# OCONEE COUNTY BOARD OF ZONING APPEALS

415 South Pine Street - Walhalla, SC TEL (864) 638-4218 FAX (864) 638-4168

## AGENDA

6:00 PM, MONDAY, OCTOBER 23, 2017
COUNCIL CHAMBERS
OCONEE COUNTY ADMINISTRATIVE COMPLEX

**ITEM 1-** **Call to Order**

**ITEM 2-** **Approval of Minutes from July 24, 2017**

**ITEM 3-** **Vote to Choose Temporary Vice-Chairman**

**ITEM 3-** **Public Comment (Non-Agenda)**

**ITEM 4-** **Staff Update on Issues**

**ITEM 5-** **Special Exception for Application SE17-000004 – Special Exception request for the construction of a 165' monopine wireless telecommunications tower at 615 N. Highway 11, West Union, S. C- Tax Parcel ID# 147-00-03-087**

**ITEM 8-** **Old Business** *[to include Vote and/or Action on matters brought up for discussion, if required]*

**ITEM 9-** **New Business** *[to include Vote and/or Action on matters brought up for discussion, if required]*

**ITEM 10-** **Adjourn**

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OCONEE COUNTY BOARD OF ZONING APPEALS

415 South Pine Street - Walhalla, SC TEL (864) 638-4218 FAX (864) 638-4168

# MINUTES

BOARD OF ZONING APPEALS
6:00 PM, MONDAY, JULY 24, 2017
COUNTY COUNCIL CHAMBERS
OCONEE COUNTY ADMINISTRATIVE COMPLEX

The Oconee County Board of Zoning Appeals held a meeting on July 24, 2017, at 6:00 PM in Council Chambers at the Oconee County Administrative Building, 415 S. Pine St., Walhalla, SC 29691.

**Members Present:** Ms. Fowler
Mr. Gilster
Mr. McKee
Mr. Medford
Mr. Morgan
Mr. Lusk

**Staff Present:** Adam Chapman, Planner I; Bill Huggins, Planner

**Media present:** Mr. Dick Mangrum, WGOG Radio

**ITEM 1- Call to Order**

Mr. Gilster, Acting Chairman, called the meeting to order. 6:00 p.m.

**ITEM 2- Approval of Minutes from June 25, 2017**

Mr. Lusk motioned to table approval of the minutes until the next Board meeting to insure an accurate draft for approval.

Mr. Morgan seconded the motion.

The motion was passed 4-0

**ITEM 3- Public Comment (Non-Agenda)**

No one from the public signed up to address the Board or make comments.

Next, Mr. Gilster requested that staff update the Board on a new vacancy. Mr. Huggins explained that Mr. Menzies had tendered his resignation from the Board, citing health issues. That information has been forwarded to Council in order to have the position filled.

**ITEM 4- Variance Hearing for Application VA17-000008 (13995 Clemson Boulevard – Minimum Setbacks for Communication Tower**

Mr. Gilster requested that staff present this case, which had been tabled at the June 26 meeting in order to receive legal advice from the County Attorney. Mr. Huggins explained that the matter is still under review. Therefore, it is recommended that the Board continue the item again until issues involving the history of the communication tower and code requirements can be resolved.

Mr Gilster inquired if the applicant would be amenable to a continuance. The applicant indicated support for that approach.
Mr. Morgan made a motion to continue the request. Mr. Lusk seconded the request. The motion passed 4-0.

**ITEM 5- Variance hearing for Application VA17-000009 – Variance request for the planned multifamily project known as Clemson Epoch (13995 Clemson Boulevard) to allow sidewalks at the project site.**

Mr. Gilster requested that staff present its report concerning this request. Mr. Adam Chapman stated that staff supports this request in keeping with the ordinance criteria for special exception approval. He noted that sidewalks in the road right-of-way are appropriate for multi-family student housing development.
Mr. Gilster asked why sidewalks are not permitted by right and require special exception consideration. Mr. Chapman suggested that the concern had been about the County having to maintain sidewalks should the road later be accepted into the County system.

Next, Mr. Hal Grason of Clemson Epoch, the applicant, addressed the Board and explained that the project will have private roads and the company would like to provide sidewalks along the private road serving the development. He also stated there will be a linear park concept along a Duke easement. He also indicated plans to provide bus stops within the development. Mr. Grayson showed the Board a concept site plan for the the project, which features several types of housing units.

The project architect added that they would like to provide the sidewalk in the areas indicated so that students do not have to walk in the circular drive and roadway, thus promoting a safer environment.

Mr. Morgan asked the applicant if the roads would remain in a private status. The architect noted that language had been discussed as part of the approval to stipulate that the sidewalks would continue in private maintenance should the road ever be accepted into the County system. Mr. Huggins indicated that should be Board approve the request, it make as a condition of approval that the sidewalks be maintained by the developer/owner should the road status change in the future.

No one spoke in opposition to the request.

Mr. Gilster recommended that the Board consider the criteria for approval of a variance under one motion and action by the Board. Mr. Gilster read the criteria. The criteria under Section 38-7.1 of the County Zoning Ordinance:

(1) There are extraordinary and exceptional conditions pertaining to the particular piece of property;

(2) These conditions do not generally apply to other property in the vicinity;

(3) Because of these conditions, the application of this chapter to the particular piece of property would effectively prohibit or unreasonably restrict the utilization of the property; and

(4) The authorization of a variance will not be of substantial detriment to adjacent uses or to the public good, and the character of the district will not be harmed by the granting of the variance.

a. The board of zoning appeals may not grant a variance the effect of which would be to allow the establishment of a use not otherwise permitted. The fact that the property may be utilized more profitably, should a variance be granted, may not be considered grounds for a variance.

b. The board of zoning appeals may grant a variance to extend physically an existing nonconforming use provided that the expansion does not adversely affect the character of the community and is designed so as to minimize any negative secondary impacts.

c. In granting a variance, the board of zoning appeals may attach to it such conditions regarding the location, character, or other features of the proposed building, structure, or use as the board of zoning appeals may consider advisable to protect established property values in the surrounding area, or to promote the public health, safety, or general welfare.

Mr. Morgan made a motion to approve the variance on condition that should the private roads within the development ever be accepted into the County system, maintenance of the sidewalks would remain with the property owner/developer.

Mr. Lusk seconded the motion. The motion to approve with the stated condition was approved by a vote of 4-0.

A motion was made to adjourn and seconded. The motion was approved unanimously. The Board adjourned at approximately 6: 25 p.m.

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September 20, 2017

**VIA ONLINE SUBMISSION AND EMAIL**

Oconee County Community Development
**ATTN: Adam C. Chapman, Planner 1**
415 S. Pine Street
Walhalla, South Carolina 29691

Re: APPLICATION FOR ZONING APPROVAL BY CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS FOR THE CONSTRUCTION OF A WIRELESS COMMUNICATION TOWER AND RELATED APPURTENANCES

(STRING BEAN SITE / 3000001. 101133)
(SITE ADDRESS: 615 N. HIGHWAY 11, WEST UNION, SOUTH CAROLINA 29696)

Dear Mr. Chapman:

I hope this letter finds you well. Please find enclosed Verizon Wireless' Special Exception Permit application (the "Application") for the proposed wireless communication facility in Oconee County, South Carolina at the above-referenced location. Please advise at your first convenience whether any additional information is needed for the Application to be deemed complete. We will assume it is sufficiently complete unless we hear from you otherwise.

Additionally, a check in the amount of One Hundred and No/100ths ($100.00) Dollars is being mailed to you, representing the Special Exception Application Fee.

Thank you for your time and attention to this matter. If you have any questions or comments, or need any additional information, please do not hesitate to contact me. I look forward to hearing from you soon.

Best regards,

BAKER, DONELSON, BEARMAN,
CALDWELL & BERKOWITZ, PC

Laura Dendy Goode, Attorney

CC Cara Cochran, Attorney

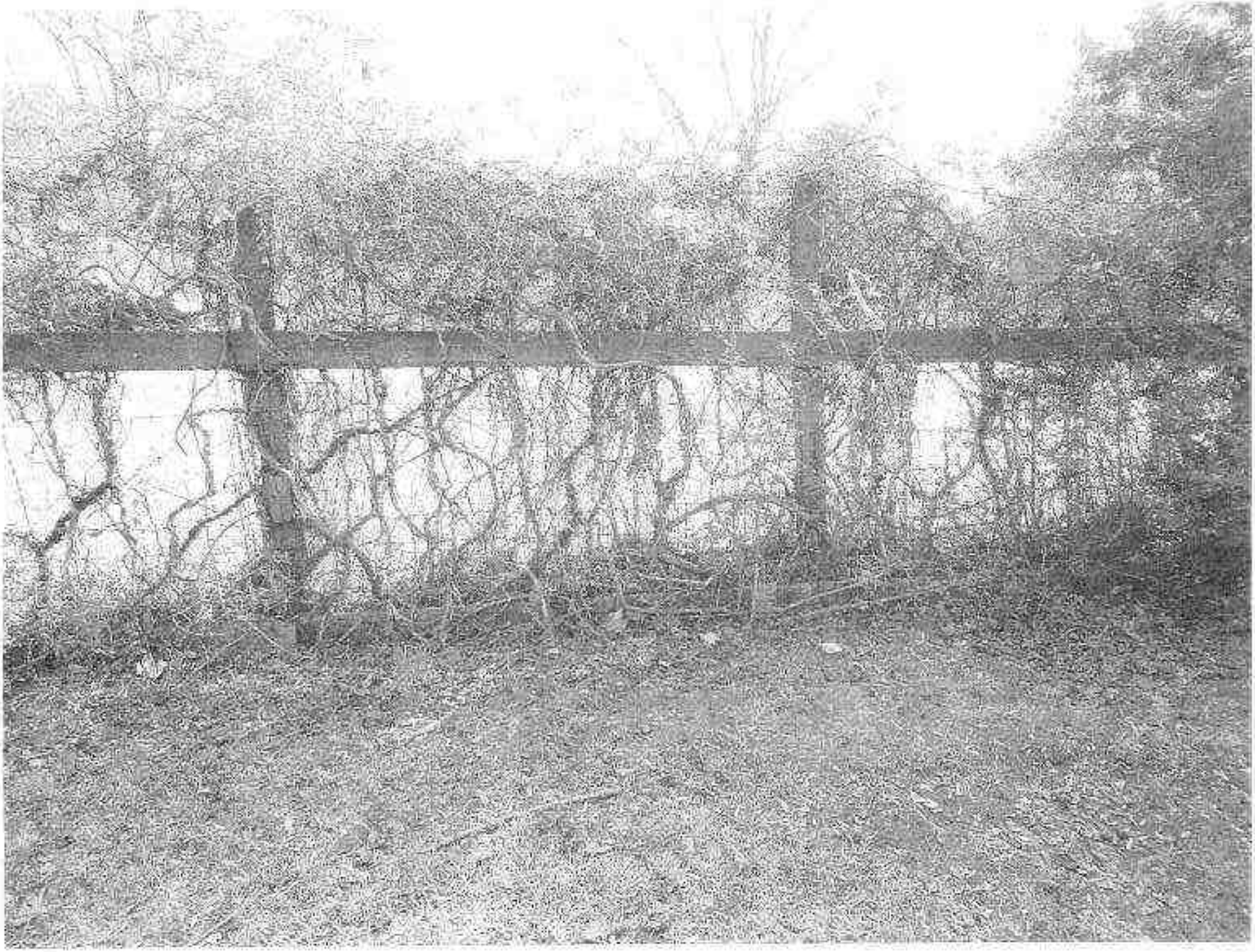
# APPLICATION FOR ZONING APPROVAL BY CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS FOR THE CONSTRUCTION OF A WIRELESS COMMUNICATION TOWER AND RELATED APPURTENANCES

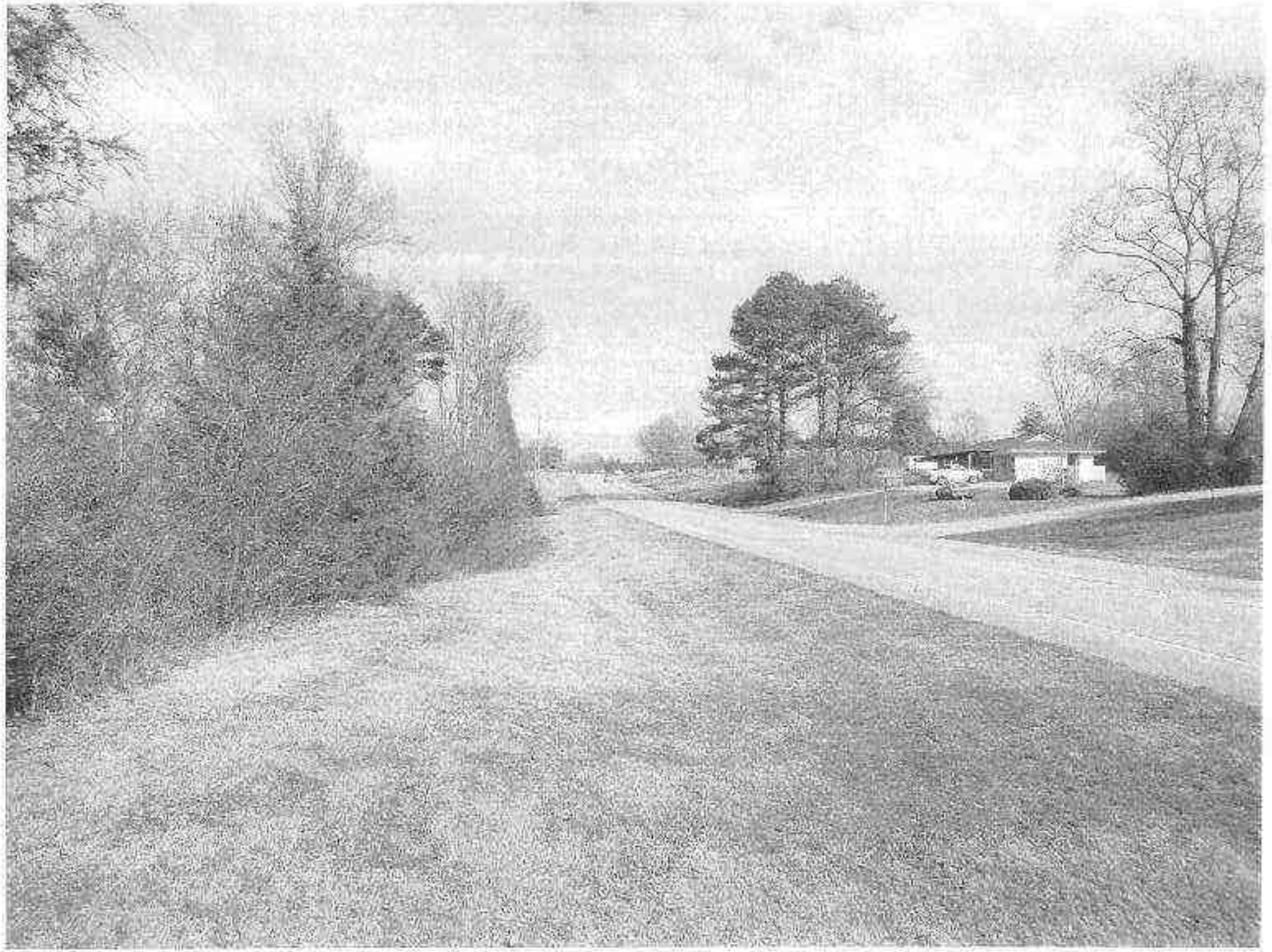
**(STRING BEAN SITE)**

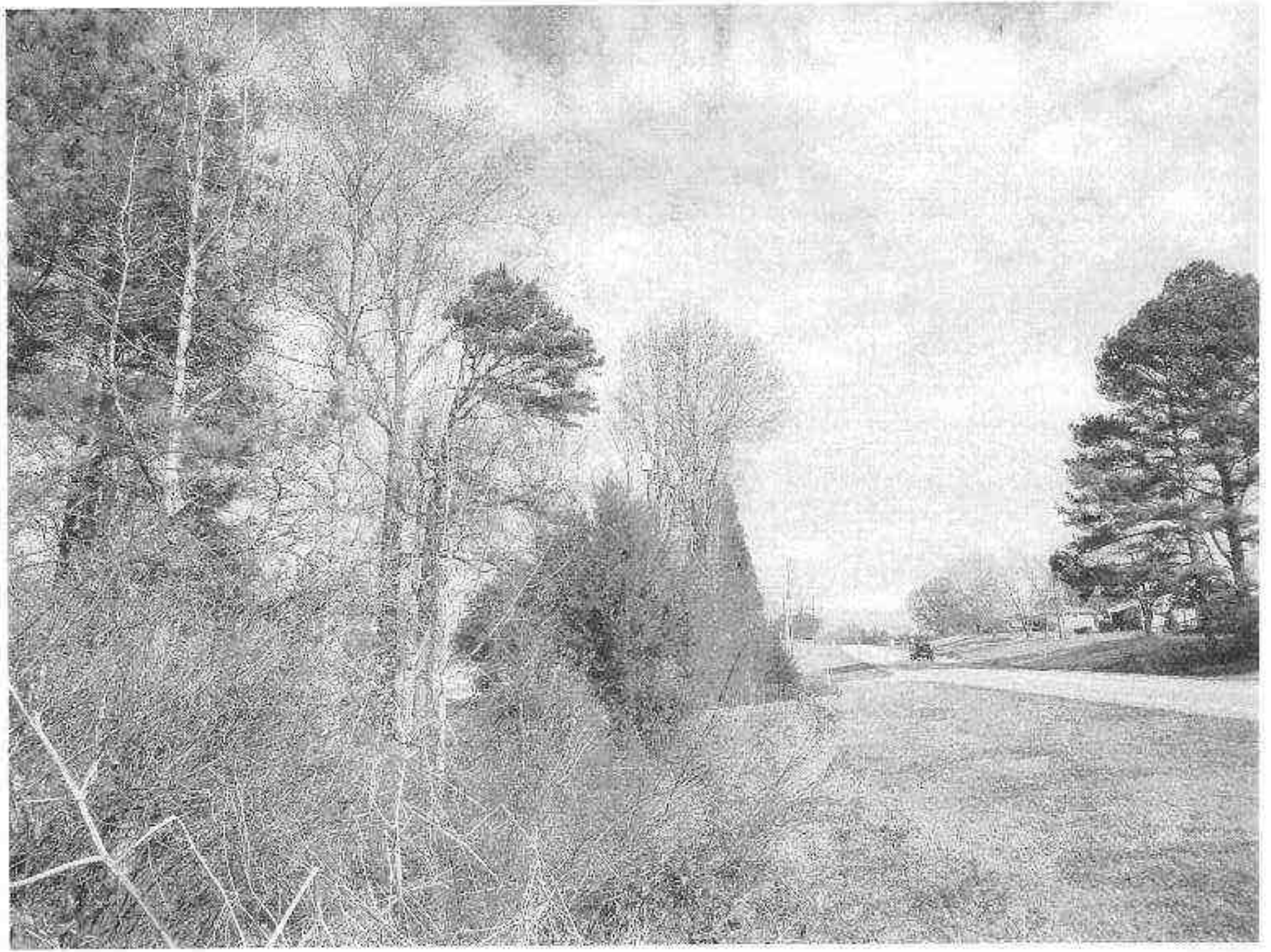
**(SITE ADDRESS: 615 N. HIGHWAY 11, WEST UNION, SOUTH CAROLINA 29696)**

**SUBMITTED BY:**
**BAKER, DONELSON, BEARMAN, CALDWELL & BERKOWITZ, PC**
**LAURA D. GOODE AND CARA COCHRAN**
**ATTORNEYS TO VERIZON WIRELESS**
**1501 MAIN STREET, SUITE 600**
**COLUMBIA, SOUTH CAROLINA 29201**
**803.251.8817**
**LGOODE@BAKERDONELSON.COM**
**CCOCHRAN@BAKERDONELSON.COM**


Proposed School Boundary







STATEMENT OF COMPLIANCE WITH THE OCONEE COUNTY ZONING ORDINANCE

Verizon Wireless is required to obtain a Special Exception Permit from the Oconee County Board of Zoning Appeals for a 165' monopine wireless telecommunications tower with associated equipment structures pursuant to Chapter 32, Article IV, Sections 32.133-142 and Chapter 38, Article VII, Section 38.7.2 of the Oconee County Code of Ordinances. The proposed tower is located on property owned by George Dunagan and Mary Dunagan. The proposed tower is located at 615 N. Highway 11, which is zoned CFD. Verizon Wireless fully complies with the Communication Towers standards set forth in the Ordinance and respectfully requests that the proposed tower be approved.

I. Chapter 32, Article IV - Communication Towers. Verizon Wireless fully complies with the applicable standards in the Communication Towers Section set forth in the Ordinance as follows:

32-133. Communications tower and antenna permitted.

(a) *Determination by community development director or his designated staff representative (collectively "director").* All applications for tower placement must be submitted to the director for review. Applications must be complete and shall include all of the materials required by this article (application requirements) and must meet all applicable requirements and/or conditions in this article before an application will be processed. Incomplete applications will be returned to the applicant. Under the following circumstances, the director may administratively approve applications for placement of towers and associated antennas:

(1) As a communication tower and/or antenna in any district co-located on existing towers or structures.

(2) As co-locations on existing electric utility company transmission line towers (such as Duke Power Company towers) which increase the height of the towers by no more than 20 feet.

(3) As a tower in a site preselected by the board as a recommended location based upon the county's county-wide communication tower site study.

(4) As an individual communication tower and associated antennas that do not exceed 75 feet in total height.

Applications approved by the director must comply with all other requirements of this article. The director may refer any application to the board for final review and approval as a special exception.

- Acknowledged and agreed. Verizon Wireless submitted its Special Exception Application (the "Application") for review by the director via the Oconee County Citizenserve online portal on September 21, 2017. Because Verizon Wireless is proposing to construct a new communication tower taller than 75 feet, the application will not be subject to administrative review.

(b) *Special exceptions granted by the board.* Other than as permitted by section 32-133(a), communication towers are permitted in the county for use only as a special exception. Applications for tower construction are subject to review and approval by the board. Priority in approving additional telecommunications facilities in the county shall be given to co-location on existing towers or structures, including electric utility company transmission line towers.

Only when these possibilities have been exhausted or when it can be demonstrated by an applicant that the alternatives are not technically feasible to provide adequate coverage for the county, or when it can be documented by the applicant that the cost of the proposed lease for a site or location is more than 20 percent above the prevailing rate of leases in comparable metropolitan statistical areas (M.S.A.'s) in the southeast, shall other sites be considered for approval. Communication towers approved by the board in all districts, as defined in O.C. Code § 38-10.7, shall be encouraged as stealth designs. At the discretion of the board, communication towers may be required to be constructed as a stealth design depending on the impact of the tower on the surrounding area.

- Acknowledged and agreed. There are no existing towers or structures, including electric utility company transmission line towers, for co-location within the search area in which Verizon Wireless' proposed equipment must be located in order to meet the network objective, or within an equal distance outside of the search area as the proposed tower location. Therefore, co-location is not possible and construction of the new String Bean tower is necessary. Please refer to the Search Area Map, attached hereto as Exhibit 4. Please refer to the Proof of Need Statement signed by Dianne McGaha, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 3, explaining the need for the proposed tower as well as its relationship to the existing antenna network. Lastly, please also refer to the Inability to Collocate Statement signed by Mary Pat Tyndall, Site Acquisition for Fastcom Consulting Services, LLC, attached hereto as Exhibit 7.

The proposed tower will a "monopine" stealth design to resemble a pine tree. This will allow the tower to aesthetically complement its immediate environment as the tower will be surrounded by existing dense vegetation on the subject property. Please refer to Page C11 of the Site Survey and Zoning Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5. Please also refer to the Site Images, attached hereto as Exhibit 6. Please also refer to the Visual Impact Analysis, attached hereto as Exhibit 11.

(c) *Appeals to the board.* Whenever there is an alleged error by the director in an order, requirement, decision, or determination, an applicant may request a hearing before the board. The board has the authority to correct, reverse, or uphold the decision of the director.

- Acknowledged and agreed.

(d) *Time limit for determination.* Failure of the director to act within 45 days from the date of the submission of a properly completed application, unless extended by mutual agreement, may be considered by applicant to be a denial of a permit and may be appealed to the board.

(e) *Co-locations.* Co-locations on existing communication towers or other structures such as existing electric utility company towers which do not increase the height of the existing communication tower or structure are strongly encouraged. Co-locations, construction of freestanding structures (such as monopoles) which are located within the footprint of the existing tower or reconstruction of existing towers, any of which increase the height of the existing tower by more than 20 feet may be approved by special exception if they do not exceed the total tower height permitted in section 32-136. All new towers shall be designed to accommodate the principal provider and at least two additional carriers. At the discretion of the board, new stealth towers shall also be designed to accommodate additional carriers. The county, prior to final approval, must be satisfied that the communication tower makes reasonable accommodations for an additional user. The applicant shall make unused tower space available at fair market value.

- Acknowledged and agreed. There are no existing towers or structures, including electric utility company transmission line towers, for co-location within the search area in which Verizon Wireless' proposed equipment must be located in order to meet the network objective, or within an equal distance outside of the search area as the proposed tower location. Therefore, co-location is not possible and construction of the new String Bean tower is necessary. No tower or other suitable facility exists

within the established search area where Verizon Wireless' equipment will function in its intended manner. Please refer to the Search Area Map, attached hereto as Exhibit 4. Please refer to the Proof of Need Statement signed by Dianne McGaha, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 3, explaining the need for the proposed tower as well as its relationship to the existing antenna network. Lastly, please also refer to the Inability to Collocate Statement signed by Mary Pat Tyndall, Site Acquisition for Fastcom Consulting Services, LLC, attached hereto as Exhibit 7.

A new monopine wireless telecommunication tower is being proposed and will be designed to accommodate two additional carriers. Please refer to Page C11 of the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5.

32-134. General Requirements.

(a) *Illumination.* Communication towers shall be illuminated only as required by the Federal Communication Commission (FCC) and/or the Federal Aviation Administration (FAA).

- Acknowledged and agreed. As shown in the Airspace Study prepared by Federal Airways & Airspace, attached hereto as Exhibit 9, the proposed tower will not be lit and notice to the FAA is not required.

(b) *Color.* Communication towers shall only be painted with a gray, non-reflective paint unless otherwise required by state or federal regulations.

- Because the proposed tower will be a stealth monopine design, the tower will be painted brown. Please refer to Page C11 of the Site Survey and Zoning Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5.

(c) *Signs.* A sign, two square feet in size which includes the names of the companies operating the equipment and a phone number for emergencies shall be displayed in a visible location on or near the communication tower. This sign shall be in addition to any signage requirements set by state and federal regulators. No commercial advertising of any type may be attached to a communication tower.

- Acknowledged and agreed. Please refer to Page C9 of the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5.

(d) *Removal.* A communication tower which use has been discontinued for a continuous period of one year, shall be removed within 120 days of the date of the end of such period, unless a use agreement is maintained with the landowner. Companies must notify the county within 30 days if telecommunications cease operations at a tower or antenna. All structures, fencing, screening and other improvements must be removed, and the site must be returned to its original condition at the company's expense.

- Acknowledged and agreed.

(e) *Security.* For towers greater than 75 feet, self-supporting freestanding communication towers, and associated structures shall be appropriately secured by means of a wall, fence, or other device at least eight feet in height and installed an appropriate distance from the outer edge of the communication tower at all points (collectively "security fencing").

- Acknowledged and agreed. As shown on Pages C1, C2 and C6 of the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5, the compound area of the facility is 60' x 60' and will be surrounded by a fence eight (8') feet in height. The fence will be topped with barbed wire and will be secured by a locked gate.

(f) *Screening.* For towers greater than 75 feet, the purpose of this subsection is to establish control for the visual quality of communication towers from the ground level. A communication tower, as pertains to this subsection, includes the tower, the land, and everything within the required security fencing including any other building and equipment. The screen shall be a minimum depth of ten feet of land surrounding the tower except for one service access. An appropriate plant material screen shall be evergreen plants of a quality and planted in accordance with the standards of the American Nurserymen Association that are indigenous or native to the county area. Such plantings shall be appropriately spaced and of such a size so as to achieve a dense screen with a minimum height of six feet within a three-year period from erection of a tower. Additional screening with deciduous or evergreen trees is desirable and encouraged. Existing trees shall be preserved unless a waiver has been granted by the director to selectively cut specified trees. If in extreme or unusual situations and where it is proven impossible to properly construct the plant material screen, the director may grant permission to construct the security fence as a solid masonry wall, either brick or stucco-type finish, with a minimum height of six feet above ground level and constructed in accordance with applicable construction codes. A certificate of occupancy shall not be issued by the county codes department until the required planting is completed. When the occupancy of a structure is desired prior to the

completion of the required planting, a certificate of occupancy may be issued only if the owners or developers provide to the county a form of surety satisfactory to the county attorney and in an amount equal to 125 percent of the costs of the remaining plant materials, related materials, and installation (with the costs agreed to by the director). The form of the surety shall be in conformity with the land development regulations for the county. All required plantings must be installed and approved by the first planting season following issuance of the certificate of occupancy or the bond will be forfeited to the county. The owners and their agents shall be responsible for providing, protecting, and maintaining all required plant material in healthy condition, replacing unhealthy or dead plants within one year or by the next planting season, whichever comes first. Replacement material shall conform to the original intent of the approved plan.

- As shown on Pages C1 and C2 of the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5, the facility will be located within existing dense vegetation that exceeds ten feet in width, which will serve as a visual screen. Verizon Wireless respectfully requests that the existing vegetation be deemed to satisfy this screening requirement, and that the installation of additional screening be waived. Please also refer to the Site Images, attached hereto as Exhibit 6, demonstrating the existing natural vegetation.

(g) *Tower wind load.* The communication tower shall be designed to withstand winds in accordance with ANSI/EIA/TIA 222 (latest revision) standards based on the wind load presented by antenna, feedlines, and other associated hardware to be supported by the communication tower. Certification from a structural engineer registered in the state shall constitute proof that such standard has been met.

- The structural analysis and report for the tower cannot be provided until the tower is ordered from the manufacturer, which is typically done upon zoning approval. Verizon Wireless respectfully requests that provision of these calculations be made a condition of zoning approval to be submitted before the issuance of a building permit.

(h) *FCC authorization.* The owner of the antenna and transmission/reception equipment to be installed on the communication tower shall possess either a valid FCC license/construction permit or a statement establishing FCC compliance for the proposed operation.

- Acknowledged and agreed. Please refer to the FCC Licenses for Oconee County, attached hereto as Exhibit 14.

(i) *Design for multiple use.* A new communication tower shall be designed to accommodate additional antennae as provided for elsewhere in this article.

- Acknowledged and agreed. As shown on Page C11 of the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5, the tower will be designed to accommodate two additional carriers.

(j) *Safety codes.* A communication tower shall comply with all applicable health, nuisance, noise, fire, building, and safety code requirements.

- Acknowledged and agreed.

(k) *Distance between towers.* A proposed communication tower in excess of 100 feet shall not be permitted within 1,300 feet of an existing communication tower in excess of 100 feet in height, unless the applicant certifies to the board that the existing communication tower does not meet applicant's structural specifications and applicant's technical design requirements, or that a co-location agreement could not be obtained.

- Acknowledged and agreed. The proposed tower will not be located within 1,300 feet of another wireless telecommunication tower. Please refer to the Tower Separation Statement signed by Mary Pat Tyndall, Site Acquisition for Fastcom Consulting Services, LLC, attached hereto as Exhibit 8.

(l) *Application of county land use regulations.* Land development regulations and other performance standards shall apply to the use, unless otherwise provided in this article.

- Acknowledged and agreed.

(m) *Minimum setbacks.* A communication tower (not including guy anchors) over 75 feet must be, at a minimum, setback as follows:

(1) A distance equal to the total height of the communication tower from all property lot lines.

- Acknowledged and agreed. As shown on Page C1 of the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5, the proposed tower will be setback a distance greater than the tower height from all property lines.

(2) A distance equal to the total height of the communication tower from the nearest point of any structure meeting minimum standards for human occupation as put forth in applicable building codes adopted by the county.

- Acknowledged and agreed. Ash shown on Page C1 of the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5, the proposed tower will be setback a distance greater than tower height from the nearest point of any structure meeting minimum standards for human occupation.

  There is an existing barn that is not separated by a distance greater than tower height, however the barn does not meet the minimum standards for human occupation. The barn is classified as occupancy Group U by the 2015 IBC, which is classified as an accessory or miscellaneous structure "not classified in any specific occupancy." Other structures in Group U include carports, fences, grain silos, greenhouses, stables, sheds, tanks, and towers. The barn is in Risk Category I by the ASCE 7-10, which is the lowest level of threat to human and safety. Buildings in Risk Category I are described as structures "that normally are unoccupied and that would result in negligible risk to the public should they fail. Structures typically classified in this category have included barns, storage shelters, gatehouses, and similar small structures." Please refer to the Building Code Excerpts, attached hereto as Exhibit 19. Please also refer to the Site Images, attached hereto as Exhibit 6.

(3) A distance equal to the total height of the communication tower from any properties containing churches, schools, colleges, children's homes and shelters, hospitals and nursing homes; except that communication towers which meet the definition of stealth tower in section 32-132 may be permitted by special exception on these properties.

- Acknowledged and agreed. As shown on Page C1 of the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5, there are no properties within a distance equal to tower height that contain churches, schools, colleges, children's homes and shelters, hospitals, or nursing homes.

(4) A distance equal to the total height of the communication tower from the right-of-way of all streets and roads.

- Acknowledged and agreed. As shown on Page C1 of the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5, the proposed tower will be setback a distance greater than the tower height from all right-of-way of all streets and roads.

(5) A communication tower may not be sited (1) within a distance equal to 250 feet of the boundary of a historic district; (2) on or within 250 feet of a structure that is a designated a National Historic Landmark or that is listed in, or eligible for listing in, the National Register of Historic Places; or (3) on or within property that is the subject of a pending complaint alleging an adverse effect on a historic property.

- Acknowledged and agreed. Upon information and belief, there are no historic districts, structures designated as National Historic Landmarks, structures listed in or eligible for listing in the National Register of Historic Places within 250 feet of the proposed tower. Additionally, upon information and belief, the tower will not be located on or within property that is the subject of a pending complaint alleging an adverse effect on a historic property.

All guy cables and anchors must be set back at a minimum of 20 feet from all lot lines and habitable structures.

- Because the proposed tower will not contain any guy cables and anchors, this standard does not apply.

Variances may be granted from the requirements of subsections (1) and (2) upon submission of a properly prepared engineered fall zone design/construction document(s).

- Because Verizon Wireless is not requesting a Variance, this standard does not apply.

32-135. Additional requirements for location near the county airport.

(a) With the exception of towers for aeronautical purposes, in no case may a communication tower penetrate any imaginary surface, as described in chapter 14 of the Code of Federal Regulations, Federal Aviation Regulation (FAR) Part 77, associated with existing or proposed runways at any publicly owned airport. All communications towers located within

the first 12,000 feet of the approach surface of an existing or proposed runway at such facility, or within the horizontal surface associated with such runways as described in FAR Part 77, shall be lighted. Such towers shall be illuminated by strobe lights during daylight and twilight hours, and red lights during nighttime hours.

- Because the proposed tower will not be located within 12,000 feet of an airport runway, these standards do not apply.

(b) A copy of any plans whereby a communication tower will be located within such 12,000 feet area shall be provided by the applicant to the county airport manager and the director for comment. Any comments shall be made within ten days of delivery to such manager with a copy to the director and the applicant. Prior to issuance of a building permit, the applicant shall provide documentation to the director that the proposed communication tower has been reviewed by the Federal Aviation Administration (FAA), if so required, and that a finding of no hazard to air navigation has been determined.

- Because the proposed tower will not be located within 12,000 feet of an airport runway, these standards do not apply.

32-136. Maximum height of freestanding communication towers.

The maximum height of freestanding communication towers shall be as follows:

| District | Maximum Height |
|---|---|
| Residential | Not exceeding 175 feet |
| Commercial | Not exceeding 200 feet |
| Industrial/agricultural | Not exceeding 250 feet |

- Acknowledged and agreed. Because the subject property is in the Control Free District, there is no stated height limit for the proposed tower. As shown on Page C11 of the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5, the proposed tower will be 165' in height with a 4' lightning rod.

32-137. Permitted height of building-mounted communication towers.

A communication tower shall not exceed 20 feet in height, as measured from the base of the communication tower to the highest point of the communication tower, if mounted on a building or any structure other than a freestanding or guyed communications tower.

- Because the proposed tower will not be mounted on a building, this standard does not apply.

32-138. Application requirements.

The following information shall be submitted for all applications for approval of a communication tower:

(a) *Structural specifications.* Two copies of the specifications for proposed structure, including description of design characteristics and material.

- Acknowledged and agreed. Please refer to the Generator Specifications Sheet, attached hereto as Exhibit 15. The structural specifications sheets for the tower cannot be provided until the tower is ordered from the manufacturer, which is typically done upon zoning approval. Verizon Wireless respectfully requests that provision of these specifications sheets be made a condition of zoning approval to be submitted before the issuance of a building permit. Please also refer to the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5.

(b) *Technical specifications.* For each antenna to be installed:

(1) Manufacturer and model number.
(2) Frequency band used for transmitting and receiving.
(3) Effective radiating power.
(4) Mounting position above ground.
(5) A study demonstrating compliance with FCC RF exposure limits (all antennas).

- Acknowledged and agreed. Verizon Wireless currently proposes to install Commscope SBNHH-1D65C and Commscope SBNHH-1D45C antennas one hundred sixty feet above ground. Please refer to the Antenna Specifications Sheets attached hereto as Exhibit 16. Please also refer to the Antenna and Power Information Sheet, attached hereto as Exhibit 17, demonstrating the frequency bands used for transmitting and receiving and the effective radiating power of the antennas. Please also refer to Page C11 of the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5, for the proposed mounting position of the antennas. Please also refer to the NIER Statement signed by Jon Chambers and Cole Edmonson, Professional Engineers for Kimley-Horn and

Associates, Inc., attached hereto as Exhibit 10, demonstrating compliance with the FCC RF exposure limits.

(c) *Site plan.* Two copies of a site plan drawn to scale showing property boundaries, communication tower location, communication tower height, guy wires and anchors, security fencing, screening, existing structures, photographs or elevation drawings depicting typical design of proposed structures, parking, fences, landscape plan, and existing land uses on adjacent property. A site plan is not required if antenna is to be mounted on an approved existing structure. Prototypical drawings indicating various types of equipment to be located on the communication tower may be submitted at the time of the permit application. Identification of the owners of all antennae and equipment to be located on the site. Other equipment may be added to the communication tower without additional permits or inspections as long as electrical wiring is not required.

- Acknowledged and agreed. Please refer to the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5. Please also refer to the Visual Impact Analysis prepared by Michael Gould, Owner and Operator of Gould Digital Imaging, attached hereto as Exhibit 11.

(d) *Location map.* Two copies of a current map, or update for an existing map on file, showing geographic coordinates of the communication tower, calculated coverage areas, facilities, location of existing nearby (within three miles) communication towers, and proposed communication towers, serving contiguous areas. An applicant may request that specific proprietary or confidential information be withheld from the public record.

- Acknowledged and agreed. Please refer to the Propagation Maps and List of Tower Coordinates showing existing Verizon Wireless towers within three miles of the proposed location and their coverage areas, attached hereto as Exhibits 18A and 18B. Verizon Wireless requests that the Propagation Maps, attached hereto as Exhibit 18A, be withheld from public record as they contain proprietary and confidential information.

(e) *Owner authorization.* Written authorization from the site owner for the application.

- Acknowledged and agreed. Please refer to the Authorization to Act as Agent form, signed by the property owners, George Dunagan and Mary Dunagan, attached hereto as Exhibit 2.

(f) *Visual impact analysis.* A line of sight analysis showing the potential visual and aesthetic impact on adjacent residential districts.

- Acknowledged and agreed. Please refer to the Visual Impact Assessment prepared by Michael Gould, Owner and Operator of Gould Digital Imaging, attached hereto as Exhibit 11.

(g) *Alternative to co-location or stealth design.* Co-located or stealth designs shall be required unless satisfactory documented evidence can be provided indicating that:

(1) The proposed antenna and equipment cannot be accommodated and function as required;

(2) The applicant's technical design requirements are such that without unreasonable modifications they cannot function on any existing structure or communication tower under the control of applicant; and

(3) The applicant has considered all available publicly-owned sites, and available privately owned sites occupied by a compatible use, including all applicable sites or locations or a combination of sites and locations as described under section 32-133(b) for priority of approval and the applicant has demonstrated that for the reasons described in section 32-133(b) that these sites and/or locations are unsuitable for operation of the facility under applicable state and federal communications regulations, the applicant's technical design requirements and/or valid economic reasons.

- Acknowledged and agreed. There are no existing towers or structures, including electric utility company transmission line towers, for co-location within the search area in which Verizon Wireless' proposed equipment must be located in order to meet the network objective, or within an equal distance outside of the search area as the proposed tower location. Therefore, co-location is not possible and construction of the new String Bean tower is necessary. No tower or other suitable facility exists within the established search area where Verizon Wireless' equipment will function in its intended manner. Please refer to the Search Area Map, attached hereto as Exhibit 4. Please refer to the Proof of Need Statement signed by Dianne McGaha, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 3, explaining the need for the proposed tower as well as its relationship to the existing antenna network. Lastly, please also refer to the Inability to Collocate

Statement signed by Mary Pat Tyndall, Site Acquisition for Fastcom Consulting Services, LLC, attached hereto as Exhibit 7.

The proposed tower will be a stealth monopine design. Please refer to Page C11 of the Site Survey and Zoning Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit5. Please also refer to the Site Images, attached hereto as Exhibit 6. Please also refer to the Visual Impact Analysis, attached hereto as Exhibit 11.

(h) *Indemnity.* The applicant must show by certificate from a registered engineer that the proposed facility will contain only equipment meeting FCC rules, and must file with the director a written indemnification agreement, on a form approved by the county. The applicant must also file with the county proof of liability insurance or financial ability to respond to claims up to $1,000,000.00 in the aggregate which may arise from operation of the facility during its life, at no cost to the county, in a form approved by the county attorney.

- Acknowledged and agreed. The proposed tower will contain only equipment meeting FCC rules. Please refer to the NIER Statement signed by Jon Chambers and Cole Edmonson, Professional Engineers for Kimley-Horn and Associates, Inc., attached hereto as Exhibit 10. Please also refer to the Certificate of Liability Insurance in the amount of One Million and No/100ths ($1,000,000.00) Dollars, attached hereto as Exhibit 12. Please also refer to the Indemnification Agreement, attached hereto as Exhibit 13.

(i) *Application fees.* All communication tower applications shall include a check made out to the county treasurer in an amount to be determined by the director, based upon a schedule of fees enacted by the county council. Additional fees may be imposed in order to offset the costs associated with processing applications for special exceptions, appeals, or variances.

- Acknowledged and agreed. A check in the amount of One Hundred and No/100ths ($100.00) Dollars was submitted to the County via First Class Mail on September 21, 2017.

32-140. Additional criteria for evaluating special exceptions and variances.

(a) *Application; conditions.* All application requirements imposed by section 32-138 must be met.

- Acknowledged and agreed. This Certificate of Compliance and corresponding exhibits, attached hereto and incorporated herein, demonstrate how each requirement of Section 32-138 is met.

(b) *Setback requirements; additional conditions.* The applicant must demonstrate that the proposed communication tower location is sufficient to satisfy setback requirements and must satisfy such other additional conditions, if any, necessary to remove dangers to safety and to protect adjacent property.

- Acknowledged and agreed. As shown on Page C1 of the Site Survey and Zoning Drawings, prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5, the proposed tower will be setback a distance greater than tower height from all property lot lines, all streets and roads, and from the nearest point of any structure meeting minimum standards for human occupation.

  There is an existing barn that is not separated by a distance greater than tower height, however the barn does not meet the minimum standards for human occupation. The barn is classified as occupancy Group U by the 2015 IBC, which is classified as an accessory or miscellaneous structure "not classified in any specific occupancy." Other structures in Group U include carports, fences, grain silos, greenhouses, stables, sheds, tanks, and towers. The barn is in Risk Category I by the ASCE 7-10, which is the lowest level of threat to human and safety. Buildings in Risk Category I are described as structures "that normally are unoccupied and that would result in negligible risk to the public should they fail. Structures typically classified in this category have included barns, storage shelters, gatehouses, and similar small structures." Please refer to the Building Code Excerpts, attached hereto as Exhibit 19. Please also refer to the Site Images, attached hereto as Exhibit 6.

  Upon information and belief, there are no historic districts, structures designated as National Historic Landmarks, structures listed in or eligible for listing in the National Register of Historic Places within 250 feet of the proposed tower. Additionally, upon information and belief, the tower will not be locates on or within property that is the subject of a pending complaint alleging an adverse effect on a historic property.

(c) *Residential service area.* If location in a residential district, as defined in section 38-10.7 has been requested, the applicant must show that the area

cannot be adequately served by a facility placed in a nonresidential district for valid technical reasons.

- Because the property is not located in a residential district, as defined in section 38-10.7, this standard is not applicable.

(d) *Greenspaces.* If location in a residential district has been requested, the tower shall not be located on land designated for public recreational uses on the county land use plan.

- Because this property is in a residential district, this standard is not applicable.

(e) *Priority of approval.* If a location is requested which does not meet the requirements under section 32-133(b) for priority of approval the applicant must demonstrate that all alternative sites and locations or combinations thereof provided for in section 32-133(b) have been considered by the applicant, and the applicant has demonstrated that for the reasons described these sites and/or locations or combinations thereof cannot adequately serve the area for valid technical or economic reasons and are unsuitable for operation of the facility under applicable communications regulations.

- Acknowledged and agreed. There are no existing towers or structures, including electric utility company transmission line towers, for co-location within the search area in which Verizon Wireless' proposed equipment must be located in order to meet the network objective, or within an equal distance outside of the search area as the proposed tower location. Therefore, co-location is not possible and construction of the new String Bean tower is necessary. No tower or other suitable facility exists within the established search area where Verizon Wireless' equipment will function in its intended manner. Please refer to the Search Area Map, attached hereto as Exhibit 4. Please refer to the Proof of Need Statement signed by Dianne McGaha, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 3, explaining the need for the proposed tower as well as its relationship to the existing antenna network. Lastly, please also refer to the Inability to Collocate Statement signed by Mary Pat Tyndall, Site Acquisition for Fastcom Consulting Services, LLC, attached hereto as Exhibit 7.

(f) *Denial on substantial evidence.* The Federal Telecommunications Act of 1996 requires that a denial of a permit be supported by substantial evidence. The board shall maintain a written record of all appeal

proceedings and shall maintain supporting documentation for any and all decisions.

- Acknowledged and agreed.

32-141. Annual report required.

All companies that operate or maintain ownership of communication towers in the county shall submit an annual report to the county community development department no later than January 15 of each year. The report shall include a description of all of the company's active and inactive facilities located in the county, co-locations of its own equipment, co-locations of other companies using its facilities, and shall include telephone numbers and addresses for company officials and maintenance personnel.

- Acknowledged and agreed.

32-142. Technical assistance required.

The director (prior to issuing a permit) and the board (prior to issuing a permit by special exception or deciding an appeal or request for variance) may make use of technical consultants to review applications and to determine if the standards in this article are met. The permit applicant shall be required to bear the cost of the required technical services. The director shall estimate any expenses and shall require payment with the completed application. Additional expenses shall be invoiced by the county finance department to the applicant. Amounts in excess of required fees and actual expenses shall be returned to the applicant.

- Acknowledged and agreed.

II. Chapter 38, Article VII, Section 7.2 - Special Exceptions. Verizon Wireless fully complies with the Special Exception standards set forth in the Ordinance as follows:

38-7.2. Special Exceptions.

The board of zoning appeals may grant a special exception only if it finds adequate evidence that any proposed development will meet all of the following general requirements as well as any specific requirements and standards listed for the proposed use. The board of zoning appeals shall among other things require that any proposed use and location be:

(1) In accordance with the comprehensive plan and is consistent with the spirit, purposes, and the intent and specific requirements of this chapter, to include the definition and intent of the district in which the special exception is being requested;

- Acknowledged and agreed. The Comprehensive Plan sets forth stated goals for the future development of Oconee County and the objectives to meet those goals. The proposed tower is in general conformity with the Comprehensive Plan. In particular, the proposed tower supports the Comprehensive Plan Goal #2- "Identify, develop and utilize all tools and funding sources necessary to meet the present and future economic development of Oconee County." Within this goal is the objective to "Continue to actively promote the recruitment of employment opportunities that provide the best lifestyle for all Oconee residents." The proposed tower will provide increased wireless capacity to the String Bean Area, a service necessary to attract more businesses and diversify the types of businesses in the area given the increased demand for wireless voice and data service.

  The proposed facility will be consistent with the definition and intent of the Control Free District as there is no stated definition or intent for this district other than to be the initial district for all parcels within Oconee County at the adoption of the Ordinance until and unless a rezoning occurred.

(2) In the best interests of the county, the convenience of the community and the public welfare;

- Acknowledged and agreed. The proposed tower, if located, developed, and operated according to the plans submitted herewith, will be in the best interests of the county, the convenience of the community and the public welfare. The proposed tower will be constructed and operated in accordance with all applicable Federal, state, and local laws and ordinances including, but not limited to the Federal Communications Commission (FCC) and Federal Aviation Administration (FAA) rules and guidelines. Please refer to the Airspace Study prepared by Federal Airways & Airspace, attached hereto as Exhibit 9. Please also refer to the FCC Licenses for Oconee County, attached hereto as Exhibit 14. Please also refer to the NIER Statement signed by Jon Chambers and Cole Edmonson, Professional Engineers for Kimley-Horn and Associates, Inc., attached hereto as Exhibit 10.

  The proposed tower will also promote the general welfare and public interest of the county by providing necessary wireless telecommunication capacity and coverage in the area. Improved wireless capacity and coverage will promote public welfare as it will aid the citizens of Oconee County in contacting 911 from mobile devices in emergency situations. Additionally, a growing

number of Americans live in wireless-only households. According to the U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, as of late 2016, the majority of American homes only have wireless telephones.[1] Additionally, more than 70% of all adults between the ages of 25-34 and of adults renting homes live in wireless-only households.[2] Thus, wireless service has become a necessity to the majority of Americans in order to communicate in an emergency situations and on a day-to-day basis.

(3) Suitable for the property in question, and designed, constructed, operated, and maintained so as to be in harmony with and appropriate in appearance to the existing or intended character of the general vicinity;

- Acknowledged and agreed. There are several aspects of the proposed tower's location and character that will ensure that it is suitable for the property in question and will be in harmony with the area. The subject property is zoned CFD; all adjacent properties, and all properties in the general vicinity are either zoned CFD. Wireless telecommunications towers are permitted as a special exception in the CFD district. Therefore, the proposed tower is a suitable use for the subject property and permitted as a special exception on all adjacent properties and all properties within the general vicinity, evidencing that the use will be in harmony with the area. The subject property is approximately 25.24 acres, and accommodates all of the required setbacks for the proposed tower. The facility will be setback over four hundred feet from SC Highway 11. The facility will be surrounded by a large area of dense, existing vegetation to serve as a screen for the bottom of the facility from adjacent properties and uses. Additionally, the tower will be of a stealth monopine design to allow it to blend with the existing trees on the property and with the natural surroundings of the area.

  Other than the visibility of the top of the tower, the facility will have no adverse effect on the nature and character of the community in the area. The proposed facility will be an innocuous use as it will not produce any fumes, odors, or noise pollution, and will not be lit. The proposed facility will be unmanned and receive only periodic maintenance visits and thus will have no impact on traffic flow in the area. The facility will

[1] Stephen J. Blumberg, Ph.D., U.S. Department of Health and Hum. Services, Center for Disease Control and Prevention, Nat'l Center for Health Stat., Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July-December 2016 (2017), http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201705.pdf.
[2] *Id.*

have a very small footprint on the overall subject property as the facility will be located on a 100' x 100' lease area with a 60' x 60' compound on an overall property containing approximately 25.24 acres. Additionally, the proposed tower will be a stealth monopine-type design without lattice or guy wires in order to be the least visually and physically intrusive facility.

Please refer to the Photo Simulations, prepared by Michael Gould, Owner and Operator of Gould Digital Imaging, attached hereto as Exhibit 11B. Please also refer to the Site Images, attached hereto as Exhibit 6. Please also refer to the Site Survey and Zoning Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 5.

(4) Suitable in terms of effects on highway traffic, parking and safety with adequate access arrangements to protect streets from undue congestion and hazards.

- Acknowledged and agreed. The proposed facility will be unmanned and receive only periodic maintenance visits and thus will have no impact on traffic flow in the area.

The developer shall have the burden of providing evidence to the county of compliance with the general requirements of this chapter and the specific requirements of the applicable section. The board of zoning appeals may impose whatever reasonable conditions it deems necessary to ensure that any proposed development will comply substantially with the objectives in this chapter.

Respectfully submitted on September 21, 2017.

Laura D. Goode, Esq.
Baker, Donelson, Bearman, Caldwell & Berkowitz, PC
1501 Main Street, Suite 600
Columbia, South Carolina 29201
Phone: (803) 251-8817
Fax: (803) 753-0011
Email: lgoode@bakerdonelson.com
*Attorney for Verizon Wireless*

Cara Cochran, Esq.
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Phone: (803) 251-8813
Fax: (803) 753-0011
Email: ccochran@bakerdonelson.com
*Attorney for Verizon Wireless*

NAME OF LANDOWNER: George Dunagan and Mary Dunagan
ADDRESS: 615 North Highway 11
CITY, STATE, & ZIP: West Union, South Carolina 29696
DATE: August 15, 2017

Oconee County Community Development
ATTN: Adam C. Chapman, Planner 1
415 S. Pine Street
Walhalla, SC 29691

RE: **CONSTRUCTION OF A NEW COMMUNICATION TOWER LOCATED IN OCONEE COUNTY, SOUTH CAROLINA**

FOR PROPERTY LOCATED AT: **615 North Highway 11**
**West Union, South Carolina 29696**

PARCEL ID: **147-00-03-087**

To Whom It May Concern:

Please be advised that George Dunagan and Mary Dunagan are the owners of record of the property described above, and hereby authorize Baker, Donelson, Bearman, Caldwell & Berkowitz, PC as attorney for Cellco Partnership d/b/a Verizon Wireless to act on their behalves in requesting any and all necessary approvals for the above-noted property to allow for construction of a communication tower and all related ancillary structures.

Sincerely,

George Dunagan

Date: 8-19-2017

Mary Dunagan

Date: 8-19-2017

verizonwireless

## Proof of Need.

### String Bean Site

The federal telecommunications act and FCC rules require that Verizon Wireless achieve service throughout Oconee, SC-1 RSA service area, which includes Oconee County, South Carolina. While Verizon Wireless has achieved a degree of coverage in Oconee, SC-1 RSA licensed area, it is also imperative to provide adequate capacity to the service area for both voice and data. The Walhalla Town site requires capacity relief. Verizon Wireless' goal is to maintain an industry standard level of coverage and capacity throughout its licensed coverage area, including Oconee, South Carolina. The standard level of average network-to-device, or download, speeds range from 5 to 12 Mbps (Mega bits per second) and average device-to-network, or upload, speeds range from 2 to 5 Mbps utilizing LTE (Long Term Evolution) technology. An off-load capacity site is required once the frequency spectrum at a particular site is fully utilized and demand continues to increase. Our capacity planners have forecast Walhalla Town to exhaust its frequency spectrum in early 2018.

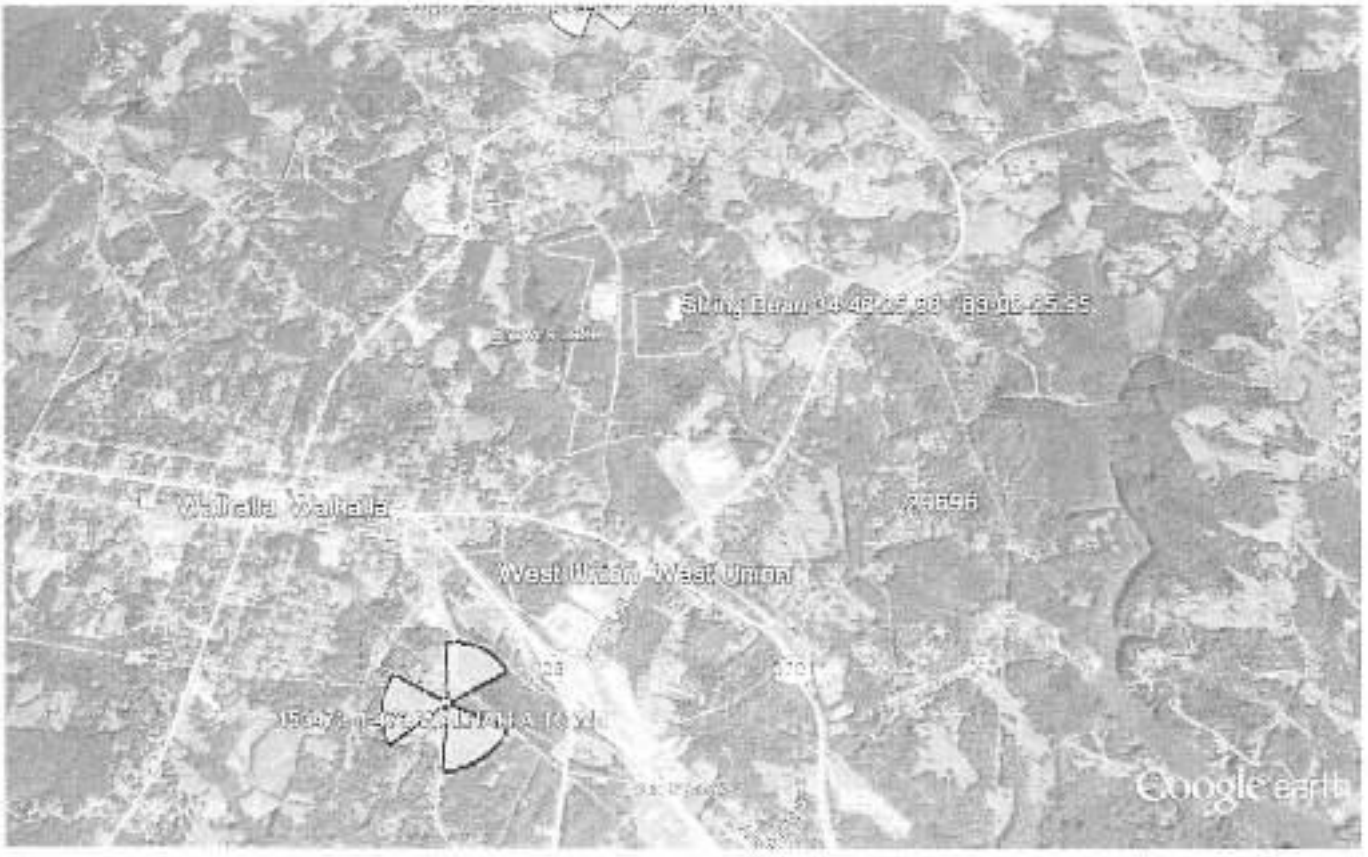
LTE provides the fastest data speeds. You must be using a 4G LTE device and be within the 4G LTE coverage area in order to access the 4G LTE network. LTE achieves faster data rates by utilizing multiple modulation schemes. QPSK, 16QAM, and 64QAM are the modulation schemes used. 64QAM provides the fastest data rates while QPSK provides the slowest. However, in order to maintain standard industry data rates, Verizon Wireless needs to maintain the available capacity on the network in order to offer mobile devices 64QAM modulation. Once the LTE capacity on a given site is exhausted, the data rate will drop to the slowest speed and then begin blocking the service request. LTE also carries voice calls.

Today's consumer demands voice and data devices capable of delivering data intensive applications, video, streaming media, video messaging, video telephony, and real-time video conferencing and collaboration. All these demands are met utilizing bandwidth and better throughput achieved with sufficient capacity. Capacity is exhausted on a cell site once the number of users that can be served on a given cell site has reached a maximum and throughput standards can't be maintained. Verizon Wireless would like to minimize the effects of reduced capacity shown by websites taking too long to load and/or timing out, emails unable to download or send, and issues with voice calls. All are the result of a need for additional capacity. Our planners have forecast exhaustion on Walhalla Town in early 2018, in particular the area served by the sector pointing towards the Highway 11 (Andrew Pickens Scenic Pkwy) northeast of West Union and surrounding areas.

We have conducted an extensive engineering study of this area to search and find the best location for an existing communications facility in order to provide capacity and

coverage in this area. Verizon has a bona fide need to build and operate this communication facility in order to provide the necessary level of service in this area.

Dianne McGaha
RE Engineer
Verizon Wireless




Google earth

miles 1
km 3

FASTCOM

September 18, 2017

Mrs. Laura Goode
Baker, Donelson, Bearman, Caldwell & Berkowitz
1501 Main Street, Suite 600
Columbia, South Carolina 29201

RE: String Bean Inability to Collocate Statement

Dear Mrs. Goode,

**Section 32-133(b)**, in pertinent part, of the Oconee County Code of Ordinances (the "Ordinance") requires the following:

> Priority in approving additional telecommunications facilities in the county shall be given to co-location on existing towers or structures, including electric utility company transmission line towers. Only when these possibilities have been exhausted or when it can be demonstrated by an applicant that the alternatives are not technically feasible to provide adequate coverage for the county, or when it can be documented by the applicant that the cost of the proposed lease for a site or location is more than 20 percent above the prevailing rate of leases in comparable metropolitan statistical areas (M.S.A.'s) in the southeast, shall other sites be considered for approval.

Additionally, **Section 32-138(g)** of the Ordinance requires the following:

> Alternative to co-location or stealth design. Co-located or stealth designs shall be required unless satisfactory documented evidence can be provided indicating that:
>
> (1) The proposed antenna and equipment cannot be accommodated and function as required;
>
> (2) The applicant's technical design requirements are such that without unreasonable modifications they cannot function on any existing structure or communication tower under the control of applicant; and
>
> (3) The applicant has considered all available publicly-owned sites, and available privately owned sites occupied by a compatible use, including all applicable sites or locations or a combination of sites and locations as described under section 32-133(b) for priority of approval and the applicant has demonstrated that for the reasons described in section 32-133(b) that these sites and/or

locations are unsuitable for operation of the facility under applicable state and federal communications regulations, the applicant's technical design requirements and/or valid economic reasons.

Finally, **Section 32-140(e)** of the Ordinance requires the following:

> Priority of approval. If a location is requested which does not meet the requirements under section 32-133(b) for priority of approval the applicant must demonstrate that all alternative sites and locations or combinations thereof provided for in section 32-133(b) have been considered by the applicant, and the applicant has demonstrated that for the reasons described these sites and/or locations or combinations thereof cannot adequately serve the area for valid technical or economic reasons and are unsuitable for operation of the facility under applicable communications regulations.

Please let this letter serve as certification that there are no existing towers or structures, including electric utility company transmission line towers, for co-location within the search area in which Verizon Wireless' proposed equipment must be located in order to meet the network objective, or within an equal distance outside of the search area as the proposed tower location. Therefore, co-location is not possible and construction of the new String Bean tower is necessary.

Sincerely,

Mary Pat Tyndall

Site Acquisition

August 15, 2017

Mrs. Laura Goode
Baker, Donelson, Bearman, Caldwell & Berkowitz, PC
1501 Main Street, Suite 600
Columbia, South Carolina 29201

RE: String Bean Tower Separation Certification

Dear Mrs. Goode,

**Section 32-134(k)** of the Oconee County Code of Ordinances requires the following:

> *Distance between towers.* A proposed Communication tower in excess of 100 feet shall not be permitted within 1,300 feet of an existing Communication tower in excess of 100 feet in height, unless the applicant certifies to the Board that the existing communication tower does not meet applicant's structural specifications and applicant's technical design requirements, or that a co-location agreement could not be obtained.

Please let this letter serve as certification that the proposed String Bean communication tower is not located within 1,300 feet of another communication tower in excess of 100 feet in height.

Sincerely,

Mary Pat Tyndall

Site Acquisition

```
**************************************************
                    *            Federal Airways & Airspace
*
                    *         Summary Report: New Construction
*
                    *                Antenna Structure
*

**************************************************

                    Airspace User: Not Identified

                    File: STRINGBEAN

                    Location:  West Union, SC

                    Latitude:  34°-46'-10.5"         Longitude:
83°-02'-00.4"

                    SITE ELEVATION AMSL.....945 ft.
                    STRUCTURE HEIGHT.........169 ft.
                    OVERALL HEIGHT AMSL.....1114 ft.

     NOTICE CRITERIA
       FAR 77.9(a): NNR (DNE 200 ft AGL)
       FAR 77.9(b): NNR (DNE Notice Slope)
       FAR 77.9(c): NNR (Not a Traverse Way)
       FAR 77.9:    NNR FAR 77.9 IFR Straight-In Notice Criteria
for CEU
       FAR 77.9:    NNR (No Expected TERPS® impact LQK)
       FAR 77.9(d): NNR (Off Airport Construction)

       NR  = Notice Required
       NNR = Notice Not Required
       PNR = Possible Notice Required (depends upon actual IFR
procedure)
             For new construction review Air Navigation
Facilities at bottom
             of this report.

       Notice to the FAA is not required at the analyzed location
and height for
       slope, height or Straight-In procedures. Please review the
'Air Navigation'
       section for notice requirements for offset IFR procedures
and EMI.


     OBSTRUCTION STANDARDS
       FAR 77.17(a)(1): DNE 499 ft AGL
       FAR 77.17(a)(2): DNE - Airport Surface
```

FAR 77.19(a): DNE - Horizontal Surface
FAR 77.19(b): DNE - Conical Surface
FAR 77.19(c): DNE - Primary Surface
FAR 77.19(d): DNE - Approach Surface
FAR 77.19(e): DNE - Transitional Surface

VFR TRAFFIC PATTERN AIRSPACE FOR: CEU: OCONEE COUNTY RGNL
Type: A RD: 55586.48 RE: 888.1
FAR 77.17(a)(1): DNE
FAR 77.17(a)(2): DNE - Greater Than 5.99 NM.
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Approach Slope: DNE
VFR Transitional Slope: DNE

VFR TRAFFIC PATTERN AIRSPACE FOR: LQK: PICKENS COUNTY
Type: A RD: 98377.29 RE: 963.2
FAR 77.17(a)(1): DNE
FAR 77.17(a)(2): DNE - Greater Than 5.99 NM.
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Approach Slope: DNE
VFR Transitional Slope: DNE

TERPS DEPARTURE PROCEDURE (FAA Order 8260.3, Volume 4)
FAR 77.17(a)(3) Departure Surface Criteria (40:1)
DNE Departure Surface

MINIMUM OBSTACLE CLEARANCE ALTITUDE (MOCA)
FAR 77.17(a)(4) MOCA Altitude Enroute Criteria
The Maximum Height Permitted is 2500 ft AMSL

PRIVATE LANDING FACILITIES

| FACIL IDENT | TYP | NAME | BEARING To FACIL | RANGE IN NM | DELTA ELEVATION | ARP FAA IFR |
|---|---|---|---|---|---|---|
| SC26 | AIR | HAWKS NEST FARM | 36.75 | 2.88 | +64 | |
| | | No Impact to Private Landing Facility. DNE 200 ft AGL within 3 NM of Airport. | | | | |
| SC70 | AIR | ANNA'S | 223.65 | 3.69 | +184 | |
| | | No Impact to VFR Transitional Surface. Below surface height of 269 ft above ARP. | | | | |

AIR NAVIGATION ELECTRONIC FACILITIES

| FAC | ST | DIST | DELTA GRND | APCH |
|---|---|---|---|---|

```
       IDNT    TYPE      AT   FREQ   VECTOR   (ft)   ELEVA ST LOCATION
ANGLE BEAR
       ---- ----------  -- ------ ------ ------ ----- --
----------------- ------- ----
       CEU  NDB          I       25 128.39  56194  +232 SC CLEMSON
.24
       ODF  VORTAC       I    113.4 251.25  83796  -586 GA
FOOTHILLS             -.4
       ELW  VORTAC       I    108.6 149.65 147887  +378 SC ELECTRIC
CITY          .15

     CFR Title 47, §1.30000-§1.30004
       AM STUDY NOT REQUIRED: Structure is not near a FCC
licensed AM station.
       Movement Method Proof as specified in §73.151(c) is not
required.
       Please review 'AM Station Report' for details.

       Nearest AM Station: WSNW @ 10020 meters.


Airspace® Summary Version 17.3.436

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Airways & Airspace®
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Kimley»Horn

September 20, 2017

Michael Haven
Verizon Wireless
8921 Research Drive
Charlotte, NC 28262

**SUBJECT:** *Verizon Wireless "String Bean", SC NIER report*

This letter documents compliance with FCC regulations for the Verizon Wireless "String Bean" site located at 615 N. Highway 11, West Union, South Carolina 29696 in Oconee County with LAT/LON coordinates of 34° 46' 10.5" N and 83° 02' 00.4" W. This is a proposed 166' stealth monopine tower owned and operated by Verizon Wireless.

The FCC has established guidelines for human exposure to RF emissions in excess of established limits set forth by IEEE and ANSI. Sites with antennae mounted in excess of 50 feet (>15 meters) are generally found to be significantly below these limits. The FCC offers a "categorically excluded" status to some such facilities, and thereby exempts them from routinely having to determine compliance with RF emission standards. The required calculations have been performed in accordance with FCC OET Bulletin 65 and reflect that RF emission levels are well within the set limits.

The supplied information from the tower owner and Verizon Wireless consists of the following:

| Service Provider | Proposed per sector | |
|---|---|---|
| Frequency Band (MHz) | 700 | 700 |
| Antenna Mfr. | Andrew | Andrew |
| Antenna Model | SBNHH-1D65C | SBNHH-1D45C |
| Antenna Mounting Height | 160 feet | 160 feet |
| Antenna sectors | 2 | 1 |
| Antenna Gain | 16.0 dBi* | 18.3 dBi* |
| ERP per sector | 400 Watts | 350 Watts |

* - Respective gain to frequencies listed above

The most restrictive limits for radiation exposure have been set at: 1.0mW/cm$^2$ for PCS carriers and 0.6mW/cm$^2$ for cellular. The "String Bean" site's cellular equipment power density has been calculated using the provided carrier information in accordance with FCC OET 65 bulletin guidelines and resulted in a net power density of 0.017 mW/cm$^2$, or less than 6% of the allowable limit.

It should be clearly noted that this letter's primary purpose is to address the exposure to the public (on the ground) and does not attempt to address the exposure levels in the immediate proximity in front of/surrounding the antennae.

In summary, the proposed cellular/PCS carrier equipment will not result in exposure of the public to levels of radio frequency radiation in excess of the levels defined in the FCC rules and regulations.

Sincerely,

Jon Chambers
Sr. Systems Engineer

Cole Edmonson, P.E.
SC PE No. 31808

NOTE: Jon Chambers is a Professional Engineer licensed in North Carolina, Virginia and Tennessee, and has been involved in the telecommunications industry for the last 25 years.

However, Mr. Chambers is not representing himself as a registered engineer in South Carolina.

SOUTH CAROLINA
KIMLEY-HORN AND ASSOCIATES, INC.
NO. C00165
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
PROFESSIONAL ENGINEER
No. 31808
WILLIAM C. EDMONSON

Gould Digital Imaging

August 19, 2017

Mr. Keith Markland
Kimley-Horn and Associates, Inc.
10 Roswell Street #210
Alpharetta, GA 30009

Re: String Bean Site
Gould Digital Imaging 169' Balloon Test Report

My name is Michael Gould, and I am owner and operator of Gould Digital Imaging. Kimley-Horn and Associates hired Gould Digital Imaging to perform various aspects of photographic imaging work in connection with the development of Verizon Wireless' telecommunications services network in the West Union, SC area.

I have over eighteen years' experience working specifically with telecommunications companies including T-Mobile, Inc., AT&T Wireless, Verizon Wireless, Nextel, Alltel, Cricket, Sprint PCS, COMPASS Technology Services, Inc., Crown Castle International, Vertical Bridge, and American Tower Corporation in preparing photographic simulations of telecommunications towers. I have a Bachelors Degree in Art from St. Mary's College of Maryland; over twenty years of professional experience in the field of digital photographic enhancement and I have produced approximately 6,000 photographic simulations for Verizon Wireless, AT&T, T-Mobile, Inc., American Tower Corp., and other telecommunications services companies.

Kimley-Horn and Associates hired Gould Digital Imaging to perform a "169 foot Balloon Test" at Verizon Wireless' Fairview site on North Highway 11, in West Union, SC. A balloon test is a visual reference of how tall a proposed structure would appear if constructed. A ten foot long red blimp shaped helium balloon is filled and raised above the proposed site on a measured line to the height of the proposed structure and anchored to the ground at the proposed site.

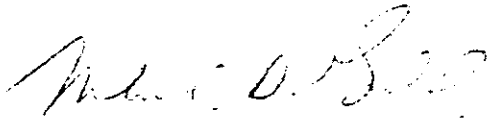
At approximately 8:50am on Wednesday, August 16th, 2017, the balloon was raised to a height of 169 feet to the top of the blimp and anchored in the center of the leased area. The wind was calm and the balloon was flying directly above anchor throughout the entire test. The balloon was left aloft until 9:30am.

I drove around the surrounding "area of affect" and took photographs from several adjoining properties and other points of potential visual impact. I deployed the use of a hand held GPS unit that indicated the bearing and distance I was from the balloon as I canvassed the area for any possible views of the balloon.

This report includes a site photography map denoting the location of the proposed tower and the locations of all photographs that were taken of the site as well as copies of the photographs.

In my professional opinion, these photographs reflect to a reasonable certainty the anticipated projection of the height of the tower if constructed at the String Bean site. If you need any additional information, please do not hesitate to call me at (770) 617-2958 or e-mail at michael@goulddigitalimaging.com.

Sincerely,



***Gould Digital Imaging***
Michael D. Gould/Owner


STRING BEAN BALLOON TEST
SITE PHOTOGRAPHY MAP
Site
Photograph #
Bryson Rd
Google Earth

1

2


Balloon Not Visible


Balloon Not Visible

5



6

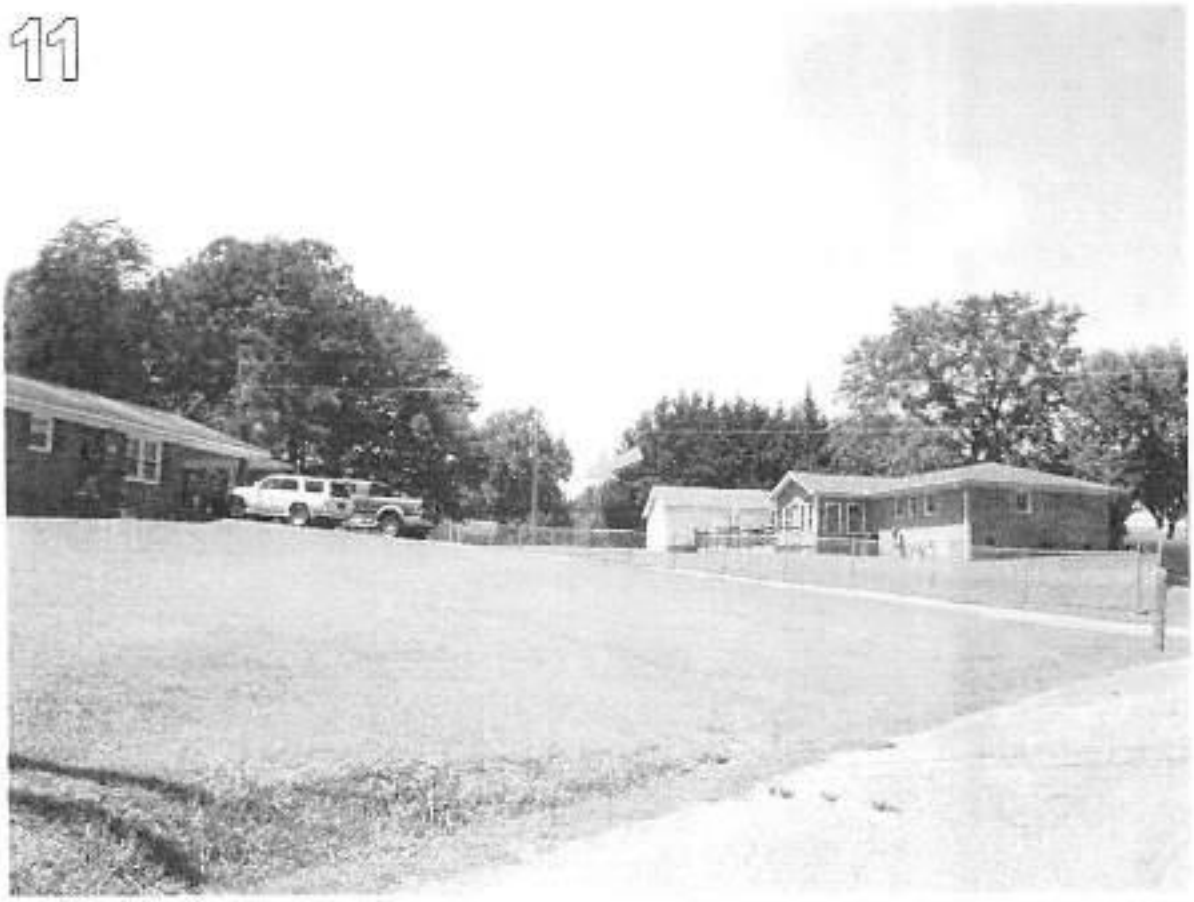
7

8

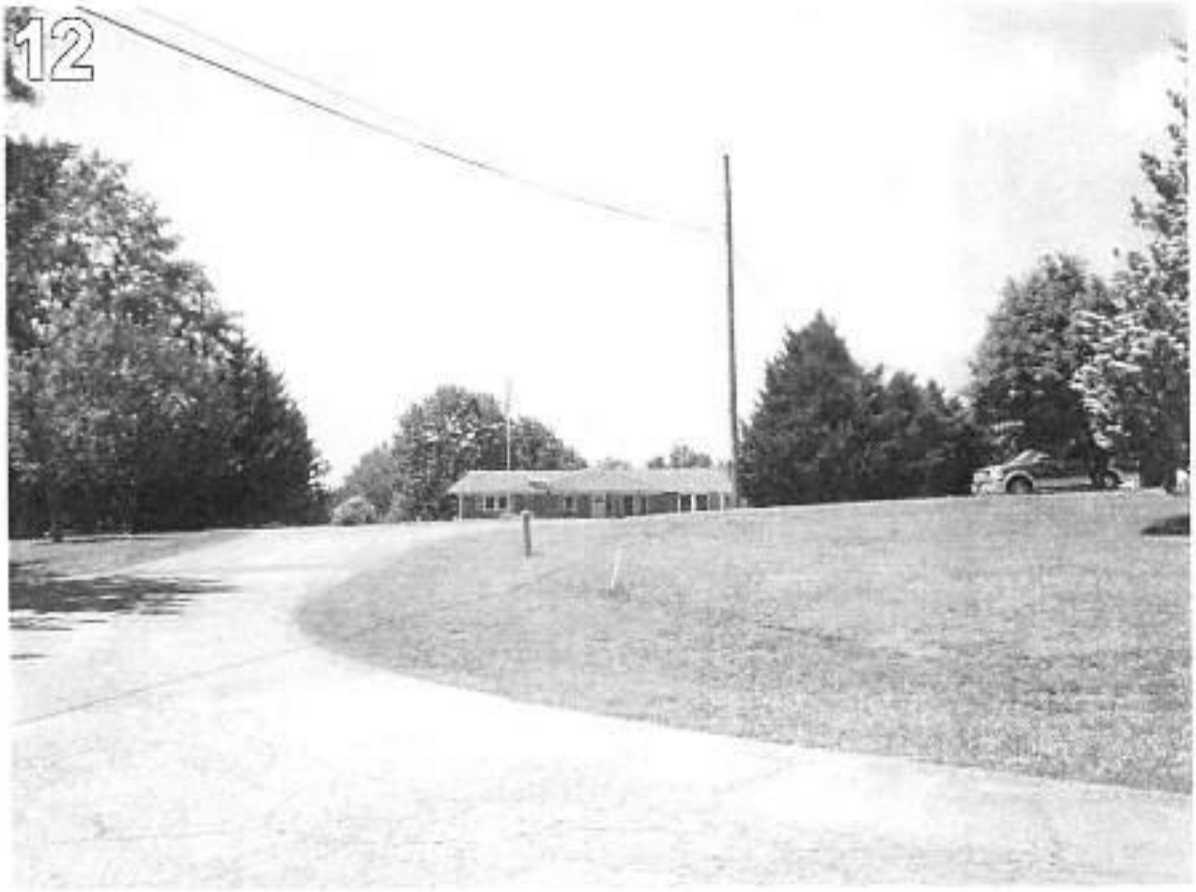

9


10
Balloon Not Visible

11



12

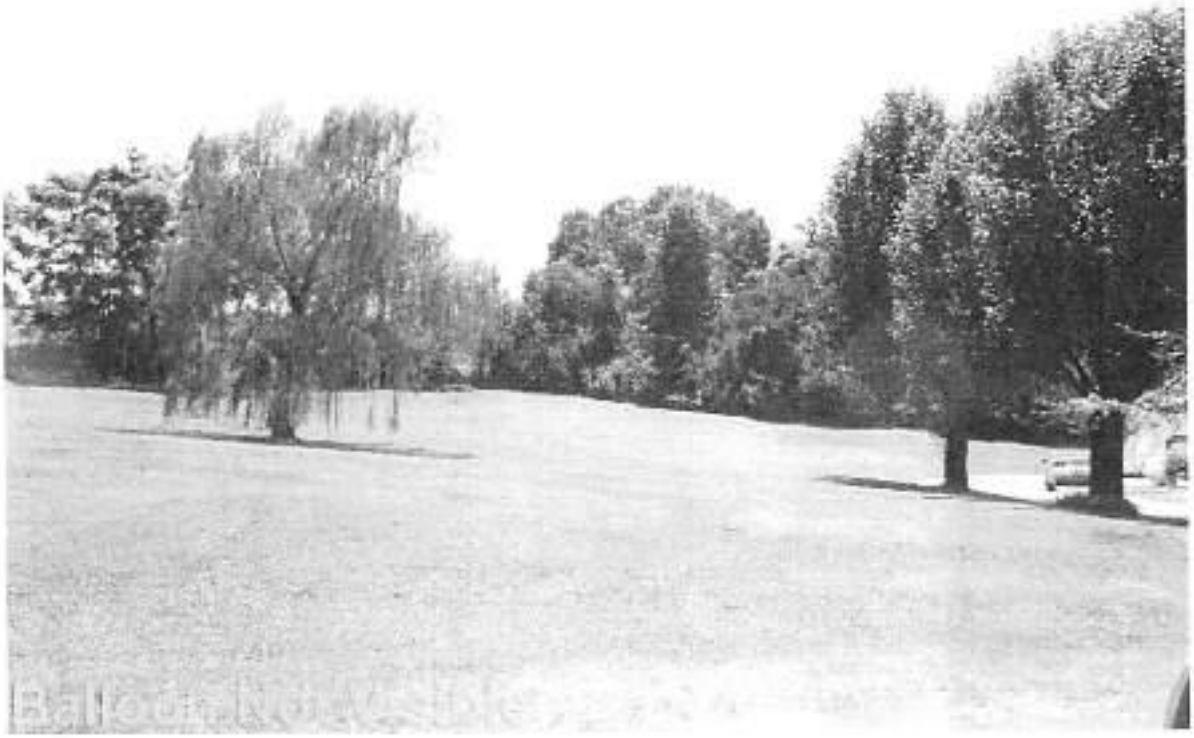


13

14

Balloon Not Visible

15



16

17

18

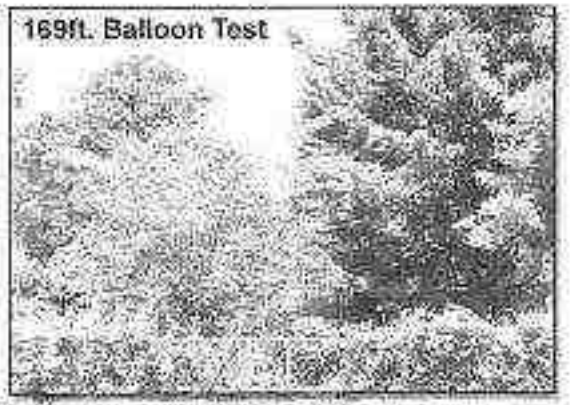

verizon

# STRING BEAN

615 N. Highway 11, West Union, SC 29696

## 169ft. MONOPINE SIMULATION

View from N. Highway 11
approx. 425ft. east-southeast of site



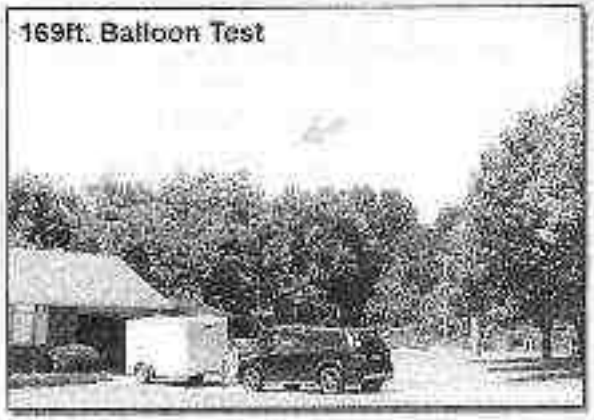

verizon

# STRING BEAN

615 N. Highway 11, West Union, SC 29696

## 169ft. MONOPINE SIMULATION

View from Colonial Court
approx. 830ft. east-southeast of site



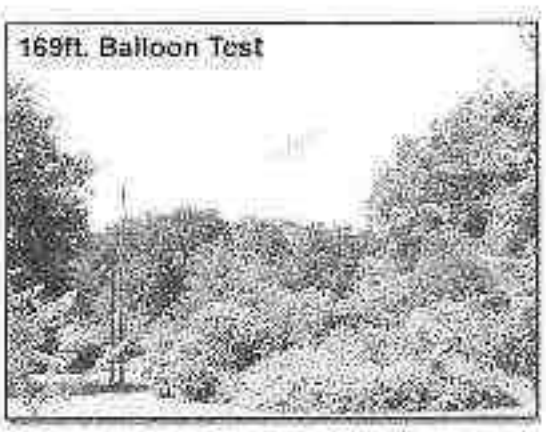

verizon

# STRING BEAN

515 N. Highway 11, West Union, SC 29696

## 169ft. MONOPINE SIMULATION

View from Colonial Court
approximately 800ft. east of site




verizon

# STRING BEAN

515 N. Highway 11, West Union, SC 29696

## 169ft. MONOPINE SIMULATION

View from Colonial Court
approx. 900ft. east-northeast of site


verizon
STRING BEAN
615 N. Highway 11, West Union, SC 29696
169ft. MONOPINE
NOT VISIBLE
View from N. Highway 11
approximately 730ft. northeast of site


verizon

# STRING BEAN

615 N. Highway 11, West Union, SC 29696

## 169ft. MONOPINE SIMULATION

View from W A 205
approximately 1,340ft. northeast of site


verizon

# STRING BEAN

615 N. Highway 11, West Union, SC 29696

## 169ft. MONOPINE SIMULATION

View from N. Highway 11
approx. 1,650ft. north-northeast of site


169ft. Balloon Test
verizon
STRING BEAN
615 N. Highway 11, West Union, SC 29696
169ft. MONOPINE SIMULATION
View from Creekwood Lane
approx. 1,765ft. north-northwest of site


STRING BEAN 169ft. MONOPINE ZONE OF VISIBILITY MAP
Browns Lake
West Union
Carolina
The Meadows
Visible with Vegetation

# CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY): 08/22/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

| | |
|---|---|
| PRODUCER<br>Aon Risk Services Northeast, Inc.<br>New York NY Office<br>199 Water Street<br>New York NY 10038-3551 USA | CONTACT NAME:<br>PHONE (A/C. No. Ext): (866) 283-7122 FAX (A/C. No.): (800) 363-0105<br>E-MAIL ADDRESS: |

| INSURER(S) AFFORDING COVERAGE | | NAIC # |
|---|---|---|
| INSURED<br>Verizon Wireless, LLC<br>1095 Avenue of the Americas<br>New York NY 10036 USA | INSURER A: National Union Fire Ins Co of Pittsburgh | 19445 |
| | INSURER B: | |
| | INSURER C: | |
| | INSURER D: | |
| | INSURER E: | |
| | INSURER F: | |

**COVERAGES** **CERTIFICATE NUMBER:** 570068083329 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. Limits shown are as requested

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| A | X COMMERCIAL GENERAL LIABILITY | | | GL5196564 | 06/30/2017 | 06/30/2018 | EACH OCCURRENCE | $1,000,000 |
| | CLAIMS-MADE [X] OCCUR | | | | | | DAMAGE TO RENTED PREMISES (Ea occurrence) | $1,000,000 |
| | X XCU Included | | | | | | MED EXP (Any one person) | $10,000 |
| | | | | | | | PERSONAL & ADV INJURY | $1,000,000 |
| | GEN'L AGGREGATE LIMIT APPLIES PER: | | | | | | GENERAL AGGREGATE | $1,000,000 |
| | X POLICY [ ] PRO-JECT [ ] LOC | | | | | | PRODUCTS - COMP/OP AGG | $1,000,000 |
| | OTHER: | | | | | | | |
| | AUTOMOBILE LIABILITY | | | | | | COMBINED SINGLE LIMIT (Ea accident) | |
| | ANY AUTO | | | | | | BODILY INJURY ( Per person) | |
| | OWNED AUTOS ONLY / SCHEDULED AUTOS | | | | | | BODILY INJURY (Per accident) | |
| | HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY | | | | | | PROPERTY DAMAGE (Per accident) | |
| | | | | | | | | |
| | UMBRELLA LIAB / OCCUR | | | | | | EACH OCCURRENCE | |
| | EXCESS LIAB / CLAIMS-MADE | | | | | | AGGREGATE | |
| | DED / RETENTION | | | | | | | |
| | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N | | | | | | PER STATUTE / OTH-ER | |
| | ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? [ ] N/A (Mandatory in NH) | | | | | | E.L. EACH ACCIDENT | |
| | If yes, describe under DESCRIPTION OF OPERATIONS below | | | | | | E.L. DISEASE-EA EMPLOYEE | |
| | | | | | | | E.L. DISEASE-POLICY LIMIT | |
| | | | | | | | | |

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: String Bean, PS Location #419918.

**CERTIFICATE HOLDER**

Adam Chapman, Planner
Oconee County Community Development
415 S. Pine Street
Walhalla SC 29691 USA

**CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Services Northeast Inc

Holder Identifier :

Certificate No : 570068083329

verizon

August 28, 2017

Oconee County Community Development
ATTN: Adam C. Chapman, Planner 1
415 S. Pine Street
Walhalla, SC 29691

RE: Proposed Verizon Wireless Tower on North Highway 11
Tax/Pin 147-00-03-097
Verizon Wireless Site Name: STRING BEAN

Dear Mr. Chapman:

The purpose of this letter is to confirm that Verizon Wireless shall indemnify and hold Oconee County, South Carolina harmless from and against any and all damages, judgments, liabilities, losses, and costs and expenses, including reasonable attorney's fees imposed upon, incurred by, or asserted against the County by a third party arising out of damage to real or personal property or injury to any person in connection with the construction, erection, and maintenance by Verizon Wireless of the communication tower and antenna including the removal of said communication tower and antenna, as set forth in Chapter 32, Article IV, Section 32-158(h) of the Oconee County Zoning Ordinance.

Very truly yours,

Michael Haven

Verizon Wireless Manager

RE/Regulatory

# Federal Communications Commission
## Wireless Telecommunications Bureau

## RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

| Call Sign | File Number |
|---|---|
| KNKQ351 | |
| **Radio Service** CL - Cellular | |
| **Market Numer** CMA625 | **Channel Block** A |
| **Sub-Market Designator** 0 | |

**FCC Registration Number (FRN):** 0003290673

**Market Name**
South Carolina 1 - Oconee

| Grant Date | Effective Date | Expiration Date | Five Yr Build-Out Date | Print Date |
|---|---|---|---|---|
| 09-05-2012 | 11-01-2016 | 10-01-2022 | | |

**Site Information:**

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|---|---|---|---|---|---|
| 1 | 34-41-05.1 N | 083-00-45.5 W | 264.5 | 114.0 | 1049634 |

**Address:** 729 RICHLAND
**City:** Seneca **County:** OCONEE **State:** SC **Construction Deadline:**

| **Antenna:** 2 Azimuth (from true north) | **0** | **45** | **90** | **135** | **180** | **225** | **270** | **315** |
|---|---|---|---|---|---|---|---|---|
| **Antenna Height AAT (meters)** | 86.700 | 119.100 | 117.200 | 137.000 | 105.100 | 129.600 | 106.400 | 78.900 |
| **Transmitting ERP (watts)** | 78.980 | 78.980 | 78.980 | 78.980 | 78.980 | 78.980 | 78.980 | 78.980 |

**Conditions:**
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

# Federal Communications Commission

## Wireless Telecommunications Bureau

## RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

| Call Sign | File Number |
|---|---|
| WPUD533 | |
| **Radio Service** CW - PCS Broadband | |

**FCC Registration Number (FRN):** 0003290673

| Grant Date | Effective Date | Expiration Date | Print Date |
|---|---|---|---|
| 02-06-2008 | 11-01-2016 | 12-29-2017 | |

| Market Number | Channel Block | Sub-Market Designator |
|---|---|---|
| BTA016 | C | 6 |

| Market Name |
|---|
| Anderson, SC |

| 1st Build-out Date | 2nd Build-out Date | 3rd Build-out Date | 4th Build-out Date |
|---|---|---|---|
| [redacted] | | | |

**Waivers/Conditions:**
NONE

**Conditions:**
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

# Federal Communications Commission

## Wireless Telecommunications Bureau

## RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

| Call Sign | File Number |
|---|---|
| WQGA716 | |
| **Radio Service** AW - AWS (1710-1755 MHz and 2110-2155 MHz) | |

**FCC Registration Number (FRN):** 0003290673

| Grant Date | Effective Date | Expiration Date | Print Date |
|---|---|---|---|
| 11-29-2006 | 11-01-2016 | 11-29-2021 | |

| Market Number | Channel Block | Sub-Market Designator |
|---|---|---|
| REA002 | F | 19 |

| Market Name |
|---|
| Southeast |

| 1st Build-out Date | 2nd Build-out Date | 3rd Build-out Date | 4th Build-out Date |
|---|---|---|---|
| | | | |

**Waivers/Conditions:**

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20, 2006.

**Conditions:**

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

# Federal Communications Commission

## Wireless Telecommunications Bureau

## RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

| Call Sign | File Number |
|---|---|
| WQHI466 | |
| **Radio Service** AW - AWS (1710-1755 MHz and 2110-2155 MHz) | |

**FCC Registration Number (FRN):** 0003290673

| Grant Date | Effective Date | Expiration Date | Print Date |
|---|---|---|---|
| 01-19-2007 | 01-10-2017 | 12-18-2021 | |

| Market Number | Channel Block | Sub-Market Designator |
|---|---|---|
| CMA625 | A | 2 |

| Market Name |
|---|
| South Carolina 1 - Oconee |

| 1st Build-out Date | 2nd Build-out Date | 3rd Build-out Date | 4th Build-out Date |
|---|---|---|---|
| | | | |

**Waivers/Conditions:**

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20, 2006.

**Conditions:**
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

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# Federal Communications Commission

## Wireless Telecommunications Bureau

## RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

| Call Sign | File Number |
|---|---|
| WQJQ690 | |
| **Radio Service** | |
| WU - 700 MHz Upper Band (Block C) | |

**FCC Registration Number (FRN):** 0003290673

| Grant Date | Effective Date | Expiration Date | Print Date |
|---|---|---|---|
| 11-26-2008 | 11-01-2016 | 06-13-2019 | |

| Market Number | Channel Block | Sub-Market Designator |
|---|---|---|
| REA002 | C | 0 |

| Market Name |
|---|
| Southeast |

| 1st Build-out Date | 2nd Build-out Date | 3rd Build-out Date | 4th Build-out Date |
|---|---|---|---|
| [redacted] | [redacted] | | |

**Waivers/Conditions:**

If the facilities authorized herein are used to provide broadcast operations, whether exclusively or in combination with other services, the licensee must seek renewal of the license either within eight years from the commencement of the broadcast service or within the term of the license had the broadcast service not been provided, whichever period is shorter in length. See 47 CFR §27.13(b).

This authorization is conditioned upon compliance with section 27.16 of the Commission's rules

**Conditions:**
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

# Federal Communications Commission

## Wireless Telecommunications Bureau

## RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

| Call Sign | File Number |
|---|---|
| WQVN945 | |
| **Radio Service** | |
| AT - AWS-3 (1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz) | |

**FCC Registration Number (FRN):** 0003290673

| Grant Date | Effective Date | Expiration Date | Print Date |
|---|---|---|---|
| 04-08-2015 | 11-01-2016 | 04-08-2027 | |

| Market Number | Channel Block | Sub-Market Designator |
|---|---|---|
| BEA041 | H | 0 |

| Market Name |
|---|
| Greenville-Spartanburg-Anderso |

| 1st Build-out Date | 2nd Build-out Date | 3rd Build-out Date | 4th Build-out Date |
|---|---|---|---|
| [redacted] | [redacted] | | |

**Waivers/Conditions:**

NONE

**Conditions:**
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

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# Federal Communications Commission

## Wireless Telecommunications Bureau

## RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

| Call Sign | File Number |
|---|---|
| WQVN946 | |
| **Radio Service** AT - AWS-3 (1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz) | |

**FCC Registration Number (FRN):** 0003290673

| Grant Date | Effective Date | Expiration Date | Print Date |
|---|---|---|---|
| 04-08-2015 | 11-01-2016 | 04-08-2027 | |

| Market Number | Channel Block | Sub-Market Designator |
|---|---|---|
| BEA041 | I | 0 |

| Market Name |
|---|
| Greenville-Spartanburg-Anderso |

| 1st Build-out Date | 2nd Build-out Date | 3rd Build-out Date | 4th Build-out Date |
|---|---|---|---|
| [redacted] | [redacted] | | |

**Waivers/Conditions:**

NONE

**Conditions:**

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# DIESEL GENERATOR SET
# MTU 3R0097 DS30

30 kWe / 60 Hz / Standby
208 - 600V

Reference MTU 3R0097 DS30 (27 kWe) for Prime Rating Technical Data

## SYSTEM RATINGS

**Standby**

| Voltage (L-L) | 240V** | 208V** | 240V** | 380V** | 480V** | 600V** |
|---|---|---|---|---|---|---|
| Phase | 1 | 3 | 3 | 3 | 3 | 3 |
| PF | 1 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Hz | 60 | 60 | 60 | 60 | 60 | 60 |
| kW | 30 | 30 | 30 | 30 | 30 | 30 |
| kVA | 30 | 37.5 | 37.5 | 37.5 | 37.5 | 37.5 |
| Amps | 125 | 104 | 90 | 57 | 45 | 36 |
| skVA@30% Voltage Dip | 65 | 142 | 142 | 187 | 187 | 142 |
| Generator Model | 285PSL1700 | 285PSL1700 | 285PSL1700 | 285PSL1700 | 285PSL1700 | 284PSL5252 |
| Temp Rise | 130 °C/40 °C | 130 °C/40 °C | 130 °C/40 °C | 130 °C/40 °C | 130 °C/40 °C | 130 °C/40 °C |
| Connection | 12 LEAD DOUBLE DELTA | 12 LEAD LOW WYE | 12 LEAD HI DELTA | 12 LEAD HI WYE | 12 LEAD HI WYE | 4 LEAD WYE |

** UL 2200 Offered

## CERTIFICATIONS AND STANDARDS

**Emissions** – EPA Tier 4 Interim Certified

**Generator set is designed and manufactured in facilities certified to standards ISO 9001:2008 and ISO 14001:2004**

**UL 2200 / CSA – Optional**
- UL 2200 Listed
- CSA Certified

**Performance Assurance Certification (PAC)**
- Generator Set Tested to ISO 8528-5 for Transient Response
- Verified product design, quality and performance integrity
- All engine systems are prototype and factory tested

**Power Rating**
- Accepts Rated Load in One Step Per NFPA 110

## STANDARD FEATURES*

MTU Onsite Energy is a single source supplier
Global Product Support
2 Year Standard Warranty
3029TFG89 Diesel Engine
- 2.9 Liter Displacement
- 4-Cycle
Engine-generator resilient mounted
Complete Range of Accessories

Generator
- Brushless, Rotating Field Generator
- 2/3 Pitch Windings
- 300% Short Circuit Capability with Optional PMG
Digital Control Panel(s)
- UL Recognized, CSA Certified, NFPA 110
- Complete System Metering
- LCD Display
Cooling System
- Integral Set-Mounted
- Engine Driven Fan

## STANDARD EQUIPMENT*

### Engine

Air Cleaners
Oil Pump
Oil Drain Extension & S/O Valve
Full Flow Oil Filter
Fuel Filter with Water Separator
Jacket Water Pump
Thermostat
Blower Fan & Fan Drive
Radiator - Unit Mounted
Electric Starting Motor - 12V
Governor - Mechanical Droop
Base - Formed Steel
SAE Flywheel & Bell Housing
Charging Alternator - 12V
Battery Box & Cables
Flexible Fuel Connectors
Flexible Exhaust Connection
EPA Certified Engine

### Generator

NEMA MG1, IEEE and ANSI standards compliance for temperature rise and motor starting
Self-Ventilated and Drip-Proof
Superior Voltage Waveform
Solid State, Volts-per-Hertz Regulator
±1% Voltage Regulation No Load to Full Load
Brushless Alternator with Brushless Pilot Exciter
4 Pole, Rotating Field
130 °C Maximum Standby Temperature Rise
1 Bearing, Sealed
Flexible Coupling
Full Amortisseur Windings
125% Rotor Balancing
3-Phase Voltage Sensing
100% of Rated Load - One Step
5% Maximum Total Harmonic Distortion

### Digital Control Panel(s)

Digital Metering
Engine Parameters
Generator Protection Functions
Engine Protection
Windows®-Based Software
Multilingual Capability
Remote Communications to RDP-110 Remote Annunciator
Programmable Input and Output Contacts
UL Recognized, CSA Certified, CE Approved
Event Recording
IP 54 Front Panel Rating with Integrated Gasket
NFPA110 Compatible

* Represents standard product only. Consult Factory/MTU Onsite Energy Distributor for additional configurations.

## APPLICATION DATA

### Engine

| | |
|---|---|
| Manufacturer | John Deere |
| Model | 3029TFG89 |
| Type | 4-Cycle |
| Arrangement | 3-Inline |
| Displacement: L (in³) | 2.9 (177) |
| Bore: cm (in) | 10.6 (4.2) |
| Stroke: cm (in) | 11 (4.3) |
| Compression Ratio | 17.2:1 |
| Rated RPM | 1,800 |
| Engine Governor | Mechanical Droop |
| Maximum Power: kWm (bhp) | 35 (47) |
| Speed Regulation | ±1% |
| Air Cleaner | Dry |

### Liquid Capacity (Lubrication)

| | |
|---|---|
| Total Oil System: L (gal) | 8 (2.1) |
| Engine Jacket Water Capacity: L (gal) | 5.7 (1.5) |
| System Coolant Capacity: L (gal) | 11.4 (3) |

### Electrical

| | |
|---|---|
| Electric Volts DC | 12 |
| Cold Cranking Amps Under -17.8 °C (0 °F) | 925 |

### Fuel System

| | |
|---|---|
| Fuel Supply Connection Size | 5/16" ID/-6 JIC |
| Fuel Return Connection Size | 5/16" ID/-6 JIC |
| Maximum Fuel Lift: m (ft) | 2 (6.6) |
| Recommended Fuel | Diesel #2 |
| Total Fuel Flow: L/hr (gal/hr) | 111.3 (29.4) |

### Fuel Consumption

| | |
|---|---|
| At 100% of Power Rating: L/hr (gal/hr) | 9.9 (2.6) |
| At 75% of Power Rating: L/hr (gal/hr) | 7.5 (2) |
| At 50% of Power Rating: L/hr (gal/hr) | 5.2 (1.4) |

### Cooling - Radiator System

| | |
|---|---|
| Ambient Capacity of Radiator: °C (°F) | 50 (122)* |
| Maximum Allowable Static Pressure on Rad. Exhaust: kPa (in. $H_2O$) | 0.12 (0.5) |
| Water Pump Capacity: L/min (gpm) | 110 (29) |
| Heat Rejection to Coolant: kW (BTUM) | 20.1 (1,144) |
| Heat Radiated to Ambient: kW (BTUM) | 4.3 (245) |
| Fan Power: kW (hp) | 0.70 (0.94) |

*Installation of a gravity exhaust louver in a Level 3 enclosure will reduce the ambient capacity of the cooling system by 5 °C (9 °F).

### Air Requirements

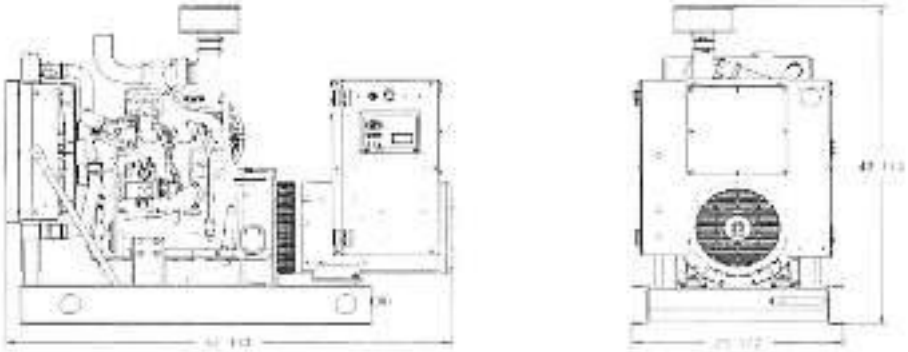
| | |
|---|---|
| Aspirating: *m³/min (SCFM) | 3.6 (127) |
| Air Flow Required for Rad. Cooled Unit: *m³/min (SCFM) | 46.7 (1,636) |
| Remote Cooled Applications; Air Flow Required for Dissipation of Radiated Gen-set Heat for a Max of 25 °F Rise: *m³/min (SCFM) | 15.8 (553) |

* Air density = 1.184 kg/m³ (0.0739 lbm/ft³)

### Exhaust System

| | |
|---|---|
| Gas Temp. (Stack): °C (°F) | 580 (1,076) |
| Gas Volume at Stack Temp: m³/min (CFM) | 8.3 (293) |
| Maximum Allowable Back Pressure: kPa (in. $H_2O$) | 7.5 (30) |

## WEIGHTS AND DIMENSIONS



Drawing above for illustration purposes only, based on standard open power 480 volt generator set. Lengths may vary with other voltages. Do not use for installation design. See website for unit specific template drawings.

| System | Dimensions (L x W x H) | Weight (dry/wet) |
|---|---|---|
| Open Power Unit (OPU) | 1,561 x 749 x 1,226 mm (652.25 x 29.5 x 48.25 in) | 727 kg (1,600 lb) |

Weights and dimensions are based on open power units and are estimates only. Consult the factory for accurate weights and dimensions for your specific generator set.

## SOUND DATA

| Unit Type | Standby Full Load |
|---|---|
| Level 0: Open Power Unit dB(A) | 72.2 |

Sound data is provided at 7 m (23 ft). Generator set tested in accordance with ISO 8528-10 and with critical exhaust.

## EMISSIONS DATA

| NO$_x$ | HC | CO | PM |
|---|---|---|---|
| 4.39 | 0.54 | 1 | 0.12 |

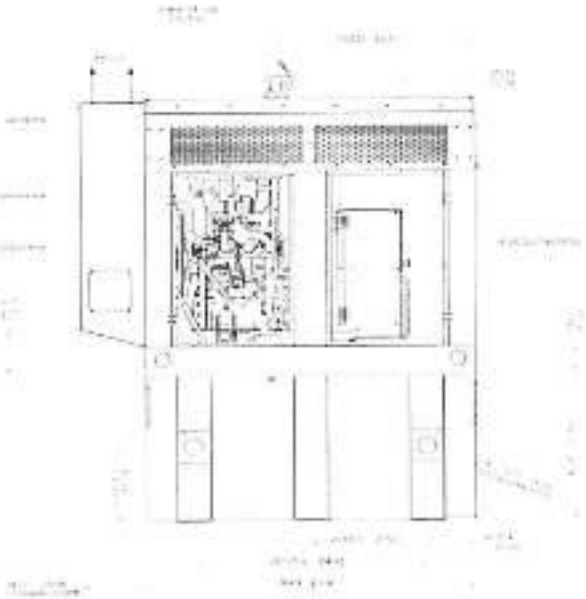
**All units are in g/hp-hr and shown at 100% load (not comparable to EPA weighted cycle values).**
Emission levels of the engine may vary with ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data was obtained in compliance with US EPA regulations. The weighted cycle value (not shown) from each engine is guaranteed to be within the US EPA Standards.

## RATING DEFINITIONS AND CONDITIONS

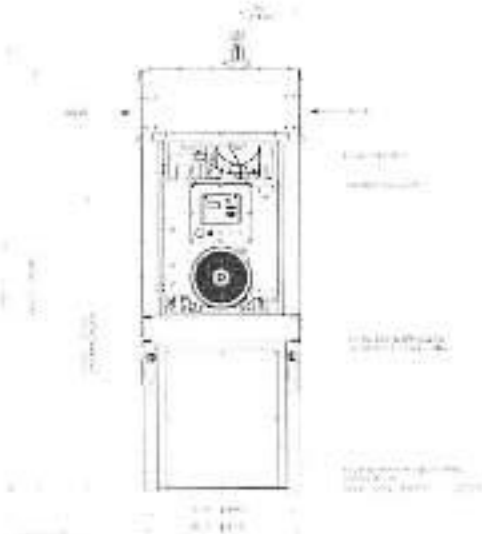
Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. No overload capability for this rating. Ratings are in accordance with ISO 3046-1, BS 5514, and AS 2789. Average load factor: ≤ 85%.
Deration Factor:
**Altitude**: Consult your local MTU Onsite Energy Power Generation Distributor for altitude derations.
**Temperature**: Consult your local MTU Onsite Energy Power Generation Distributor for temperature derations.

C/F = Consult Factory/MTU Onsite Energy Distributor
N/A = Not Available

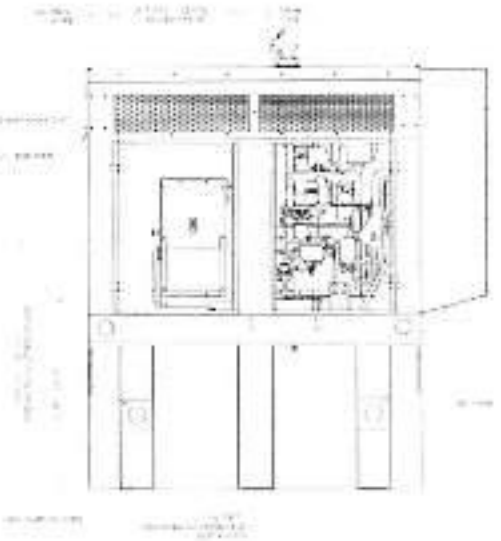
TOP VIEW



LEFT SIDE VIEW



BACK VIEW

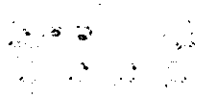


RIGHT SIDE VIEW
SERVICE SIDE

NOTE:
1. APPROXIMATE WEIGHT (WET): 3350 LB
2. FUEL TANK: UL LISTED DOUBLE WALL WITH 150% CONTAINMENT
3. FUEL TANK CAPACITY: 210 GALLONS
4. ENCLOSURE: SINGLE SIDE SERVICE RIGHT SIDE, STEEL, 150 MPH WIND RATED
5. SOUND LEVEL: 64 dB(A) at 7m
6. MEMBRON PART NUMBERS:
   - [illegible]
   - DQ03RJ096V1M03013
   - DQ03RJ096V1M03014

# Product Specifications

COMMSCOPE



## SBNHH-1D65C

**6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 65° HPBW, 2x RET. Both high bands share the same electrical tilt.**

- Interleaved dipole technology providing for attractive, low wind load mechanical package

## Electrical Specifications

| Frequency Band, MHz | 698–806 | 806–896 | 1695–1880 | 1850–1990 | 1920–2200 | 2300–2360 |
|---|---|---|---|---|---|---|
| Gain, dBi | 16.2 | 16.0 | 17.7 | 17.9 | 18.5 | 18.5 |
| Beamwidth, Horizontal, degrees | 66 | 64 | 70 | 65 | 63 | 58 |
| Beamwidth, Vertical, degrees | 8.9 | 7.8 | 5.7 | 5.2 | 5.0 | 4.4 |
| Beam Tilt, degrees | 0–11 | 0–11 | 0–7 | 0–7 | 0–7 | 0–7 |
| USLS (First Lobe), dB | 11 | 12 | 15 | 15 | 15 | 14 |
| Front-to-Back Ratio at 180°, dB | 29 | 31 | 27 | 27 | 28 | 27 |
| Isolation, dB | 25 | 25 | 25 | 25 | 25 | 25 |
| Isolation, Intersystem, dB | 30 | 30 | 30 | 30 | 30 | 30 |
| VSWR \| Return Loss, dB | 1.5 \| 14.0 | 1.5 \| 14.0 | 1.5 \| 14.0 | 1.5 \| 14.0 | 1.5 \| 14.0 | 1.5 \| 14.0 |
| PIM, 3rd Order, 2 x 20 W, dBc | -153 | -153 | -153 | -153 | -153 | -153 |
| Input Power per Port, maximum, watts | 400 | 400 | 350 | 350 | 350 | 300 |
| Polarization | ±45° | ±45° | ±45° | ±45° | ±45° | ±45° |
| Impedance | 50 ohm | 50 ohm | 50 ohm | 50 ohm | 50 ohm | 50 ohm |

## Electrical Specifications, BASTA*

| Frequency Band, MHz | 698–806 | 806–896 | 1695–1880 | 1850–1990 | 1920–2200 | 2300–2360 |
|---|---|---|---|---|---|---|
| Gain by all Beam Tilts, average, dBi | 15.8 | 15.6 | 17.3 | 17.8 | 18.2 | 18.1 |
| Gain by all Beam Tilts Tolerance, dB | ±0.4 | ±0.5 | ±0.3 | ±0.2 | ±0.5 | ±0.4 |
| Gain by Beam Tilt, average, dBi | 0 ° \| 16.0 | 0 ° \| 15.8 | 0 ° \| 17.3 | 0 ° \| 17.7 | 0 ° \| 18.0 | 0 ° \| 17.9 |
| | 5 ° \| 16.0 | 5 ° \| 15.8 | 4 ° \| 17.4 | 4 ° \| 17.8 | 4 ° \| 18.2 | 4 ° \| 18.2 |
| | 11 ° \| 15.5 | 11 ° \| 15.2 | 7 ° \| 17.3 | 7 ° \| 17.7 | 7 ° \| 18.1 | 7 ° \| 18.2 |
| Beamwidth, Horizontal Tolerance, degrees | ±1.2 | ±1.9 | ±3.4 | ±3.8 | ±4.7 | ±3.7 |
| Beamwidth, Vertical Tolerance, degrees | ±0.6 | ±0.5 | ±0.3 | ±0.2 | ±0.3 | ±0.2 |
| USLS, beampeak to 20° above beampeak, dB | 13 | 14 | 17 | 16 | 17 | 15 |
| Front-to-Back Total Power at 180° ± 30°, dB | 26 | 24 | 27 | 25 | 25 | 26 |
| CPR at Boresight, dB | 29 | 22 | 20 | 21 | 19 | 21 |
| CPR at Sector, dB | 14 | 11 | 13 | 11 | 9 | 5 |

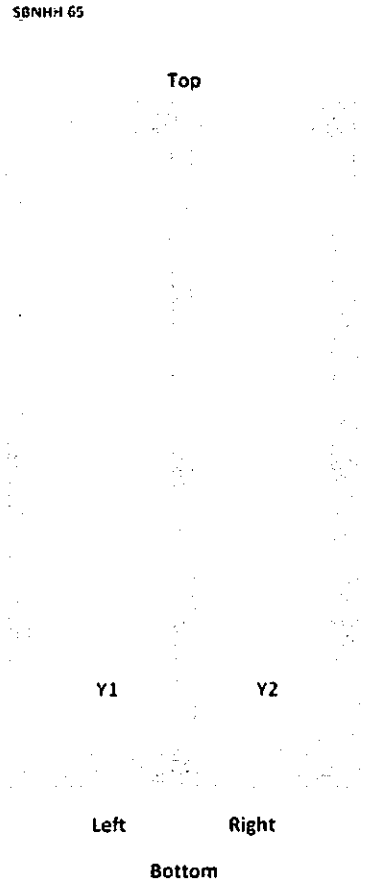
* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

## Array Layout

# Product Specifications

COMMSCOPE

SBNHH-1D65C




View from the front of the antenna

(Sizes of colored boxes are not true depictions of array sizes)

## General Specifications

| | |
|---|---|
| Operating Frequency Band | 1695 - 2360 MHz \| 698 - 896 MHz |
| Antenna Type | Sector |
| Band | Multiband |
| Performance Note | Outdoor usage |

## Mechanical Specifications

| | |
|---|---|
| RF Connector Quantity, total | 6 |
| RF Connector Quantity, low band | 2 |
| RF Connector Quantity, high band | 4 |
| RF Connector Interface | 7-16 DIN Female |

# Product Specifications

COMMSCOPE

SBNHH-1D65C

| | |
|---|---|
| Color | Light gray |
| Grounding Type | RF connector inner conductor and body grounded to reflector and mounting bracket |
| Radiator Material | Aluminum \| Low loss circuit board |
| Radome Material | Fiberglass, UV resistant |
| Reflector Material | Aluminum |
| RF Connector Location | Bottom |
| Wind Loading, frontal | 879.0 N @ 150 km/h<br>197.6 lbf @ 150 km/h |
| Wind Loading, lateral | 273.0 N @ 150 km/h<br>61.4 lbf @ 150 km/h |
| Wind Loading, rear | 1033.0 N @ 150 km/h<br>232.2 lbf @ 150 km/h |
| Wind Speed, maximum | 241 km/h \| 150 mph |

## Dimensions

| | |
|---|---|
| Length | 2453.0 mm \| 96.6 in |
| Width | 301.0 mm \| 11.9 in |
| Depth | 180.0 mm \| 7.1 in |
| Net Weight, without mounting kit | 22.5 kg \| 49.6 lb |

## Remote Electrical Tilt (RET) Information

| | |
|---|---|
| Input Voltage | 10–30 Vdc |
| Internal RET | High band (1) \| Low band (1) |
| Power Consumption, idle state, maximum | 2.0 W |
| Power Consumption, normal conditions, maximum | 13.0 W |
| Protocol | 3GPP/AISG 2.0 (Multi-RET) |
| RET Interface | 8-pin DIN Female \| 8-pin DIN Male |
| RET Interface, quantity | 1 female \| 1 male |

## Packed Dimensions

| | |
|---|---|
| Length | 2628.0 mm \| 103.5 in |
| Width | 390.0 mm \| 15.4 in |
| Depth | 296.0 mm \| 11.7 in |
| Shipping Weight | 35.2 kg \| 77.6 lb |

## Regulatory Compliance/Certifications

| Agency | Classification |
|---|---|
| RoHS 2011/65/EU | Compliant by Exemption |
| China RoHS SJ/T 11364-2006 | Above Maximum Concentration Value (MCV) |
| ISO 9001:2008 | Designed, manufactured and/or distributed under this quality management system |

# Product Specifications

COMMSCOPE

SBNHH-1D65C

## Included Products

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

## * Footnotes

| | |
|---|---|
| Performance Note | Severe environmental conditions may degrade optimum performance |

# Product Specifications

COMMSCOPE®

## SBNHH-1D45C

**6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 45° HPBW, 3x RET**

- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Three internal RETs for independent tilt on all three bands

## Electrical Specifications

| Frequency Band, MHz | 698–806 | 806–896 | 1695–1880 | 1850–1990 | 1920–2200 | 2300–2360 |
|---|---|---|---|---|---|---|
| Gain, dBi | 18.3 | 18.6 | 19.6 | 20.2 | 20.5 | 21.0 |
| Beamwidth, Horizontal, degrees | 47 | 43 | 44 | 43 | 42 | 39 |
| Beamwidth, Vertical, degrees | 8.9 | 8.2 | 5.8 | 5.3 | 5.1 | 4.5 |
| Beam Tilt, degrees | 0–10 | 0–10 | 0–8 | 0–8 | 0–8 | 0–8 |
| USLS (First Lobe), dB | 17 | 16 | 20 | 20 | 19 | 16 |
| Front-to-Back Ratio at 180°, dB | 30 | 31 | 33 | 35 | 35 | 36 |
| CPR at Boresight, dB | 25 | 19 | 20 | 24 | 17 | 17 |
| CPR at 10 dB Horizontal Beamwidth, dB | 11 | 16 | 10 | 10 | 10 | 10 |
| Isolation, dB | 25 | 25 | 25 | 25 | 25 | 25 |
| Isolation, Intersystem, dB | 30 | 30 | 30 | 30 | 30 | 30 |
| VSWR \| Return Loss, dB | 1.5 \| 14.0 | 1.5 \| 14.0 | 1.5 \| 14.0 | 1.5 \| 14.0 | 1.5 \| 14.0 | 1.5 \| 14.0 |
| PIM, 3rd Order, 2 x 20 W, dBc | -153 | -153 | -153 | -153 | -153 | -153 |
| Input Power per Port, maximum, watts | 350 | 350 | 350 | 350 | 350 | 300 |
| Polarization | ±45° | ±45° | ±45° | ±45° | ±45° | ±45° |
| Impedance | 50 ohm | 50 ohm | 50 ohm | 50 ohm | 50 ohm | 50 ohm |

## Electrical Specifications, BASTA*

| Frequency Band, MHz | 698–806 | 806–896 | 1695–1880 | 1850–1990 | 1920–2200 | 2300–2360 |
|---|---|---|---|---|---|---|
| Gain by all Beam Tilts, average, dBi | 17.9 | 18.5 | 19.2 | 20.0 | 20.3 | 20.8 |
| Gain by all Beam Tilts Tolerance, dB | ±0.5 | ±0.2 | ±0.5 | ±0.4 | ±0.4 | ±0.4 |
| Gain by Beam Tilt, average, dBi | 0 ° \| 17.8 | 0 ° \| 18.4 | 0 ° \| 19.2 | 0 ° \| 20.0 | 0 ° \| 20.2 | 0 ° \| 20.8 |
| | 5 ° \| 18.0 | 5 ° \| 18.6 | 4 ° \| 19.3 | 4 ° \| 20.0 | 4 ° \| 20.3 | 4 ° \| 20.9 |
| | 10 ° \| 17.9 | 10 ° \| 18.4 | 8 ° \| 19.0 | 8 ° \| 19.8 | 8 ° \| 20.1 | 8 ° \| 20.5 |
| Beamwidth, Horizontal Tolerance, degrees | ±1.6 | ±2.3 | ±1.8 | ±0.9 | ±1 | ±1.6 |
| Beamwidth, Vertical Tolerance, degrees | ±0.5 | ±0.3 | ±0.3 | ±0.2 | ±0.3 | ±0.1 |
| USLS, beampeak to 20° above beampeak, dB | 16 | 16 | 16 | 16 | 17 | 16 |
| Front-to-Back Total Power at 180° ± 30°, dB | 24 | 25 | 29 | 31 | 32 | 33 |
| CPR at Boresight, dB | 25 | 22 | 22 | 26 | 21 | 19 |
| CPR at 10 dB Horizontal Beamwidth, dB | 14 | 18 | 13 | 11 | 11 | 12 |

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

## Array Layout

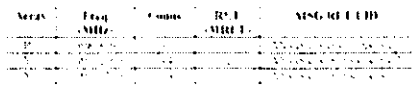
# Product Specifications

COMMSCOPE®

SBNHH-1D45C

SBNHH 45 85

Top



Y1 Y2

Left Right

Bottom

View from the front of the antenna

(Sizes of colored boxes are not true depictions of array sizes)

## General Specifications

| | |
|---|---|
| Operating Frequency Band | 1695 - 2360 MHz \| 698 - 896 MHz |
| Antenna Type | Sector |
| Band | Multiband |
| Performance Note | Outdoor usage |

## Mechanical Specifications

| | |
|---|---|
| RF Connector Quantity, total | 6 |
| RF Connector Quantity, low band | 2 |
| RF Connector Quantity, high band | 4 |
| RF Connector Interface | 7-16 DIN Female |

# Product Specifications

COMMSCOPE®

SBNHH-1D45C

| | |
|---|---|
| Color | Light gray |
| Grounding Type | RF connector inner conductor and body grounded to reflector and mounting bracket |
| Radiator Material | Aluminum \| Low loss circuit board |
| Radome Material | Fiberglass, UV resistant |
| Reflector Material | Aluminum |
| RF Connector Location | Bottom |
| Wind Loading, frontal | 1460.0 N @ 150 km/h<br>328.2 lbf @ 150 km/h |
| Wind Loading, lateral | 325.0 N @ 150 km/h<br>73.1 lbf @ 150 km/h |
| Wind Loading, rear | 1534.0 N @ 150 km/h<br>344.9 lbf @ 150 km/h |
| Wind Speed, maximum | 241 km/h \| 150 mph |

## Dimensions

| | |
|---|---|
| Length | 2437.0 mm \| 95.9 in |
| Width | 457.0 mm \| 18.0 in |
| Depth | 178.0 mm \| 7.0 in |
| Net Weight, without mounting kit | 36.1 kg \| 79.6 lb |

## Remote Electrical Tilt (RET) Information

| | |
|---|---|
| Input Voltage | 10–30 Vdc |
| Internal RET | High band (2) \| Low band (1) |
| Power Consumption, idle state, maximum | 2.0 W |
| Power Consumption, normal conditions, maximum | 13.0 W |
| Protocol | 3GPP/AISG 2.0 (Multi-RET) |
| RET Interface | 8-pin DIN Female \| 8-pin DIN Male |
| RET Interface, quantity | 1 female \| 1 male |

## Packed Dimensions

| | |
|---|---|
| Length | 2559.0 mm \| 100.7 in |
| Width | 567.0 mm \| 22.3 in |
| Depth | 311.0 mm \| 12.2 in |
| Shipping Weight | 55.8 kg \| 123.0 lb |

## Regulatory Compliance/Certifications

| Agency | Classification |
|---|---|
| RoHS 2011/65/EU | Compliant by Exemption |
| China RoHS SJ/T 11364-2006 | Above Maximum Concentration Value (MCV) |
| ISO 9001:2008 | Designed, manufactured and/or distributed under this quality management system |

# Product Specifications

COMMSCOPE®

SBNHH-1D45C

## Included Products

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

BSAMNT-M — Middle Downtilt Mounting Kit for Long Antennas for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor bracket set.

## * Footnotes

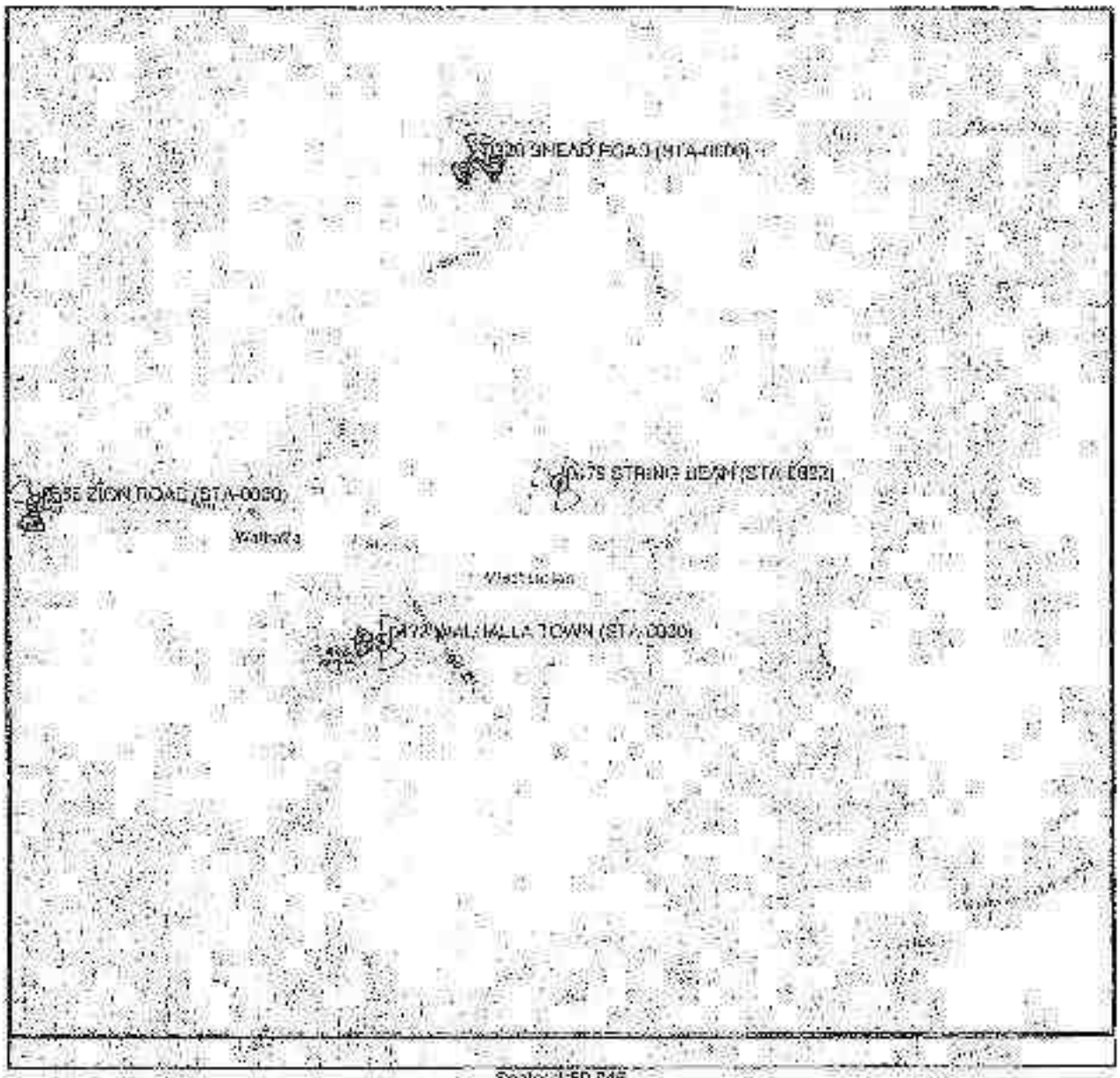
| | |
|---|---|
| Performance Note | Severe environmental conditions may degrade optimum performance |

# String Bean Antenna and Power Information

| Sector | Antenna Make | Radio Information | Azimuth | Max Radio Tx Power Capability (Watts) | Designed Tx Power | FCC Max ERP | Designed ERP | Frequency | | Modulation | FCC Class of Service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SBNHH-1D65C | 2212 | 45 | 160 | 160 | 1000 | 169.13 | 746-757 MHz 776-787 MHz | | LTE 64-QAM | WJ - 700 MHz Upper Band (Block C), Mobile/Fixed Broadband |
| 2 | SBNHH-1D65C | 2212 | 155 | 160 | 160 | 1000 | 167 | 746-757 MHz 776-787 MHz | | LTE 64-QAM | WJ - 700 MHz Upper Band (Block C), Mobile/Fixed Broadband |
| 3 | SBNHH-1D45C | 2212 | 280 | 160 | 160 | 1000 | 249.29 | 746-757 MHz 776-787 MHz | | LTE 64-QAM | WJ - 700 MHz Upper Band (Block C), Mobile/Fixed Broadband |
| 1 | SBNHH-1D65C | RRUS-32 | 45 | 160 | 160 | 1640 (EIRP) | 285.56 (EIRP) | 2145-2155 MHz 1745-1755 MHz | 2115-2120 MHz 1715-1720 MHz | LTE 64-QAM | AW - AWS (1710-1755 MHz and 2110-2155 MHz), Mobile/Fixed Broadband |
| 2 | SBNHH-1D65C | RRUS-32 | 155 | 160 | 160 | 1640 (EIRP) | 302.36 (EIRP) | 2145-2155 MHz 1745-1755 MHz | 2115-2120 MHz 1715-1720 MHz | LTE 64-QAM | AW - AWS (1710-1755 MHz and 2110-2155 MHz), Mobile/Fixed Broadband |
| 3 | SBNHH-1D45C | RRUS-32 | 280 | 160 | 160 | 1640 (EIRP) | 459.63 (EIRP) | 2145-2155 MHz 1745-1755 MHz | 2115-2120 MHz 1715-1720 MHz | LTE 64-QAM | AW - AWS (1710-1755 MHz and 2110-2155 MHz), Mobile/Fixed Broadband |
| 1 | SBNHH-1D65C | RRUS-32 | 45 | 160 | 160 | 1640 (EIRP) | 509.27 (EIRP) | 1988-1989 MHz 1988-1989 MHz | | LTE 64-QAM | CW - PCS Broadband, Mobile/Fixed Broadband |
| 2 | SBNHH-1D65C | RRUS-32 | 155 | 160 | 160 | 1640 (EIRP) | 511.38 (EIRP) | 1988-1989 MHz 1988-1989 MHz | | LTE 64-QAM | CW - PCS Broadband, Mobile/Fixed Broadband |
| 3 | SBNHH-1D45C | RRUS-32 | 280 | 160 | 160 | 1640 (EIRP) | 854.77 (EIRP) | 1988-1989 MHz 1988-1989 MHz | | LTE 64-QAM | CW - PCS Broadband, Mobile/Fixed Broadband |

Forsk

# Current String Bean

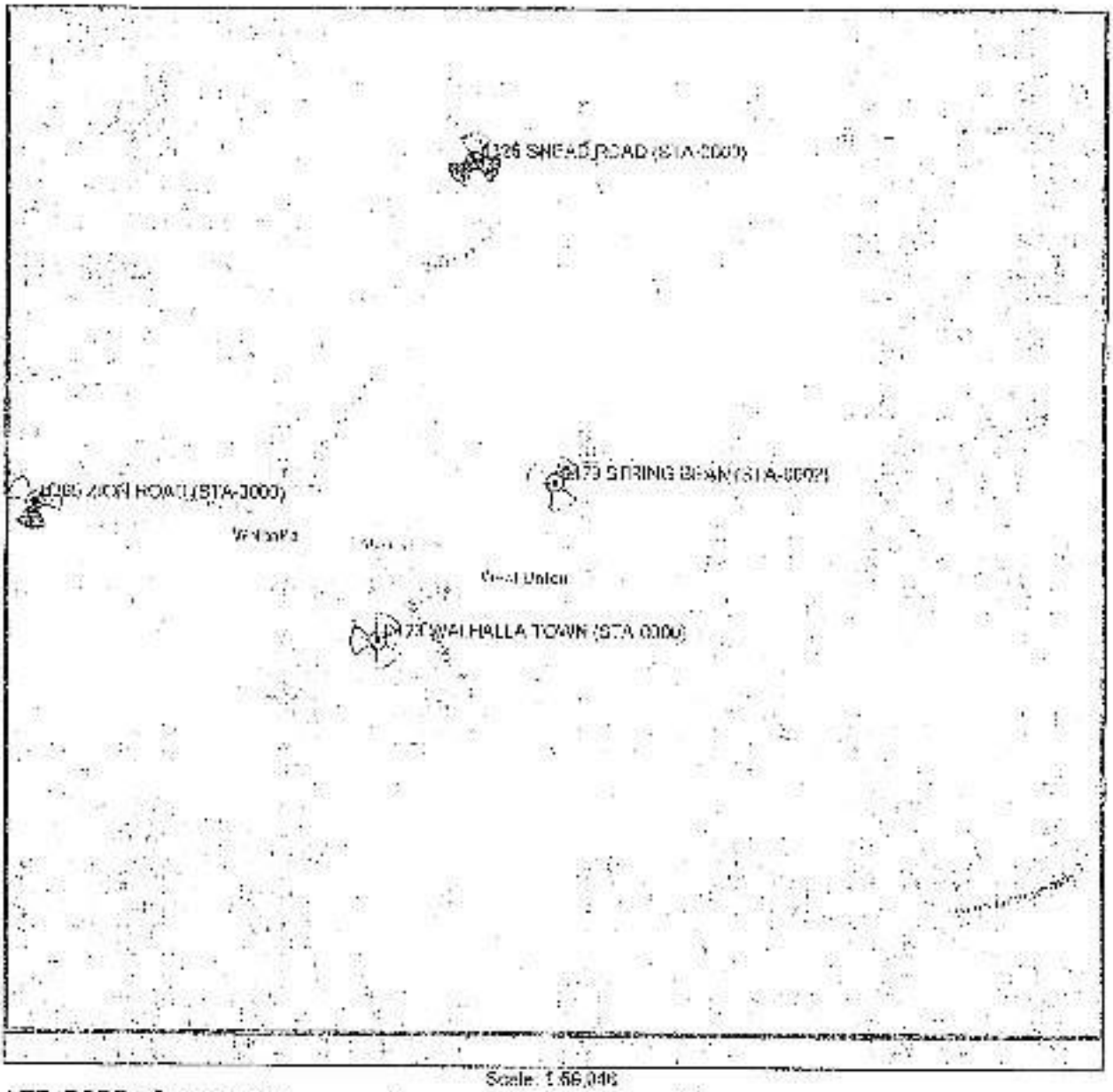



LTE: RSRP - Coverage (0)

- RSRP Level (DL) (dBm) >=-75
- RSRP Level (DL) (dBm) >=-85
- RSRP Level (DL) (dBm) >=-95
- RSRP Level (DL) (dBm) >=-105

Forsk

# Proposed String Bean




LTE: RSRP - Coverage (0)

- RSRP Level (DL) (dBm) >=-75
- RSRP Level (DL) (dBm) >=-85
- RSRP Level (DL) (dBm) >=-95
- RSRP Level (DL) (dBm) >=-105

| Name | Longitude | Latitude |
|---|---|---|
| 0326 SNEAD ROAD (STA-0000) | -83.044225 | 34.80104 |
| 0365 ZION ROAD (STA-0000) | -83.096292 | 34.7665 |
| 0473 WALHALLA TOWN (STA-0000) | -83.054367 | 34.75365 |
| 0479 STRING BEAN (STA-0002) | -83.033717 | 34.76959 |

| Name | Longitude | Latitude |
|---|---|---|
| 0326 SNEAD ROAD (STA-0000) | -83.044225 | 34.80104 |
| 0365 ZION ROAD (STA-0000) | -83.096292 | 34.7665 |
| 0473 WALHALLA TOWN (STA-0000) | -83.054367 | 34.75365 |
| 0479 STRING BEAN (STA-0002) | -83.033717 | 34.76959 |

technical one. Model building codes such as the International Building Code (ICC 2009) and NFPA-5000 (NFPA 2006) contain prescriptive lists of building types by occupancy category. Individual communities can alter these lists when they adopt local codes based on the model code, and individual owners or operators can elect to design individual buildings to higher occupancy categories based on personal risk management decisions. Classification continues to reflect a progression of the anticipated seriousness of the consequence of failure from lowest risk to human life (Risk Category I) to the highest (Risk Category IV). Elimination of the specific examples of buildings that fall into each category has the benefit that it eliminates the potential for conflict between the standard and locally adopted codes and also provides individual communities and development teams the flexibility to interpret acceptable risk for individual projects.

Historically, the building codes and the standard have used a variety of factors to determine the occupancy category of a building. These factors include the total number of persons who would be at risk were failure to occur, the total number of persons present in a single room or occupied area, the mobility of the occupants and their ability to cope with dangerous situations, the potential for release of toxic materials, and the loss of services vital to the welfare of the community.

Risk Category I structures generally encompass buildings and structures that normally are unoccupied and that would result in negligible risk to the public should they fail. Structures typically classified in this category have included barns, storage shelters, gatehouses, and similar small structures. Risk Category II includes the vast majority of structures, including most residential, commercial, and industrial buildings, and has historically been designated as containing all those buildings and structures not specifically classified as conforming to another category.

Risk Category III includes buildings and structures that house a large number of persons in one place, such as theaters, lecture halls, and similar assembly uses; buildings with persons having limited mobility or ability to escape to a safe haven in the event of failure, including elementary schools, prisons, and small healthcare facilities. This category has also included structures associated with utilities required to protect the health and safety of a community, including power generating stations and water treatment and sewage treatment plants. It has also included structures housing hazardous substances, such as explosives or toxins, which if released in quantity could endanger the surrounding community, such as structures in petrochemical process facilities containing large quantities of $H_2S$ or ammonia.

Failures of power plants that supply electricity on the national grid can cause substantial economic losses and disruption to civilian life when their failures can trigger other plants to go offline in succession. The result can be massive and potentially extended power outage, shortage, or both that lead to huge economic losses because of idled industries and a serious disruption of civilian life because of inoperable subways, road traffic signals, and so forth. One such event occurred in parts of Canada and the northeastern United States in August 2003.

Failures of water and sewage treatment facilities can cause disruption to civilian life because these failures can cause large-scale (but mostly non-life-threatening) public health risks caused by the inability to treat sewage and to provide drinking water.

Failures of major telecommunication centers can cause disruption to civilian life by depriving users of access to important emergency information (using radio, television, and phone communication) and by causing substantial economic losses associated with widespread interruption of business.

Risk Category IV has traditionally included structures, the failure of which would inhibit the availability of essential community services necessary to cope with an emergency situation. Buildings and structures typically grouped in Risk Category IV include hospitals, police stations, fire stations, emergency communication centers, and similar uses.

Ancillary structures required for the operation of Risk Category IV facilities during an emergency also are included in this risk category. When deciding whether an ancillary structure or a structure that supports such functions as fire suppression is Risk Category IV, the design professional must decide whether failure of the subject structure will adversely affect the essential function of the facility. In addition to essential facilities, buildings and other structures containing extremely hazardous materials have been added to Risk Category IV to recognize the potential devastating effect a release of extremely hazardous materials may have on a population.

The criteria that have historically been used to assign individual buildings and structures to occupancy categories have not been consistent and sometimes have been based on considerations that are more appropriate to fire and life safety than to structural failure. For example, university buildings housing more than a few hundred students have been

Table 1.5-1 Risk Category of Buildings and Other Structures for Flood, Wind, Snow, Earthquake, and Ice Loads

| Use or Occupancy of Buildings and Structures | Risk Category |
|---|---|
| Buildings and other structures that represent a low risk to human life in the event of failure | I |
| All buildings and other structures except those listed in Risk Categories I, III, and IV | II |
| Buildings and other structures, the failure of which could pose a substantial risk to human life. | III |
| Buildings and other structures, not included in Risk Category IV, with potential to cause a substantial economic impact and/or mass disruption of day-to-day civilian life in the event of failure. | |
| Buildings and other structures not included in Risk Category IV (including, but not limited to, facilities that manufacture, process, handle, store, use, or dispose of such substances as hazardous fuels, hazardous chemicals, hazardous waste, or explosives) containing highly explosive substances where the quantity of the material exceeds a threshold quantity established by the authority having jurisdiction and is sufficient to pose a threat to the public if released.[a] | |
| Buildings and other structures designated as essential facilities. | IV |
| Buildings and other structures, the failure of which could pose a substantial hazard to the community. | |
| Buildings and other structures (including, but not limited to, facilities that manufacture, process, handle, store, use, or dispose of such substances as hazardous fuels, hazardous chemicals, or hazardous waste) containing sufficient quantities of highly toxic substances where the quantity of the material exceeds a threshold quantity established by the authority having jurisdiction and is sufficient to pose a threat to the public if released.[a] | |
| Buildings and other structures required to maintain the functionality of other Risk Category IV structures. | |

[a]Buildings and other structures containing toxic, highly toxic, or explosive substances shall be eligible for classification to a lower Risk Category if it can be demonstrated to the satisfaction of the authority having jurisdiction by a hazard assessment as described in Section 1.5.3 that a release of the substances is commensurate with the risk associated with that Risk Category.

# SECTION 312
# UTILITY AND MISCELLANEOUS GROUP U

**312.1 General.**

Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings

Aircraft hangars, accessory to a one- or two-family residence (see Section 412.5)

Barns

Carports

Fences more than 6 feet (1829 mm) in height

Grain silos, accessory to a residential occupancy

Greenhouses

Livestock shelters

Private garages

Retaining walls

Sheds

Stables

Tanks

Towers

**APPLICATION FOR ZONING APPROVAL BY CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS FOR THE CONSTRUCTION OF A WIRELESS COMMUNICATION TOWER AND RELATED APPURTENANCES**

**STRING BEAN SITE**

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14. FCC LICENSES FOR OCONEE COUNTY, SC
15. GENERATOR SPECIFICATION SHEETS
16. ANTENNA SPECIFICATIONS SHEETS
17. TECHNICAL SPECIFICATIONS FOR ANTENNAS
18. A. PROPAGATION MAPS PREPARED BY DIANNE MCGAHA, RADIO FREQUENCY ENGINEER FOR VERIZON WIRELESS
    B. EXISTING VERIZON WIRELESS SITES NEAR PROPOSED STRING BEAN SITE
19. BUILDING CODE EXCERPTS APPLICABLE TO THE EXISTING BARN ON THE SUBJECT PROPERTY

verizon

8921 RESEARCH DRIVE
CHARLOTTE, NC 28262

# STRING BEAN

## SITE ADDRESS

618 N. HIGHWAY 11
WEST UNION, SC 29696
OCONEE COUNTY
LATITUDE: 34° 46' 10.6" N
LONGITUDE: 83° 02' 00.4" W
TAX/PIN #: 147-00-03-087
ZONING: CFD


VICINITY MAP

FROM CHARLOTTE OFFICE: START OUT GOING SOUTH ON I-85 S. FOR 84 MILES. KEEP LEFT TO STAY ON I-85 S. FOR 84 MILES. TAKE EXIT 40 TOWARD GREENVILLE, TAKE EXIT 40 TOWARD GREENVILLE. KEEP LEFT AT THE FORK AND MERGE ONTO SC-291 TOWARD SENECA. CONTINUE TO FOLLOW SC-11 FOR 12 MILES. DESTINATION.

DRIVING DIRECTIONS

**MUNICIPALITY:**
OCONEE COUNTY

**STATE:**
SOUTH CAROLINA

**TOWER TYPE:**
MONOPOLE (STEALTH) TOWER

**TOWER HEIGHT:**
199' (187' TO HIGHEST APPURTENANCE)

**NUMBER OF CARRIERS:**
0 EXISTING, 1 PROPOSED

**USE:**
PROPOSED TELECOMMUNICATIONS TOWER AND UNMANNED EQUIPMENT

**CONSULTANT**
KIMLEY-HORN AND ASSOCIATES, INC.
2 ELDRIDGE COURT, SUITE 400
PEACHTREE CORNERS, GEORGIA 30092
PHONE: (770) 436-3160
ATTN: KEITH MARKLAND

PROJECT SUMMARY

**DEVELOPER**
VERIZON WIRELESS
8021 RESEARCH DRIVE
CHARLOTTE, NC 28262
PHONE: (704) 377-6705
ATTN: MICHAEL HAVEN

**POWER COMPANY**
DUKE ENERGY
PHONE: (800) 452-2777
ATTN: CUSTOMER SERVICE

**TELEPHONE COMPANY**
AT&T
PHONE: (800) 288-2020
ATTN: CUSTOMER SERVICE

**PROPERTY OWNER**
GEORGE DURHAM
618 N. HWY 11
WEST UNION, SC 29696
PHONE: (864) 247-3301
ATTN: GEORGE DURHAM

CONTACTS

| SHEET | DESCRIPTION | REV |
|---|---|---|
| T1 | COVER SHEET | 1 |
| -- | SITE SURVEY (SHEET 1 OF 2) | 0 |
| -- | SITE SURVEY (SHEET 2 OF 2) | 0 |
| N1 | GENERAL NOTES | 0 |
| C0 | DEMO PLAN | 0 |
| C1 | OVERALL SITE PLAN | 1 |
| C2 | SITE PLAN | 1 |
| C3 | EQUIPMENT PAD LAYOUT | 0 |
| C4 | EQUIPMENT PAD FOUNDATION SECTION DETAILS | 0 |
| C5 | EQUIPMENT PAD FOUNDATION SECTION DETAILS | 0 |
| C6 | COMPOUND DETAILS | 0 |
| C7 | PAD MOUNTED CABLE TRAY DETAILS | 0 |
| C8 | ACCESS ROAD DETAILS | 0 |
| C9 | SITE SIGNAGE DETAILS | 0 |
| C10 | MONOPOLE FOUNDATION DETAILS | 0 |
| C11 | ANTENNA AND TOWER ELEVATION DETAILS | 1 |

SHEET INDEX

**OCONEE PLANNING & ZONING DIVISION**
415 S. PINE STREET
WALHALLA, SC 29691
PHONE: (864) 638-4218
ATTN: CUSTOMER SERVICE

PERMIT INFORMATION

verizon

VERIZON NAME: STRING BEAN
VERIZON No.: TBD

04/04/17

ZONING

| # | DATE | ISSUED FOR | BY |
|---|---|---|---|
| 0 | 04/04/17 | ZONING | WCC |
| 1 | 04/20/17 | ZONING | WCC |

Kimley»Horn

SOUTH CAROLINA
JULIAN C. EDMONDSON
No. 21500
REGISTERED PROFESSIONAL ENGINEER

COVER SHEET

T1 | 1

NOTES

- THIS SITE SURVEY HAS BEEN PREPARED PARTIALLY FROM AN ACTUAL FIELD SURVEY AND PARTIALLY FROM MAPS AND DEEDS OF RECORD. PROPERTY SUBJECT TO ANY VALID & ENFORCEABLE EASEMENTS, RESTRICTIONS & RIGHT OF WAY OF RECORD.
- ALL PROPERTY OWNERS ARE NOW OR FORMERLY. ADJACENT OWNER INFORMATION TAKEN FROM COUNTY TAX RECORDS.
- AREA BY COMPUTER (COORDINATE METHOD).
- ALL DISTANCES SHOWN ARE GROUND DISTANCES IN FEET UNLESS OTHERWISE NOTED.
- NORTH ORIENTATION BASED UPON S.C. GRID (NAD 83) AND WAS ESTABLISHED USING A JAVAD TRIUMPH 2 RECEIVER CONNECTED TO THE SOUTH CAROLINA VRS NETWORK. COMBINED GRID FACTOR = 0.99993722.
- THIS MAP IS FOR LEASE PURPOSES AND IS NOT A BOUNDARY SURVEY OF THE ENTIRE TRACT.
- COORDINATES LISTED ARE SOUTH CAROLINA STATE PLANE COORDINATES NAD83 (2011) IN INTERNATIONAL FEET. ELEVATIONS BASED ON NORTH AMERICAN DATUM OF 1988.
- PORTIONS OF THE SUBJECT PROPERTY ARE LOCATED WITHIN A SPECIAL FLOOD HAZARD ZONE PER FIRM 45073C0195C. WITH AN EFFECTIVE DATE OF 09/11/2009.

NOTES ON REVIEW OF TITLE REPORT:

F. THOMAS ABSTRACT, INC.
FTA FILE NO. 157746
ISSUE DATE 12/20/2016

FROM A SURVEY STANDPOINT, THE ITEMS LISTED IN THE TITLE REPORT DO NOT AFFECT THE LESSEE'S PREMISES.

FIELD WORK COMPLETED ON FEBRUARY 7, 2017.
THIS SURVEY WAS PREPARED AT THE REQUEST OF KIMLEY-HORN AND ASSOCIATES, INC.

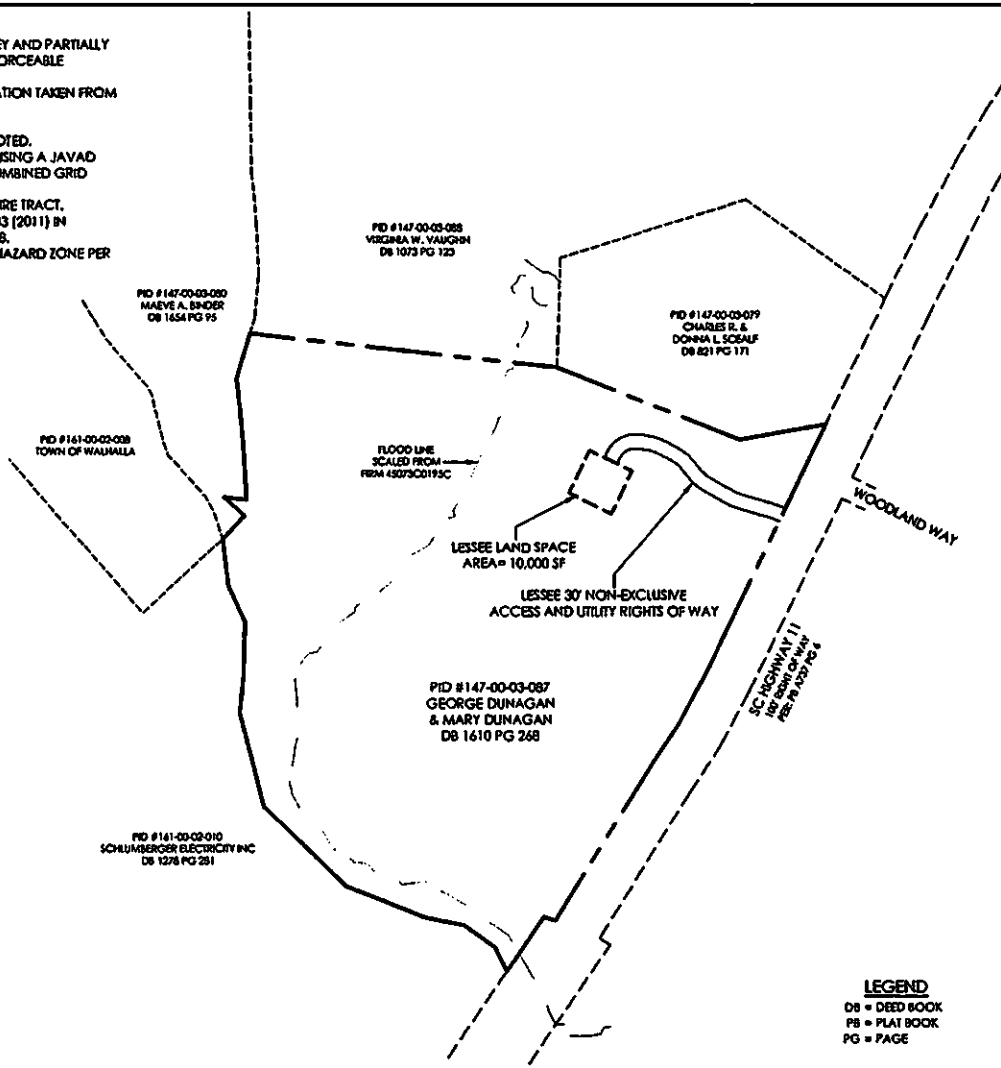
I HEREBY STATE THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THAT THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARDS OF PRACTICE MANUAL FOR SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN.

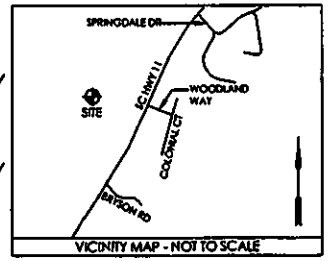
2-28-17
DATE


MCMURRAY LAND SURVEYING, INC.
MICHAEL P. MCMURRAY
316 E. OLD HWY. 74, MONROE, NC 28112
PROFESSIONAL LAND SURVEYOR NO. 28601
TELEPHONE NUMBER (704) 254-2736


SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR NO. 28601 MICHAEL P. McMURRAY

SOUTH CAROLINA MCMURRAY LAND SURVEYING NO: 4744 CERTIFICATE OF AUTHORIZATION



VICINITY MAP - NOT TO SCALE

SC GRID (NAD 83/2011)

LINETYPE LEGEND
- = PARENT TRACT PARCEL LINES
- = ADJACENT PARCEL LINES
- = ROAD RIGHT OF WAY
- = LESSEE AREA LINES
- = EDGE OF ACCESS EASEMENT

LEGEND
DB = DEED BOOK
PB = PLAT BOOK
PG = PAGE

SCALE 1" = 250'
0 125 250 500

Kimley»Horn
2 SUM COURT, SUITE 400, PEACHTREE CORNERS, GA 30092
PHONE 770-825-0744 WWW.KIMLEY-HORN.COM

| Drawn by: | Checked by: | Approved by: | Date: |
|---|---|---|---|
| DE | EK | MM | 2/28/17 |

STRING BEAN
615 N. HIGHWAY 11
WEST UNION, SC 29696
OCONEE COUNTY

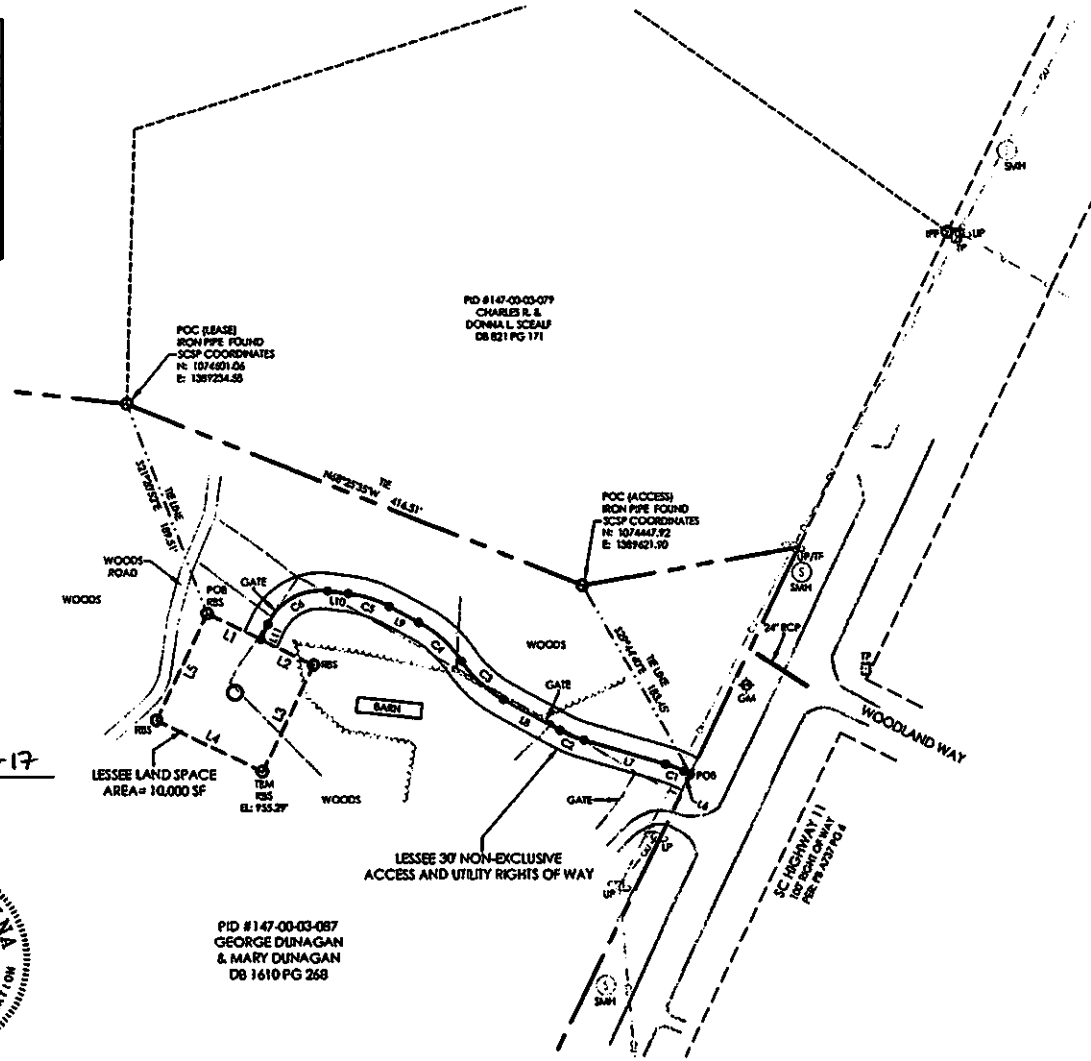
verizon wireless

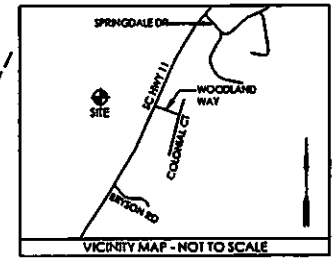
| REVISIONS | | | | | |
|---|---|---|---|---|---|
| No. | DATE | DESCRIPTION | BY | CHK | APP'D |
| 0 | 2/28/17 | FINAL | DE | EK | MM |
| A | 2/8/17 | ISSUED FOR REVIEW | DE | EK | MM |

SITE SURVEY
PROPOSED MONOPOLE
DRAWING No.
SHEET 1 OF 2
REV
0

| CURVE TABLE | | | | |
|---|---|---|---|---|
| CURVE | BEARING | CHORD | RADIUS | LENGTH |
| C1 | N69°06'31"W | 16.31' | 100.00' | 16.33' |
| C2 | N67°33'42"W | 21.68' | 100.00' | 21.73' |
| C3 | N47°30'35"W | 47.80' | 100.00' | 48.27' |
| C4 | N47°50'51"W | 48.95' | 100.00' | 49.45' |
| C5 | N72°29'59"W | 36.40' | 100.00' | 36.60' |
| C6 | S61°24'17"W | 58.23' | 50.00' | 62.15' |

| LINE TABLE | | |
|---|---|---|
| LINE | BEARING | LENGTH |
| L1 | S64°12'16"E | 50.00' |
| L2 | S64°12'16"E | 50.00' |
| L3 | S25°47'44"W | 100.00' |
| L4 | N64°12'16"W | 100.00' |
| L5 | N25°47'44"E | 100.00' |
| L6 | N64°25'52"W | 6.66' |
| L7 | N73°47'09"W | 72.03' |
| L8 | N61°20'16"W | 54.85' |
| L9 | N62°00'49"W | 28.14' |
| L10 | N82°59'10"W | 17.50' |
| L11 | S25°47'44"W | 14.19' |



VICINITY MAP - NOT TO SCALE

CENTER OF
PROPOSED TOWER
LAT = 34°46'10.5" N
LONG = 83°02'00.4" W
GROUND ELEVATION = 944.4' NAVD88

**LEGEND**

- ◆ = COMPUTED POINT
- DB = DEED BOOK
- EL = ELEVATION
- GM = GAS MARKER
- IPF = IRON PIPE FOUND
- LP = LIGHT POLE
- PG = PAGE
- POB = POINT OF BEGINNING
- POC = POINT OF COMMENCEMENT
- RBS = REBAR SET
- RCP = REINFORCED CONCRETE PIPE
- SMH = SEWER MANHOLE
- TBM = TEMPORARY BENCHMARK
- TF = TRANSFORMER
- TP = TELEPHONE PEDESTAL
- UP = UTILITY POLE

N

SC GRID (NAD 83/2011)

**LINETYPE LEGEND**

- = PARENT TRACT PARCEL LINES
- = ADJACENT PARCEL LINES
- = ROAD RIGHT OF WAY
- = LESSEE AREA LINES
- = CENTER OF ACCESS EASEMENT
- = EDGE OF ACCESS EASEMENT
- = OVERHEAD UTILITY LINES
- = FENCE LINES
- = TREE LINES

SCALE 1" = 100'

0 50 100 200

2-28-17
DATE


McMURRAY LAND SURVEYING, INC.
MICHAEL P. McMURRAY
318 E. OLD HWY 74, MONROE, NC 28112
PROFESSIONAL LAND SURVEYOR NO. 28601
TELEPHONE NUMBER (704) 254-2736


SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR NO. 28601 MICHAEL P. McMURRAY

SOUTH CAROLINA McMURRAY LAND SURVEYING NO: 4744 CERTIFICATE OF AUTHORIZATION

Kimley»Horn
2 SUN COURT, SUITE 400, PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744 WWW.KIMLEY-HORN.COM

| Drawn by: | Checked by: | Approved by: | Date: |
|---|---|---|---|
| DE | EK | MM | 2/28/17 |

STRING BEAN
615 N. HIGHWAY 11
WEST UNION, SC 29696
OCONEE COUNTY

verizon wireless

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| No. | DATE | DESCRIPTION | BY | CHK | APP'D |
| 0 | 2/28/17 | FINAL | DE | EK | MM |
| A | 2/8/17 | ISSUED FOR REVIEW | DE | EK | MM |

SITE SURVEY
PROPOSED MONOPOLE
DRAWING No. SHEET 2 OF 2
REV 0

## 1.00 GENERAL NOTES

1.01 ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE DRAWINGS AND SPECIFICATIONS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE, LOCAL AND NATIONAL CODES, ORDINANCES AND OR REGULATIONS APPLICABLE TO THIS PROJECT.

1.02 THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE PROJECT MANAGER AND/OR ENGINEER AND BE RESOLVED BEFORE PROCEEDING WITH WORK. WHERE THERE IS A CONFLICT BETWEEN DRAWING AND VERIZON SPECIFICATIONS, THE VERIZON PROJECT ENGINEER SHOULD BE CONTACTED FOR CLARIFICATION.

1.03 ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. WHERE ACTUAL CONDITIONS CONFLICT WITH THE DRAWINGS, THEY SHALL BE REPORTED TO THE PROJECT MANAGER AND/OR ENGINEER SO THAT PROPER REVISIONS MAY BE MADE. MODIFICATION OF DETAILS OF CONSTRUCTION SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF THE PROJECT MANAGER AND/OR ENGINEER.

1.04 CONTRACTOR SHALL REVIEW AND BE FAMILIAR WITH SITE CONDITIONS AS SHOWN ON THE ATTACHED SITE PLAN AND/OR SURVEY DRAWINGS.

1.05 UNDERGROUND ENERGY AND EQUIPMENT CABINETS ARE SHOWN FOR REFERENCE ONLY. REFER TO SEPARATE DRAWINGS FOR SPECIFIC INFORMATION.

1.06 ALL FINISHED GRADES SHALL SLOPE MINIMUM 1/4 IN./FT. AWAY FROM EQUIPMENT IN ALL DIRECTIONS. CONTRACTOR SHALL SLOPE MINIMUM AS REQUIRED ALONG EXISTING TERRAIN TO DRAIN AWAY FROM COMPOUND AND ACCESS DRIVE.

1.07 THE PROPOSED TOWER AND TOWER FOUNDATIONS WERE DESIGNED BY OTHERS. TOWER INFORMATION PROVIDED ON THESE PLANS ARE PROVIDED FOR REFERENCE PURPOSES ONLY. NOTIFY ENGINEER OR PROJECT MANAGER OF ANY CONFLICTS OR DISCREPANCIES. CONTRACTOR TO OBTAIN COPY OF TOWER DESIGN DRAWINGS, IF AVAILABLE, FROM VERIZON PROJECT MANAGER BEFORE COMPLETING COAX ROUTING AND ANTENNA MOUNT INFORMATION.

1.08 THE CONTRACTOR SHALL PROVIDE ADEQUATE EXCAVATION SLOPING, SHORING, BRACING, AND CUTS IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL SAFETY ORDINANCES.

1.09 UPON COMPLETION OF CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO THE EXISTING ACCESS ROAD AND COMPOUND GRAVEL AREAS. ANY NEW FILL MATERIAL SHALL BE COMPACTED.

1.10 THE CONTRACTOR IS HEREBY NOTIFIED THAT PRIOR TO COMMENCING CONSTRUCTION, HE IS RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES INVOLVED AND SHALL REQUEST A VERIFICATION AT THE CONSTRUCTION SITE OF THE LOCATIONS OF THEIR UNDERGROUND UTILITIES AND WHERE THEY MAY POSSIBLY CONFLICT WITH THE PLACEMENT OF IMPROVEMENTS AS SHOWN ON THESE PLANS. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THE CONTRACT WILL BE REQUIRED TO NOTIFY "SOUTH CAROLINA 811" 72 HOURS IN ADVANCE OF PERFORMING ANY WORK BY CALLING THE TOLL FREE NUMBER (800) 922-0983 OR 811. "NC ONE CALL" 48 HOURS IN ADVANCE OF PERFORMING ANY WORK BY CALLING THE TOLL FREE NUMBER (800) 632-4949 OR 811. ANY UTILITIES DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR, AT NO EXPENSE TO THE OWNER.

1.11 CONTRACTOR TO PROVIDE SANITARY AND PORTABLE TOILET FACILITY DURING CONSTRUCTION.

1.12 CONTRACTOR TO PROVIDE STORM LOCK OR EQUIVALENT AS APPROVED BY VERIZON PROJECT MANAGER.

1.13 CONTRACTOR TO PROVIDE ANY NECESSARY SIGNAGE PER VERIZON PROJECT MANAGER'S INSTRUCTIONS. SEE DETAIL ON SHEET C10.

## 2.00 EQUIPMENT FOUNDATION NOTES

2.01 FOUNDATIONS ARE DESIGNED FOR A PRESUMPTIVE ALLOWABLE SOIL BEARING CAPACITY OF 2,000 PSF. CONTRACTOR SHALL VERIFY SOIL CONDITIONS AND BEARING CAPACITY PRIOR TO CONSTRUCTION.

2.02 EXCAVATE A MINIMUM 12" BELOW FROST-PROOF EQUIPMENT FOUNDATIONS OR OTHERWISE ORDERED. UNDERCONSOLIDATED OR OTHERWISE UNACCEPTABLE MATERIAL AND REPLACE WITH WELL-COMPACTED MATERIAL ACCEPTABLE TO VERIZON.

2.03 CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, PROTECTING AND RELOCATING OR REMOVING ALL SURFACE AND UTILITY LINES IN VICINITY OF THE WORK SITE. ALL EXCAVATIONS NEAR THESE LINES TO BE CARRIED OUT WITH EXTREME CAUTION. COORDINATE ALL RELOCATIONS WITH THE PROPERTY OWNER.

2.04 CONTRACTOR TO CUT/FILL EXISTING CONTOURS AS NEEDED, TO PROVIDE AN AREA AS LEVEL AS POSSIBLE FOR THE EQUIPMENT FOUNDATIONS. ALL FILL AREAS ARE TO BE FILLED WITH SUITABLE MATERIALS. FILL MATERIALS ARE TO BE PLACED, COMPACTED, AND TESTED IN MAXIMUM LAYERS OF 8" COMPACTION OF ALL FILL MATERIAL SHALL ACHIEVE 95 PERCENT OF MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D 698. ALL TESTS MUST MEET THE MINIMUM SPECIFIED SOIL BEARING CAPACITY. COMPACTION TESTING IS BY THE GEOTECHNICAL TESTING COMPANY DESIGNATED FOR THE PROJECT. SCHEDULING AND COORDINATION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. REPORTS OF ALL TESTING ARE TO BE PROMPTLY DELIVERED OR FAXED TO THE VERIZON WIRELESS PROJECT MANAGER.

2.05 CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION TO ACI-318 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.

2.06 CONCRETE SHALL HAVE A SLUMP BETWEEN 3" AND 6".

2.07 REINFORCING BAR SHALL CONFORM TO THE LATEST REVISION OF ASTM-615 GRADE 60 SPECIFICATIONS AND BE DETAILED IN ACCORDANCE WITH THE LATEST REVISION TO ACI-315.

2.08 AT THE REQUEST OF THE VERIZON WIRELESS PROJECT MANAGER, TEST CYLINDERS SHALL BE MOLDED AND LABORATORY CURED IN ACCORDANCE WITH ASTM C31. THREE CYLINDERS SHALL BE TAKEN FOR EVERY DAY'S CONCRETE PLACEMENT. CYLINDERS SHALL BE TESTED IN ACCORDANCE WITH THE LATEST REVISION TO ASTM C39.

2.09 CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 3/4" x 45° CHAMFER, UNLESS OTHERWISE NOTED.

2.10 CONCRETE FORMWORK IS TO BE STRIPPED WITHIN 48 HOURS. VIBRATION OF THE CONCRETE MUST ASSURE THAT HONEYCOMBING WILL BE AT A MINIMUM. MECHANICAL VIBRATION OF ALL CONCRETE IS REQUIRED UNLESS OTHERWISE DIRECTED BY VERIZON WIRELESS PROJECT MANAGER. ABOVE GRADE CONCRETE IS TO BE RUBBED AND PATCHED TO ASSURE SMOOTH FINISH AT TIME OF FORMS REMOVAL. CONTRACTOR SHALL PROVIDE A SMOOTH FINISH ON THE TOP SURFACE OF THE EQUIPMENT FOUNDATION UNLESS OTHERWISE DIRECTED BY VERIZON WIRELESS PROJECT MANAGER.

2.11 TOPS OF CONCRETE FOUNDATION MUST BE WITHIN 0.02' OF ELEVATION REQUIRED.

2.12 TOP OF FOUNDATION FINISH TO BE LEVEL ±¼" IN 10'.

2.13 TOP OF FOUNDATION TO HAVE MEDIUM BROOM FINISH.

2.14 CONTRACTOR SHALL REFER TO DRAWINGS OF OTHER TRADES AND VENDOR DRAWINGS FOR EQUIPMENT ITEMS AND ACCESSES NOT SHOWN ON THE STRUCTURAL DRAWINGS. CONTRACTOR SHALL VERIFY PLACEMENT OF EQUIPMENT AND LOCATION OF CONDUIT FOR MANUFACTURER'S AND VENDOR'S SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL OPENINGS AND SLEEVES FOR PROPER DISTRIBUTION OF ALL UTILITIES.

verizon

PROJECT INFORMATION

VERIZON NAME: SERVICE AREA
VERIZON No.: TBD

DOCUMENT ISSUE DATE:
03/09/17

ISSUED FOR:
ZONING

| NO. | ISSUED | ADDED | FOR |
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| | | | |

Kimley»Horn

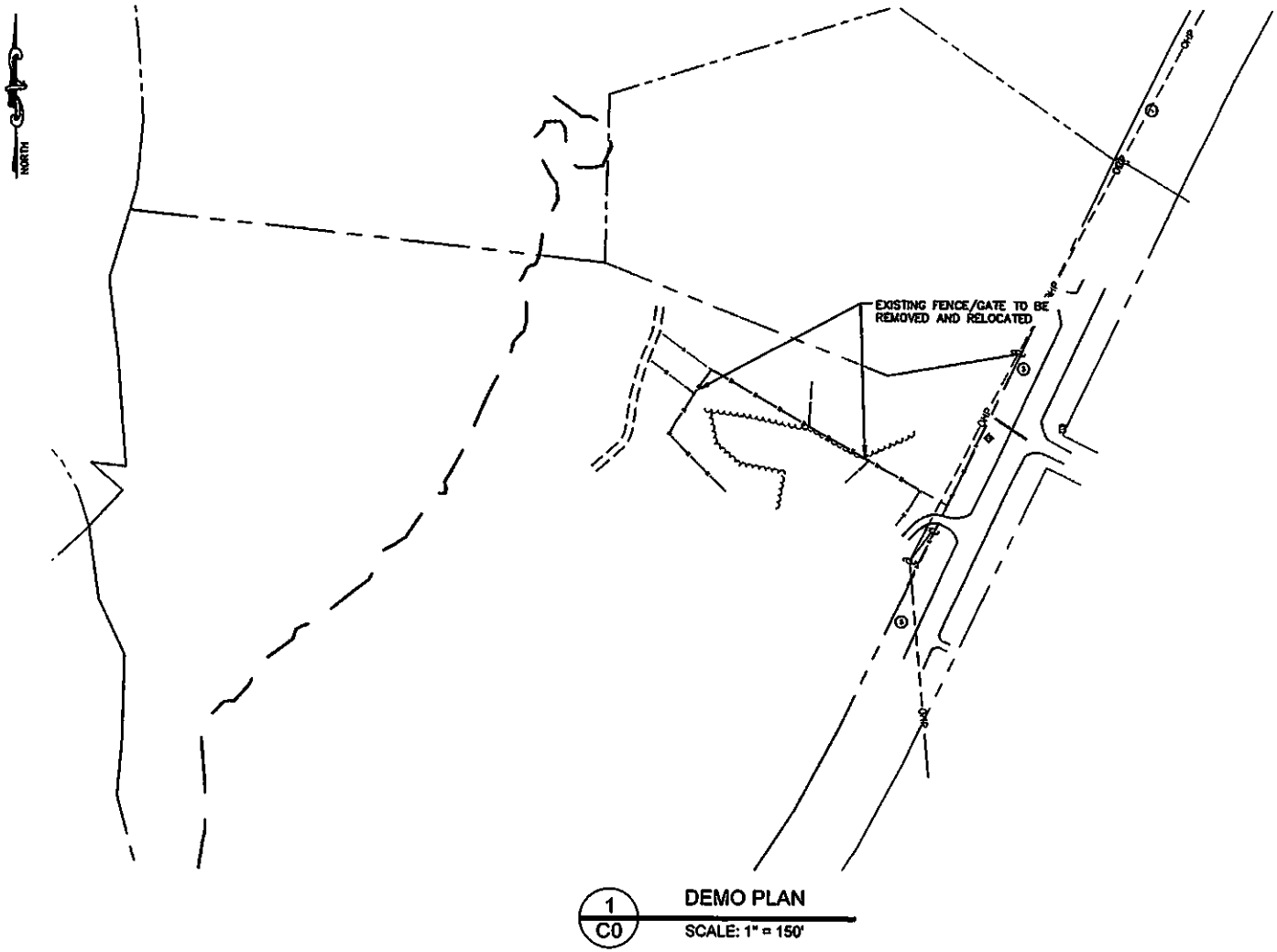
SOUTH CAROLINA
PROFESSIONAL ENGINEER
WILLIAM C. DUMONTIER

DRAWN BY: | CHK | QC'D | APP'D

SOUTH CAROLINA
PROFESSIONAL ENGINEER
WILLIAM C. DUMONTIER

SHEET TITLE
GENERAL NOTES

SHEET NUMBER: N1
REVISION: 0




verizon
8021 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

PROJECT INFORMATION:

VERIZON NAME: STRING BEAN
VERIZON No.: TBD

615 N. HIGHWAY 11
WEST UNION, SC 29696
OCONEE COUNTY

CURRENT ISSUE DATE:

03/09/17

ISSUED FOR:

ZONING

| REV. | DATE | ISSUED FOR: | BY: |
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| 0 | 03/09/17 | CONSTRUCTION | WCE |
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CONSULTANT:

Kimley»Horn

CERTIFICATE OF AUTHORIZATION:

SOUTH CAROLINA
KIMLEY-HORN AND ASSOCIATES, INC. NO.C00105
CERTIFICATE OF AUTHORIZATION

| DRAWN BY: | CHK: | APV.: |
|---|---|---|
| TDM | KRM | WCE |

LICENSER:

SOUTH CAROLINA
PROFESSIONAL ENGINEER
No. 31805
WILLIAM C. EDMONSON

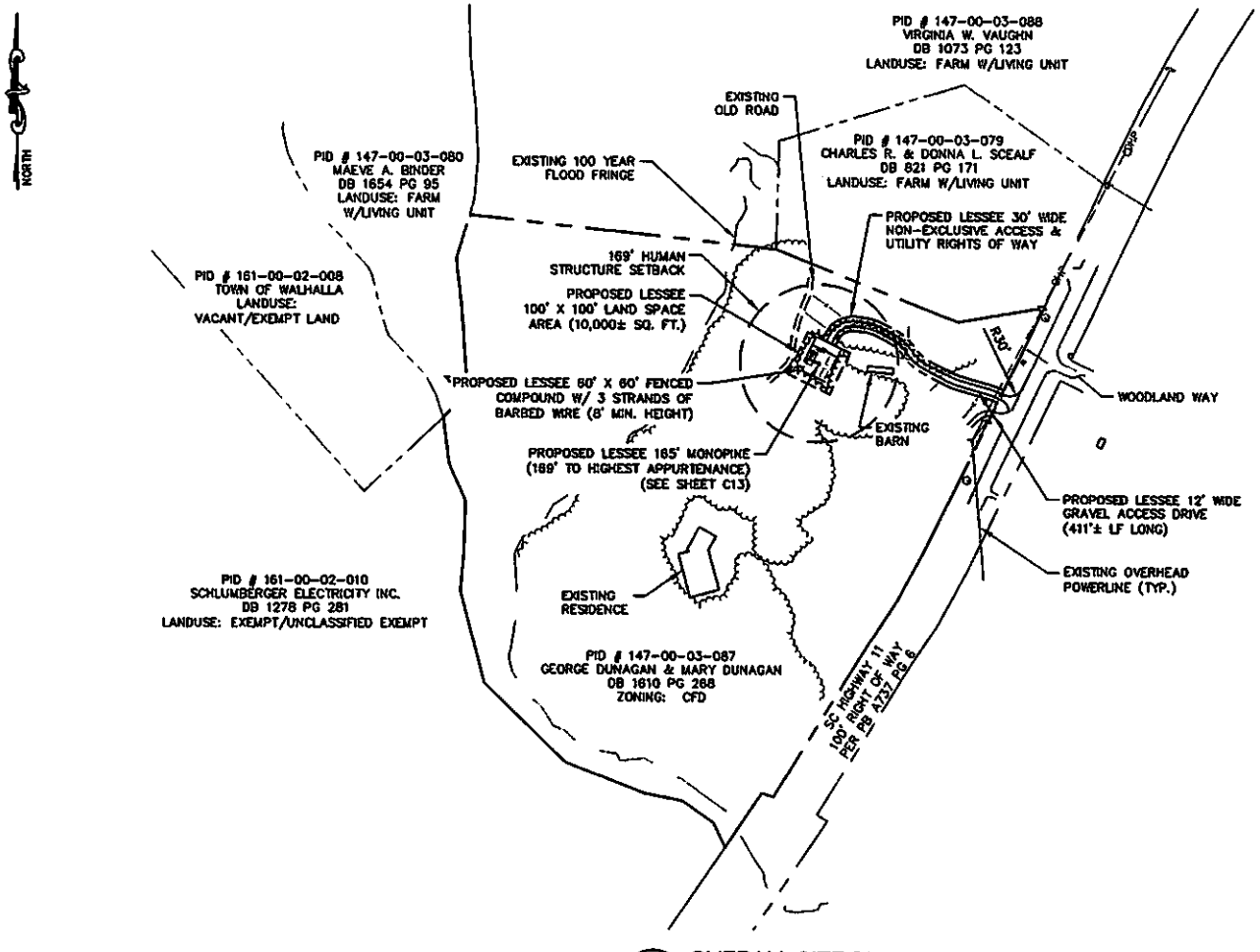
SHEET TITLE:

DEMO PLAN

SHEET NUMBER: C0

REVISION: 0

019985330




| TOWER SETBACKS TO PROPERTY LINES (FROM TOWER CENTER) | |
|---|---|
| NORTH | 192'-4" |
| SOUTH | 674'-7" |
| EAST | 377'-9" |
| WEST | 758'-0" |

1 / C1 OVERALL SITE PLAN
SCALE: 1" = 250'

**SURVEY NOTE:**
1. VERIZON WIRELESS STAFF SHALL COORDINATE WITH THE PROPERTY OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN AND AROUND THE TOWER COMPOUND.
2. PROPOSED COMPOUND LAYOUT BASED ON SURVEY PROVIDED BY McMURRAY LAND SURVEYING, INC. DATED 02/28/17 AND SITE VISIT ON 01/20/17.

0 125 250 500
GRAPHIC SCALE: 1" = 250'

verizon
8021 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

PROJECT INFORMATION:
VERIZON NAME: STRING BEAN
VERIZON No.: TBD
815 N. HIGHWAY 11
WEST UNION, SC 29696
OCONEE COUNTY

CURRENT ISSUE DATE:
04/04/17

ISSUED FOR:
ZONING

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| 0 | 03/09/17 | ZONING | WCE |
| 1 | 04/04/17 | ZONING | WCE |
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| | | | |

CONSULTANT:
Kimley»Horn

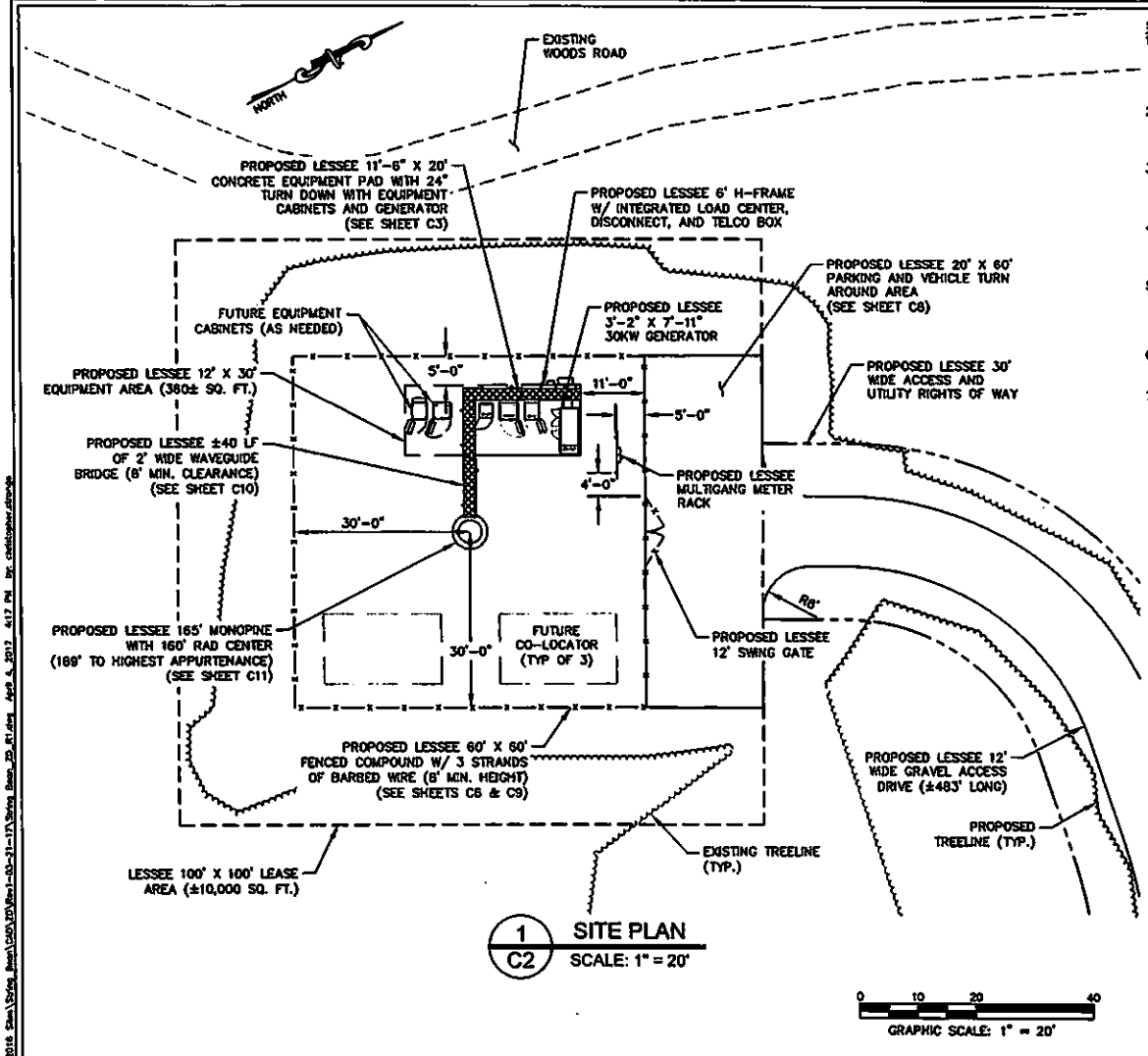
CERTIFICATE OF AUTHORIZATION:
SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
KIMLEY-HORN AND ASSOCIATES, INC. NO.C00165

| DRAWN BY: | CHK.: | APV.: |
|---|---|---|
| TDM | KRM | WCE |

LICENSER:
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
No. 31806
WILLIAM C. EDMONSON
4.4.17

SHEET TITLE:
OVERALL SITE PLAN

SHEET NUMBER: C1
REVISION: 1
018985330




1 / C2 SITE PLAN
SCALE: 1" = 20'

**SITE NOTES:**

1. VERIZON WIRELESS STAFF SHALL COORDINATE WITH THE PROPERTY OWNER AND/OR TOWER OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN AND AROUND THE TOWER COMPOUND.
2. PROPOSED COMPOUND LAYOUT BASED ON SURVEY PROVIDED BY McMURRAY LAND SURVEYING, INC. DATED 02/28/17 AND SITE VISIT ON 01/20/17.
3. CONTRACTOR TO CONFIRM WITH VERIZON CONSTRUCTION MANAGER THAT THE SHELTER/EQUIPMENT SHOWN HAS BEEN ORDERED/SCHEDULED FOR DELIVERY TO THIS SITE.
4. THE BASIS OF EQUIPMENT DESIGN INCLUDES ONE (1) COMMSCOPE RBA72-36 BATTERY CABINET, ONE (1) COMMSCOPE RBA72 RF CABINET, AND ONE (1) ERICSSON RBS 6120 RF CABINET.
5. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND MODIFYING SCOPE OF WORK TO ACCOMMODATE ANY CHANGES IN THE EXACT EQUIPMENT PROCURED BY VERIZON WIRELESS. COORDINATE ANY CHANGES WITH VERIZON WIRELESS CONSTRUCTION MANAGER.
6. ROUTE COAX/FIBER UP TOWER PER STRUCTURAL ANALYSIS BY TOWER OWNER.
7. TOWER DIMENSIONS SHOWN ON THIS PLAN ARE FOR TOWER CENTER LOCATION. CONTRACTOR TO OBTAIN COPY OF TOWER ERECTION DRAWINGS FROM VERIZON CONSTRUCTION MANAGER PRIOR TO DRILLING TOWER FOUNDATIONS. CASSIONS AND TOWER SHOWN ON THIS PLAN ARE ILLUSTRATIVE, SEE DESIGN DRAWING BY OTHERS. DO NOT SCALE.

verizon
8021 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

PROJECT INFORMATION:
VERIZON NAME: STRING BEAN
VERIZON No.: TBD
615 N. HIGHWAY 11
WEST UNION, SC 29696
OCONEE COUNTY

CURRENT ISSUE DATE:
04/04/17

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| 1 | 04/04/17 | ZONING | WCE |
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CONSULTANT:
Kimley»Horn

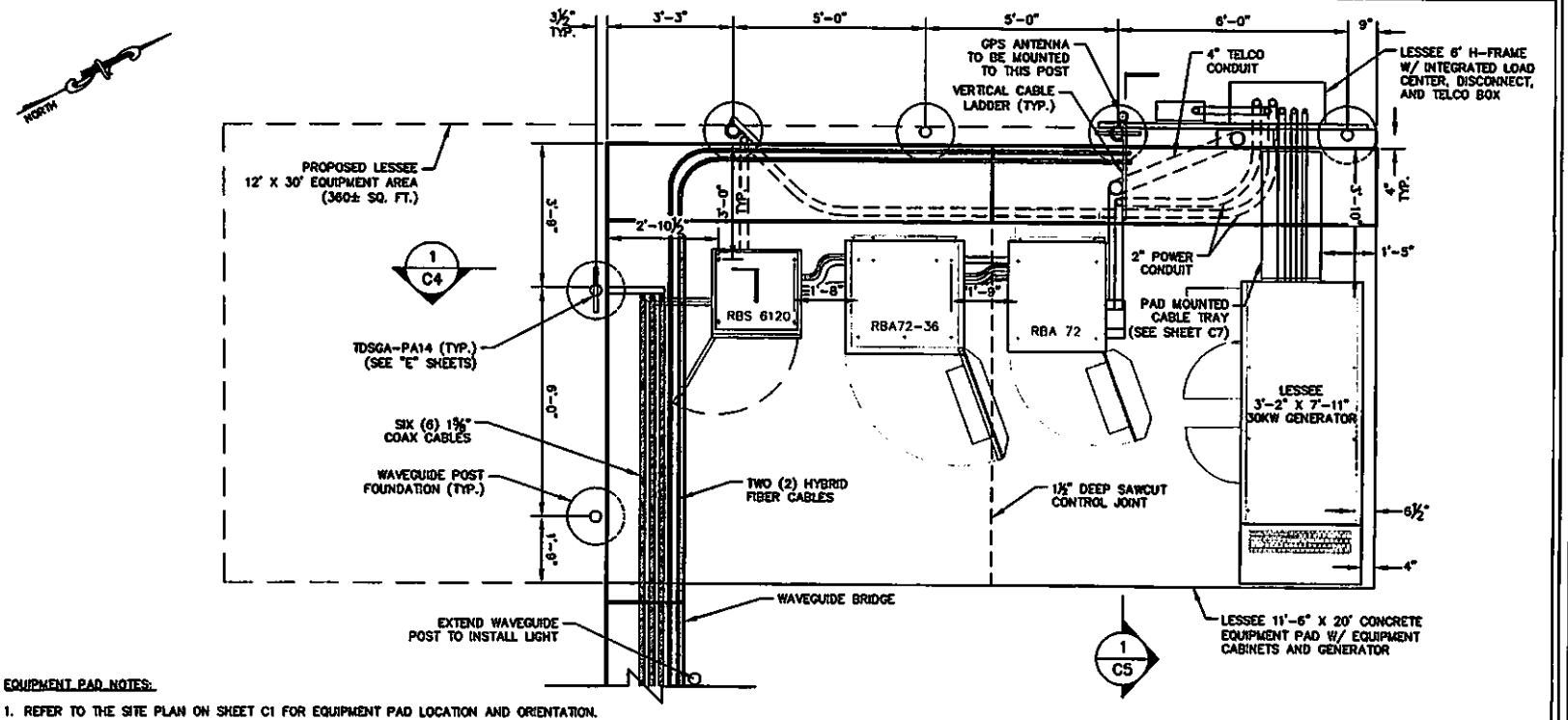
CERTIFICATE OF AUTHORIZATION:
SOUTH CAROLINA
KIMLEY-HORN AND ASSOCIATES, INC. NO.C00108
CERTIFICATE OF AUTHORIZATION

| DRAWN BY: | CHK.: | APV.: |
|---|---|---|
| TDM | KRM | WCE |

LICENSER:
SOUTH CAROLINA
PROFESSIONAL ENGINEER
No. 21806
WILLIAM C. EDMONSON
4.4.17

SHEET TITLE:
SITE PLAN

SHEET NUMBER: C2
REVISION: 1
018985330




EQUIPMENT PAD NOTES:

1. REFER TO THE SITE PLAN ON SHEET C1 FOR EQUIPMENT PAD LOCATION AND ORIENTATION.
2. RUN 4" TELCO CONDUIT OVERHEAD ON WAVEGUIDE BRIDGE USING 16" RADIUS SWEEPS AT ALL BENDS. FASTEN TO UNDERSIDE OF ICE BRIDGE PER CONDUIT HANGER DETAIL. RUN DOWN CABLE LADDER TO APPROX. 3 FT HIGH, THEN SWEEP OVER TO 12X12X6 PVC NEMA BOX MOUNTED TO SIDE OF RBA72 CABINET WITH CHASE NIPPLE THROUGH FACTORY KNOCKOUT.
3. RUN 2" POWER CONDUIT OVERHEAD ON WAVEGUIDE BRIDGE. FASTEN TO UNDERSIDE OF ICE BRIDGE PER CONDUIT HANGER DETAIL. RUN DOWN CABLE LADDER TO APPROX. 5 FT HIGH, THEN SWEEP OVER TO 6X6X6 PVC NEMA BOX MOUNTED TO SIDE OF RBA72 CABINET WITH CHASE NIPPLE THROUGH FACTORY KNOCKOUT.
4. RUN 2" POWER CONDUIT OVERHEAD ON WAVEGUIDE BRIDGE. FASTEN TO UNDERSIDE OF ICE BRIDGE PER CONDUIT HANGER DETAIL. RUN DOWN CABLE LADDER TO APPROX. 6" HIGH, THEN ELBOW OVER TO LB FITTING ON SIDE OF PLINTH BELOW RBS6120 CABINET. PENETRATE PLINTH USING FIELD DRILLED OPENING A MAXIMUM OF 9" FROM REAR OF CABINET.
5. RUN HYBRID CABLE OVERHEAD ON TRAPEZE SUSPENDED FROM WAVE GUIDE BRIDGE. SWEEP DOWN ONTO CABLE LADDER TO APPROX. 18 INCH HEIGHT, THEN SWEEP OVER TO PENETRATION IN DOGHOUSE ON BACK OF RBA72 CABINET.
6. GPS ANTENNA TO BE MOUNTED TO EXTENDED ICE BRIDGE POST, OR TO STANDARD HEIGHT POST USING EXTENDED MOUNTING PIPE, USING COMMSCOPE GPS-U MOUNTING KIT. MOUNT AS NEAR AS IS PRACTICAL TO RBA72 CABINET.
7. FASTEN CONDUITS TO UNISTRUT ON WAVEGUIDE BRIDGE AND TO CABLE LADDER WITH TWO PIECE HOT DIP GALVANIZED CONDUIT STRAPS.
8. BOLT CABINETS AND GENERATOR TO SLAB USING FASTENERS SPECIFIED BY EQUIPMENT MANUFACTURER IN FACTORY PROVIDED MOUNTING HOLES.
9. SAWCUT CONTROL JOINT TO BE TREATED WITH SIKADUR 51 SL SEALANT OR APPROVED EQUAL.

1 C3 EQUIPMENT PAD LAYOUT
SCALE: 1" = 3'

GRAPHIC SCALE: 1" = 3'

verizon
8001 ARROWRIDGE BLVD
CHARLOTTE, NORTH CAROLINA 28273

PROJECT INFORMATION:
VERIZON NAME: STRING BEAN
VERIZON No.: TBD
615 N. HIGHWAY 11
WEST UNION, SC 29696
OCONEE COUNTY

CURRENT ISSUE DATE:
03/09/17

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CONSULTANT:
Kimley»Horn

CERTIFICATE OF AUTHORIZATION:
SOUTH CAROLINA
KIMLEY-HORN AND ASSOCIATES, INC. NO C00165
CERTIFICATE OF AUTHORIZATION

| DRAWN BY: | CHK.: | APV.: |
|---|---|---|
| TDM | KRM | WCE |

LICENSER:
SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 31806
WILLIAM C. EDMONSON

SHEET TITLE:
EQUIPMENT PAD LAYOUT

| SHEET NUMBER: | REVISION: |
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| C3 | 0 |

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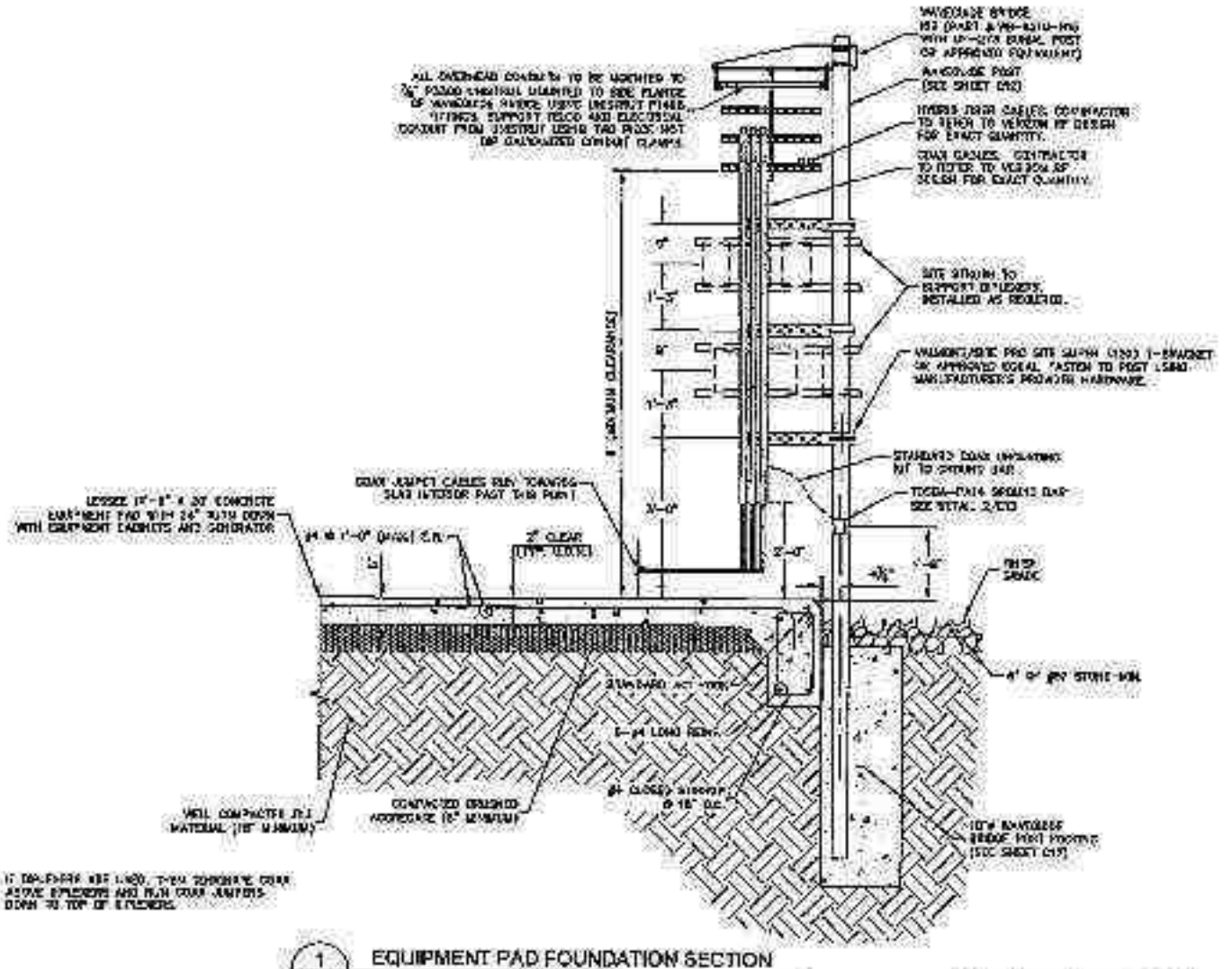


NOTE: IF EQUIPMENT ARE LOCATED, THEN CONCRETE EQUIPMENT PAD SHALL BE EXTENDED AND RUN COAX JUMPERS DOWN TO TOP OF EQUIPMENT.

1/C4 EQUIPMENT PAD FOUNDATION SECTION

SCALE: 1" = 2'

GRAPHIC SCALE: 1" = 2'

verizon

PROJECT INFORMATION

VERIZON NAME: CHEVRO BEAVE
VERIZON No.: TBD

CURRENT ISSUE DATE

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Kimley»Horn

ENGINEER OF RECORD

SOUTH CAROLINA
REGISTERED
PROFESSIONAL
ENGINEER
BRANCH OF CORPORATION

| ITEM | QTY | UOM |
|---|---|---|
| | | |

SOUTH CAROLINA
REGISTERED
LANDSCAPE
ARCHITECT
WILLIAM G. EDMONDSON

SHEET TITLE

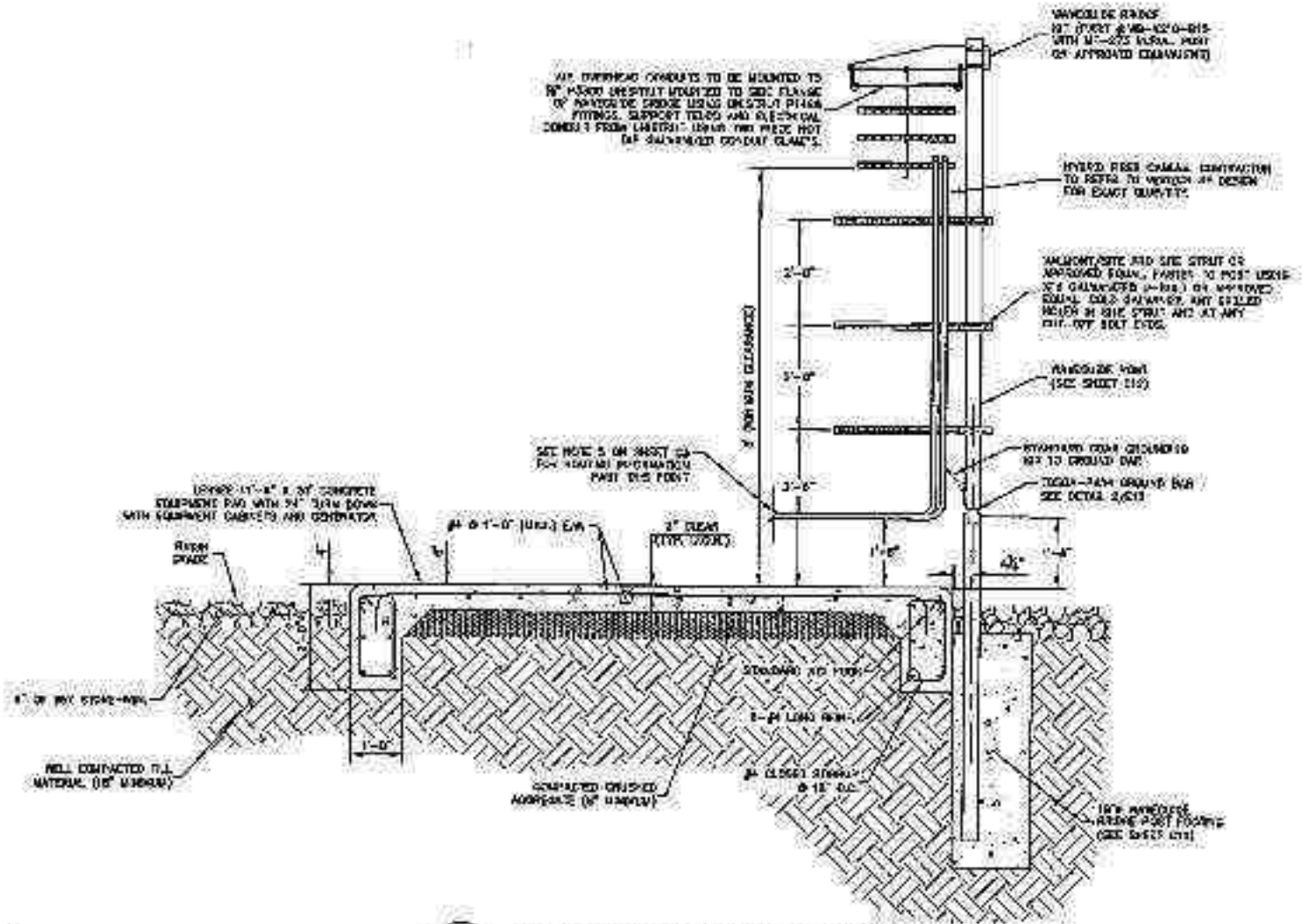
EQUIPMENT PAD FOUNDATION SECTION DETAILS

SHEET NUMBER

C4

REVISION

0




NOTE:

IF DIPLEXERS ARE USED, ITEM NOTE, COAX ABOVE DIPLEXERS AND RUN JUMPERS FROM COAX TO TOP OF DIPLEXERS.

1 / C5 EQUIPMENT PAD FOUNDATION SECTION

SCALE: 1" = 2'

verizon

PROJECT INFORMATION

VERIZON NAME: STRONG BEAM
VERIZON No.: TBD

03/09/17

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Kimley»Horn

CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
CERTIFICATE OF AUTHORIZATION

DRAWN BY | CHK | VOL

SOUTH CAROLINA
No. 31808
WILLIAM C. ETHERIDGE

EQUIPMENT PAD FOUNDATION SECTION DETAILS

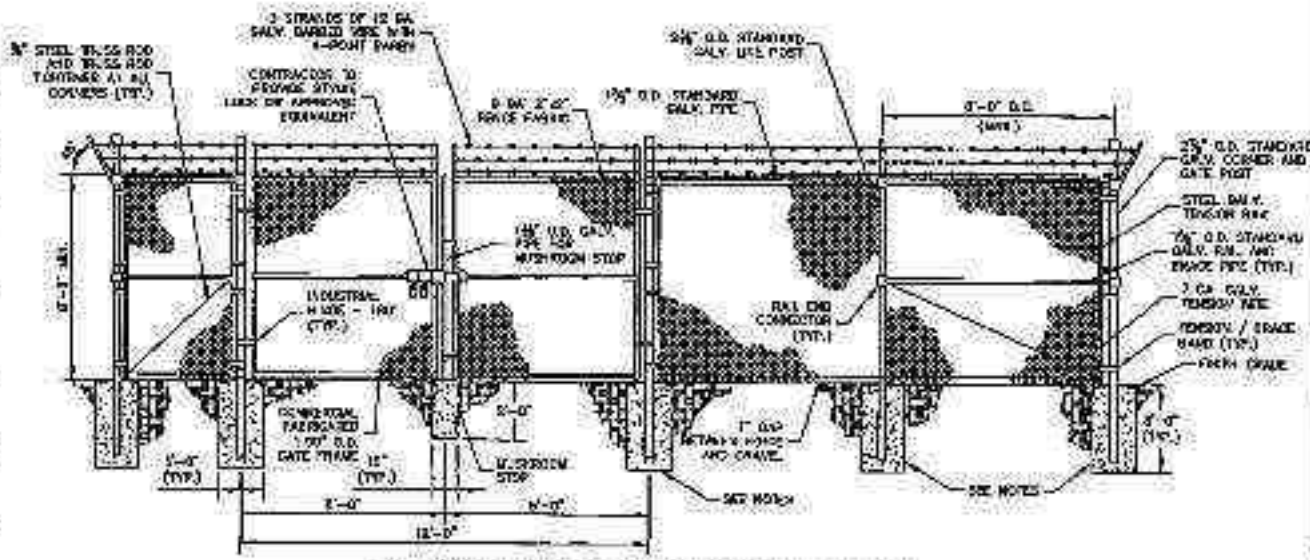
SHEET NUMBER: C5

REVISION: 0

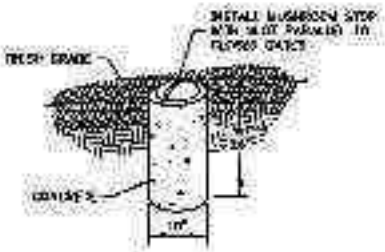
DRAWING NO.: 0196330

FENCE NOTES:

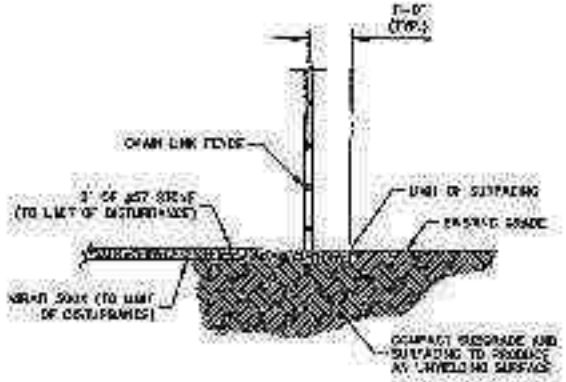
1. USE 3000-PSI CONCRETE, FULLY CONSOLIDATED AROUND THE POST.
2. WHERE THE POST IS SET IN ROCK OR CONCRETE, CORE A HOLE 12" DEEP AND 1" LARGER IN DIAMETER THAN THE POST, SET THE POST AND GROUT IN PLACE USING NON-SHRINK GROUT.
3. ALL POSTS MUST BE PLUMB AND ALIGNED WITH ONE ANOTHER IN BOTH HORIZONTAL AND VERTICAL PLANES.
4. CORNERS AND GATEPOSTS FOR CHAIN LINK FENCES SHALL EXTEND ABOVE THE TOP REMAIN OF BARBED WIRE TO PROVIDE TERMINATION FOR THE BARBED WIRE.
5. PROVIDE HORIZONTAL AND BRACING AT ALL CORNER POSTS WHERE THE FENCE CHANGES DIRECTION BY MORE THAN 30 DEGREES.
6. THE ERECTION OF THE BARBED WIRE AND INSTALLATION OF THE FENCE SHALL PROVIDE FOR NO MORE THAN A 1" SAG BETWEEN THE BOTTOM OF THE FENCE MATERIAL AND FINISH GRADE.
7. CONTRACTOR SHALL PROVIDE HOLD OPEN DEVICES FOR ALL GATES AT THE SPECIFIED OPEN POSITIONS. DRIVEN PIPE TYPE RECEIVERS ARE NOT AUTHORIZED.
8. CONTRACTOR SHALL ALSO PROVIDE A MUSHROOM TYPE RECEIVER AT THE CLOSE POSITION.



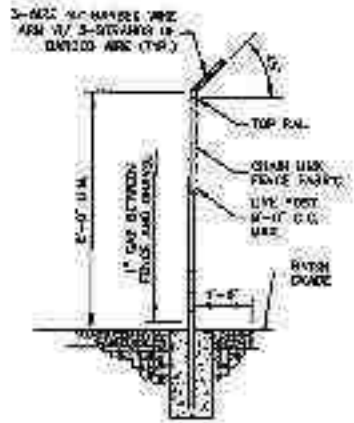

1 / C6 CHAIN LINK FENCE AND GATE ELEVATION
NOT TO SCALE




2 / C6 MUSHROOM STOP
NOT TO SCALE




3 / C6 SITE COMPOUND SURFACE DETAIL
NOT TO SCALE




4 / C6 SECTION @ FENCE
NOT TO SCALE

verizon

PROJECT INFORMATION:
VERIZON NAME: STRAWBERRY
VERIZON No.: TBC
615 N. MORRIS ST
MOUNT OLIVE, NC 28365
DUPLIN COUNTY

CURRENT ISSUE DATE:
03/09/17

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| 0 | | | |

PREPARED BY:
Kimley»Horn

CERTIFICATE OF AUTHORIZATION

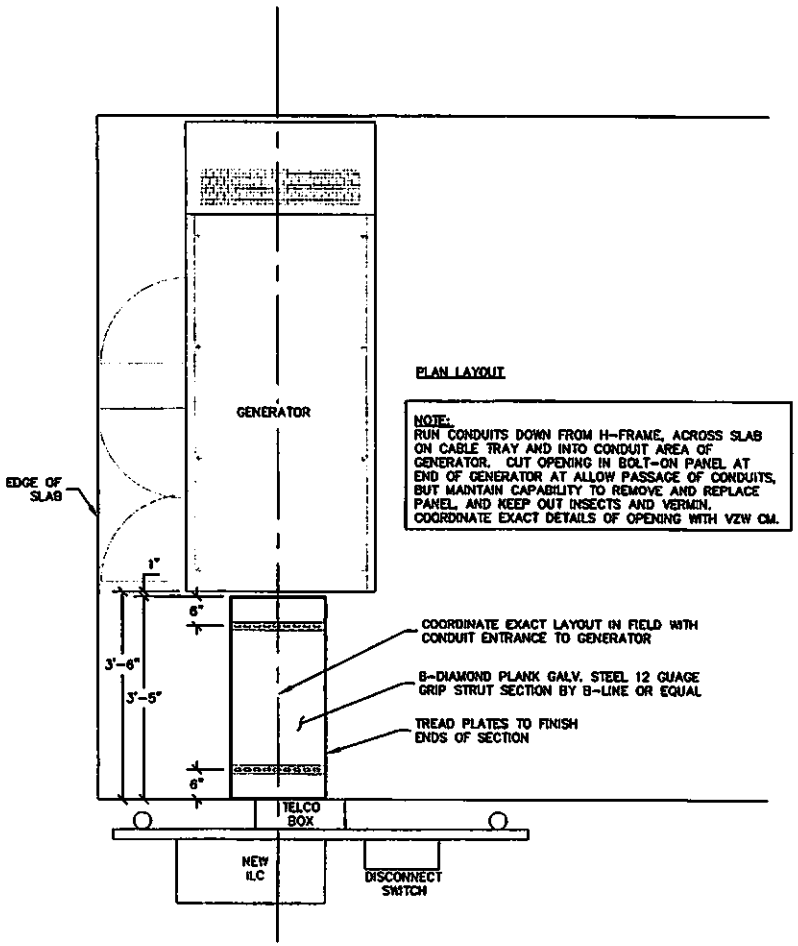
SOUTH CAROLINA
REGISTERED
ENGINEERING
FIRM
No. 00000
CERTIFICATE OF AUTHORIZATION

| DRAWN BY | CHECKED BY | APPROVED BY |
|---|---|---|
| TAH | KTH | WEE |

SOUTH CAROLINA
REGISTERED
PROFESSIONAL
ENGINEER
No. 31900
WILLIAM C. EDMUNDSON

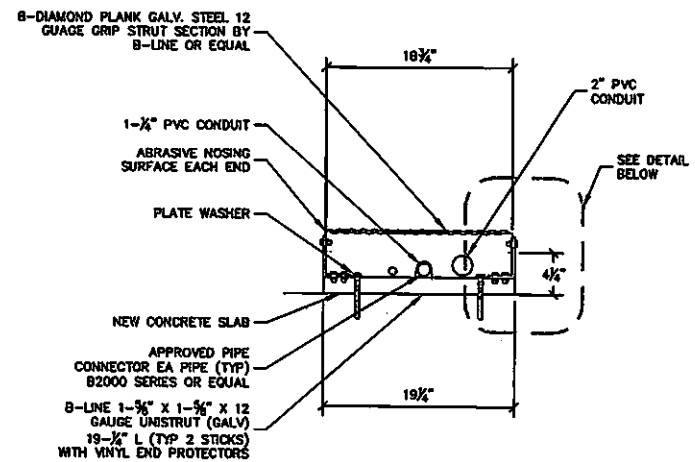
SHEET TITLE:
COMPOUND DETAILS

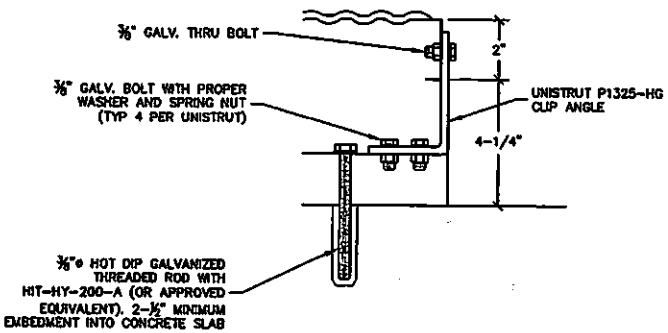
SHEET NO.: C6
REVISION: 0




PLAN LAYOUT

NOTE:
RUN CONDUITS DOWN FROM H-FRAME, ACROSS SLAB ON CABLE TRAY AND INTO CONDUIT AREA OF GENERATOR. CUT OPENING IN BOLT-ON PANEL AT END OF GENERATOR AT ALLOW PASSAGE OF CONDUITS, BUT MAINTAIN CAPABILITY TO REMOVE AND REPLACE PANEL, AND KEEP OUT INSECTS AND VERMIN. COORDINATE EXACT DETAILS OF OPENING WITH VZW CM.




DETAIL

1 / C7 PAD MOUNTED CABLE TRAY DETAILS

NOT TO SCALE

verizon
2331 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

PROJECT INFORMATION:

VERIZON NAME: STRING BEAN
VERIZON No.: TBD
619 N. HIGHWAY 11
WEST UNION, SC 29696
OCONEE COUNTY

CURRENT ISSUE DATE:
03/09/17

ISSUED FOR:
ZONING

| REV. | DATE | ISSUED FOR: | BY: |
|---|---|---|---|
| 0 | 03/09/17 | ZONING | WCE |

CONSULTANT:
Kimley»Horn

CERTIFICATE OF AUTHORIZATION:
SOUTH CAROLINA
KIMLEY-HORN AND ASSOCIATES, INC.
NO.C001669
CERTIFICATE OF AUTHORIZATION

| DRAWN BY: | CHK.: | APV.: |
|---|---|---|
| TDM | KRM | WCE |

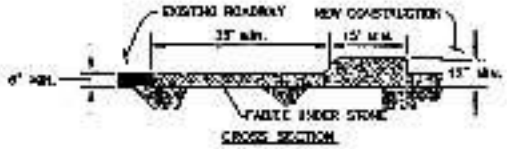
LICENSER:
SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
No. 31806
WILLIAM C. EDMONSON

SHEET TITLE:
PAD MOUNTED CABLE TRAY DETAILS

SHEET NUMBER: C7
REVISION: 0
018985330


PLAN

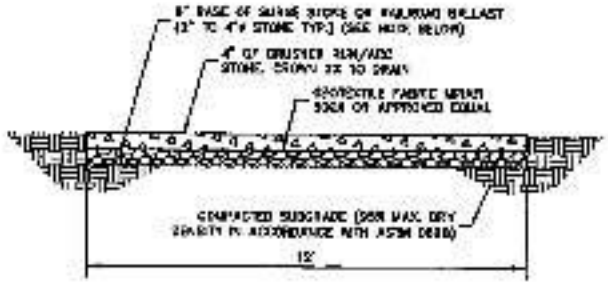
NOTES:
1. PUT SILT FENCE OR TREE PROTECTION FENCE UP TO ENSURE CONSTRUCTION ENTRANCE IS USED.
2. IF CONSTRUCTION ON THE SITES ARE SUCH THAT THE MUD IS NOT REMOVED BY THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD.
3. IF A PROJECT CONTRACTOR TO PULL MUD AND DEBRIS ON TO THE PUBLIC ROAD, THE GOVERNING AUTHORITY WILL CLEAN THE AREA AND BILL THE FINANCIALLY RESPONSIBLE PERSON AS INDICATED ON THE FINANCIAL RESPONSIBILITY FORM.




CROSS SECTION

1/C8 CONSTRUCTION ENTRANCE

NOT TO SCALE




NOTE:
IF DETERMINED NECESSARY DURING GRADING AND CONSTRUCTION OF THE ACCESS ROAD OF THE VERIZON WIRELESS PROJECT MANAGER, THE CONTRACTOR SHALL INSTALL 8" BASE OF SURGE STONE OR RAILROAD BALLAST (2" TO 4" STONE TYP.)

2/C8 STANDARD ACCESS ROAD AND TURN-AROUND DETAIL

NOT TO SCALE

verizon

VERIZON WIRELESS BEAR
VERIZON Wireless TRS

03/09/17

ZONING

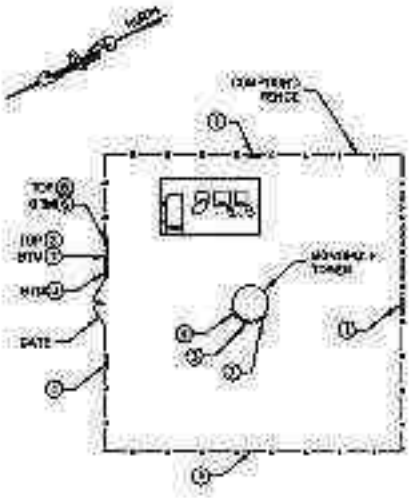
| # | 03/09/17 | ZONING | BY |
|---|---|---|---|

Kimley»Horn

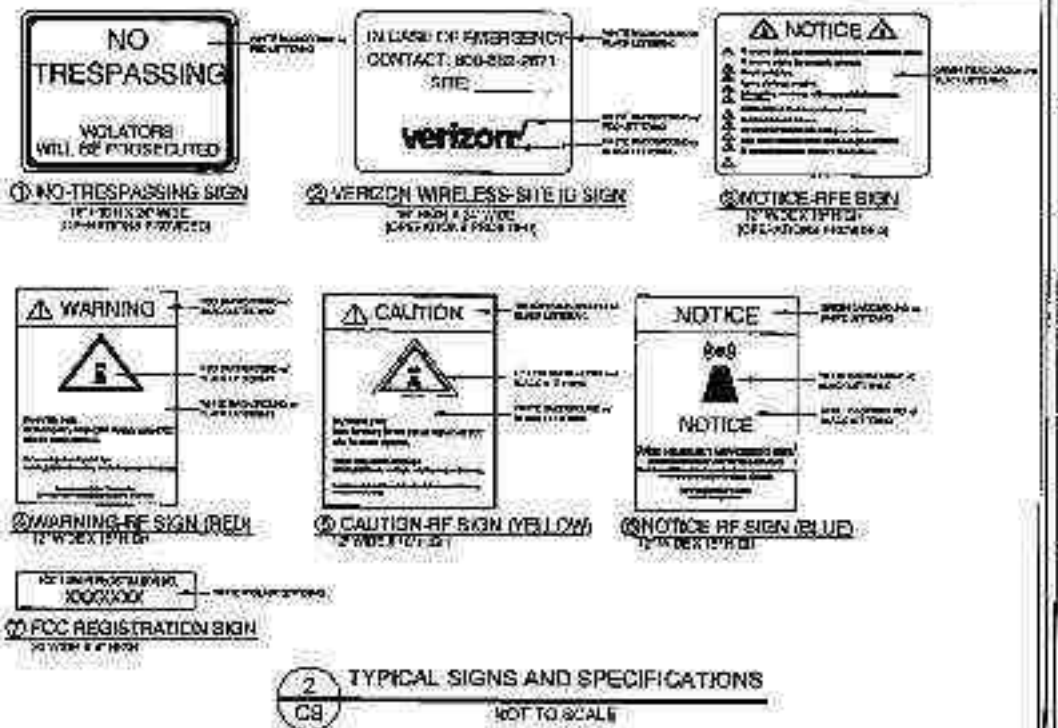
SOUTH CAROLINA
No. 31605
WILLIAM C. SIMONSON

ACCESS ROAD DETAILS

C8 | 0

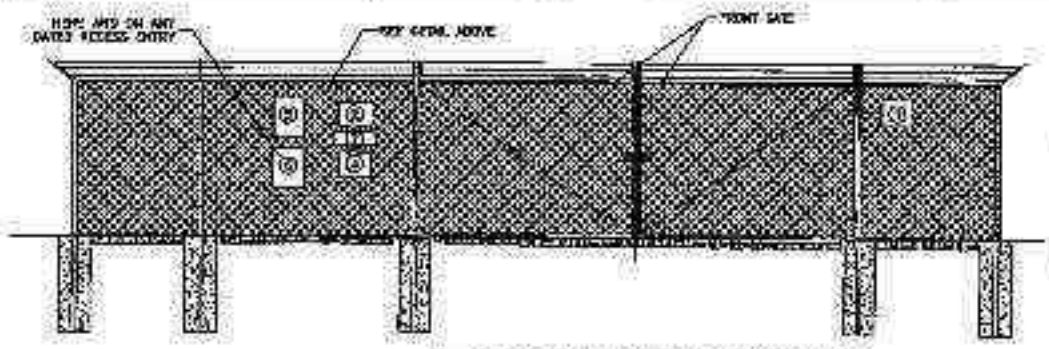


1 C9 OVERALL SIGN PLACEMENT PLAN VIEW
NOT TO SCALE




① NO-TRESPASSING SIGN
② VERIZON WIRELESS-SITE ID SIGN
③ NOTICE-RFE SIGN
④ WARNING-RF SIGN (RED)
⑤ CAUTION-RF SIGN (YELLOW)
⑥ NOTICE RF SIGN (BLUE)
⑦ FCC REGISTRATION SIGN

2 C9 TYPICAL SIGNS AND SPECIFICATIONS
NOT TO SCALE



3 C9 SITE SIGNAGE FRONT GATE VIEW
NOT TO SCALE

verizon

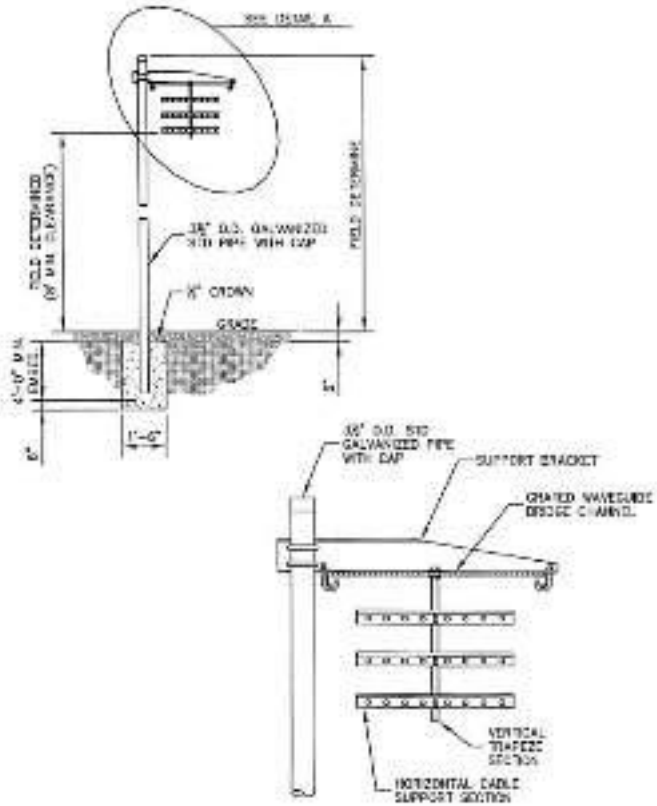
03/09/17

ZONING

Kimley»Horn

SITE SIGNAGE DETAILS

C9 | 0

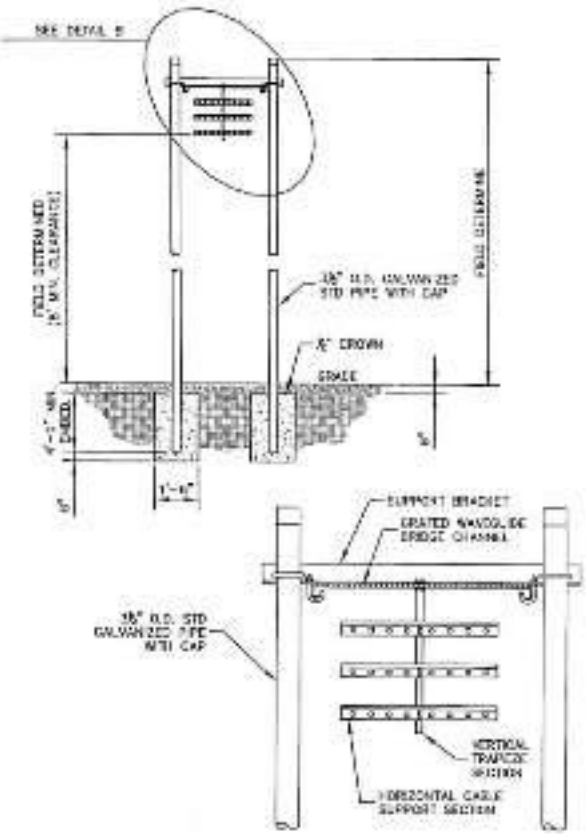



**DETAIL A**

ANDREW 1 POST WAVEGUIDE BRIDGE KIT (PART #WB-K2IB-BYA, OR APPROVED EQUIVALENT)

NOTE:

1. ALL MATERIALS FURNISHED BY CONTRACTOR UNLESS OTHERWISE NOTED.




**DETAIL B**

ANDREW 2 POST WAVEGUIDE BRIDGE KIT (PART #WB-K4IB-BYA, OR APPROVED EQUIVALENT)

NOTE:

1. ALL MATERIALS FURNISHED BY CONTRACTOR UNLESS OTHERWISE NOTED.

1 / C10 WAVEGUIDE BRIDGE DETAIL

NOT TO SCALE

2 / C10 WAVEGUIDE BRIDGE DETAIL (ALTERNATIVE DESIGN WITH 2 PIPE COLUMNS)

NOT TO SCALE

verizon

PROJECT INFORMATION:

VERIZON NAME: STRIMI BEAN
VERIZON No.: TBD

813 N. HOWARD ST.
WEST UNION, SC 29696
OCONEE COUNTY

ISSUED FOR:

03/09/17

ZONING

| NO. | DESCRIPTION | BY |
|---|---|---|
| 0 | ZONING | MCF |

Kimley»Horn

CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
CERTIFICATE OF AUTHORIZATION

| DRAWN BY | CHK | APP'D |
|---|---|---|
| TDM | WBH | MCF |

SEAL

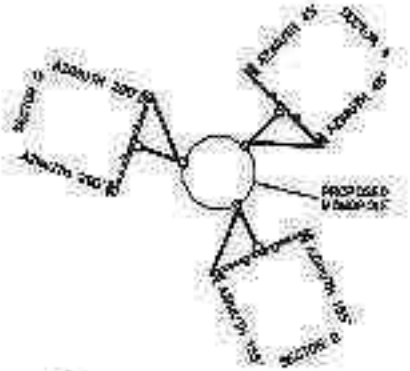
SOUTH CAROLINA
LICENSED PROFESSIONAL ENGINEER
No. 31806
WILLIAM C. EDMONSON

SHEET TITLE:

WAVEGUIDE BRIDGE DETAILS

SHEET NUMBER: C10

REVISION: 0




1 C11 **ANTENNA ORIENTATION PLAN**

(NOT TO SCALE, FOR ILLUSTRATIVE PURPOSES ONLY, SEE STRUCTURAL ANALYSIS BY OTHERS TO CONFIRM ANTENNA MOUNT TYPE)

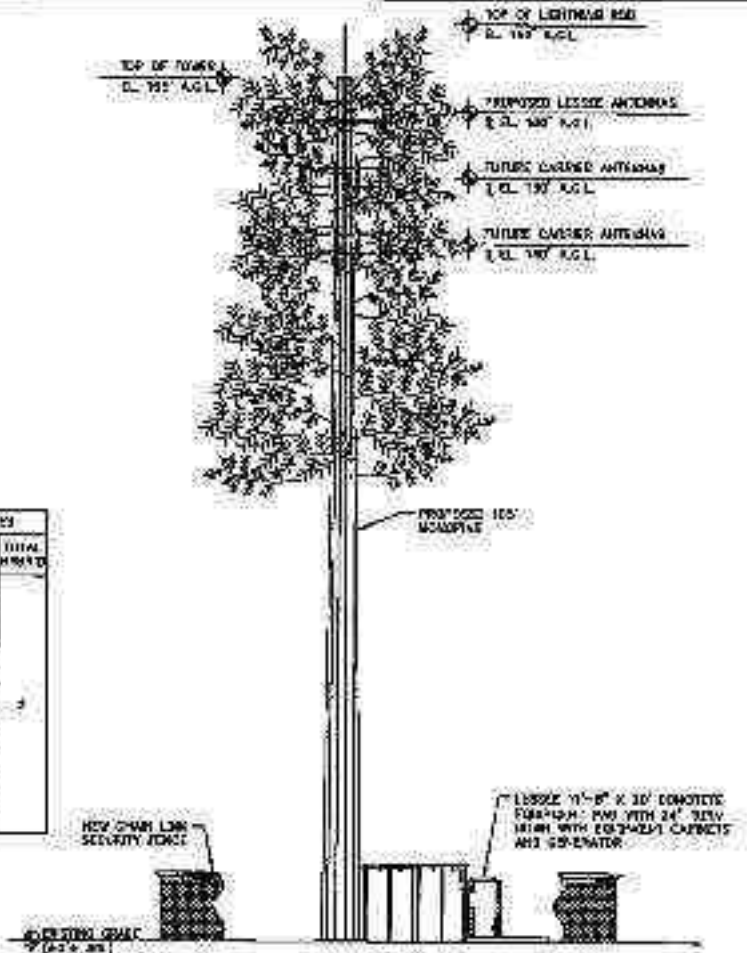
| ANTENNA SECTOR | AZIMUTH IN DEGREES | MECHANICAL DOWN TILT | LICENSED FREQUENCY | ANTENNA (QTY) MAKE/MODEL | RF/DTE RADIO UNIT | CONFIGURATION CABLES | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LENGTH | COAX QTY | COAX SIZE | TOTAL HYBRID |
| SECTOR A | 45° | 0° | 850 | – | – | 200'± | 2 | 1-5/8" | 3 |
| | 45° | 0° | 1900 | (0) ANDREW/SBA36H-16S3C | RRUS42 | 200'± | – | – | |
| | 45° | 0° | 2100 | (0) ANDREW/SBA36H-16S3C | RRUS32 | 200'± | – | – | |
| | 45° | 0° | 700 | (0) ANDREW/SBA36H-16S3C | RRUS12 B/A2 | 200'± | – | – | |
| SECTOR B | 165° | 0° | 850 | – | – | 200'± | 2 | 1-5/8" | |
| | 165° | 0° | 1900 | (0) ANDREW/SBA36H-16S3C | RRUS42 | 200'± | – | – | |
| | 165° | 0° | 2100 | (0) ANDREW/SBA36H-16S3C | RRUS32 | 200'± | – | – | |
| | 165° | 0° | 700 | (0) ANDREW/SBA36H-16S3C | RRUS12 B/A2 | 200'± | – | – | |
| SECTOR C | 285° | 0° | 850 | – | – | 200'± | 2 | 1-5/8" | |
| | 285° | 0° | 1900 | (0) ANDREW/SBA36H-16S3C | RRUS42 | 200'± | – | – | |
| | 285° | 0° | 2100 | (0) ANDREW/SBA36H-16S3C | RRUS32 | 200'± | – | – | |
| | 285° | 0° | 700 | (0) ANDREW/SBA36H-16S3C | RRUS12 B/A2 | 200'± | – | – | |

* CONTRACTOR TO INSTALL ANY RADIO DIVERSITY AS NECESSARY. VERIFY WITH VERIZON WIRELESS PROJECT MANAGER PRIOR TO CONSTRUCTION.

NOTES:
1. ALL INFORMATION ON THIS PAGE IS PROVIDED BY VERIZON WIRELESS AND/OR OTHERS AND IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR SHALL CONTACT THE VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION FOR ALL DETAILED ANTENNA AND COAX CABLE INFORMATION.

2. REFER TO STRUCTURAL ANALYSIS BY OTHERS FOR ANALYSIS OF PROPOSED TOWER.

3. IT IS UNDERSTOOD THAT KIMLEY-HORN MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, REGARDING OBSERVATIONS, RECOMMENDATIONS, SPECULATIONS, OPINION, OR PROFESSIONAL ADVICE RELATIVE TO THE STRUCTURAL ADEQUACY OF THE PROPOSED TOWER OR ATTACHMENT OF ANTENNAS OR OTHER APPURTENANCES.




2 C11 **MONOPOLE TOWER ELEVATION**

NOT TO SCALE

NOTES:
1. ALL PROPOSED ATTACHMENTS TO TOWER SHALL BE PER TOWER DESIGN DRAWINGS BY OTHERS (SEE GENERAL NOTE 1.07, SHEET T1).
2. THIS TOWER ELEVATION SHOWN IS FOR REFERENCE ONLY.
3. CABLE/FEEDER CABLE LENGTHS ARE APPROXIMATE. CONTRACTOR TO VERIFY CORRECT LENGTH IN FIELD AT TIME OF CONSTRUCTION.
4. PROPOSED TOWER SHALL BE PAINTED IN COLOR.

verizon

VERIZON WIRELESS SITE NO.: TBD

04/04/17

ZONING

| NO. | DATE | BY |
|---|---|---|
| 0 | 03/08/17 | |
| 1 | 03/24/17 | |

Kimley»Horn

FOR ILLUSTRATIVE PURPOSES ONLY- NO SIGNATURE REQUIRED

ANTENNA AND TOWER ELEVATION DETAILS

C11 1