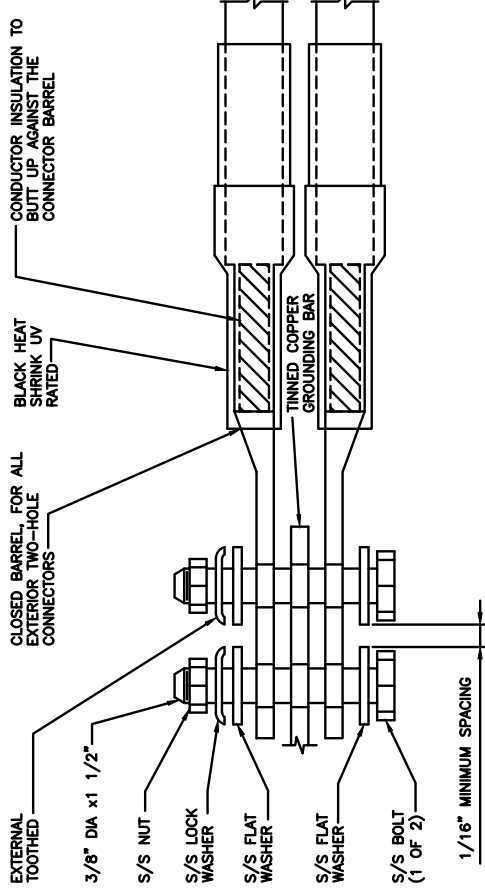
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SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER  
**G-3**



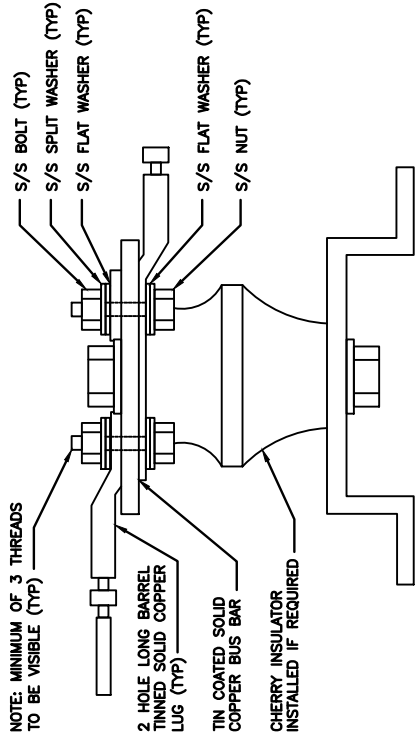
TYPICAL INTERIOR TWO HOLE LUG NO SCALE 3



TYPICAL EXTERIOR TWO HOLE LUG NO SCALE 2

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

TYPICAL GROUNDING NOTES NO SCALE 1



LUG DETAIL NO SCALE 4

NOT USED NO SCALE 6

NOT USED NO SCALE 5

NOT USED NO SCALE 8

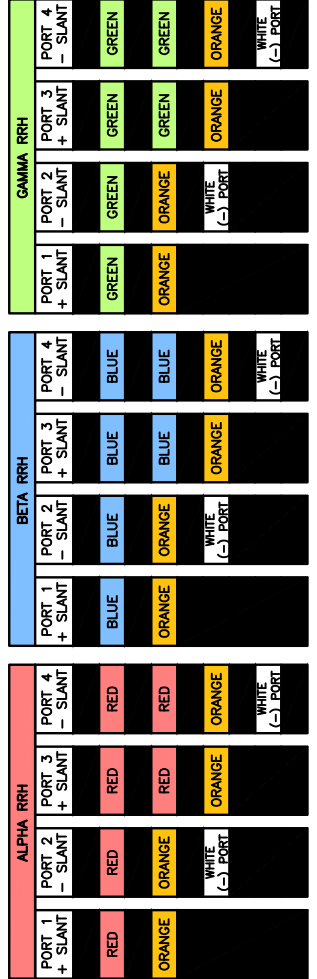
NOT USED NO SCALE 7

NOT USED NO SCALE 9

**RF JUMPER COLOR CODING**

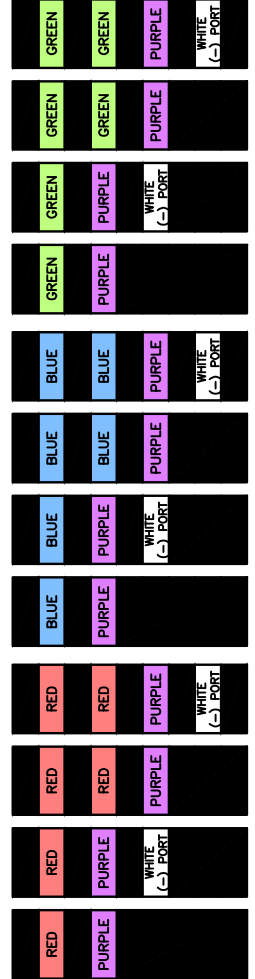
LOW-BAND RRRH - (600MHz N71 BASEBAND) + (850MHz N26 BAND) + (700MHz N29 BAND) - OPTIONAL PER MARKET

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



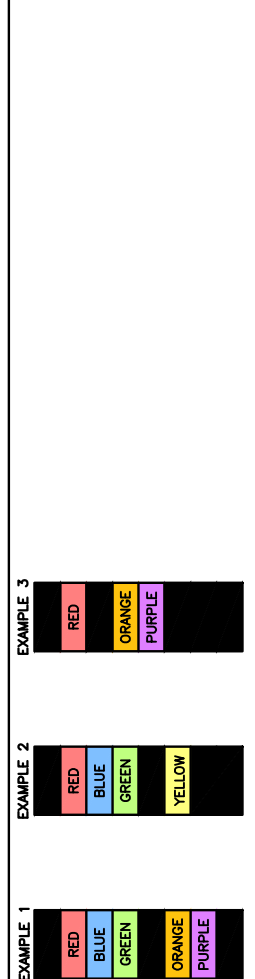
MID-BAND RRRH - (AWS BANDS N66+N70)

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



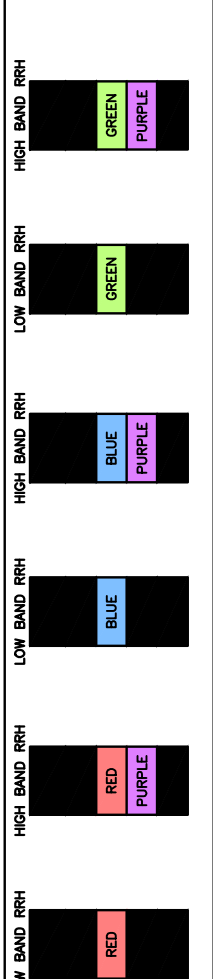
**HYBRID/DISCREET CABLES**

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS  
 EXAMPLE 1 - HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS  
 EXAMPLE 2 - HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS



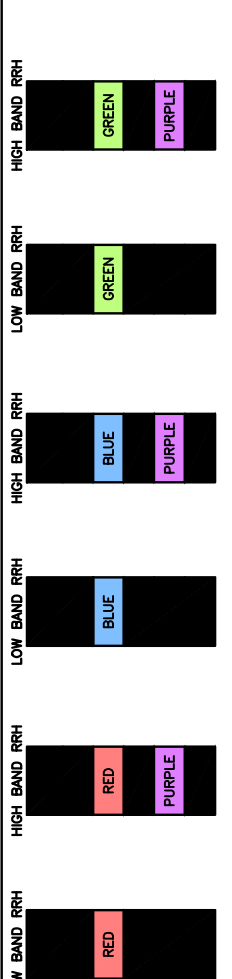
**FIBER JUMPERS TO RRRHs**

LOW-BAND RRRH FIBER CABLES HAVE SECTOR STRIPE ONLY

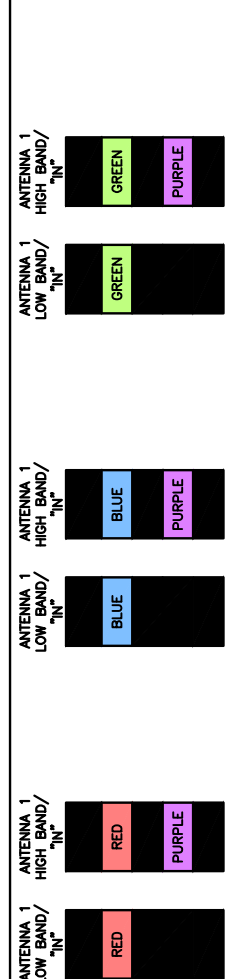


**POWER CABLES TO RRRHs**

LOW-BAND, RRRH POWER CABLES HAVE SECTOR STRIPE ONLY



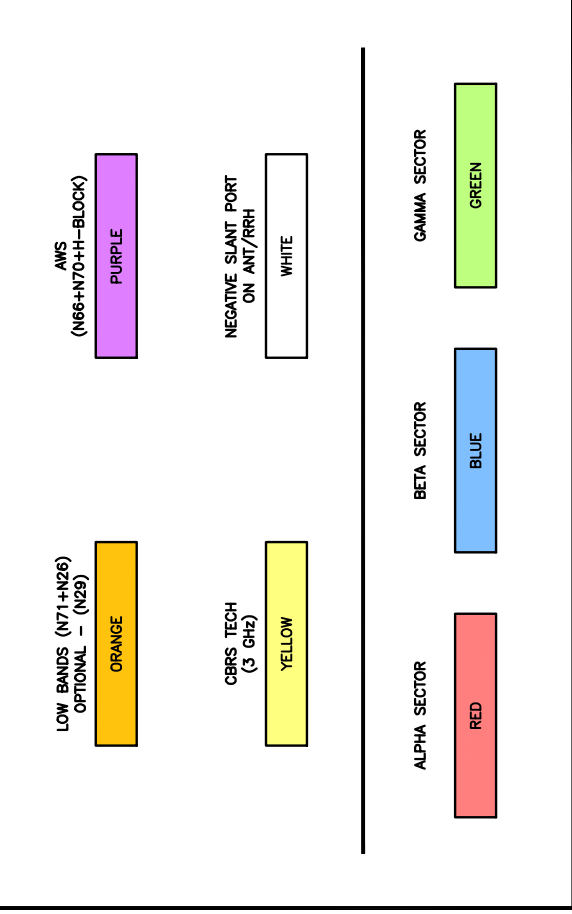
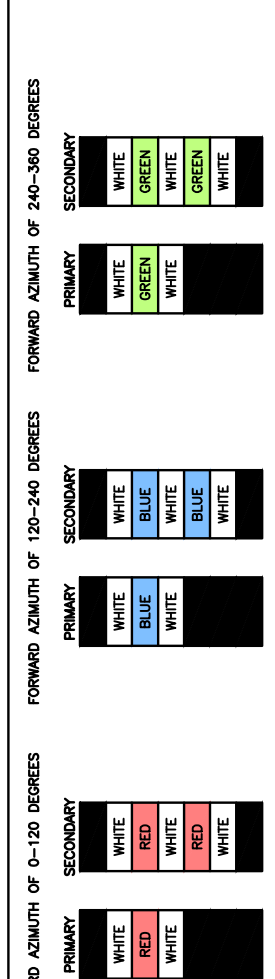
**RET MOTORS AT ANTENNAS**



**MICROWAVE RADIO LINKS**

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

MICROWAVE CABLES WILL REQUIRE P-TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID'S



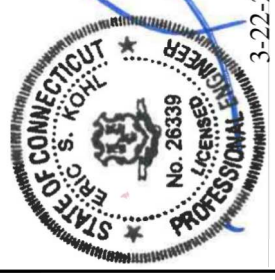
COLOR IDENTIFIER  
 NO SCALE

2

**CONSTRUCTION DOCUMENTS**

REV A 10/26/2021 ISSUED FOR REVIEW  
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 HAMPTON, CT 06247

SHEET TITLE  
 RF  
 CABLE COLOR CODES  
 SHEET NUMBER

RF-1

3/4" TAPE WIDTHS WITH 3/4" SPACING

NO SCALE

1

NO SCALE

RF\_CABLE\_COLOR\_CODES

NO SCALE

4



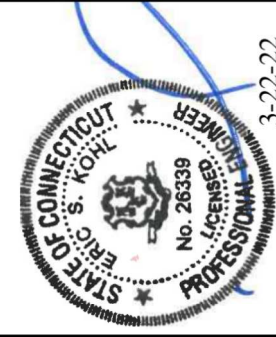
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LITTLETON, CO 80120



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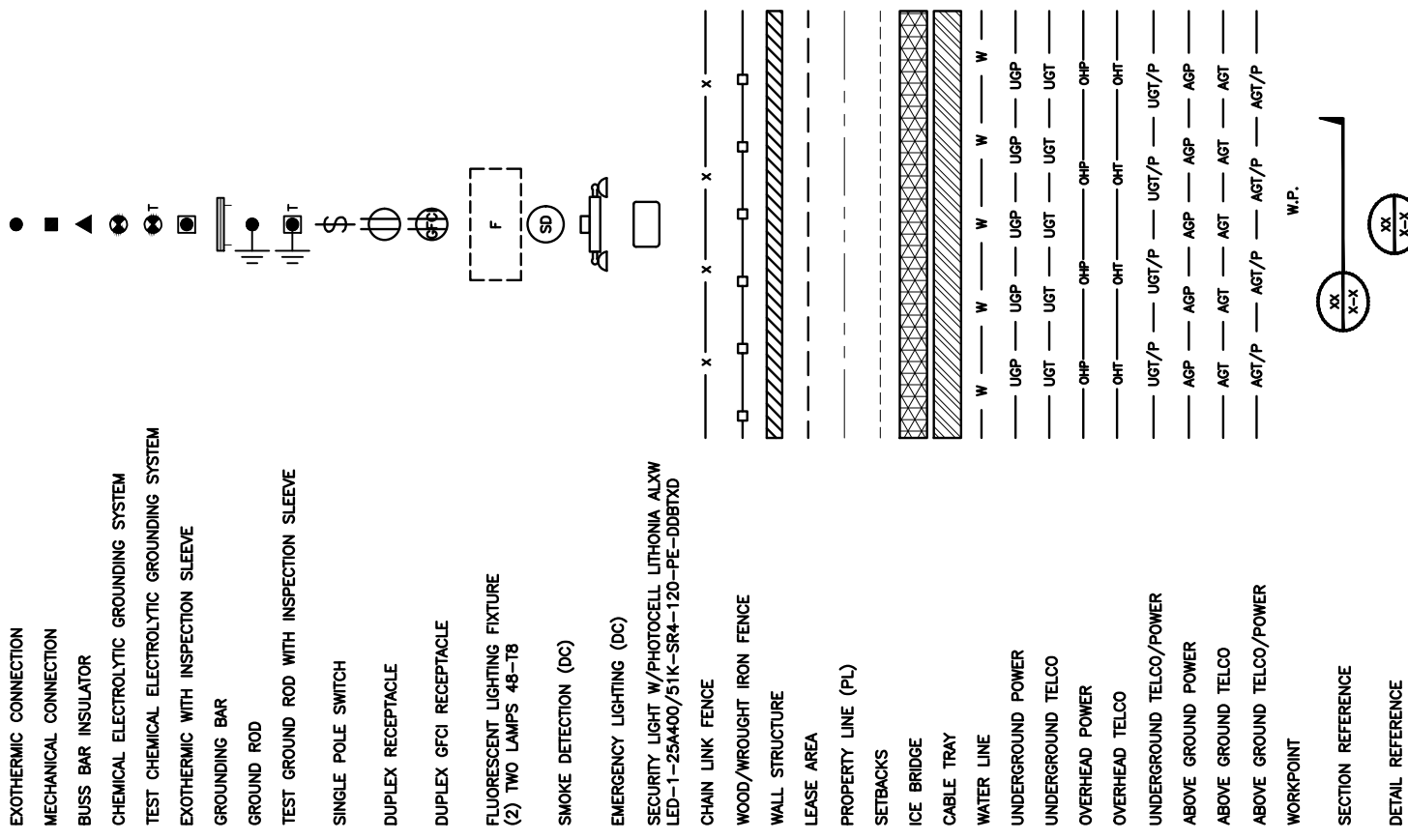
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HAMPTON, CT 06247

SHEET TITLE  
LEGEND AND ABBREVIATIONS

SHEET NUMBER  
GN-1

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

**ABBREVIATIONS**



EXOTHERMIC CONNECTION  
MECHANICAL CONNECTION  
BUSS BAR INSULATOR  
CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
EXOTHERMIC WITH INSPECTION SLEEVE  
GROUNDING BAR  
GROUND ROD  
TEST GROUND ROD WITH INSPECTION SLEEVE  
SINGLE POLE SWITCH  
DUPLX RECEPTACLE  
DUPLX GFCI RECEPTACLE  
FLUORESCENT LIGHTING FIXTURE  
(2) TWO LAMPS 48-18  
SMOKE DETECTION (DC)  
EMERGENCY LIGHTING (DC)  
SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW  
LED-1-25A400/51K-SR4-120-PE-DDBTXD  
CHAIN LINK FENCE  
WOOD/WROUGHT IRON FENCE  
WALL STRUCTURE  
LEASE AREA  
PROPERTY LINE (PL)  
SETBACKS  
ICE BRIDGE  
CABLE TRAY  
WATER LINE  
UNDERGROUND POWER  
UNDERGROUND TELCO  
OVERHEAD POWER  
OVERHEAD TELCO  
UNDERGROUND TELCO/POWER  
ABOVE GROUND POWER  
ABOVE GROUND TELCO  
ABOVE GROUND TELCO/POWER  
WORKPOINT  
SECTION REFERENCE  
DETAIL REFERENCE

**LEGEND**

**SITE ACTIVITY REQUIREMENTS:**

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

**GENERAL NOTES:**

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



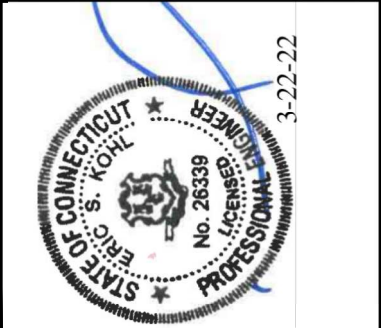
5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



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| RFDS      | REV #:      | ---          |

**CONSTRUCTION DOCUMENTS**

| REV | DATE       | DESCRIPTION             |
|-----|------------|-------------------------|
| A   | 10/26/2021 | ISSUED FOR REVIEW       |
| 0   | 03/22/2022 | ISSUED FOR CONSTRUCTION |



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

A&E PROJECT NUMBER  
10029-13733446\_D2

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
BOBOS00894A  
185 FISK ROAD  
HAMPTON, CT 06247

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER

**GN-2**

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH ( $f'c$ ) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF PLACEMENT.
- CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
- ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH ( $F_y$ ) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:  
#4 BARS AND SMALLER 40 ksi  
#5 BARS AND LARGER 60 ksi
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
  - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
  - CONCRETE EXPOSED TO EARTH OR WEATHER:
    - #6 BARS AND LARGER 2"
    - #5 BARS AND SMALLER 1-1/2"
  - CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
    - SLAB AND WALLS 3/4"
    - BEAMS AND COLUMNS 1-1/2"
- A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
- EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- TIE WRAPS ARE NOT ALLOWED.
- ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIRE MOLD SPECMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.
- METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH WIRELESS L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH WIRELESS L.L.C."
- ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.



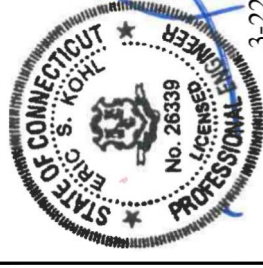
5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



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**CONSTRUCTION DOCUMENTS**

| SUBMITTALS |            |                         |
|------------|------------|-------------------------|
| REV        | DATE       | DESCRIPTION             |
| A          | 10/26/2021 | ISSUED FOR REVIEW       |
| 0          | 03/22/2022 | ISSUED FOR CONSTRUCTION |
|            |            |                         |
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3-22-22

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

A&E PROJECT NUMBER  
10029-13733446\_D2

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
BOBOS00894A

185 FISK ROAD  
HAMPTON, CT 06247

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER

**GN-3**

**GROUNDING NOTES:**

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

**STRUCTURAL STEEL NOTES:**

- STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
- STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
  - ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
  - ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
  - ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
  - ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
  - ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
- ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
- ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
- DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
- CONNECTIONS:
  - ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
  - ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
  - INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
  - IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
  - ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
  - MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
  - PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/8" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.
  - THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.
  - ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND DISH WIRELESS L.L.C. PROJECT MANAGER IN WRITING

**dish**  
wireless.

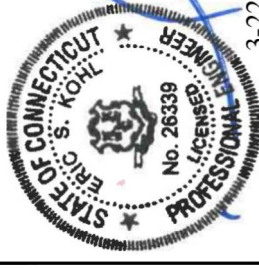
5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



|             |    |             |    |              |    |
|-------------|----|-------------|----|--------------|----|
| DRAWN BY:   |    | CHECKED BY: |    | APPROVED BY: |    |
| RPA         | IE | IE          | IE | IE           | IE |
| RFDS REV #: |    | ----        |    | ----         |    |

**CONSTRUCTION DOCUMENTS**

| SUBMITTALS |            |                         |
|------------|------------|-------------------------|
| REV        | DATE       | DESCRIPTION             |
| A          | 10/26/2021 | ISSUED FOR REVIEW       |
| 0          | 03/22/2022 | ISSUED FOR CONSTRUCTION |
|            |            |                         |
|            |            |                         |
|            |            |                         |
|            |            |                         |



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

A&E PROJECT NUMBER  
10029-13733446\_D2

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
BOBOS00894A  
185 FISK ROAD  
HAMPTON, CT 06247

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
GN-4



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Tracking number 9505510391962117623830

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Woburn, MA

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