

**APPLICATION FOR ZONING APPROVAL BY
TOWERCOM IV, LLC FOR THE CONSTRUCTION
OF A NEW TELECOMMUNICATION TOWER AND
RELATED APPURTENANCES**

(CLEARWATER LAKE SITE)

**(ADDRESS: 1941 Mt. Carmel Church Road, Chapel Hill, North Carolina
27514)**

**SUBMITTED BY:
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*LICENSED IN NORTH CAROLINA

November 22, 2016

VIA FED EX AND EMAIL

Michael Harvey, Supervisor/Planner III
Orange County Planning & Inspections Department
131 W. Margaret Lane, Suite 201
Hillsborough, North Carolina 27278

RE: APPLICATION FOR ZONING APPROVAL BY TOWERCOM IV, LLC FOR THE
CONSTRUCTION OF A NEW TELECOMMUNICATION TOWER AND RELATED
APPURTENANCES

(CLEARWATER LAKE SITE / PC LAW NO. 1265-001)
(SITE ADDRESS: 1941 MT. CARMEL CHURCH ROAD, CHAPEL HILL, NORTH
CAROLINA 27514)

Dear Mr. Harvey:

I hope this letter finds you well. Please find enclosed TowerCom IV, LLC's Class B Special Use Permit application (the "Application") for the proposed wireless telecommunication facility in Chapel Hill, North Carolina at the above-referenced location along with two (2) additional hard copies of the same. An electronic version of the same will be provided via email to you at mharvey@orangecountync.gov and to Jackie Hicks at hicksja@carolinatelecomservices.com. In addition to the Application copies, First Class addressed and stamped envelopes to property owners within 1,000 feet of the property have been enclosed pursuant to Section 5.10.8.B.3.g of the Ordinance for the County to provide hearing notice letters.

Please also find enclosed a check in the amount of Nine Thousand Three Hundred Thirty and No/100ths (\$9,330.00) Dollars made payable to Orange County representing the Class B Special Use Permit Application fee, Consultant Fee, Legal Ad Fee, and Hearing Sign Posting Fee for this application. Please also find enclosed a check in the amount of Sixty and No/100ths (\$60.00) Dollars made payable to Orange County representing the Mail Notice fee for this application.

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.

Sincerely,

PENNINGTON LAW FIRM, L.L.C.

Laura D. Goode

Enclosures

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CLEARWATER LAKE SITE

TABLE OF CONTENTS

1. NARRATIVE PREPARED BY PENNINGTON LAW FIRM, LLC
2. ORANGE COUNTY PLANNING AND INSPECTIONS DEPARTMENT –
APPLICATION FOR CLASS B SPECIAL USE PERMIT
3. AUTHORIZATION TO ACT AS AGENT SIGNED BY RIC BUCKNER ON BEHALF
OF THE BUCKNER FAMILY FARM TRUST
4. NOTARIZED NETWORK OBJECTIVE STATEMENT SIGNED BY DAVID
HAUGHNEY, RADIO FREQUENCY ENGINEER FOR VERIZON WIRELESS
5. SEARCH RING FOR THE PROPOSED TELECOMMUNICATIONS TOWER
6. MAP OF EXISTING VERIZON WIRELESS SITES
7. PROPAGATION MAPS FOR THE PROPOSED CLEARWATER LAKE SITE
8. SITE SURVEY AND CONSTRUCTION DRAWINGS PREPARED BY KIMLEY-
HORN AND ASSOCIATES, INC
9. FUTURE COLLOCATION CERTIFICATION SIGNED BY GEORGE W. DAVIS,
SENIOR VICE PRESIDENT AND MANAGING PARTNER FOR TOWERCOM IV,
LLC
10. TOWER DESIGN REPORT PREPARED BY HABIB JIRIJI AZOURI, NORTH
CAROLINA PROFESSIONAL ENGINEER WITH ROHN PRODUCTS, LLC
11. MAP JUSTIFICATION NOT USING MELOTT CANDIDATE
12. GENERAL CERTIFICATIONS STATEMENT SIGNED BY GEORGE W. DAVIS,
SENIOR VICE PRESIDENT AND MANAGING PARTNER FOR TOWERCOM IV,
LLC
13. SITE IMAGES
14. NETWORK INFORMATION SHEET
15. ANTENNA SPECIFICATIONS SHEETS
16. ANTENNA AND RADIO INFORMATION

17. NIER STATEMENT SIGNED BY DAVID HAUGHNEY, RADIO FREQUENCY ENGINEER FOR VERIZON WIRELESS
18. VERIZON WIRELESS FCC LICENSES FOR ORANGE COUNTY, NORTH CAROLINA
19. LIST OF PROPERTY OWNER NAMES AND ADDRESSES WITHIN 1,000 FEET OF THE PROPERTY
20. NOTICE LETTER TO ORANGE COUNTY PLANNING DEPARTMENT REGARDING THE BALLOON TEST DATE AND TIME
21. INABILITY TO COLLOCATE STATEMENT SIGNED BY JOHN YEAGLEY, SITE ACQUISITION SPECIALIST WITH CHASE REAL ESTATE SERVICES
22. FAA DETERMINATION OF NO HAZARD LETTER
23. DRAFT TOWER REMOVAL BOND
24. ESTIMATEED COST OF TOWER REMOVAL PREPARED BY SOUTH CAROLINA TEL-CON
25. NORTH CAROLINA GENERAL CONTRACTING LICENSE FOR SOUTH CAROLINA TEL-CON
26. BUFFER MAP IDENTIFYING ALL PROPERTY OWNERS WITHIN 1,000 FEET OF THE PROPERTY
27. INFEASIBILITY OF FLUSH MOUNTING ANTENNAS STATEMENT PREPARED BY DAVID HAUGHNEY, RADIO FREQUENCY ENGINEER FOR VERIZON WIRELESS
28. DRAFT PERFORMANCE BOND
29. STORMWATER MANAGEMENT PLAN
30. FACILITY SITING CERTIFICATION SIGNED BY JOHN YEAGLEY, SITE ACQUISITION SPECIALIST WITH CHASE REAL ESTATE SERVICES
31. TOWER SEPARATION STATEMENT SIGNED BY JOHN YEAGLEY, SITE ACQUISITION SPECIALIST WITH CHASE REAL ESTATE SERVICES
32. REAL ESTATE IMPACT STUDY PREPARED BY DAVID SMITH
33. TOWER BOND CERTIFICATION SIGNED BY GEORGE W. DAVIS, SENIOR VICE PRESIDENT AND MANAGING PARTNER FOR TOWERCOM IV, LLC
34. ZONING REPORT FOR THE SUBJECT PROPERTY FROM THE ORANGE COUNTY GIS WEBSITE

**APPLICATION FOR ZONING APPROVAL BY TOWERCOM IV, LLC FOR THE
CONSTRUCTION OF A NEW TELECOMMUNICATION TOWER AND RELATED
APPURTENANCES**

(CLEARWATER LAKE SITE)

I. INTRODUCTION

- A. OVERVIEW.** This is an application by TowerCom IV, LLC (“TowerCom”) seeking zoning approval for the construction of a new freestanding telecommunication tower and related appurtenances on the parcel with a Parcel Identification Number of 97966099658 pursuant to the requirements of the Orange County Unified Development Ordinance (the “Ordinance”). The subject property is zoned Rural Buffer (“RB”). New freestanding telecommunication towers over seventy-five (75’) feet in height and under two hundred (200’) feet in height are permitted in the RB district as a class B special use. The subject property is also located within the Jordan Lake Protected Watershed Overlay District (JORDAN-PW).
- B. PURPOSE.** The application is for the purpose of permitting the construction of a new freestanding wireless telecommunications tower and related appurtenances (the “Wireless Telecommunications Facility”).
- C. OWNERSHIP/OPERATION.** The proposed Wireless Telecommunication Facility will be owned by TowerCom IV, LLC with the anchor tenant being Verizon Wireless.
- D. TOWERCOM, LLC.** TowerCom, LLC is a turn-key tower developer and operator helping wireless providers and governments achieve their new communications site deployment goals through Build-to-Suit, strategic site development, tower leasing, and acquisitions. TowerCom, LLC is presently developing or pursuing new-build opportunities throughout the Southeast, Gulf Region, Mid-Atlantic and parts of the Midwest and has developed, built, and operated over 330 cell towers. TowerCom, LLC headquartered in Jacksonville, Florida. Find more information on the web at <http://towercomenterprises.com>.
- E. STATEMENT OF NEED.** The anchor tenant on the proposed new telecommunication tower will be Verizon Wireless. Verizon Wireless’ goal is to maintain its industry standard level of coverage and capacity throughout its licensed coverage area, including Orange County, North Carolina. Specifically, Verizon Wireless’ objective in connection with the proposed Wireless Telecommunication Facility is to improve coverage along Mt. Carmel Church Road between the Governor’s Club area and Chapel Hill (the “Clearwater Lake Area”) as well as to provide

capacity offload for the existing UNC Campus Verizon Wireless site. There are currently nine (9) existing Verizon Wireless sites within four (4) miles of the proposed tower. However, there is a gap in coverage between these sites in the Clearwater Lake Area. A new tower is required in order to fill in this gap in coverage for its customers in the Clearwater Lake Area, provide increased connectivity between the existing Verizon Wireless sites in the area, and to provide the capacity offload solution for the existing UNC Campus site. **Please refer to the notarized Network Objective Statement signed by David Haughney, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 4. Please also refer to the Search Ring Map, attached hereto as Exhibit 5. Please also refer to the Map of Existing Verizon Wireless Sites, attached hereto as Exhibit 6. Please also refer to the Propagation Maps for the Proposed Clearwater Lake Site, attached hereto as Exhibit 7.**

II. THE PROPERTY.

- A. OWNERSHIP.** The subject property is owned by the Buckner Family Farm Trust (the "Property Owner") with a mailing address of 109 W. Franklin Street, Suite 101, Rockingham, North Carolina 28379. **Please refer to the Authorization to Act as Agent signed by Ric Buckner, on behalf of the Buckner Family Farm Trust, attached hereto as Exhibit 3.**
- B. LOCATION.** The property upon which the proposed Wireless Telecommunication Facility will be constructed is located at 1941 Mt. Carmel Church Road, Chapel Hill, North Carolina 27524 (the "Property"). The Property is identified with the Parcel Identification Number of 97966099658 and is further described in deed book 2185, page 29. **Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.**
- C. LEASED PROPERTY.** TowerCom will lease a one hundred feet by one hundred feet (100' x 100') portion of the Property and obtain a thirty (30') foot wide access and utility rights-of-way easement on the property and on an adjacent property to the west with a Parcel Identification Number of 9797005005, owned by Edward S. Williams.
- D. OVERALL PROPERTY.** Upon information and belief, the overall Property, of which the leased property is a portion, contains

approximately eighteen and nine-tenths (18.9) acres. The Property is zoned RB.

III. INTENDED WIRELESS TELECOMMUNICATION FACILITY.

- A. TOWER.** TowerCom proposes to construct a monopole-type telecommunications tower on the Property. The tower will be one hundred ninety-five (195') feet in height with a four (4') foot tall lightning rod.
- B. ACCOMMODATION FOR FUTURE CARRIERS.** The telecommunication tower will be constructed to accommodate up to four (4) antenna arrays: the antenna arrays of the anchor tenant, Verizon Wireless, and up to three (3) additional traditional wireless carriers. **Please refer to the Future Collocation Certification signed by George Davis, Senior Vice President and Managing Partner of TowerCom IV, LLC, attached hereto as Exhibit 9. Please also refer to the Tower Design Report prepared by Habib Jiriji Azouri, North Carolina Professional Engineer with Rohn Products, LLC, attached hereto as Exhibit 10.**
- C. EQUIPMENT BUILDING.** TowerCom will also install an eleven feet, six inches by twenty-nine feet, five and one-half inches (11'6" x 29'5.5") equipment building at the base of the tower to house Verizon Wireless' telecommunication equipment. **Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.**
- D. SITE SURVEY AND DRAWINGS.** Complete Site Survey and Construction Drawings Prepared by Kimley-Horn and Associates, Inc. showing the lease area and proposed construction are attached hereto and incorporated herein as Exhibit 8.

IV. COMPLIANCE WITH THE ORDINANCE.

1. Section 5.10 Standards for Telecommunication Facilities.

1. **5.10.1 Intent.** The regulations contained herein are designed to provide for the safe and efficient integration of facilities necessary for the provision of advanced wireless telecommunications services through the community with the goal of establishing reliable wireless service to the public,

governmental agencies, and first responders in a manner that provides for the public safety and general welfare of its citizens.

Acknowledged and Agreed.

2. 5.10.2 Master Telecommunications Plan ("Plan")

- A. The Plan is intended to assist providers in their search for suitable locations to build their service network. The County may develop the Plan (map), which would display locations within the County's zoning jurisdiction where property owners have expressed formal, written, interest in allowing construction of telecommunications equipment.
- B. Information that may be shown on the base Plan will include, but not limited to:
 - 1. Existing towers,
 - 2. Major transmission lines,
 - 3. County-defined Natural Areas,
 - 4. Historic properties,
 - 5. Scenic corridors,
 - 6. Known bird migratory patterns through the County,
 - 7. Voluntary Agricultural Districts, and
 - 8. Publicly-owned or quasi-public lands.
- C. In order to participate in the Plan, all owner(s), or their legally binding representatives, shall submit an application on a form prepared by the Planning Department requesting inclusion.
- D. All telecommunication providers who elect to construct facilities on properties in the Plan shall provide all necessary and requested information to the County's telecommunications consultant.
- E. Modification of the Plan may be considered annually at the February Quarterly Public Hearing. Any applicant requesting modification of the Plan shall make application to the Planning Director on or before December 1st of each year. The fee for modifying the Plan shall be that as set forth in the Orange County Schedule of Fees.
- F. Withdrawal from the Plan is permitted if any owner submits, to the Planning Director, a notarized statement requesting same. Upon receipt of the request, including any fee for modifying the Plan as set forth in the Orange

County Schedule of Fees, the Planning Director shall inform interested parties that the property has been withdrawn from consideration. Removal of the property from the Plan shall be processed as a modification as detailed herein.

Upon information and belief, there is a location in the Plan known as the "Melott site" where property owners have expressed interest in allowing construction of telecommunications facility. The Melott site is not a technically feasible location for the construction of the proposed telecommunication tower as it would not meet the network objective of increased coverage and capacity offload of the anchor tenant, Verizon Wireless. More specifically, there is severe terrain obstruction between the Melott site and the primary targeted area of coverage improvement which is Mount Carmel Church road between Clearwater Lake Road and Old Lystra Road. There is a two hundred (200') plus foot earth obstruction between the Melott site and the targeted improvement area. Additionally, there is approximately ninety (90') feet of dense foliage. The terrain and foliage obstruction together would prevent the Melott site from meeting the network objective of Verizon Wireless, making the site technically infeasible. Please refer to the notarized Network Objective Statement signed by David Haughney, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 4. Please also refer to the Map Justification for not using the Melott Candidate, attached hereto as Exhibit 11, demonstrating the terrain and foliage obstruction between the Melott candidate and the targeted improvement area. Please also refer to the Propagation Maps for the Proposed Clearwater Lake Site, attached hereto as Exhibit 7.

3. 5.10.3 Annual Telecommunications Project Meeting (ATPM)

A. Purpose and Outcome

1. The purpose of the ATPM meeting is to allow for a complete review of collocation opportunities, address coverage issues, and discuss the location of needed telecommunication support structures with providers who intend on submitting development applications for action by the County. The intended outcome of the meeting is to allow the County and interested parties to develop a plan for facility deployment within the County that provides reasonable coverage based on the needs of the County and its residents, while minimizing

the total number of needed telecommunication support facilities, including minimizing the intrusiveness of such facilities, and encouraging the development of a more efficient telecommunication network.

2. The intended outcome of the meeting is an understanding amongst the Planning Director and providers on areas of the County where telecommunication support facilities are needed and application request for the year should be focused.

B. Applicability

1. By December 31st of each calendar year, telecommunication providers shall submit to the Planning Director a plan indicating proposed search rings for anticipated telecommunication support structures. This plan shall identify areas where providers are looking to locate facilities, as well as identify those areas of the County that are underserved by existing facilities.
2. As of the effective date of this Ordinance amendment any pending applications that have not received a zoning compliance permit or a special use permit shall meet all requirements of this Ordinance, including, but not limited to submission deadlines, application standards and processing, excluding the ATPM requirement.

C. Meeting Specifics

1. The meeting shall occur by the end of January of each calendar year.
2. Attendees shall include all carriers and tower companies who have either filed applications the previous year or anyone who has expressed an interest in filing an application to construct a telecommunication support facility within the County.
3. The County shall notify each party of the date, time, and place of the meeting no later than 30 days prior to the meeting.
4. Those individuals/firms intent on submitting development applications are expected to attend the meeting. While a lack of attendance will not

prevent the submittal of an application, it will prevent the applicant's ability to participate in the discussions outlining the areas of concentration for the location of telecommunication support structures for that given year.

- D. Applications for the development of telecommunication support structures shall be processed in accordance with the provisions of this Ordinance.

Acknowledged and agreed. Representatives for the Applicant attended the Annual Telecommunications Project Meeting (ATMP) on January 29, 2016 and discussed the proposed facility with the planning department.

4. 5.10.4 Existing Wireless Telecommunications Support Structures

Because this Application is for the construction of a new wireless telecommunications tower, this subsection is not applicable.

5. 5.10.5 Wireless Telecommunications Support Structures and Equipment as Principal or Accessory Uses

- A. Wireless telecommunications support structures shall be permitted as a principal or accessory use in accordance with the Table of Permitted Uses and as follows:
 - 1. On property owned by the County or any public entity, except those designated as historic properties or sites, the County may, in its sole discretion as the owner of the property, authorize the application and use of County property after the applicant executes a lease agreement acceptable to the County.
 - 2. Wireless telecommunications facilities, as part of existing utility poles shall be permitted as an accessory use. Wireless facilities shall be constructed as part of the existing utility poles or as replacements for the existing utility poles. No freestanding towers constructed exclusively for personal wireless services shall be permitted within utility easements.
 - 3. The placement of new wireless telecommunications support structures shall be in

accordance with the Table of Permitted Uses, except as permitted in the Master Telecommunications Plan ("Plan") or by Section 5.10.6 of this Ordinance.

Acknowledged and agreed. The proposed new telecommunication tower will be located on a property zoned RB – Rural Buffer. New freestanding telecommunication towers over seventy-five (75') feet in height and under two hundred (200') feet in height are permitted in the RB district as a class B special use pursuant to the Table of Permitted Uses.

6. 5.10.6 Administrative Approval of Certain Telecommunications Facilities

Because the proposed new wireless telecommunications tower will be located on property zoned RB – Rural Buffer, and will be between seventy-five (75') feet and two hundred (200') feet in height, a Class B Special Use Permit is required for approval pursuant to the Table of Permitted Uses. Therefore, this subsection is not applicable.

7. 5.10.7 Antennas Not Located on Wireless Telecommunications Support Structures

Because this Application is for antennas to be located on a Wireless Telecommunications Support Structure, this subsection is not applicable.

8. 5.10.8 Wireless Telecommunications Support Structures – Submittal and Review Requirements

A. General Submittal Requirements for all Telecommunication Support Structures

1. Submittal Requirements

- a. A site plan and site plan application package prepared in accordance with Section 2.5 shall be presented for approval to the Planning Division including all requirements for site development plan approval as required.

Please refer to Section 4 of this Narrative below that addresses compliance with Section 2.5: Site Plan Review. Please also refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc.,

attached hereto as Exhibit 8. Upon information and belief, a site plan application package is not required at this time.

- b. A detailed description of the proposed telecommunication support structure (i.e. monopole, self-supporting lattice, etc.) including a detailed narrative description and explanation of the specific objective(s) for the new facility including a description as to the coverage and/or capacity, technical requirements, and the identified boundaries of the specific geographic area of intended coverage for the proposed telecommunication support structure.

Acknowledged and agreed. The proposed telecommunication support structure will be a one hundred ninety-five (195') foot monopole-type tower with a four (4') foot tall lightning rod. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

The anchor tenant on the proposed new telecommunication tower will be Verizon Wireless. Verizon Wireless' goal is to maintain its industry standard level of coverage and capacity throughout its licensed coverage area, including Orange County, North Carolina. Specifically, Verizon Wireless' objective in connection with the proposed Wireless Telecommunication Facility is to improve coverage along Mt. Carmel Church Road between the Governor's Club area and Chapel Hill (the "Clearwater Lake Area") as well as to provide capacity offload for the existing UNC Campus Verizon Wireless site. There are currently nine (9) existing Verizon Wireless sites within four (4) miles of the proposed tower. However, there is a gap in coverage between these sites in the Clearwater Lake Area. A new tower is required in order to fill in this gap in coverage for its customers in the Clearwater Lake Area, provide increased connectivity between the existing Verizon Wireless sites in the area, and to provide the capacity offload solution for the existing UNC Campus site. Please refer to the notarized Network Objective Statement signed by David Haughney, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 4. Please also refer to the Search Ring Map, attached hereto as Exhibit 5. Please also refer to the Map of Existing Verizon Wireless Sites, attached hereto as Exhibit 6. Please also refer to the Propagation Maps for the Proposed Clearwater Lake Site, attached hereto as Exhibit 7.

- c. Elevation drawings and color renderings of the proposed tower showing:
 - i. The vertical rendition of the telecommunication support structure(s) identifying all users and attachments,
 - ii. All related fixtures, structures, appurtenances and apparatus including the height of said structures above the lowest adjacent pre-existing grade,
 - iii. The materials that will be used on site for said structures including their color and any proposed lighting and shielding devices, and
 - iv. If the facility is intended to be a stealth, as defined herein, the colors and screening devices for the Planning Director to verify consistency with applicable definitions.

Acknowledged and agreed. The proposed telecommunication support structure will be a one hundred ninety-five (195') foot monopole-type tower with a four (4') foot tall lightning rod. The tower will be galvanized steel and gray in color. The tower will be unlit. Verizon Wireless' proposed antennas to be located on the proposed tower will be light gray in color. Additionally, TowerCom will install a ten foot three inch (10'3") tall equipment building for Verizon Wireless' ancillary telecommunication equipment at the base of the tower. The building will be concrete with a brown aggregate in finish. The building will be equipped with a one hundred (100) watt light by the door of the building with a plastic cover for shielding. The proposed tower will not be a stealth facility. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8. Additionally, a Balloon Test will be performed on October 15, 2016 pursuant to Board of Adjustment Calendar (Telecommunication Tower Class B SUP) – 2016 provided by the planning department. Color photo renditions of the proposed tower will be completed after the Balloon Test and will be submitted to the planning department upon receipt, and will be submitted at the hearing as supplemental evidence.

- d. A signed statement from the applicant certifying that the proposed telecommunication support structure:
 - i. Shall be maintained in a safe manner,
 - ii. Is in compliance with all conditions of all applicable permits and authorizations without exception, and
 - iii. Is in compliance with all applicable and permissible local, State, and Federal rules and regulations.

Acknowledged and agreed. Please refer to the General Certifications Statement signed by George Davis, Senior Vice-President and Managing Partner of TowerCom VI, LLC, attached hereto as Exhibit 12.

- e. A statement prepared by a professional engineer licensed in the State of North Carolina, which thorough rational engineering analysis, certifies the tower's compliance with applicable standards as set forth in the State of North Carolina Building Code, and any associated regulations; and describes the tower's capacity, including an example of the number and type of antennas it can accommodate.

Acknowledged and agreed. Please refer to the Tower Design Report prepared by Habib Jiriji Azouri, North Carolina Professional Engineer with Rohn Products, LLC, attached hereto as Exhibit 10.

- f. A statement stating how the proposed tower will minimize visual intrusiveness to surrounding properties in the area. Criteria that may be used for such evidence may be height and type of existing trees surrounding the proposed tower, and local topography.

Acknowledged and agreed. The visual intrusiveness of the proposed tower to surrounding properties in the area will be minimized by the following methods: 1) the proposed tower will be under two hundred (200') feet in height and will be a monopole type-design without lattice or guy wires and will be made of galvanized steel to blend with the changing color of the sky;

2) the proposed tower will be located towards the rear of a large over eighteen (18) acre property, setback over one thousand (1,000') feet from the adjacent Mount Carmel Church Road public right-of-way; 3) the subject Property upon which the tower will be located is currently densely wooded, and as much of the existing vegetation as possible will be maintained around the access road and the tower compound, with natural vegetation being maintained within the lease area around the tower compound; 4) in the event that the natural vegetation is ever removed from the Property or around the facility, TowerCom will install the required Type C landscape buffer pursuant to Sections 5.10.8.B.4.e.i and 6.8 of the Ordinance; and 5) the subject Property is in a largely rural area with surrounding properties that are also densely wooded and not densely populated, and separated from large residential developments. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8, which demonstrate the facility siting of the tower, setbacks from the adjacent Mount Carmel Church Road public right-of-way and adjacent properties, the tree lines to be maintained along the access road and around the tower compound, as well as a proposed landscape plan in the event that the natural vegetation is ever removed from the Property or around the facility. Please also refer to the Site Images, attached hereto as Exhibit 13, demonstrating the Property and surrounding area. Additionally, a Balloon Test will be performed on October 15, 2016 pursuant to Board of Adjustment Calendar (Telecommunication Tower Class B SUP) – 2016 provided by the planning department. Color photo renditions of the proposed tower will be completed after the Balloon Test and will be submitted to the planning department upon receipt, and will be submitted at the hearing as supplemental evidence.

- g. A copy of the installed foundation design including a geotechnical sub- surface soils investigation, evaluation report, and foundation recommendation for the proposed wireless support structure.

Acknowledged and agreed. Tower Design Report prepared by Habib Jiriji Azouri, North Carolina Professional Engineer with Rohn Products, LLC, attached hereto as Exhibit 10.

- h. The existing cell sites (latitude, longitude, power levels) to which this proposed site will be a handoff candidate.

Acknowledged and agreed. The proposed Wireless Telecommunication Facility will provide capacity offload for the existing Verizon Wireless UNC Campus site. The UNC Campus site coordinates are: Latitude: 35-54-12.74 N; and Longitude: 79-02-51.94 W. The power levels for the UNC Campus site are as follows: 700 ERP: 97 watts; AWS EIRP: 175 watts; and PCS EIRP: 175 watts. Please refer to the Network Information Sheet, attached hereto as Exhibit 14.

- i. Propagation studies of the proposed site and showing all adjoining planned, proposed, in-service or existing sites. This will include all of the modeling information used to produce the study including, but not limited to, any assumptions made about ambient tree height.

North Carolina General Statute Section 153A-349.52(c) establishes that “a county may not require proprietary, confidential, or other business information to justify the need for the new wireless support structure, including *propagation maps* and other telecommunication traffic studies.” (emphasis added) Thus, mandating the Applicant to provide propagation studies for the proposed site violates North Carolina General Statute Section 153A-349.52(c)(3). Please note that it remains the position of TowerCom and Verizon Wireless that the North Carolina General Statutes control the review and approval of this Application, but in the interest of time, we are submitting the information requested by Section 5.10.8.A1.i of the Ordinance. TowerCom and Verizon Wireless reserve their rights to challenge the validity of any portion of the Ordinance, as it relates to this application, and any future application, which TowerCom and/or Verizon Wireless considers to be invalid or inconsistent with the mandates of the North Carolina General Statutes, and the submission of this information will not be deemed a waiver of such rights. Please refer to the Propagation Maps for the Proposed Clearwater Lake Site, attached hereto as Exhibit 7.

- j. The search ring utilized in finding the proposed site.

Acknowledged and agreed. Please find attached the Search Ring for the proposed facility, attached hereto as Exhibit 5.

- k. The number, type, height, and model of the proposed antennas along with a copy of the applicable specification sheet(s).

Acknowledged and agreed. The anchor tenant, Verizon Wireless, proposes to initially install a total of nine (9) antennas, with the potential to install three (3) additional antennas in the future, or a potential total of twelve (12) antennas – six (6) Commscope HBXX-651DS-A2M antennas and six (6) Commscope LNX-6515DS-A1M antennas. The HBXX-651DS-A2M antenna height will be approximately fifty-one (51.1”) inches and the LNX-6515DS-A1M antenna height will be approximately ninety-six and one-half (96.6”) inches. Please refer to the Antenna Specifications Sheets attached hereto as Exhibit 15.

- l. The make, model and manufacturer of the tower and antenna(s), antenna heights and power levels of proposed site. This will include documentation establishing the azimuth, size, and centerline height location of all proposed and existing antennas on the structure.

Acknowledged and agreed. The proposed tower will be a custom designed one hundred ninety-five (195’) foot tall monopole tower (File # 219093), manufactured by Rohn Products, LLC of Peoria, Illinois. The anchor tenant, Verizon Wireless, proposes to initially install a total of nine (9) antennas, with the potential to install three (3) additional antennas in the future, or a potential total of twelve (12) antennas – six (6) Commscope HBXX-651DS-A2M antennas and six (6) Commscope LNX-6515DS-A1M antennas. The HBXX-651DS-A2M antenna height will be approximately fifty-one (51.1”) inches and the LNX-6515DS-A1M antenna height will be approximately ninety-six and one-half (96.6”) inches. The power levels for the antennas will be as follows: HBXX-651DS-A2M antennas are proposed to operate at sixty (60) watts; Commscope LNX-6515DS-A1M antennas are proposed to operate at forty (40) watts. There will be three (3) antenna sectors for the proposed tower. The pointing azimuth for the Commscope HBXX-651DS-A2M antennas and the Commscope LNX-6515DS-A1M antennas on sector one (1) will be sixty (60) degrees. The pointing azimuth for the Commscope HBXX-651DS-A2M antennas and Commscope LNX-6515DS-A1M antennas on sector two (2) will be one hundred eighty (180) degrees. The pointing azimuth for the Commscope HBXX-651DS-A2M antennas and Commscope LNX-6515DS-A1M antennas on sector three (3)

will be three hundred (300) degrees. The centerline location of the proposed antennas will be one hundred ninety (190') feet. Please refer to the Antenna Specifications Sheets attached hereto as Exhibit 15. Please also refer to the Antenna and Radio Information, attached hereto as Exhibit 16. Please also refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

- m. The frequency, modulation and class of service of radio or other transmitting equipment.

Acknowledged and agreed. The anchor tenant, Verizon Wireless, proposes to install a total of six (6) remote radio units (RRUs), two (2) per antenna sector. The frequency, modulation, and class of service for the proposed RRUs are as follows:

- Three (3) RRUS12-B4
 - Frequency: 2120-2130 Megahertz (Mhz); 2135-2140 Megahertz (Mhz); 1720-1730 Megahertz (Mhz); 1735-1740 Megahertz (Mhz)
 - Modulation: LTE 64-QAM
 - Class of Service: AWS (1710-1755 and 2110-2155 Megahertz (Mhz), Mobile/Fixed Broadband
- Three (3) RRUS12-B2
 - Frequency: 1975-1990 Megahertz (Mhz); 1895-1910 Megahertz (Mhz)
 - Modulation: LTE 64-QAM
 - Class of Service: CW-PCS Broadband, Mobile/Fixed Broadband

The anchor tenant, Verizon Wireless, proposes to initially install nine (9) antennas, with the potential to install three (3) additional antennas in the future, or a potential total of twelve (12) antennas – six (6) Commscope HBXX-651DS-A2M antennas and six (6) Commscope LNX-6515DS-A1M antennas. The frequency, modulation, and class of service for the proposed antennas is as follows:

- Six (6) Commscope LNX-6515DS-A1M antennas:
 - Frequency: 746-757 Megahertz (Mhz); 776-787 Megahertz (Mhz)
 - Modulation: LTE 64-QAM
 - Class of Service: WU-700 Megahertz (Mhz) Upper Band (Block C), Mobile/Fixed Broadband
- Three (3) Commscope HBXX-651DS-A2M antennas:

- Frequency: 2120-2130 Megahertz (Mhz), 2135-2140 Megahertz (Mhz); 1720-1730 Megahertz (Mhz), 1735-1740 Megahertz (Mhz)
- Modulation: LTE 64-QAM
- Class of Service: AWS (1710-1755 and 2110-2155 Megahertz (Mgz)), Mobile/Fixed Broadband
- Three (3) Commscope HBXX-651DS-A2M antennas:
 - Frequency: 1975-1990 Megahertz (Mhz); 1895-1910 Megahertz (Mhz)
 - Modulation: LTE 64-QAM
 - Class of Service: CW-PCS Broadband, Mobile/Fixed Broadband

Please refer to the Antenna and Radio Information, attached hereto as Exhibit 16.

n. The maximum transmission power capability of all radios, as designed, if the applicant is a cellular or functional equivalent carrier, or the maximum transmission power capability, as designed, of all transmission facilities if the applicant is not a cellular or functional equivalent carrier.

Acknowledged and agreed. The maximum transmission power capability of all RRUs proposed for installation by Verizon Wireless is sixty (60) watts. Please refer to the Antenna and Radio Information, attached hereto as Exhibit 16.

o. The actual intended transmission and the maximum effective radiated power of the antenna(s).

Acknowledged and agreed. The maximum power levels and actual intended transmission for the proposed antennas will be as follows: six (6) HBXX-651DS-A2M antennas have a maximum power level and are proposed to operate at sixty (60) watts; six (6) Commscope LNX-6515DS-A1M antennas have a maximum power level and are proposed to operate at forty (40) watts. Please refer to the Antenna and Radio Information, attached hereto as Exhibit 16.

- p. The direction(s) of maximum lobes and associated radiation of the antenna(s).

Acknowledged and agreed. Verizon Wireless proposes to install antennas on three (3) sectors. Sector 1 will have pointing azimuth of sixty (60) degrees. Sector 2 will have a pointing azimuth of one hundred eighty (180) degrees. Sector 3 will have a pointing azimuth of three hundred (300) degrees. Please refer to the Antenna and Radio Information, attached hereto as Exhibit 16.

- q. Certification that the NIER levels at the proposed site are within the threshold levels adopted by the FCC.

Acknowledged and agreed. Please refer to the NIER Statement signed by David Haughney, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 17.

- r. Certification that the proposed antenna(s) will not cause interference with other telecommunications devices.

Acknowledged and agreed. Please refer to the NIER Statement signed by David Haughney, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 17.

- s. A written affidavit stating why "the proposed site is necessary for their communications service" (e.g., for coverage, capacity, hole-filling, etc.) and a statement that there are no existing alternative sites within the provided search ring and there are no alternative technologies available which could provide the proposed telecommunications service need without the tower.

Acknowledged and agreed. The anchor tenant on the proposed new telecommunication tower will be Verizon Wireless. Verizon Wireless' goal is to maintain its industry standard level of coverage and capacity throughout its licensed coverage area, including Orange County, North Carolina. Specifically, Verizon Wireless' objective in connection with the proposed

Wireless Telecommunication Facility is to improve coverage along Mt. Carmel Church Road between the Governor's Club area and Chapel Hill (the "Clearwater Lake Area") as well as to provide capacity offload for the existing UNC Campus Verizon Wireless site. There are currently nine (9) existing Verizon Wireless sites within four (4) miles of the proposed tower. However, there is a gap in coverage between these sites in the Clearwater Lake Area. A new tower is required in order to fill in this gap in coverage for its customers in the Clearwater Lake Area, provide increased connectivity between the existing Verizon Wireless sites in the area, and to provide the capacity offload solution for the existing UNC Campus site. Verizon Wireless has conducted an extensive engineering study to identify the best location for a new telecommunication tower in order to provide increased coverage and capacity in the Clearwater Lake Area. There are no existing alternative sites within the search ring. Additionally, there are no alternative technologies available which could provide the needed increased coverage and capacity offload in the Clearwater Lake Area without the proposed new telecommunication tower. Please refer to the notarized Network Objective Statement signed by David Haughney, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 4. Please also refer to the Search Ring Map, attached hereto as Exhibit 5. Please also refer to the Map of Existing Verizon Wireless Sites, attached hereto as Exhibit 6. Please also refer to the Propagation Maps for the Proposed Clearwater Lake Site, attached hereto as Exhibit 7.

There are no existing towers or structures of sufficient height within the search ring upon which collocation is feasible. Please refer to the Inability to Collocate Statement signed by John Yeagley, site acquisition specialist for Chase Real Estate Services, attached hereto as Exhibit 21.

- t. A copy of the FCC license applicable for the intended use of the facility as well as a copy of the 5 and 10 year building out plan required by the FCC.

Please refer to Verizon Wireless' FCC licenses for Orange County, North Carolina, attached hereto as Exhibit 18.

North Carolina General Statute Section 153A-349.52(c) establishes that "a county may not require proprietary, confidential, or other business information to justify the need for the new wireless support structure" Thus, mandating the Applicant to provide a copy of Verizon Wireless' 5 and 10 year building out plan violates North Carolina General Statute Section

153A-349.52(c) as this is proprietary and confidential information, and TowerCom and Verizon Wireless therefore respectfully object to the provision of this information.

Some or all of items listed in (h) through (r) may be required to be provided on a propagation study data form to be provided by the County.

2. Additional Submittal Requirements – Collocation of Antennas

Because this Application is for the construction of a new wireless telecommunications tower and not for the collocation of antennas on an existing structure, this subsection is not applicable.

3. Standards of Evaluation – Collocations and Towers Requiring Administrative Approval

Because this Application is for the construction of a new wireless telecommunications tower which is subject to the Class B Special Use Permit procedures, this subsection is not applicable.

B. General Submittal Requirements – Special Use Permits.

In addition to the general submittal requirements detailed herein, and the specific submittal requirements for all Special Use Permit applications detailed within Section 2.7 of this Ordinance, applicants shall be required to adhere to the following:

1. Overall Policy and Desired Goals. The overall policy and desired goals for Special Use Permits for wireless telecommunications support structures shall be promoting and encouraging, wherever possible, the following:

a. Alternatives to constructing new wireless support structures, including but not limited to the collocation of wireless telecommunications equipment and mitigating the visual effect of a wireless telecommunication support structure to an extent not commercially impracticable; and

- b. The placement, height and quantity of wireless telecommunications towers and equipment in such a manner, including but not limited to the use of stealth technology or camouflage techniques, to minimize adverse aesthetic and visual impacts on the land, property, buildings, and other facilities adjacent to, surrounding, and in generally the same area as the requested location of such wireless telecommunications support structure, which shall mean using the least visually and physically intrusive facility that is not technologically or commercially impracticable under the facts and circumstances.

Acknowledged and agreed. There are no wireless telecommunication towers within the search area or alternative support structures of sufficient height within the search area for collocation, therefore a new tower is required. The visual intrusiveness of the proposed tower to surrounding properties in the area will be minimized as much as reasonably possible by the following methods: 1) the proposed tower will be under two hundred (200') feet in height and will be a monopole type-design without lattice or guy wires and will be made of galvanized steel to blend with the changing color of the sky; 2) the proposed tower will be located towards the rear of a large over eighteen (18) acre property, setback over one thousand (1,000') feet from the adjacent Mount Carmel Church Road public right-of-way; 3) the subject Property upon which the tower will be located is currently densely wooded, and as much of the existing vegetation as possible will be maintained around the access road and the tower compound, with natural vegetation being maintained within the lease area around the tower compound; 4) in the event that the natural vegetation is ever removed from the Property or around the facility, TowerCom will install the required Type C landscape buffer pursuant to Sections 5.10.8.B.4.e.i and 6.8 of the Ordinance; and 5) the subject Property is in a largely rural area with surrounding properties that are also densely wooded and not densely populated, and separated from large residential developments. Please refer to the Inability to Collocate Statement signed by John Yeagley, Site Acquisition Specialist with Chase Real Estate Services, attached hereto as Exhibit 21. Please refer the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8, which demonstrate the facility siting of the tower, setbacks from the adjacent Mount Carmel Church Road public right-

of-way and adjacent properties, the tree lines to be maintained along the access road and around the tower compound, as well as a proposed landscape plan in the event that the natural vegetation is ever removed from the Property or around the facility. Please also refer to the Site Images, attached hereto as Exhibit 13, demonstrating the Property and surrounding area. Additionally, a Balloon Test will be performed on October 15, 2016 pursuant to Board of Adjustment Calendar (Telecommunication Tower Class B SUP) – 2016 provided by the planning department. Color photo renditions of the proposed tower will be completed after the Balloon Test and will be submitted to the planning department upon receipt, and will be submitted at the hearing as supplemental evidence.

2. Balloon Test

- a. The applicant shall, at least six (6) weeks prior to a Class B Special Use Permit public hearing and at least eleven (11) weeks prior to a Class A Special Use Permit public hearing, conduct a balloon test whereby the applicant shall arrange to fly, or raise upon a temporary mast, a minimum of 10'3" in length, brightly colored red or orange balloon at the maximum height of the proposed new wireless support structure.

Acknowledged and agreed. The Balloon Test is being conducted on October 15, 2016, in conformance with the Board of Adjustment Calendar (Telecommunication Tower Class B SUP) – 2016 provided by the planning department. The balloon will be at least ten feet three inches (10'3") in length, brightly colored red or orange, will be flown at one hundred ninety-nine (199') feet which is the proposed tallest point of the lightning rod to be attached to the top of the one hundred ninety-five (195') foot tall tower.

- b. The balloon test shall be flown for at least four (4) consecutive daylight hours starting sometime between 10:00 A.M. and 2:00 P.M. on the dates chosen.

Acknowledged and agreed. The Balloon Test is being conducted on October 15, 2016, in conformance with the Board of Adjustment Calendar (Telecommunication Tower Class B SUP) – 2016 provided by the planning department. The balloon will be flown for four (4) consecutive daylight hours starting sometime between 10:00 A.M. and 2:00 P.M.

- c. A notice of the dates (including a second date in case of poor visibility, weather or atmospheric conditions on the initial date), times, and location of the balloon test shall be mailed, by certified mail, return receipt requested, by the applicant, to all persons owning property within one thousand (1,000') feet of the subject parcel no less than fourteen (14) days in advance of the first test date. The data contained within the office of Orange County Land Records shall be used as the primary source for determining which residents are to receive notice of the balloon tests.

Acknowledged and agreed. Notice for the Balloon Test, including a second date in case of poor visibility, weather, or atmospheric conditions on the initial date, times, and location will be mailed by certified mail, return receipt requested to all persons owning property within one thousand (1,000') feet of the subject parcel no less than fourteen (14) days in advance of the first test date. The Applicant compiled a list of property owners within one thousand (1,000') feet of the subject property and submitted the same to the planning department who approved of the list. Please refer to the List of Property Owner Names and Addresses within 1,000 Feet of the Property, attached hereto as Exhibit 19, which was approved by Michael Harvey with the Orange County Planning Department.

- d. The primary date shall be on a weekend (excluding legal holidays), but to prevent delays in the processing of the application, and in case of poor weather or atmospheric conditions on the initial date, the secondary date may be a weekday.

Acknowledged and agreed. The primary balloon test date will be on a Saturday, October 15, 2016. The secondary date will be the first weekday thereafter that weather permits.

- e. The applicant shall inform the County Planning Staff, in writing, of the dates and

times of the test at least fourteen (14) days in advance.

Acknowledged and agreed. The Applicant has notified the County Planning Staff in writing of the dates and times of the test at least fourteen (14) days before the dates of the test. Please refer to the Notice Letter to Orange County Planning Department Regarding the Balloon Test Date and Time, attached hereto as Exhibit 20.

- f. The applicant shall also post a sign on the subject property, and directional signs posted at locations to be determined by Planning Staff. The signs shall measure no more than nine (9) square feet in area and no less than four (4) square feet in area, giving the contact information of the County Planning Department, the proposed dates, times, and location of the balloon test. The signs shall be posted to meet the same time limits as provided for in the balloon test notification as stated above.

Acknowledged and agreed. The Applicant will post a sign meeting the size requirements on the subject Property, along with directional signs at a location determined by Planning Staff, at least fourteen (14) days prior to the Balloon Test.

3. Submittal Requirements. In addition to the information required herein as well as Section 2.7, the following shall be submitted as part of the application:

- a. A site plan showing the following:
 - i. The entire site (including property boundary lines) and size of all existing structures within five hundred (500') feet of the site,
 - ii. Existing and proposed structures on site,
 - iii. The fall zone of the tower,
 - iv. Existing and proposed topography at a contour interval of five (5') feet and

- v. Any official designated floodways and floodplains, or the presence of alluvial soils.

Acknowledged and agreed. The only two (2) structures within five hundred (500') feet of the proposed tower site are two (2) abandoned barns. The fall zone for the proposed tower is one hundred ninety-five (195') feet. The site is within FEMA flood Map Area 3710979600K dated 02/02/2007 within Flood Zone X. Please refer the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

- b. Plans, and elevations for all proposed structures and descriptions of the color and nature of all exterior material, along with the make, model, and manufacturer of the proposed structure, maximum antenna heights, and power levels.

Acknowledged and agreed. The proposed tower will be one hundred ninety-five (195') feet in height with a four (4') foot tall lightning rod made of galvanized steel and gray in color. The proposed tower will be a custom designed one hundred ninety-five (195') foot tall monopole tower (File # 219093), manufactured by Rohn Products, LLC of Peoria, Illinois. The proposed equipment building at the base of the tower will be ten feet three inches (10'3") in height made of concrete with a brown aggregate exterior. The maximum power levels and actual intended transmission for the proposed antennas will be as follows: six (6) HBXX-651DS-A2M antennas have a maximum power level and are proposed to operate at sixty (60) watts; six (6) Commscope LNX-6515DS-A1M antennas have a maximum power level and are proposed to operate at forty (40) watts. The HBXX-651DS-A2M antenna height will be approximately fifty-one (51.1") inches and the LNX-6515DS-A1M antenna height will be approximately ninety-six and one-half (96.6") inches. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8. Please also refer to the Tower Design Report prepared by Habib Jiriji Azouri, North Carolina Professional Engineer with Rohn Products, LLC, attached hereto as Exhibit 10. Please also refer to the Antenna and Radio Information, attached hereto as Exhibit 16. Please also refer to the Antenna Specifications sheets, attached hereto as Exhibit 15.

- c. A Landscape and Tree Preservation Plan drawn at the same scale as the site

plan, showing the existing and proposed trees, shrubs, ground cover and other landscape materials. This plan shall minimize adverse visual effects of wireless telecommunications support structures and antennas through careful design, siting, landscape screening and innovative camouflaging techniques.

Acknowledged and agreed. The subject Property upon which the tower will be located is currently densely wooded, and as much of the existing vegetation as possible will be maintained around the access road and the tower compound, with natural vegetation being maintained within the lease area around the tower compound. In the event that the natural vegetation is ever removed from the Property or around the facility, TowerCom will install the required Type C landscape buffer pursuant to Sections 5.10.8.B.4.e.i and 6.8 of the Ordinance. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8, which demonstrate the facility siting of the tower, setbacks from the adjacent Mount Carmel Church Road public right-of-way and adjacent properties, the tree lines to be maintained along the access road and around the tower compound, as well as a proposed landscape plan in the event that the natural vegetation is ever removed from the Property or around the facility.

d. Evidence that the applicant has investigated the possibilities of placing the proposed equipment on an existing wireless support structure. Such evidence shall consist of:

i. A listing of all wireless telecommunications support structures within a two (2) mile radius of the proposed wireless support structure site and a listing of all wireless support structure, utility poles and other structures in the vicinity of the proposed facility that are technically feasible for utilization by the applicant to fill all or a substantial portion of the

telecommunications service need identified by the Applicant pursuant to section 5.10.8(A)(1)(s). Documents shall be submitted at the time of application filing that indicates the applicant's ability or inability to co-locate on the identified tower(s) and reasons why.

North Carolina General Statute Section 153A-349.52(c)(3) establishes that "a county may require applicants for new wireless facilities to evaluate the reasonable feasibility of collocating new antennas and equipment on an existing wireless support structure or structures *within the applicant's search ring.*" (emphasis added) The search ring for the proposed site is smaller than a two (2) mile radius, thus mandating the Applicant to prove an inability to collocate on structures outside the search ring violates North Carolina General Statute Section 153A-349.52(c)(3). Please note that it remains the position of TowerCom and Verizon Wireless that the North Carolina General Statutes control the review and approval of this Application, but in the interest of time, we are submitting the information requested by Section 5.10.8.B.3.d.i of the Ordinance. TowerCom and Verizon Wireless reserve their rights to challenge the validity of any portion of the Ordinance, as it relates to this application, and any future application, which TowerCom and/or Verizon Wireless considers to be invalid or inconsistent with the mandates of the North Carolina General Statutes, and the submission of this information will not be deemed a waiver of such rights.

There is one (1) wireless telecommunications support structure within a two (2) mile radius of the proposed site. This wireless telecommunications support structure is not within the search ring for the tower. Verizon Wireless is already co-located on this wireless telecommunications support structure, shown as the "Farrington Mill" site in the Map of Existing Verizon Wireless Sites. There are no alternative structures of sufficient height within the search area feasible for collocation. Therefore, a new telecommunication tower is required. Please refer to the Inability to Collocate Statement signed by John Yeagley, Site Acquisition Specialist for Chase Real Estate, attached hereto as Exhibit 21. Please also refer to the Search Ring Map, attached hereto as Exhibit 5. Please also refer to the Map of Existing Verizon Wireless Sites, attached hereto as Exhibit 6.

- ii. Delineation of the boundaries of the maximum search ring within which

the telecommunication equipment can function as intended. The following information shall be provided for all existing wireless support structures within the search ring:

- a. Wireless telecommunication support structure height;
- b. Existing and planned wireless support structure users;
- c. Whether the existing wireless telecommunication support structure could accommodate the telecommunication equipment to be attached to the proposed wireless support structure without causing structural instability or radio frequency interference; and
- d. If the proposed telecommunication equipment cannot be accommodated on the existing wireless telecommunication support structure, assess whether the existing wireless support structure could be structurally strengthened or whether the antennas transmitters and related equipment could be protected from electromagnetic interference, and generally describe the means and projected cost of shared use of the existing wireless support structure; and
- e. And restrictions or limitations of the FCC or FAA that would preclude the shared use of the wireless support structure;
- f. Propagation studies of all adjoining planned, proposed, in-service, or existing sites, and;

- g. Any additional information requested by the County.

Acknowledged and agreed. The boundaries for the search ring used for the proposed site are the maximum within which the proposed telecommunication equipment can function as intended. There are no towers within the search ring or alternative structures of sufficient height within the search ring upon which collocation is feasible. Please refer to the Inability to Collocate Statement signed by John Yeagley, Site Acquisition Specialist with Chase Real Estate, attached hereto as Exhibit 21. Please also refer to the Search Ring Map, attached hereto as Exhibit 5. Please also refer to the notarized Network Objective Statement signed by David Haughney, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 4.

North Carolina General Statute Section 153A-349.52(c) establishes that “a county may not require proprietary, confidential, or other business information to justify the need for the new wireless support structure, including *propagation maps* and other telecommunication traffic studies.” (emphasis added) Thus, mandating the Applicant to provide propagation studies for the proposed site violates North Carolina General Statute Section 153A-349.52(c)(3). Please note that it remains the position of TowerCom and Verizon Wireless that the North Carolina General Statutes control the review and approval of this Application, but in the interest of time, we are submitting the information requested by Section 5.10.8.A1.i of the Ordinance. TowerCom and Verizon Wireless reserve their rights to challenge the validity of any portion of the Ordinance, as it relates to this application, and any future application, which TowerCom and/or Verizon Wireless considers to be invalid or inconsistent with the mandates of the North Carolina General Statutes, and the submission of this information will not be deemed a waiver of such rights. Please refer to the Propagation Maps for the Proposed Clearwater Lake Site, attached hereto as Exhibit 7.

- iii. A summary explanation of why proposed telecommunication equipment cannot be located on any of the existing wireless support structures in the search ring.

Acknowledged and agreed. There are no towers within the search ring or alternative structures of sufficient height within the search ring upon which collocation is feasible. Please refer to the Inability to Collocate Statement signed by John Yeagley, Site Acquisition Specialist with Chase Real Estate,

attached hereto as Exhibit 21. Please also refer to the Search Ring Map, attached hereto as Exhibit 5.

- e. Documentation from applicable state or federal agencies indicating requirements, which affect the appearance of the proposed wireless support structure, such as lighting and coloring.

Acknowledged and agreed. Please refer to the FAA Determination of No Hazard Letter, attached hereto as Exhibit 22, demonstrating that the tower will not need to be marked, painted, or lighted.

- f. Draft bond which will guarantee the removal of the wireless support structure in the event that it is abandoned or unused for a period of twelve (12) months.

Acknowledged and agreed. Please refer to the Draft Tower Removal Bond, attached hereto as Exhibit 23, representing one hundred ten (110%) percent of the estimated cost of tower removal. Please also refer to the Estimated Cost of Tower Removal prepared by South Carolina Tel-Con, attached hereto as Exhibit 24. Please also refer to the North Carolina General Contracting License for South Carolina Tel-Con, attached hereto as Exhibit 25. Please also refer to the Tower Bond Certification signed by George W. Davis, Senior Vice President and Managing Partner for TowerCom IV, LLC, attached hereto as Exhibit 33, certifying that the Tower Removal Bond will be obtained and submitted upon zoning approval.

- g. A listing of, and current tax map identifying, all property owners within one thousand (1,000') feet of the parcel and addressed, first class stamped envelopes to the property owners for notifications of the public hearing in accordance with Sections 2.7.5 and 2.7.6 of this Ordinance.

Acknowledged and agreed. Please refer to the List of Property Owner names and Addresses within 1,000 feet of the Property, attached hereto as Exhibit 19. Please also refer to the Buffer Map Identifying all Property Owners within 1,000 feet of the Property, attached hereto as Exhibit 26. Please also find enclosed with the Application, first class stamped envelopes to the

property owners for notifications of the public hearing in accordance with Sections 2.7.5 and 2.7.6 of this Ordinance.

- h. A report containing any comments received by the applicant in response to the balloon test along with color photographs from various locations around the balloon.

Acknowledged and agreed. The Balloon Test is being conducted on October 15, 2016, in conformance with the Board of Adjustment Calendar (Telecommunication Tower Class B SUP) – 2016 provided by the planning department. A report containing any comments received by the Applicant along with color photographs from the Balloon Test will be forwarded to the planning department upon receipt and will be submitted at the hearing as supplemental evidence.

- i. Evidence that the balloon test requirement has been met, including a notarized statement and listing of the property owners notified of the test, a copy of a current Orange County Tax Map showing the subject property and all properties within the notification ring, and copies of the certified mail returned receipts from the mail-out.

Acknowledged and agreed. The Balloon Test is being conducted on October 15, 2016 in conformance with the Board of Adjustment Calendar (Telecommunication Tower Class B SUP) – 2016 provided by the planning department. Please refer to the following pieces of evidence showing that the balloon test requirement has been met: 1) List of Property Owner Names and Addresses within 1,000 Feet of the Property, attached hereto as Exhibit 19; 2) Buffer Map Identifying all Property Owners within 1,000 feet of the Property, attached hereto as Exhibit 26; and 3) Notice Letter to Orange County Planning Department Regarding the Balloon Test Date and Time, attached hereto as Exhibit 20. The following pieces of evidence will be submitted to the planning department upon receipt and will be submitted at the hearing as supplemental evidence: 1) Copies of the Certified Mail Return Receipts from the Balloon Test Notice Mailing; 2) the Balloon Test Photographs taken by Graham Herring; 3) Photo Simulations prepared by Graham Herring; 4) Notarized Statement that Balloon Test Requirements have been met; and 5) Balloon Test Report including comments of attendees.

- j. A notarized statement that the sign posting requirement has been met.

Acknowledged and agreed. A sign will be posted on the subject property in conformance with the Board of Adjustment Calendar (Telecommunication Tower Class B SUP) – 2016 provided by the planning department. A notarized statement that sign posting requirement has been met will be submitted to the planning department upon receipt and will be submitted at the hearing as supplemental evidence.

- k. Photographs of a clearly visible balloon floated at the proposed tower location to the maximum height of the tower, as well as photographs with the proposed tower and associated antennas superimposed upon them showing what the proposed tower will look like. Photographs shall be taken from locations such as: property lines, and/or nearby residential areas, historic sites, roadways, including scenic roads and major view corridors, and other locations as deemed necessary by the Planning Staff to assess the visual impact of the proposed tower.

Acknowledged and agreed. The Balloon Test will be conducted on October 15, 2016 in conformance with the Board of Adjustment Calendar (Telecommunication Tower Class B SUP) – 2016 provided by the planning department. Balloon Test Photographs and Photo Simulations prepared by Graham Herring will be submitted to the planning department upon receipt and will be submitted at the hearing as supplemental evidence.

- l. The Special Use Permit application shall include a statement that the facility and its equipment will comply with all federal, state and local emission requirements.

Acknowledged and agreed. Please refer to the General Certifications Statement signed by George Davis, Senior Vice-President and Managing Partner of TowerCom IV, LLC, attached hereto as Exhibit 12. Please also refer to the NIER Statement signed by David Haughney, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 17.

m. An Applicant may be required to submit an Environmental Assessment Analysis and a Visual addendum. Based on the results of the Analysis, including the Visual addendum, the County may require submission of a more detailed visual analysis. The scope of the required Environmental and Visual Assessment will be reviewed at the pre-application meeting.

Pursuant to Section 6.16.2(A) of the Ordinance, because the proposed facility will involve less than two (2) acres, an Environmental Assessment Analysis and Visual Addendum is not required. Therefore, this subsection is not applicable.

- n. If required, a Visual Impact Assessment, which shall include:
- i. A "Zone of Visibility Map" shall be provided in order to determine locations from which the tower may be seen.
 - ii. Panorama photo simulations of the proposed wireless support structure, superimposed on the existing landscape, to scale, showing "before and after" views including but not limited to State highways and other major roads; State and local parks; other public lands; historic districts; preserves and historic sites normally open to the public; and from any other location where the site is visible to a large number of visitors, travelers or residents
 - iii. An assessment of the visual impact of the wireless support structure base, guy wires and accessory buildings from abutting and adjacent properties and streets shall be considered to determine the need of screening.

The Balloon Test will be conducted on October 15, 2016 in conformance with the Board of Adjustment Calendar (Telecommunication Tower Class B SUP) – 2016 provided by the planning department. Balloon Test Photographs and Photo Simulations and an assessment of the visual impact of the wireless support structure base and accessory buildings from abutting and adjacent properties and streets will be prepared by Graham Herring will be submitted to the planning department upon receipt and will be submitted at the hearing as supplemental evidence.

- o. All applications shall contain a demonstration that the wireless support structure is sited so as to have the least visually intrusive effect reasonably possible and thereby have the least adverse visual effect on the environment and its character, on existing vegetation, and on the residences in the area of the telecommunications tower.

Acknowledged and agreed. The visual intrusiveness of the proposed tower to surrounding properties in the area will be minimized as much as reasonably possible by the following methods: 1) the proposed tower will be under two hundred (200') feet in height and will be a monopole type-design without lattice or guy wires and will be made of galvanized steel to blend with the changing color of the sky; 2) the proposed tower will be located towards the rear of a large over eighteen (18) acre property, setback over one thousand (1,000') feet from the adjacent Mount Carmel Church Road public right-of-way; 3) the subject Property upon which the tower will be located is currently densely wooded, and as much of the existing vegetation as possible will be maintained around the access road and the tower compound, with natural vegetation being maintained within the lease area around the tower compound; 4) in the event that the natural vegetation is ever removed from the Property or around the facility, TowerCom will install the required Type C landscape buffer pursuant to Sections 5.10.8.B.4.e.i and 6.8 of the Ordinance; and 5) the subject Property is in a largely rural area with surrounding properties that are also densely wooded and not densely populated, and separated from large residential developments. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8, which demonstrate the facility siting of the tower, setbacks from the adjacent Mount Carmel Church Road public right-of-way and adjacent properties, the tree lines to be maintained along the access road and around the tower

compound, as well as a proposed landscape plan in the event that the natural vegetation is ever removed from the Property or around the facility. Please also refer to the Site Images, attached hereto as Exhibit 13, demonstrating the Property and surrounding area. Additionally, a Balloon Test will be performed on October 15, 2016 pursuant to Board of Adjustment Calendar (Telecommunication Tower Class B SUP) – 2016 provided by the planning department. Color photo renditions of the proposed tower will be completed after the Balloon Test and will be submitted to the planning department upon receipt, and will be submitted at the hearing as supplemental evidence.

- p. A statement, prepared by a professional engineer licensed in the State of North Carolina, which through rational engineering analysis, certifies the tower's compliance with applicable standards as set forth in the State of North Carolina Building Code, and any associated regulations; and describes the tower's capacity, including an example of the number and type of antennas it can accommodate.

Acknowledged and agreed. Please refer to the Tower Design Report prepared by Habib Jiriji Azouri, North Carolina Professional Engineer with Rohn Products, LLC, attached hereto as Exhibit 10.

4. Standards of Evaluation

- a. The telecommunications equipment planned for the proposed wireless support structures cannot be accommodated on an existing wireless support structures due to one or more of the following reasons:
 - i. The planned equipment would exceed the structural capacity of existing and approved wireless support structures, considering existing and planned use of those wireless support structures and the wireless support structures cannot be reinforced to accommodate planned or equivalent equipment at a reasonable cost.

- ii. The planned equipment would cause radio frequency interference with other existing or planned equipment for these wireless support structures, and the interference cannot be prevented at a reasonable cost.
- iii. Existing or approved wireless support structures do not have space on which the equipment can be placed so it can function effectively and reasonably in parity with similar existing or approved equipment.
- iv. No tower or other suitable facility exists in an area where the equipment to be placed on the tower will function in its intended manner.

Acknowledged and agreed. No tower or other suitable facility exists within the area where the equipment to be placed on the tower will function in its intended manner. Please refer to the Inability to Collocate Statement signed by John Yeagley, Site Acquisition Specialist with Chase Real Estate Services, attached hereto as Exhibit 21.

b. Location of Wireless Support Structures

- i. Applicants for facilities shall locate, site and erect said facilities according to the following priorities, in the following order:
 - a. On existing County-owned facilities without increasing the height of the tower or structure.
 - b. On existing Facilities without increasing the height of the tower or structure.
 - c. On County-owned properties or facilities.
 - d. On properties in areas zoned for commercial or industrial use.
 - e. On properties in areas zoned Agricultural Residential (AR).

- f. On properties in areas zoned for residential use.
- ii. If an Applicant proposes to place telecommunications equipment at a location that is not a preferred priority 1 site, then the Applicant must provide a detailed explanation as to why a higher priority site is not proposed. The explanation shall be in the form of a written report demonstrating the Applicant's review of the above locations in order of priority and the reason(s) for the site selection. The explanation shall, at a minimum, include the information required by section 5.10.8(B)(3)(e).
- iii. The application shall not be approved unless it demonstrates that the telecommunications equipment may not be sited at a higher priority site because of commercial impracticability or because no higher priority site is available that would serve to provide the telecommunications service need identified by the Applicant as provided for in section 5.10.8(A)(1)(s).
- iv. An Applicant may not by-pass sites of higher priority merely because the site proposed is the only site leased or selected. Agreements between providers limiting or prohibiting collocation shall not be a valid basis for any claim of commercial impracticability.
- v. Notwithstanding that a potential site may be situated in an area of highest priority or highest available priority, an application shall not be approved if it conflicts with the provisions and requirements of this Ordinance.

Acknowledged and agreed. In the search area for the proposed site: 1) as confirmed with the Orange County Planning Department, there are no existing County-owned facilities for collocation without increasing the tower height of the tower or structure; 2) there are no other existing facilities for collocation without increasing the height of the tower or structure; 3) as confirmed with the Orange County Planning Department, there are no County-owned properties or facilities; 4) there are no properties zoned for commercial or industrial use that will allow for the construction of a telecommunication tower in compliance with the requirements of the Ordinance; and 5) there are no properties zoned Agricultural Residential (AR). Therefore, because facility siting is not possible at any of the above-listed locations, the proposed telecommunication facility will be located on a property zoned Rural Buffer (RB). Please refer to the Facility Siting Certification signed by John Yeagley, site acquisition specialist for Chase Real Estate Services, attached hereto as Exhibit 30.

- vi. Wireless support structures shall not be located within one-half ($\frac{1}{2}$) mile of any existing monopole, lattice or guyed wireless telecommunications support structure.
 - a. An exception may be allowed when the applicant can sufficiently demonstrate that:
 - i. Appropriate space on the existing telecommunication wireless support structure is not available; or
 - ii. The applicant has made good faith effort to negotiate an agreement with the owner of the existing wireless telecommunication support structure and has been unsuccessful, which must be documented in writing; or
 - iii. The telecommunication equipment on the

- existing wireless telecommunication support structure is not compatible with the proposed telecommunication equipment of the applicant; or
 - iv. Adequate coverage by the applicant cannot be met at the location of the existing wireless telecommunication support structure; or
 - v. The existing wireless telecommunication support structure cannot be reasonably modified to accommodate additional collocation by the applicant.
- b. Exceptions shall only be allowed after a thorough analysis of the search area, provided by the applicant is performed by the County's consultant or Staff, indicating that coverage is not possible on an existing wireless support structure at the four-carrier capacity or other user capacity that can be achieved. There must be an 80% approval vote of the deciding board for this specific finding to pass the exception criteria.

Acknowledged and agreed. There are no existing monopole, lattice, or guyed wireless telecommunications support structures within one-half (1/2) mile of the proposed wireless support structure. Please refer to the Tower Separation Statement signed by John Yeagley, site acquisition specialist with Chase Real Estate Services, attached hereto as Exhibit 31.

c. Setbacks

- i. Within or adjacent to residential zoning districts, minimum setbacks from the base of the wireless support structure to the property boundary shall be equal to 110% of the wireless support structure height.

Acknowledged and agreed. The subject Property and adjacent properties are zoned RB – Rural Buffer. The proposed tower will be one hundred ninety-five (195') feet in height with a lightning rod of four (4') feet in height). Therefore, the tower must be setback two hundred eighteen and nine-tenths (218.9') feet from all property lines (199 x 110% = 218.9).

The proposed tower meets these setback requirements from all property lines. The proposed tower is setback approximately seven hundred three feet six inches (703'6") from the northern property line. The proposed tower is setback approximately four hundred thirty-two feet eleven inches (432'11") from the eastern property line. The proposed tower is setback approximately three hundred eighty-two feet one inch (382'1") from the southern property line. The proposed tower is setback approximately two hundred twenty feet ten inches (220'10") from the western property line. Please refer to the Site Survey and Construction Drawings prepared by Kimely-Horn and Associates, Inc., attached hereto as Exhibit 8.

- ii. If the wireless support structure is proposed as an accessory use to a residential use, the setback shall be 110% of the wireless support structure height from any residence or dwelling unit on the subject property.

Because the proposed facility is not an accessory use to a residential use, this subsection is not applicable.

- iii. Adjacent to non-residential uses or non-residential zoning districts, minimum setbacks from the base of the wireless support structure to the property boundary shall be the greater

of 20% of the tower height, or the minimum required setback.

Because the proposed facility will not be adjacent to non-residential uses or non-residential zoning districts this subsection is not applicable.

- iv. All buildings and other structures to be located on the same zoning lot as a telecommunication tower wireless support structure shall conform with the setbacks established for the zoning district or as established through the subdivision process, whichever is greater.

Acknowledged and agreed. The required building setbacks for the RB – Rural Buffer zoning district are as follows:

Side	Setback in Feet
Front Setback from ROW	40
Corner Side Setback	40
Side Setback	20
Rear Setback	25

The equipment building for the proposed tower will meet each all minimum setback requirements being setback hundreds of feet from each property line. Please refer to the Site Survey and Construction Drawings prepared by Kimely-Horn and Associates, Inc., attached hereto as Exhibit 8.

- d. Access
 - i. At a wireless telecommunications support structure site, an access road, turn around space and parking shall be provided to assure adequate emergency and service access.
 - ii. Maximum use of existing roads, whether public or private, shall be made to the extent practicable.
 - iii. Road construction shall, at all times, minimize ground disturbance and the cutting of vegetation.

- iv. Road grades shall closely follow natural contours to assure minimal visual disturbance and reduce soil erosion.

Acknowledged and agreed. There will be a twelve (12') foot wide gravel access drive approximately one thousand four hundred four (1,404') feet in length from the Mount Carmel Church Road public right-of-way to the facility site. A twenty foot by forty foot (20' x 40') turnaround and parking area will be provided at the entrance to the facility compound. The maximum amount of vegetation possible will be preserved around the access road. Please refer to the Site Survey and Construction Drawings prepared by Kimely-Horn and Associates, Inc., attached hereto as Exhibit 8, detailing the access road, turnaround and parking space, and grading and contours for the access road.

- e. Landscape and Buffers
 - i. A Type C Landscape Buffer shall be provided between the wireless support structures and its accessory structures and adjoining property/properties.
 - ii. Existing vegetation may be removed only to the extent necessary to accommodate the wireless support structures, equipment buildings, and support structures such as guy wires.
 - iii. Plantings around the compound perimeter, outside of any fence or wall, shall be composed entirely of fast growing evergreen vegetation.
 - iv. New plantings and existing vegetation used for screening shall be at least six feet in height or greater at planting.
 - v. Proposed plantings (name, type, height) shall be shown on the Landscape Plan for the facility.
 - vi. Landscaping shall provide a screen on a year-round basis.

Acknowledged and agreed. The subject Property upon which the tower will be located is currently densely wooded, and as much of the existing

vegetation as possible will be maintained around the access road and the tower compound, with natural vegetation being maintained within the lease area around the tower compound. The existing natural vegetation will serve as the required landscaping buffer for so long as the natural vegetation remains on the Property and around the facility. In the event that the natural vegetation is ever removed from the Property or around the facility, TowerCom will install the required Type C landscape buffer pursuant to Sections 5.10.8.B.4.e.i and 6.8 of the Ordinance. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8, which demonstrate the facility siting of the tower, the tree lines to be maintained along the access road and around the tower compound, as well as a proposed landscape plan in the event that the natural vegetation is ever removed from the Property or around the facility. Please also refer to the Site Images, attached hereto as Exhibit 13, demonstrating the Property and surrounding area.

- f. The visibility of the balloon to adjacent properties and the surrounding area shall not constitute sole justification of denial of a permit application, but is an indication of what location on the site may be less visually intrusive.

Acknowledged and agreed. The Balloon Test will be conducted on October 15, 2016 in conformance with the Board of Adjustment Calendar (Telecommunication Tower Class B SUP) – 2016 provided by the planning department. Balloon Test Photographs and Photo Simulations and an assessment of the visual impact of the wireless support structure base and accessory buildings from abutting and adjacent properties and streets will be prepared by Graham Herring will be submitted to the planning department upon receipt and will be submitted at the hearing as supplemental evidence.

- g. The applicant shall demonstrate and provide a description in writing and by drawing how it shall effectively screen from view the base and all related equipment and structures of the proposed facility.

Acknowledged and agreed. The subject Property upon which the tower will be located is currently densely wooded, and as much of the existing vegetation as possible will be maintained around the access road and the tower compound, with natural vegetation being maintained within the lease

area around the tower compound. The existing natural vegetation will serve as the required landscaping buffer for so long as the natural vegetation remains on the Property and around the facility. In the event that the natural vegetation is ever removed from the Property or around the facility, TowerCom will install the required Type C landscape buffer pursuant to Sections 5.10.8.B.4.e.i and 6.8 of the Ordinance. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8, which demonstrate the facility siting of the tower, the tree lines to be maintained along the access road and around the tower compound, as well as a proposed landscape plan in the event that the natural vegetation is ever removed from the Property or around the facility.

- h. The site plan shall indicate a location for at least two (2) equipment buildings in addition to that proposed for use by the applicant.

Acknowledged and agreed. The site plan indicates a location for the location of three (3) equipment buildings in addition to the one (1) proposed by the Applicant. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

- i. All utilities at a facility site shall be installed underground and in compliance with all Laws, ordinances, rules and regulations of the County, including specifically, but not limited to, the National Electrical Safety Code and the National Electrical Code where appropriate.

Acknowledged and agreed. The Applicant will work with Duke Energy to request underground utility delivery.

- j. All wireless support structures shall satisfy all applicable public safety, land use, or zoning issues required in this Ordinance, including aesthetics, landscaping, land-use based location priorities, structural design, setbacks, and fall zones.

Acknowledged and agreed. This Narrative along with referenced exhibits demonstrates how the Application meets all public safety, land use, or zoning issues required in the Ordinance.

- k. Fences and Walls
 - i. An eight (8') foot fence or wall shall be required around the base of any wireless support structures. This fence or wall shall encompass all accessory equipment within the compound.
 - ii. Fences shall be required around guy wire tie downs.
 - iii. A fence or wall may be placed around the perimeter of the facility to include guy wire tie downs and associated equipment should the applicant/owner wish to do so.

Acknowledged and agreed. The facility compound will be enclosed by an eight (8') foot tall chain-link fence, including all ancillary structures. The proposed tower will be of a monopole-type design, so there will be no guy wires. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

- l. The communications tower is structurally designed to support additional users as provided for in Section 5.10.8(A)(3)(d), and the Special Use Permit includes a statement that the owner of the wireless support structure is willing to permit other user(s) to attach communication equipment which do not interfere with the primary purpose of the wireless support structure, provided that such other users agree to negotiate a reasonable compensation to the owner from such liability as may result from such attachment.

Acknowledged and agreed. The proposed tower will be designed to support up to three (3) additional users in addition to Verizon Wireless. Please refer to the Future Collocation Certification signed by George Davis, Senior Vice-

President and Managing Partner of TowerCom IV, LLC, attached hereto as Exhibit 9. Please also refer to the Tower Design Report prepared by Habib Jiriji Azouri, North Carolina Professional Engineer with Rohn Products, LLC, attached hereto as Exhibit 10.

- m. To minimize the number of antenna arrays and thus the visual impact, the County may require the use of dual mode antennas to be used, including by two different carriers, unless it can be proven that such will not work technologically and that such would have the effect of prohibiting the provision of service in the County.

Upon information and belief, the requirement intended by this subsection is that the antennas for the proposed facility be dual mode, which would allow for operation on multiple frequencies. Verizon Wireless, the anchor tenant, proposes to install dual mode antennas such that they will be able to operate on multiple frequencies. Please refer to the Antenna and Radio Information Sheet, attached hereto as Exhibit 16.

- n. Structures shall be galvanized and/or painted with a rust-preventive paint of an appropriate color to harmonize with the surroundings.

Acknowledged and agreed. The proposed tower will be galvanized steel gray in color. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

- o. Both the wireless telecommunications support structure and any and all accessory or associated telecommunication equipment and related facilities shall maximize the use of building materials, colors and textures designed to blend with the structure to which it may be affixed and/or to harmonize with the natural surroundings, this shall include the utilization of stealth technology as may be required by the County.

Acknowledged and agreed. The proposed tower will be galvanized steel gray in color to blend with the changing color of the sky. The equipment building at the base of the tower will be concrete with a brown aggregate finish to blend with the natural vegetation that will surround the base of the tower compound. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

- p. Antennas
 - i. All new or replacement antennas, except omni-directional whip antennas, shall be flush-mounted or as close to flush-mounted as is technologically possible on any facility, so long as such does not have the effect of prohibiting the provision of service to the intended service area, alone or in combination with another site(s), unless the applicant can prove that it is technologically impracticable.

Flush mounting of the antennas on the proposed new telecommunication tower is technologically impracticable for the proposed Clearwater Lake Wireless Telecommunication Facility. A flush mount antenna design imposes a restriction of a single antenna panel per sector, meaning a maximum of three (3) total antennas can be used when antennas are flush mounted. To meet the RF objective for the Clearwater Lake sites, the anchor tenant, Verizon Wireless, proposes to initially install a total of nine (9) antennas, three (3) on each of three (3) sectors, with the potential to install three (3) additional antennas in the future, or a potential total of twelve (12) antennas. Reducing the number of antennas to a total of three (3) by flush mounting would have the effect of prohibiting the provision of service in the intended service area as it would reduce the ability to meet the network objective of increasing coverage in the Clearwater Lake area, and reduce the ability to provide the needed capacity offload to the existing UNC Campus Verizon Wireless site. Please refer to the Infeasibility of Flush Mounting Antennas Statement prepared by David Haughney, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 27.

- ii. If attached to a building, all antennas shall be mounted on the facade of the building and camouflaged so as to

match the color and, if possible, texture of the building or in a manner so as to make the antennas as visually innocuous and undetectable as is possible given the facts and circumstances involved.

Because the proposed antennas will not be attached to a building, this subsection is not applicable.

- q. Lighting
 - i. The wireless support structures will not be artificially lighted unless required by the FAA, FCC or other federal or state agency. Where such agencies allow a choice between painting the tower or installing strobe lighting, painting shall be the preferred choice.
 - ii. If lighting is legally required or proposed, the applicant shall provide a detailed plan for sufficient lighting of as unobtrusive and inoffensive an effect as is permissible under State and federal regulations.
 - iii. For any facility for which lighting is required under the FAA's regulations, or that for any reason has lights attached, all such lighting shall be affixed with technology that enables the light to be seen as intended from the air, but that prevents the ground scatter effect so that it not able to be seen from the ground to a height of at least 12 degrees vertical for a distance of at least one mile in a level terrain situation. Such device must be compliant with or not in conflict with FAA regulations. A physical shield may be used, as long as the light is visible from the air, as intended by the FAA.

- iv. All outdoor lighting not regulated by the FCC shall comply with the Outdoor Lighting Standards set forth in Section 6.11 of this Ordinance.

Acknowledged and agreed. The tower will not be lit. The equipment building at the base of the tower will be equipped with an approximately one hundred (100) watt light with a plastic shield near the door to the building. Please refer to the FAA Determination of No Hazard Letter, attached hereto as Exhibit 22.

- r. The tower and antenna will not result in a significant adverse impact on the view of or from any historic site, scenic road, or major view corridor.

Acknowledged and agreed. Upon information and belief, the proposed facility will not result in a significant adverse impact on the view of or from any historic site, scenic road, or major view corridor.

- s. Facilities, including antennas, towers and other supporting structures, such as guy anchor points and wires, shall be made inaccessible to individuals and constructed or shielded in such a manner that they cannot be climbed or collided with; and transmitters and telecommunications control points shall be installed in such a manner that they are readily accessible only to persons authorized to operate or service them.

Acknowledged and agreed. The tower compound will be secured by a locked eight (8') foot tall chain-link fence topped with three (3) strands of barbed wire such that the compound will not be accessible to unauthorized individuals and cannot be collided with or climbed. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

- t. All abandoned communication wireless support structures shall be removed within twelve (12) months of the cessation of use. A bond or other security guaranteeing the

removal of the tower in the event that it is abandoned or unused for a period of twelve (12) months shall be posted. A cost estimate shall be provided by a qualified General Contractor licensed in the State of North Carolina. The amount of the security shall be one hundred ten (110%) percent of the estimate.

Acknowledged and agreed. The Applicant will remove its abandoned communication wireless support structures within twelve (12) months of the cessation of use. The estimated cost of removal is Seventy-Four Thousand One Hundred Twenty-Five (\$74,125.00) and No/100ths Dollars. Please refer to the Tower Removal Cost Estimate provided by South Carolina Tel-Con, Inc., a General Contractor licensed in the State of North Carolina, attached hereto as Exhibit 24. Please also refer to the North Carolina General Contracting License for South Carolina Tel-Con, Inc., attached hereto as Exhibit 25. Please also refer to the Draft Tower Removal Bond, attached hereto as Exhibit 23. Please also refer to the Tower Bond Certification signed by George W. Davis, Senior Vice President and Managing Partner for TowerCom IV, LLC, attached hereto as Exhibit 33, certifying that the Tower Removal Bond will be obtained and submitted upon zoning approval.

- u. A determination shall be made that the facility and its equipment will comply with all federal, state and local emission requirements, and the Special Use Permit shall include a statement that the facility and its equipment will comply with all federal, state and local emission requirements.

Acknowledged and agreed. Please refer to the NIER Statement signed by David Haughney, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 17. Please also refer to the General Certifications Statement signed by George Davis, Senior Vice-President and Managing Partner for TowerCom IV, LLC, attached hereto as Exhibit 12.

- v. Electro-Magnetic Radiation Levels
 - i. The Special Use Permit shall include a condition that the electro- magnetic radiation levels maintain compliance with requirements of the FCC,

- regarding emission of electromagnetic radiation.
- ii. Within thirty (30) days of installation of equipment on the tower, and within thirty (30) days of the installation of any additional equipment in the future, the tower owner shall provide documentation of emission levels in relation to FCC standards.
 - iii. In addition, the tower owner must provide documentation of emission levels within five (5) working days if so requested by Orange County.

Acknowledged and agreed. Please refer to the NIER Statement signed by David Haughney, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 17.

- w. "High Voltage," "No Trespassing" and Other Signs
 - i. If high voltage is necessary for the operation of the telecommunications tower or any accessory structures, "HIGH VOLTAGE - DANGER" warning signs shall be permanently attached to the fence or wall and shall be spaced no more than 40 feet apart.
 - ii. "NO TRESPASSING" warning signs shall be permanently attached to the fence or wall and shall be spaced no more than 40 feet apart.
 - iii. The letters for the "HIGH VOLTAGE - DANGER" and "NO TRESPASSING" warning signs shall be at least six inches in height. The two warning signs may be combined into one sign. The warning signs shall be installed at least five feet above the finished grade of the fence.
 - iv. The warning signs may be attached to freestanding poles if the content of the signs would, or could, be

obstructed by landscaping. Signs noting federal registration (if required) shall be attached to the tower structure in compliance with federal regulation.

- v. Facilities shall contain a sign no larger than four square feet to provide adequate notification to persons in the immediate area of the presence of RF radiation or to control exposure to RF radiation within a given area.
- vi. A sign no larger than four square feet containing the name(s) of the owner(s) and operator(s) of the antenna(s) as well as emergency phone number(s) shall be installed. The sign shall be on the equipment shelter or cabinet of the applicant and be visible from the access point of the site and must identify the equipment owner of the shelter or cabinet.
- vii. On tower sites, an FCC registration sign, as applicable, is also to be present. The signs shall not be lighted, unless applicable law, rule or regulation requires lighting.
- viii. The use of any portion of a tower for signs or advertising purposes including company name, banners, streamers, etc. shall be strictly prohibited.
- ix. Mobile or immobile equipment not used in direct support of a tower facility shall not be stored or parked on the site of the telecommunication tower, unless repairs to the tower are being made.

Acknowledged and agreed. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

5. Bond Security

- a. The applicant and the owner of record of any proposed facility property site shall, at its cost and expense, be jointly required to execute and file with the County a bond, or other form of security acceptable to the County as to type of security and the form and manner of execution, in an amount of at least Seventy-Five Thousand (\$75,000.00) Dollars for a tower and with such sureties as are deemed sufficient by the County to assure the faithful performance of the terms and conditions of this Section and conditions of any Special Use Permit issued pursuant to this Section.

Acknowledged and agreed. Please refer to the Draft Performance Bond, attached hereto as Exhibit 28. Please also refer to the Tower Bond Certification signed by George W. Davis, Senior Vice President and Managing Partner for TowerCom IV, LLC, attached hereto as Exhibit 33, certifying that the Performance Bond will be obtained and submitted upon zoning approval.

- b. The full amount of the bond or security shall remain in full force and effect throughout the term of the Special Use Permit and/or until any necessary site restoration is completed to restore the site to a condition comparable to that, which existed prior to the issuance of the original Special Use Permit. Tower Inspection

Acknowledged and agreed. Please refer to the Draft Performance Bond, attached hereto as Exhibit 28. Please also refer to the Tower Bond Certification signed by George W. Davis, Senior Vice President and Managing Partner for TowerCom IV, LLC, attached hereto as Exhibit 33, certifying that the Performance Bond will be obtained and submitted upon zoning approval.

6. Liability Insurance

- a. A holder of a Special Use Permit for a wireless support structure shall secure and at all times maintain public liability insurance for personal injuries, death and property damage, and umbrella insurance coverage,

for the duration of the Special Use Permit in the following amounts:

- i. Commercial General Liability covering personal injuries, death and property damage: One Million (\$1,000,000) Dollars per occurrence / Two Million (\$2,000,000) Dollars aggregate; and
 - ii. Automobile Coverage: One Million (\$1,000,000.00) Dollars per occurrence / Two Million (\$2,000,000) Dollars aggregate; and
 - iii. A Three Million (\$3,000,000) Dollar Umbrella coverage; and
 - iv. Workers' Compensation and Disability: Statutory amounts.
- b. For a wireless support structure on County property, the Commercial General Liability insurance policy shall specifically name the County as an additional insured. The insurance policies shall be issued by an agent or representative of an insurance company licensed to do business in the State and with a Best's rating of at least A.
- c. The insurance policies shall contain an endorsement obligating the insurance company to furnish the County with at least thirty (30) days prior written notice in advance of the cancellation of the insurance.
- d. Renewal or replacement policies or certificates shall be delivered to the County at least fifteen (15) days before the expiration of the insurance that such policies are to renew or replace.
- e. Before construction of a permitted facility is initiated, but in no case later than fifteen (15) days prior to the grant of the building permit, the holder of the Special Use Permit shall deliver to the County a copy of each of the policies or certificates representing the insurance in the required amounts. A Certificate of Insurance that states that it is for informational purposes

only and does not confer rights upon the County shall not be deemed to comply with this Section.

Acknowledged and agreed. The Applicant will submit the requisite Certificate of Insurance no later than fifteen (15) days prior to the grant of a building permit.

C. General Building and Inspection Standards for all Telecommunication Support structures

TowerCom agrees to comply with all applicable general building and inspection standards for the proposed Wireless Telecommunication Facility when applying for applicable building permit(s) with the County. Since this Application is for the Class B Special Use Permit, this subsection is not applicable at this time.

D. Fees

1. A filing fee as set by the Board of County Commissioners shall be paid upon application for a Site Plan/Zoning Compliance Permit Application, a Building Permit application, or Special Use Permit.

Acknowledged and agreed. Please find enclosed with the Application a check made payable to Orange County in the amount of Nine Thousand Three Hundred Thirty and No/100ths (\$9,330.00) Dollars made payable to Orange County representing the Class B Special Use Permit Application fee, Consultant Fee, Legal Ad Fee, and Hearing Sign Posting Fee for this application. This includes the One Thousand Five Hundred and No/100ths (\$1,500.00) Dollar Class B Special Use Permit Application Fee. Building permit fee(s) will be submitted at the time of building permit application.

2. An inspection fee is due the County at the time of all required future inspections as detailed within Section 5.10.8(C)(1)(c) of this Ordinance. Such fees may reflect the County's fully allocated costs, and shall not exceed such costs.

Acknowledged and agreed.

3. Public land or right-of-way lease agreements shall be established by separate instrument and recorded prior to the issuance of Building Permits.

Because this Application does not involved the use of public land or rights-of-way, this subsection is not applicable.

4. Consultant Fee. Regardless of the type of telecommunication support structure proposed (i.e. administrative approval, special use permit, collocation, etc.) an applicant is required to submit a fee to cover the County's telecommunications consultant to review the application. An escrow account of an amount determined by the Board of County Commissioners, as denoted on the adopted fee schedule, shall be paid by check to Orange County to pay associated consultant review fees during all phases of the application review process. The Board of County Commissioners shall determine the amount of charges or fees assessed to an applicant on account of an outside consultant in advance and incorporate these charges and fees into an application fee that is based on the reasonable costs of the services the County incurs in connection with the application review. The fees and charges paid by the applicant for the services of a consultant shall not exceed what is usual and customary for wireless facilities and support structures. The foregoing does not prohibit the County from imposing additional reasonable cost-based fees for the actual costs incurred by the County for a consultant's review of an application due to amendments or revisions to the original application. The amount of the consultant charges incorporated into the application fee shall be separately identified and disclosed to the applicant upon request. Any unused funds in the account after either the approval of the Certificate of Occupancy (CO), or the expiration of the Special Use Permit approval, whichever is sooner, shall be returned to the designated party.

Acknowledged and agreed. Please find enclosed with the Application a check made payable to Orange County in the amount of Nine Thousand Three Hundred Thirty and No/100ths (\$9,330.00) Dollars made payable to Orange County representing the Class B Special Use Permit Application fee, Consultant Fee, Legal Ad Fee, and Hearing Sign Posting Fee for this application. This includes the Seven Thousand and No/100ths (\$7,000.00) Dollar Class B Special Use Permit Application Fee.

2. Section 2.7: Special Use Permits

1. 2.7.1 Generally

- A. Any use or development designated by applicable zoning district regulations contained within Article 5 as a special use, or as allowed only pursuant to a special use permit (either Class A or Class 8), may be established in that district only after the use or development is authorized by a validly issued and recorded special use permit.
- B. This section sets forth required review and approval procedures for submittal, review, and approval of applications for special use permit.
- C. A special use permit authorizes its holder to use or develop a particular parcel of land in a particular way, as specified by the terms and conditions of the special use permit.
- D. Issuance of a special use permit does not relieve the holder of the special use permit of the additional responsibility of obtaining a building permit or any other permit or approval required by any other applicable law.

Acknowledged and agreed.

- 2. 2.7.2 Review and Approval Flow Chart.** The review and approval process for Special Use Permits is shown in the procedure's flowchart.

Acknowledged and agreed.

3. 2.7.3 Application Requirements

- A. Applications for a Special Use shall be submitted on forms provided by the Planning Department in accordance with Section 2.2 of this Ordinance.

Acknowledged and agreed. Please refer to the Orange County Planning and Inspections Department - Application for Class B Special Use Permit Form, attached hereto as Exhibit 2.

B. Applications shall include:

1. A full and accurate description of the proposed use, including its location, appearance, and operational characteristics.

Acknowledged and agreed. This Narrative and referenced exhibits provide a full and accurate description of the proposed Wireless Telecommunications Facility, its location, appearance, and operational characteristics.

2. The name(s) and address(es) of the owner(s) of the property involved.

Acknowledged and agreed. The subject Property is owned by the Buckner Family Farm Trust with an address of 109 W. Franklin Street, Suite 101, Rockingham, North Carolina 28379. The adjacent property over which part of the proposed access and utilities easement runs is owned by Edward S. Williams with an address of 81112 Alexander, Chapel Hill, North Carolina 27517.

3. Relevant information needed to show compliance with the general and specific standards governing the Special Use (See Articles 5 and 6).

Acknowledged and agreed. This Narrative and referenced exhibits demonstrate how this Application complies with the applicable standards of Articles 5 and 6 of the Ordinance.

4. For Class A Special Uses twenty-six (26) copies of the site plan, and for Class B Special Uses ten (10) copies of the site plan, prepared by a registered North Carolina land surveyor, landscape architect, architect, or engineer, which shall contain the information listed in Section 2.5.

Acknowledged and agreed. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit. Jeffrey W. Baker is a licensed land surveyor for in the State of

North Carolina and prepared the Site Survey which is part of Exhibit 8. William C. Edmonson is a licensed professional engineer in the State of North Carolina and prepared the other sheets of Exhibit 8. Exhibit 8 was prepared in conformance with Section 2.5. Please also find enclosed with the Application two (2) additional copies of Exhibit 8, the site plan, along with an electronic copy of the site plan. Upon information and belief, only two (2) additional copies of the site plan are required with the Zoning Application submittal, with more copies to be produced upon review and request for revisions.

5. If the application involves a Preliminary Subdivision Plat, twenty-six (26) copies of the Plat prepared in accordance with Section 7.14 shall be provided.

Because this Application does not involve a Preliminary Subdivision Plat, this subsection is not applicable.

6. A list of all parcels located within five hundred (500) feet of the subject parcel and the name and address of each property owner, as currently listed in the Orange County tax records.

Acknowledged and agreed. Please refer to the List of Property Owner Names Addresses within 1,000 feet of the Property, attached hereto as Exhibit 19.

7. Elevations of all structures proposed to be used in the development.

Acknowledged and agreed. The proposed tower will be one hundred ninety-five (195') feet in height with a four (4') foot tall lightning rod made of galvanized steel and gray in color. The proposed equipment building at the base of the tower will be ten feet three inches (10'3") in height made of concrete with a brown aggregate exterior. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

8. For Class A Special Uses twenty-six (26) copies and for Class B Special Uses ten (10) copies of the Environmental Assessment and/or Environmental Impact Statement, if required by Section 6.16.

Pursuant to Section 6.16.2(A) of the Ordinance, because the proposed facility will involve less than two (2) acres, an Environmental Assessment and/or Environmental Impact Statement is not required. Therefore, this subsection is not applicable.

9. Method of disposal of trees, limbs, stumps and construction debris associated with the permitted activity, which shall be by some method other than open burning.

Acknowledged and agreed. All biodegradable refuse (such as trees, limbs and other underbrush) will be removed from the Property and delivered to a waste facility capable of handling this type of yard waste. Further, construction debris, including excess dirt not needed for the project, will be removed and disposed of at the nearest facility that accepts this type of commercial and industrial refuse.

10. Statement from the applicant indicating the anticipated development schedule for the build-out of the project.

Acknowledged and agreed. The Applicant proposes the following anticipated development schedule for the build-out of the project:

- **February 2017: Commencement of site preparation (clearing, grading);**
- **Late February 2017: Installation of tower foundation;**
- **Early March 2017: Tower stack; coordination of utilities delivery;**
- **Late March 2017: Verizon Wireless equipment installation.**

11. Statement from the applicant in justification of any request for vesting for a period of more than two (2) years (five (5) years maximum).

Because the Applicant is not requesting a vesting period of more than two (2) years, this subsection is not applicable.

4. 2.7.4 Staff Review

Because this section deals with the responsibilities of Staff, this section is not applicable.

5. 2.7.5 Notice Requirements for Class A Special Use Permits

Because this Application is for a Class B Special Use Permit, this section is not applicable.

- 6. 2.7.6 Notice Requirements for Class B Special Use Permits.**
Notice Requirements for Class B Special Use Permits shall follow the procedures in Section 2.12.6 **[Notice for Matters Before the Board of Adjustment]**:

Because this section deals with responsibilities of the Planning Director, this subsection is not applicable.

7. 2.7.7 Nature of Proceedings

- A. The review of Special Use Permit applications shall be conducted during a public hearing by the decision-making board.
- B. The review of a Special Use Permit application is a quasi-judicial process, where the Board responsible for rendering a decision acts much like a panel of judges. The Board hears factual evidence and sworn testimony presented at an evidentiary hearing, and then makes findings of fact supported by competent, substantial, and material evidence.
- C. The chair or presiding officer of the hearing shall swear all parties intending to present evidence or testimony during the hearing.
- D. The chair or presiding officer may take whatever action is necessary to limit testimony to the presentation of new factual evidence that is material to the application, to ensure fair and orderly proceedings, and to otherwise promote the efficient and effective gathering of evidence. Such actions may include:
 - 1. Barring the presentation of obvious hearsay evidence,
 - 2. Barring the presentation of non-expert opinion,
 - 3. Interrupting digressions into immaterial testimony,
 - 4. Interrupting repetitive testimony,
 - 5. Reasonably limiting the time allotted each witness or cross-examination,
 - 6. Providing for the selection of spokespersons to represent groups of persons with common interests,

7. Interrupting personal attacks, and/or
 8. Ordering an end to disorderly conduct.
- E. Where the Board finds compliance with the general standards, specific rules governing the specific use, and that the use complies with all required regulations and standards, the application must be approved unless the Board shall also find, in some specific manner, that:
1. the use will not maintain or promote the public health, safety and general welfare, if located where proposed and developed and operated according to the plan as submitted.
- F. Those opposing approval of the application on the grounds that the use will not promote the public health, safety and general welfare shall have the burden of establishing, by competent material and substantial evidence, the specific manner in which the proposed use does not satisfy the requirements for approval of the application for a Special Use.

Acknowledged and agreed. The proposed Wireless Telecommunication Facility will maintain or promote the public health, safety, and general welfare if located where proposed and developed and operated according to the plan as submitted, and is a public necessity in the following ways: (i) wireless phones help police, fire, and emergency medical service (EMS) personnel in their daily mission of protecting their communities; (ii) every day more than one hundred thousand (100,000) emergency calls are made to 911 from wireless phones; (iii) mobile data terminals in police cars can give officers quick access to information such as automobile, driver's license, and prior conviction records, helping them make informed, on the spot decisions that keep our streets safer; (iv) EMS teams transporting patients to a hospital transmit electrocardiograms and other vital medical information en route, speeding effective care and saving lives. This is recognized by the 2030 Comprehensive Plan which states "Telecommunications facilities are located throughout the County. Both public and private facilities located on water towers, electrical transmission towers, or on rooftops, complement other telecommunications systems used by the State Highway Patrol, 911 Communications, Emergency Medical Services, local police and fire departments, and local utility providers."

Additionally, the proposed Wireless Telecommunications Facility is a public necessity as Americans are swiftly embracing mobile technologies and the opportunities they create. In 2012, eighty-eight (88%) of Americans over

the age of twenty-five (25) reported using a mobile phone. Nearly forty (40%) percent of American adults and forty-five (45%) percent of American children live in wireless-only households. Beyond phone calls and text messaging, mobile phones offer constant access to Internet applications like email and Web-browsing in addition to location based services. Importantly, more than half (1/2) of all adults in the U.S. own a smart phone. Once online, mobile phone users are increasingly using their devices to send and receive email, browse the Web, and utilize other applications that offer increased productivity to their busy lives. In fact, forty five million (45,000,000) Americans use mobile phones as their primary Internet access device. Consequently, mobile data doubled from 2012 to 2013, and will increase about six hundred fifty (650%) percent by 2018. This exponential growth in data usage has increased the capacity demand for existing wireless sites, creating the need to expand the wireless network to address the demand for internet access.

Finally, the proposed Wireless Telecommunications Facility will comply with all applicable local codes, ordinances, and regulations, including any and all applicable county, state and federal laws, rules, and regulations including but not limited to all FCC and FAA rules and guidelines. Additionally, the proposed tower will be built in conformance with all applicable standards and building codes. Please refer to the Tower Design Report prepared by Habib Jiriji Azouri, North Carolina Professional Engineer with Rohn Products, LLC, attached hereto as Exhibit 10. Please also refer to the General Certifications Statement signed by George W. Davis, Senior Vice President and Managing Partner for TowerCom IV, LLC, attached hereto as Exhibit 12. Please also refer to the NIER Statement signed by David Haughney, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 17. Please also refer to the FAA Determination of No Hazard Letter, attached hereto as Exhibit 22.

8. 2.7.8 Review and Decision

A. For Class A Special Use permits, the following shall apply:

Because this Application is for a Class B Special Use permit, this subsection is not applicable.

B. For Class B Special Use Permits, the following shall apply:

1. The Board of Adjustment shall review the application during a regularly scheduled public hearing.

2. The Board of Adjustment shall conduct the hearing in accordance within the provisions detailed in this Section as well as those contained within Section 2.12.
3. After completion of the public hearing, the Board of Adjustment shall take action upon the application. This action shall be one of the following:
 - a. Approval;
 - b. Approval with conditions; or
 - c. Denial

Acknowledged and agreed.

9. 2.7.9 Standards of Evaluation

- A. The project meets all applicable design standards and other requirements of this Ordinance.

Acknowledged and agreed. This Narrative and the referenced exhibits demonstrate how this Application complies with all applicable requirements of the Ordinance.

- B. The development can reasonably be completed within the vesting period requested, if any.

Because the Applicant is not requesting a vesting period, this subsection is not applicable.

- C. Where vesting in excess of two (2) years is requested, the project is located in an area where current issues under study do not involve potential amendments to the Comprehensive Plan and/or this Ordinance.

Because the Applicant is not requesting a vesting period, this subsection is not applicable.

The remainder of the standards in Section 2.7 deal with duties of the Planning Director or Board, or deal extensions or modifications to plans and are therefore not applicable at this time.

3. Section 5.3 Application of Use Standards

1. 5.3.2 Special Uses

A. General Standards. Before any application for a Special Use Permit shall be approved:

1. The applicant shall have the burden of establishing, by competent material and substantial evidence, in the form of testimony, exhibits, documents, models, plans and other materials, that the application meets the requirements for approval of a Special Use; and

Acknowledged and agreed.

2. The Board of County Commissioners or Board of Adjustment shall make written findings certifying compliance with the specific rules governing such individual Special Use and that the use, which is listed as a Special Use in the district in which it is proposed to be located, complies with all required regulations and standards including the following general conditions:

- a. The use will maintain or promote the public health, safety and general welfare, if located where proposed and developed and operated according to the plan as submitted;

Acknowledged and agreed. The proposed Wireless Telecommunication Facility will maintain or promote the public health, safety, and general welfare if located where proposed and developed and operated according to the plan as submitted, and is a public necessity in the following ways: (i) wireless phones help police, fire, and emergency medical service (EMS) personnel in their daily mission of protecting their communities; (ii) every day more than one hundred thousand (100,000) emergency calls are made to 911 from wireless phones; (iii) mobile data terminals in police cars can give officers quick access to information such as automobile, driver's license, and prior conviction records, helping them make informed, on the spot decisions that keep our streets safer; (iv) EMS teams transporting patients to a hospital transmit electrocardiograms and other vital medical information en route, speeding effective care and saving lives. This is recognized by the 2030 Comprehensive Plan which states "Telecommunications facilities are located throughout the County. Both public and private facilities located on water towers, electrical transmission towers, or on rooftops, complement other telecommunications systems used by the State Highway Patrol, 911

Communications, Emergency Medical Services, local police and fire departments, and local utility providers.”

Additionally, the proposed Wireless Telecommunications Facility is a public necessity as Americans are swiftly embracing mobile technologies and the opportunities they create. In 2012, eighty-eight (88%) of Americans over the age of twenty-five (25) reported using a mobile phone. Nearly forty (40%) percent of American adults and forty-five (45%) percent of American children live in wireless-only households. Beyond phone calls and text messaging, mobile phones offer constant access to Internet applications like email and Web-browsing in addition to location based services. Importantly, more than half (1/2) of all adults in the U.S. own a smart phone. Once online, mobile phone users are increasingly using their devices to send and receive email, browse the Web, and utilize other applications that offer increased productivity to their busy lives. In fact, forty five million (45,000,000) Americans use mobile phones as their primary Internet access device. Consequently, mobile data doubled from 2012 to 2013, and will increase about six hundred fifty (650%) percent by 2018. This exponential growth in data usage has increased the capacity demand for existing wireless sites, creating the need to expand the wireless network to address the demand for internet access.

Finally, the proposed Wireless Telecommunications Facility will comply with all applicable local codes, ordinances, and regulations, including any and all applicable county, state and federal laws, rules, and regulations including but not limited to all FCC and FAA rules and guidelines. Additionally, the proposed tower will be built in conformance with all applicable standards and building codes. Please refer to the Tower Design Report prepared by Habib Jiriji Azouri, North Carolina Professional Engineer with Rohn Products, LLC, attached hereto as Exhibit 10. Please also refer to the General Certifications Statement signed by George W. Davis, Senior Vice President and Managing Partner for TowerCom IV, LLC, attached hereto as Exhibit 12. Please also refer to the NIER Statement signed by David Haughney, Radio Frequency Engineer for Verizon Wireless, attached hereto as Exhibit 17. Please also refer to the FAA Determination of No Hazard Letter, attached hereto as Exhibit 22.

- b. The use will maintain or enhance the value of contiguous property (unless the use is a public necessity, in which case the use need not maintain or enhance the value of contiguous property); and**

Acknowledged and agreed. The proposed Wireless Telecommunication Facility will maintain or enhance the value of contiguous property and is a public necessity. David Smith, MAI, SRA performed a real estate impact analysis for the proposed facility and concluded, in his expert opinion, that the facility would maintain or enhance the value of contiguous property. David Smith will be present at the public hearing to provide his expert testimony regarding the real estate impact analysis he performed and his expert opinion regarding the impact to contiguous property. Please refer to the Real Estate Impact Analysis prepared by David Smith, attached hereto as Exhibit 32.

Additionally, the proposed Wireless Telecommunication Facility is a public necessity as it will aid emergency responders in Orange County, North Carolina in the following ways: (i) wireless phones help police, fire, and emergency medical service (EMS) personnel in their daily mission of protecting their communities; (ii) every day more than one hundred thousand (100,000) emergency calls are made to 911 from wireless phones; (iii) mobile data terminals in police cars can give officers quick access to information such as automobile, driver's license, and prior conviction records, helping them make informed, on the spot decisions that keep our streets safer; (iv) EMS teams transporting patients to a hospital transmit electrocardiograms and other vital medical information en route, speeding effective care and saving lives. This is recognized by the 2030 Comprehensive Plan which states "Telecommunications facilities are located throughout the County. Both public and private facilities located on water towers, electrical transmission towers, or on rooftops, complement other telecommunications systems used by the State Highway Patrol, 911 Communications, Emergency Medical Services, local police and fire departments, and local utility providers."

Additionally, the proposed Wireless Telecommunications Facility is a public necessity as Americans are swiftly embracing mobile technologies and the opportunities they create. In 2012, eighty-eight (88%) of Americans over the age of twenty-five (25) reported using a mobile phone. Nearly forty (40%) percent of American adults and forty-five (45%) percent of American children live in wireless-only households. Beyond phone calls and text messaging, mobile phones offer constant access to Internet applications like email and Web-browsing in addition to location based services. Importantly, more than half (1/2) of all adults in the U.S. own a smart phone. Once online, mobile phone users are increasingly using their devices to send and receive email, browse the Web, and utilize other applications that offer

increased productivity to their busy lives. In fact, forty five million (45,000,000) Americans use mobile phones as their primary Internet access device. Consequently, mobile data doubled from 2012 to 2013, and will increase about six hundred fifty (650%) percent by 2018. This exponential growth in data usage has increased the capacity demand for existing wireless sites, creating the need to expand the wireless network to address the demand for internet access.

- c. The location and character of the use, if developed according to the plan submitted, will be in harmony with the area in which it is to be located and the use is in compliance with the plan for the physical development of the County as embodied in these regulations or in the Comprehensive Plan, or portion thereof, adopted by the Board of County Commissioners.

Acknowledged and agreed. The location and character of the proposed Wireless Telecommunication Facility if developed according to the plan submitted will be in harmony with the area in which it is to be located. The subject Property and the majority of surrounding properties in the area are all zoned Rural Buffer (RB). New freestanding telecommunication towers over seventy-five (75') feet in height and under two hundred (200') feet in height are permitted in the RB district as a class B special use. A few properties to the northeast of the subject Property are partially zoned Existing Commercial-5 (EC5), and new freestanding telecommunication towers over seventy-five (75') feet in height and under two hundred (200') feet in height are also permitted in the EC5 district as a class B special use. Therefore, the proposed one hundred ninety-five (195') foot tall new freestanding telecommunication tower with four (4') foot lightning rod would be permitted as a class B special use on all adjacent properties and other properties in the nearby vicinity. The fact that the Wireless Telecommunication Facility would be permitted on all adjacent properties and other properties in the nearby vicinity is prima facie evidence that the use will be in harmony with the area. Please refer to the Zoning Report obtained from the Orange County GIS Website, attached hereto as Exhibit 33, showing a map of the zoning classification for the subject Property and surrounding area.

Additionally, the siting, location, general area, and character of the proposed Wireless Telecommunication Facility ensure that it will be in harmony with the area in which it is to be located. The proposed tower will be under two

hundred (200') feet in height and will be a monopole type-design without lattice or guy wires and will be made of galvanized steel to blend with the changing color of the sky. The tower will not be lit or marked. The proposed tower will be located towards the rear of a large over eighteen (18) acre property, setback over one thousand (1,000') feet from the adjacent Mount Carmel Church Road public right-of-way. The subject Property upon which the tower will be located is currently densely wooded, and as much of the existing vegetation as possible will be maintained around the access road and the tower compound, with natural vegetation being maintained within the lease area around the tower compound. In the event that the natural vegetation is ever removed from the Property or around the facility, TowerCom will install the required Type C landscape buffer pursuant to Sections 5.10.8.B.4.e.i and 6.8 of the Ordinance. Additionally, the facility will be unmanned and will not be an employment center, requiring only periodic maintenance on an monthly basis on average, therefore traffic in the area should not be impacted by the proposed facility. The subject Property is in a largely rural area with surrounding properties that are also densely wooded and not densely populated, and separated from large residential developments. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8, which demonstrate the facility siting of the tower, setbacks from the adjacent Mount Carmel Church Road public right-of-way and adjacent properties, the tree lines to be maintained along the access road and around the tower compound, as well as a proposed landscape plan in the event that the natural vegetation is ever removed from the Property or around the facility. Please also refer to the Site Images, attached hereto as Exhibit 13, demonstrating the Property and surrounding area. Additionally, a Balloon Test will be performed on October 15, 2016 pursuant to Board of Adjustment Calendar (Telecommunication Tower Class B SUP) – 2016 provided by the planning department. Color photo renditions of the proposed tower will be completed after the Balloon Test and will be submitted to the planning department upon receipt, and will be submitted at the hearing as supplemental evidence.

This Narrative and reference exhibits demonstrate how the Wireless Telecommunication Facility will be in compliance with the plan for the physical development of the County as embodied in the Ordinance. The Wireless Telecommunication Facility will also be in compliance with the regulations in the Orange County 2030 Comprehensive Plan (the "Comprehensive Plan"). The proposed facility will be in compliance with Chapter 8 of the Comprehensive Plan on Services and Facilities in the County. Specifically, the proposed facility will be in compliance with the

stated Services and Community Facilities Goal 7 of providing “Efficient and effective public safety, including police, fire, *telecommunications*, emergency services, and animal services.” (emphasis added) Indeed, the Comprehensive Plan discusses the importance of telecommunications services that will be provided by the proposed facility: “Telecommunications facilities are located throughout the County. Both public and private facilities located on water towers, electrical transmission towers, or on rooftops, complement other telecommunications systems used by the State Highway Patrol, 911 Communications, Emergency Medical Services, local police and fire departments, and local utility providers.” Additionally, the Comprehensive Plan notes concerns for providing emergency services from the expected increase in population and volume of calls. The proposed facility will provide increased coverage and capacity in the Clearwater Lake Area to better aid in the provision of emergency services to the citizens of Orange County in this area, and in this way complies with the Comprehensive Plan.

Additionally, the Comprehensive Plan recognizes the changes in technology in wireless telecommunications that will necessitate the construction of additional towers in the County: “Recent innovations . . . have created digital technologies, which require more bandwidth capacity, shorter ranges, and greater data transmission capacities. The County will likely continue to see development proposals for additional towers over the long-term.” Objective PS-T-8 is to encourage the expansion of affordable high speed internet access, fiber optic lines, and other high speed communication networks to rural and underserved areas. Part of the network objective for the facility is to provide capacity offload to the existing Verizon UNC Campus site. This will comply with the stated objective and provide an additional method of high speed internet access to Orange County residents and businesses in the Clearwater Lake Area over the LTE network. Residents and businesses in the area will be able to have high speed internet access through their mobile devices and tablets. Again, more than half (1/2) of all adults in the U.S. own a smart phone. Once online, mobile phone users are increasingly using their devices to send and receive email, browse the Web, and utilize other applications that offer increased productivity to their busy lives. In fact, forty five million (45,000,000) Americans use mobile phones as their primary Internet access device. Consequently, mobile data doubled from 2012 to 2013, and will increase about six hundred fifty (650%) percent by 2018. The proposed Wireless Telecommunication Facility will supply additional network capacity to provide access to the internet and comply with the Comprehensive Plan in so doing. Additionally, the facility

will improve a high speed communication network for the Clearwater Lake Area and comply with the Comprehensive Plan in so doing.

B. Specific Standards. In addition to the general standards stated in Section 5.3.2(A), the following specific standards shall be addressed by the applicant before the issuance of a Special Use Permit:

1. Method and adequacy of provision of sewage disposal facilities, solid waste, and water;

Acknowledged and agreed. The proposed facility will be unmanned with only periodic maintenance. The proposed facility will not be an employment center. Therefore, the proposed facility will not necessitate sewage disposal facilities, solid waste disposal, or provision of water.

2. Method and adequacy of police, fire and rescue squad protection.

Acknowledged and agreed. The proposed facility will be unmanned with only periodic maintenance and will not be an employment center, therefore the facility should not noticeably increase the need for police, fire, or rescue squad protection in the area. However, according to the 2030 Comprehensive Plan, there are three (3) police departments in the County, including in Carrboro (approximately 4.7 miles from the proposed facility) and Chapel Hill (approximately 6 miles from the proposed facility). Additionally, police protection is provided throughout Orange County by the Orange County Sheriff's Department, which provides 24-hour patrol service and responds to emergency calls in the County. The North Chatham Fire Department provides services in Orange County, and to the vicinity in which the proposed facility will be located according to the 2030 Comprehensive Plan and is located 8.9 miles from the proposed facility at 45 Morris Road, Pittsboro, NC. According to the 2030 Comprehensive Plan, the proposed facility is located near Orange County EMS Station 2.

The proposed Wireless Telecommunication Facility will aid emergency responders in Orange County, North Carolina in the following ways, as recognized in the 2030 Comprehensive plan: (i) wireless phones help police, fire, and emergency medical service (EMS) personnel in their daily mission of protecting their communities; (ii) every day more than one hundred thousand (100,000) emergency calls are made to 911 from wireless phones; (iii) mobile data terminals in police cars can give officers quick access to information such as automobile, driver's license, and prior conviction

records, helping them make informed, on the spot decisions that keep our streets safer; (iv) EMS teams transporting patients to a hospital transmit electrocardiograms and other vital medical information en route, speeding effective care and saving lives. The increased wireless capacity and coverage that the proposed facility will provide in the Clearwater Lake Area will therefore help the ability of police, fire, and EMS to respond to emergency situations in the area.

3. Method and adequacy of vehicular access to the site and traffic conditions around the site.

Acknowledged and agreed. TowerCom proposes to construct an approximately one thousand four hundred four (1,404') foot long gravel access drive for vehicular access from the Mount Carmel Church Road public right-of-way to the facility site. The proposed access drive will be twelve (12') feet in width. Additionally, a twenty foot by forty foot (20' x 40') parking and turn-around space will be located at the entrance gate to the facility. The proposed facility will have minimal impacts on traffic conditions around the site as the proposed facility will be unmanned with only periodic maintenance and will not be an employment center. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8, which demonstrate the access drive, parking, and turnaround area for the facility.

4. Other use specific standards as set forth herein.

Because the Application is for a Class B Special Use Permit, this subsection is not applicable.

C. Specific Standards for Class A Special Use Permits Within Hillsborough EDD

Because the Application is for a Class B Special Use Permit, this subsection is not applicable.

4. Section 2.5: Site Plan Review

1. 2.5.2 Application Requirements

- A. Each site plan shall be prepared and sealed by an appropriately licensed professional. The following are

exempt from this requirement but must provide a plot plan pursuant to Section 2.4.3:

Acknowledged and agreed. The proposed facility does not meet any of the enumerated exemptions from site plan submittal. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

B. The applicant shall submit to the Planning and Inspections Department:

1. Three (3) copies of the site plan prepared in accordance with the provisions detailed in this Section. Additional copies may be required depending on the nature and location of the proposed development);

Upon information and belief, site plan review will not occur until after the approval of the Special Use Permit Application. At that time the Applicant will submit the required copies of the site plan for review. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

2. The completed site plan application form;

Upon information and belief, a separate site plan application form is not required and the requirements of this subsection are met by submission of the Application For Class B Special Use Permit form, attached hereto as Exhibit 8, and supporting documents.

3. A copy of the Orange County tax map with the subject property identified;

Acknowledged and agreed. Please refer to the Buffer Map Identifying All Property Owners within 1,000 feet of the Property, attached hereto as Exhibit 26.

4. Legal documentation, to be approved by the County Attorney, establishing entities responsible for control over common areas and facilities.

Upon information and belief, because the proposed Wireless Telecommunication Facility will not have common areas or facilities, this subsection is not applicable.

5. Three (3) copies of the Environmental Assessment and/or Environmental Impact Statement, if required under Section 6.16 of this Ordinance.

Pursuant to Section 6.16.2(A) of the Ordinance, because the proposed facility will involve less than two (2) acres, an Environmental Assessment and/or Environmental Impact Statement is not required. Therefore, this subsection is not applicable.

6. A statement regarding the method of disposal of trees, limbs, stumps and construction debris associated with the permitted activity. Open burning of trees, limbs, stumps, and/or construction debris associated with the permitted activity is expressly prohibited.

Acknowledged and agreed. Acknowledged and agreed. All biodegradable refuse (such as trees, limbs and other underbrush) will be removed from the Property and delivered to a waste facility capable of handling this type of yard waste. Further, construction debris, including excess dirt not needed for the project, will be removed and disposed of at the nearest facility that accepts this type of commercial and industrial refuse.

- C. Other items which should be submitted simultaneously, but are not required as part of the site plan application are:
 1. Erosion control and grading plans as necessary to be approved by the Erosion Control Officer for a grading permit, and
 2. Stormwater management plans as necessary to be approved by the Erosion Control Officer prior to the issuance of a Zoning Compliance Permit, and
 3. Building construction plans to be approved by the Building Official prior to issuance of a building permit.

Acknowledged and agreed. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as

Exhibit 8, demonstrating the erosion control and grading plans. Please also refer to the Stormwater Management Plan prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 29.

2. 2.5.3 Plan Specifications. Each site plan shall be drawn at a scale adequate to show required detail and shall contain the following information:

- A. The boundary of the lot(s) to be developed labeled with bearings and distances;
- B. The name, address, and phone number of the applicant and the property owner;
- C. The of project, vicinity map, north arrow, scale, tax map reference number, date of plan preparation, and subsequent revision dates;
- D. Zoning of the property to be developed and all adjacent zoning and existing adjacent land uses;
- E. Adjacent right-of-way widths with road names and numbers;
- F. A development summary including total acres, proposed use(s), total building square footage, required and proposed parking spaces;
- G. Demonstrated compliance with all applicable performance standards contained in Articles 3, 4, 5, and 6 of this Ordinance;
- H. Maximum and proposed impervious surface and required stream buffers as detailed in Sections 4.2 and 6.12 of this Ordinance;
- I. Estimated traffic generated by the proposed development in trips per day. If the estimate exceeds 800 trips per day, a traffic impact study must be submitted in accordance with Section 6.17;
- J. Front, side, and rear building setbacks as required by Articles 3 and 5 of this Ordinance;
- K. Location of all proposed buildings and structures labeled with floor area, building height and function, and proposed finished floor elevation;
- L. Vehicular use areas including existing and proposed streets and access drives, off street parking and loading to comply with Section 6.9 of this Ordinance, and entry/exit points of adjacent parcels;
- M. Overhead and underground utilities with accompanying easements and storm drainage facilities/easements

- (including septic tanks and wastewater disposal fields, wells, fire hydrants, irrigation, and security lights);
- N. Solidwaste disposal facilities;
 - O. All proposed free-standing and wall-mounted signs. Signs must comply with Section 6.12 of this Ordinance;
 - P. A landscape plan demonstrating compliance with Section 6.8 of this Ordinance;
 - Q. For all developments other than single-family residential and duplexes, existing contour lines (dashed) and proposed contours (solid) at 5-foot intervals with 10-foot contours bold. Where site conditions warrant, 2-foot contours may be required;
 - R. Retaining walls, tree wells, or rip rap as part of the grading plan;
 - S. Streams, ponds, drainage ditches, swamps, floodway and floodplain boundaries;
 - T. Phase lines and numbers if the development is to be phased;
 - U. Methods of disposal of trees, limbs, stumps and construction debris associated with the permitted activity. Open burning of trees, limbs, stumps, and/or construction debris associated with the permitted activity is expressly prohibited;
 - V. Compliance with County adopted access management, transportation and/or connectivity plans and denote the location of future roadway(s) and access easements, whether public or private, to ensure and encourage future connectivity; and
 - W. Additional information may be required based on the site location and the type of development proposed.

Acknowledged and agreed. Please refer to the Site Survey and Construction Drawings prepared by Kimley Horn and Associates, Inc., attached hereto as Exhibit 8. Upon information and belief, the proposed facility will not produce an increase in traffic at the site as the facility will be unmanned and will require only periodic maintenance, on average one time per month. Acknowledged and agreed. All biodegradable refuse (such as trees, limbs and other underbrush) will be removed from the Property and delivered to a waste facility capable of handling this type of yard waste. Further, construction debris, including excess dirt not needed for the project, will be removed and disposed of at the nearest facility that accepts this type of commercial and industrial refuse.

5. 4.2: Watershed Protection

1. **4.2.3 Land Use Restrictions.** All uses and activities allowed in the underlying zoning district are permitted with the following exceptions:

Table 4.2.3 Land Use Restrictions (Excerpt)

District	Restrictions
Jordan-PW (Jordan Lake Protected Watershed Overlay District)	No discharging landfills are permitted. Industrial use is limited to nonhazardous light industrial uses characterized by low water use (less than 10,000 gpd, excluding domestic water (25 gpd per employee) and water used for heating and air conditioning).

Acknowledged and agreed. The proposed Wireless Telecommunication Facility will not be a discharging landfill and will not be an industrial use.

2. **4.2.4 Residential Density**

Because the proposed development will not be residential, this subsection is not applicable.

3. **4.2.5 Impervious Surface and Detention Pond Requirements for Residential Uses**

Because the proposed development will not be residential, this subsection is not applicable.

4. **Impervious Surface, Detention Pond, and Lot Size Requirements for Non-Residential Uses.** Unless otherwise noted in the Table below, minimum lot sizes shall be in conformance with the underlying zoning district.

Table 4.2.6: Impervious Surface/Detention Pond Requirements (Excerpt)

District	Impervious Surface/Detention Pond Requirements (Non-Residential)
----------	--

Jordan-PW (Jordan Lake Protected Watershed Overlay District)	24% impervious surface limit
--	------------------------------

Acknowledged and agreed. The total Property square footage is eight hundred twenty-three thousand two hundred eighty-four (823,284ft²) square feet. There is no existing impervious surface on the Property. The proposed impervious surface square footage is nine thousand five hundred thirty-two (9,532ft²) square feet. Therefore, the proposed percentage of impervious surface on the Property as a result of the construction of the Wireless Telecommunication Facility is approximately one (1.2%) percent. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

5. 5.2.7 Placement of Streets, Driveways, and Buildings

- A. Streets, driveways, and buildings or other structures shall be located, to the extent reasonably possible, so as to take full advantage of the absorptive capacity of the soils on which they are to be situated and to avoid the following environmentally sensitive areas:
1. Stream buffer zones as required by Section 6.13;
 2. Wetlands as defined by the U.S. Army Corps of Engineers;
 3. Land with slopes greater than 15%; and
 4. Natural areas as identified in the Inventory of Natural Areas and Wildlife Habitats of Orange County, NC.

Acknowledged and agreed. Upon information and belief, the proposed facility and access driveway will not impact any of the above-listed areas. Upon information and belief, there are no natural areas identified in the Inventory of Natural Areas and Wildlife Habitats of Orange County, NC on the Property. Please refer to the Site Survey and Construction Drawings prepared by Kimley-Horn and Associates, Inc., attached hereto as Exhibit 8.

- B. To avoid creating lots that will be difficult to build upon in compliance with the standards of this Section, the preliminary plan shall show proposed building envelopes and approximate driveway locations for all lots within subdivisions.

Because the subject Property will not be subdivided for the proposed Wireless Telecommunication Facility, this subsection is not applicable.

V. CONCLUSION.

TowerCom IV, LLC respectfully requests that the application be approved allowing the construction of its Wireless Communication Facility.

Submitted by Gary Pennington and Laura Goode, attorneys for TowerCom IV, LLC who hereby attest to the truth and completeness of the information provided in the application, as supplied by Verizon Wireless.



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Orange County Planning and Inspections Department

**APPLICATION FOR
CLASS B SPECIAL USE PERMIT**

APPLICANT INFORMATION:

Date: 9-30-2016

Applicant: TowerCom IV, LLC (George Davis) Phone: 919.666.2903

Address: 5611 Highway 55, Suite 201 Cell Phone: 504.400.5040

Durham, North Carolina 27713 E-mail: gdavis@towercomenterprises.com

Agent: Pennington Law Firm, LLC (Laura Goode) Phone: 803.929.1070

Address: 1501 Main Street, Suite 600 Cell Phone: 919.818.5322

Columbia, South Carolina 29201 E-mail: LauraGoode@PennLawFirm.com

Address of subject property: 1941 Mt. Carmel Church Road, Chapel Hill, North Carolina 27514

Parcel Identification Number (PIN): 9796099658 Lot Size: 18.9 Acres

Zoning Designation: Rural Buffer (RB) Watershed Overlay: Jordan Lake Protected Watershed

Other Overlay Zoning Districts: None

Request (include detailed description of proposed land use): Wireless Telecommunication Tower one hundred ninety-five (195') feet in height with a four (4') foot tall lightning rod, and ancillary equipment.

SUBMITTAL INFORMATION Per Section 2.7.3 of the Unified Development Ordinance (UDO), all Class B Special Use Permit applications are required to submit the following:

- 1) 10 copies of a site plan prepared by a registered North Carolina land surveyor, landscape architect, architect, or engineer containing all required information detailed within Section 2.5 of the UDO. This site plan will also need to contain all relevant information demonstrating that the proposed special use compliance with all general and specific standards governing the proposed special use as detailed within Article(s) 5 and 6 of the UDO.
- 2) A detailed narrative outlining the proposed land use including operational requirements, the location of facility, appearance, etc.,
- 3) Documentation establishing compliance with Section 5.3.2 inclusive of the UDO.
- 4) The names and addresses of the owners involved with the project,
- 5) A list of property owners within 1,000 feet of the subject parcel and the name and address of each property owner, as currently listed in the Orange County tax records,
- 6) Elevations of all structures proposed to be used in the development,
- 7) 10 copies of the Environmental Assessment and/or Environmental Impact Statement if required by Section 6.16 of the UDO,
- 8) Statement outlining the anticipated development schedule for the completion of the project,

**** NOTE: It should be remembered that the review of all special use permit applications/modifications are carried out in a *quasi-judicial* format meaning that decisions relating to the approval or denial of an application are based solely on the sworn testimony of all parties involved with the case, both those for and against an application, as well as the review of competent material and substantial evidence submitted during the public hearing.**

Further the applicant has the burden of establishing, by the submission of competent material and substantial evidence, the existence of facts and conditions that demonstrate the projects compliance with the various requirements and standards detailed within the Unified Development Ordinance. **

I (we), the undersigned, have been made aware of the process for the review and action associated with a Class B Special Use Permit application and understand that only completed applications, containing all information required by the Orange County UDO shall be reviewed and acted upon by the County.

I (we) understand that it shall be my (our) responsibility to present evidence to the County in the form of sworn testimony, exhibits, documents, models, plans, and the like support the request for approval of the Class B Special Use Permit.

Further I (we) understand that any assistance I (we) may receive from County staff in preparing this application in no way guarantees a favorable recommendation by staff on the merits of this proposal nor does it guarantee an approval of the request by the County.

Applicant

Date:

Applicant

Date:

9/26/16

9/28/16

2.5.1 Review and Approval Flow Chart

The review and approval process for a Site Plan is shown in the procedure's flowchart.

2.5.2 Application Requirements

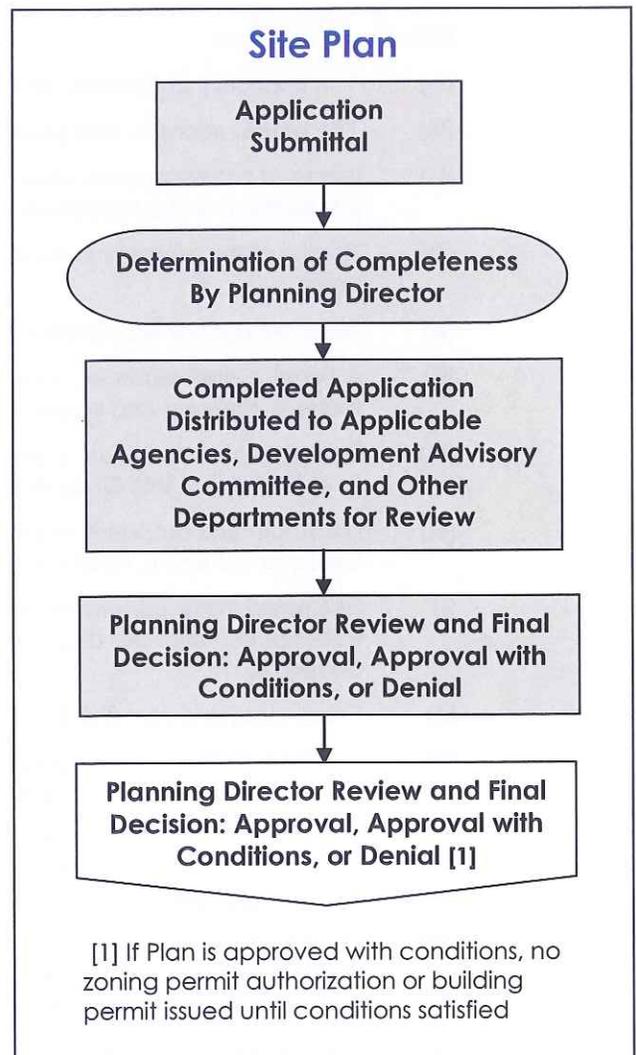
(A) Each site plan shall be prepared and sealed by an appropriately licensed professional with the following exceptions:

- (1) Proposed additions to existing permitted non-residential structures where the use of the structure and lot has not changed and the floor area is not increased more than 25%.
- (2) Accessory structures to existing permitted non-residential structures where vehicular use area is not extended and changes to existing grade are not more than one foot in elevation.
- (3) Single-family detached dwellings and duplexes, and accessory structures to such uses.
- (4) Large day care homes, as defined in Article 10, Definitions.
- (5) Rural Guest Establishments with three guestrooms or less - Bed & Breakfasts.

(B) The applicant shall submit to the Planning and Inspections Department:

- (1) Three copies of the site plan prepared in accordance with the provisions detailed in this Section. Additional copies may be required depending on the nature and location of the proposed development);
- (2) The completed site plan application form;
- (3) A copy of the Orange County tax map with the subject property identified;
- (4) Legal documentation, to be approved by the County Attorney, establishing entities responsible for control over common areas and facilities.
- (5) Three copies of the Environmental Assessment and/or Environmental Impact Statement, if required under Section 6.16 of this Ordinance.
- (6) A statement regarding the method of disposal of trees, limbs, stumps and construction debris associated with the permitted activity. Open burning of trees, limbs, stumps, and/or construction debris associated with the permitted activity is expressly prohibited.

(C) Other items which should be submitted simultaneously, but are not required as part of the site plan application are:



- (1) Erosion control and grading plans as necessary to be approved by the Erosion Control Officer for a grading permit, and
- (2) Building construction plans to be approved by the Building Official prior to issuance of a building permit.

2.5.3 Plan Specifications

Each site plan shall be drawn at a scale adequate to show required detail and shall contain the following information:

- (A) The boundary of the lot(s) to be developed labeled with bearings and distances;
- (B) The name, address, and phone number of the applicant and the property owner;
- (C) Name of project, vicinity map, north arrow, scale, tax map reference number, date of plan preparation, and subsequent revision dates;
- (D) Zoning of the property to be developed and all adjacent zoning and existing adjacent land uses;
- (E) Adjacent right-of-way widths with road names and numbers;
- (F) A development summary including total acres, proposed use(s), total building square footage, required and proposed parking spaces.
- (G) Demonstrated compliance with all applicable performance standards contained in Articles 3, 4, 5, and 6 of this Ordinance;
- (H) Maximum and proposed impervious surface and required stream buffers as detailed in Sections 4.2 and 6.12 of this Ordinance;
- (I) Estimated traffic generated by the proposed development in trips per day. If the estimate exceeds 800 trips per day, a traffic impact study must be submitted in accordance with Section 6.17;
- (J) Front, side, and rear building setbacks as required by Articles 3 and 5 of this Ordinance;
- (K) Location of all proposed buildings and structures labeled with floor area, building height and function, and proposed finished floor elevation;
- (L) Vehicular use areas including existing and proposed streets and access drives, off street parking and loading to comply with Section 6.9 of this Ordinance, and entry/exit points of adjacent parcels;
- (M) Overhead and underground utilities with accompanying easements and storm drainage facilities/easements (including septic tanks and wastewater disposal fields, wells, fire hydrants, irrigation, and security lights);
- (N) Solid waste disposal facilities;
- (O) All proposed free-standing and wall-mounted signs. Signs must comply with Section 6.12 of this Ordinance;
- (P) A landscape plan demonstrating compliance with Section 6.8 of this Ordinance;
- (Q) For all developments other than single-family residential and duplexes, existing contour lines (dashed) and proposed contours (solid) at 5-foot intervals with 10-foot contours bold. Where site conditions warrant, 2-foot contours may be required;
- (R) Retaining walls, tree wells, or rip rap as part of the grading plan;
- (S) Streams, ponds, drainage ditches, swamps, floodway and floodplain boundaries;
- (T) Phase lines and numbers if the development is to be phased;
- (U) Methods of disposal of trees, limbs, stumps and construction debris associated with the permitted activity. Open burning of trees, limbs, stumps, and/or construction debris associated with the permitted activity is expressly prohibited;

- (V) Compliance with County adopted access management, transportation and/or connectivity plans and denote the location of future roadway(s) and access easements, whether public or private, to ensure and encourage future connectivity; and
- (W) Additional information may be required based on the site location and the type of development proposed.

2.5.4 Procedures and Timeframes

- (A) Upon submission, the Planning Director shall review the site plan application for completeness in form and content according to this Article.
- (B) If an application is incomplete, it will be returned to the applicant within five working days.
- (C) When a complete application has been accepted, the plan(s) shall be distributed to applicable agencies, DAC, and other departments for review and comment.
- (D) The Planning Director shall review the plan(s) based on, but not limited to, the following general criteria:
 - (1) Compliance with all applicable County ordinances;
 - (2) Extent and intensity of impacts to the surrounding area;
 - (3) Respect for existing site conditions, including slope, vegetation, drainage patterns, etc.;
 - (4) Efficient use of the land to minimize disturbance and grading and to conserve energy;
 - (5) Safe and efficient vehicular and pedestrian circulation;
 - (6) Logical placement of structures and other site functions;
 - (7) No open burning of trees, limbs, stumps and construction debris associated with the permitted activity; and
 - (8) Compliance with any previously issued Special Use or Conditional Use Permit(s) associated with the project.
- (E) Following review of the site plan, the Planning Director shall take final action on the application within 21 days of acceptance of a complete application. Final action shall be one of the following:
 - (1) Approval,
 - (2) Approval with conditions, or
 - (3) Denial.

Failure to meet the criteria for site plan approval listed herein, and/or to address all review comments solicited during plan review, will result in denial of the application.
- (F) If a plan is approved with conditions, no zoning authorization allowing land disturbing activity or subsequent building permit shall be issued until all conditions of approval have been met to the satisfaction of Orange County.
- (G) Site plan approval and the issuance of a Zoning Compliance Permit does not establish a vested right to develop the property should zoning regulations change subsequent to plan approval.

2.5.5 Vesting of Site Plan

- (A) At the option of the Applicant, a site plan may be vested for a period of not less than two nor more than five years. To become vested, a site specific development plan must be approved by the Board of County Commissioners as a Special Use Permit, in accordance with Section 2.7 of this Ordinance. An approved site specific development plan shall contain the following statement: "Approval of this plan establishes a zoning vested right

under G.S. 153A-344.1. Unless terminated at an earlier date, the zoning right shall be valid until _____."

- (B) The site specific development plan for a project which requires the preparation of an Environmental Impact Statement (EIS) in accordance with Section 6.16 of this Ordinance shall not be approved until the EIS has been made available for public review, and has been presented to the Board of County Commissioners in accordance with Section 2.23 of this Ordinance.

2.5.6 Guarantee of Improvements

- (A) If a guarantee of improvements is required as a condition of site plan approval, the applicant shall provide Orange County with a security bond, escrow agreement, or irrevocable letter of credit by an approved institution.
- (B) The guarantee shall be effective for 12 months and shall include the cost of the improvements plus 10%.
- (C) Prior to issuance of any site plan approval, the guarantee shall be approved by the County Attorney.
- (D) If a guarantee is not submitted, the developer must install all required improvements to the satisfaction of the County prior to issuance of the zoning compliance permit.

2.5.7 Additional Requirements for Overlay Districts

(A) Efland-Cheeks Highway 70 Corridor Overlay District

(1) Approval Requirements

Within the Efland-Cheeks Highway 70 Corridor Overlay District (ECOD), no construction activity shall begin nor shall any conversion of existing single-family residence to a non-residential land use, excavation, soil removal, grading or disturbance of vegetation including trees, land disturbing activity associated with a non-residential land use, be commenced, nor any sign erected until such time as a site plan has been approved and a permit issued by the Planning Director in accordance with this Section and Sections 2.4 and 6.6.2 of this Ordinance.

(B) Major Transportation Corridor Overlay District

(1) Approval Requirements

Within the Major Transportation Corridor District, no construction activity shall begin nor shall any excavation, soil removal, filling, grading or disturbance of vegetation, including trees, be commenced, nor any sign erected until such time as a site plan has been approved and a permit issued by the Planning Director in accordance with this Section and Section 2.4 of this Ordinance.

2.5.8 Additional Requirements for Economic Development Districts

- (A) Prior to submission of an application for site plan approval, applicants shall meet with representatives of the Planning and Inspections, and Economic Development Departments to identify policies, procedures, regulations, and fees applicable to development proposals.
- (B) Any proposed subdivision in an Economic Development District shall follow the approval procedures as specified in Section 2.16.
- (C) In addition to the submittal requirements contained in this Section, a complete application shall also include:
 - (1) Building elevation drawings for each proposed structure; and
 - (2) A minimum of two drawings of sections through the site illustrating existing and proposed grades, as well as the relationship of different site features.

- (4) Failure to submit the certification or failure to make said corrections required shall be cause to withhold the issuance of a Certificate of Compliance/Occupancy.
- (C) If a manufactured home is placed within Zone AE and the elevation of the chassis is more than 36 inches in height, an engineered foundation certification is required per Section 6.6.1(B)(3).
- (D) If a watercourse is to be altered or relocated, the following shall be submitted by the permit applicant prior to issuance of a floodplain development permit:
 - (1) A description of the extent of watercourse alteration or relocation;
 - (2) An engineering report on the effects of the proposed project on the flood-carrying capacity of the watercourse and the effects to properties located both upstream and downstream; and
 - (3) A map, drawn to scale, showing the location of the proposed watercourse alteration or relocation.
- (E) Certification Exemptions
The following structures, if located within Zone AE, are exempt from the elevation/flood proofing certification requirements specified in items (A) and (B) above:
 - (1) Recreational vehicles meeting requirements of Section 6.6.1(B)(5);
 - (2) Temporary structures meeting requirements of Section 6.6.1(B)(7); and
 - (3) Accessory Structures with any dimension that is 12 feet or greater in height, width, or depth, meeting requirements of Section 6.6.1(B)(8).

SECTION 2.7: SPECIAL USE PERMITS

2.7.1 Generally

- (A) Any use or development designated by applicable zoning district regulations contained within Article 5 as a special use, or as allowed only pursuant to a special use permit (either Class A or Class B), may be established in that district only after the use or development is authorized by a validly issued and recorded special use permit.
- (B) This section sets forth required review and approval procedures for submittal, review, and approval of applications for special use permit.
- (C) A special use permit authorizes its holder to use or develop a particular parcel of land in a particular way, as specified by the terms and conditions of the special use permit.
- (D) A special use permit imposes on its holder the responsibility of ensuring that the authorized use or development continues to comply with the terms and conditions of approval.
- (E) Issuance of a special use permit does not relieve the holder of the special use permit of the additional responsibility of obtaining a building permit or any other permit or approval required by any other applicable law.

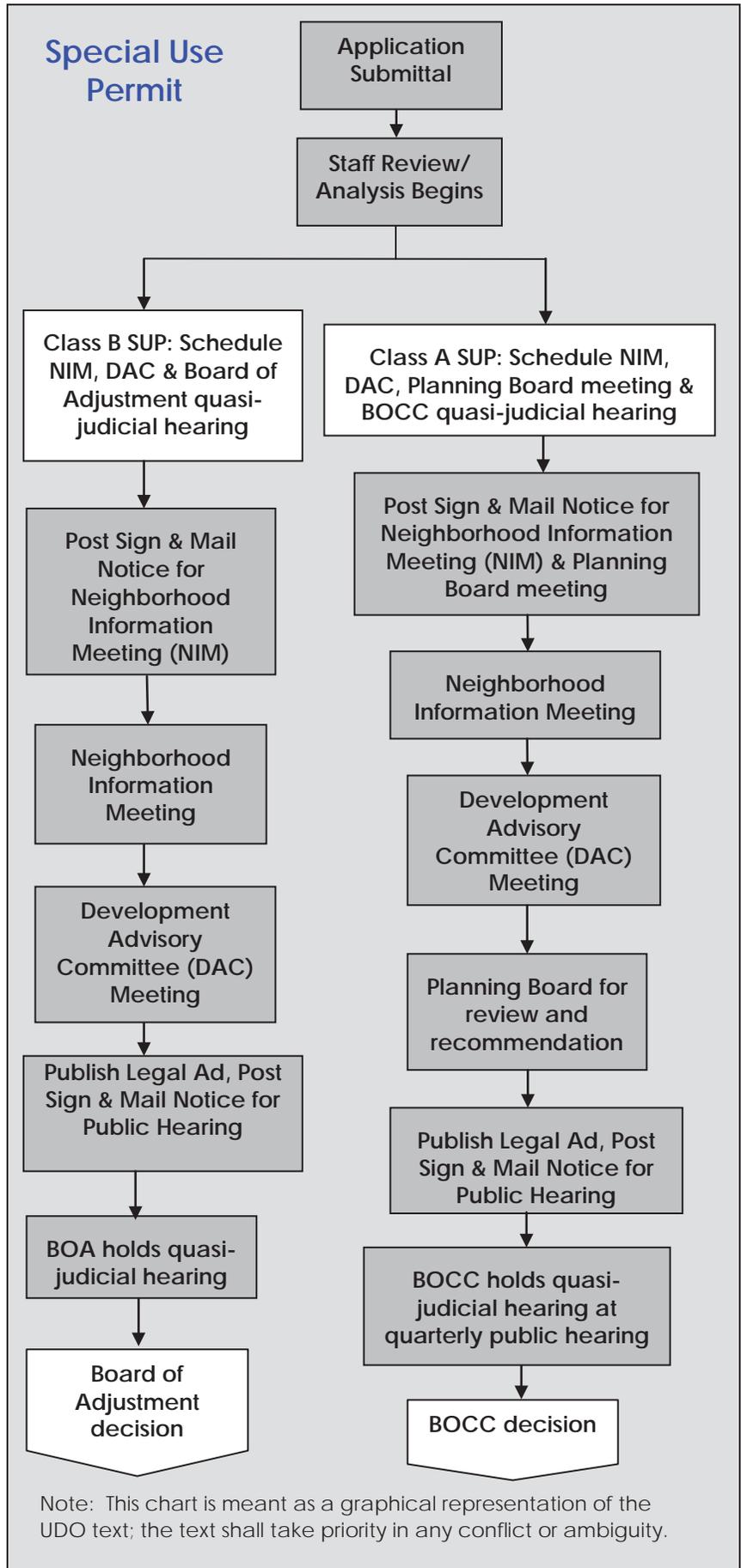
2.7.2 Review and Approval Flow Chart

The review and approval process for Special Use Permits is shown in the procedure's flowchart.

2.7.3 Application Requirements

- (A) Applications for a Special Use shall be submitted on forms provided by the Planning Department in accordance with Section 2.2 of this Ordinance.
- (B) Applications shall include:
 - (1) A full and accurate description of the proposed use, including its location, appearance, and operational characteristics.

- (2) The name(s) and address(es) of the owner(s) of the property involved.
- (3) Relevant information needed to show compliance with the general and specific standards governing the Special Use (See Articles 5 and 6).
- (4) For Class A Special Uses 26 copies of the site plan, and for Class B Special Uses 10 copies of the site plan, prepared by a registered North Carolina land surveyor, landscape architect, architect, or engineer, which shall contain the information listed in Section 2.5.
- (5) If the application involves a Preliminary Subdivision Plat, 26 copies of the Plat prepared in accordance with Section 7.14 shall be provided.



- (6) A list of all parcels located within 500 feet of the subject parcel and the name and address of each property owner, as currently listed in the Orange County tax records.
- (7) Elevations of all structures proposed to be used in the development.
- (8) For Class A Special Uses 26 copies and for Class B Special Uses 10 copies of the Environmental Assessment and/or Environmental Impact Statement, if required by Section 6.16.
- (9) Method of disposal of trees, limbs, stumps and construction debris associated with the permitted activity, which shall be by some method other than open burning.
- (10) Statement from the applicant indicating the anticipated development schedule for the build-out of the project.
- (11) Statement from the applicant in justification of any request for vesting for a period of more than two years (five years maximum).

2.7.4 Staff Review

- (A) The Planning Director shall cause an analysis to be made of the application by qualified representatives of the County and other agencies or officials as appropriate.
 - (1) Applications for agricultural support enterprise uses located within the Rural Buffer land use classification, as depicted on the Future Land Use Map of the adopted Comprehensive Plan, shall be forwarded to the County's Agricultural Preservation Board for review and comment.
 - (a) The Agricultural Preservation Board shall have 30 calendar days to provide comments. If comments are not received within this timeframe, the application review process shall not be delayed.
 - (b) For purposes of this subsection, agricultural support enterprise uses shall be defined as those permitted in the ASE-CZ zoning district, as detailed within Section 5.2.3 of this Ordinance.
- (B) The Planning Director shall submit the analysis to the Board of County Commissioners and the Planning Board, in the case of Class A Special Uses, or the Board of Adjustment, in the case of Class B Special Uses.
- (C) The appropriate Board reviewing the application shall receive and enter the analysis into evidence during the public hearing. The analysis shall be subject to examination by all interested parties and the Planning Director shall be subject to cross-examination regarding the analysis.

2.7.5 Neighborhood Information Meeting

- (A) Before a Public Hearing may be held for a Special Use the applicant is required to schedule a minimum of one neighborhood information meeting. The purpose of the meeting is to obtain surrounding property owner input and comments on the proposed development project and allow staff an opportunity to explain the review process associated with the request.
- (B) The applicant shall obtain property owner mailing address information from the Orange County Planning Department, which shall utilize Orange County Land Records data, and shall mail notices of the meeting date and time via first class mail to each property owner within one thousand feet of the property for which a Special Use has been requested.
- (C) The applicant shall mail notice of the Neighborhood Information Meeting a minimum of 14 days prior to the date of the meeting.
- (D) The applicant shall post a sign on the property advertising the date, place, and time of the meeting a minimum of 10 days prior to the date of the meeting.

- (E) The meeting shall be held a minimum of 45 days prior to the date of the Public Hearing.
- (F) Neighborhood information meetings for telecommunication facilities shall be held in accordance with the provisions of Section 5.10.8 (B) (2).

2.7.6 Notice Requirements for Class A Special Use Permits

- (A) The Planning Director shall give notice of the date, time and place of the Planning Board meeting at which the Planning Board is scheduled to review a Special Use Permit application.
 - (1) Written notice shall be sent by first class mail to all adjacent property owners not less than ten days before the Planning Board meeting date. Adjacent property owners are those whose property lies within one thousand feet of the affected property and whose names and addresses are currently listed in the Orange County tax records. The outside of the envelope or postcard shall be marked "Notice of Planning Board Meeting."
 - (2) The Planning Director shall post on the affected property a notice of the Planning Board meeting at least ten days prior to the date of said meeting.
 - (3) Notices may be combined with notice of the Neighborhood Information Meeting required in Section 2.7.5.
- (B) The Planning Director shall give notice of the date, time and place of the public hearing to be held to receive evidence in the form of testimony and exhibits pertaining to the application for a Special Use.
 - (1) Written notice shall be sent by first class mail to all adjacent property owners at least ten days but not more than 25 days before the hearing date. Adjacent property owners are those whose property lies within one thousand feet of the affected property and whose names and addresses are currently listed in the Orange County tax records. The outside of the envelope or postcard shall be marked "Notice of Public Hearing."
 - (2) The Planning Director shall post on the affected property a notice of the public hearing at least ten days but not more than 25 days prior to the date of said hearing.
 - (3) Notice of the public hearing shall be published in a newspaper of general circulation in Orange County once a week for two successive weeks, with the first notice to be published not less than ten days nor more than 25 days prior to the date of the hearing. In computing the notice period, the day of publication is not to be included, but the day of the hearing is to be included.

2.7.7 Notice Requirements for Class B Special Use Permits

Notice Requirements for Class B Special Use Permits shall follow the procedures in Section 2.12.6.

2.7.8 Nature of Proceedings

- (A) The review of Special Use Permit applications shall be conducted during a public hearing by the decision-making board.
- (B) The review of a Special Use Permit application is a quasi-judicial process, where the Board responsible for rendering a decision acts much like a panel of judges. The Board hears factual evidence and sworn testimony presented at an evidentiary hearing, and then makes findings of fact supported by competent, substantial, and material evidence.
- (C) The chair or presiding officer of the hearing shall swear all parties intending to present evidence or testimony during the hearing.

- (D) The chair or presiding officer may take whatever action is necessary to limit testimony to the presentation of new factual evidence that is material to the application, to ensure fair and orderly proceedings, and to otherwise promote the efficient and effective gathering of evidence. Such actions may include:
- (1) Barring the presentation of obvious hearsay evidence,
 - (2) Barring the presentation of non-expert opinion,
 - (3) Interrupting digressions into immaterial testimony,
 - (4) Interrupting repetitive testimony,
 - (5) Reasonably limiting the time allotted each witness or cross-examination,
 - (6) Providing for the selection of spokespersons to represent groups of persons with common interests,
 - (7) Interrupting personal attacks, and/or
 - (8) Ordering an end to disorderly conduct.
- (E) Where the Board finds compliance with the general standards, specific rules governing the specific use, and that the use complies with all required regulations and standards, the application must be approved unless the Board shall also find, in some specific manner, that:
- (1) the use will not maintain or promote the public health, safety and general welfare, if located where proposed and developed and operated according to the plan as submitted.
- (F) Those opposing approval of the application on the grounds that the use will not promote the public health, safety and general welfare shall have the burden of establishing, by competent material and substantial evidence, the specific manner in which the proposed use does not satisfy the requirements for approval of the application for a Special Use.

2.7.9 Review and Decision

- (A) For Class A Special Use Permits, the following shall apply:
- (1) All applications shall be referred to the Planning Board for review and recommendation after the Neighborhood Information Meeting but prior to the public hearing.
 - (2) The Planning Board shall make a recommendation and proposed findings of fact on the application, including the findings required in Section 5.3.2 of this Ordinance. The Planning Board's action on an application shall be one of the following:
 - (a) Recommend approval based on proposed findings of fact,
 - (b) Recommend denial based on proposed findings of fact,
 - (c) Recommend approval based on proposed findings of fact but with specified conditions.
 - (3) Should the Planning Board fail to make a recommendation prior to the public hearing, the application shall be forwarded to the Board of County Commissioners without a Planning Board recommendation.
 - (4) The Board of County Commissioners shall review the application during a meeting designated as a Quarterly Public Hearing.
 - (5) All evidence shall be submitted during the public hearing. If additional evidence is requested by the Board of County Commissioners during a hearing which must be submitted at a later date, the hearing shall be continued to a date/time certain in order to receive the additional evidence.

- (6) After closing the public hearing, the Board of County Commissioners shall do one of the following:
 - (a) Defer action to a later Board of County Commissioners meeting date, or
 - (b) Act upon the application.
 - (7) Board of County Commissioner action on the application shall include making appropriate findings of fact pursuant to Section 2.7.11, stating whether the board concludes each of the applicable standards have been met and one of the following:
 - (a) Approval;
 - (b) Approval but with specified conditions as provided in Section 2.7.12; or
 - (c) Denial.
- (B) For Class B Special Use Permits, the following shall apply:
- (1) The Board of Adjustment shall review the application during a regularly scheduled public hearing.
 - (2) The Board of Adjustment shall conduct the hearing in accordance within the provisions detailed in this Section as well as those contained within Section 2.12.
 - (3) After closing the public hearing, the Board of Adjustment shall take action upon the application. This action shall include making appropriate findings of fact pursuant to Section 2.7.11, stating whether the board concludes each of the applicable standards have been met and one of the following:
 - (a) Approval;
 - (b) Approval but with specified conditions as provided in Section 2.7.12; or
 - (c) Denial.

2.7.10 Standards of Evaluation

The following specific standards shall be used in deciding on an application:

- (A) The project meets all applicable design standards and other requirements of this Ordinance.
- (B) The development can reasonably be completed within the vesting period requested, if any.
- (C) Where vesting in excess of two years is requested, the project is located in an area where current issues under study do not involve potential amendments to the Comprehensive Plan and/or this Ordinance.

2.7.11 Required Findings

- (A) A resolution or motion to approve the application must include the findings of fact and conclusions of law that support the decision. Any proposed conditions of approval must also be included in the resolution or motion to approve the application.
- (B) A resolution or motion to deny the application must state findings of fact and conclusions of law that support the decision.
- (C) If a resolution or motion to approve the application fails, the application is deemed denied. Those members voting against the resolution or motion must state which of the conclusions of law they could not reach as well as findings of fact on which their inability to reach the conclusions is based.

2.7.12 Conditions of Approval

- (A) The Board of County Commissioners or the Board of Adjustment, as appropriate, may impose such reasonable conditions upon approval of a Special Use as will afford protection of the public health, safety and general welfare, ensure that substantial justice is done, and equitable treatment provided.
- (B) Conditions shall run with the land and use, and shall be binding on the original applicant(s) as well as all successors, assigns and heirs.
- (C) The Special Use Permit shall include a statement that if any condition of a Special Use Permit shall be held invalid or void, then the permit itself shall be void and of no effect.
- (D) It shall be stated in the Special Use Permit that the Permit shall automatically expire within 12 months of the date of approval if the use has not commenced or construction has not commenced or proceeded unless a timely application for extension of this time limit is approved by the Board of County Commissioners as provided in Section 2.7.13.

2.7.13 Notification of Board Action

- (A) The Planning Director shall send a notice of the relevant Board's action on the application by certified mail to the applicant. A copy of the decision shall be filed in the Planning Department within five business days of the relevant Board's action.
- (B) The Planning Director, in the case of approval or approval with conditions, shall issue the necessary permit in accord with the Board's action.
- (C) The Planning Director, but not a designee, shall certify that the Special Use Permit with any imposed conditions is as approved by the Board of County Commissioners or Board of Adjustment, as appropriate, with a report provided to the County Manager.
- (D) Once the Special Use Permit has been certified, the applicant shall record the permit with the Orange County Register of Deeds in a format prepared by the Planning Director. Failure to do so within 90 days from certification shall invalidate the Special Use Permit.

2.7.14 Time Limits and Extensions

- (A) If a request is received before the Special Use permit expires, the Board of County Commissioners, for good cause shown, may extend the expiration deadline six months upon the favorable recommendation of the Planning Board.
- (B) The application for an extension request shall be submitted a minimum of six months prior to the expiration of the Special Use Permit.
- (C) No changes shall be made to the terms and/or conditions of approval.
- (D) Only one approval of a time extension is permitted, and it shall be based on evidence presented by the applicant showing that permits have been pursued in a timely manner, and that delays have resulted from factors beyond the control of the applicant.
- (E) For developments which require approval of a Special Use Permit, the applicant may request that the Special Use Permit be vested as a Site Plan for a period of not less than two nor more than five years. For vesting purposes, Site Plans and Preliminary Plats may also be approved as a Special Use Permit at the request of the applicant. See Section 2.5 for information regarding site plans.

2.7.15 Changes to Approved Plans

- (A) The Planning Director is authorized to approve minor changes in the approved plans of Special Uses, as long as they are in harmony with action of the approving Board, but shall not have the power to approve changes that constitute a modification of the approval. A modification shall require approval of the Board having jurisdiction.

- (B)** The following criteria shall constitute a modification:
- (1)** Any change in a condition imposed during the approval of a special use permit.
 - (2)** Any change in use or enlargement of approved use.
 - (3)** Any increase in intensity of use. An increase in intensity of use shall be considered to be an increase in usable floor area and/or an increase in the number of dwelling or lodging units.
 - (4)** Structural alterations which significantly affects the basic size, form, style, ornamentation, and/or character of the building as shown on the approved site plan or described in the applicant's narrative.
 - (5)** Substantial change in the amount and/or location of open space, recreation facilities or landscape screening.
 - (6)** Any increase in the size or number of approved signs.
 - (7)** Any change in parking areas resulting in an increase or reduction of 5% or more in the number of spaces approved.
 - (8)** Substantial changes in pedestrian and/or vehicular access or circulation.
 - (9)** Any change in a setback required by the provisions of this Ordinance or imposed as a condition of approval.
 - (10)** Any change in the location or extent of street and utility improvements or rights-of-way, including water, sewer and storm drainage facilities, which would provide a different level of service.
 - (11)** For telecommunication facilities, a modification shall also include the following:
 - (a)** An increase in the existing vertical height of the structure by more than:
 - (i)** 10% in the height of the tower, or
 - (ii)** The height of 1 additional antenna with separation from the nearest existing antenna not to exceed 20 feet
 - (b)** A substantial change to the physical dimensions of the wireless support structure which alters facts or conditions relied upon by the County when granting the original permit. It shall be the County's burden to demonstrate that such a scenario constitutes a substantial change to the physical dimensions of the wireless support structure.
 - (c)** The addition of an appurtenance to the body of the telecommunication facility that protrudes horizontally from the edge of the wireless support structure the greater of:
 - (i)** More than 20 feet or
 - (ii)** More than the width of the wireless support structure at the level of the appurtenance.

Except where necessary to shelter the antenna from inclement weather or to connect the antenna to the tower via cable.
 - (d)** Increasing the square footage of the existing equipment compound by more than 2,500 square feet
- (C)** The Planning Director shall, before making a determination as to whether a proposed action is a minor change or a modification, review the record of the proceedings on the original application for approval of the Special Use. The determination shall be based upon the request of the applicant, the review of the record of the approval of the original request and the Planning Director's findings under the criteria of subsection (B) above.
- (D)** The Planning Director shall, if it is determined that the proposed action is a minor change, state the findings in writing to the applicant. The applicant shall file an amended site

plan, or written statement, outlining in detail the minor change(s) proposed. The Planning Director shall file the amended site plan or written statement with the approved site plan.

- (E) If it is determined that the proposed action is a modification, the Planning Director shall require the applicant to submit a request for modification of the approved special use permit. The following procedures shall be adhered to in the case of a modification:
- (1) The applicant shall provide an amended site plan and written narrative outlining the specific changes requested.
 - (2) The Planning Director shall submit the request to the Board that approved the original application.
 - (3) The Board shall set a public hearing to receive testimony concerning the modification request. Any public hearing called pursuant to a modification of an approved special use permit shall be held in conformity with the relevant public notification requirements contained in this Article.
 - (4) The Board may approve, approve with conditions, or deny the application for a modification.
 - (5) The Planning Director shall file the Board's action in the Planning Department as an amendment request to the original application and shall notify the applicant of the Board's action.

SECTION 2.8: ZONING ATLAS AND UNIFIED DEVELOPMENT ORDINANCE AMENDMENTS

2.8.1 Review and Approval Flow Chart

The review and approval process for a Zoning Atlas and Unified Development Ordinance Amendment is shown in the procedure's flowchart.

2.8.2 Amendment Initiation

- (A) An amendment to this Ordinance or the Zoning Atlas may be initiated by:
- (1) The Board of County Commissioners on its own motion;
 - (2) The Planning Board;
 - (3) Application, by any person or agency, or
 - (4) The Planning Director.
- (B) If a request for consideration of an amendment proposal is submitted directly to the Board of County Commissioners, said Board may decline to consider the request or may refer the amendment proposal to the Planning Director for preparation of an amendment application.
- (C) Once initiated, all amendments shall be referred to the Planning Board.

2.8.3 Contents of Application

Applications shall contain the following:

- (A) For amendments to the Zoning Atlas:
- (1) A map at a legible scale showing the land which would be covered by the proposed amendment, and
 - (2) A legal description of the land.
- (B) For amendments to the Unified Development Ordinance text:

SECTION 5.3: APPLICATION OF USE STANDARDS

5.3.1 In General

In addition to the general standards applied to uses in each zoning district and in accordance with the Table of Permitted Uses, Sections 5.4 through 5.14 establish additional standards for specific Permitted Uses, Special Uses, Conditional Uses, and uses permitted in Conditional Zoning Districts.

5.3.2 Special Uses

(A) General Standards

Before any application for a Special Use Permit shall be approved:

- (1) The applicant shall have the burden of establishing, by competent material and substantial evidence, in the form of testimony, exhibits, documents, models, plans and other materials, that the application meets the requirements for approval of a Special Use; and
- (2) The Board of County Commissioners or Board of Adjustment shall make written findings certifying compliance with the specific rules governing such individual Special Use and that the use, which is listed as a Special Use in the district in which it is proposed to be located, complies with all required regulations and standards including the following general conditions:
 - (a) The use will maintain or promote the public health, safety and general welfare, if located where proposed and developed and operated according to the plan as submitted;
 - (b) The use will maintain or enhance the value of contiguous property (unless the use is a public necessity, in which case the use need not maintain or enhance the value of contiguous property); and
 - (c) The location and character of the use, if developed according to the plan submitted, will be in harmony with the area in which it is to be located and the use is in compliance with the plan for the physical development of the County as embodied in these regulations or in the Comprehensive Plan, or portion thereof, adopted by the Board of County Commissioners.

(B) Specific Standards

In addition to the general standards stated in Section 5.3.2(A), the following specific standards shall be addressed by the applicant before the issuance of a Special Use Permit:

- (1) Method and adequacy of provision of sewage disposal facilities, solid waste, and water.
- (2) Method and adequacy of police, fire and rescue squad protection.
- (3) Method and adequacy of vehicular access to the site and traffic conditions around the site.
- (4) Other use specific standards as set forth herein.

(C) Specific Standards for Class A Special Use Permits Within Hillsborough EDD

In addition to the general and specific standards for all Special Use Permits, the following standards shall be addressed by the applicant before the issuance of a Class A Special Use Permit within the Hillsborough Economic Development District:

- (1) **General Provisions**

- (a) This section establishes criteria pertaining to appearance in the design of a site, buildings and structures, landscaping, signs, and other miscellaneous features that are observed by the public.
- (b) Aesthetic criteria are not intended to restrict imagination, innovation, or variety, but rather to assist in focusing on design principles which result in creative solutions that will promote visual appearance within the city and county, preserve taxable values, and promote the public health, safety and welfare.

(2) General Design Standards

- (a) Harmonious and efficient organization
 - (i) The site plan shall be organized harmoniously and efficiently in relation to existing topography, the size and type of plot, the character of adjoining property, and the type and size of buildings.
 - (ii) The site will be developed to facilitate orderly development of surrounding property and with minimal disturbance to the natural environment.
- (b) Preservation of natural state
 - (i) Desirable vegetation or other unique natural features shall be preserved in their natural state when practical.
 - (ii) The Environmental Protection Plan shall include the locations of all existing trees 12" diameter four feet above the ground.
- (c) Enhancement of residential privacy

The site plan shall provide reasonable visual, lighting, and sound privacy for all adjacent dwelling units.
- (d) Emergency access

Structures and other site features shall be arranged to permit practical emergency vehicle access to all sides of buildings.
- (e) Access to public ways

Every structure and dwelling unit shall have access to a public street, walkway or other area dedicated to common use.
- (f) Non-motorized circulation
 - (i) A non-motorized circulation system shall be provided which is direct, efficient, and pleasant.
 - (ii) The system shall be complementary to, but independent of the vehicular circulation system.
- (g) Design of access and egress drives

The location, size, and numbers of ingress and egress drives to a site will be strictly limited to minimize the negative impacts on public streets and on adjacent property. This shall include formal entryways and access to outparcels from inside the development only.
- (h) Coordination with off-site circulation systems
 - (i) The arrangement of rights-of-way or easements for circulation shall coordinate with the pattern of existing and planned streets, pedestrian and/or bicycle pathways and transit routes in the area.
 - (ii) Connection to adjacent properties is encouraged where possible.

- (i) Stormwater control
 - (i) Protective measures shall ensure that removal of stormwater runoff will not adversely affect neighboring properties or the public storm drainage system.
 - (ii) Provisions shall be made for construction of stormwater facilities including grading, gutters, and piping to direct stormwater and prevent erosion.
 - (iii) Surface water on all paved areas shall be collected at intervals that do not obstruct vehicular or pedestrian traffic.
- (j) Exterior lighting

The location, type, size and direction of exterior lighting shall not cause glare or direct illumination that interferes with adjacent properties or safety of public rights-of-way.
- (k) Protection of property values

Elements of a site plan shall be arranged to have minimum negative impact on values of adjoining property and other on-site uses.

(3) Specific Standards

- (a) Unless otherwise indicated herein, the relevant standards for the specific Economic Development Zoning Districts shall apply.
- (b) Where actions, designs, or solutions proposed by the applicant are not literally in accord with the applicable regulations of this Ordinance, but the Board of County Commissioners makes a finding in the particular case that public purposes are satisfied to an equivalent or greater degree, the Board of County Commissioners may make specific modification of the regulations in the particular case. Any modification of regulations shall be explicitly indicated in the approved permit.
- (c) Relationship of buildings to site
 - (i) The site shall be planned to provide for adequate planting, safe pedestrian movement, and parking areas.
 - (ii) Parking areas shall be treated with decorative elements, building wall extensions, plantings, berms, or other innovative means so as to screen parking areas from view from public ways and reduce heat generated by paved areas.
 - (iii) Without restricting the permissible limits of the applicable zoning district, the height and scale of each building shall be compatible with its site and existing or anticipated adjoining buildings.
 - (iv) All utility services shall be underground.
- (d) Relationship of buildings and site to adjoining areas
 - (i) Attractive landscape transition to adjoining properties shall be provided.
 - (ii) Lighting intensity at the property line adjacent to residential uses shall not be greater than ½ footcandle.
- (e) Building design
 - (i) Architectural style is not restricted. Evaluation of the appearance of a project shall be based on its relationship to the surroundings. Primary and pedestrian facades are encouraged to complement and reflect the characteristics of downtown Hillsborough.

- (ii) Specific building materials are not endorsed. Evaluation of the appearance of a project shall be based on the relationship to surroundings.
 - a. Materials and design shall be compatible with each other in multiple building projects.
 - b. Materials shall be selected for suitability to the type of buildings and the design in which they are used. Utilitarian materials shall be limited to inconspicuous facades and non-public or service areas.
 - c. Materials with unique or special character are encouraged.
 - (iii) Buildings and building components, such as walls, windows, doors, eaves, and parapets, shall have human proportions and relationships to one another.
 - (iv) Mechanical equipment or other utility hardware on the roof, ground, or buildings shall be screened from public view with materials harmonious with the building, or they shall be so located as not to be visible from any public ways. This provision does not apply to the installation of electric vehicle charging stations.
 - (v) Exterior lighting shall be part of the architectural concept. Fixtures, standards, and all exposed accessories shall be harmonious with building design.
 - (vi) Recycling and waste removal areas, service yards, storage yards, and exterior work areas shall be located away from and screened from view from public ways, using materials as stated in criteria for equipment screening. Areas shall be sized to accommodate changes in technology and local refuse ordinances.
 - (vii) Variation of detail, form, material, and siting may be used to provide visual interest. In multiple building projects, variable siting of individual buildings may be used to prevent a monotonous appearance.
- (f) Landscaping and Site Treatment
- Landscape elements included in these criteria consist of all forms of planting and vegetation, ground forms, rock groupings, water patterns, and all visible construction except buildings and utility structures. New and existing vegetation shall be maintained in a flourishing manner.
- (i) Natural or existing topographic patterns contributing to the beauty and utility of a development shall be preserved and developed. Modification to topography will be permitted where it contributes to good appearance and does not adversely affect significant natural features and drainageways.
 - (ii) Grades of walks, parking spaces, terraces, and other paved areas shall provide an inviting and stable appearance.
 - (iii) Landscape treatment shall be provided to enhance architectural features, strengthen vistas and important visual corridors, and provide shade.
 - (iv) Unity of design shall be achieved by repetition of certain plan varieties and other materials and by correlation with adjacent developments.

- (v) Plant material shall be selected for its structure, texture, and color for interest and for its ultimate growth. Use of native plants is encouraged; others that will be hardy, harmonious to the design, and of good appearance can be allowed.
- (vi) Appropriate curbs, tree guards or other devices shall be employed to protect plants susceptible to injury by pedestrian or motor traffic.
- (vii) Parking areas and trafficways shall be enhanced with landscaped spaces containing trees or tree groupings.
- (viii) Service yards and other unsightly places shall be screened by use of walls, fencing and/or planting.
- (g) Signs
 - (i) Every sign shall have appropriate scale and proportion in its design and in its visual relationship to buildings and surroundings. A unified signage plan shall be submitted and approved with the Special Use Permit.
 - (ii) Every sign shall be designed as an integral architectural element of the building and the site to which it principally relates.
 - (iii) The colors, materials and lighting of every sign shall be harmonious with the building and site to which it principally relates.
 - (iv) The number of graphic elements on a sign shall be held to the minimum needed to convey the sign's major message and shall be composed in proportion to the total area of the sign face.
 - (v) Freestanding signs shall not be pole-mounted.
- (h) Maintenance, planning and design factors
 - (i) Materials and finishes shall be selected for their durability and wear as well as for their beauty. Proper measures and devices shall be incorporated for protection against the elements, neglect, damage, and abuse.
 - (ii) Provisions for cleaning buildings and structures and control of dirt and refuse shall be included in the design. Configurations that tend to accumulate debris and dirt shall be avoided.

SECTION 5.4: STANDARDS FOR TEMPORARY USES

5.4.1 Yard Sale

(A) General Standards for Evaluation

- (1) Yard sales are permitted in accordance with the Table of Permitted Uses provided that these sales do not exceed two days per month.

5.4.2 Temporary Fund Raising Activity

(A) General Standards for Evaluation

- (1) Temporary fund raising activities are permitted in accordance with the Table of Permitted Uses provided that these activities do not exceed two days per month.

5.4.3 Special Events

(A) General Standards of Evaluation

6.15.10 Existing Uncovered Areas

(A) Existing Sites

All uncovered areas existing on the effective date of this Ordinance which are consistent with the following:

- (1) Resulted from land-disturbing activities not excluded under Section 6.15.4, and
- (2) Are outside the University Lake, Cane Creek, and Upper Eno Watersheds and exceed 20,000 square feet, and
- (3) Are subject to continued accelerated erosion, and
- (4) Are causing off-site damage from sedimentation,

Shall be provided with a ground cover or other protective measures, structures, or devices sufficient to restrain accelerated erosion and control off-site sedimentation.

(B) Notice of Violation

- (1) The Erosion Control Officer will serve upon the landowner or other person in possession or control of the land written notice of violation by registered or certified mail, return receipt requested, or other means reasonably calculated to give actual notice.
- (2) The notice will set forth the measures needed to comply and will state the time within which such measures must be completed. In determining the measures required and the time allowed for compliance, the authority serving notice shall take into consideration the economic feasibility, technology, and quantity of work required, and shall set reasonable and attainable time limits for compliance.

(C) Plan Requirements

The Erosion Control Officer reserves the right to require preparation and approval of an Erosion Control Plan in any instance where extensive control measures are required.

(D) Reservoir Sites

This Subsection shall not require ground cover on cleared land forming the future basin of a planned reservoir unless the disturbance and length of time of the exposure prior to the filling of the reservoir will result in erosion and sedimentation of the downstream channel.

SECTION 6.16: ENVIRONMENTAL IMPACT REPORTS

6.16.1 Purpose and Intent

- (A)** Pursuant to the North Carolina Environmental Policy Act, the Orange County Board of Commissioners adopted the regulations and standards included herein to:
- (1) Encourage the wise and productive use of the county's natural resources;
 - (2) Encourage a public and governmental awareness of our environment and of the consequences of development which affect it;
 - (3) To require that a full disclosure be made as to the anticipated effect of proposed development on the resources of the county; and
 - (4) Permit and facilitate full enforcement of all ordinances and regulations concerning the environment in an efficient, coordinated and comprehensive manner.
- (B)** The intent of the regulations and standards included in this Section is to provide a mechanism for full disclosure of anticipated impacts of developments as herein defined and to make such information publicly available so that citizens of the county may have input into developmental issues before they become moot.

- (C) Specifically, the intent of the regulations and standards included in this Section is to require the preparation and evaluation of environmental impact documents for projects that either require certain state permits, or require a local land use permit for development within environmentally sensitive areas, as provided in Section 6.16.3 of this Ordinance.

6.16.2 Exemptions

The following projects and uses are exempt from the Environmental Assessment (EA) and Environmental Impact Statement (EIS) requirements set forth herein and no environmental documentation is required:

- (A) Any project involving a total area of two acres or less.
- (B) Routine repairs and housekeeping projects.
- (C) Routine grounds maintenance and landscaping.
- (D) Bonafide farming operations, not including sludge disposal.
- (E) Single-family residential development, except those reviewed as MPD-CZ.
- (F) Any project located outside of the Orange County Planning Jurisdiction, including Transition Areas subject to development regulations of any Town within Orange County.

6.16.3 Environmental Assessment

(A) Applicability

Environmental Assessment is required for non-exempt projects that:

- (1) Qualify as a small or large generator of hazardous waste as defined by the North Carolina Department of Health and Human Services (Hazardous Waste Branch of Solid Waste Management Section); and/or
- (2) Involves as an integral part of the operation of a commercial or industrial activity more than 10,000 gallons per day of water usage, exclusive of domestic water (25 gpd per employee), and water used for climate control (air conditioning and heating); and/or
- (3) Require grading in excess of 40,000 square feet, exclusive of roads, for non-residential or attached residential development; and/or
- (4) Require grading in excess of 40,000 square feet, exclusive of roads, for non-residential components of residential development (golf courses, recreation facilities, and the like); and/or
- (5) Require any of the following Environmental permits:
 - (a) A Mining Permit pursuant to the NC Mining Act.
 - (b) A State NPDES (National Pollutant Discharge Elimination System) Permit, as administered by the NC Division of Water Quality.
 - (c) A Non-Discharge Permit for a land application waste disposal system.
 - (d) A permit for sludge disposal site.
- (6) Require Environmental Documentation by a State or Federal agency.
- (7) Are located within the Water Quality Critical Area of the Water Supply Watershed, as defined in the Land Use component of the Orange County Comprehensive Plan; and/or
- (8) Contain sites identified in "An Inventory of Sites of Cultural, Historic, Recreational, Biological, and Geological Significance in the Unincorporated Portions of Orange County" or "Inventory of the Natural Areas and Wildlife Habitats of Orange County, North Carolina"; and/or

- (9) Contain lands with slopes in excess of 25% outside of drainage easements or stream buffers, as determined by USGS Topographic maps, at a contour interval of ten feet.

(B) Requirements of an Environmental Assessment

The Environmental Assessment (EA) shall consist of a document supplied by the Planning Department to address issues of environmental concern to the County, and completed by the applicant. Those issues include:

- (1) Topography of site and slopes;
- (2) Drainage issues, such as on-site streams or easements and location relative to water supply watersheds, water quality critical areas and special flood hazard areas;
- (3) Natural or Cultural Resources;
- (4) Mining of Earth products;
- (5) Generation or storage of hazardous or toxic wastes;
- (6) Wastewater treatment methods and sludge disposal; and
- (7) Water usage.

6.16.4 Environmental Impact Statement

(A) Applicability

- (1) For projects which require submittal of an Environmental Assessment, an Environmental Impact Statement (EIS) will also be required if the project has a significant environmental impact. A project has a significant environmental impact when it:
 - (a) Involves surface or subsurface extraction activity requiring a Mining Permit issued by the State; and/or
 - (b) Involves long-term storage or disposal of hazardous wastes; and/or
 - (c) Requires an EIS by a Federal or State agency; and/or
 - (d) Fails to adequately protect (as described in Section 7.6.3(F)(2) of this Ordinance) sites identified in "Inventory of Sites of Cultural, Historic, Recreational, Biological, & Geological Significance in the Unincorporated Portions of Orange County" and the "Orange County Inventory of Natural Areas"; and/or
 - (e) Involves a land surface application wastewater treatment system, within the Water Quality Critical Area of Water Supply Watersheds as defined by the Orange County Comprehensive Land Use Plan.
- (2) Orange County reserves the right to require preparation of an EIS pursuant to Section 6.16.4(A)(1), notwithstanding a Finding of No Significant Impact on the part of Federal or State agencies.

(B) Requirements for an EIS

(1) General Requirements

- (a) In order to meet the primary purpose of an EIS, which is to serve as a decision-making tool to ensure that the purposes and policies defined in the North Carolina Environmental Policy Act of 1971 (G.S. 113A) are given full consideration in the ongoing programs and actions of state and local government, an EIS shall be prepared as follows:
 - (i) It should provide a full and fair discussion of significant environmental impacts, and

- (ii) It should inform decision-makers and the public of reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the environment.
- (b) Preparers should use a format for EIS's which will encourage good analysis and clear presentation of all alternatives, including the proposed activity, while minimizing length and complexity.
- (c) EIS documents should not exceed 50 pages and should include site location maps.

(2) Format and Content

An EIS shall include the following sections and shall comply with the standards for each:

- (a) Cover Sheet
 - A single page cover sheet including the following information;
 - (i) Designation of the document as a draft, supplementary or final statement;
 - (ii) Title of the proposed activity that is the subject of the statement;
 - (iii) List of any involved cooperating entities,
 - (iv) Name, address, and telephone number of the person who can supply further information.
- (b) Summary
 - (i) An adequate and accurate summary of the statement stressing the major conclusions, areas of controversy, and issues to be resolved.
 - (ii) The summary shall also list all federal, state, and local permits, licenses, certifications, and other approvals which must be obtained in implementing the proposal. If there is any uncertainty about whether any one of these is necessary, it should be so indicated.
- (c) A completed Environmental Assessment document
- (d) Statement of Purpose and Need for the proposed activity
- (e) Comparison of Alternatives
 - (i) Based upon information and analysis on the affected environment and environmental consequences, the EIS should present the environmental impacts of the alternatives, including the proposed activity, in comparative form.
 - (ii) To the extent possible, the comparison of alternatives should quantify how the purpose and need would be satisfied by each alternative and the proposed activity.
 - (iii) The Comparison of Alternatives should also:
 - a. Explore and evaluate all reasonable alternatives;
 - b. Discuss the reasons for the elimination of alternatives from detailed study;
 - c. Include appropriate mitigation measures not already included in the alternatives; and
 - d. Describe the environment of the area(s) to be affected and the environment to be created by the alternatives under consideration. The description should be no longer than is necessary to understand the effects of the

- alternatives.
- e. Describe environmental consequences, such as:
 - i. Direct effects and significance;
 - ii. Indirect effects and significance;
 - iii. Possible conflicts between the proposed activities and the objectives of federal, state, and local plans, policies, and controls for the affected area.
 - f. List the names and qualifications of the persons who were primarily responsible for preparing the EIS.
- (f) Appendices (As Necessary)
- If an appendix is included in an EIS, it should meet the following requirements:
- (i) Consist of materials substantiating any analysis fundamental to the principal document, as distinct from material of lesser significance that may accompany the document or be incorporated by reference;
 - (ii) Normally be analytic and relevant to the decision to be made;
 - (iii) Shall not be counted in the EIS 50 page limit, and
 - (iv) Be circulated with the EIS or be readily available upon request.

SECTION 6.17: TRAFFIC IMPACT ANALYSIS

6.17.1 Purpose

The purpose of the traffic impact analysis is to insure that proposed developments do not adversely affect the highway network and to identify any traffic problems associated with access from the site to the existing transportation network. The purpose of the study is also to identify solutions to potential problems and to present improvements to be incorporated into the proposed development.

6.17.2 Applicability

- (A) Except as provided herein, a traffic impact study shall be required for all special use permits, subdivisions, CZ applications, and site plans that meet the following criteria:
 - (1) Special Use Permit: Estimated traffic generated by the permit exceeds 800 trips/day.
 - (2) Subdivision: Contains 80 or more dwelling units or the estimated traffic generated by the subdivision exceeds 800 trips/day.
 - (3) CZ Application: Estimated traffic generated by the development exceeds 800 trips/day.
 - (4) Site Plan: Estimated traffic generated by the development exceeds 800 trips/day.
- (B) Orange County may require any special use permit, subdivision, CZ application, or site plan application to be accompanied by a traffic impact study when a road capacity or safety issue exists. If one is required, the County will notify the applicant of the reason for the requirement.
- (C) If the project is reviewed as a Conditional Use District or MPD-CZ, only one traffic impact study is required for special use permit or Master Plan approval unless revisions are proposed that would increase traffic or change access.

NAME OF LANDOWNER: **Buckner Family Farm Trust**
ADDRESS: **109 W. Franklin Street, Ste 101**
CITY, STATE, & ZIP: **Rockingham, North Carolina 28379**
DATE: **11.23.2015**

Michael Harvey, Supervisor/Planner III
Orange County Planning & Inspections Department
131 W. Margaret Lane, Suite 201
Hillsborough, North Carolina 27278

RE: **APPLICATION FOR ZONING APPROVAL BY TOWERCOM IV, LLC FOR THE
CONSTRUCTION OF A WIRELESS TELECOMMUNICATIONS SUPPORT
STRUCTURE AND RELATED APPURTENANCES**

FOR PROPERTY LOCATED AT: **1941 Mt. Carmel Church Road**
Chapel Hill, North Carolina 27514

TAX MAP NUMBER: **9796099658**

To Whom It May Concern:

Please be advised that Buckner Family Farm Trust is the owner of record of the property described above and that I, Ric Buckner, hereby authorize Pennington Law Firm, LLC as attorney for TowerCom IV, LLC., to act on its behalf in requesting any and all necessary zoning approvals for the above-noted property to allow for construction of a wireless telecommunications support structure and all related ancillary structures.

Sincerely,



Ric Buckner

Date: 11-30-15



August 11, 2016

Michael Harvey, Supervisor/Planner III
Orange County Planning & Inspections Department
131 W. Margaret Lane, Suite 201
Hillsborough, North Carolina 27278

RE: APPLICATION FOR ZONING APPROVAL BY TOWERCOM IV, LLC FOR THE CONSTRUCTION OF A NEW WIRELESS TELECOMMUNICATION TOWER AND RELATED APPURTENANCES

Network Objective Statement – Clearwater Lake Site

Dear Mr. Harvey:

The purpose of this letter is to address TowerCom IV, LLC's (TowerCom) application for a new telecommunication tower at 1941 Mt. Carmel Church Road, Chapel Hill, North Carolina 27524. The anchor tenant on the proposed new telecommunication tower will be Verizon Wireless. Verizon Wireless' objective in connection with the proposed site is to improve coverage along Mt. Carmel Church Road between the Governor's Club area and Chapel Hill (the "Clearwater Lake Area") as well as to provide capacity offload for the existing UNC Campus Verizon Wireless site. There are currently nine (9) existing Verizon Wireless sites within four (4) miles of the proposed tower. However, there is a gap in coverage between these sites in the Clearwater Lake Area. A new tower is required in order to fill in this gap in coverage for its customers in the Clearwater Lake area, provide increased connectivity between the existing Verizon Wireless sites in the area, and to provide the capacity offload solution for the existing UNC Campus site.

The Federal Telecommunications Act and Federal Communications Commission rules require that Verizon Wireless achieve service throughout Orange County, which includes the Clearwater Lake Area. Verizon Wireless' goal is to maintain an industry standard level of coverage and capacity throughout its licensed coverage area, including the Clearwater Lake Area. The standard level of average network-to-device, or download, speeds range from 5 to 12 Mbps (Megabits per second) and average device-to-network, or upload, speeds range from 2 to 5 Mbps utilizing Long Term Evolution ("LTE") technology.

Today's consumers demand voice and data devices capable of delivering data intensive applications, video, streaming media, video messaging, video telephone, and real-time video conferencing and collaboration. All these demands are met utilizing bandwidth and better throughput achieved with sufficient LTE capacity. 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. LTE also carries voice calls.

A capacity offload solution is required when the frequency spectrum at one or more sites serving a given area, in this case the Clearwater Lake Area, is fully utilized. Since all available radio frequency spectrum is being utilized on existing sites, the only viable offload solution is a cell split, with a new cell site strategically located in close proximity to actual customer traffic, along with minimizing interference to the existing network. If demand on the sites is not offloaded through the construction of an additional site, capacity exhaustion may occur at the existing site(s). When a cell site reaches its capacity limit it is realized by the customer in the form of websites taking too long to load or timing out, emails that are unable to download or send, and issues with voice calls when carried over the 4G network.

The search ring used to select a location for the new Clearwater Lake telecommunication tower is the maximum search ring within which the proposed telecommunication equipment can function as intended. The search ring is created by determining the optimum location for the new tower, which is the search ring center. Using our engineering technology, we create the search ring by moving out from the search ring center the maximum distance possible until the telecommunication equipment would not function as intended.

Verizon Wireless has conducted an extensive engineering study to identify the best location for a new telecommunication tower in order to provide increased coverage and capacity in the Clearwater Lake Area. There are no existing alternative sites within the provided search ring. Verizon has reviewed an alternate location in this search ring that according to our understanding was at one point preferred by Orange County. This location known as the "Melott" candidate was reviewed by Verizon Wireless RF Engineering and determined to be not suitable for our coverage and capacity goals. The primary reason we could not use this location is the severe terrain obstruction that exists between this location and the primary targeted area of improvement which is Mount Carmel Church road between Clearwater Lake Road and Old Lystra Road. The Delorme topographic profile map shows the two hundred (200'+) foot plus earth obstruction between the Melott candidate and the targeted improvement area. In addition to the terrain obstruction, an additional approximately ninety (90') feet dense foliage must be considered resulting in this location being ineffective for covering Mount Carmel Church Road.

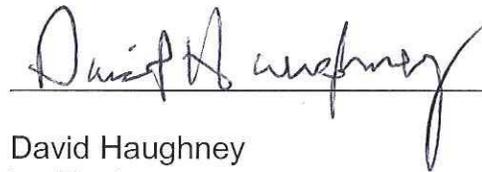
There are no alternative technologies available which could provide the needed increased coverage and capacity offload in the Clearwater Lake Area without the proposed Clearwater Lake new telecommunication tower. There are evolving technologies that Verizon Wireless is employing in appropriate design and morphological applications that include Micro Cell, Small Cell and DAS (distributed antenna systems). These technologies use smaller structures like rooftops and utility poles that are typically forty (40') feet above ground level or lower. These applications are appropriate in high density areas of large traffic demand where a large coverage

footprint is not needed, for example, business centers, campuses, shopping centers, airports and in-building applications. These technologies however are not appropriate for large coverage area situations, such as the Clearwater Lake Area, which has varying obstructions, terrain, foliage, and geographically wide distribution of capacity demand. A single node DAS installation at a low antenna height will only cover about as far as you can visibly see the antenna. This would require an infeasible number of installations and would make it impossible to provide seamless high quality service over a large geographic area such as the Clearwater Lake Area, more appropriate for macro cell technology.

The proposed Clearwater Lake new telecommunication tower will provide the needed solution to the coverage gap in the Clearwater Lake Area thereby better serving its customers and providing increased connectivity between the existing Verizon Wireless sites in the area. The proposed Clearwater Lake new telecommunication tower will also provide the needed capacity offload solution for the existing UNC Campus Verizon Wireless site thereby serving the growing demands of its customers and preventing the negative service implications of capacity exhaustion.

Sincerely,

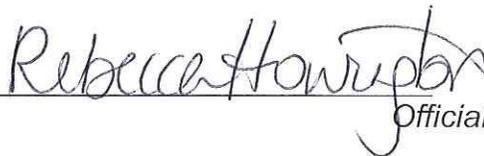
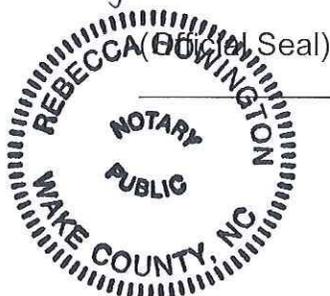
**CELLCO PARTNERSHIP
D/B/A VERIZON WIRELESS**



David Haughney
RF Design Engineer

Wake County, North Carolina

I certify that David Haughney personally appeared before me this the 12 day of August, 2016, acknowledging to me that he signed the foregoing document.



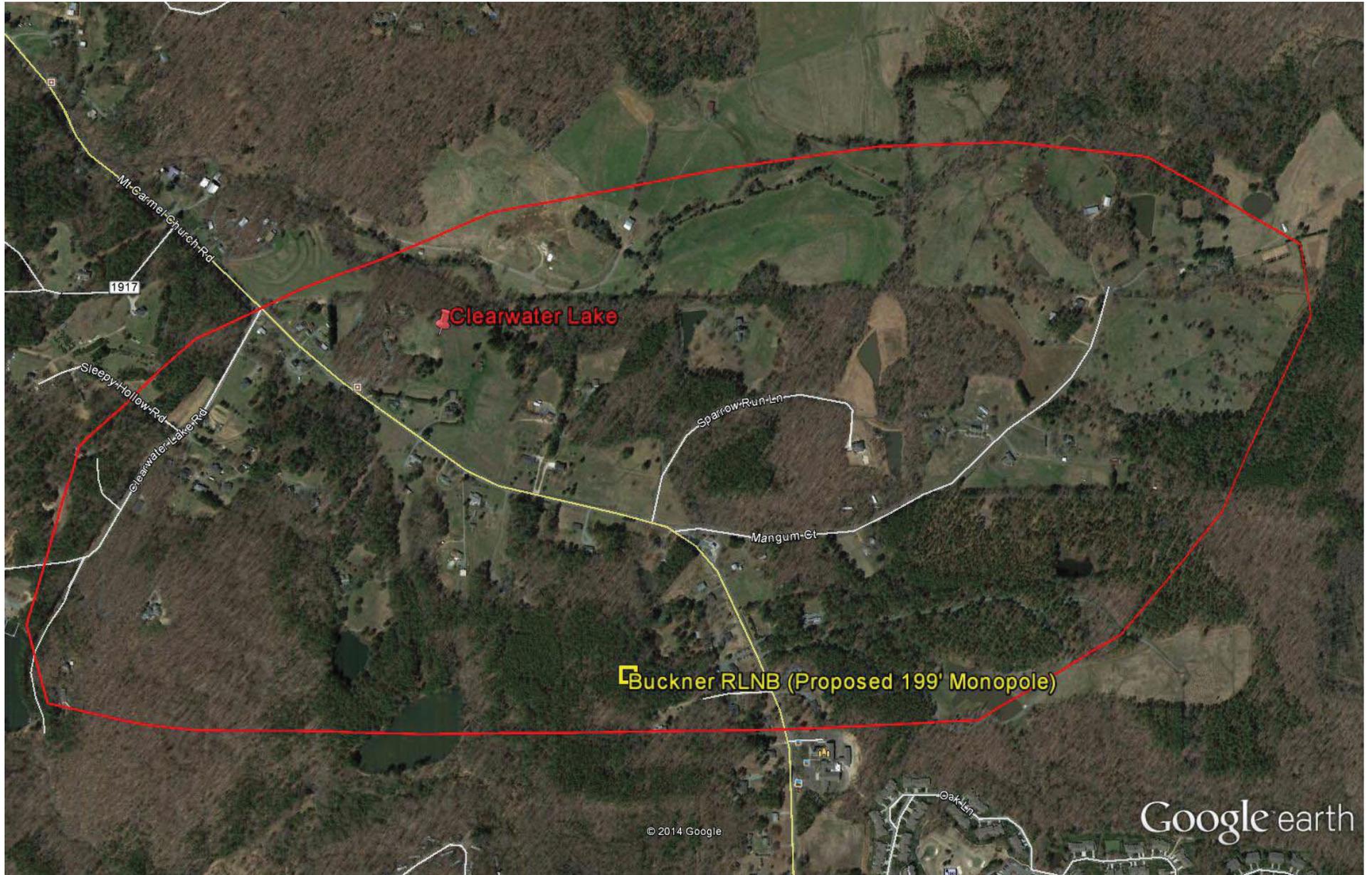
Official Signature of Notary

Rebecca Howington, Notary Public

Notary's printed or typed name

My commission expires: 07-16-2020

Verizon-Clearwater Lake-Buckner RLNB-Candidate 2

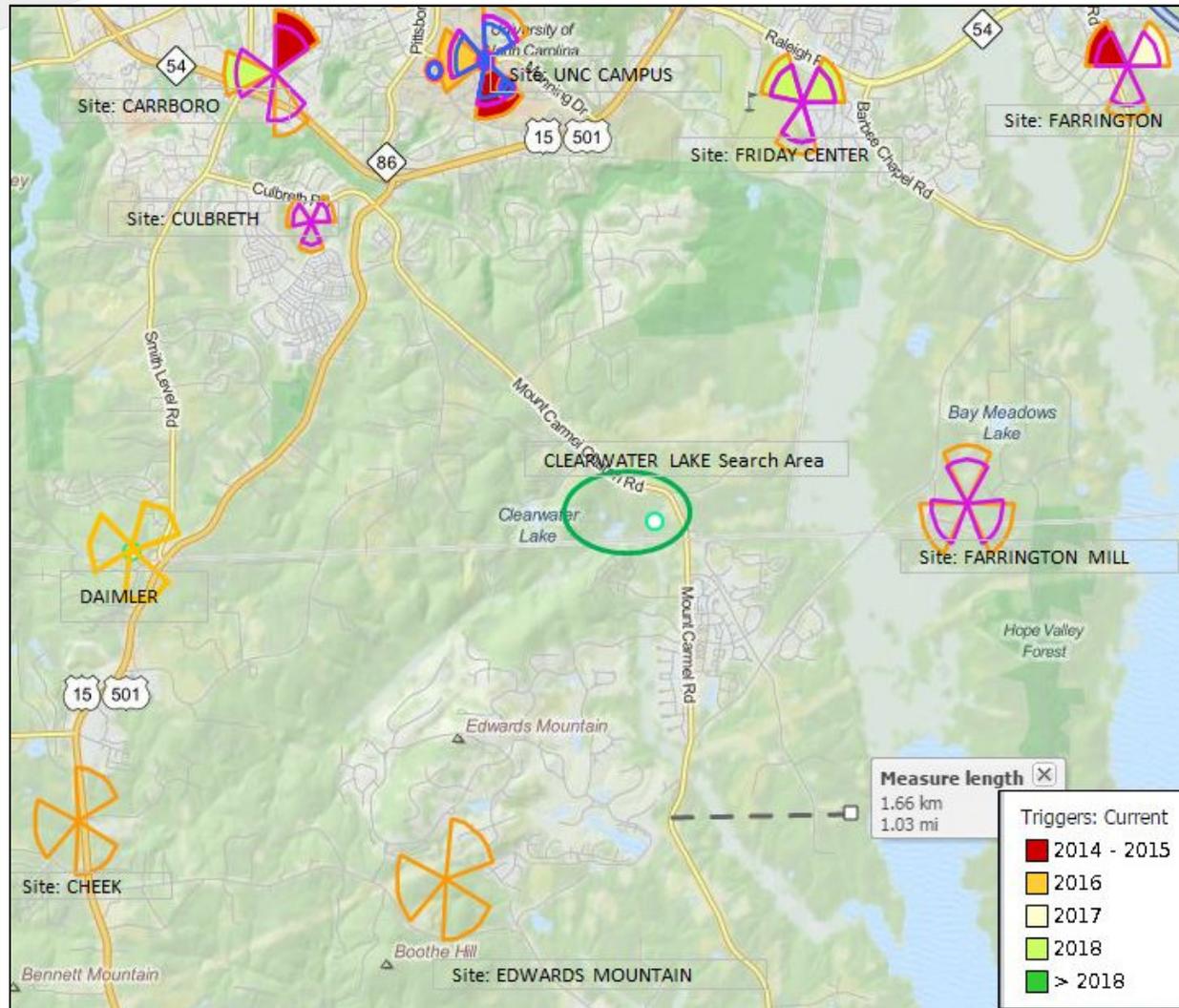


Google earth

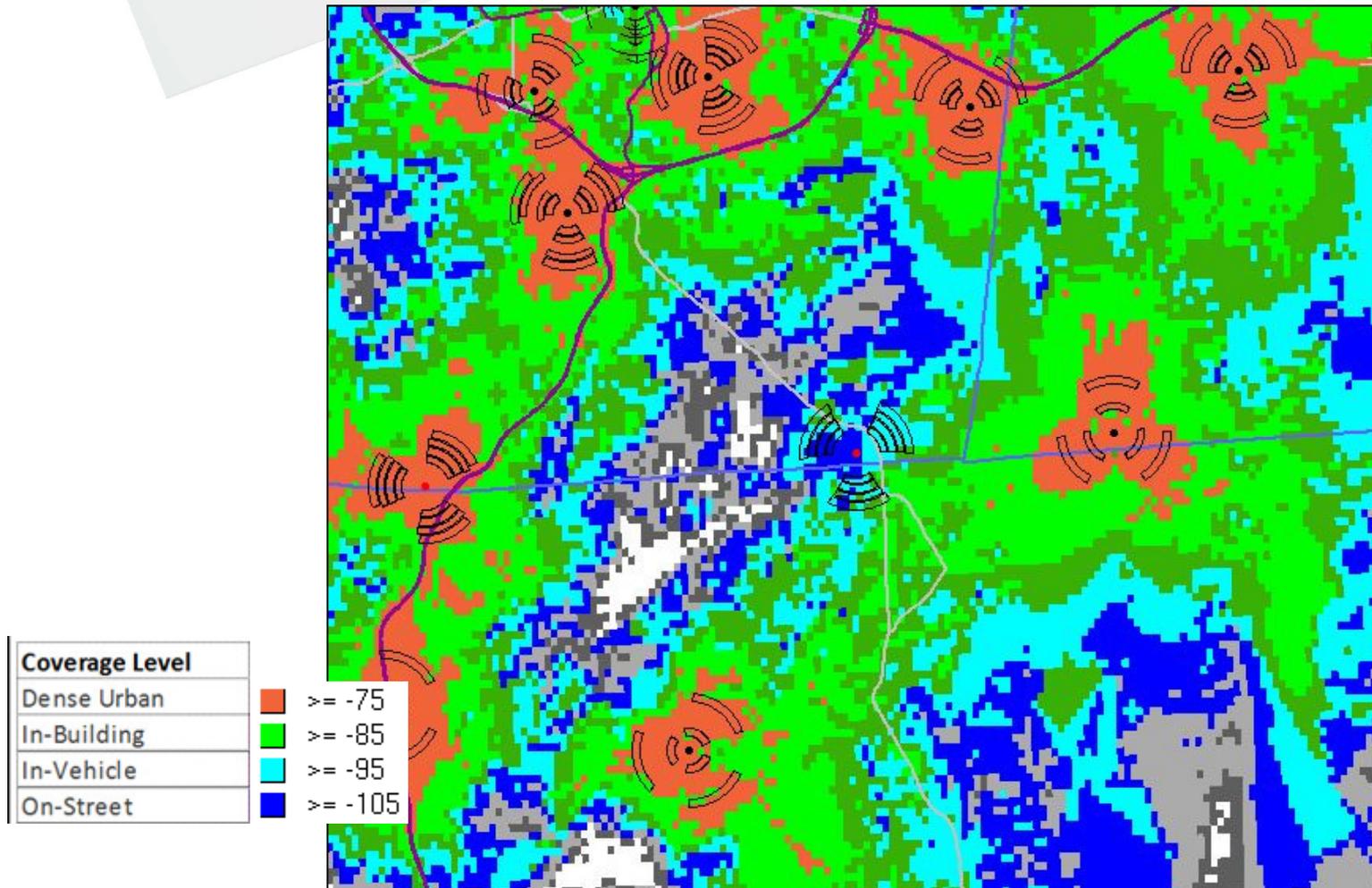
feet
km



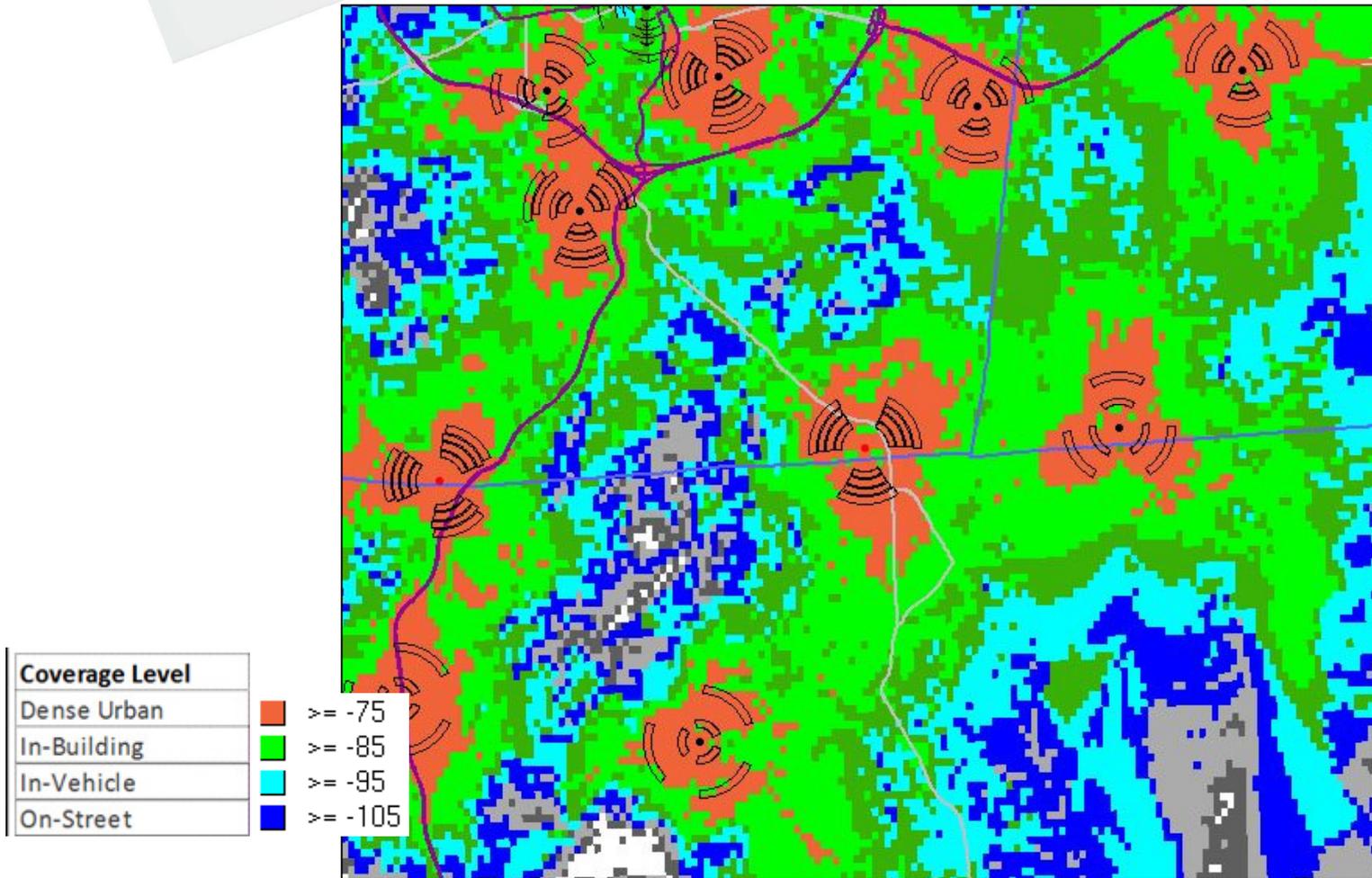
4G Capacity Triggered Sectors



Existing 700 MHz 4G LTE coverage



Proposed 700MHz 4G LTE coverage

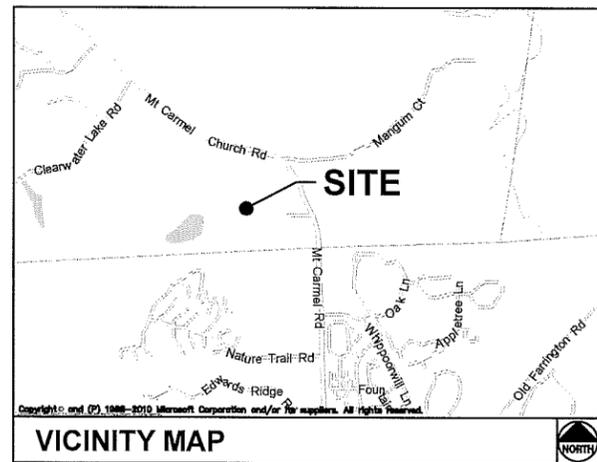


TowerCom®

WITH VERIZON WIRELESS
PROPOSED 195' MONOPOLE

CLEARWATER LAKE

SITE ADDRESS
1941 MT. CARMEL CHURCH ROAD
CHAPEL HILL, NC 27514
ORANGE COUNTY
LATITUDE: 35° 51' 52.848" N
LONGITUDE: 79° 01' 50.836" W
TAX/PIN #: 9796099658
ZONING: RB



VICINITY MAP

FROM CHARLOTTE OFFICE: START OUT GOING SOUTHWEST ON RESEARCH DRIVE TOWARDS HARRIS BLVD 0.4 MILE; TURN LEFT ONTO W WT HARRIS BLVD 0.4 MILE; TURN LEFT ONTO THE I-85N RAMP 0.3 MILE; MERGE ONTO I-85N 42.1 MILES; KEEP LEFT AT THE FORK TO STAY ON I-85N 32.8 MILES; KEEP RIGHT AT THE FORK TO CONTINUE ON I-85BUS N/ US-29N/ US-70E, FOLLOWING SIGNS FOR GREENSBORO 12.0 MILES; MERGE ONTO I-40E/ I-85N 15.8 MILES; TAKE EXIT 148 FOR NC-54 TOWARD CHAPEL HILL/ CARRBORO 0.3 MILE; TURN RIGHT ONTO NC-54E/ E HARDEN ST 23.3 MILES; TAKE THE US-15S/ US-501S RAMP TO NC-86N/ UNC CHAPEL HILL/ PITTSBORO 0.2 MILE; TURN RIGHT ONTO US-15S/ US-501S/ S COLUMBIA ST 0.1 MILE; TURN LEFT AT THE 1ST CROSS STREET ONTO MT CARMEL CHURCH RD 2.3 MILES; ARRIVE AT DESTINATION ON THE RIGHT.

DRIVING DIRECTIONS

MUNICIPALITY:
ORANGE COUNTY

STATE:
NORTH CAROLINA

TOWER TYPE:
MONOPOLE TOWER

TOWER HEIGHT:
195' (199' TO HIGHEST APPURTENANCE)

NUMBER OF CARRIERS:
0 EXISTING, 1 PROPOSED

USE:
PROPOSED TELECOMMUNICATIONS TOWER AND UNMANNED EQUIPMENT SHELTER

CONSULTANT
KIMLEY-HORN AND ASSOCIATES, INC.
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GEORGIA 30092
PHONE: (678) 533-3928
ATTN.: KEITH MARKLAND

PROJECT SUMMARY

DEVELOPER
TOWERCOM
5611 HWY 55, SUITE 201
DURHAM, NC 27713
PHONE: (919) 666-2903
ATTN: GEORGE DAVIS

POWER COMPANY
DUKE PROGRESS
PHONE: (800) 769-3766
ATTN.: CUSTOMER SERVICE

TELEPHONE COMPANY
AT&T
PHONE: (800) 344-7485
ATTN.: CUSTOMER SERVICE

PROPERTY OWNER
BUCKNER FAMILY FARM TRUST
109 W FRANKLIN ST. STE 101
ROCKINGHAM, NC 28379
PHONE: (910) 997-5076
ATTN.: RIC BUCKNER

CONTACTS

SHEET	DESCRIPTION	REV.
T1	COVER SHEET	1
T2	APPENDIX B: BUILDING CODE SUMMARY	0
--	SITE SURVEY (SHEET 1 OF 3)	0
--	SITE SURVEY (SHEET 2 OF 3)	0
--	SITE SURVEY (SHEET 3 OF 3)	0
C1	OVERALL SITE PLAN	1
C2	SITE PLAN	1
C3	FOUNDATION AND SHELTER TIE DOWN DETAILS	0
C4	SHELTER ELEVATIONS	0
C5	FENCE, GATE, AND COMPOUND DETAILS	0
C6.1	GRADING PLAN 1 OF 2	1
C6.2	GRADING PLAN 2 OF 2	1
C7.1	EROSION CONTROL PLAN PHASE 1 1 OF 2	1
C7.2	EROSION CONTROL PLAN PHASE 1 2 OF 2	1
C7.3	EROSION CONTROL PLAN PHASE 2 1 OF 2	1
C7.4	EROSION CONTROL PLAN PHASE 2 2 OF 2	1
C8	GRADING AND EROSION CONTROL DETAILS	0
C8.1	GRADING AND EROSION CONTROL DETAILS	0
C8.2	GRADING AND EROSION CONTROL DETAILS	1
C9	ACCESS ROAD DETAILS	0
C10	SITE SIGNAGE DETAILS	0
C11	WAVEGUIDE BRIDGE DETAILS	0
C12	ANTENNA AND TOWER ELEVATION DETAILS	0
L1	LANDSCAPING PLAN	0
L2	LANDSCAPING NOTES	0
E1	BASIC SERVICE ROUTING PLAN	0
E2	GROUNDING PLAN	0
E3	SINGLE-LINE DIAGRAM	0
E4	ELECTRICAL DETAILS	0
E5	H-FRAME DETAIL	0
E6	GROUNDING DETAIL	0

SHEET INDEX

ORANGE COUNTY PLANNING & INSPECTIONS
200 S. CAMERON ST
HILLSBOROUGH, NC 27278
PHONE: (919) 732-8181
ATTN.: CUSTOMER SERVICE

PERMIT INFORMATION

NOTE:
SITE IS LOCATED WITHIN FEMA FLOOD MAP
AREA 3710979600K DATED 02/02/2007
WITHIN FLOOD ZONE X.



PROJECT INFORMATION:

VERIZON NAME:
CLEARWATER LAKE
VERIZON No.: TBD
1941 MT. CARMEL CHURCH ROAD
CHAPEL HILL, NC 27517
ORANGE COUNTY

CURRENT ISSUE DATE:
09/30/16

ISSUED FOR:
CONSTRUCTION

REV.	DATE	ISSUED FOR	BY
0	09/01/16	CONSTRUCTION	WCE
1	09/30/16	CONSTRUCTION	WCE

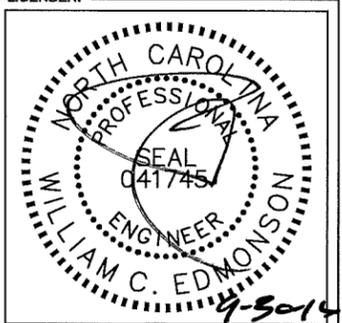
CONSULTANT:

Kimley»Horn

2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: MWD **CHK.:** KRM **APV.:** WCE



SHEET TITLE:

COVER SHEET

SHEET NUMBER: T1 **REVISION:** 1

012055945

K:\ATL_Wireless\TowerCom\Cleatwater Lake\CAD\CD\Rev1-9-30-16\Cleatwater Lake_CD_R1.dwg September 30, 2016 10:37 AM by: Emily.Flood

**2012 APPENDIX B
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)**

Name of Project: **VERIZON WIRELESS - CLEARWATER LAKE**
 Address: **1941 MT. CARMEL CHURCH ROAD, CHAPEL HILL, NC** Zip Code **27517**
 Proposed Use: **WIRELESS COMMUNICATION SERVICES**
 Owner/Authorized Agent: **KEITH MARKLAND** Phone # (**678**) **533 - 3928** E-Mail **keith.markland@kimley-horn.com**
 Owned By: City/County Private State **Kimley-Horn**
 Code Enforcement Jurisdiction: City **CHAPEL HILL** County **ORANGE** State

LEAD DESIGN PROFESSIONAL: **WILLIAM C. EDMONSON, P.E. (#041745)**

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	KIMLEY-HORN & ASSOC.	WILLIAM C. EDMONSON	041745	(404) 201-6156	
Civil					
Electrical	APOSE CONSULTING	JOHN K. MASON	23894	(919) 856-7420	
Fire Alarm					
Plumbing					
Mechanical					
Sprinkler-Standpipe					
Structural					
Retaining Walls >5' High					
Other					

2012 EDITION OF NC CODE FOR: New Construction Addition Upfit
 EXISTING: Reconstruction Alteration Repair Renovation
 CONSTRUCTED: (date) _____ ORIGINAL USE(S) (Ch. 3): **TELECOMMUNICATIONS SITE**
 RENOVATED: (date) _____ CURRENT USE(S) (Ch. 3): **TELECOMMUNICATIONS SITE**
 PROPOSED USE(S) (Ch. 3): **TELECOMMUNICATIONS SITE**

BASIC BUILDING DATA

Construction Type: I-A II-A III-A IV V-A
 I-B II-B III-B V-B

Sprinklers: No Partial Yes NFPA 13 NFPA 13R NFPA 13D

Standpipes: No Yes Class I II III Wet Dry

Fire District: No Yes (Primary) Flood Hazard Area: No Yes

Building Height: (feet) **10'**

Gross Building Area:

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
6 th Floor			
5 th Floor			
4 th Floor			
3 rd Floor			
2 nd Floor			
Mezzanine			
1 st Floor		339'	339'
Basement			
TOTAL		339'	339'

ALLOWABLE AREA

Occupancy: A-1 A-2 A-3 A-4 A-5

Assembly Business Educational Factory F-1 Moderate F-2 Low Hazardous H-1 Detonate H-2 Deflagrate H-3 Combust H-4 Health H-5 HPM

Institutional I-1 I-2 I-3 I-4 I-3 Condition 1 2 3 4 5

Mercantile Residential R-1 R-2 R-3 R-4 Storage S-1 Moderate S-2 Low High-piled Parking Garage Open Enclosed Repair Garage

Utility and Miscellaneous

Accessory Occupancies: A-1 A-2 A-3 A-4 A-5

Assembly Business Educational Factory F-1 Moderate F-2 Low Hazardous H-1 Detonate H-2 Deflagrate H-3 Combust H-4 Health H-5 HPM

Institutional I-1 I-2 I-3 I-4 I-3 Condition 1 2 3 4 5

Mercantile Residential R-1 R-2 R-3 R-4 Storage S-1 Moderate S-2 Low High-piled Parking Garage Open Enclosed Repair Garage

Utility and Miscellaneous

Incidental Uses (Table 508.2.5):

Furnace room where any piece of equipment is over 400,000 Btu per hour input
 Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower
 Refrigerant machine room
 Hydrogen cutoff rooms, not classified as Group H
 Incinerator rooms
 Paint shops, not classified as Group H, located in occupancies other than Group F
 Laboratories and vocational shops, not classified as Group H, located in a Group E or I-2 occupancy
 Laundry rooms over 100 square feet
 Group I-3 cells equipped with padded surfaces
 Group I-2 waste and linen collection rooms
 Waste and linen collection rooms over 100 square feet
 Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons, or a lithium-ion capacity of 1,000 pounds used for facility standby power, emergency power or uninterrupted power supplies
 Rooms containing fire pumps
 Group I-2 storage rooms over 100 square feet
 Group I-2 commercial kitchens
 Group I-2 laundries equal to or less than 100 square feet
 Group I-2 rooms or spaces that contain fuel-fired heating equipment

Special Uses: 402 403 404 405 406 407 408 409 410 411 412
 413 414 415 416 417 418 419 420 421 422 423 424
 425 426 427

Special Provisions: 509.2 509.3 509.4 509.5 509.6 509.7 509.8 509.9

Mixed Occupancy: No Yes Separation: _____ Hr. Exception: _____
 Incidental Use Separation (508.2.5)
 This separation is not exempt as a Non-Separated Use (see exceptions).
 Non-Separated Use (508.3)
 The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
 Separated Use (508.4) - See below for area calculations
 For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE AREA	(C) AREA FOR FRONTAGE INCREASE ²	(D) AREA FOR SPRINKLER INCREASE ²	(E) ALLOWABLE AREA OR UNLIMITED ³	(F) MAXIMUM BUILDING AREA ⁴

¹ Frontage area increases from Section 506.2 are computed thus:
 a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (F)
 b. Total Building Perimeter = _____ (P)
 c. Ratio (F/P) = _____ (F/P)
 d. W = Minimum width of public way = _____ (W)
 e. Percent of frontage increase $I_f = 100 [(F/P) - 0.25] \times W/30 = ______ (\%)$

² The sprinkler increase per Section 506.3 is as follows:
 a. Multi-story building $I_s = 200$ percent
 b. Single-story building $I_s = 300$ percent

³ Unlimited area applicable under conditions of Section 507.
⁴ Maximum Building Area = total number of stories in the building x E (506.4).
⁵ The maximum area of open parking garages must comply with Table 406.3.5. The maximum area of air traffic control towers must comply with Table 412.1.2.

ALLOWABLE HEIGHT

ALLOWABLE (TABLE 503)	INCREASE FOR SPRINKLERS	SHOWN ON PLANS	CODE REFERENCE
Type N/A			
Type of Construction		Type	
Building Height in Feet	Feet = H + 20' = _____		
Building Height in Stories	Stories + 1 = _____		

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/ REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses			N/A				
Bearing Walls							
Exterior							
North	N/A	2					
East	N/A	2					
West	N/A	2					
South	N/A	2					
Interior			N/A				
Nonbearing Walls and Partitions							
Exterior walls							
North	N/A	N/A					
East	N/A	N/A					
West	N/A	N/A					
South	N/A	N/A					
Interior walls and partitions			N/A				
Floor Construction							
Including supporting beams and joists		2					
Roof Construction							
Including supporting beams and joists		2					
Shaft Enclosures - Exit			N/A				
Shaft Enclosures - Other			N/A				
Corridor Separation			N/A				
Occupancy Separation			N/A				
Party/Fire Wall Separation			N/A				
Smoke Barrier Separation			N/A				
Tenant Separation			N/A				
Incidental Use Separation			N/A				

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: No Yes
 Exit Signs: No Yes
 Fire Alarm: No Yes
 Smoke Detection Systems: No Yes Partial _____
 Panic Hardware: No Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: _____ **N/A**

Fire and/or smoke rated wall locations (Chapter 7)
 Assumed and real property line locations
 Exterior wall opening area with respect to distance to assumed property lines (705.8)
 Existing structures within 30' of the proposed building

ACCESSIBLE DWELLING UNITS (SECTION 1107)

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED

ACCESSIBLE PARKING (SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES REQUIRED	TOTAL # OF PARKING SPACES PROVIDED	# OF ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE PROVIDED
			TYPE A ACCESSIBLE	15' ACCESSIBLE	5' ACCESSIBLE	
TOTAL						

DESIGN LOADS: STRUCTURAL DESIGN

Importance Factors: Wind (I_w) **1.0**
 Snow (I_s) **1.0**
 Seismic (I_e) **1.0**

Live Loads: Roof **93** psf
 Mezzanine **N/A** psf
 Floor **208** psf

Ground Snow Load: **102** psf

Wind Load: Basic Wind Speed **150** mph (ASCE-7)
 Exposure Category **C**
 Wind Base Shears (for MWFRS) $V_x = \mathbf{128}$ $V_y = \mathbf{128}$

SEISMIC DESIGN CATEGORY: A B C D

Provide the following Seismic Design Parameters:
 Occupancy Category (Table 1604.5) I II III IV
 Spectral Response Acceleration S_a **3.0** %g S_1 **0.75** %g
 Site Classification (Table 1613.5.2) A B C D E F
 Data Source: Field Test Presumptive Historical Data

Basic structural system (check one)
 Bearing Wall Dual w/Special Moment Frame
 Building Frame Dual w/Intermediate R/C or Special Steel
 Moment Frame Inverted Pendulum

Seismic base shear: $V_x = \mathbf{79.9}$ $V_y = \mathbf{79.9}$
 Analysis Procedure: Simplified Equivalent Lateral Force Dynamic
 Architectural, Mechanical, Components anchored? Yes No

LATERAL DESIGN CONTROL: Earthquake Wind

SOIL BEARING CAPACITIES:
 Field Test (provide copy of test report) **N/A** psf
 Presumptive Bearing capacity **2000** psf
 Pile size, type, and capacity _____

SPECIAL INSPECTIONS REQUIRED: Yes No

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1)

USE	SPACE	WATERCLOSETS		URINALS	LAVATORIES		SHOWERS/TUBS	DRINKING FOUNTAINS	
		MALE	FEMALE		MALE	FEMALE		REGULAR	ACCESSIBLE
EXISTING									
NEW									
REQUIRED									

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DFI, DHHS, ICC, etc., describe below)

N/A

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance:
 Energy Code: Prescriptive Performance
 ASHRAE 90.1: Prescriptive Performance

Lighting schedule (each fixture type)
 lamp type required in fixture _____
 number of lamps in fixture _____
 ballast type used in the fixture _____
 number of ballasts in fixture _____
 total wattage per fixture _____
 total interior wattage specified vs. allowed (whole building or space by space) _____
 total exterior wattage specified vs. allowed _____

Additional Prescriptive Compliance
 506.2.1 More Efficient Mechanical Equipment
 506.2.2 Reduced Lighting Power Density
 506.2.3 Energy Recovery Ventilation Systems
 506.2.4 Higher Efficiency Service Water Heating
 506.2.5 On-Site Supply of Renewable Energy
 506.2.6 Automatic Daylighting Control Systems

ENERGY SUMMARY

ENERGY REQUIREMENTS:
 The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Climate Zone: 3 4 5

Method of Compliance:
 Prescriptive (Energy Code)
 Performance (Energy Code)
 Prescriptive (ASHRAE 90.1)
 Performance (ASHRAE 90.1)

THERMAL ENVELOPE

Roof/Ceiling Assembly (each assembly)
 Description of assembly: _____
 U-Value of total assembly: _____
 R-Value of insulation: _____
 Skylights in each assembly: _____
 U-Value of skylight: _____
 total square footage of skylights in each assembly: _____

Exterior Walls (each assembly)
 Description of assembly: _____
 U-Value of total assembly: _____
 R-Value of insulation: _____
 Openings (windows or doors with glazing)
 U-Value of assembly: _____
 Sol-air heat gain coefficient: _____
 projection factor: _____
 Door R-Values: _____

Walls below grade (each assembly)
 Description of assembly: _____
 U-Value of total assembly: _____
 R-Value of insulation: _____

Floors over unconditioned space (each assembly)
 Description of assembly: _____
 U-Value of total assembly: _____
 R-Value of insulation: _____

Floors slab on grade
 Description of assembly: _____
 U-Value of total assembly: _____
 R-Value of insulation: _____
 Horizontal/vertical requirement: _____
 slab heated: _____

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
 winter dry bulb: _____
 summer dry bulb: _____

Interior design conditions
 winter dry bulb: _____
 summer dry bulb: _____
 relative humidity: _____

Building heating load: _____

Building cooling load: _____

Mechanical Spacing Conditioning System
 Unitary description of unit: _____
 heating efficiency: _____
 cooling efficiency: _____
 size category of unit: _____
 Boiler size category. If oversized, state reason: _____
 Chiller size category. If oversized, state reason: _____

List equipment efficiencies: _____

NOTE: INFORMATION SHOWN HERE IS FOR ILLUSTRATIVE PURPOSES ONLY. SEE MANUFACTURER'S APPROVED SHELTER DRAWINGS FOR DETAILS.

TowerCom

PROJECT INFORMATION:
**VERIZON NAME:
 CLEARWATER LAKE
 VERIZON No.: TBD
 1941 MT. CARMEL CHURCH ROAD
 CHAPEL HILL, NC 27517
 ORANGE COUNTY**

CURRENT ISSUE DATE:
09/01/16

ISSUED FOR:
CONSTRUCTION

REV. DATE ISSUED FOR BY:

0	09/01/16	CONSTRUCTION	WCE

Kimley»Horn

2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
 WWW.KIMLEY-HORN.COM
 NC License F-0102

CONSULTANT:

DRAWN BY: _____ CHK.: _____ APV.: _____

MWD KRM WCE

LICENSER:

FOR INFORMATION PURPOSES ONLY- REFER TO MANUFACTURER'S APPROVED SHELTER DRAWINGS

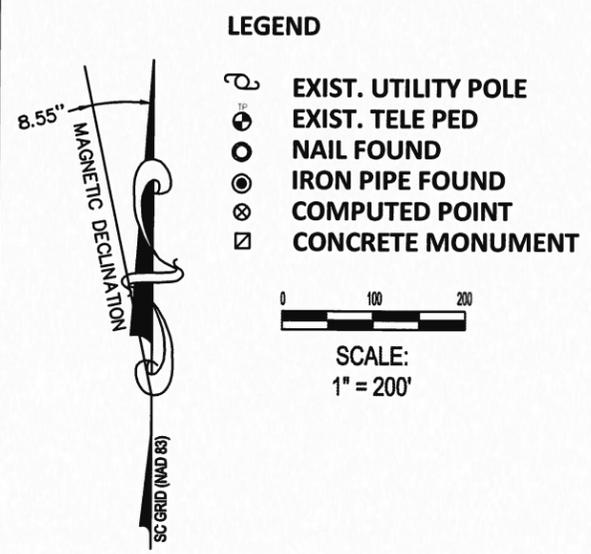
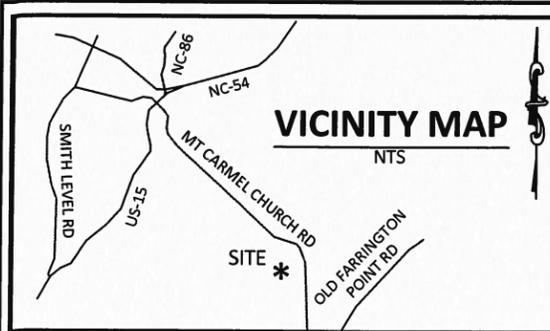
SHEET TITLE:
**APPENDIX B:
 BUILDING CODE SUMMARY**

SHEET NUMBER: _____ REVISION: _____

T2 **0**

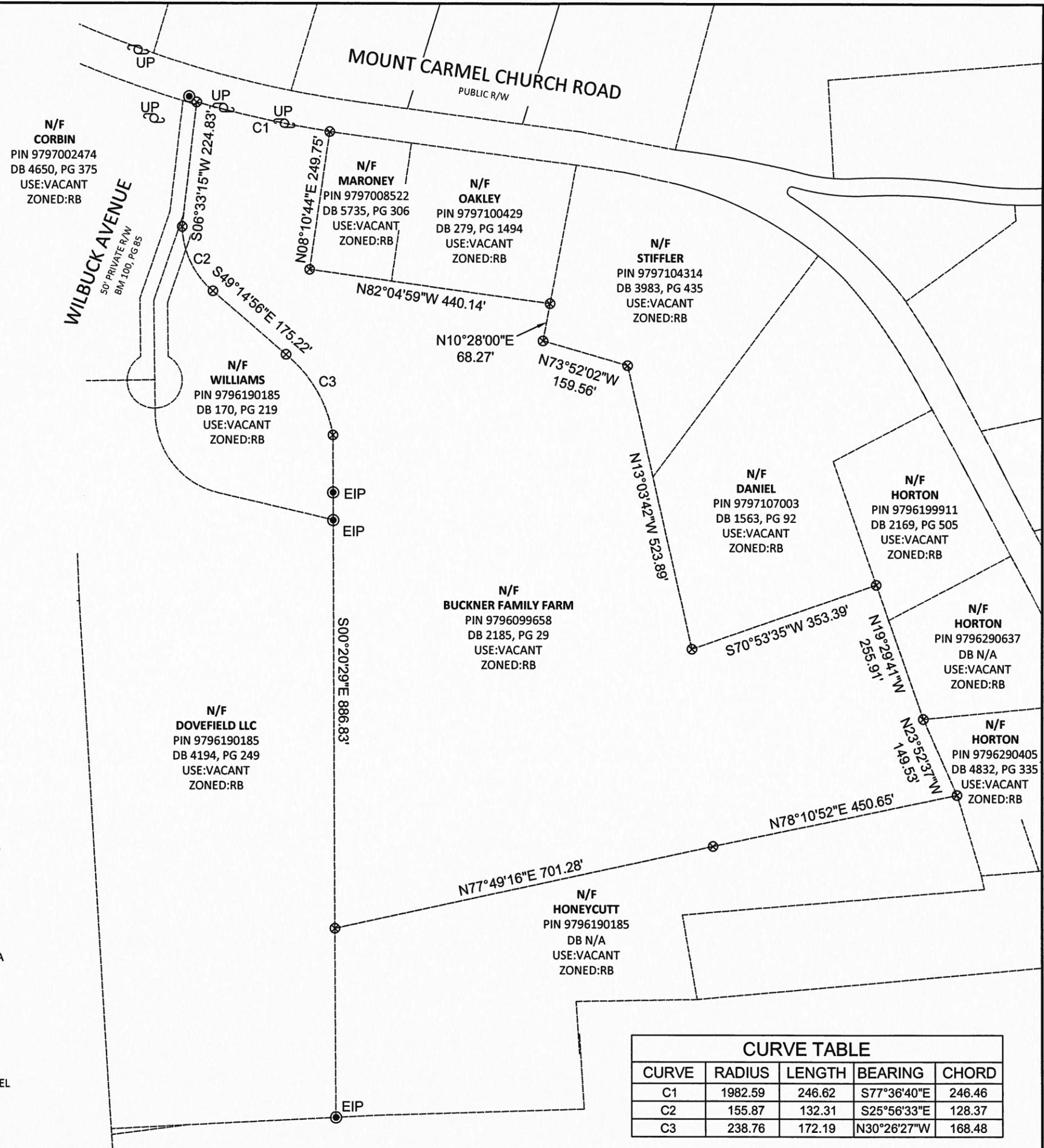
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GENERAL NOTES

1. THIS SURVEY WAS PREPARED BY BATEMAN CIVIL SURVEY CO., UNDER THE SUPERVISION OF JEFFREY W. BAKER, PLS.
2. THIS PLAN HAS BEEN PREPARED FOR LAYOUT AND PERMITTING PURPOSES ONLY.
3. THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES SHOWN WERE TAKEN FROM EXISTING FIELD EVIDENCE, EXISTING DEEDS AND PLATS OF PUBLIC RECORD, AND INFORMATION SUPPLIED TO THE SURVEYOR BY THE CLIENT
4. VERTICAL DATUM , THE LATITUDE, LONGITUDE AND STATE PLANE COORDINATES, IF SHOWN, ARE GIVEN IN NORTH AMERICAN DATUM OF 1983 (NAD83).
5. FIELD EQUIPMENT USED: TOPCON TOTAL STATION, EPOCH 35.
6. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES AND ALL BEARINGS ARE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM UNLESS OTHERWISE SHOWN.
7. PROPERTY OWNER: BUCKNER FAMILY FARM TRUST
109 W. FRANKLIN STREET, SUITE 1, ROCKINGHAM, NC, 28379
8. THIS MAP IS NOT A CERTIFIED SURVEY AND HAS NOT BEEN REVIEWED BY A LOCAL GOVERNMENT AGENCY FOR COMPLIANCE WITH ANY APPLICABLE LAND DEVELOPMENT REGULATIONS.
9. ALL EQUIPMENT AND IMPROVEMENTS ARE LOCATED WITHIN THE LEASE AREA.
10. THE PROPERTY LIES IN ZONE "X" , PER NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE PANEL 9797, RATE MAP 3710979700K, DATED: FEBRUARY 2, 2007 AND PANEL 9796, RATE MAP 3710979600K, DATED: FEBRUARY 2, 2007.
11. PROPERTY INFORMATION DERIVED FROM ORANGE COUNTY GIS.



CURVE TABLE				
CURVE	RADIUS	LENGTH	BEARING	CHORD
C1	1982.59	246.62	S77°36'40"E	246.46
C2	155.87	132.31	S25°56'33"E	128.37
C3	238.76	172.19	N30°26'27"W	168.48

BCSC
BATEMAN CIVIL SURVEY COMPANY

Bateman Civil Survey Co, PC
2524 Reliance Avenue, Apex, NC 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBLS FIRM # C-2378

erizon wireless.
8921 RESEARCH DRIVE
CHARLOTTE, NORTH CAROLINA 28262

Kimley»Horn

2 Sun Court, Suite 450
Peachtree Corners, GA
30092

DRAWN BY: JCH
CHECKED BY: SPC
DRAWING DATE: 3/11/15

STATE OF NORTH CAROLINA
SURVEYOR
JEFFREY W. BAKER, NC PL# 4412

REVISIONS	NO.	DATE	DESCRIPTION
	1.	6/03/15	Relocate Rights of Way & Legal Title Report
	2.	6/29/15	Relocate Rights of Way & Legal Title Report
	3.	7/01/15	Relocate Rights of Way & Legal Title Report
	4.	7/10/15	Field Locate House & Barn
	5.	7/22/15	Submit Final Survey

CLEARWATER LAKE
301003
1941 MT. CARMEL CHURCH RD.
CHAPEL HILL, NC, 27517
ORANGE COUNTY

DATE OF SURVEY: 3-11-2015
BCSC JOB # 150237
SHEET TITLE: SURVEY
SHEET NUMBER 1 OF 3



LEGEND

- EXIST. UTILITY POL
- EXIST. TELE PED
- NAIL FOUND
- IRON PIPE FOUND
- COMPUTED POINT
- CONCRETE MONUMENT
- OHW OVERHEAD WIRE
- WM WATERMETER

POB
30' Lessee Access & Utility
Rights of Way
41,396 SF
0.950 AC
Northing = 770683.7441
Easting = 1990406.0451

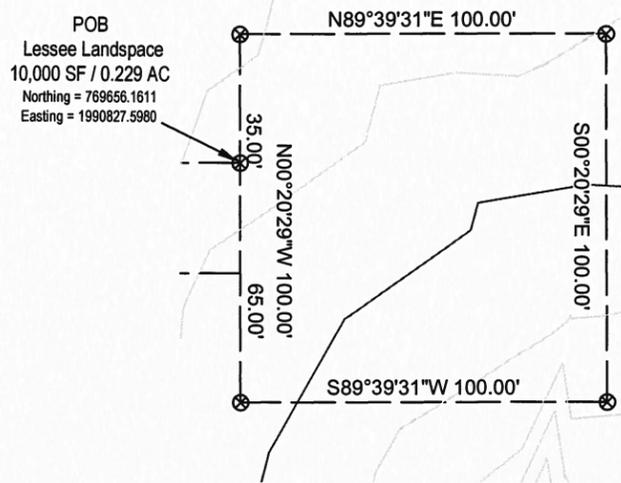
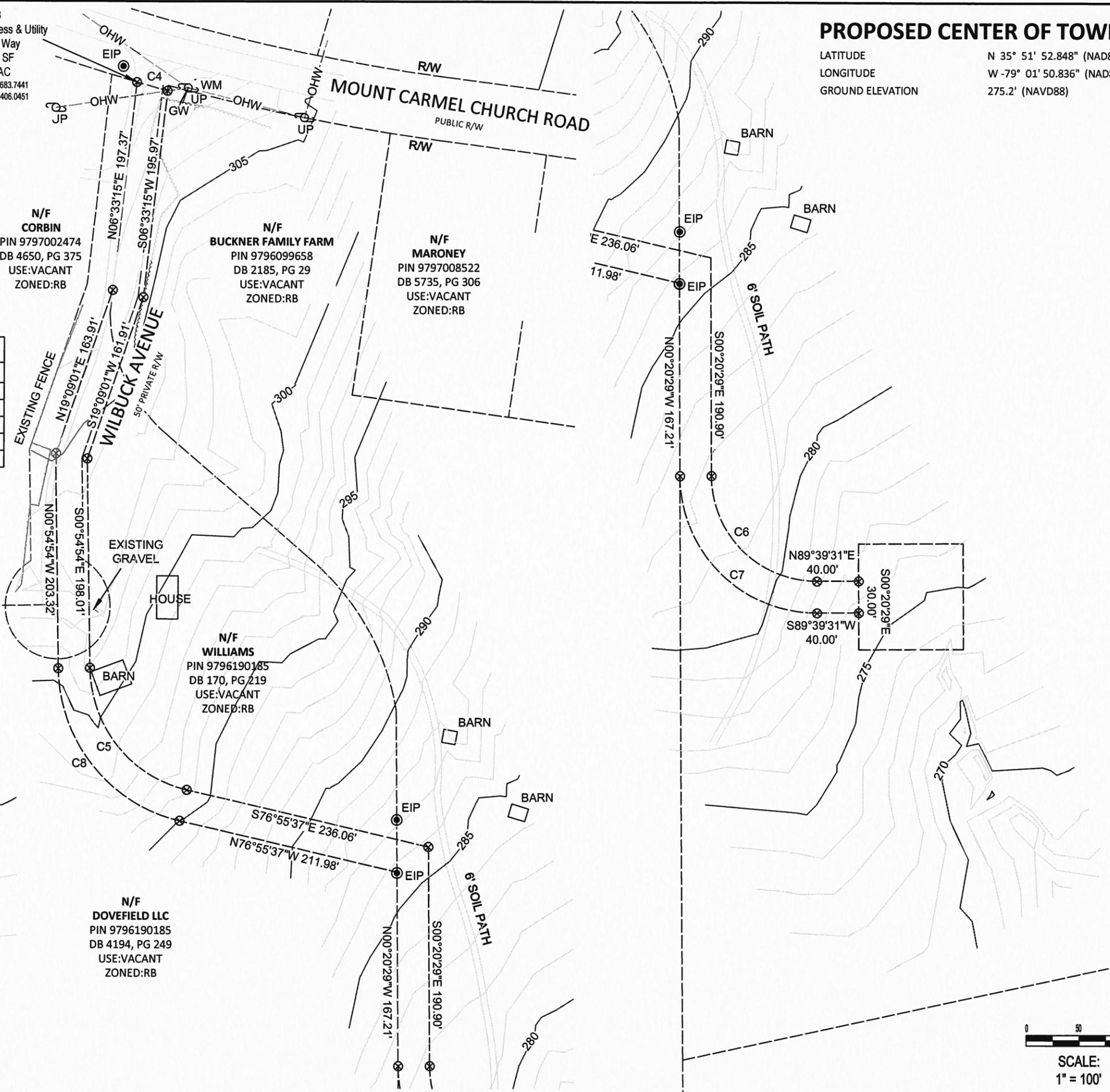
PROPOSED CENTER OF TOWER

LATITUDE N 35° 51' 52.848" (NAD83)
LONGITUDE W -79° 01' 50.836" (NAD83)
GROUND ELEVATION 275.2' (NAVD88)

Kimley»Horn

2 Sun Court, Suite 450
Peachtree Corners, GA
30092

CURVE TABLE				
CURVE	RADIUS	LENGTH	BEARING	CHORD
C4	1987.59	30.37	S74°30'32"E	30.37
C5	120.00	159.20	S38°55'16"E	147.78
C6	100.00	157.08	S45°20'29"E	141.42
C7	130.00	204.20	S45°20'29"W	183.85
C8	150.00	198.99	N38°55'16"W	184.72



INSET SCALE:
1" = 50'

SCALE:
1" = 100'

DRAWN BY: JCH
CHECKED BY: JSC
DRAWING DATE: 3/11/15

REVISIONS	NO.	DATE	DESCRIPTION
	1.	6/01/15	Relocate Rights of Way & Legal
	2.	6/29/15	Title Report
	3.	7/01/15	Relocate Rights of Way & Legal
	4.	7/10/15	Field Locate House & Barn
	5.	7/22/15	Submit Final Survey

CLEARWATER LAKE
301003
1941 MT. CARMEL CHURCH RD.
CHAPEL HILL, NC, 27517
ORANGE COUNTY

DATE OF SURVEY: 3-11-2015
BCSC JOB # 150237
SHEET TITLE: SURVEY
SHEET NUMBER 2 OF 3

OPINION OF TITLE
BLANCO TACKABERY & MATAMOROS, P.A.
FILE # 15-0046(RE)
DATED MAY 14, 2015
PROPOSED INSURED: VERIZON WIRELESS

1. Line of credit Deed of Trust in favor of Central Carolina Bank & Trust Company, National Association recorded at Book 627, Page 184.
(Does Not Affect Verizon Wireless Land Space or Access & Utility Rights of Way)
2. Deed of Trust in favor of Bank of America, NA recorded at Book 4500, Page 410.
(Does Not Affect Verizon Wireless Land Space or Access & Utility Rights of Way)
3. Shared Driveway Agreement recorded at Book 741, Page 597.
(Does Not Affect Verizon Wireless Land Space or Access & Utility Rights of Way)
4. Portion of the Property lying within the right of way of Mt. Carmel Church Road.
(Does Not Affect Verizon Wireless Land Space or Access & Utility Rights of Way)
5. No opinion of title given to any portion of the property lying in Chatham County - See Plat Book 100, Page 85. The majority of the original parent parcel as described in deed recorded at Book 152, Page 223 was located in Orange County; however, a small portion was located in Chatham County. Please note the the Proposed Tower Tract as it is described today in the vesting deed recorded at Book 2185, Page 29 lies entirely within Orange County according to the Orange County GIS System and tax records.
(Does Not Affect Verizon Wireless Land Space or Access & Utility Rights of Way)
6. Subject to spousal interest of any spouse of Helga W. Horton, if any.
(Does Not Affect Verizon Wireless Land Space or Access & Utility Rights of Way)
7. Declaration of Cross Easements and Provisions for Private Road Maintenance recorded in Book 4110, Page 274. See also Plat Book 100, Page 85.
(Does Not Affect Verizon Wireless Land Space or Access & Utility Rights of Way)
8. Any right, title or interest of any party to the actual right of way of the railroad running along the Eastern property line.
Please note that this instrument references the proposed tower tract as also being accessed by a private easement know as Jay Thomas Road. the only recorded instrument describing this easement is recorded in Book 741, Page 597; however, this instrument does not grant easement rights to the proposed parent tract. Use of this road as depicted on the County GIS system appears to not be by recorded instrument or right. Jay Thomas Drive appears to be the proposed access route to gain access to the tower compound to be constructed on the proposed tower tract. Jay Thomas Drive is a private road according to the Orange County Mapping Department.
(Does Not Affect Verizon Wireless Land Space or Access & Utility Rights of Way)
9. For informational purposes; The vesting deed for proposed easement tract 1 was into James T. Horton and wife Helga W. Horton. James T. Horton passed away February 16, 2013 vesting title solely in Helga W. Horton
(Does Not Affect Verizon Wireless Land Space or Access & Utility Rights of Way)

LESSEE LAND SPACE DESCRIPTION

All that certain parcel of land, situate in Chapel Hill, Orange County, North Carolina, being on the lands of Buckner Family Farm as described in Deed Book 2185 at Page 29, Orange County Records, and being more particularly described as follows:

Beginning at the NorthWestern property corner of Buckner Family Farm and NorthEastern property corner of Corbin, Orange County Records, said corner also being on the Southern Right-of-Way of Mount Carmel Church Road having State Plane Coordinates N:770683.7441, E:1990406.0451; thence along a curve to the Left having a radius of 1987.59', a length of 30.37', and a chord of S74°30'32"E, 30.37' along the Right-of-Way to a point; thence S06°33'15"W, 195.97' to a point; thence S19°09'01"W, 161.91' to a point; thence S00°54'54"E, 198.01' to a point of curvature; a curve to the Left having a radius of 120.00', a length of 159.20' and a chord of S38°55'16"E, 147.78' to a point; thence S76°55'37"E, 236.06' to a point; thence S00°20'29"E, 190.90' to a point of curvature; a curve to the Left having a radius of 100.00', a length of 157.08' and a chord of S45°20'29"E, 141.42' to a point; thence N89°39'31"E, 40.00' to a point; the Point of Beginning; thence N00°20'29"W, 35.00' to a point; thence N89°39'31"E, 100.00' to a point; thence S00°20'29"W, 100.00' to a point; thence S89°39'31"W, 100.00' to a point; thence N00°20'29"E, 65.00' to a point; said point being the Point of Terminus of the Lessee Land Space. Said Lessee Land Space contains 10,000 square feet, more or less.

30' LESSEE ACCESS & UTILITY RIGHTS OF WAY DESCRIPTION

All that certain parcel of land, situate in Chapel Hill, Orange County, North Carolina, being on the lands of Buckner Family Farm as described in Deed Book 2185 at Page 29, Orange County Records, and being more particularly described as follows:

Beginning at the NorthWestern property corner of Buckner Family Farm and NorthEastern property corner of Corbin, Orange County Records, said corner also being on the Southern Right-of-Way of Mount Carmel Church Road having State Plane Coordinates N:770683.7441, E:1990406.0451; thence along a curve to the Left having a radius of 1987.59', a length of 30.37', and a chord of S74°30'32"E, 30.37' along the Right-of-Way to a point; thence S06°33'15"W, 195.97' to a point; thence S19°09'01"W, 161.91' to a point; thence S00°54'54"E, 198.01' to a point of curvature; a curve to the Left having a radius of 120.00', a length of 159.20' and a chord of S38°55'16"E, 147.78' to a point; thence S76°55'37"E, 236.06' to a point; thence S00°20'29"E, 190.90' to a point of curvature; a curve to the Left having a radius of 100.00', a length of 157.08' and a chord of S45°20'29"E, 141.42' to a point; thence N89°39'31"E, 40.00' to a point; S00°20'29"E, 30.00' to a point; thence S89°39'31"W, 40.00' to a point of curvature; a curve to the Right having a radius of 130.00', a length of 204.20, and a chord of N45°20'29"W, 183.85' to a point; thence N00°20'29"W, 167.21' to a point; thence N76°55'37"W, 211.98' to a point of curvature; a curve to the Right having a radius of 150.00', a length of 198.99', and a chord of N38°55'16"W, 184.72' to a point; thence N00°54'54"W, 203.32' to a point; thence N19°09'01"E, 163.91' to a point; thence N06°33'15"E, 197.37' to a point; said point being the Point of Beginning of the 30' Lessee Access & Utility Rights of Way. Said 30' Lessee Access & Utility Rights of Way contains 41,396 square feet more or less.

Kimley»Horn

2 Sun Court, Suite 450
 Peachtree Corners, GA
 30092

DRAWN BY: JWB
 CHECKED BY: JWB
 DRAWING DATE: 3/13/15

REVISIONS	NO.	DATE	DESCRIPTION
	1.	6/01/15	Relocate Rights of Way & Legal
	2.	6/29/15	Title Report
	3.	7/01/15	Relocate Rights of Way & Legal
	4.	7/10/15	Field Locate House & Barn
	5.	7/22/15	Submit Final Survey

CLEARWATER LAKE
 301003
 1941 MT. CARMEL CHURCH RD.
 CHAPEL HILL, NC, 27517
 ORANGE COUNTY

DATE OF SURVEY: 3-11-2015

BCSC JOB # 150237

SHEET TITLE: SURVEY

SHEET NUMBER 3 OF 3

PROJECT INFORMATION:

VERIZON NAME:
CLEARWATER LAKE
VERIZON No.: TBD
 1941 MT. CARMEL CHURCH ROAD
 CHAPEL HILL, NC 27517
 ORANGE COUNTY

CURRENT ISSUE DATE:

09/30/16

ISSUED FOR:

CONSTRUCTION

REV.: DATE: ISSUED FOR: BY:

REV.	DATE	ISSUED FOR	BY
0	09/01/16	CONSTRUCTION	WCE
1	09/30/16	CONSTRUCTION	WCE

CONSULTANT:

Kimley»Horn

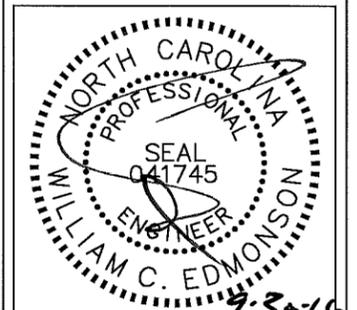
2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
 WWW.KIMLEY-HORN.COM
 NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

MWD KRM WCE

LICENSER:



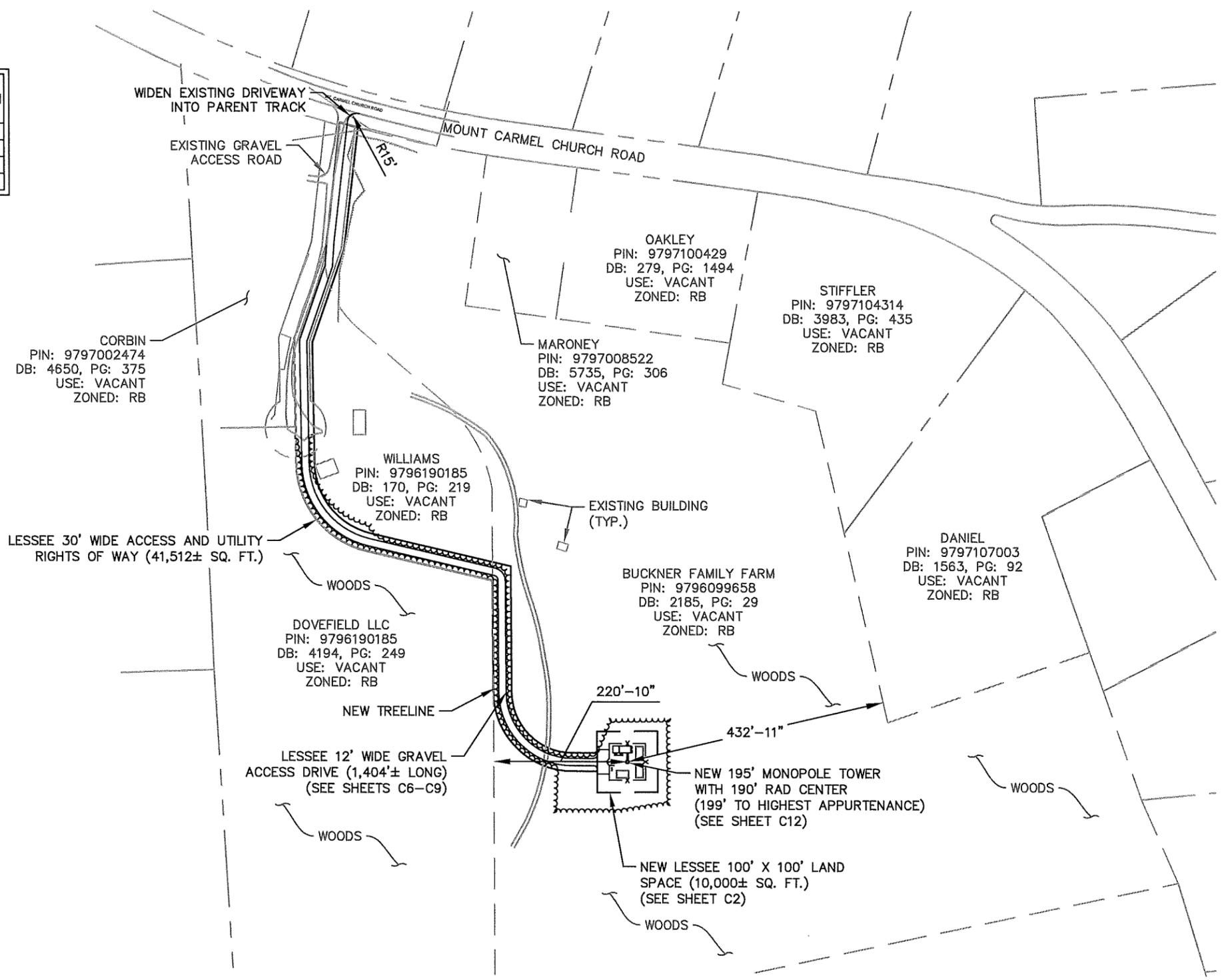
SHEET TITLE:

OVERALL SITE PLAN

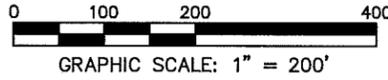
SHEET NUMBER: REVISION:

C1 **1**
 012055945

TOWER SETBACKS TO PROPERTY LINES (FROM TOWER CENTER)	
NORTH	703'-6"
SOUTH	382'-1"
EAST	432'-11"
WEST	220'-10"



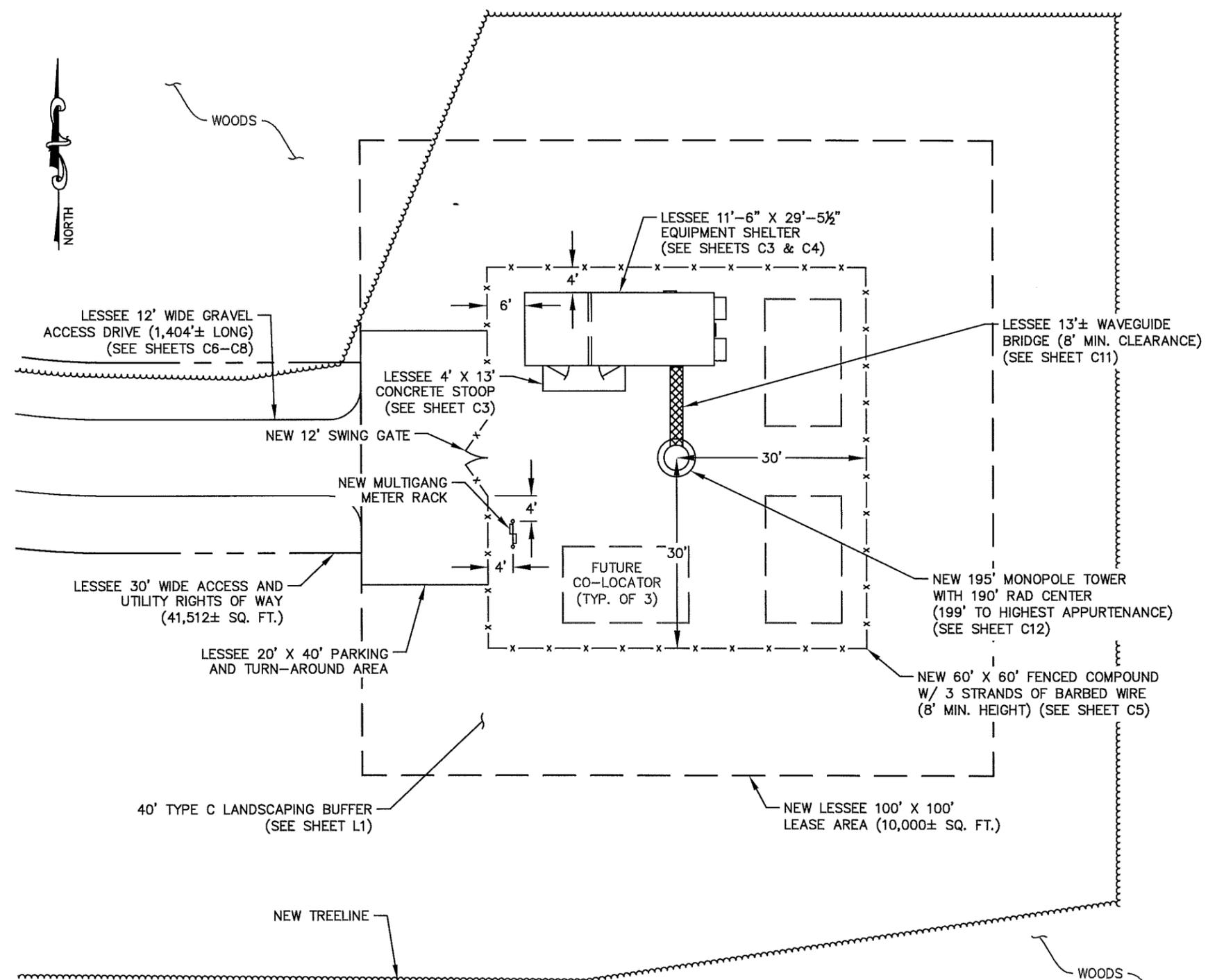
1
C1 **OVERALL SITE PLAN**
 SCALE: 1" = 200'



SURVEY NOTE:
 1. TOWERCIN PROJECT MANAGER 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 BATEMAN CIVIL SURVEY CO. DATED 03/13/2015 AND SITE VISIT ON 02/19/2015.

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1 **SITE PLAN**
C2 SCALE: 1" = 20'
 GRAPHIC SCALE: 1" = 20'

SURVEY NOTE:
 1. TOWERCOM PROJECT MANAGER 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 BATEMAN CIVIL SURVEY CO. DATED 03/13/2015 AND SITE VISIT ON 02/19/2015.

SHELTER NOTE:
 1. CONTRACTOR TO CONFIRM WITH VERIZON CONSTRUCTION MANAGER THAT THE SHELTER SHOWN ABOVE HAS BEEN ORDERED/SCHEDULED FOR DELIVERY TO THIS SITE.

COAX NOTE:
 1. ROUTE COAX/FIBER UP TOWER PER TOWER DESIGN DRAWING BY TOWER OWNER.

TOWER NOTE:
 1. 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.

LANDSCAPING NOTE:
 1. LANDSCAPING BUFFER EASEMENT, NOT FOR TOWER FACILITY EXPANSION. SEE SHEET L1 FOR LANDSCAPING PLAN AND NOTES.

- GENERAL NOTES:**
1. 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.
 2. 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.
 3. 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.
 4. CONTRACTOR SHALL REVIEW AND BE FAMILIAR WITH SITE CONDITIONS AS SHOWN ON THE ATTACHED SITE PLAN AND/OR SURVEY DRAWINGS.
 5. WAVEGUIDE BRIDGE AND PRE-FAB SHELTER ARE SHOWN FOR REFERENCE ONLY. REFER TO SEPARATE PRE-ENGINEERED DRAWINGS FOR SPECIFIC INFORMATION INCLUDING FOOTINGS AND WAVEGUIDE BRIDGE LOCATION.
 6. ALL FINISHED GRADES SHALL SLOPE MINIMUM 1/4 IN./FT. AWAY FROM EQUIPMENT IN ALL DIRECTIONS. CONTRACTOR SHALL SLOPE SWALES AS REQUIRED ALONG EXISTING TERRAIN TO DRAIN AWAY FROM COMPOUND AND ACCESS DRIVE.
 7. 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 FROM VERIZON PROJECT MANAGER TO CONFIRM COAX ROUTING AND ANTENNA MOUNT INFORMATION.
 8. THE CONTRACTOR SHALL PROVIDE ADEQUATE EXCAVATION SLOPING, SHORING, BRACING, AND GUYS IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL SAFETY ORDINANCES.
 9. 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 MATERIALS SHALL BE COMPACTED.
 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 THIS CONTRACT WILL BE REQUIRED TO NOTIFY "NORTH CAROLINA 811" 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.
 11. CONTRACTOR TO PROVIDE DUMPSTER AND PORTABLE TOILET FACILITY DURING CONSTRUCTION.
 12. CONTRACTOR TO PROVIDE STYMIE LOCK, DAISY CHAIN OR EQUIVALENT AS APPROVED BY CONSTRUCTION MANAGER.
 13. CONTRACTOR TO PROVIDE ANY NECESSARY SIGNAGE PER TOWERCOM PROJECT MANAGERS INSTRUCTIONS. SEE DETAIL ON SHEET C10.

TowerCom.

PROJECT INFORMATION:
VERIZON NAME:
 CLEARWATER LAKE
VERIZON No.: TBD
 1941 MT. CARMEL CHURCH ROAD
 CHAPEL HILL, NC 27517
 ORANGE COUNTY

CURRENT ISSUE DATE:
 09/30/16

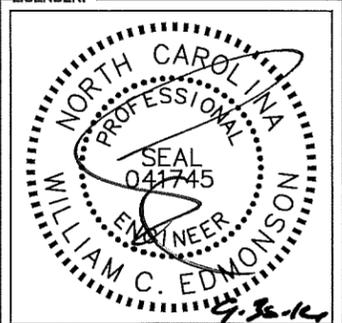
ISSUED FOR:
 CONSTRUCTION

REV.:	DATE:	ISSUED FOR:	BY:
0	09/01/16	CONSTRUCTION	WCE
1	09/30/16	CONSTRUCTION	WCE

CONSULTANT:
Kimley»Horn
 2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
 WWW.KIMLEY-HORN.COM
 NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:
 MWD KRM WCE



SHEET TITLE:
SITE PLAN

SHEET NUMBER: **C2** REVISION: **1**
 012055945

FOUNDATION NOTES

1. GENERAL

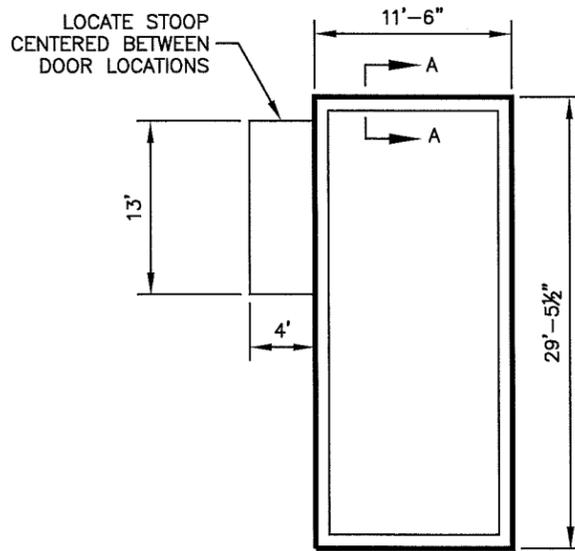
- 1.1 FOUNDATIONS ARE DESIGNED FOR A PRESUMPTIVE SOIL BEARING CAPACITY OF 2,000 PSF. CONTRACTOR SHALL VERIFY SOIL CONDITIONS PRIOR TO CONSTRUCTION.
- 1.2 EXCAVATE A MINIMUM 18" BELOW PROPOSED EQUIPMENT FOUNDATION(S) OF EXPANSIVE, ORGANIC, UNCONSOLIDATED OR OTHERWISE UNACCEPTABLE MATERIAL AND REPLACE WITH WELL-COMPACTED MATERIAL ACCEPTABLE TO VERIZON.
- 1.3 PERIMETER FOOTING FOR THE SHELTER FOUNDATION MUST BE A MINIMUM DEPTH OF 24" BELOW FINISH GRADE. (SEE SECTION A-A)
- 1.4 CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, PROTECTING, AND RELOCATING AS REQUIRED ALL SERVICE AND UTILITY LINES IN VICINITY OF THE WORK SITE. ALL EXCAVATIONS NEAR THESE LINES TO BE CARRIED OUT WITH EXTREME CAUTION.
- 1.5 CONTRACTOR TO CUT/FILL FOUNDATION TO PROVIDE AN AREA AS LEVEL AS POSSIBLE FOR THE EQUIPMENT. 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 MATERIALS SHALL ACHIEVE 95% OF MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D698. 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. MATERIALS

- 2.1 CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION TO ACI-318 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
- 2.2 CONCRETE SHALL HAVE A SLUMP BETWEEN 3" AND 6".
- 2.3 REINFORCING BARS SHALL CONFORM TO THE LATEST REVISION OF ASTM-A615 GRADE 60 SPECIFICATIONS AND BE DETAILED IN ACCORDANCE WITH THE LATEST REVISION TO ACI-318.
- 2.4 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 EACH DAY'S CONCRETE PLACEMENT. CYLINDERS SHALL BE TESTED IN ACCORDANCE WITH THE LATEST REVISION TO ASTM C39.
- 2.5 CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 3/4" x 45° CHAMFER, UNLESS OTHERWISE NOTED.
- 2.6 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 BROOM FINISH ON THE TOP SURFACE OF THE EQUIPMENT FOUNDATION.
- 2.7 CONCRETE REINFORCEMENT SHALL HAVE THE FOLLOWING PROTECTIVE COVER:
 - CONCRETE PLACED AGAINST EARTH OR GROUND.....3"
 - ALL OTHER LOCATIONS.....2"

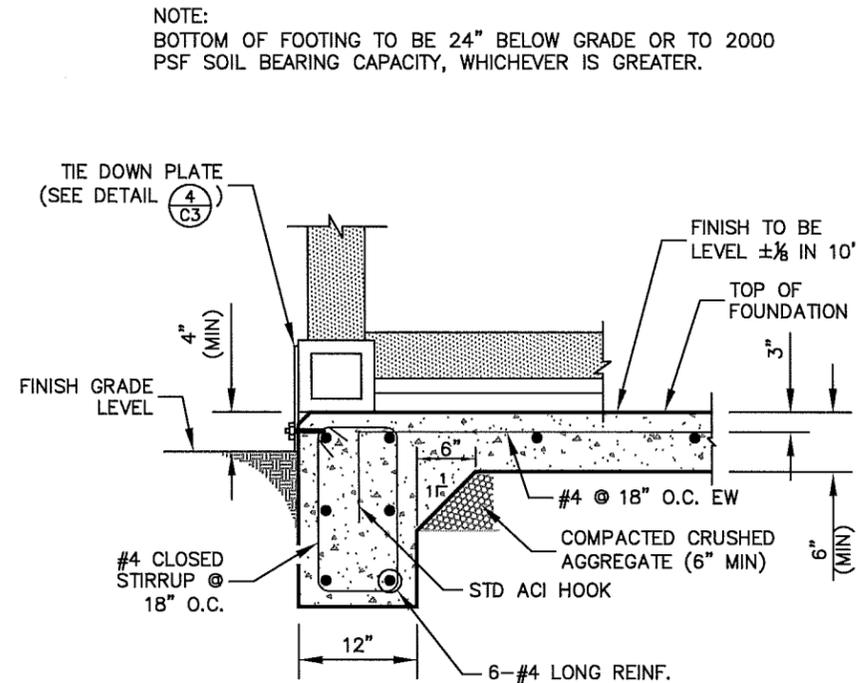
3. TOLERANCES

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



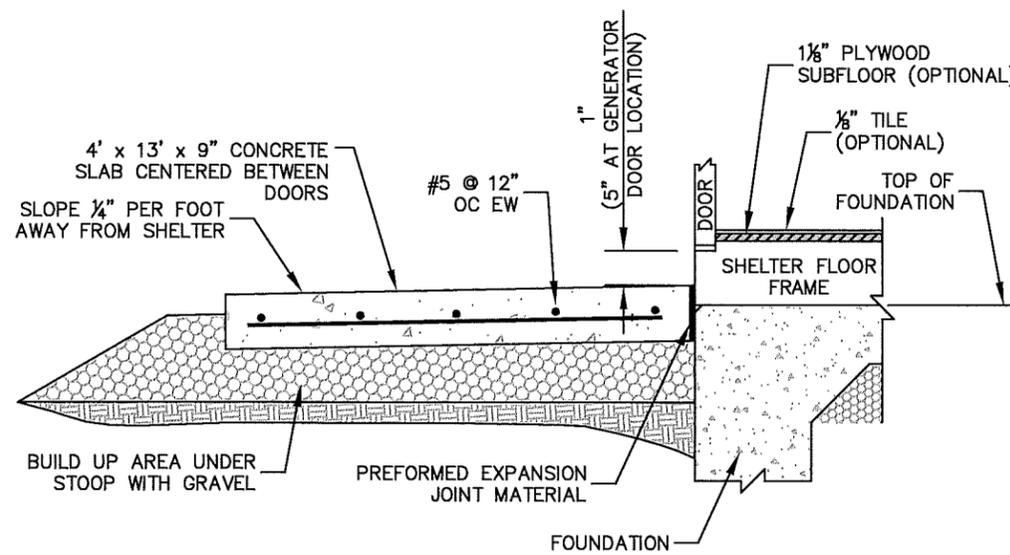
NOTE:
SEE SHEET C2 FOR FOUNDATION LOCATION AND ORIENTATION.
SEE SHELTER MANUFACTURERS DRAWINGS FOR ADDITIONAL INFORMATION REGARDING SLAB FOUNDATION DESIGN.

1
C3 VERIZON FOUNDATION PLAN
NOT TO SCALE

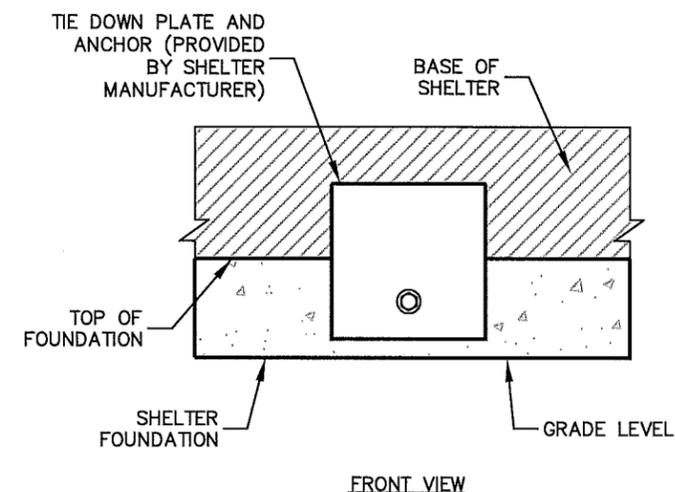


NOTE:
BOTTOM OF FOOTING TO BE 24" BELOW GRADE OR TO 2000 PSF SOIL BEARING CAPACITY, WHICHEVER IS GREATER.

2
C3 SECTION "A-A"
NOT TO SCALE



3
C3 VERIZON STOOP DETAIL
NOT TO SCALE



4
C3 TIE DOWN PLATE (FRONT VIEW)
NOT TO SCALE

TowerCom

PROJECT INFORMATION:

VERIZON NAME:
CLEARWATER LAKE
VERIZON No.: TBD
1941 MT. CARMEL CHURCH ROAD
CHAPEL HILL, NC 27517
ORANGE COUNTY

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2 SUN COURT, SUITE 450
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NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

MWD KRM WCE

LICENSER:



SHEET TITLE:

FOUNDATION & SHELTER TIE DOWN DETAILS

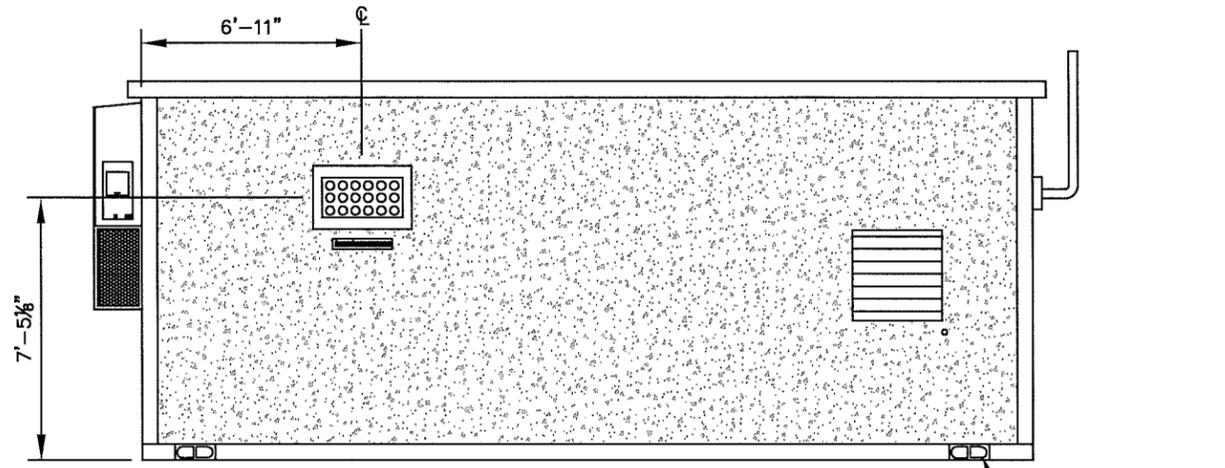
SHEET NUMBER: REVISION:

C3

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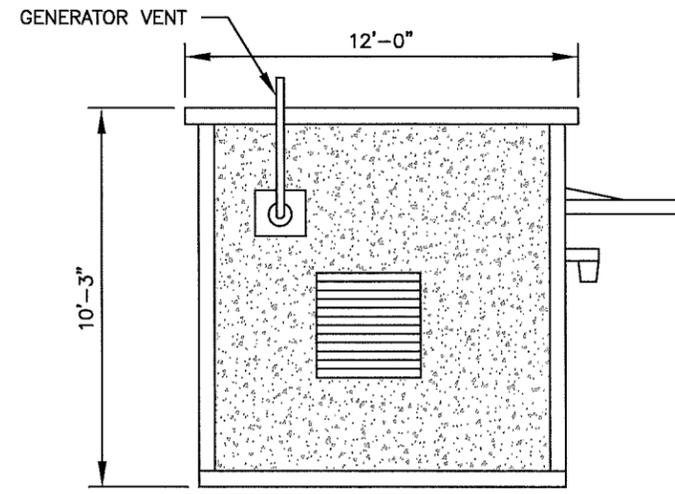
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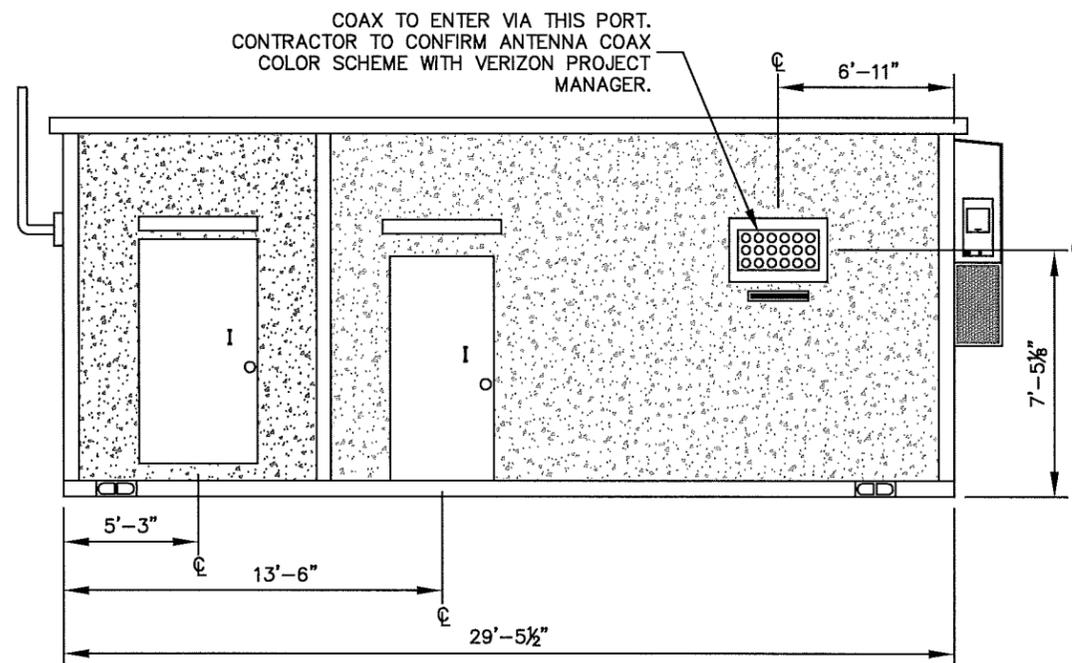


1 REAR WALL ELEVATION A
C4 NOT TO SCALE

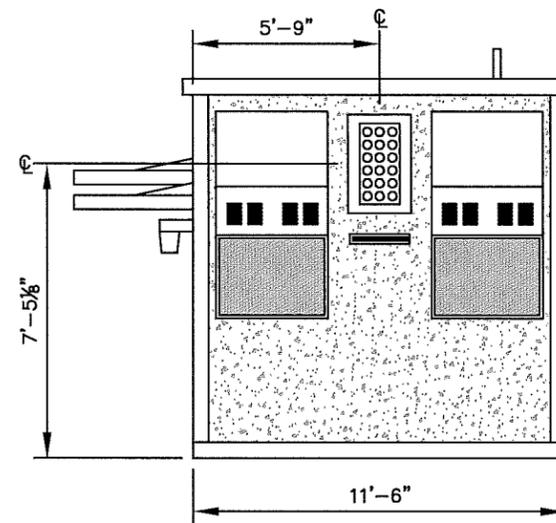
TIE DOWN PLATE
(SEE DETAIL 4/C3)



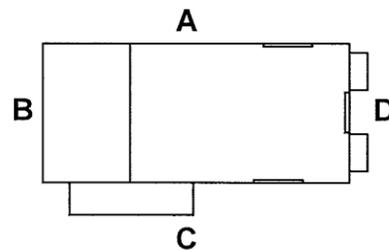
2 SIDE WALL ELEVATION B
C4 NOT TO SCALE



3 FRONT WALL ELEVATION C
C4 NOT TO SCALE



4 SIDE WALL ELEVATION D
C4 NOT TO SCALE



5 TYPICAL WALL LAYOUT
C4 NOT TO SCALE

NOTE:
PRE-FAB BUILDING WAS DESIGNED BY OTHERS AND
DRAWINGS WERE PROVIDED AS PART OF VERIZON WIRELESS
STANDARD DETAILS. REFER TO CONCRETE SHELTER DRAWINGS
FOR SPECIFIC INFORMATION.

TowerCom

PROJECT INFORMATION:

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ORANGE COUNTY

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NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

MWD KRM WCE

LICENSER:

FOR
ILLUSTRATIVE
PURPOSES ONLY-
REFER TO
MANUFACTURER'S
APPROVED
SHELTER
DRAWINGS

SHEET TITLE:

SHELTER
ELEVATIONS

SHEET NUMBER: REVISION:

C4

0

012055945

PROJECT INFORMATION:

VERIZON NAME:
CLEARWATER LAKE
VERIZON No.: TBD
 1941 MT. CARMEL CHURCH ROAD
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CONSULTANT:

Kimley»Horn

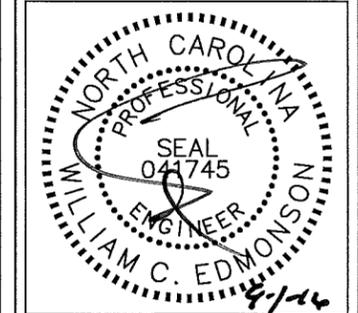
2 SUN COURT, SUITE 450
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 WWW.KIMLEY-HORN.COM
 NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

MWD	KRM	WCE
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LICENSER:



SHEET TITLE:

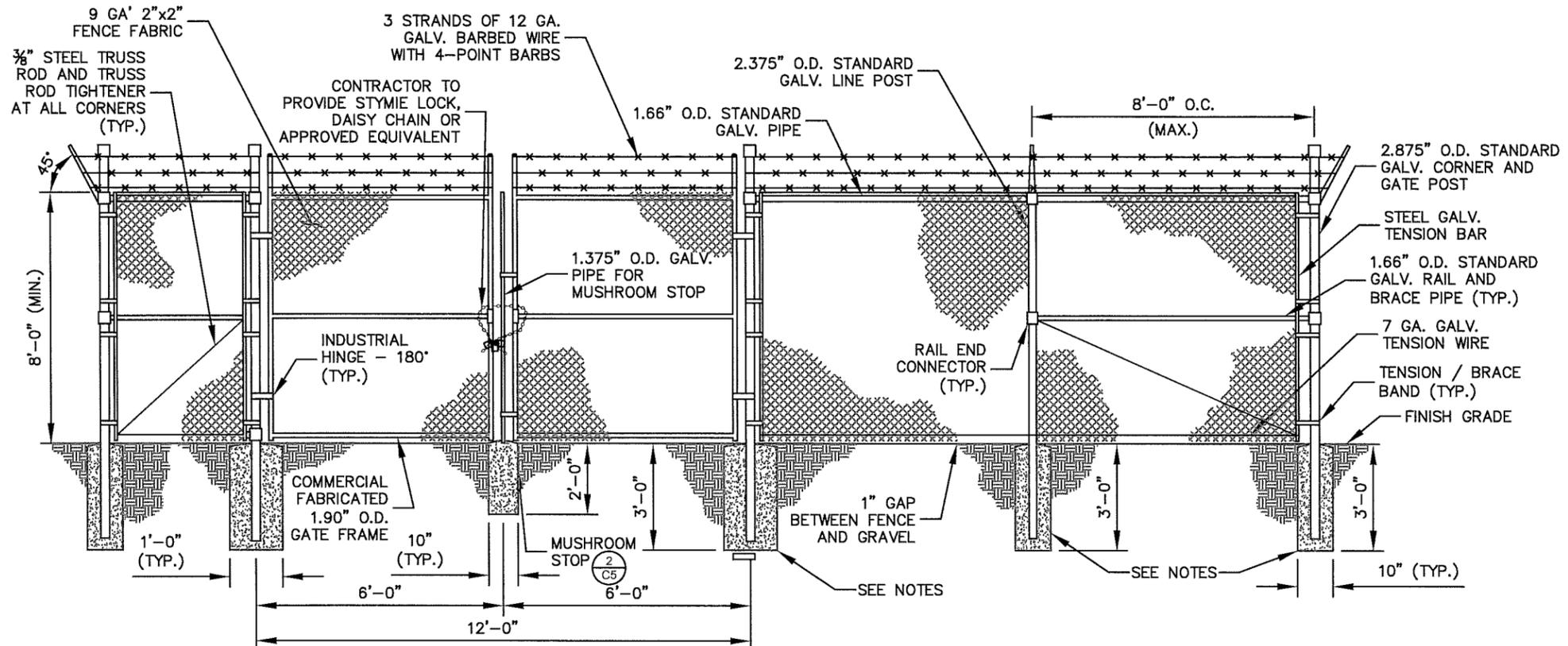
FENCE, GATE, AND COMPOUND DETAILS

SHEET NUMBER: REVISION:

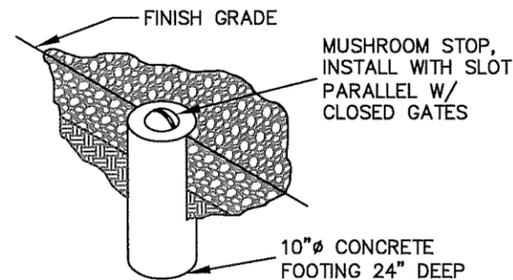
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FENCE NOTES

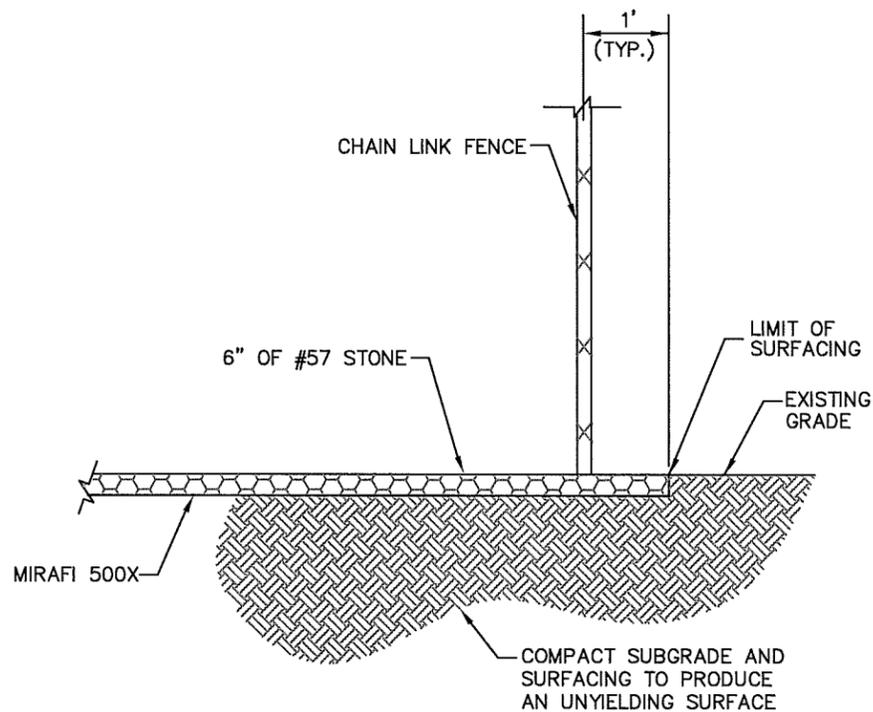
- USE 3,000-PSI CONCRETE, FULLY CONSOLIDATED AROUND THE POST. WHERE THE POST IS SET IN ROCK OR CONCRETE, CORE A HOLE 12" DEEP AND 1" LARGER IN DIAMETER THAN THE POST. SET THE POST AND GROUT IN PLACE USING NON-SHRINK GROUT.
- ALL POSTS MUST BE PLUMB AND ALIGNED WITH ONE ANOTHER IN BOTH HORIZONTAL AND VERTICAL PLANES.
- CORNERS AND GATEPOSTS FOR CHAIN LINK FENCES SHALL EXTEND ABOVE THE TOP STRAND OF BARBED WIRE TO PROVIDE TENSIONING FOR THE BARBED WIRE.
- PROVIDE MIDRAILS AND BRACING AT ALL CORNER POSTS WHERE THE FENCE CHANGES DIRECTION BY MORE THAN 30 DEGREES.
- THE GRADE OF THE SITE AND INSTALLATION OF THE FENCE SHALL PROVIDE FOR NO MORE THAN A 1" GAP BETWEEN THE BOTTOM OF THE FENCE MATERIAL AND FINISH GRADE.
- CONTRACTOR SHALL PROVIDE HOLD OPEN DEVICES FOR ALL GATES AT THE SPECIFIED OPEN POSITIONS, DRIVEN PIPE TYPE RECEIVERS ARE NOT AUTHORIZED.
- CONTRACTOR SHALL ALSO PROVIDE A MUSHROOM TYPE RECEIVER AT THE CLOSE POSITION.



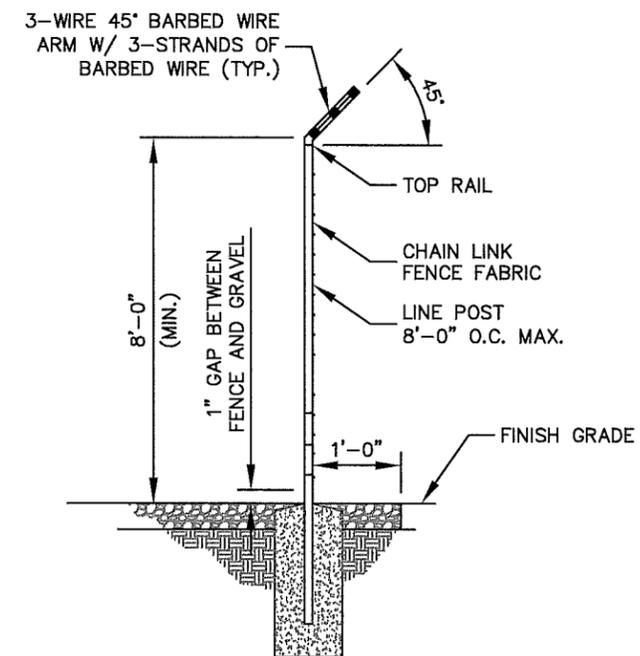
1 CHAIN LINK FENCE AND GATE ELEVATION
 NOT TO SCALE



2 MUSHROOM STOP
 NOT TO SCALE



3 SITE COMPOUND SURFACE DETAIL
 NOT TO SCALE



4 SECTION AT FENCE
 NOT TO SCALE

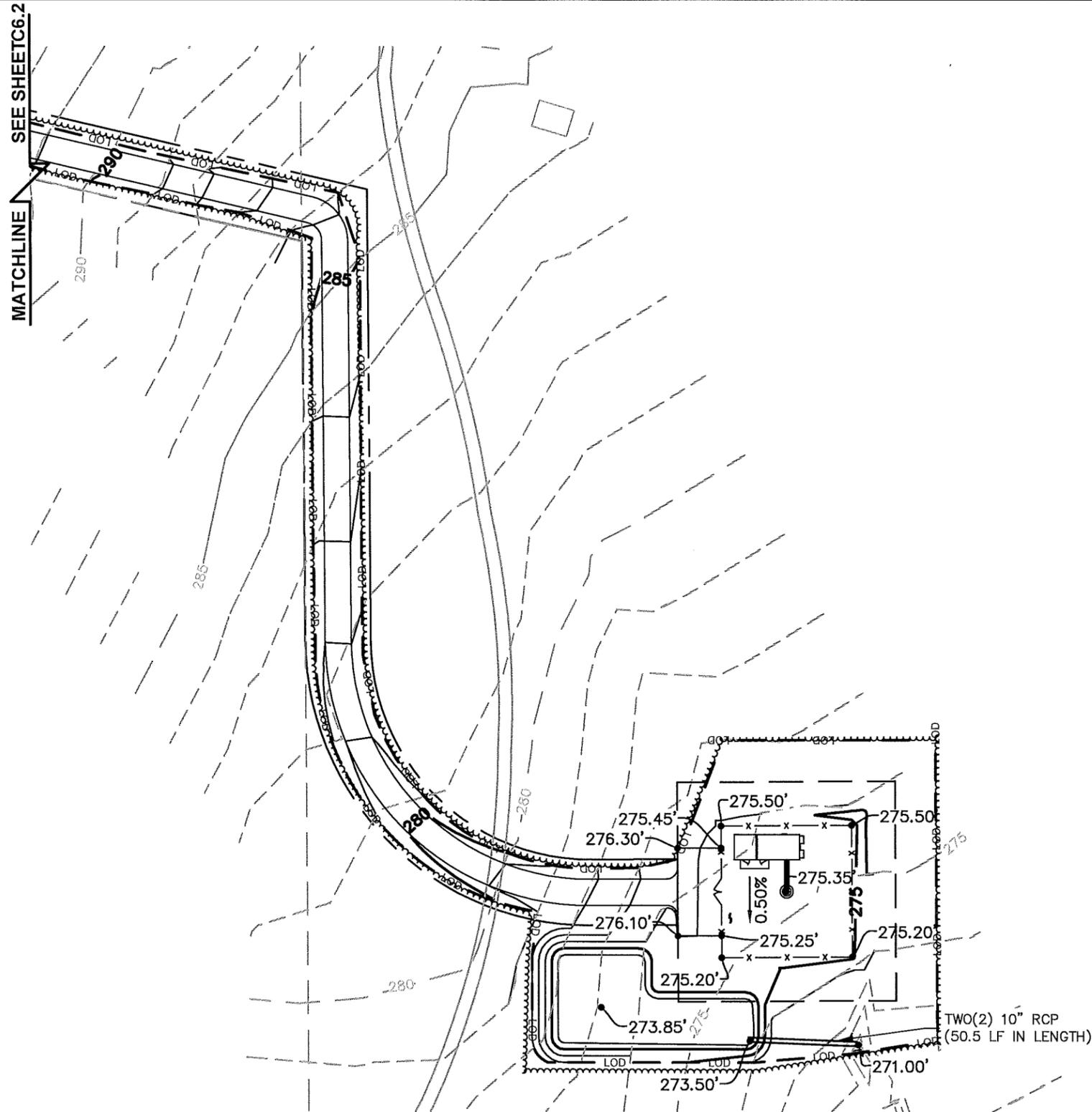
NOTE:
 CURRENT DESIGN ANTICIPATES APPROXIMATELY 45.684± SQ. FT. (1.05 ACRES) OF CLEARING AND GRADING FOR THE PROPOSED PROJECT. IF ADDITIONAL CLEARING IS REQUIRED BEYOND WHAT IS SHOWN IN THE PLANS THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND/OR PROJECT MANAGER. IF DURING THE BID WALK OR CONSTRUCTION IT IS DETERMINED THAT MORE THAN (1) ACRE OF LAND IS TO BE DISTURBED FOR CONSTRUCTION AN EROSION AND SEDIMENTATION CONTROL PLAN MUST BE FILED 30 DAYS PRIOR TO CONSTRUCTION.

GRADING NOTES:

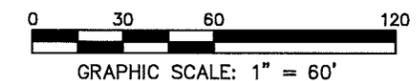
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2. ALL PROPOSED CONTOURS AND SPOT ELEVATIONS REFLECT FINISHED GRADES.
3. CONTRACTOR SHALL BLEND EARTHWORK SMOOTHLY TO TRANSITION BACK TO EXISTING GRADE.
4. PORTIONS OF THE SITE NOT SPECIFICALLY MENTIONED WITHIN THE GEOTECHNICAL REPORT SHALL BE COMPACTED TO 95 PERCENT OF THE MATERIALS MAXIMUM DRY DENSITY WITHIN 3 PERCENT OF OPTIMUM MOISTURE CONTENT.
5. FILL SHALL BE PLACED IN MAXIMUM 8 INCH LOOSE LIFTS.
6. UNDISTURBED AREAS WITHIN 30' INGRESS/EGRESS EASEMENT NOT NEEDED FOR UTILITY ROUTING TO BE LEFT UNDISTURBED.
7. MAXIMUM CUT SLOPE = 2H:1V
8. MAXIMUM FILL SLOPE = 3H:1V
9. SEED ALL DISTURBED AREAS NOT TOPPED WITH GRAVEL PER SEEDING SCHEDULE ON DETAIL ON SHEET CB.

LEGEND

- EXISTING CONTOURS ————
- PROPOSED CONTOURS ————
- SILT FENCE ————
- LOD ———— LOD ————
- TPF ———— TPF ———— TPF ————
- EXISTING SPOT ELEVATION x XXX
- PROPOSED SPOT ELEVATION • XXX



1 GRADING PLAN
C6.1 SCALE: 1" = 60'



TowerCom.

PROJECT INFORMATION:
VERIZON NAME:
CLEARWATER LAKE
VERIZON No.: TBD
 1941 MT. CARMEL CHURCH ROAD
 CHAPEL HILL, NC 27517
 ORANGE COUNTY

CURRENT ISSUE DATE:
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CONSULTANT:
Kimley»Horn
 2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
 WWW.KIMLEY-HORN.COM
 NC License F-0102

CONSULTANT:
 (Blank space for consultant name)

DRAWN BY: CHK.: APV.:
 MWD KRM WCE

LICENSER:

 NORTH CAROLINA PROFESSIONAL ENGINEER
 WILLIAM C. EDMONSON
 041745
 9-3-16

SHEET TITLE:
GRADING PLAN
1 OF 2

SHEET NUMBER: REVISION:
C6.1 **1**
 012055945

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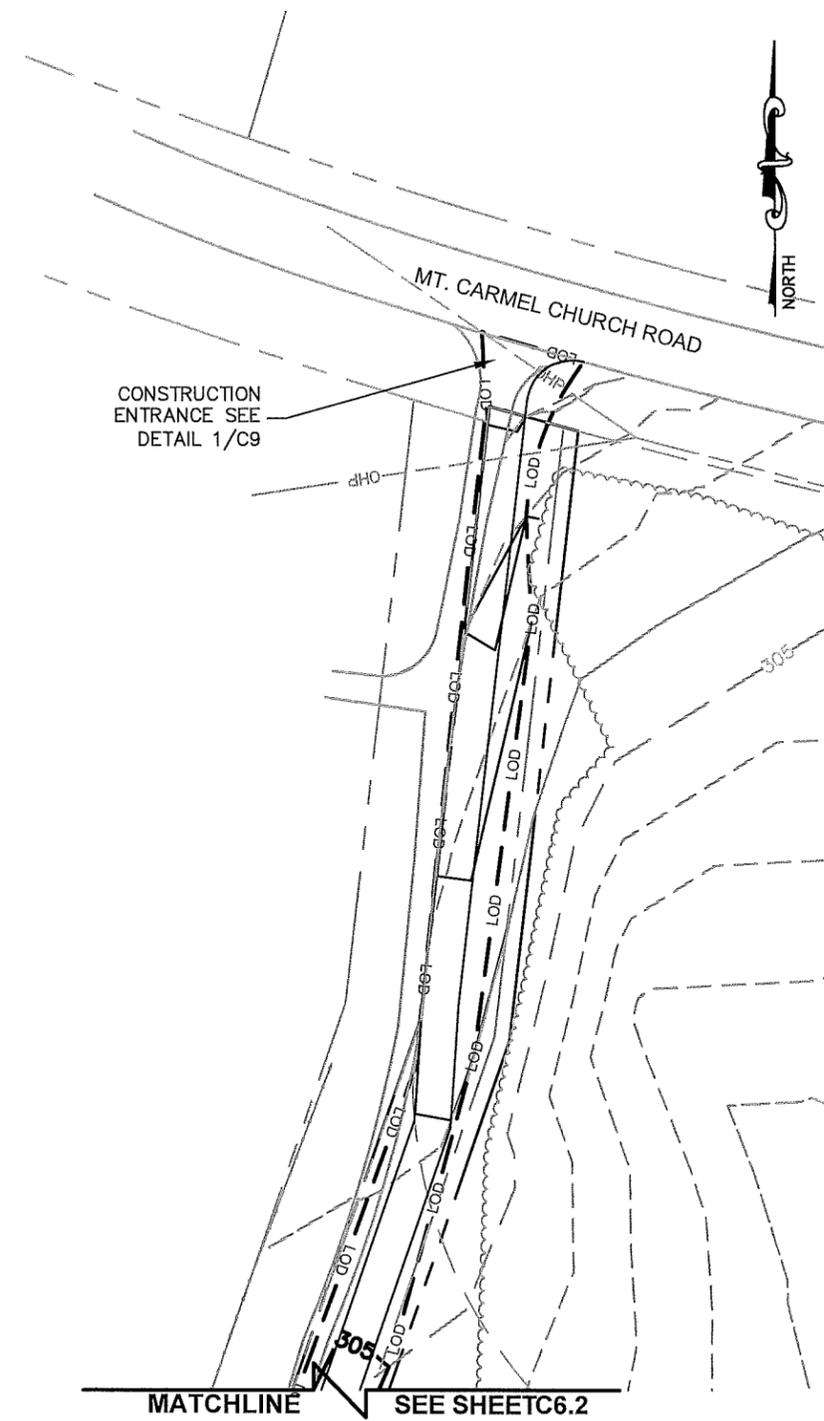
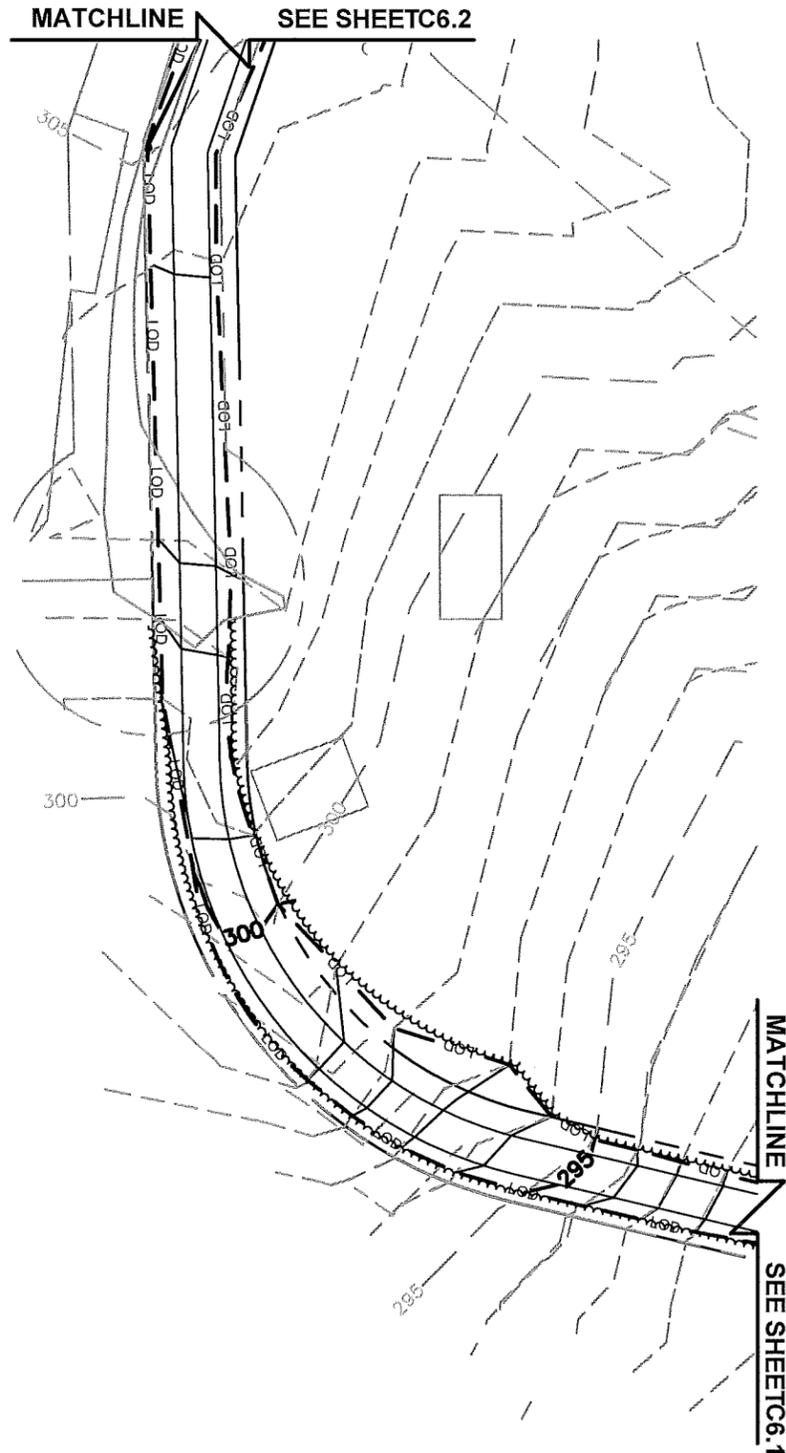
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GRADING NOTES:

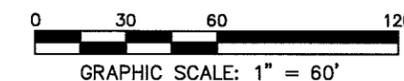
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7. MAXIMUM CUT SLOPE = 2H:1V
8. MAXIMUM FILL SLOPE = 3H:1V
9. SEED ALL DISTURBED AREAS NOT TOPPED WITH GRAVEL PER SEEDING SCHEDULE ON DETAIL ON SHEET C8.

LEGEND

- EXISTING CONTOURS — — — — —
- PROPOSED CONTOURS — — — — —
- SILT FENCE — — — — —
- LOD — — — — — LOD — — — — —
- TPF — — — — — TPF — — — — — TPF — — — — —
- EXISTING SPOT ELEVATION x XXX
- PROPOSED SPOT ELEVATION • XXX



1 GRADING PLAN
 C6.2 SCALE: 1" = 60'



TowerCom

PROJECT INFORMATION:
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 1941 MT. CARMEL CHURCH ROAD
 CHAPEL HILL, NC 27517
 ORANGE COUNTY

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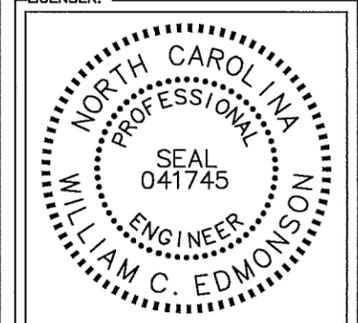
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CONSULTANT:
Kimley»Horn
 2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
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 NC License F-0102

CONSULTANT:

DRAWN BY: MWD
 CHK.: KRM
 APV.: WCE



SHEET TITLE:
 GRADING PLAN
 2 OF 2

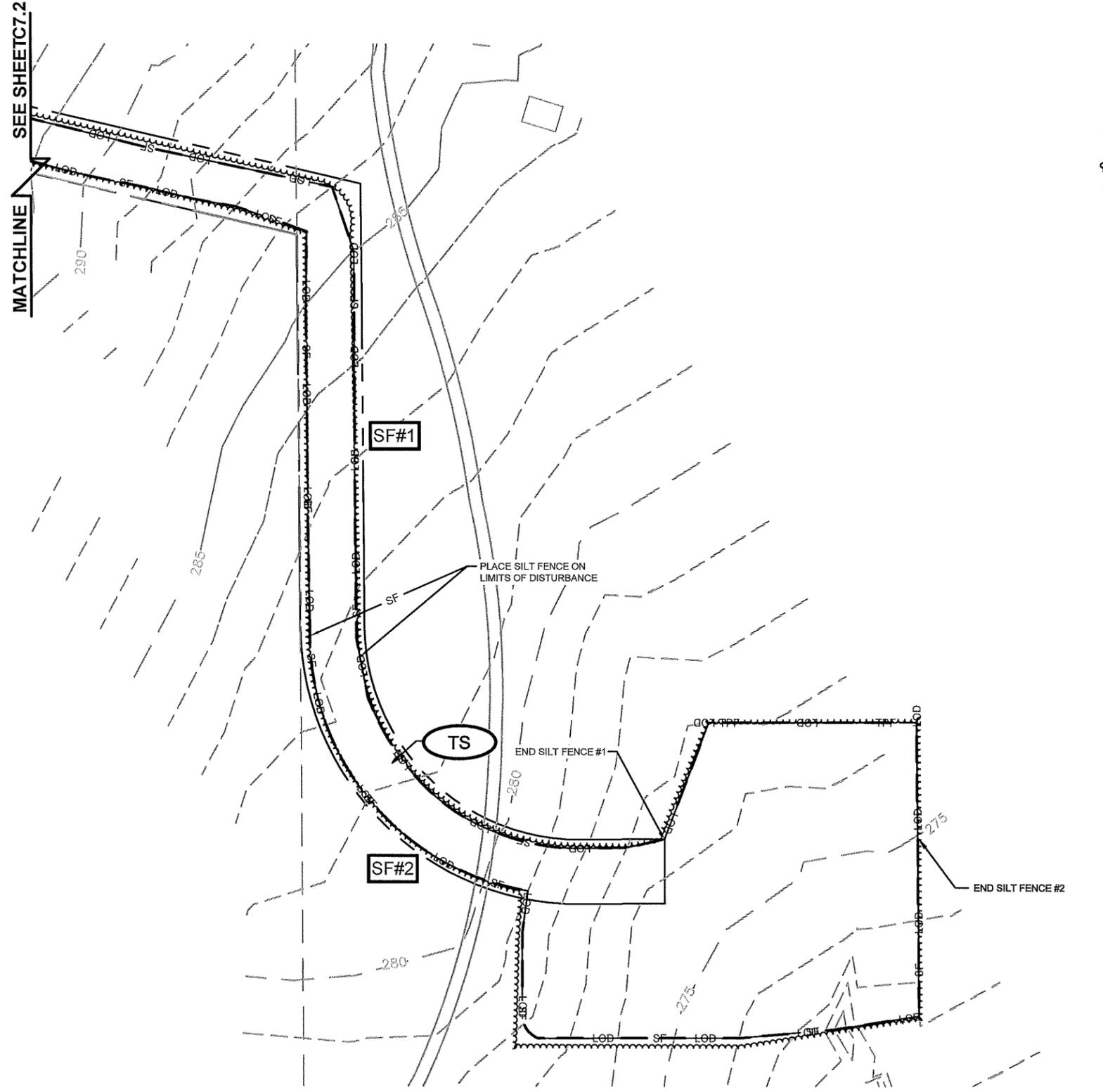
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 REVISION: 1
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PHASE 1 SEQUENCING:
 1. INSTALL STABILIZED CONSTRUCTION EXIT.
 2. INSTALL ALL SILT FENCE AS SHOWN ON PHASE 1 PLAN.
 3. BEGIN CLEARING, GRUBBING AND STRIPPING THE SITE.
 4. TEMPORARILY SEED, THROUGHOUT CONSTRUCTION, DENUDED AREAS THAT WILL BE INACTIVE FOR 7 DAYS OR MORE.

DISTURBED AREA: 52,699± SQ. FT. (1.21 AC)



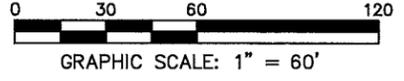
LEGEND

EXISTING CONTOURS	---
SILT FENCE	— SF —
LOD	— LOD — //
TPF	— TPF — TPF
EXISTING SPOT ELEVATION	x XXX
TEMPORARY SEEDING	○ TS

1
C7.1

EROSION CONTROL PLAN PHASE 1

SCALE: 1" = 60'



TowerCom

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VERIZON No.: TBD
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 CHAPEL HILL, NC 27517
 ORANGE COUNTY

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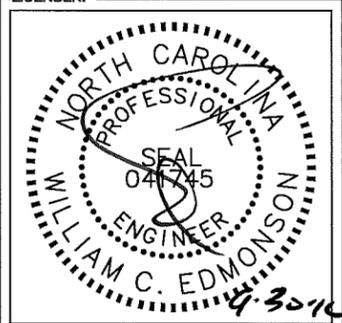
ISSUED FOR:
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CONSULTANT:
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 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
 WWW.KIMLEY-HORN.COM
 NC License F-0102

CONSULTANT:

DRAWN BY: MWD CHK.: KRM APV.: WCE



SHEET TITLE:
EROSION CONTROL PLAN PHASE 1
1 OF 2

SHEET NUMBER: **C7.1** REVISION: **1**
 012055945

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 3. BEGIN CLEARING, GRUBBING AND STRIPPING THE SITE.
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DISTURBED AREA: 52,699± SQ. FT. (1.21 AC)

LEGEND

EXISTING CONTOURS — — — — —

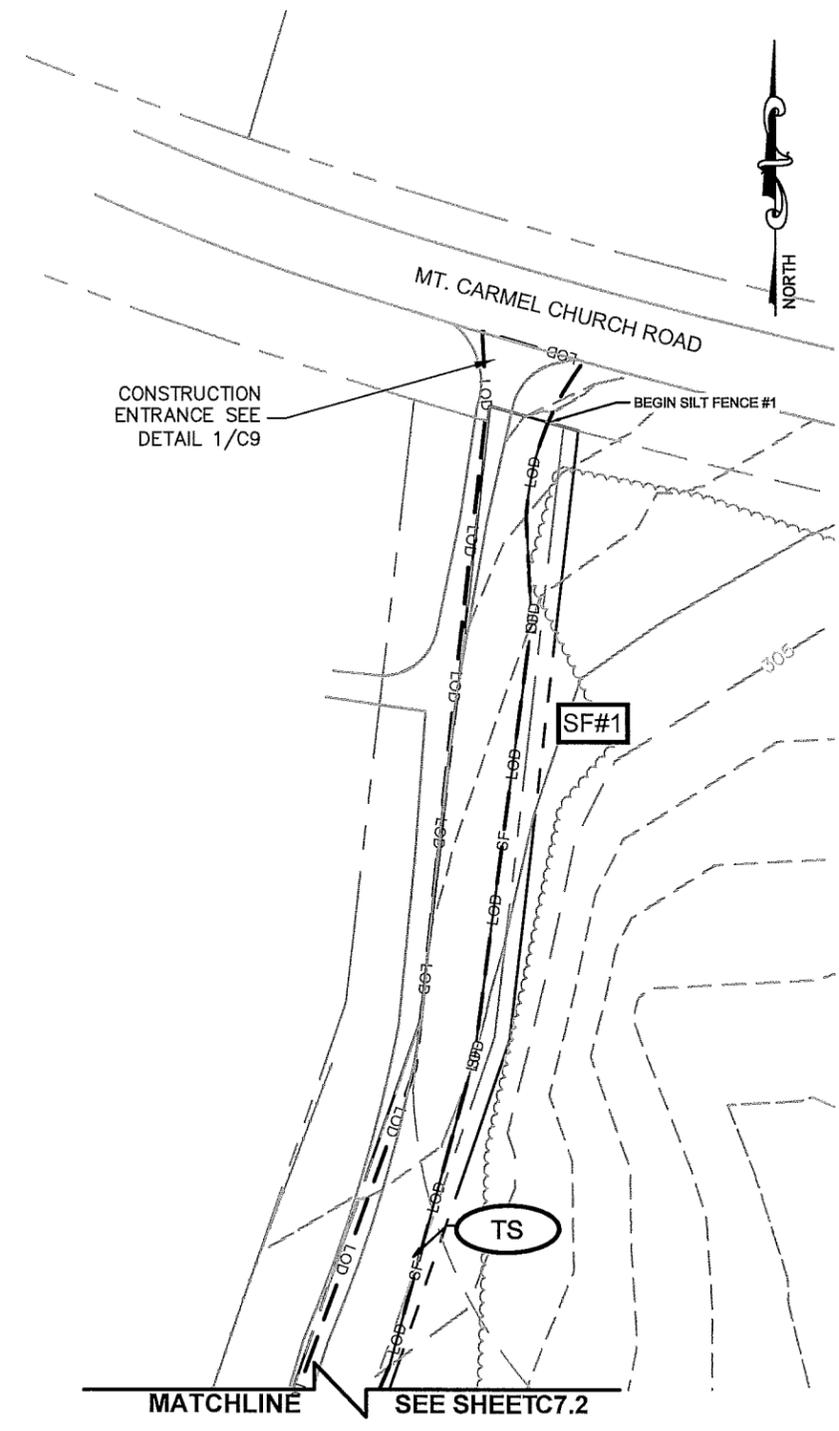
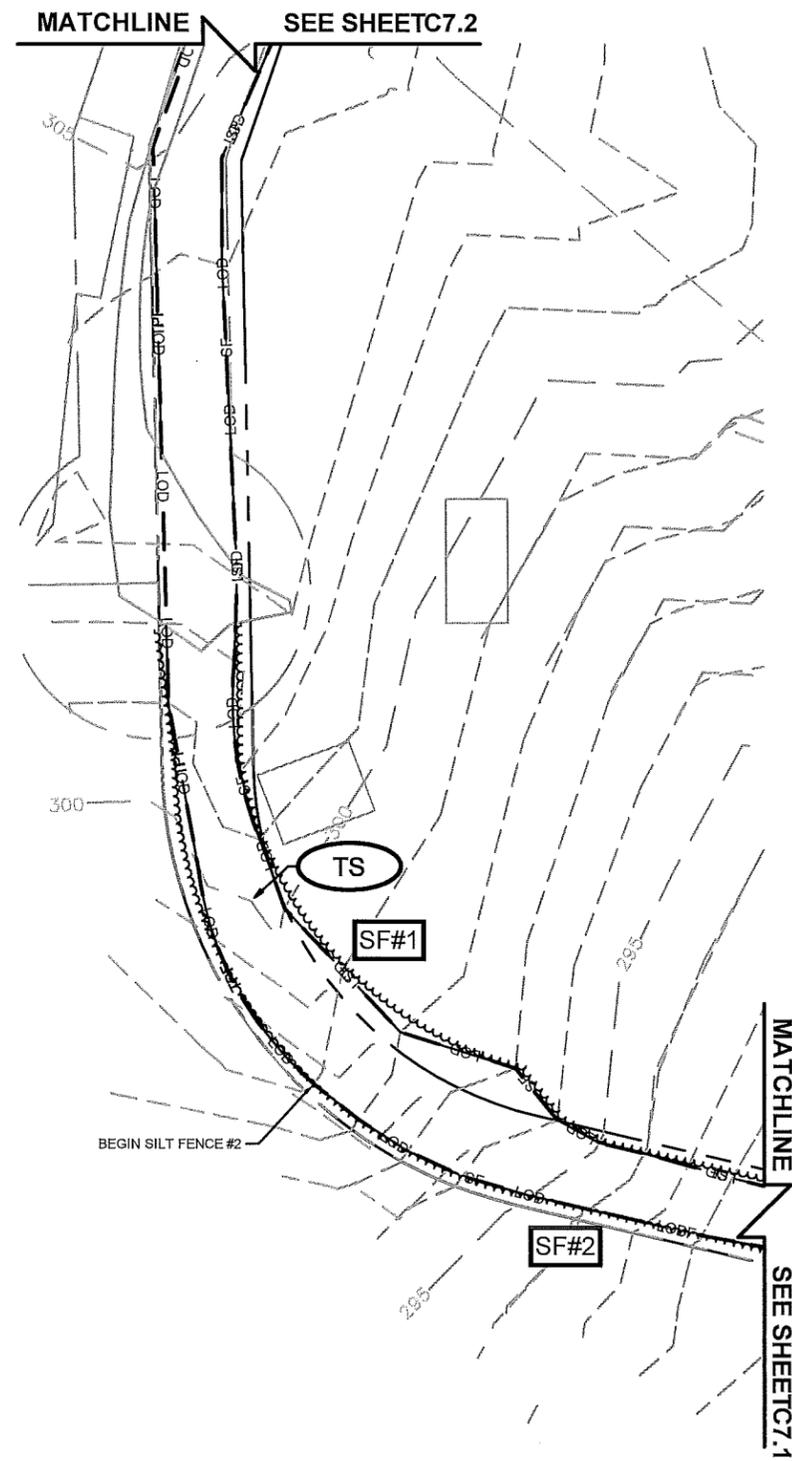
SILT FENCE ——— SF ——— **SF#**

LOD ——— LOD ——— ///

TPF ——— TPF ——— TPF

EXISTING SPOT ELEVATION × XXX

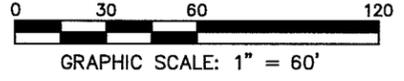
TEMPORARY SEEDING **TS**



1
C7.2

EROSION CONTROL PLAN PHASE 1

SCALE: 1" = 60'



TowerCom

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VERIZON NAME:
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VERIZON No.: TBD
 1941 MT. CARMEL CHURCH ROAD
 CHAPEL HILL, NC 27517
 ORANGE COUNTY

CURRENT ISSUE DATE:
 09/30/16

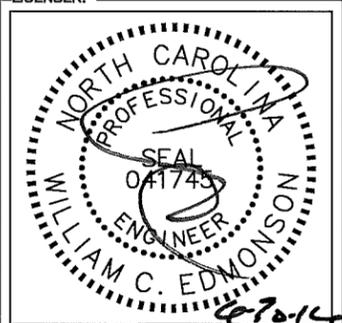
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 CONSTRUCTION

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1	09/30/16	CONSTRUCTION	WCE

CONSULTANT:
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CONSULTANT:

DRAWN BY: CHK.: APV.:
 MWD KRM WCE



SHEET TITLE:
EROSION CONTROL PLAN PHASE 1
 2 OF 2

SHEET NUMBER: REVISION:
C7.2 1
 012055945

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PHASE 2 SEQUENCING:
 1. BEGIN GRADING OF THE SITE AS SHOWN ON THE PHASE 2 PLAN. PERMANENTLY STABILIZE GRAVEL DRIVE AREAS AS THEY ARE BROUGHT TO FINAL GRADE.
 2. PERMANENTLY STABILIZE AREAS TO BE VEGETATED AS THEY ARE BROUGHT TO FINAL GRADE.
 3. CONTINUE TO MAINTAIN SILT FENCE UNTIL CONCURRENCE WITH ORANGE COUNTY IS OBTAINED.

DISTURBED AREA: 52,699± SQ. FT. (1.21 AC)

LEGEND

EXISTING CONTOURS ————

SILT FENCE ———— SF ———— **SF#**

LOD ———— LOD ———— **///**

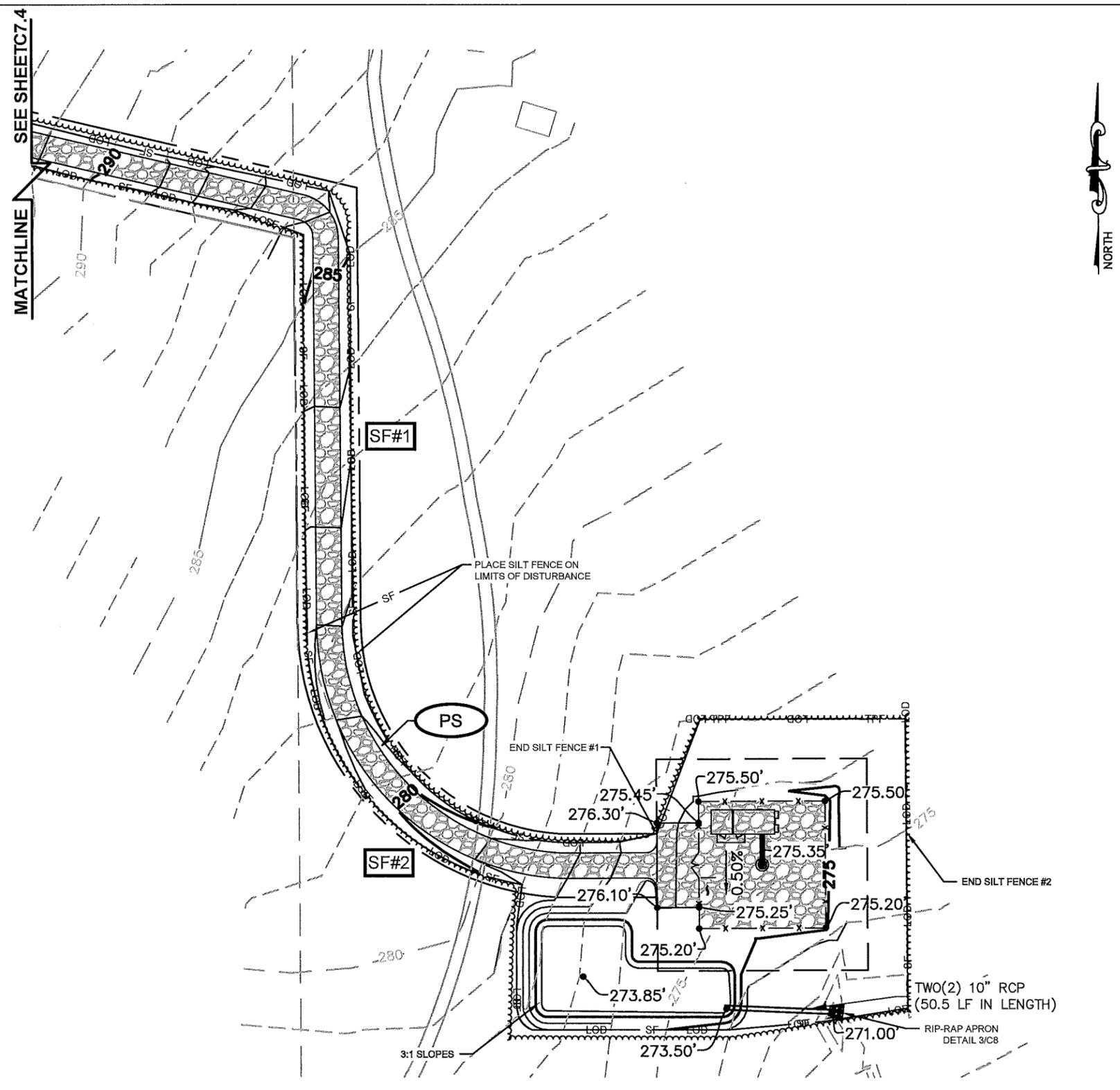
TPF ———— TPF ———— TPF

EXISTING SPOT ELEVATION × XXX

PROPOSED SPOT ELEVATION ● XXX

GRAVEL DRIVE 

TEMPORARY SEEDING **PS**



1
C7.3 **EROSION CONTROL PLAN PHASE 2**
 SCALE: 1" = 60'
 GRAPHIC SCALE: 1" = 60'

TowerCom.

PROJECT INFORMATION:
VERIZON NAME:
CLEARWATER LAKE
VERIZON No.: TBD
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 CHAPEL HILL, NC 27517
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CONSULTANT:
 DRAWN BY: CHK.: APV.:
 MWD KRM WCE

LICENSER:



SHEET TITLE:
EROSION CONTROL PLAN PHASE 2
1 OF 2

SHEET NUMBER: **C7.3** REVISION: **1**
 012055945

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LOD ———— LOD ———— ///

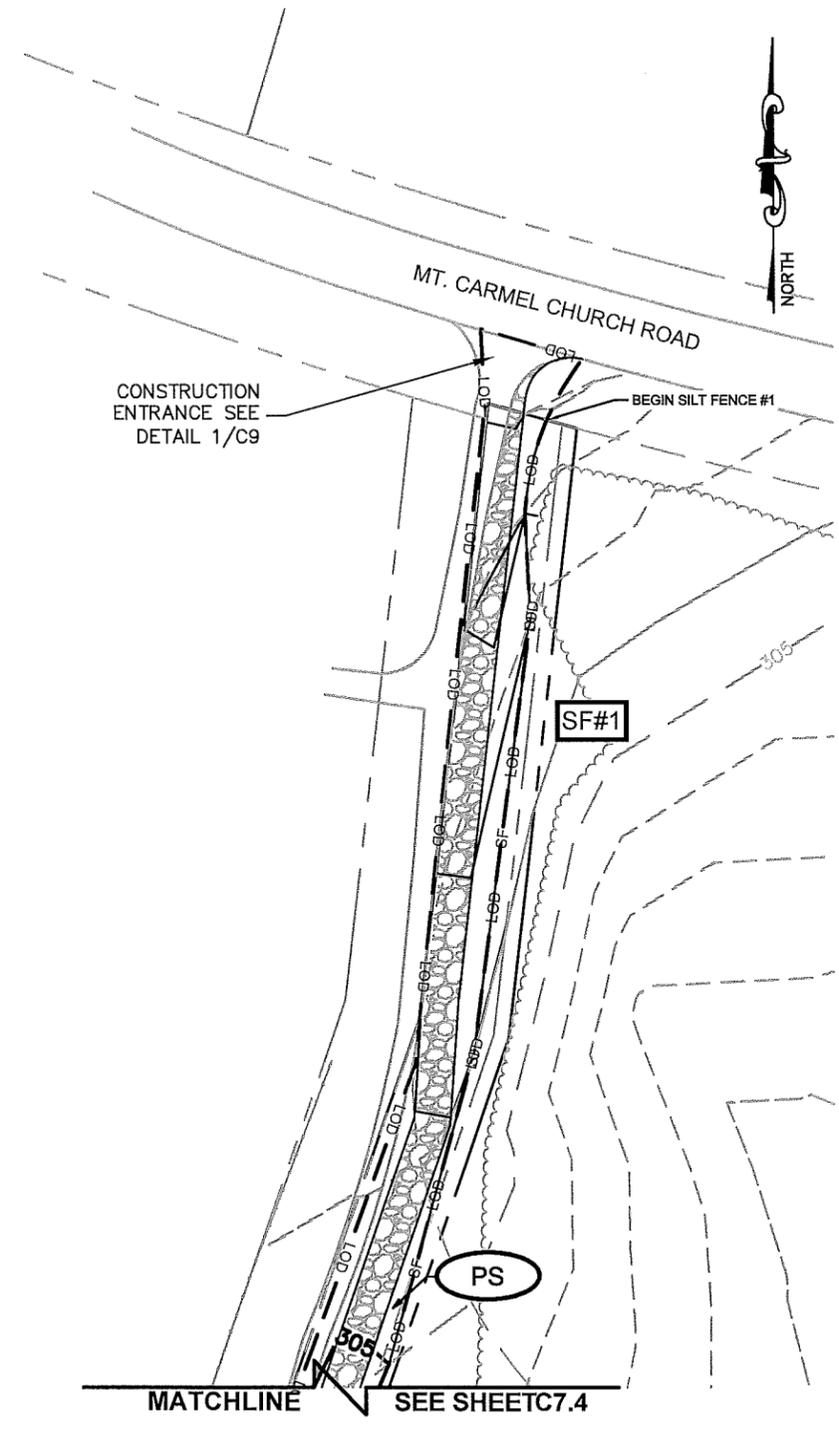
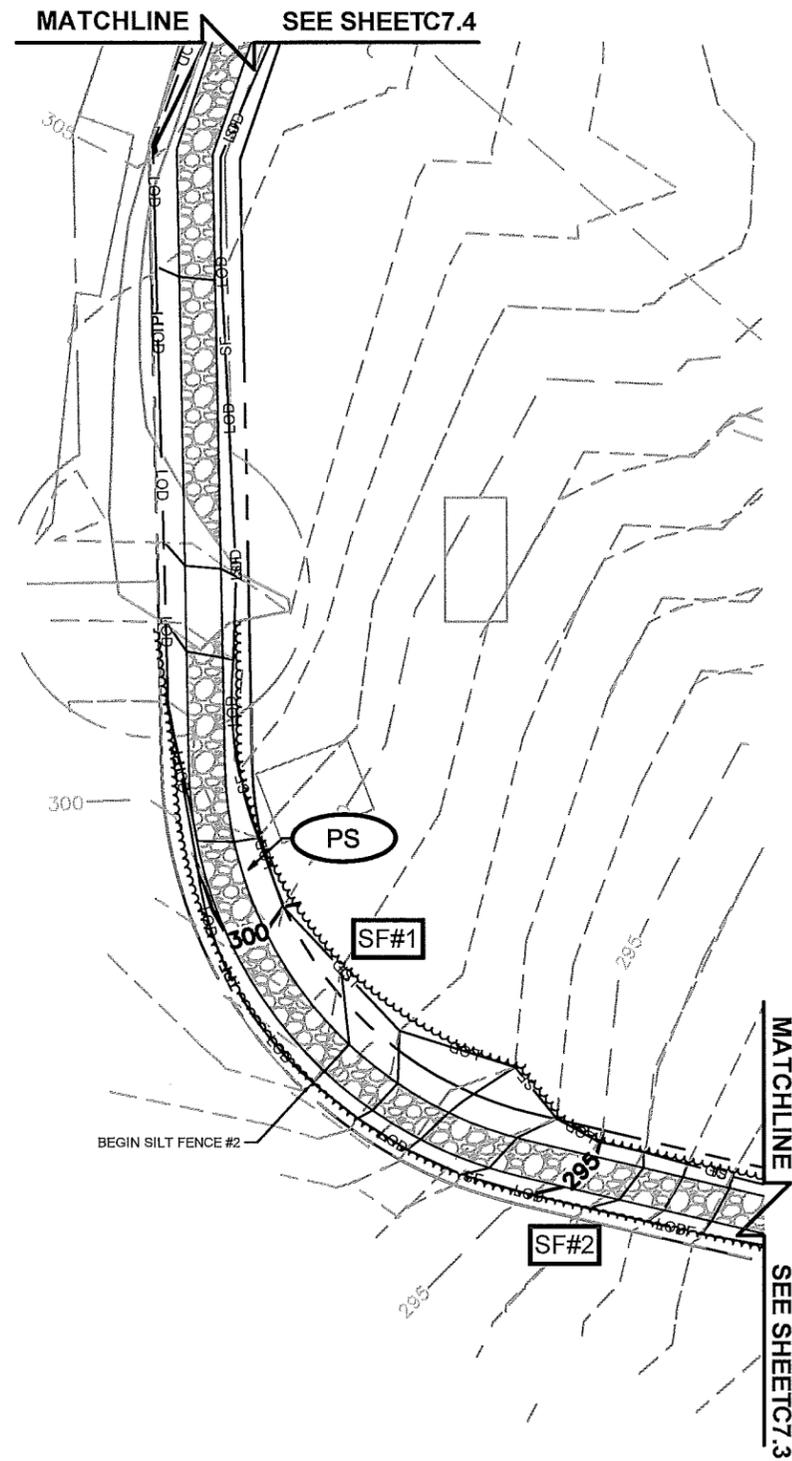
TPF ———— TPF ———— TPF

EXISTING SPOT ELEVATION x XXX

PROPOSED SPOT ELEVATION ● XXX

GRAVEL DRIVE 

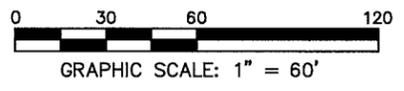
TEMPORARY SEEDING **PS**



1
C7.4

EROSION CONTROL PLAN PHASE 2

SCALE: 1" = 60'



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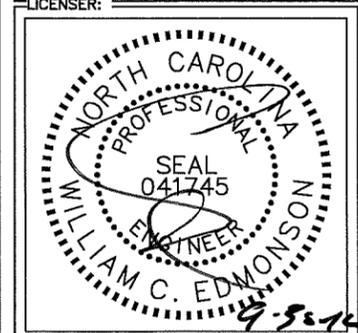
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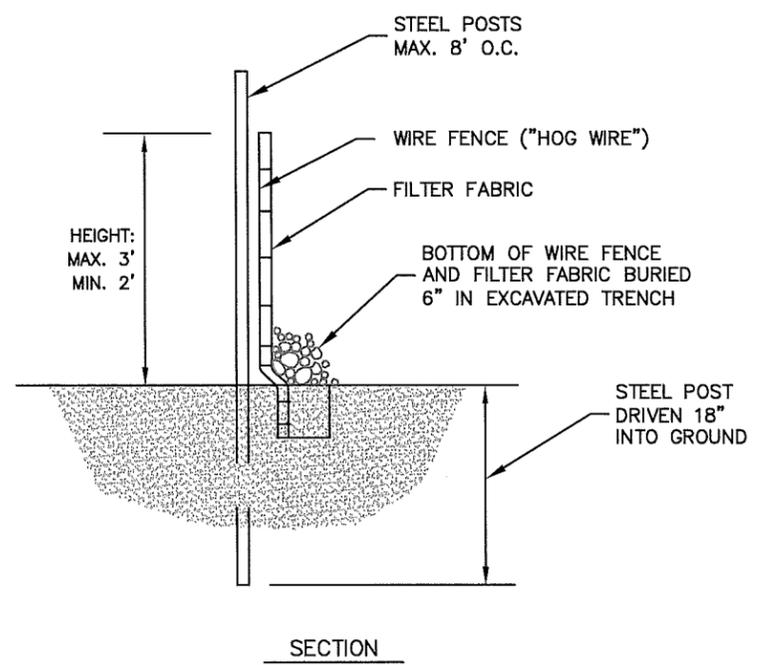
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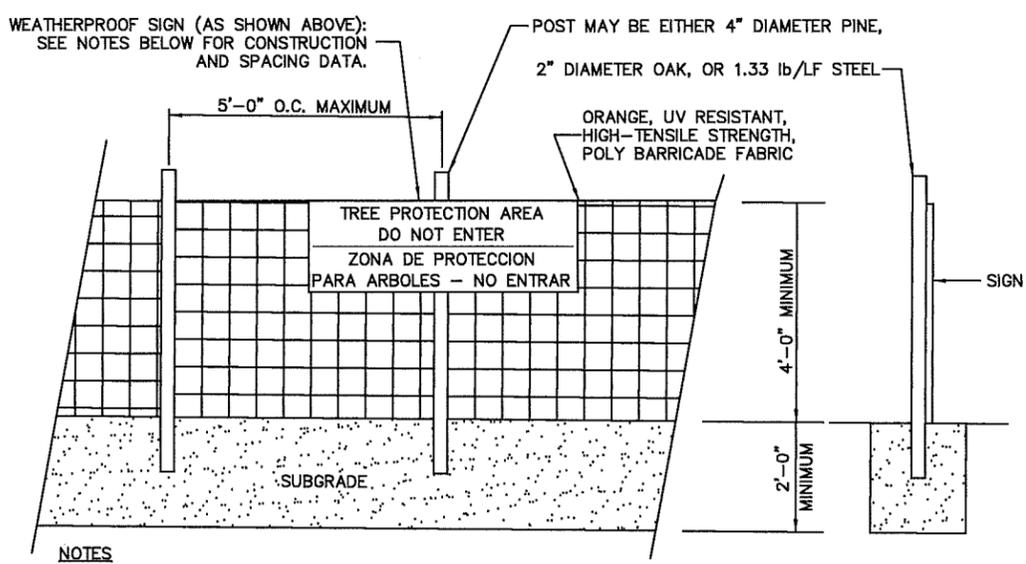
SHEET TITLE:
EROSION CONTROL PLAN PHASE 2
2 OF 2

SHEET NUMBER: REVISION:
C7.4 **1**
 012055945

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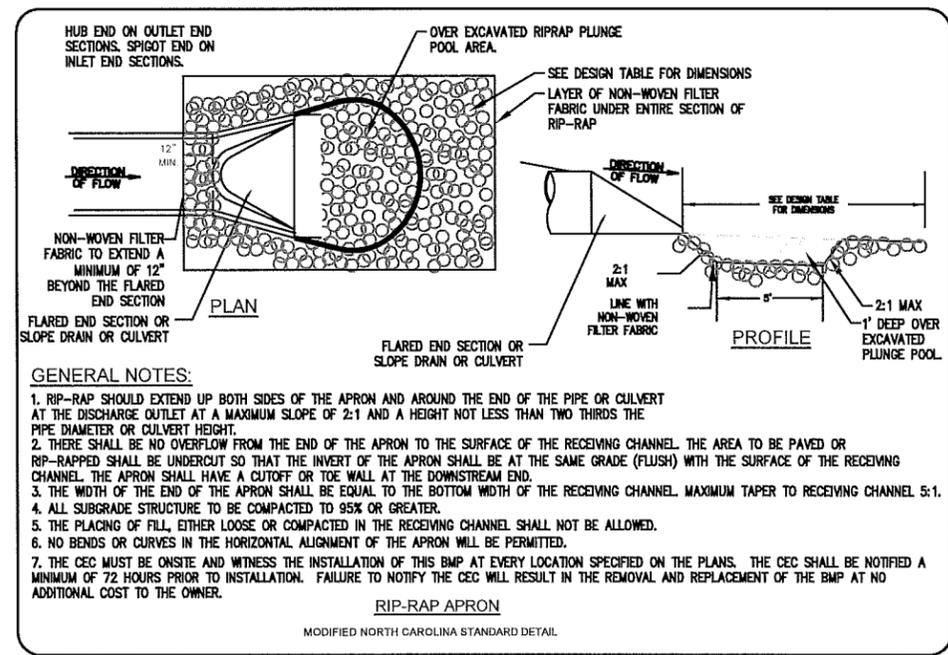


1
C8
SEDIMENT FENCE (SILT FENCE)
NOT TO SCALE



NOTES
INSTALL TREE PROTECTION FENCE AND SIGNAGE PRIOR TO CALLING FOR SITE INSPECTION. MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT. ADDITIONAL SIGNS MAY BE REQUIRED BASED ON ACTUAL FIELD CONDITIONS.

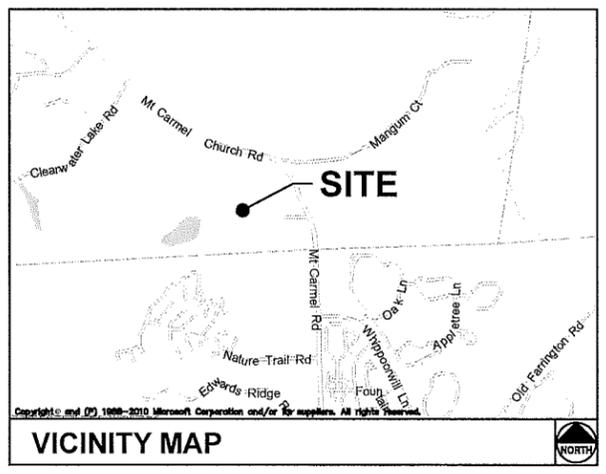
2
C8
TREE PROTECTION FENCE
NOT TO SCALE



GENERAL NOTES:
1. RIP-RAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO THIRDS THE PIPE DIAMETER OR CULVERT HEIGHT.
2. THERE SHALL BE NO OVERFLOW FROM THE END OF THE APRON TO THE SURFACE OF THE RECEIVING CHANNEL. THE AREA TO BE PAVED OR RIP-RAPPED SHALL BE UNDERCUT SO THAT THE INVERT OF THE APRON SHALL BE AT THE SAME GRADE (FLUSH) WITH THE SURFACE OF THE RECEIVING CHANNEL. THE APRON SHALL HAVE A CUTOFF OR TOE WALL AT THE DOWNSTREAM END.
3. THE WIDTH OF THE END OF THE APRON SHALL BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL. MAXIMUM TAPER TO RECEIVING CHANNEL 5:1.
4. ALL SUBGRADE STRUCTURE TO BE COMPACTED TO 95% OR GREATER.
5. THE PLACING OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEIVING CHANNEL SHALL NOT BE ALLOWED.
6. NO BENDS OR CURVES IN THE HORIZONTAL ALIGNMENT OF THE APRON WILL BE PERMITTED.
7. THE CEC MUST BE ON SITE AND WITNESS THE INSTALLATION OF THIS BMP AT EVERY LOCATION SPECIFIED ON THE PLANS. THE CEC SHALL BE NOTIFIED A MINIMUM OF 72 HOURS PRIOR TO INSTALLATION. FAILURE TO NOTIFY THE CEC WILL RESULT IN THE REMOVAL AND REPLACEMENT OF THE BMP AT NO ADDITIONAL COST TO THE OWNER.

RIP-RAP APRON
MODIFIED NORTH CAROLINA STANDARD DETAIL

3
C8
RIP RAP APRON
NOT TO SCALE



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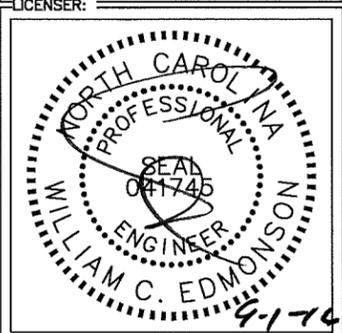
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CONSULTANT:

DRAWN BY: CHK.: APV.:
MWD KRM WCE



SHEET TITLE:
GRADING & EROSION CONTROL DETAILS

SHEET NUMBER: REVISION:
C8 **0**
012055945

SEEDING SCHEDULE FOR WINTER / SPRING CONSTRUCTION ACTIVITIES

SEEDING MIXTURE

Species	Rate (lb/acre)
Rye (grain)	120
Annual lespedeza (Kobe in Piedmont and Coastal Plain, Korean in Mountains)	50

Omit annual lespedeza when duration of temporary cover is not to extend beyond June.

SEEDING DATES

Mountains-- Above 2500 ft: Feb 15 - May 15
 Below 2500 ft.: feb. 1 - May 1
 Piedmont--Jan. 1 - May 1
 Coastal Plain--Dec. 1 - Apr. 15

SOIL AMENDMENTS

Follow recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.

MULCH

Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

MAINTENANCE

Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

SEEDING SCHEDULE FOR SUMMER CONSTRUCTION ACTIVITIES

SEEDING MIXTURE

Species	Rate (lb/acre)
Common Bermudagrass	40-80 (1-2 lb/1,000 sq. ft.)

SEEDING DATES

Coastal Plain--Apr. 1 - July
 Piedmont--Apr. 15 - June 30

SOIL AMENDMENTS

Apply lime and fertilizer according to soil tests, or apply 3,000 lb/acre ground agricultural limestone and 500 lb/acre 10-10-10 fertilizer.

MULCH

Use jute, excelsior matting, or other effective channel lining material to cover the bottom of channels and ditches. The lining should extend above the highest calculated depth of flow. On channel side slopes above this height, and in drainages not requiring temporary lining, apply 4,000 lb/acre grain straw and anchor straw by stapling netting over the top.

MAINTENANCE

A minimum of 3 weeks is required for establishment. Inspect and repair mulch frequently. Refertilize the following Apr. with 50 lb/acre nitrogen.

SEEDING SCHEDULE FOR FALL CONSTRUCTION ACTIVITIES

SEEDING MIXTURE

Species	Rate (lb/acre)
Rye (Grain)	120

SEEDING DATES

Mountains--Aug. 15 - Dec. 15
 Coastal Plain and Piedmont--Aug. 15 - Dec. 30

SOIL AMENDMENTS

Follow soil tests or apply 2,000 lb/acre ground agricultural limestone and 1,000 lb/acre 10-10-10 fertilizer..

MULCH

Apply 4,000 lb/acre straw. anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. a disk with blades set nearly straight can be used as a mulch anchoring tool.

MAINTENANCE

Repair and refertilize damaged areas immediately. Topdress with 50 lb/acre of nitrogen in March. If it is necessary to extend temporary cover beyond June 15, overseed with 50 lb/acre Kobe (Piedmont and Coastal Plain) or Korean (Mountains) lespedeza in late February or early March.

PERMANENT SEEDING

REBEL II FESCUE
 FESCUE AT 5-6 LBS/1,000 SF
 10-10-10 FERTILIZER AT 20 LBS/1,000 SF
 LIME AT 100 LBS/1,000 SF
 STRAW MULCH AT 1 ½ BALES /1,000 SF

ADD 30 LBS/ACRE ANNUAL RY GRAIN TO KY 31 FESCUE IF SEEDING BETWEEN NOVEMBER AND FEBRUARY.

GROUND STABILIZATION		
SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OF LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7-DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

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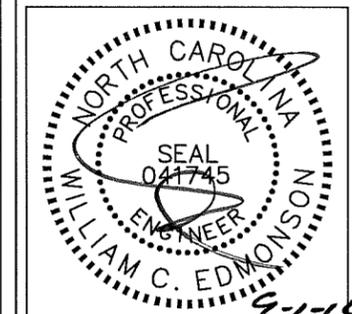
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CONSULTANT:

DRAWN BY: CHK.: APV.:

MWD	KRM	WCE

LICENSER:



SHEET TITLE:

GRADING & EROSION CONTROL DETAILS

SHEET NUMBER: REVISION:

C8.1

0

012055945

EROSION CONTROL NOTES

EROSION CONTROL:
DISTURBED AREA = 1.21 AC

SOIL TYPES:
Wsb = WHITE STORE LOAM

THE EROSION AND SEDIMENT CONTROL PLAN IS COMPRISED OF THE "EROSION AND SEDIMENT CONTROL PLAN/SITE MAP", THE STANDARD DETAILS, THE PLAN NARRATIVE, PLUS THE PERMIT AND ALL SUBSEQUENT REPORTS AND RELATED DOCUMENTS.

ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN AND THE STATE OF NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY GENERAL PERMIT TO DISCHARGE STORMWATER UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES PERMIT) AND BECOME FAMILIAR WITH THEIR CONTENTS.

CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THE ESCP. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST TO OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.

BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.

CONTRACTOR SHALL MINIMIZE CLEARING TO THE MAXIMUM EXTENT PRACTICAL OR AS REQUIRED BY THE GENERAL PERMIT.

GENERAL CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.

ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.

SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOATATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.

DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.

RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE INTO DRAINAGE DITCHES OR JURISDICTIONAL WATERS.

ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THE "EROSION AND SEDIMENT CONTROL PLAN/SITE MAP", AND IN THE EROSION AND SEDIMENTATION CONTROL PLAN, SHALL BE INITIATED AS SOON AS PRACTICABLE.

DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS STOPPED FOR AT LEAST 7 DAYS SHALL BE TEMPORARILY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 7 DAYS FROM THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS.

DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY SEEDED. THESE AREAS SHALL BE SEEDED IMMEDIATELY AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS. REFER TO THE GRADING PLAN AND/OR LANDSCAPE PLAN.

IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.

ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.

CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT FROM THE EROSION CONTROL BASINS AND ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.

DURING CONSTRUCTION OF THE PROJECT, ON-SITE AND OFF-SITE SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE. STOCKPILES AND BORROW AREAS ARE TO BE PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.

SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.

DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, DIVERSION DITCHES, ETC.) TO PREVENT EROSION.

ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY. THIS INCLUDES BACKFILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.

THE CONTRACTOR SHALL INSTALL AND MAINTAIN THROUGHOUT THE PROJECT CONSTRUCTION ALL EROSION CONTROL MEASURES SHOWN WITHIN THESE PLANS IN ACCORDANCE WITH APPLICABLE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCE (NCDENR) AND CITY OF HIGH POINT EROSION AND SEDIMENT CONTROL REGULATIONS.

ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NCDENR AND ORANGE COUNTY EROSION AND SEDIMENT CONTROL REGULATIONS, U.S. DEPARTMENT OF AGRICULTURE, AND U.S. SOIL CONSERVATION SERVICE REGULATIONS.

THE CONTRACTOR SHALL DILIGENTLY AND CONTINUOUSLY MAINTAIN ALL EROSION CONTROL DEVICES AND STRUCTURES TO MINIMIZE EROSION. THE CONTRACTOR SHALL MAINTAIN CLOSE CONTACT WITH THE NCDENR AND ORANGE COUNTY INSPECTOR SO THAT PERIODIC INSPECTIONS CAN BE PERFORMED AT APPROPRIATE STAGES OF CONSTRUCTION.

APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS. CONTACT PROJECT ENGINEER AND PROJECT EROSION CONTROL INSPECTOR TO ENSURE ADDITIONAL EROSION CONTROL MEASURES ARE INSTALLED PRIOR TO OFF-SITE GRADING.

STABILIZATION IS THE BEST FORM OF EROSION CONTROL. ALL DISTURBED AREAS WHICH ARE NOT OTHERWISE STABILIZED SHALL BE TOP SOILED AND SEEDED, TEMPORARILY OR PERMANENTLY IN ACCORDANCE WITH THE NCDENR AND ORANGE COUNTY. PERMANENT SEEDING AND GRASS ESTABLISHMENT IS REQUIRED PRIOR TO PROJECT COMPLETION AND ACCEPTANCE.

ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 15 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

WHEN A CRUSHED STONE CONSTRUCTION ENTRANCE HAS BEEN COVERED WITH SOIL OR HAS BEEN PUSHED INTO THE SOIL BY CONSTRUCTION TRAFFIC, IT SHALL BE REPLACED WITH A DEPTH OF STONE EQUAL TO THAT OF THE ORIGINAL APPLICATION.

ALL DRAINAGE INLETS SHALL BE PROTECTED FROM SILTATION. INEFFECTIVE PROTECTION DEVICES SHALL BE IMMEDIATELY REPLACED AND THE INLET CLEANED. FLUSHING IS NOT AN ACCEPTABLE METHOD OF CLEANING.

SEDIMENT BASINS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.

STABILIZATION MEASURES SHALL BE APPLIED TO STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.

LIMITS OF GRADING SHOWN ON THE PLAN ARE MAXIMUM LIMITS FOR EROSION CONTROL PURPOSES ONLY. SURVEYOR TO DETERMINE ACTUAL LIMIT.

ANY GRADING BEYOND THE DISTURBED LIMITS SHOWN ON THE PLAN IS A VIOLATION OF THE NCDENR AND ORANGE COUNTY EROSION CONTROL ORDINANCE, AND IS SUBJECT TO A FINE.

GRADING MORE THAN ONE ACRE WITHOUT AN APPROVED EROSION CONTROL PLAN IS A VIOLATION OF THE NCDENR AND ORANGE COUNTY EROSION CONTROL ORDINANCE AND IS SUBJECT TO A FINE.

SLOPES SHALL BE GRADED NO STEEPER THAN 2.5:1.

ALL STANDARD NUMBERS REFER TO THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL AND ORANGE COUNTY REGULATIONS.

IF NECESSARY, SLOPES THAT EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.

STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, UNLESS ACTIVITY IN THAT PORTION OF THE SITE WILL RESUME WITHIN FOURTEEN (14) DAYS.

ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED DAILY BY THE PROJECT SUPERINTENDENT, BI-WEEKLY BY THE CONTRACTOR'S COMPLIANCE OFFICER, AND MONTHLY BY THE OWNER'S CONSTRUCTION MANAGER AND AFTER EACH RAINFALL OCCURRENCE THAT EXCEEDS ONE-HALF (1/2) INCH. DAMAGED OR INEFFECTIVE DEVICES SHALL BE REPAIRED OR REPLACED, AS NECESSARY.

PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION.

ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.

THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO THE PAVED ROADWAY CONSTRUCTION AREAS. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.

TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR DIVERT SEDIMENT - LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.

SITE IS PART OF THE CAPE FEAR RIVER BASIN.

STORMWATER FLOWS TO CUB CREEK. THE PORTION OF CUB CREEK THAT STORMWATER OUTFALLS TO IS NOT LISTED IN THE NORTH CAROLINA 303D LIST.

EARTHWORK REMOVED FROM SITE MUST BE TAKEN TO A PERMITTED SITE.

TowerCom

PROJECT INFORMATION:

VERIZON NAME:
CLEARWATER LAKE
VERIZON No.: TBD
1941 MT. CARMEL CHURCH ROAD
CHAPEL HILL, NC 27517
ORANGE COUNTY

CURRENT ISSUE DATE:

09/30/16

ISSUED FOR:

CONSTRUCTION

REV. DATE ISSUED FOR BY

0	09/01/16	CONSTRUCTION	WCE
1	09/30/16	CONSTRUCTION	WCE

CONSULTANT:

Kimley»Horn

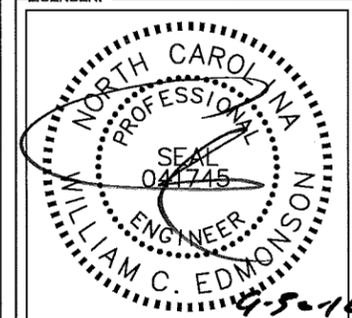
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

MWD KRM WCE

LICENSER:



SHEET TITLE:

GRADING & EROSION CONTROL DETAILS

SHEET NUMBER: REVISION:

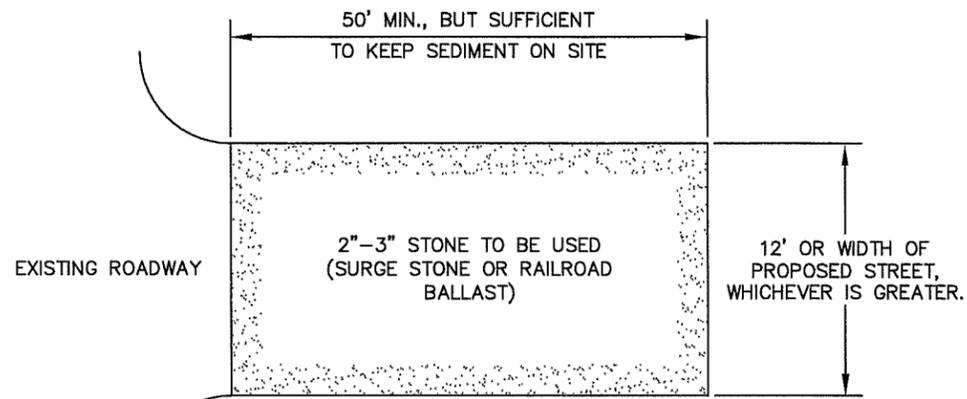
C8.2

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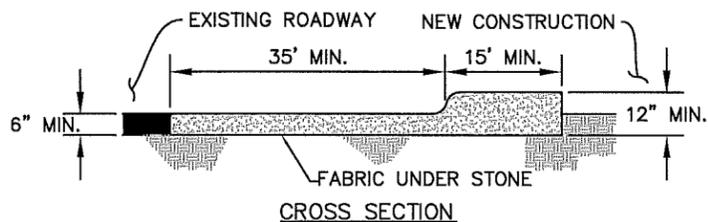
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PLAN

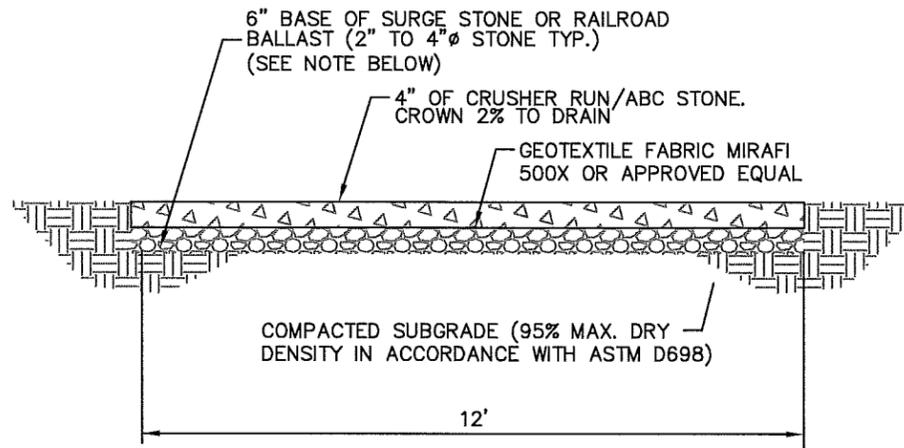
NOTES:

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 TRAVEL-ING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD.
3. IF A PROJECT CONTINUES TO PULL MUD AND DEBRIS ON TO THE PUBLIC ROAD, THE GOVERNING AUTHORITY WILL CLEAN THE AREA AND INVOICE THE FINANCIALLY RESPONSIBLE PERSON AS INDICATED ON THE FINANCIAL RESPONSIBILITY FORM.



CROSS SECTION

1 CONSTRUCTION ENTRANCE
C9 NOT TO SCALE



NOTE:
IF DETERMINED NECESSARY DURING GRADING AND CONSTRUCTION OF THE ACCESS ROAD BY THE CONSTRUCTION MANAGER, THE CONTRACTOR SHALL INSTALL 6" BASE OF SURGE STONE OR RAILROAD BALLAST (2" TO 4" Ø STONE TYP.)

2 STANDARD ACCESS ROAD DETAIL
C9 NOT TO SCALE

TowerCom

PROJECT INFORMATION:

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VERIZON No.: TBD
1941 MT. CARMEL CHURCH ROAD
CHAPEL HILL, NC 27517
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CONSULTANT:

Kimley»Horn

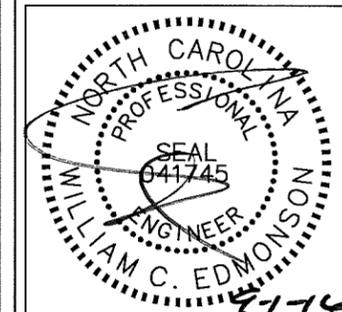
2 SUN COURT, SUITE 450
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PHONE: 770-825-0744
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NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

MWD KRM WCE

LICENSER:



SHEET TITLE:

ACCESS ROAD
DETAILS

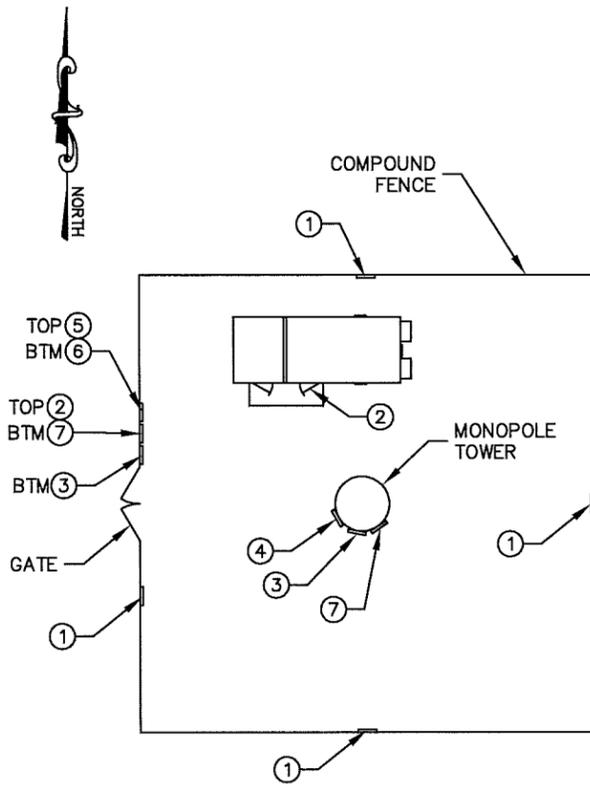
SHEET NUMBER: REVISION:

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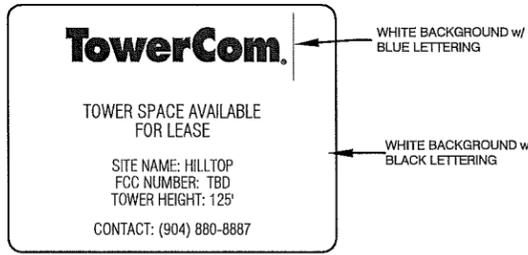


NOTE: SEE TYPICAL SIGNS AND SPECIFICATIONS DETAIL ON THIS SHEET FOR SIGN DESIGNATIONS.

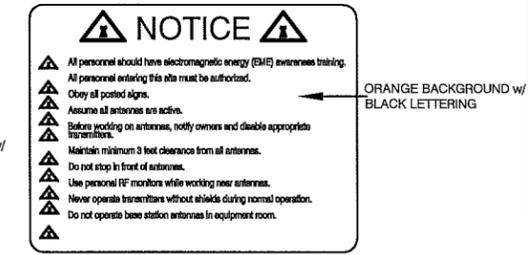
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OVERALL SIGN PLACEMENT PLAN VIEW
NOT TO SCALE
C10



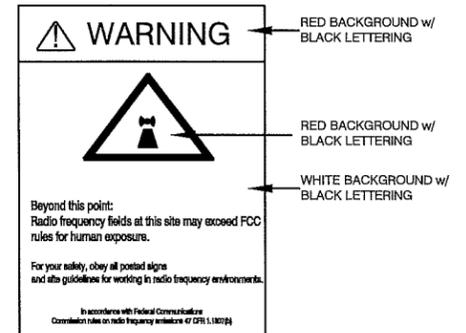
1 NO-TRESPASSING SIGN
18" HIGH X 24" WIDE
(OPERATIONS PROVIDED)



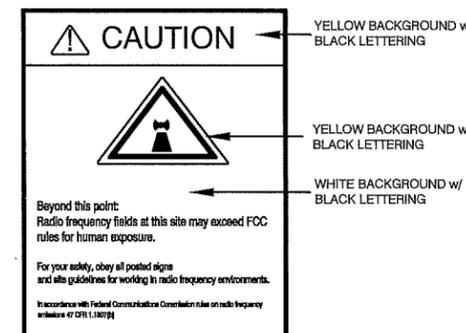
2 TOWER COM-SITE ID SIGN
18" HIGH X 24" WIDE
(OPERATIONS PROVIDED)



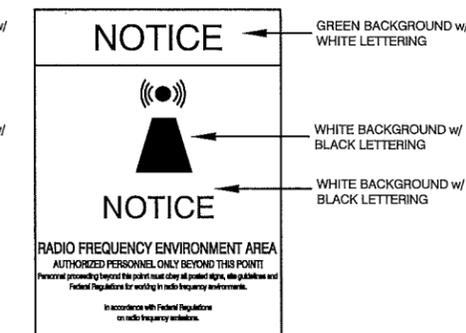
3 NOTICE-RFE SIGN
12" WIDE X 18" HIGH
(OPERATIONS PROVIDED)



4 WARNING-RF SIGN (RED)
12" WIDE X 18" HIGH



5 CAUTION-RF SIGN (YELLOW)
12" WIDE X 18" HIGH

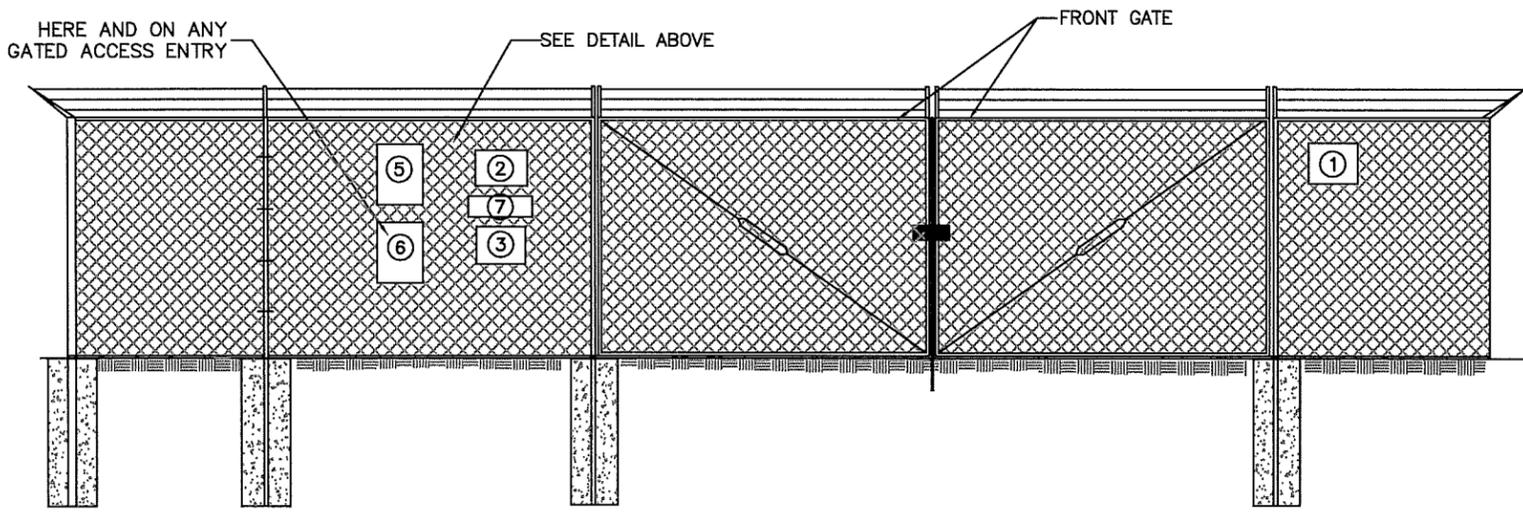


6 NOTICE-RF SIGN (BLUE)
12" WIDE X 18" HIGH



7 FCC REGISTRATION SIGN
20 WIDE X 4" HIGH

2
TYPICAL SIGNS AND SPECIFICATIONS
NOT TO SCALE
C10



3
SITE SIGNAGE FRONT GATE VIEW
NOT TO SCALE
C10

SIGNAGE NOTES:
1. SIGNS SHALL BE FABRICATED FROM CORROSION RESISTANT PRESSED METAL, AND PAINTED WITH LONG LASTING UV RESISTANT COATINGS.
2. SIGNS (EXCEPT WHERE NOTED OTHERWISE) SHALL BE MOUNTED TO THE TOWER, GATE, AND FENCE USING A MINIMUM OF 9 GAUGE ALUMINUM WIRE, HOG RINGS (AS UTILIZED IN FENCE INSTALLATIONS) OR BRACKETS WHERE NECESSARY. BRACKETS SHALL BE OF SIMILAR METAL AS THE STRUCTURE TO AVOID GALVANIC CORROSION.
3. ONE VERIZON SITE ID SIGN SHALL BE MOUNTED ON RIGHT DOOR OF THE SHELTER. TWO-SIDED TAPE SHALL BE UTILIZED AT EACH CORNER ON THE BACKSIDE TO AID PLACEMENT UNTIL ADHESIVE SETS.

TowerCom.

PROJECT INFORMATION:
VERIZON NAME:
CLEARWATER LAKE
VERIZON No.: TBD
1941 MT. CARMEL CHURCH ROAD
CHAPEL HILL, NC 27517
ORANGE COUNTY

CURRENT ISSUE DATE:
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REV.:	DATE:	ISSUED FOR:	BY:
0	09/01/16	CONSTRUCTION	WCE

CONSULTANT:
Kimley»Horn
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:
MWD KRM WCE

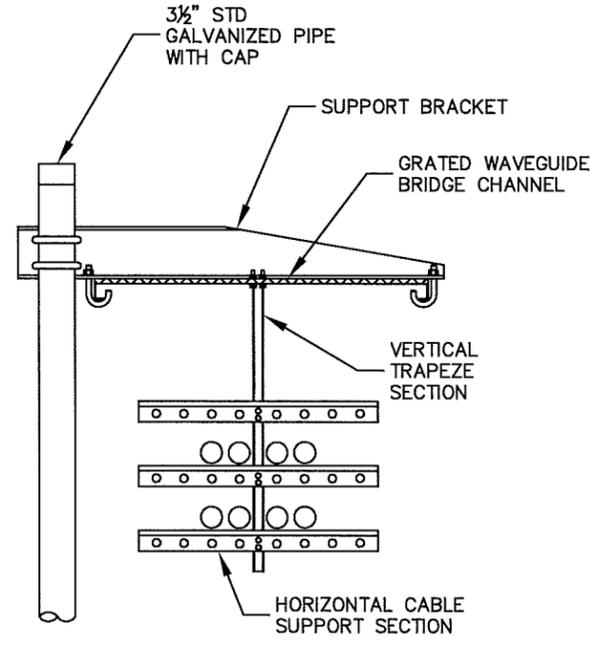
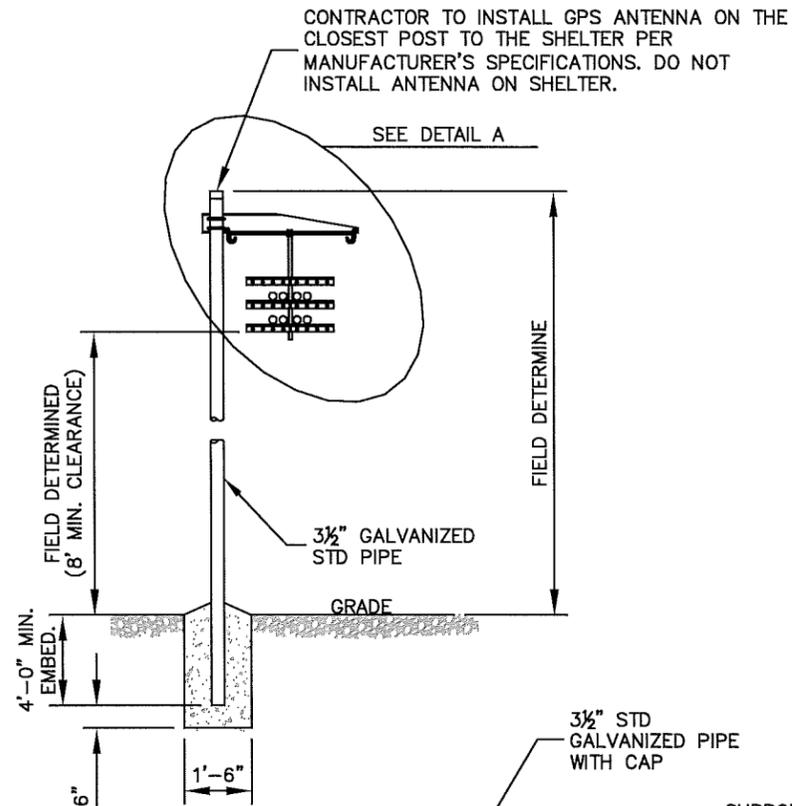
LICENSER:



SHEET TITLE:
SITE SIGNAGE DETAILS

SHEET NUMBER: REVISION:
C10 0
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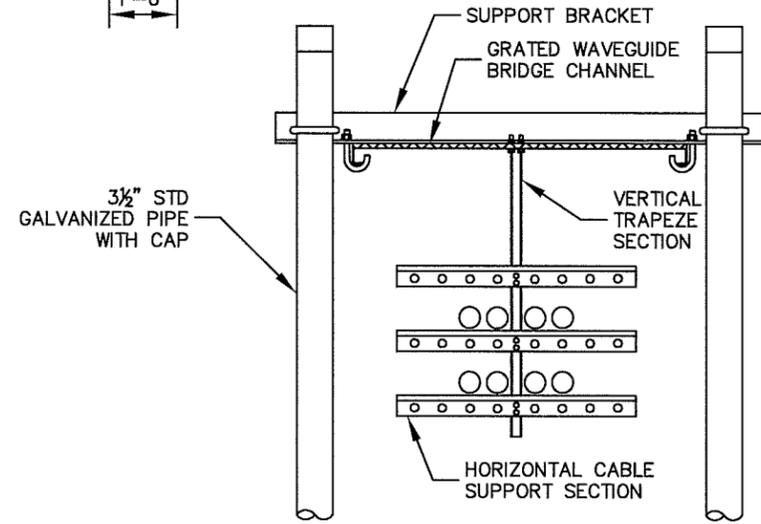
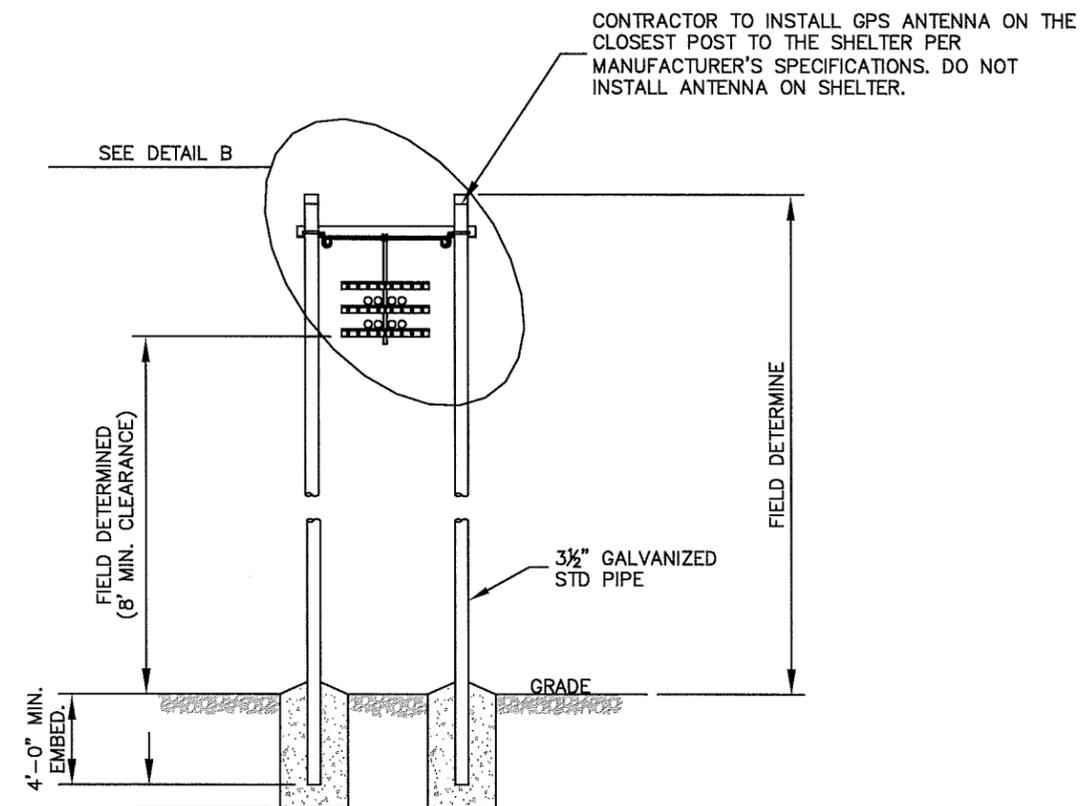


DETAIL A

ANDREW 2 POST WAVEGUIDE BRIDGE KIT (PART #: WB-K210-B15, OR APPROVED EQUIVALENT)

- NOTES:**
1. ALL MATERIALS FURNISHED BY CONTRACTOR UNLESS OTHERWISE NOTED.
 2. REFER TO GENERAL NOTES ON SHEET C2.

1 WAVEGUIDE BRIDGE DETAIL
C11 NOT TO SCALE



DETAIL B

ANDREW 4 POST WAVEGUIDE BRIDGE KIT (PART #: WB-K410-B15, OR APPROVED EQUIVALENT)

- NOTES:**
1. ALL MATERIALS FURNISHED BY CONTRACTOR UNLESS OTHERWISE NOTED.
 2. REFER TO GENERAL NOTES ON SHEET C2.

2 WAVEGUIDE BRIDGE DETAIL
(ALTERNATIVE DESIGN WITH 2 PIPE COLUMNS)
C11 NOT TO SCALE

CONTRACTOR TO INSTALL GPS ANTENNA ON THE CLOSEST POST TO THE SHELTER PER MANUFACTURER'S SPECIFICATIONS. DO NOT INSTALL ANTENNA ON SHELTER.

CONTRACTOR TO INSTALL GPS ANTENNA ON THE CLOSEST POST TO THE SHELTER PER MANUFACTURER'S SPECIFICATIONS. DO NOT INSTALL ANTENNA ON SHELTER.

TowerCom.

PROJECT INFORMATION:
VERIZON NAME:
 CLEARWATER LAKE
VERIZON No.: TBD
 1941 MT. CARMEL CHURCH ROAD
 CHAPEL HILL, NC 27517
 ORANGE COUNTY

CURRENT ISSUE DATE:
 09/01/16

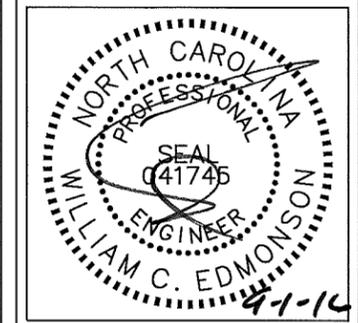
ISSUED FOR:
 CONSTRUCTION

REV.:	DATE:	ISSUED FOR:	BY:
0	09/01/16	CONSTRUCTION	WCE

CONSULTANT:
Kimley»Horn
 2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
 WWW.KIMLEY-HORN.COM
 NC License F-0102

CONSULTANT:
 DRAWN BY: CHK.: APV.:
 MWD KRM WCE

LICENSER:



SHEET TITLE:
WAVEGUIDE BRIDGE DETAILS

SHEET NUMBER: REVISION:
C11 0
 012055945

PROJECT INFORMATION:

VERIZON NAME:
 CLEARWATER LAKE
 VERIZON No.: TBD
 1941 MT. CARMEL CHURCH ROAD
 CHAPEL HILL, NC 27517
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 PHONE: 770-825-0744
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CONSULTANT:

DRAWN BY: CHK.: APV.:

MWD	KRM	WCE
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LICENSER:

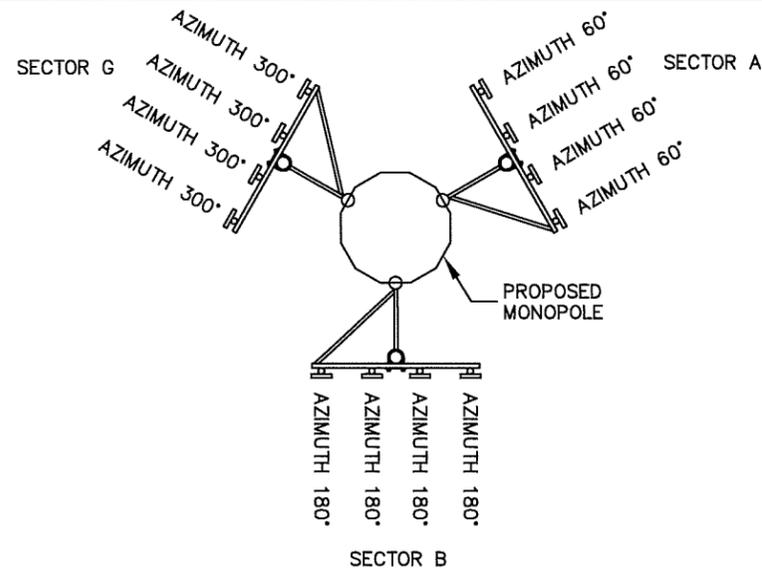
FOR ILLUSTRATIVE PURPOSES ONLY - NO SIGNATURE REQUIRED

SHEET TITLE:

ANTENNA AND TOWER ELEVATION DETAILS

SHEET NUMBER: REVISION:

C12	0
	012055945

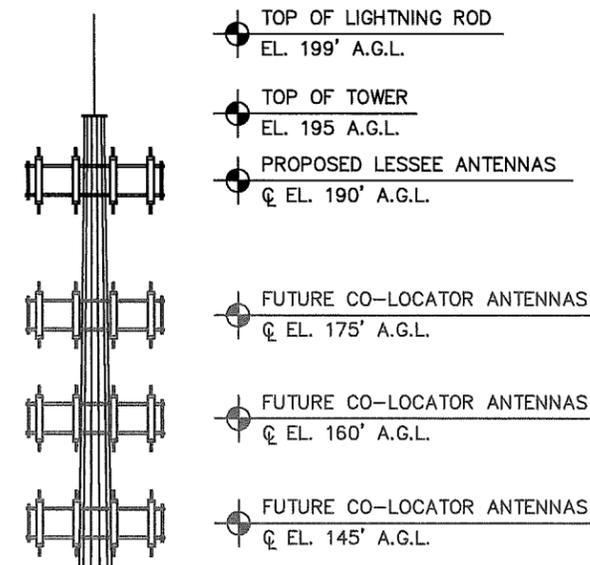


1 ANTENNA ORIENTATION PLAN
 (NOT TO SCALE, FOR ILLUSTRATIVE PURPOSES ONLY, SEE STRUCTURAL ANALYSIS BY OTHERS TO CONFIRM ANTENNA MOUNT TYPE)

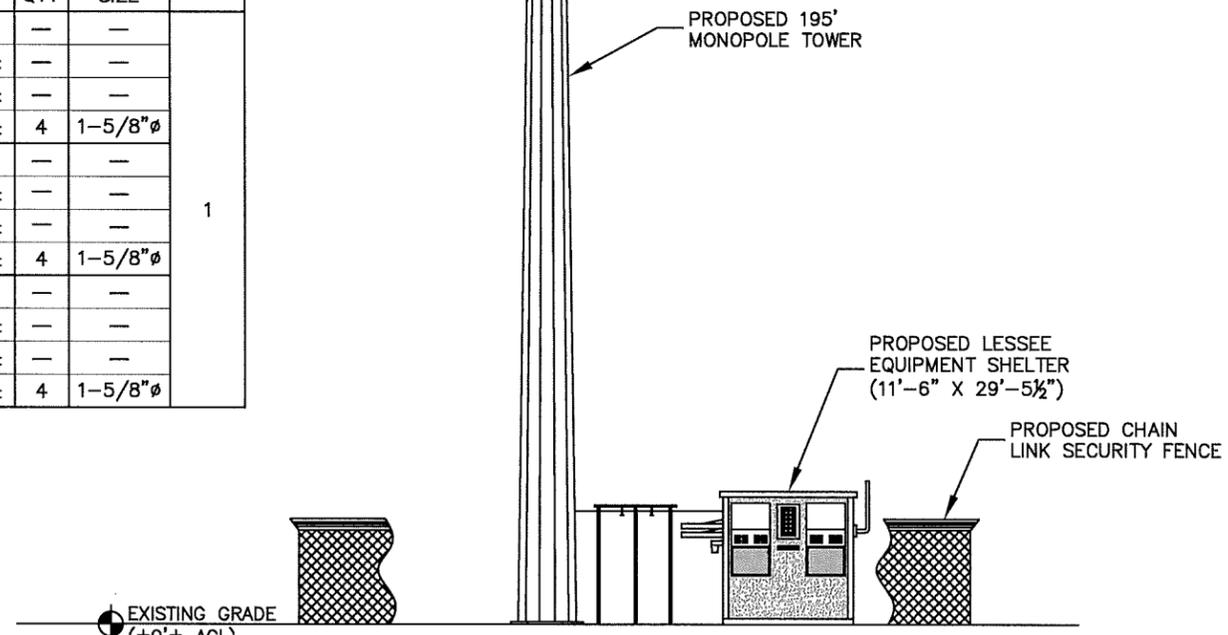
ANTENNA SECTOR	AZIMUTH IN DEGREES	MECHANICAL DOWN TILT	LICENSED FREQUENCY	ANTENNA* (QTY) MAKE/MODEL	REMOTE RADIO UNIT	COMPOSITION CABLES		
						LENGTH	COAX QTY SIZE	TOTAL HYBRID
SECTOR A	60°	0°	850	-	-	-	-	-
	60°	0°	1900	(1) ANDREW/ HBXX6516DS-A2M	RRUSB12-B2 W/A2	260'±	-	-
	60°	0°	2100	(1) ANDREW/ HBXX6516DS-A2M	RRUSB12-B4 W/A2	260'±	-	-
	60°	0°	700	(2) ANDREW/ LNX-6515DS-A1M	-	260'±	4	1-5/8"φ
SECTOR B	180°	0°	850	-	-	-	-	-
	180°	0°	1900	(1) ANDREW/ HBXX6516DS-A2M	RRUSB12-B2 W/A2	260'±	-	-
	180°	0°	2100	(1) ANDREW/ HBXX6516DS-A2M	RRUSB12-B4 W/A2	260'±	-	-
	180°	0°	700	(2) ANDREW/ LNX-6515DS-A1M	-	260'±	4	1-5/8"φ
SECTOR G	300°	0°	850	-	-	-	-	-
	300°	0°	1900	(1) ANDREW/ HBXX6516DS-A2M	RRUSB12-B2 W/A2	260'±	-	-
	300°	0°	2100	(1) ANDREW/ HBXX6516DS-A2M	RRUSB12-B4 W/A2	260'±	-	-
	300°	0°	700	(2) ANDREW/ LNX-6515DS-A1M	-	260'±	4	1-5/8"φ

* CONTRACTOR ALSO TO INSTALL ANY RAYCAP BOXES AS NECESSARY. VERIFY WITH VERIZON WIRELESS PROJECT MANAGER PRIOR TO INSTALLATION.

NOTES:
 1. ALL INFORMATION ON THIS PAGE IS PROVIDED BY VERIZON WIRELESS 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 TOWER OWNER FOR ANALYSIS OF EXISTING TOWER.
 3. IT IS UNDERSTOOD THAT KIMLEY-HORN MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, FINDINGS, DESIGNS, RECOMMENDATIONS, SPECIFICATIONS, OPINION, OR PROFESSIONAL ADVICE RELATING TO THE STRUCTURAL ADEQUACY OF THE EXISTING TOWER OR ATTACHMENT OF ANTENNAS OR OTHER APPURTENANCES.



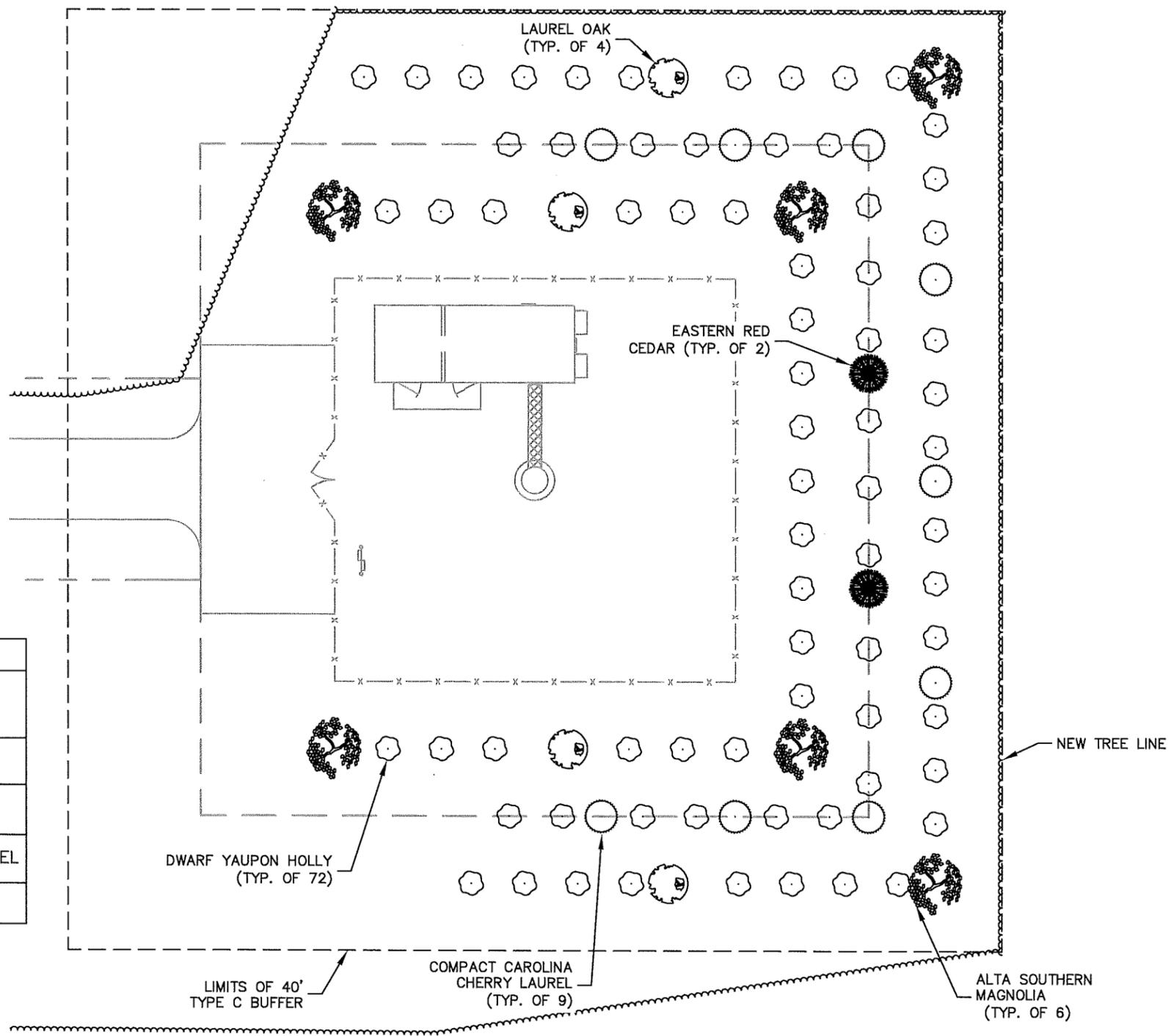
NOTE: FUTURE CO-LOCATORS RAD CENTERS TO BE DESIGNED FOR (12) 8'X1'X6" PANELS, (9) RRU 24"X13"X7" AND (12) 1-5/8" LINES



2 MONOPOLE TOWER ELEVATION - EAST VIEW
 (FACING WEST) NOT TO SCALE

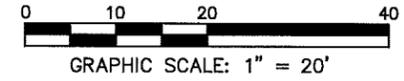
- NOTES:**
- ALL PROPOSED ATTACHMENTS TO TOWER BASED ON TOWER DESIGN DRAWINGS BY OTHERS (SEE GENERAL NOTE 7, SHEET C2).
 - THE TOWER ELEVATION SHOWN IS FOR REFERENCE ONLY.
 - FIBER/COAX CABLE LENGTHS ARE APPROXIMATE. CONTRACTOR TO VERIFY CORRECT LENGTH IN FIELD AT TIME OF CONSTRUCTION.
 - PROPOSED BUILDING WILL HAVE BROWN AGGREGATE FINISH.
 - PROPOSED TOWER WILL BE GALVANIZED STEEL-GRAY IN COLOR AND UNLIT.
 - PROPOSED ANTENNAS ALSO LIGHT GRAY IN COLOR.

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LEGEND	
	ALTA SOUTHERN MAGNOLIA
	EASTERN RED CEDAR
	LAUREL OAK
	COMPACT CAROLINA CHERRY LAUREL
	DWARF YAUPON HOLLY

1 LANDSCAPING PLAN
L1 SCALE: 1" = 20'



TowerCom.

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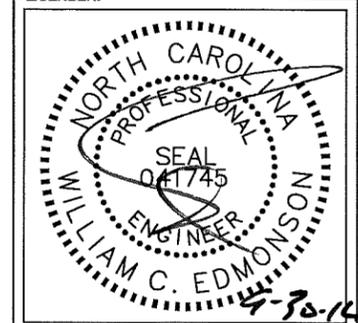
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0	09/30/16	CONSTRUCTION	WCE

CONSULTANT:
Kimley»Horn
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 PEACHTREE CORNERS, GA 30092
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 WWW.KIMLEY-HORN.COM
 NC License F-0102

CONSULTANT:
 (Blank space for consultant name)

DRAWN BY: CHK.: APV.:
 MWD KRM WCE



SHEET TITLE:
LANDSCAPING PLAN

SHEET NUMBER: REVISION:
L1 0
 012055945

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GENERAL LANDSCAPE NOTES:

1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF HIS WORK WITH THAT OF ALL OTHER CONTRACTORS. THIS PLAN DOES NOT GUARANTEE THE EXISTENCE OR NON-EXISTENCE OF ANY UTILITIES. PRIOR TO COMMENCEMENT OF ANY WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL ABOVE GROUND AND UNDERGROUND UTILITIES.
2. THE QUALITY AND SIZE OF ALL PLANT MATERIAL SHALL CONFORM TO THE MOST CURRENT STANDARDS AS SET FORTH IN ANSI Z60.180 - AMERICAN STANDARD FOR NURSERY STOCK.
3. ALL DISTURBED AREAS NOT COVERED BY HARDSCAPE OR PLANT MATERIALS SHALL BE COVERED WITH SEED AND STRAW.
4. PLANT SUBSTITUTION MAY BE PERMITTED ONLY AFTER PROOF THAT SPECIFIED PLANTS ARE UNAVAILABLE AND THE REQUEST HAS BEEN SUBMITTED TO THE OWNER OR LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL PROVIDE THE NEAREST EQUIVALENT OBTAINABLE SIZE AND VARIETY OF THE PLANT HAVING THE SAME ESSENTIAL CHARACTERISTICS AS THE PLANT SPECIFIED
5. MINOR PLANT LOCATION ADJUSTMENTS MAY BE MADE IN THE FIELD TO ENSURE ACCESS TO UTILITY JUNCTION BOXES, FREE SITE LIGHTING OF FUTURE TREE CANOPY INTERFERENCE AND ALLOW UNINHIBITED PEDESTRIAN / VEHICULAR CIRCULATION ON ALL PAVEMENTS OR FOUNDATIONS.
6. ALL SHRUB MASSES OF TWO OR MORE SHALL BE EDGED INTO A PLANTING BED AND MULCHED PER DETAIL. ALL INDIVIDUAL TREES AND SHRUBS SHALL HAVE A MULCH SAUCER EQUAL IN DIAMETER TO THE PLANTING PIT DIAMETER AND SHALL BE MULCHED AS SHOWN ON THE DETAILS. UNLESS OTHERWISE INDICATED, ALL BED EDGES SHALL BE A DEEP CUT CLEAN SPADE EDGE.
7. THE CONTRACTOR SHALL VERIFY THAT EACH TREE OR SHRUB PIT WILL DRAIN BEFORE INSTALLING PLANT MATERIAL. HE SHALL FILL THE HOLE WITH SIX INCHES (6") OF WATER THAT SHOULD PERCOLATE OUT WITHIN TWENTY-FOUR HOURS. SHOULD ANY AREA NOT DRAIN PROPERLY, A PERFORATED DRAIN LINE SHALL BE INSTALLED, OR THE PLANTS RELOCATED.
8. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY IF HE ENCOUNTERS ANY UNSUITABLE SURFACE OR SUBSURFACE DRAINAGE CONDITIONS, SOIL DEPTH, LATENT SOILS, HARD PAN, UTILITY LINES, OR OTHER CONDITIONS THAT WILL JEOPARDIZE THE HEALTH AND VIGOR OF THE PLANTS. SHOULD THE CONTRACTOR NOT NOTIFY THE OWNER OF A PROBLEM AREA, HE WARRANTS THAT THE AREAS ARE SUITABLE FOR PROPER GROWTH AND DEVELOPMENT OF ALL PLANTS INSTALLED.
9. THE CONTRACTOR SHOULD VERIFY LANDSCAPING/TREE PLANTING LOCATIONS WITH THE PUBLIC UTILITIES DEPARTMENT TO AVOID CONFLICTS WITH WATER, SEWER, AND GAS LINES.
10. PLANTS SHALL BE SO TRAINED IN DEVELOPMENT AND APPEARANCE AS TO BE UNQUESTIONABLE SUPERIOR IN FORM, COMPACTNESS AND SYMMETRY. THEY SHALL BE SOUND, HEALTHY, VIGOROUS, WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF, AND FREE OF DISEASE AND INSECT ADULT EGGS, PUPAE OR LARVAE. THEY SHALL HAVE HEALTHY, WELL-DEVELOPED ROOT SYSTEMS AND SHALL BE FREE FROM PHYSICAL DAMAGE OR OTHER CONDITIONS THAT WOULD PREVENT THRIVING GROWTH.
11. THERE SHALL BE NO CIRCLING OR GIRDLING ROOTS. CIRCLING ROOTS SHOULD BE CUT IN AT LEAST ONE PLACE.
12. THERE SHOULD BE ONE DOMINANT LEADER TO THE TOP OF THE TREE WITH THE LARGEST BRANCHES SPACED AT LEAST 6 INCHES APART. THERE CAN BE TWO LEADERS IN THE TOP 10% OF THE TREE IF IT IS OTHERWISE OF GOOD QUALITY.
13. THE TREE CANOPY SHOULD BE SYMMETRICAL AND FREE OF LARGE VOIDS. CLEAR TRUNK SHOULD BE NO MORE THAN 40% OF TREE HEIGHT UNLESS OTHERWISE SPECIFIED IN THE PLANTING SPECIFICATIONS. CLEAR TRUNK SHALL BE OF SUFFICIENT HEIGHT TO CLEAR SURROUNDING USES THAT MAY BE IMPACTED BY THE FUTURE GROWTH OF THE TREE.
14. OPEN TRUNK AND BRANCH WOUNDS SHALL BE LESS THAN 10% OF THE CIRCUMFERENCE AT THE WOUND AND NO MORE THAN 2 INCHES TALL. PROPERLY MADE PRUNING CUTS ARE NOT CONSIDERED OPEN TRUNK WOUNDS. THERE SHOULD BE NO CONKS OR BLEEDING, AND THERE SHOULD BE NO SIGNS OF INSECTS OR DISEASE ON MORE THAN 5% OF THE TREE.
15. IF ANY OF THE ABOVE CONDITIONS ARE NOT MET, TREES MAY BE REJECTED.
16. TREE PROTECTION DEVICES MUST BE INSTALLED AND INSPECTED PRIOR TO ANY CLEARING, GRUBBING, OR GRADING OF THE SITE BY THE LOCAL ARBORIST.

PLANTING LIST							
SYM./KEY	QTY.	BOTANICAL NAME	COMMON NAME	SPECIFICATION			
				PLANTING HEIGHT	ROOT	CALIPER/ SIZE	SPACING
ASM	6	MAGNOLIA GRANDIFLORA	ALTA SOUTHERN MAGNOLIA	8'-10'	B&B	3" CAL.	SEE PLAN
ERC	2	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	8'-10'	B&B	3" CAL.	SEE PLAN
LO	4	QUERCUS LAURIFOLIA	LAUREL OAK	8'-10'	B&B	3" CAL.	3' O.C.
CCCL	9	PRUNUS CAROLINIANA	COMPACT CAROLINA CHERRY LAUREL	4'-6'	B&B	3 GAL.	20' O.C. MIN
DYP	72	ILEX VOMITORIA 'NANA'	DWARF YAUPON HOLLY	2'-3'	B&B	3 GAL.	8' O.C. MIN

CLEARWATER LAKE - PLANTING CALCULATIONS	
PER ARTICLE 6: DEVELOPMENT STANDARDS; SECTION 6.8 LANDSCAPING, BUFFERS & TREE PROTECTION	
BUFFER TYPE C - MINIMUM WIDTH 40 FEET	
→ 3 CANOPY TREES/ PER 100 L.F.	
→ 1 EVERGREEN TREE/ PER 100 L.F.	
→ 2 DECIDUOUS UNDERSTORY TREES/ PER 100 L.F.	
→ 5 EVERGREEN UNDERSTORY TREES/ PER 100 L.F.	
→ 40 SHRUBS TREES/ PER 100 L.F.	
PROPOSED BUFFER - 180 L.F. OF PROPOSED SITE TO BE SCREENED	
3 CANOPY TREES/100 L.F. = 3 X 1.80 = 5.40 (6 PROVIDED)	
1 EVERGREEN TREE/100 L.F. = 1 X 1.80 = 1.80 (2 PROVIDED)	
2 DECIDUOUS UNDERSTORY TREES/100 L.F. = 2 X 1.80 = 3.60 (4 PROVIDED)	
5 EVERGREEN UNDERSTORY TREES/100 L.F. = 5 X 1.80 = 9.0 (9 PROVIDED)	
40 SHRUBS/100 L.F. = 40 X 1.80 = 72.0 (72 PROVIDED)	

1 LANDSCAPING NOTES
L2

TowerCom.

PROJECT INFORMATION:

VERIZON NAME:
CLEARWATER LAKE
VERIZON No.: TBD
1941 MT. CARMEL CHURCH ROAD
CHAPEL HILL, NC 27517
ORANGE COUNTY

CURRENT ISSUE DATE:

09/30/16

ISSUED FOR:

CONSTRUCTION

REV.: DATE: ISSUED FOR: BY:

0	09/30/16	CONSTRUCTION	WCE

CONSULTANT:

Kimley»Horn

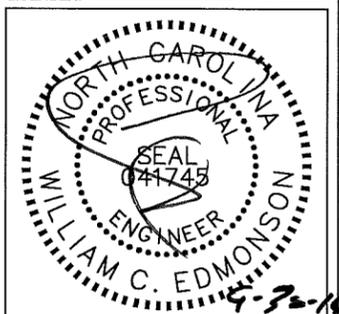
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DRAWN BY: CHK.: APV.:

MWD KRM WCE

LICENSER:



SHEET TITLE:

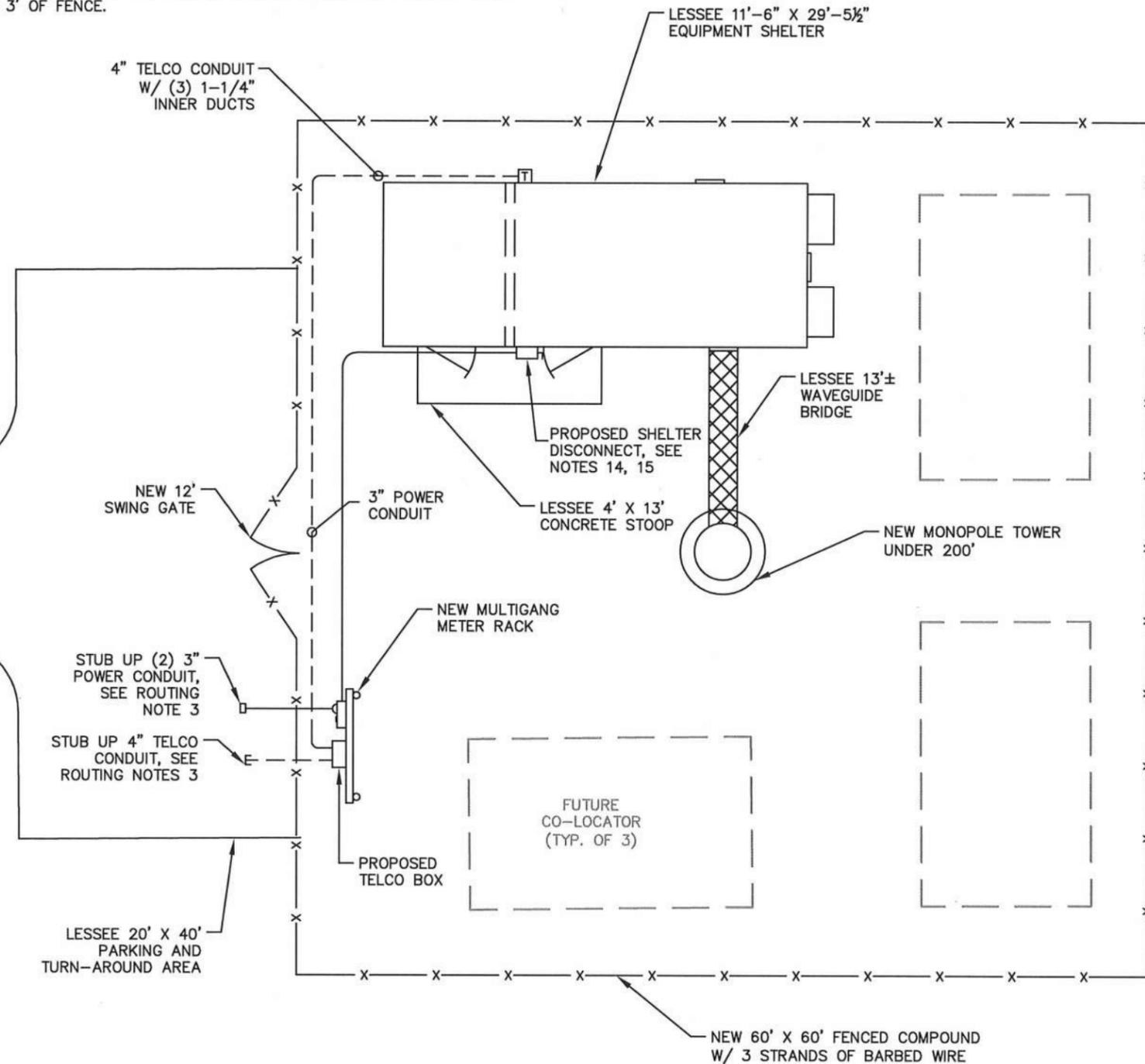
LANDSCAPING NOTES

SHEET NUMBER: REVISION:

L2 **0**
012055945

ROUTING NOTES:

1. CONTRACTOR TO PROVIDE PULL BOXES AS NEEDED TO ENSURE NO GREATER THAN 360 DEGREES OF BENDS BETWEEN PULL POINTS IN CONDUIT RUNS.
2. CONTRACTOR COORDINATE WITH LOCAL UTILITY COMPANY FOR SERVICE TO THIS POINT.
3. COORDINATE EXACT ROUTING, INSIDE OR OUTSIDE FENCE, WITH OWNER/TENANT CONSTRUCTION MANAGER. ROUTE CONDUIT WITHIN 3' OF FENCE.



BASIC SERVICE ROUTING PLAN
 SCALE: 1" = 10'

NOTES AND SPECIFICATIONS:

1. ALL ELECTRICAL WORK SHALL COMPLY WITH NEC, STATE, AND LOCAL CODES. ALL ELECTRICAL DEVICES, MATERIALS, AND SERVICE EQUIPMENT SHALL BE LABEL-LISTED BY AN APPROVED THIRD PARTY TESTING AGENCY.
2. CONTRACTOR SHALL OBTAIN OWNER/TENANT SPECIFICATIONS AND REVIEW FOR ADDITIONAL DETAILS AND REQUIREMENTS THAT MAY NOT BE SHOWN IN THESE DRAWINGS. CONTRACTOR SHALL COMPLY WITH ANY ADDITIONAL OWNER/TENANT SPECIFICATIONS AND REQUIREMENTS.
3. CONTRACTOR SHALL APPLY FOR UTILITY SERVICES, BOTH ELECTRIC AND TELEPHONE, FOR THE OWNER/TENANT. THIS APPLICATION SHALL BE MADE NO LATER THAN THE NEXT BUSINESS DAY FOLLOWING THE AWARD OF THE CONTRACT. CONTRACTOR SHALL COORDINATE WITH THE ELECTRIC UTILITY FOR THE EXACT TRANSFORMER LOCATION, METERING REQUIREMENTS, AND SERVICE ROUTING. CONTRACTOR SHALL COORDINATE WITH THE TELEPHONE UTILITY FOR THE EXACT TELEPHONE REQUIREMENTS AND SERVICE ROUTING.
4. PRIOR TO PURCHASING EQUIPMENT, THE CONTRACTOR SHALL CONTACT THE ELECTRIC UTILITY AND OBTAIN IN WRITING THE MAXIMUM AVAILABLE FAULT CURRENT AT THE UTILITY SERVICE POINT. PROVIDE MAX AFC SIGNAGE AS REQUIRED PER NEC 110.24. THE CONTRACTOR SHALL ENSURE ALL ELECTRICAL EQUIPMENT, CIRCUIT BREAKERS, DISCONNECTS, FUSES, AND PANELBOARDS HAVE A FAULT CURRENT INTERRUPTING RATING GREATER THAN THE AVAILABLE FAULT CURRENT. IN NO CASE SHALL THE FAULT CURRENT INTERRUPTING RATING BE LESS THAN 10,000 AMPS.
5. CONTRACTOR TO PROVIDE 2-200 LB TEST POLYETHYLENE PULL CORDS SECURELY FASTENED AT EACH END OF POWER AND TELCO CONDUIT. PROVIDE CAPS ON ENDS OF UNUSED CONDUIT.
6. CONTRACTOR TO PROVIDE A REBAR MARKER WITH AT LEAST 2 FEET EXPOSED ABOVE GRADE AND PAINTED BRIGHT ORANGE TO INDICATE LOCATION OF CONDUIT CAPPED BELOW GRADE.
7. PRIOR TO TRENCHING CONTRACTOR SHALL LOCATE ALL EXISTING UNDERGROUND UTILITIES. CONTRACTOR SHALL REPAIR AT CONTRACTOR'S EXPENSE ANY DAMAGE TO EXISTING UTILITIES.
8. CONTRACTOR TO VERIFY EXACT ROUTING OF POWER AND TELCO CONDUIT WITH LOCAL UTILITIES AND OWNER/TENANT. ENSURE ALL CONDUIT STUB-UPS ACCOMMODATE EQUIPMENT REQUIREMENTS.
9. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC UNLESS NOTED OTHERWISE. USE SCHEDULE 80 PVC UNDER ROADS. USE LONG-SWEEP RIGID GALVANIZED STEEL (RGS) FOR ELBOWS. USE RGS FOR RISERS TO EQUIPMENT. MANUFACTURED BENDS SHALL HAVE A MINIMUM RADIUS OF 36" FOR CONDUIT.
10. CONDUIT RUNS SHALL HAVE A CONTINUOUS SLOPE DOWNWARD AND AWAY FROM THE EQUIPMENT TO ALLOW WATER TO FLOW AWAY FROM THE EQUIPMENT AND SHELTER. EXCAVATE TRENCHES ALONG STRAIGHT LINES PRIOR TO INSTALLING CONDUIT TO ACCOMMODATE ADJUSTING THE ELEVATION, AS NEEDED.
11. CONDUIT ENTERING EQUIPMENT SHALL BE SEALED WITH A SEALANT THAT IS IDENTIFIED FOR USE WITH THE CABLE/CONDUCTOR INSULATION, SHIELDING, ETC.
12. THE OWNER SHALL FURNISH AND THE CONTRACTOR SHALL INSTALL ADDITIONAL SIGNAGE TO BE LOCATED AT THE COMPOUND FENCE. CONTRACTOR SHALL COORDINATE WITH OWNER/TENANT CONSTRUCTION MANAGER FOR PLACEMENT OF SIGNAGE.
13. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO THE LANDSCAPING AREA.
14. CONTRACTOR SHALL PROVIDE A LABEL TO READ: "OPENING THE SHELTER DISCONNECT WILL CAUSE THE SHELTER GENERATOR TO START. TO REMOVE POWER ENTIRELY FROM THE SHELTER, THE GENERATOR MUST BE TURNED OFF AND THE GENERATOR BREAKER MUST BE OPENED."
15. CONTRACTOR ENSURE A MINIMUM 3' WORKING CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT PER NEC.

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CURRENT ISSUE DATE:
 07/16/15

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REV.:	DATE:	ISSUED FOR:	BY:
0	07/16/15	CONSTRUCTION	JKM

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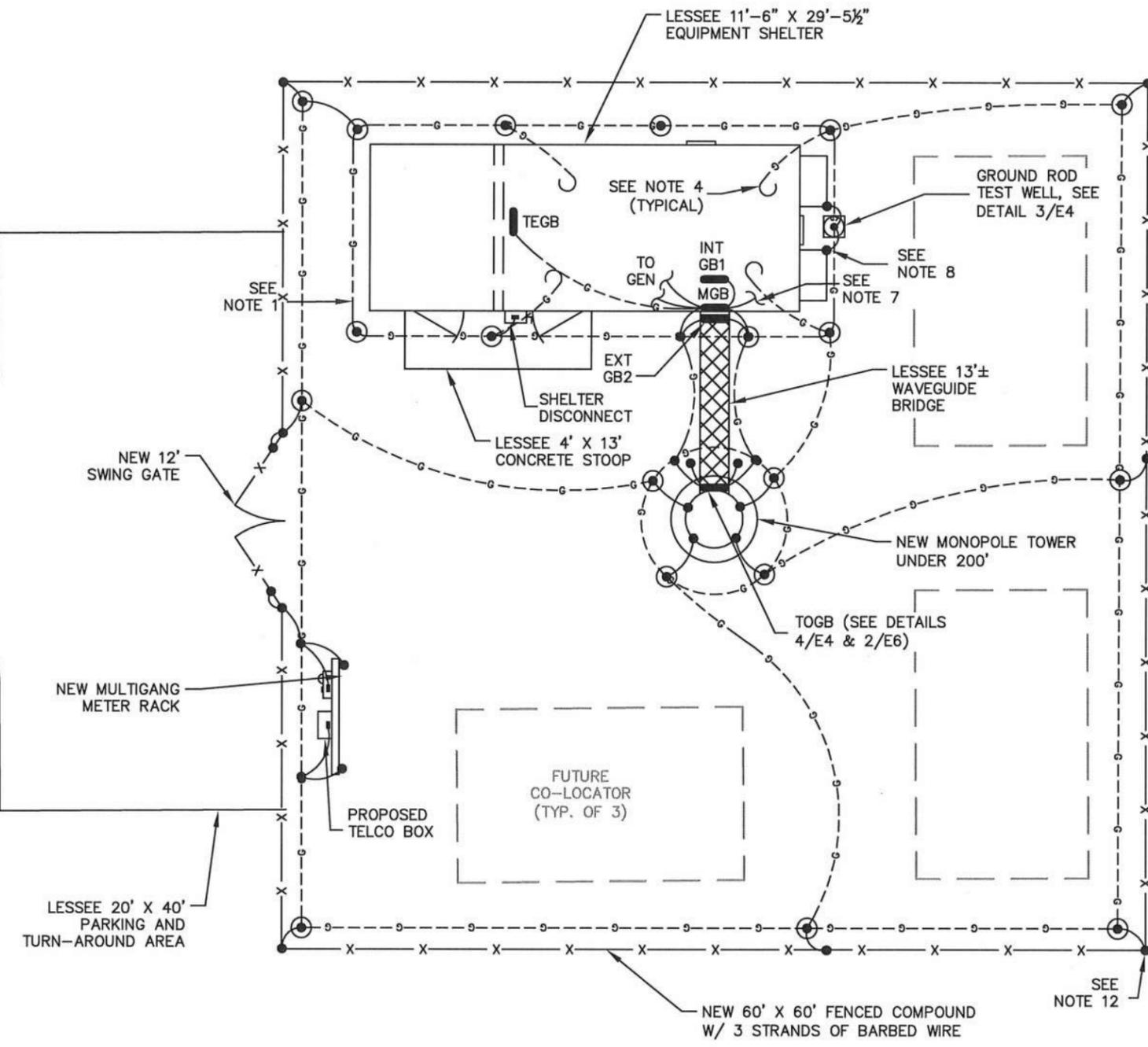
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DRAWN BY: CHK. APV.:
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SHEET TITLE:
BASIC SERVICE ROUTING PLAN

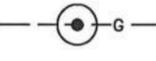
SHEET NUMBER: **E1** REVISION: **0**
 012055945



NOTES AND SPECIFICATIONS:

1. THE GROUND RING SHALL CONSIST OF 2 AWG TINNED SOLID BARE COPPER CONDUCTOR, UNLESS NOTED OTHERWISE, BURIED AT 30" BELOW FINISHED GRADE (OR BELOW FROSTLINE). ALL CONNECTIONS SHALL BE MADE USING AN EXOTHERMIC WELD, UNLESS NOTED OTHERWISE.
2. GROUND CONDUCTOR BEND RADIUS SHALL NOT BE LESS THAN 8".
3. MINIMUM SPACING BETWEEN GROUND RODS SHALL NOT BE LESS THAN 10', UNLESS NOTED OTHERWISE.
4. CONTRACTOR SHALL PROVIDE A 60", 2 AWG TINNED SOLID BARE COPPER CONDUCTOR PIGTAIL. BOND THE PIGTAIL TO THE SHELTER INTERIOR GROUND HALO PIGTAIL USING AN EXOTHERMIC WELD (TYPICAL OF 4).
5. CONTRACTOR SHALL BOND THE TOWER GROUND BAR (TOGB) TO THE GROUND RING USING A 2 AWG TINNED SOLID BARE COPPER CONDUCTOR AND AN EXOTHERMIC WELD.
6. SHELTER INTERIOR GROUNDING PROVIDED BY SHELTER SUPPLIER, SHOWN FOR CLARITY. CONTRACTOR SHALL BOND THE MAIN GROUND BAR (MGB) & EXTERNAL GROUND BAR (GB2) TO THE GROUND RING USING 2 AWG TINNED SOLID BARE COPPER CONDUCTORS AND EXOTHERMIC WELDS.
7. TO INTERNAL GROUND HALO (TYPICAL OF 2).
8. CONTRACTOR SHALL BOND THE OUTSIDE A/C UNITS TO THE GROUND RING USING 2 AWG TINNED SOLID BARE COPPER CONDUCTORS AND EXOTHERMIC WELDS.
9. ALL GROUNDING/BONDING CONDUCTORS LOCATED ABOVE FINISHED GRADE SHALL BE RUN IN 1" PVC CONDUIT.
10. CONTRACTOR SHALL NOTIFY THE OWNER/TENANT CONSTRUCTION MANAGER TO ALLOW THE OWNER/TENANT CONSTRUCTION MANAGER TO INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.
11. CONTRACTOR SHALL HIRE AN INDEPENDENT 3RD PARTY (OTHER THAN THE GROUND SYSTEM INSTALLER) TO PERFORM AN IEEE 81 "FALL OF POTENTIAL" METHOD GROUND TEST. A VERIZON REPRESENTATIVE WILL BE PRESENT DURING THE TEST. CONTRACTOR SHALL SUBMIT A GROUND TEST DURING THE WALKTHROUGH.
12. WHERE SHELTER AND/OR EQUIPMENT WITH EXPOSED METAL PARTS IS WITHIN 6' OF THE FENCE, BOND TO THE NEAREST FENCE POST WITH 2 AWG TINNED SOLID BARE COPPER CONDUCTOR.

LEGEND:

-  G — GROUND ROD EXOTHERMICALLY WELDED TO GROUND RING (SEE DETAIL 2/E4)
-  G — GROUND RING
-  • EXOTHERMIC WELD
-  GROUND ROD TEST WELL (SEE DETAIL 3/E4)

1
E2
GROUNDING PLAN
 SCALE: 1" = 10'



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DRAWN BY: CHK. AMM APV.: NAC JKM



SHEET TITLE:
GROUNDING PLAN

SHEET NUMBER: **E2** REVISION: **0**
 012055945

PROJECT INFORMATION:
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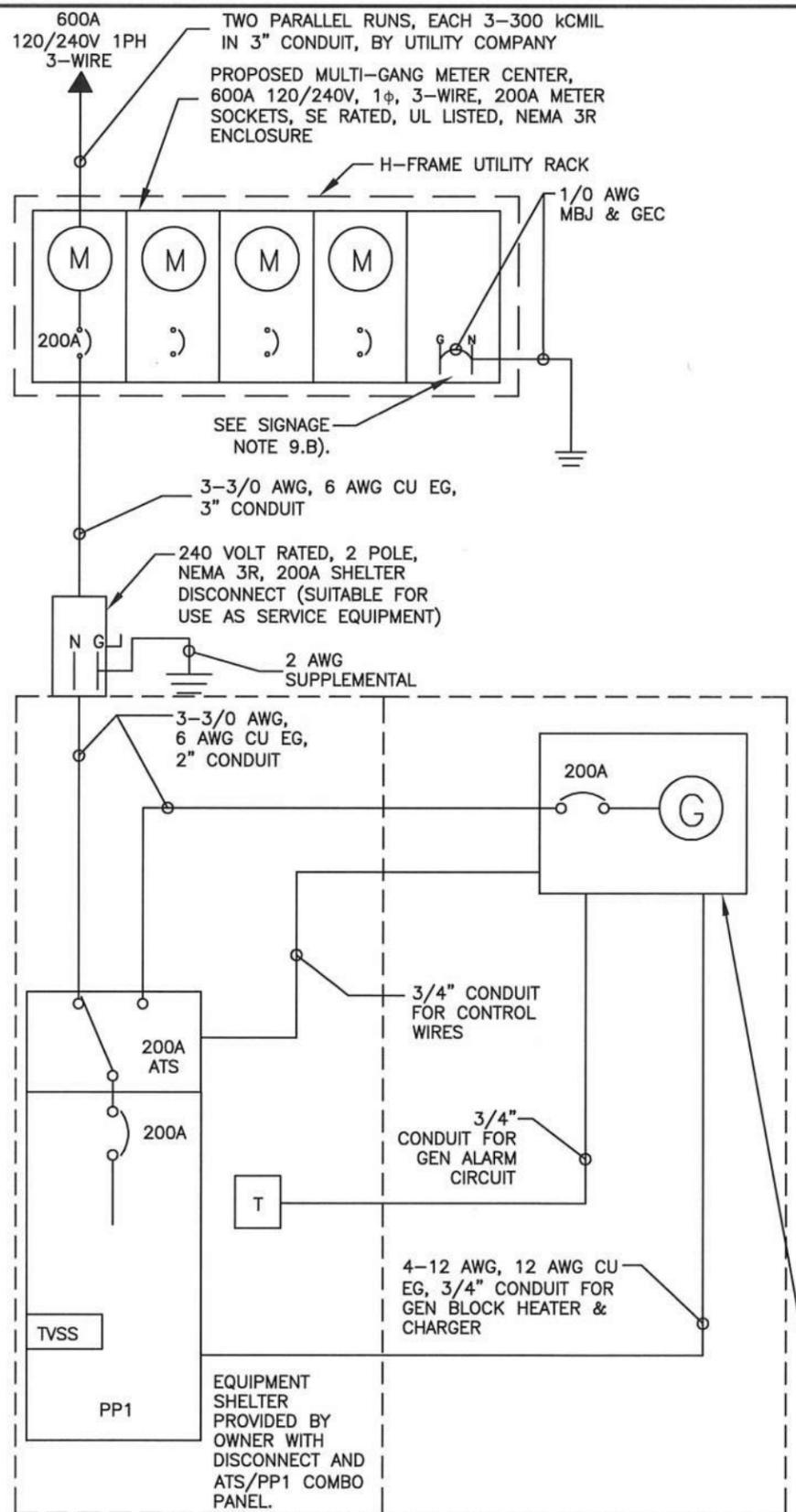
SHEET TITLE:
SINGLE-LINE DIAGRAM

SHEET NUMBER: REVISION:
E3 **0**
 012055945

NOTES AND SPECIFICATIONS:

- ELECTRIC UTILITY WILL PROVIDE METER AND INCOMING SERVICE LATERAL CONDUCTORS.
- ALL ELECTRICAL WORK SHALL COMPLY WITH NEC, STATE, AND LOCAL CODES.
- CONTRACTOR SHALL OBTAIN OWNER/TENANT EQUIPMENT SHELTER DRAWINGS AND REVIEW FOR ADDITIONAL DETAILS AND REQUIREMENTS THAT MAY NOT BE SHOWN IN THESE DRAWINGS. CONTRACTOR SHALL COMPLY WITH ANY ADDITIONAL OWNER/TENANT SPECIFICATIONS AND REQUIREMENTS THAT MAY BE ADDRESSED IN THE EQUIPMENT SHELTER DRAWINGS.
- PRIOR TO PURCHASING EQUIPMENT, THE CONTRACTOR SHALL CONTACT THE ELECTRIC UTILITY AND OBTAIN IN WRITING THE MAXIMUM AVAILABLE FAULT CURRENT AT THE UTILITY SERVICE POINT. PROVIDE MAX AFC SIGNAGE AS REQUIRED PER NEC 110.24. THE CONTRACTOR SHALL ENSURE ALL ELECTRICAL EQUIPMENT, CIRCUIT BREAKERS, DISCONNECTS, FUSES, AND PANELBOARDS HAVE A FAULT CURRENT INTERRUPTING RATING GREATER THAN THE AVAILABLE FAULT CURRENT. IN NO CASE SHALL THE FAULT CURRENT INTERRUPTING RATING BE LESS THAN 10,000 AMPS.
- THE GROUNDED SERVICE CONDUCTOR (NEUTRAL CONDUCTOR)

- SHALL BE GROUNDED AT THE SERVICE DISCONNECT ONLY.
- ALL POWER CIRCUITS SHALL USE COPPER CONDUCTORS WITH THHN/THWN INSULATION. ALL TERMINATIONS SHALL BE RATED FOR AT LEAST 75 DEGREES C.
 - CONTRACTOR SHALL PROVIDE GROUND FAULT CIRCUIT INTERRUPTER (GFCI) TYPE RECEPTACLES FOR ALL UTILITY RECEPTACLES.
 - CONTRACTOR SHALL ENSURE ALL NEUTRAL CONDUCTORS HAVE WHITE INSULATION AND EQUIPMENT GROUND CONDUCTORS HAVE GREEN INSULATION. COLOR TAPE IDENTIFICATION OF THESE CONDUCTORS IS NOT ALLOWED.
 - PER NEC ART 702 PROVIDE SIGNAGE AS FOLLOWS:
 A) AT SHELTER PANEL PP1: "EMERGENCY POWER IS SUPPLIED BY STAND-BY GENERATOR LOCATED IN ADJACENT ROOM"
 B) AT SERVICE DISCONNECT:
WARNING - SHOCK HAZARD EXISTS IF GROUNDING ELECTRODE CONDUCTOR OR BONDING JUMPER CONNECTION IN THIS EQUIPMENT IS REMOVED WHILE ALTERNATE SOURCE(S) IS ENERGIZED.



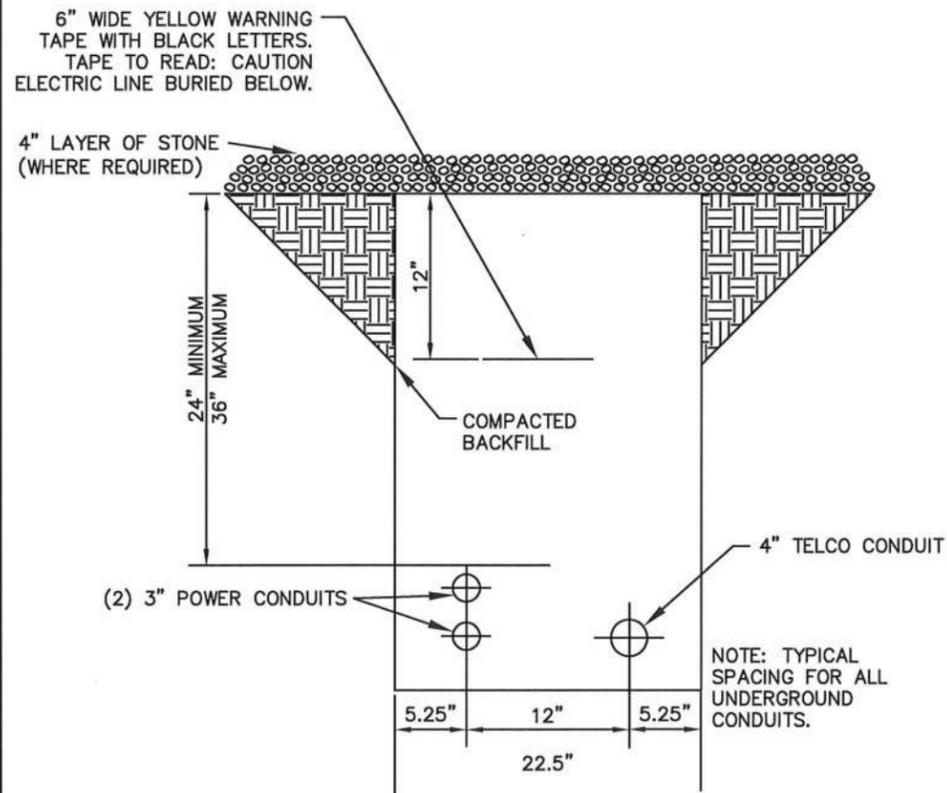
1
E3
SINGLE-LINE DIAGRAM
 SCALE: NOT TO SCALE

PP1 INTEGRATED LOAD CENTER (ILC)
 GENERAC OR INTERSECT, 200 AMP, 42P,
 1 PHASE, ATS, TYPE 2 SPD

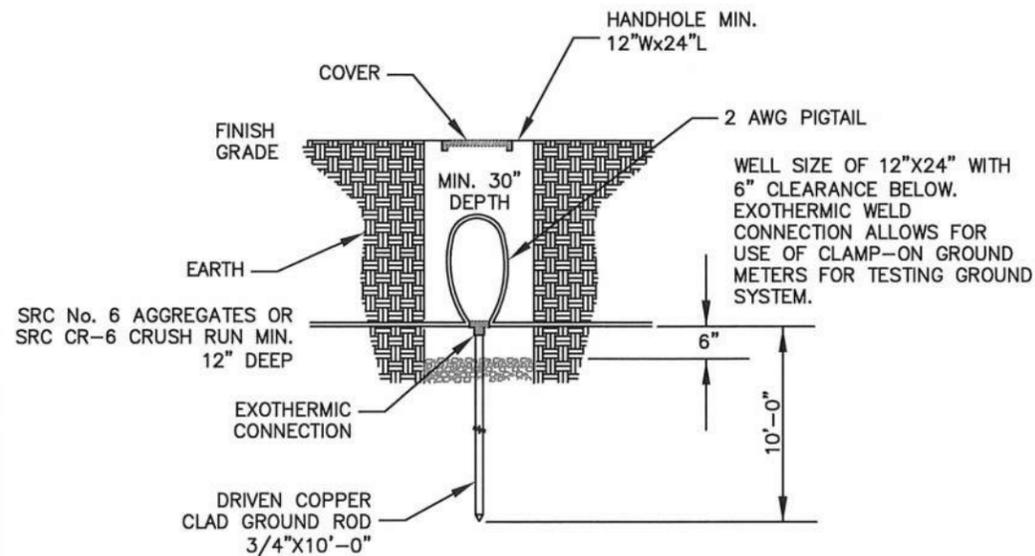
LOAD IN KVA		DESCRIPTION	TRIP	CKT	CKT	TRIP	DESCRIPTION	LOAD IN KVA	
A	B							A	B
1.00	---	RECTIFIER NO. 1	2P-40	1	2	2P-60	HVAC 1	4.80	---
---	1.00			3	4			---	4.80
1.00	---	RECTIFIER NO. 2	2P-40	5	6	2P-60	HVAC 2	4.80	---
---	1.00			7	8			---	4.80
1.00	---	RECTIFIER NO. 3	2P-40	9	10	2P-60	HVAC (FUTURE)	0.00	---
---	1.00			11	12			---	0.00
1.00	---	RECTIFIER NO. 4	2P-40	13	14	2P-60	HVAC (FUTURE)	0.00	---
---	1.00			15	16			---	0.00
1.00	---	RECTIFIER NO. 5	2P-40	17	18	1P-20	INTERIOR LTS	0.53	---
---	1.00			19	20	1P-20	EXTERIOR LTS	---	0.11
1.00	---	RECTIFIER NO. 6	2P-40	21	22	1P-20	GEN ROOM LOUVERS	0.10	---
---	1.00			23	24	1P-20	HYDROGEN DETECTOR/BLOWER	---	0.05
0.00	---	RECTIFIER NO. 7 (FUTURE)	2P-40	25	26	1P-20	CORD REEL OPTION	0.36	---
---	0.00			27	28	2P-20	GEN ROOM HEATER/TIMER	---	1.00
0.00	---	RECTIFIER NO. 8 (FUTURE)	2P-40	29	30	1P-20	INTERIOR RECEPTACLES	---	0.72
---	0.00			31	32	1P-20	GEN RM LIGHTS	0.19	---
0.00	---	SPARE	2P-30	33	34	1P-20	SPACE	---	0.00
---	0.00			35	36	---		---	0.00
0.00	---	SPACE	---	37	38	1P-20	GEN BLOCK HEATER (OPTION)	0.00	---
---	0.00	SPACE	---	39	40	1P-15	GEN BATTERY CHARGER	---	0.10
0.36	---	EXT GFCI RECEPTACLE	1P-20	41	42	1P-20	SMOKE DETECTOR	0.12	---
								18.26	17.58
TOTAL CONNECTED KVA								35.84	
DEMAND CALCULATIONS		CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)					
LIGHTING		0.83	1.25	1.04					
RECEPTACLES		1.44	1.18	1.44					
LARGEST MOTOR		9.60	1.25	12.00					
ALL OTHERS		9.65	1.00	9.65					
RECTIFIERS		12.00	1.25	15.00					
MISCELLANEOUS		2.20	1.00	2.20					
		TOTAL DEMAND KVA		41.33					
		TOTAL DEMAND AMPS		172 A					

50 KW DIESEL GENERATOR WITH 200A MAIN BREAKER. CONTRACTOR SHALL COORDINATE WITH OWNER/TENANT FOR GENERATOR CONFIGURATIONS AND OPTIONS. COMPLY WITH MANUFACTURER'S SPECIFICATIONS FOR EXACT WIRING REQUIREMENTS. GENERATOR PROVIDED BY AND INSTALLED BY BUILDING MANUFACTURER.

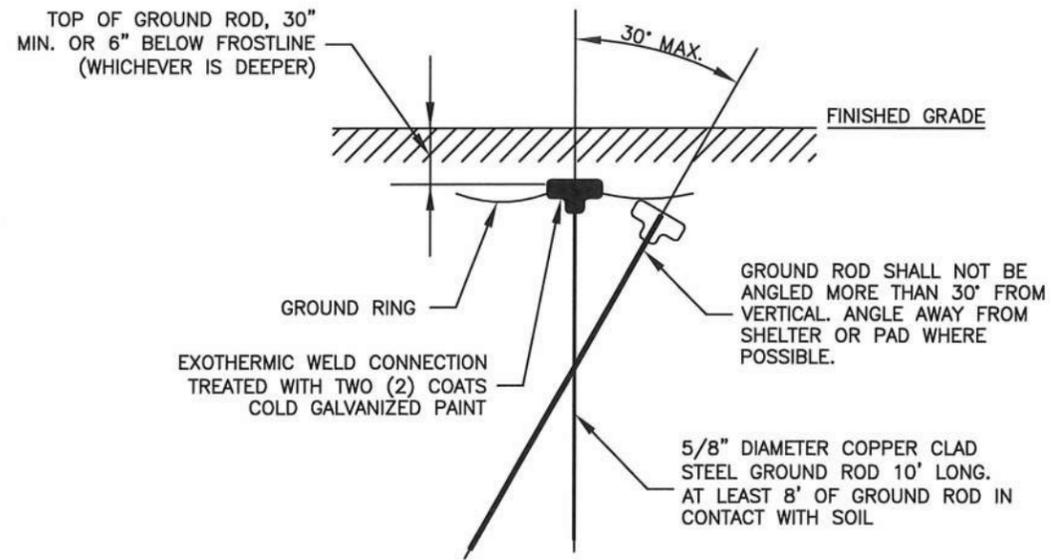
NOTE: THE GENERATOR USED IN CONJUNCTION WITH A 2-POLE AUTOMATIC TRANSFER SWITCH WITH A SOLID NEUTRAL IS NOT A SEPARATELY DERIVED SYSTEM. AS SUCH, DO NOT BOND THE NEUTRAL TO GROUND AT THE GENERATOR.



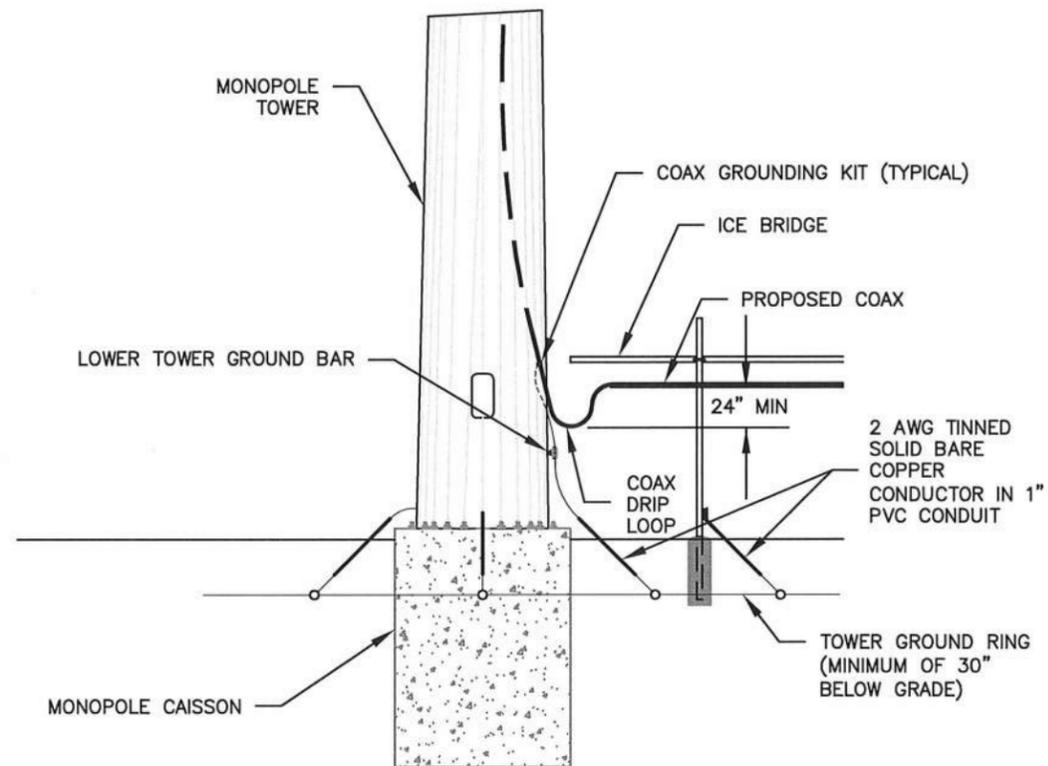
1
E4
UTILITY TRENCH DETAIL (TYP.)
SCALE: NOT TO SCALE



3
E4
GROUND ROD TEST WELL
SCALE: NOT TO SCALE



2
E4
GROUND ROD DETAIL
SCALE: NOT TO SCALE



4
E4
DRIP LOOP DETAIL
SCALE: NOT TO SCALE

TowerCom

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 KEVIN MASON
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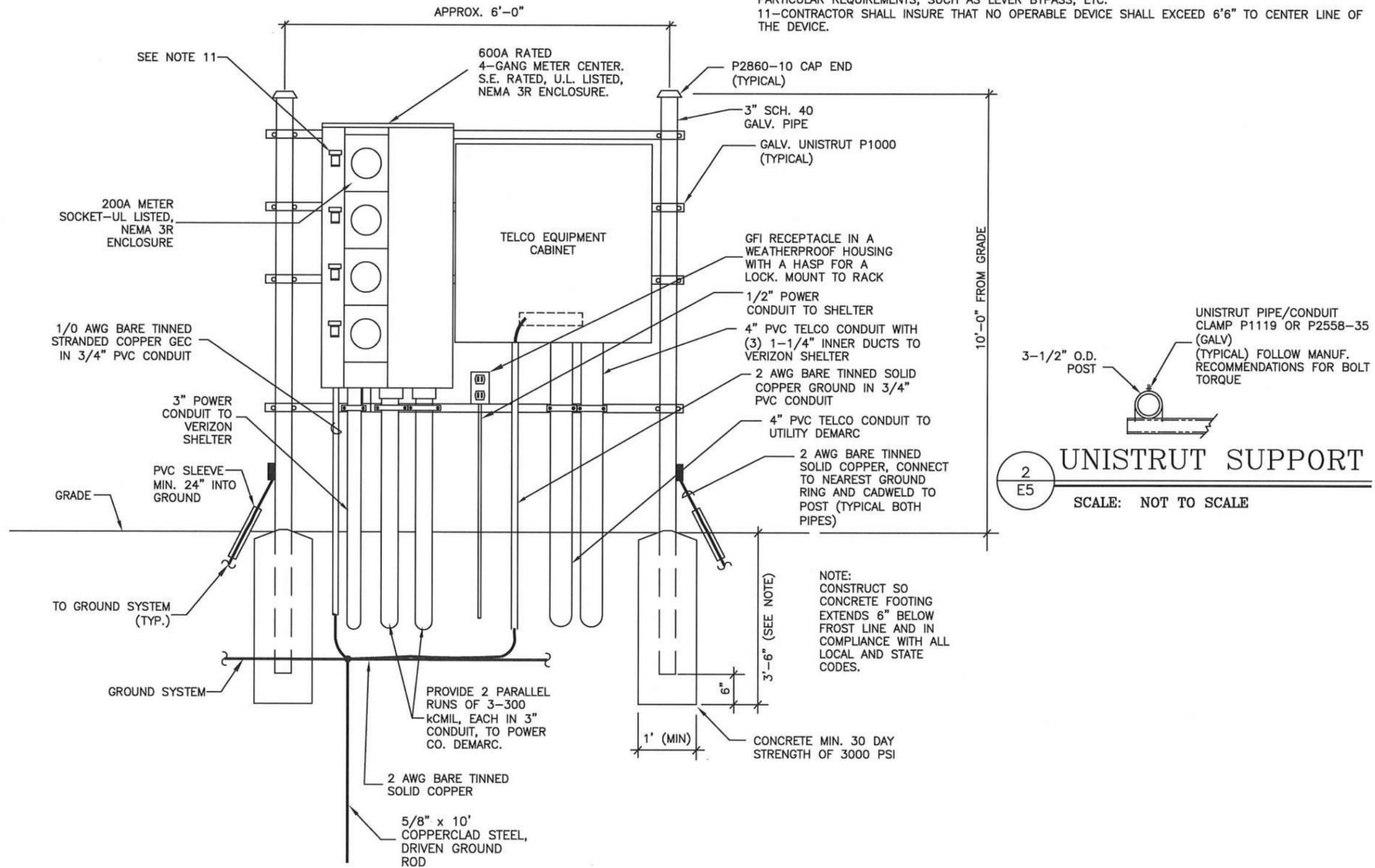
SHEET TITLE:
ELECTRICAL DETAILS

SHEET NUMBER: REVISION:
E4 **0**
 012055945

GENERAL NOTES:

- 1-ALL WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE, STATE BUILDING CODES AND THE LOCAL BUILDING CODES. ALL COMPONENTS SHALL BE U.L. LISTED.
- 2-REFER TO SITE LAYOUT PLAN FOR THE EXACT LOCATION OF H-FRAME.
- 3-CONTRACTOR TO COORDINATE WITH LOCAL UTILITY COMPANY FOR METER.
- 4-CONTRACTOR TO PROVIDE AND INSTALL METER SOCKET.
- 5-CONTRACTOR TO LOCATE METER RACK TO ENSURE WORKING SPACES REQUIRED BY THE NEC (ART. 110.26), STATE, OR LOCAL CODES ARE MAINTAINED BETWEEN FRONT OF ENCLOSURES AND THE CHAIN LINK FENCE.

- 6-SHOW LOCATION (INCLUDING DIMENSIONS) OF ALL CAPPED UNDERGROUND CONDUIT ON FINAL AS-BUILT DRAWINGS SUBMITTED TO OWNER.
- 7-COORDINATE EXACT LOCATION OF UNDERGROUND FEEDERS AND CIRCUITRY WITH THE OWNER.
- 8-CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRICAL AUTHORITY HAVING JURISDICTION (AHJ) AND OTHER TRADES TO DETERMINE "FROST" LINE, AND TYPES OF RACEWAYS REQUIRED FOR INSTALLATION.
- 9-ALL CONDUITS ABOVE GROUND SHALL BE GALVANIZED CONDUIT.
- 10-CONTRACTOR TO CONTACT LOCAL UTILITY PRIOR TO PURCHASING METER CENTER TO VERIFY ANY PARTICULAR REQUIREMENTS, SUCH AS LEVER BYPASS, ETC.
- 11-CONTRACTOR SHALL INSURE THAT NO OPERABLE DEVICE SHALL EXCEED 6'6" TO CENTER LINE OF THE DEVICE.



1 E5 H-FRAME DETAIL
SCALE: NOT TO SCALE

TowerCom.

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SHEET TITLE:
ELECTRICAL DETAILS

SHEET NUMBER: **E5**
 REVISION: **0**
 012055945

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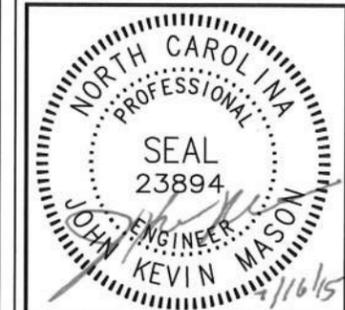
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 ACG PROJECT NO.: 2015-406

Raleigh, NC
 Indianapolis, IN
 Philadelphia, PA
 Pittsburgh, PA
 Virginia Beach, VA
 Fort Collins, CO
 (919) 858-7420

DRAWN BY: CHK.: APV.:

AMM NAC JKM

LICENSER:



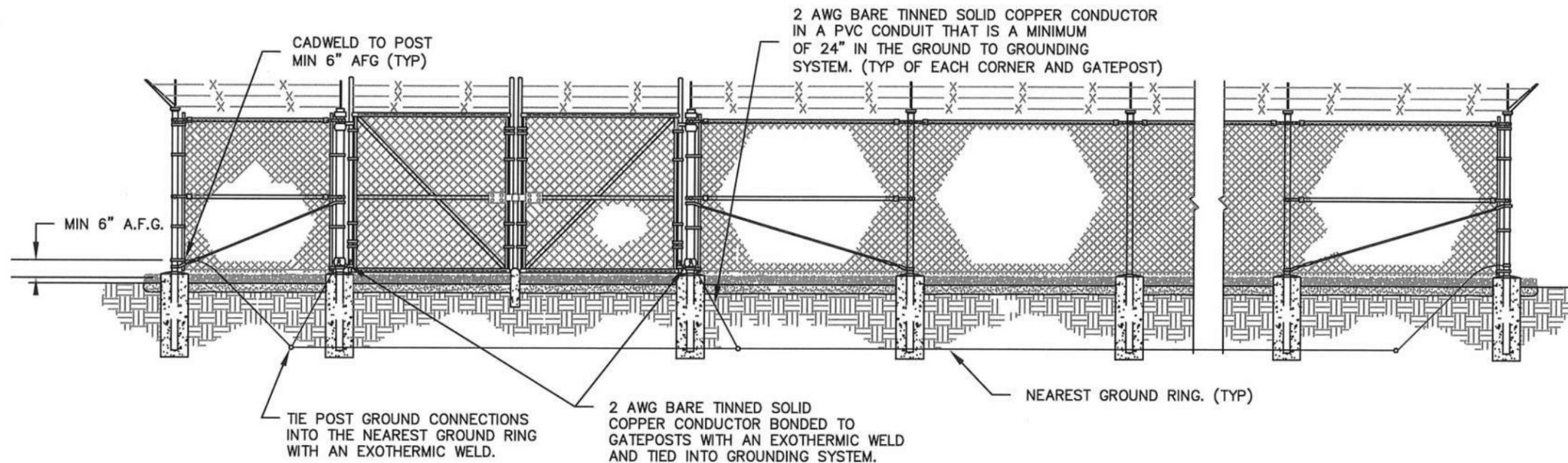
SHEET TITLE:

**ELECTRICAL
 DETAILS**

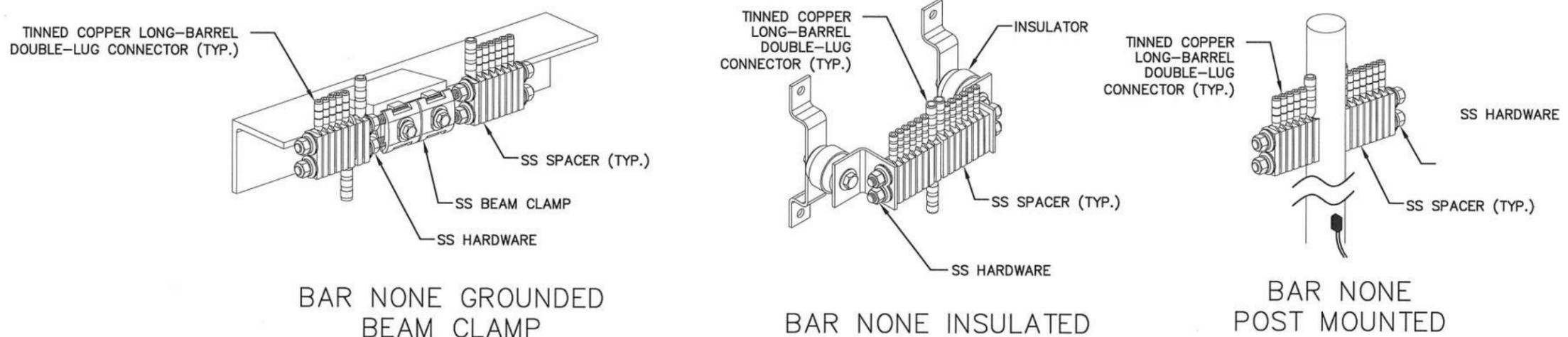
SHEET NUMBER: REVISION:

E6 **0**

012055945



1
 E6
FENCE GROUNDING DETAIL
 SCALE: NOT TO SCALE



2
 E6
BAR NONE GROUND BAR
 SCALE: NOT TO SCALE

TowerCom[®]

APPLICATION FOR ZONING APPROVAL BY TOWERCOM IV, LLC FOR THE CONSTRUCTION OF A WIRELESS TELECOMMUNICATIONS SUPPORT STRUCTURE AND RELATED APPURTENANCES

(CLEARWATER LAKE SITE)

FUTURE COLLOCATION CERTIFICATION

TowerCom IV, LLC (the "Applicant") agrees to comply with Section 5.10.8.B.4.I of the Orange County Unified Development Ordinance (the "Ordinance") and certifies that:

1. The proposed wireless telecommunications support structure shall be designed and constructed to meet the current and future needs of the Verizon Wireless who will collocate its equipment on the proposed tower upon completion of construction;
2. The proposed wireless telecommunications support structure shall be designed and constructed with the capacity to accommodate the collocation of the traditional wireless telecommunications equipment of at least three (3) additional comparable wireless telecommunications service providers; and
3. The Applicant shall make the proposed wireless telecommunications support structure available to providers of functionally equivalent services at fair market rental.

TOWERCOM IV, LLC

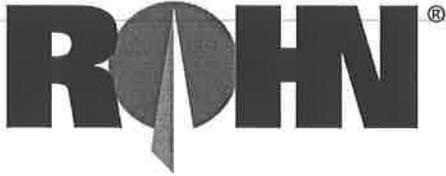
BY: 

NAME:

George Davis

ITS:

Senior VP / Managing Partner



1 Fairholm Avenue
Peoria, IL 61603 USA
Phone 309-566-3000
FAX 309-566-3079

August 29, 2016

TowerCom IV LLC
Attn: George Davis
5611 NC Highway 55
Suite 201
Durham, NC. 27713

Reference: Clearwater Lake, Orange County, NC.
195' Tapered Steel Pole

File Number: 219093

Enclosed, please find the following for your use:

<u>Copies</u>	<u>Drawing Number</u>	<u>Description</u>
2	219093-01-D1	Design Drawing Sealed for the State of North Carolina
2	219093-01-F1	Drilled Pier Foundation Sealed for the State of North Carolina
2	219093-01-F2	Mat with Raised Pier Foundation Sealed for the State of North Carolina

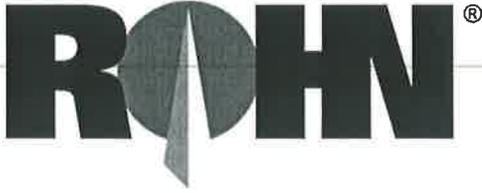
Contact Phone Number: 919 666 2903

Email Also: gdavis@towercomenterprises.com
micah@towercomenterprises.com

Sincerely,

Danny Otten
Mike Hurst

crp



1 Fairholm Avenue
Peoria, IL 61603 USA
Phone: (309)-566-3000
Fax: (309)-566-3079

DATE: AUGUST 29, 2016

PURCHASER: TOWERCOM

PROJECT: 195 FT TAPERED STEEL POLE
CLEARWATER LAKE, NORTH CAROLINA

FILE NUMBER: 219093

DRAWINGS: 219093-01-D1 , 219093-01-F1 , 219093-01-F2 , B090548

I CERTIFY THAT THE REFERENCED DRAWINGS WERE PREPARED UNDER MY SUPERVISION IN ACCORDANCE WITH THE DESIGN AND LOADING CRITERIA SPECIFIED BY THE PURCHASER AND THAT I AM A REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NORTH CAROLINA.

THE REFERENCED FOUNDATION DESIGN IS BASED ON ANSI/TIA-222-G PRESUMPTIVE SOIL PARAMETERS. A GEOTECHNICAL SITE INVESTIGATION SHALL BE PERFORMED PRIOR TO INSTALLATION FOR COMPETENT PROFESSIONAL EXAMINATION AND VALIDATION OF THE SUITABILITY OF THE PRESUMPTIVE SOIL PARAMETERS FOR THE SITE.

CERTIFIED BY: _____

A handwritten signature in blue ink, appearing to be "HJA", written over a horizontal line.

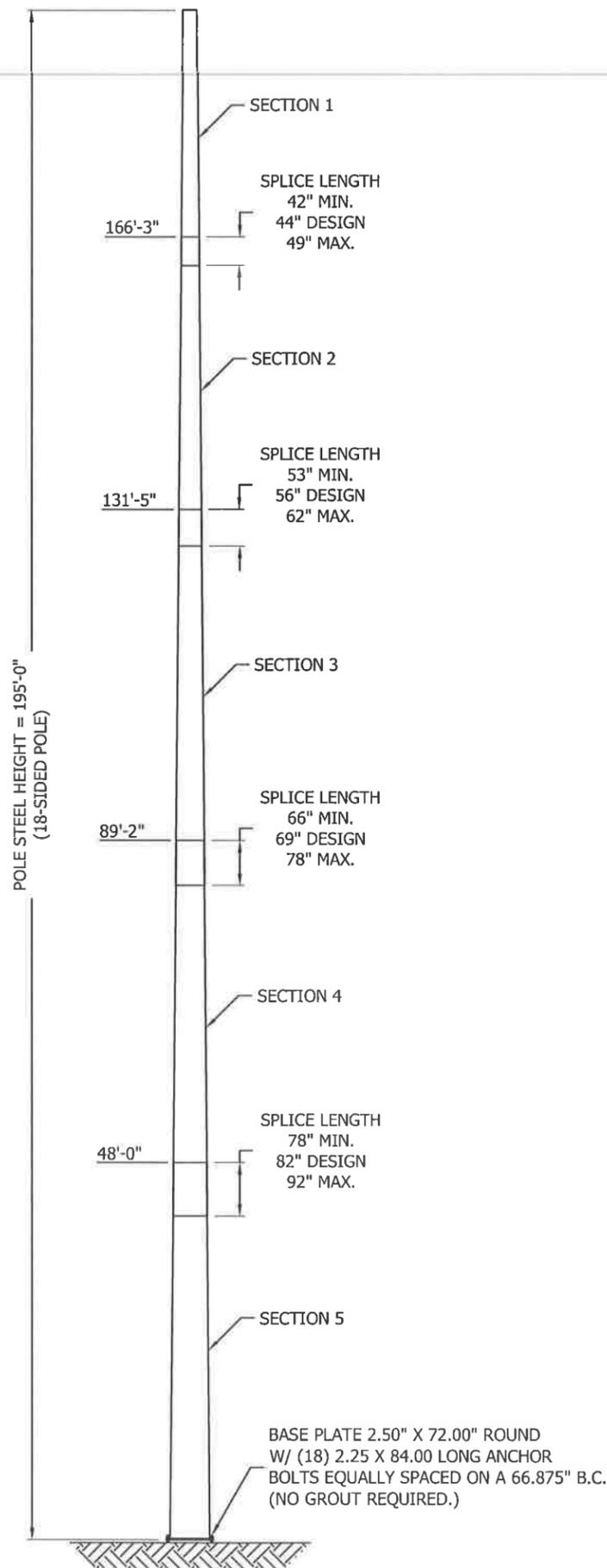
DATE: _____

8/29/16



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REV	DESCRIPTION	DWN	CHK	APP



POLE DESIGN LOADING		
DESIGN WIND LOAD PER ANSI/TIA-222-G USING THE FOLLOWING DESIGN CRITERIA: BASIC WIND SPEED (NO ICE): 115 MPH ULTIMATE WIND SPEED PER ASCE 7-10 BASIC WIND SPEED (WITH ICE): 30 MPH DESIGN ICE THICKNESS: 0.75" EXPOSURE CATEGORY: C STRUCTURE CLASSIFICATION: II TOPOGRAPHIC CATEGORY: 1 EARTHQUAKE SPECTRAL RESPONSE ACCELERATION, S _s : 0.23 THIS POLE IS DESIGNED TO SUPPORT THE FOLLOWING LOADS:		
ELEVATION (FT)	ANTENNA TYPE	LINE SIZE (NOM)
TOP	LIGHTNING ROD	-
190	288 SQ. FT. EPA LOADING (NO ICE)	(18) 1-5/8"
175	(12) CUX063X25X00 PANELS & (9) RRUS ON A LOW PROFILE MOUNT	(12) 1-5/8"
160	(12) CUX063X25X00 PANELS & (9) RRUS ON A LOW PROFILE MOUNT	(12) 1-5/8"
145	(12) CUX063X25X00 PANELS & (9) RRUS ON A LOW PROFILE MOUNT	(12) 1-5/8"

GENERAL NOTES:

- ROHN PRODUCTS POLE DESIGNS CONFORM TO ANSI/TIA-222-G UNLESS OTHERWISE SPECIFIED UNDER POLE DESIGN LOADING.
- THE DESIGN LOADING CRITERIA INDICATED HAS BEEN PROVIDED TO ROHN. THE DESIGN LOADING CRITERIA HAS BEEN ASSUMED TO BE BASED ON SITE-SPECIFIC DATA IN ACCORDANCE WITH ANSI/TIA-222-G AND MUST BE VERIFIED BY OTHERS PRIOR TO INSTALLATION.
- ANTENNAS AND LINES LISTED IN POLE DESIGN LOADING TABLE ARE PROVIDED BY OTHERS UNLESS OTHERWISE SPECIFIED.
- STEP BOLTS ARE PROVIDED AS A CLIMBING FACILITY FOR THE INSTALLATION OF THE STRUCTURE.
- POLE MEMBER DESIGN DOES NOT INCLUDE STRESSES DUE TO ERECTION SINCE ERECTION EQUIPMENT AND CONDITIONS ARE UNKNOWN. DESIGN ASSUMES COMPETENT AND QUALIFIED PERSONNEL WILL ERECT THE POLE.
- WORK SHALL BE IN ACCORDANCE WITH ANSI/TIA-222-G, "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES".
- FIELD CONNECTIONS SHALL BE BOLTED. NO FIELD WELDS SHALL BE ALLOWED.
- STRUCTURAL BOLTS SHALL CONFORM TO ASTM A325, EXCEPT WHERE NOTED.
- A NUT LOCKING DEVICE SHALL BE PROVIDED FOR ALL STRUCTURAL BOLTS ON THE POLE.
- STRUCTURAL STEEL AND CONNECTION BOLTS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ANSI/TIA-222-G.
- ALL HIGH STRENGTH BOLTS ARE TO BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED IN THE RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS". NO OTHER MINIMUM BOLT TENSION OR TORQUE VALUES ARE REQUIRED.
- PURCHASER SHALL VERIFY THE INSTALLATION IS IN CONFORMANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS FOR OBSTRUCTION MARKING AND LIGHTING.
- TOLERANCE ON POLE STEEL HEIGHT IS EQUAL TO PLUS 1% OR MINUS 1/2%.
- DESIGN ASSUMES THAT, AS A MINIMUM, MAINTENANCE AND INSPECTION WILL BE PERFORMED OVER THE LIFE OF THE STRUCTURE IN ACCORDANCE WITH ANSI/TIA-222-G.
- DESIGN ASSUMES LEVEL GRADE AT POLE SITE.
- FOUNDATIONS SHALL BE DESIGNED TO SUPPORT THE REACTIONS SHOWN FOR THE CONDITIONS EXISTING AT THE SITE.
- DESIGN ASSUMES ALL TRANSMISSION LINES ARE ROUTED INTERNALLY.
- POLE SHAFT CONFORMS TO ASTM A572 GR 65. POLE BASE PLATE STEEL CONFORMS TO ASTM A572 GR 50. POLE ANCHOR BOLTS CONFORM TO ASTM A615 GR 75.

MAXIMUM FACTORED REACTIONS	
DOWNLOAD =	138.4 KIPS
SHEAR =	48.1 KIPS
O.T.M. =	7383.7 FT-KIPS

SECTION	LENGTH (FT)	DIAMETER		WALL THICK (IN)	F _y (KSI)	WEIGHT (KIPS)
		BOT	TOP			
1	32.42	28.13	21.00	0.1875	65.0	1.757
2	39.50	35.48	26.79	0.3125	65.0	4.520
3	48.00	44.22	33.67	0.4375	65.0	9.616
4	48.00	52.48	41.92	0.4375	65.0	11.681
5	48.00	60.50	49.94	0.5000	65.0	15.626

FOR POLYGONAL POLES, DIAMETER IS MEASURED ACROSS FLATS.



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PEORIA, IL 61601-5999
TOLL FREE 800-727-ROHN

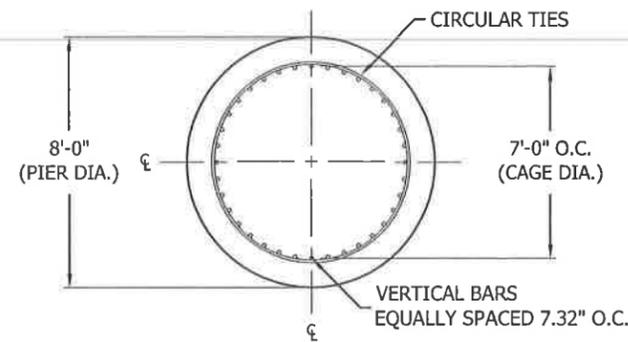
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TOWERCOM
DESIGN PROFILE
195' TAPERED STEEL POLE
CLEARWATER LAKE, NC

DWN: DWG	CHK'D: HA	DATE: 8/26/2016
ENG'R: HA	SHEET #: 1 OF 1	
PRJ. ENG'R: DWG	PRJ. MANG'R:	
DRAWING NO: 219093-01-D1	REV: 0	

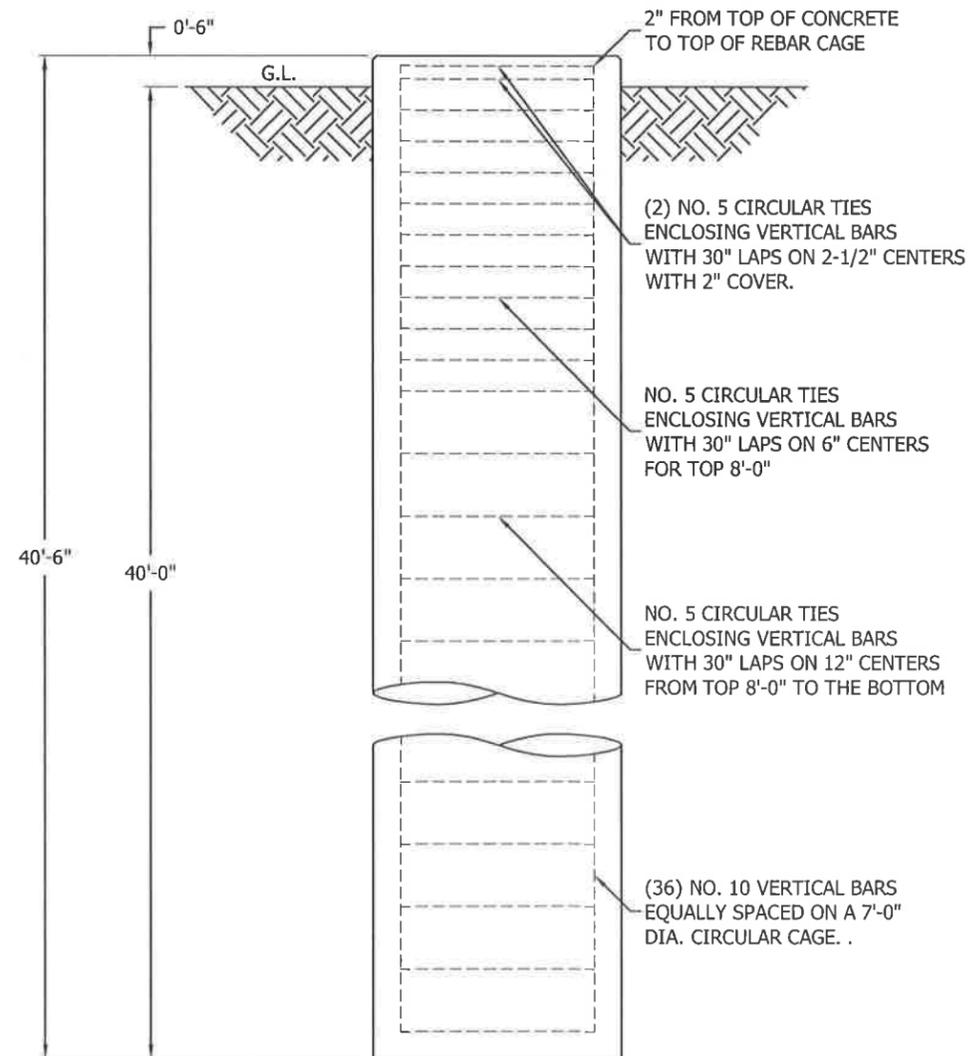
NOTE: SEE DRAWING NO. B090548 FOR STANDARD FOUNDATION NOTES.

FILE NO. 219093				
REVISIONS				
REV.	DESCRIPTION	DWN	CHK	APP



NOTE:
CAGE DIA. FROM CENTERLINE OF VERTICAL BARS.

PLAN VIEW
N.T.S.



ELEVATION VIEW
N.T.S.

FACTORED REACTIONS

DOWNLOAD = 138.4 KIPS
SHEAR = 48.1 KIPS
O.T.M. = 7383.7 FT-KIPS

VOLUME OF CONCRETE

75.4 CU. YDS



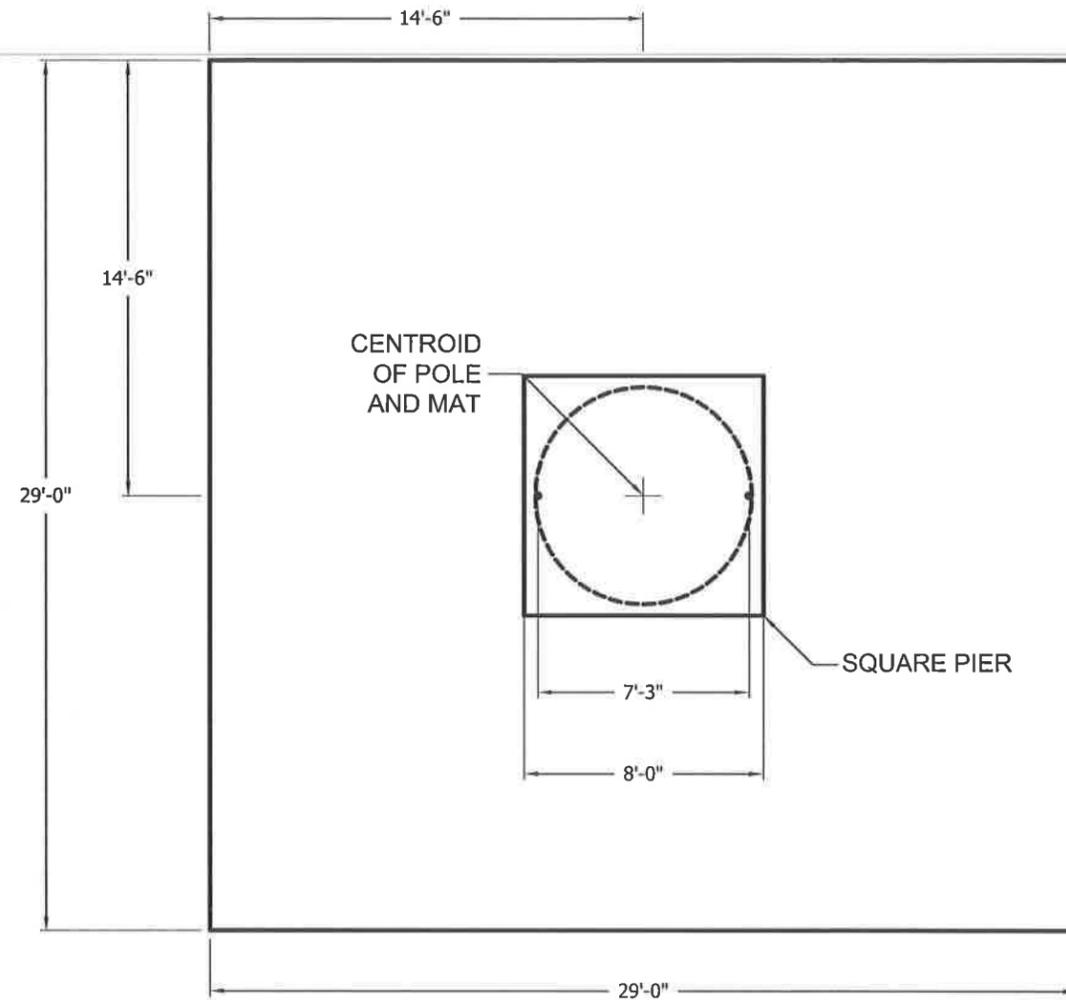
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TOLL FREE 800-727-ROHN

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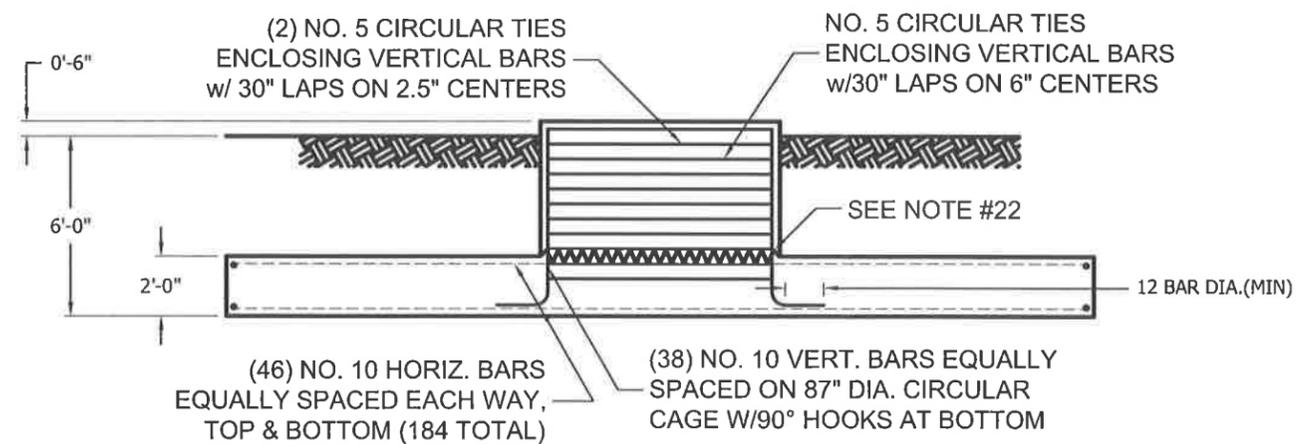
DRILLED PIER FOUNDATION
PER ANSI/TIA-222-G PRESUMPTIVE CLAY

DWN:	CHK'D:	DATE:
DWG	HA	8/26/2016
ENGR:	SHEET #:	
HA	1 OF 1	
PRJ. ENGR:	PRJ. MANG'R:	
DWG		
DRAWING NO:	REV:	
219093-01-F1	0	

NOTE: SEE DRAWING NO. B090548 FOR STANDARD FOUNDATION NOTES.



PLAN VIEW



ELEVATION VIEW

FACTORED REACTIONS

O.T.M. =	7,383.70 FT-K
DOWNLOAD =	138.39 KIPS
SHEAR =	48.08 KIPS

CONCRETE VOLUME (cu.yds)

SQUARE	
PIER	10.7
PAD	62.3
TOTAL	73.0

FILE NO. 219093

REVISIONS				
REV	DESCRIPTION	DWN	CHK	APP



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**MAT W/RAISED PIER FOUNDATION
PER ANSI/TIA-222-G PRESUMPTIVE CLAY**

DWN: DWG	CHK'D: HA	DATE: 08/26/16
ENG'R: HA	SHEET #: 1 OF 1	
PRJ. ENG'R: DWG	PRJ. MANG'R:	
DRAWING NO: 219093-01-F2	REV: 0	

STANDARD FOUNDATION NOTES
ANSI/TIA-222-G

FILE NO.

REVISIONS

REV.	DESCRIPTION	DWN	CHK	APP
2	REVISED NOTE 7 TO 4500 PSI DATE: 2/10/2014	JHY	HA	HA

1. STANDARD FOUNDATION DESIGNS ARE IN ACCORDANCE WITH ANSI/TIA-222-G, "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES", SECTION 9 AND ANNEX F FOR THE FOLLOWING PRESUMPTIVE CLAY SOIL PARAMETERS:

N (blows/ft) [blows/m]	Φ (deg)	Y (lb/ft ³) [kN/m ³]	C (psf) [kPa]	Ultimate Bearing (psf) [kPa]		Ultimate Skin Friction (psf) [kPa]	k (pci) [kN/m ³]	ε ₅₀
				Shallow Fnds.	Deep Fnds.			
8 [26]	0	110 [17]	1000 [48]	5000 [240]	9000 [431]	500 [24]	150 [41,000]	0.01

2. THE PURCHASER MUST VERIFY THAT ACTUAL SITE SOIL PARAMETERS MEET OR EXCEED ANSI/TIA-222-G PRESUMPTIVE CLAY SOIL DESIGN PARAMETERS AND THAT THE PENETRATION AND/OR ZONE OF SEASONAL MOISTURE VARIATION AT THE SITE. FOUNDATION DESIGN MODIFICATIONS MAY BE REQUIRED IN THE EVENT PRESUMPTIVE CLAY SOIL PARAMETERS ARE NOT APPLICABLE FOR THE ACTUAL SUBSURFACE CONDITIONS ENCOUNTERED.
3. A SITE-SPECIFIC INVESTIGATION IS REQUIRED FOR CLASS III STRUCTURES IN ACCORDANCE WITH ANSI/TIA-222-G.
4. FOUNDATION DESIGNS ASSUME FIELD INSPECTIONS WILL BE PERFORMED BY THE PURCHASER'S REPRESENTATIVE TO VERIFY THAT CONSTRUCTION MATERIALS, INSTALLATION METHODS AND ASSUMED DESIGN PARAMETERS ARE ACCEPTABLE BASED ON THE CONDITIONS EXISTING AT THE SITE.
5. WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES, SAFETY REGULATIONS AND UNLESS OTHERWISE NOTED, THE LATEST REVISION OF ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE". PROCEDURES FOR THE PROTECTION OF EXCAVATIONS, EXISTING CONSTRUCTION AND UTILITIES SHALL BE ESTABLISHED PRIOR TO FOUNDATION INSTALLATION.
6. CONCRETE MATERIALS SHALL CONFORM TO THE APPROPRIATE STATE REQUIREMENTS FOR EXPOSED STRUCTURAL CONCRETE.
7. PROPORTIONS OF CONCRETE MATERIALS SHALL BE SUITABLE FOR THE INSTALLATION METHOD UTILIZED AND SHALL RESULT IN DURABLE CONCRETE FOR RESISTANCE TO LOCAL ANTICIPATED AGGRESSIVE ACTIONS. THE DURABILITY REQUIREMENT OF ACI 318 CHAPTER 4 SHALL BE SATISFIED BASED ON THE CONDITIONS EXPECTED AT THE SITE. AS A MINIMUM, CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI (31.0 MPa) IN 28 DAYS.
8. MAXIMUM SIZE OF AGGREGATE SHALL NOT EXCEED SIZE SUITABLE FOR INSTALLATION METHOD UTILIZED OR 1/3 CLEAR DISTANCE BEHIND OR BETWEEN REINFORCING. MAXIMUM SIZE MAY BE INCREASED TO 2/3 CLEAR DISTANCE PROVIDED WORKABILITY AND METHODS OF CONSOLIDATION SUCH AS VIBRATING WILL PREVENT HONEYCOMBS OR VOIDS.
9. REINFORCEMENT SHALL BE DEFORMED AND CONFORM TO THE REQUIREMENTS OF ASTM A615 GRADE 60 UNLESS OTHERWISE NOTED. SPLICES IN REINFORCEMENT SHALL NOT BE ALLOWED UNLESS OTHERWISE INDICATED.
10. REINFORCING CAGES SHALL BE BRACED TO RETAIN PROPER DIMENSIONS DURING HANDLING, THROUGHOUT PLACEMENT OF CONCRETE AND DURING EXTRACTION OF TEMPORARY CASING.
11. WELDING IS PROHIBITED ON REINFORCING STEEL AND EMBEDMENTS.
12. MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE 3 INCHES (76 mm) UNLESS OTHERWISE NOTED. APPROVED SPACERS SHALL BE USED TO INSURE A 3 INCH (76 mm) MINIMUM COVER ON REINFORCEMENT. CONCRETE COVER FROM TOP OF FOUNDATION TO ENDS OF VERTICAL REINFORCEMENT SHALL NOT EXCEED 3 INCHES (76 mm) NOR BE LESS THAN 2 INCHES (51 mm).
13. SPACERS SHALL BE ATTACHED INTERMITTENTLY THROUGHOUT THE ENTIRE LENGTH OF VERTICAL REINFORCING CAGES TO INSURE CONCENTRIC PLACEMENT OF CAGES IN EXCAVATIONS.
14. FOUNDATION DESIGNS ASSUME STRUCTURAL BACKFILL TO BE COMPACTED IN 8 INCH (200 mm) MAXIMUM LAYERS TO 95% OF MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D698. ADDITIONALLY, STRUCTURAL BACKFILL MUST HAVE A MINIMUM COMPACTED UNIT WEIGHT OF 100 POUNDS PER CUBIC FOOT (16 kN/m³).
15. FOUNDATION DESIGNS ASSUME LEVEL GRADE AT THE SITE.
16. FOUNDATION INSTALLATION SHALL BE SUPERVISED BY PERSONNEL KNOWLEDGEABLE AND EXPERIENCED WITH THE PROPOSED FOUNDATION TYPE. CONSTRUCTION SHALL BE IN ACCORDANCE WITH GENERALLY ACCEPTED INSTALLATION PRACTICES.
17. FOR FOUNDATION AND ANCHOR TOLERANCES SEE DRAWING A810214.
18. LOOSE MATERIAL SHALL BE REMOVED FROM BOTTOM OF EXCAVATION PRIOR TO CONCRETE PLACEMENT. SIDES OF EXCAVATION SHALL BE ROUGH AND FREE OF LOOSE CUTTINGS.
19. CONCRETE SHALL BE PLACED IN A MANNER THAT WILL PREVENT SEGREGATION OF CONCRETE MATERIALS, INFILTRATION OF WATER OR SOIL AND OTHER OCCURRENCES WHICH MAY DECREASE THE STRENGTH OR DURABILITY OF THE FOUNDATION.
20. FREE FALL CONCRETE MAY BE USED PROVIDED FALL IS VERTICAL DOWN WITHOUT HITTING SIDES OF EXCAVATION, FORMWORK, REINFORCING BARS, FORM TIES, CAGE BRACING OR OTHER OBSTRUCTIONS. UNDER NO CIRCUMSTANCES SHALL CONCRETE FALL THROUGH WATER.
21. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL EXCEPT FOR PIERS OR PIER AND PAD FOUNDATIONS. FORMS FOR PIERS SHALL BE REMOVED PRIOR TO PLACING STRUCTURAL BACKFILL.
22. CONSTRUCTION JOINTS, IF REQUIRED IN PIER MUST BE AT LEAST 12 INCHES (305 mm) BELOW BOTTOM OF EMBEDMENTS AND MUST BE INTENTIONALLY ROUGHENED TO A FULL AMPLITUDE OF 1/4 INCH (6 mm). FOUNDATION DESIGN ASSUMES NO OTHER CONSTRUCTION JOINTS.
23. CASING, IF USED, SHALL NOT BE LEFT IN PLACE. EQUIPMENT, PROCEDURES, AND PROPORTIONS OF CONCRETE MATERIALS SHALL INSURE CONCRETE WILL NOT BE ADVERSELY DISTURBED UPON CASING REMOVAL. DRILLING FLUID, IF USED, SHALL BE FULLY DISPLACED BY CONCRETE AND SHALL NOT BE DETRIMENTAL TO CONCRETE OR SURROUNDING SOIL. CONTAMINATED CONCRETE SHALL BE REMOVED FROM TOP OF FOUNDATION AND REPLACED WITH FRESH CONCRETE.
24. TOP OF FOUNDATION SHALL BE SLOPED TO DRAIN WITH A FLOATED FINISHED. EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" X 3/4" (19 mm X 19 mm) MINIMUM.
25. FOR ANCHOR BLOCK TYPE FOUNDATIONS, FOR GUYED TOWERS, ADDITIONAL CORROSION PROTECTION MAY BE REQUIRED FOR STEEL GUY ANCHORS IN DIRECT CONTACT WITH SOIL. DESIGN ASSUMES PERIODIC INSPECTIONS WILL BE PERFORMED OVER THE LIFE OF THE STRUCTURE TO DETERMINE IF ADDITIONAL ANCHOR CORROSION PROTECTION MEASURES MUST BE IMPLEMENTED BASED ON OBSERVED SITE-SPECIFIC CONDITIONS.



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ANSI/TIA-222-G
STANDARD FOUNDATION NOTES

DWN: FAD	CHK'D: HA	DATE: Nov/20/2009
ENGR: HA	SHEET #: 1 OF 1	
PRJ. ENGR:	PRJ. MANG'R:	
DRAWING NO: B090548	REV: 2	

File: W:\Jobs\2016\219093\219093.out
Contract: 219093
Project: 195 FT TAPERED STEEL POLE
Date and Time: 8/26/2016 3:18:07 PM

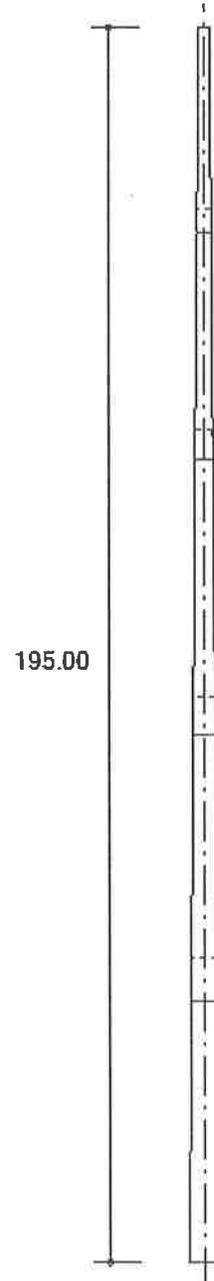
Revision: 0
Site: CLEARWATER LAKE, NC
Engineer: DWG

VAA

DESIGN SPECIFICATION

Design Standard: ANSI/TIA-222-G-2005 Add.2
Ultimate Design Wind Speed (No Ice) = 115.0 (mph)
Nominal Design Wind Speed (No Ice) = 89.1 (mph)
Basic Wind Speed (With Ice) = 30.0 (mph)
Design Ice Thickness = 0.75 (in)
Structure Class = II
Exposure Category = C
Topographic Category = 1

Sct.	Length (ft)	Overlap (ft)	Top Dia. (in)	Bot Dia. (in)	Thick. (in)
1	48.00	6.83	50.10	60.50	0.5000
2	48.00	5.75	42.06	52.46	0.4375
3	48.00	4.67	33.78	44.18	0.4375
4	39.50	3.67	26.85	35.41	0.3125
5	32.42	0.00	21.00	28.02	0.1875



MAXIMUM BASE REACTIONS

Download (Kips)	138.4
Shear (Kips)	48.1
Moment (Kipsft)	7383.7

File: W:\Jobs\2016\219093\219093.out
Contract: 219093
Project: 195 FT TAPERED STEEL POLE
Date and Time: 8/26/2016 3:18:07 PM

Revision: 0
Site: CLEARWATER LAKE
Engineer: DWG

Section A: PROJECT DATA

Project Title: 195 FT TAPERED STEEL POLE
Customer Name: TOWERCOM
Site: CLEARWATER LAKE
Contract No.: 219093
Revision: 0
Engineer: DWG
Date: Aug 26 2016
Time: 03:17:31 PM

Design Standard: ANSI/TIA-222-G-2005 Addendum 2

GENERAL DESIGN CONDITIONS

Start wind direction: 0.00 (Deg)
End wind direction: 315.00 (Deg)
Increment wind direction: 45.00 (Deg)
Elevation above ground: 0.00 (ft)
Gust Response Factor Gh: 1.10
Structure class: II
Exposure category: C
Topographic category: 1
Material Density: 490.1 (lbs/ft³)
Young's Modulus: 29000.0 (ksi)
Poisson Ratio: 0.30
Weight Multiplier: 1.10

WIND ONLY CONDITIONS:
Ultimate Design Wind Speed (No Ice): 115.00 (mph)
Nominal Design Wind Speed (No Ice): 89.08 (mph)
Directionality Factor Kd: 0.95
Importance Factor I: 1.00
Wind Load Factor: 1.60
Dead Load Factor: 1.20

WIND AND ICE CONDITIONS:
Basic Wind Speed (With Ice): 30.00 (mph)
Directionality Factor Kd: 0.95
Wind Load Importance Factor Iw: 1.00
Ice Thickness Importance Factor Ii: 1.00
Ice Thickness: 0.75 (in)
Ice Density: 56.19 (lbs/ft³)
Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Load Factor: 1.00

WIND ONLY SERVICEABILITY CONDITIONS:
Serviceability Wind Speed: 60.00 (mph)
Directionality Factor Kd: 0.85
Importance Factor I: 1.00
Wind Load Factor: 1.00
Dead Load Factor: 1.00

Analysis performed using: TowerSoft Finite Element Analysis Program

File: W:\Jobs\2016\219093\219093.out
Contract: 219093
Project: 195 FT TAPERED STEEL POLE
Date and Time: 8/26/2016 3:18:07 PM

Revision: 0
Site: CLEARWATER LAKE
Engineer: DWG

Section B: STRUCTURE GEOMETRY

Total Height (ft)	Bottom Diameter (in)	Top Diameter (in)
195.00	60.50	21.00

Sect. No	Length (ft)	Overlap (ft)	Bot Dia. (in)	Top Dia. (in)	Thick. (in)	Sides	Joint Type	Yield Stress (ksi)	Mass (lbs)	Calculated Taper (in/ft)	(in)
1	48.00	6.83	60.50	50.10	0.5000	18-sided	Flange	65.0	15626.3	0.21667	
2	48.00	5.75	52.46	42.06	0.4375	18-sided	Telescopic	65.0	11681.4	0.21667	
3	48.00	4.67	44.18	33.78	0.4375	18-sided	Telescopic	65.0	9615.7	0.21667	
4	39.50	3.67	35.41	26.85	0.3125	18-sided	Telescopic	65.0	4520.2	0.21667	
5	32.42	0.00	28.02	21.00	0.1875	18-sided	Telescopic	65.0	1756.6	0.21667	
Total Mass:									43200.1		

File: W:\Jobs\2016\219093\219093.out
Contract: 219093
Project: 195 FT TAPERED STEEL POLE
Date and Time: 8/26/2016 3:18:07 PM

Revision: 0
Site: CLEARWATER LAKE
Engineer: DWG

Section D: TRANSMISSION LINE DATA

Transmission Lines Position

No.	Bot El (ft)	Top El (ft)	Desc.	Radius (ft)	Az.	Orient.	No.	Shielded	Shielded Lines	Antenna
1	0.00	195.00	3/8" CABLE	3.00	0.00	0.00	1	No	0	
2	0.00	190.00	LDF7P-50A	0.00	0.00	0.00	18	Yes	18	
3	0.00	175.00	LDF7P-50A	0.00	0.00	0.00	12	Yes	12	
4	0.00	160.00	LDF7P-50A	0.00	0.00	0.00	12	Yes	12	
5	0.00	145.00	LDF7P-50A	0.00	0.00	0.00	12	Yes	12	

Transmission Lines Details

No.	Desc.	Width (in)	Depth (in)	Unit Mass (lb/ft)
1	3/8" CABLE	0.38	0.38	1.00
2	LDF7P-50A	2.01	2.01	0.92
3	LDF7P-50A	2.01	2.01	0.92
4	LDF7P-50A	2.01	2.01	0.92
5	LDF7P-50A	2.01	2.01	0.92

Utilization of the cross-section for TX Lines: 21.85%

File: W:\Jobs\2016\219093\219093.out
Contract: 219093
Project: 195 FT TAPERED STEEL POLE
Date and Time: 8/26/2016 3:18:07 PM

Revision: 0
Site: CLEARWATER LAKE
Engineer: DWG

Section F: POINT LOAD DATA

Structure Azimuth from North:0.00

POINT LOADS

No.	Description	Elev. (ft)	Radius (ft)	Azim. (Deg)	Orient. (Deg)	Vertical Offset (ft)	Tx Line	Comments
1	LROD	195.00	0.00	0.0	0.0	0.00		
2	288 SQ.FT.EPA LOAD	/ 190.00	0.00	0.0	0.0	0.00		
3	12-CUX063X25X00	/ 175.00	0.00	0.0	0.0	0.00		
4	12-CUX063X25X00	/ 160.00	0.00	0.0	0.0	0.00		
5	12-CUX063X25X00	/ 145.00	0.00	0.0	0.0	0.00		

POINT LOADS WIND AREAS AND WEIGHTS

No.	Description	Frontal Bare Area (ft^2)	Lateral Bare Area (ft^2)	Frontal Iced Area (ft^2)	Lateral Iced Area (ft^2)	Weight Bare (Kips)	Weight Iced (Kips)	Gh
1	LROD	1.00	1.00	2.00	2.00	0.05	0.10	1.10
2	288 SQ.FT.EPA LOAD	/ 288.00	288.00	600.00	600.00	6.00	19.50	1.10
3	12-CUX063X25X00	115.00	115.00	256.00	256.00	3.70	11.90	1.10
4	12-CUX063X25X00	115.00	115.00	256.00	256.00	3.70	11.90	1.10
5	12-CUX063X25X00	115.00	115.00	256.00	256.00	3.70	11.90	1.10

File: W:\Jobs\2016\219093\219093.out
Contract: 219093
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Date and Time: 8/26/2016 3:18:07 PM

Revision: 0
Site: CLEARWATER LAKE
Engineer: DWG

Section G: WIND LOAD DATA

Load Combination Wind Only

Wind Direction 0.00 (deg)

Pole Wind Data

Element	Top Elev. (ft)	Bot. Elev. (ft)	Top Diam. (in)	Bot. Diam. (in)	Top Kz	Top Kzt	Top Press. (psf)	Bot. Kz	Bot. Kzt	Bot. Press. (psf)
30	195.00	189.27	21.03	22.27	1.46	1.00	49.39	1.45	1.00	49.08
29	189.27	183.55	22.27	23.51	1.45	1.00	49.08	1.44	1.00	48.76
28	183.55	177.82	23.51	24.75	1.44	1.00	48.76	1.43	1.00	48.44
27	177.82	172.09	24.75	25.99	1.43	1.00	48.44	1.42	1.00	48.10
26	172.09	166.37	25.99	27.23	1.42	1.00	48.10	1.41	1.00	47.76
25	166.37	162.70	27.23	28.02	1.41	1.00	47.76	1.40	1.00	47.54
24	162.70	156.44	27.62	28.98	1.40	1.00	47.54	1.39	1.00	47.15
23	156.44	150.19	28.98	30.33	1.39	1.00	47.15	1.38	1.00	46.74
22	150.19	143.93	30.33	31.69	1.38	1.00	46.74	1.37	1.00	46.33
21	143.93	137.67	31.69	33.05	1.37	1.00	46.33	1.35	1.00	45.90
20	137.67	131.42	33.05	34.40	1.35	1.00	45.90	1.34	1.00	45.45
19	131.42	126.75	34.40	35.41	1.34	1.00	45.45	1.33	1.00	45.10
18	126.75	119.23	34.79	36.42	1.33	1.00	45.10	1.31	1.00	44.53
17	119.23	111.72	36.42	38.04	1.31	1.00	44.53	1.30	1.00	43.92
16	111.72	104.20	38.04	39.67	1.30	1.00	43.92	1.28	1.00	43.28
15	104.20	96.68	39.67	41.30	1.28	1.00	43.28	1.26	1.00	42.61
14	96.68	89.17	41.30	42.93	1.26	1.00	42.61	1.24	1.00	41.89
13	89.17	83.42	42.93	44.18	1.24	1.00	41.89	1.22	1.00	41.30
12	83.42	76.33	43.30	44.84	1.22	1.00	41.30	1.20	1.00	40.54
11	76.33	69.25	44.84	46.37	1.20	1.00	40.54	1.17	1.00	39.71
10	69.25	62.17	46.37	47.91	1.17	1.00	39.71	1.15	1.00	38.82
9	62.17	55.08	47.91	49.44	1.15	1.00	38.82	1.12	1.00	37.85
8	55.08	48.00	49.44	50.97	1.12	1.00	37.85	1.08	1.00	36.77
7	48.00	41.17	50.97	52.46	1.08	1.00	36.77	1.05	1.00	35.60
6	41.17	34.31	51.58	53.07	1.05	1.00	35.60	1.01	1.00	34.26
5	34.31	27.44	53.07	54.55	1.01	1.00	34.26	0.96	1.00	32.68
4	27.44	20.58	54.55	56.04	0.96	1.00	32.68	0.91	1.00	30.76
3	20.58	13.72	56.04	57.53	0.91	1.00	30.76	0.85	1.00	28.82
2	13.72	6.86	57.53	59.01	0.85	1.00	28.82	0.85	1.00	28.82
1	6.86	0.00	59.01	60.50	0.85	1.00	28.82	0.85	1.00	28.82

Projected and Wind Areas

Element	Pole Proj Area (ft^2)	Tx-Line Proj Area (ft^2)	Ladder Proj Area (ft^2)	Ra	Top Drag Factor	Bot Drag Factor
30	10.49	0.18	0.00	0.02	0.65	0.65
29	11.09	0.18	0.00	0.02	0.65	0.65
28	11.69	0.18	0.00	0.02	0.65	0.65
27	12.29	0.18	0.00	0.01	0.65	0.65
26	12.89	0.18	0.00	0.01	0.65	0.65
25	8.57	0.11	0.00	0.01	0.65	0.65
24	14.98	0.20	0.00	0.01	0.65	0.65
23	15.70	0.20	0.00	0.01	0.65	0.65
22	16.42	0.20	0.00	0.01	0.65	0.65
21	17.14	0.20	0.00	0.01	0.65	0.65
20	17.85	0.20	0.00	0.01	0.65	0.65
19	13.79	0.15	0.00	0.01	0.65	0.65
18	22.64	0.23	0.00	0.01	0.65	0.65
17	23.68	0.23	0.00	0.01	0.65	0.65
16	24.72	0.23	0.00	0.01	0.65	0.65
15	25.75	0.23	0.00	0.01	0.65	0.65

File: W:\Jobs\2016\219093\219093.out
Contract: 219093
Project: 195 FT TAPERED STEEL POLE
Date and Time: 8/26/2016 3:18:07 PM

Revision: 0
Site: CLEARWATER LAKE
Engineer: DWG

14	26.79	0.23	0.00	0.01	0.65	0.65
13	21.19	0.18	0.00	0.01	0.65	0.65
12	26.41	0.22	0.00	0.01	0.65	0.65
11	27.33	0.22	0.00	0.01	0.65	0.65
10	28.25	0.22	0.00	0.01	0.65	0.65
9	29.17	0.22	0.00	0.01	0.65	0.65
8	30.09	0.22	0.00	0.01	0.65	0.65
7	29.90	0.21	0.00	0.01	0.65	0.65
6	30.38	0.21	0.00	0.01	0.65	0.65
5	31.24	0.21	0.00	0.01	0.65	0.65
4	32.10	0.21	0.00	0.01	0.65	0.65
3	32.97	0.21	0.00	0.01	0.65	0.65
2	33.83	0.21	0.00	0.01	0.65	0.65
1	34.69	0.21	0.00	0.01	0.65	0.65

App. Concentrated Loads

Ant.	Description	Qty	Mount	Desc.	Elev. (ft)	CaAc X-Dir E-W (ft^2)	CaAc Y-Dir N-S (ft^2)	XForce E-W (Kips)	YForce N-S (Kips)	ZForce (Kips)	M-x (kipsft)	M-y (kipsft)	M-z (kipsft)
1	LROD				195	0.00	-1.00	0.00	-0.05	-0.06	0.00	0.00	0.00
2	288 SQ.FT.EPA LOAD				190	0.00	-287.970	0.00	-14.16	-7.20	0.00	0.00	0.00
3	12-CUX063X25X00				175	0.00	-114.990	0.00	-5.56	-4.44	0.00	0.00	0.00
4	12-CUX063X25X00				160	0.00	-114.990	0.00	-5.45	-4.44	0.00	0.00	0.00
5	12-CUX063X25X00				145	0.00	-114.990	0.00	-5.34	-4.44	0.00	0.00	0.00

File: W:\Jobs\2016\219093\219093.out
 Contract: 219093
 Project: 195 FT TAPERED STEEL POLE
 Date and Time: 8/26/2016 3:18:07 PM

 Revision: 0
 Site: CLEARWATER LAKE
 Engineer: DWG

Section L: STRENGTH ASSESSMENT DATA

Load Combination	Max Envelope				
Wind Direction	Maximum				
Elev. (ft)	Axial Ld. (kips)	Axial Cap (kips)	Moment (kipsft)	Mom. Cap (kipsft)	Assess.
195.00	3.06	898.41	0.01	384.65	0.003
189.27	3.06	935.67	12.62	424.66	0.009
189.27	21.79	935.67	12.71	424.66	0.036
183.55	21.79	971.11	103.78	465.72	0.229
183.55	22.61	971.11	103.94	465.72	0.230
177.82	22.61	1004.73	198.01	507.68	0.396
177.82	29.88	1004.73	198.20	507.68	0.400
172.09	29.88	1036.52	313.13	550.40	0.578
172.09	37.04	1036.52	313.36	550.40	0.581
166.37	37.04	1066.49	447.78	593.74	0.765
166.37	37.86	1066.49	447.99	593.74	0.766
162.70	46.32	2012.49	536.06	1126.60	0.483
156.44	46.32	2112.39	710.51	1241.87	0.579
156.44	53.52	2112.39	710.85	1241.87	0.581
150.19	53.52	2212.28	904.45	1362.75	0.672
150.19	57.29	2212.28	904.81	1362.75	0.673
143.93	57.29	2312.18	1109.19	1489.25	0.754
143.93	69.46	2312.18	1109.58	1489.25	0.756
137.67	69.46	2390.80	1348.12	1607.06	0.850
137.67	71.26	2390.80	1348.53	1607.06	0.851
131.42	71.26	2462.44	1588.95	1724.40	0.933
131.42	72.87	2462.44	1589.29	1724.40	0.933
126.75	75.45	3543.70	1772.60	2491.99	0.720
119.23	75.45	3711.71	2070.01	2735.41	0.765
119.23	78.76	3711.71	2070.44	2735.41	0.766
111.72	78.76	3879.73	2373.36	2990.17	0.802
111.72	81.66	3879.73	2373.77	2990.17	0.803
104.20	81.66	4047.74	2681.66	3256.27	0.832
104.20	84.65	4047.74	2682.03	3256.27	0.833
96.68	84.65	4215.75	2994.80	3533.73	0.856
96.68	87.73	4215.75	2995.14	3533.73	0.857
89.17	87.73	4383.77	3312.69	3822.52	0.876
89.17	90.53	4383.77	3312.96	3822.52	0.877
83.42	94.08	4422.02	3559.03	3889.87	0.925
76.33	94.08	4577.51	3866.43	4172.25	0.937
76.33	97.96	4577.51	3866.68	4172.25	0.938
69.25	97.96	4693.98	4178.12	4427.71	0.954
69.25	101.14	4693.98	4178.35	4427.71	0.955
62.17	101.14	4807.67	4493.28	4687.87	0.969
62.17	104.41	4807.67	4493.48	4687.87	0.970
55.08	104.41	4918.55	4811.77	4952.45	0.983
55.08	107.75	4918.55	4811.94	4952.45	0.983
48.00	107.75	5026.65	5133.43	5221.19	0.995
48.00	111.11	5026.65	5133.58	5221.19	0.995
41.17	115.88	6008.51	5446.14	6301.16	0.875
34.31	115.88	6137.08	5763.12	6625.08	0.880
34.31	120.87	6137.08	5763.22	6625.08	0.881
27.44	120.87	6263.03	6082.99	6954.02	0.886
27.44	124.67	6263.03	6083.07	6954.02	0.886
20.58	124.67	6386.36	6406.64	7287.73	0.891
20.58	128.53	6386.36	6406.70	7287.73	0.891
13.72	128.53	6507.08	6730.69	7625.98	0.894
13.72	132.46	6507.08	6730.72	7625.98	0.895
6.86	132.46	6625.18	7056.42	7968.51	0.898
6.86	136.42	6625.18	7056.43	7968.51	0.898
0.00	136.42	6740.66	7383.70	8315.10	0.900

Rohn Products LLC.

Designed By: DWG
 Checked By: HA
 Eng. File: 219093
 LPILE: ver. 4
 Customer: TOWERCOM
 Site: CLEARWATER LAKE, NC

Date: 8/26/2016 2:27:49 PM
 Date: 8/29/16
 Building Code: TIA Rev. G
 LPILE_I: ver. 3.1.2

FACTORED REACTIONS

	DESIGN	OPERATIONAL
Download, kips	138.4	69.2
OTM, ft-kips	7,383.7	1,862.4
Shear, kips	48.1	12.2

*REV 'G' PRESUMPTIVE
'CLAY'*

LPILE INPUT PARAMETERS

Depth(ft)	Soil Type	K(pci)	γ (pcf)	ϕ (deg)	C(ksf)	ϵ_{50} (in/in)	N	RQD
0.0-1.0	Clay	5.0	80.0	0.0	0.100	0.035	1	0
1.0-40.0	Clay	150.0	110.0	0.0	1.000	0.010	8	0

Reaction Modification Factor = 1.33

Pier Diameter = 8' - 0", Shaft ID = 0' - 0", Pier Depth = 40' - 0" and Ground Slope = 0 Deg.

SUMMARY OF LPILE RESULTS

(See Attached Graphs)

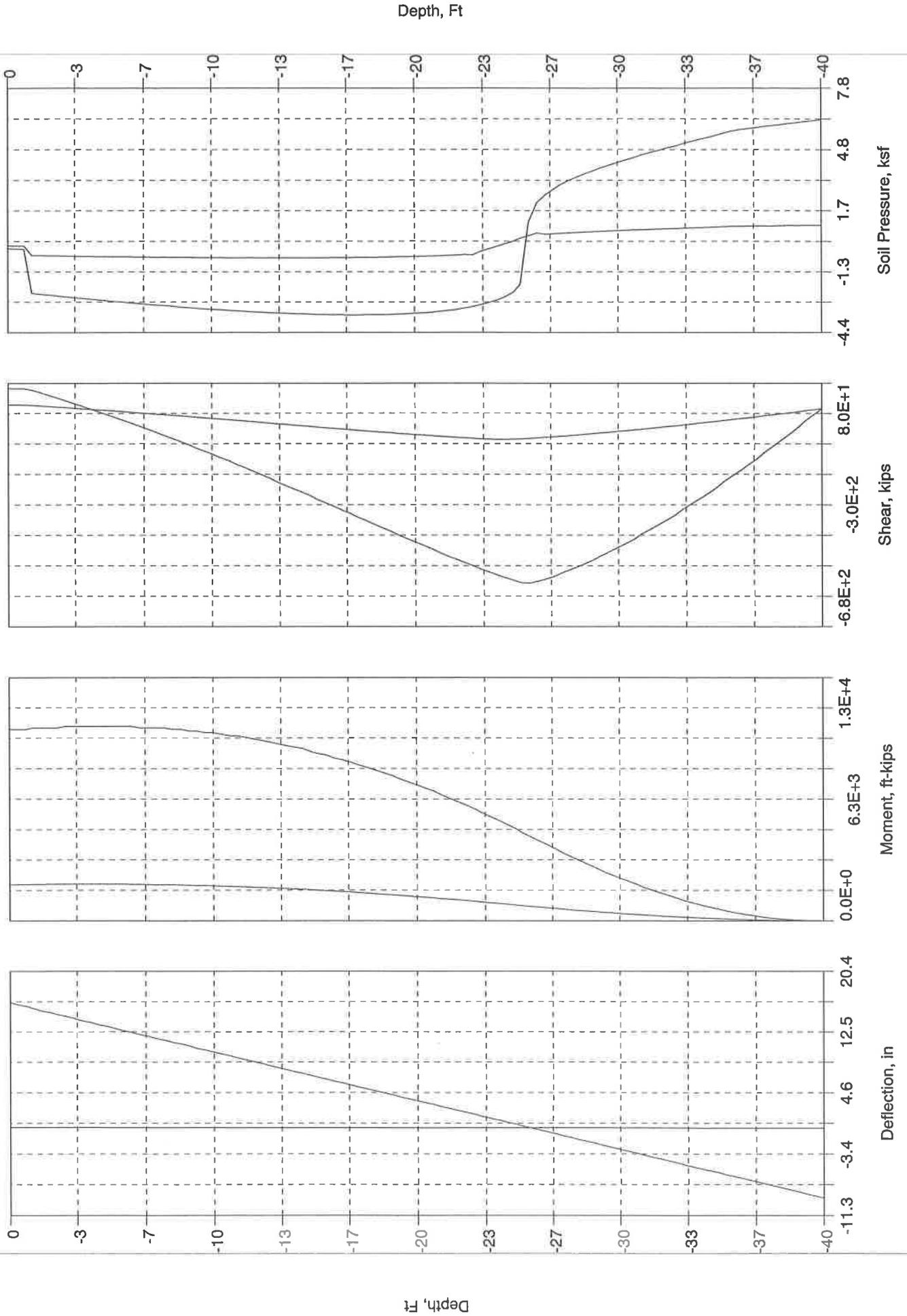
	DESIGN	OPERATIONAL
Deflection at Top, in.	12.23	0.07
Moment, ft-kips	7,562.5	1,900.0
Shear, kips	408.8	95.5
Lateral Soil Pressure, ksf	4.70	0.99

SHAFT SUMMARY

- 1) Use 8' - 0" diameter and 40' - 0" deep drilled pier with 0' - 6" projection.
- 2) Use (36) #10 bars in 7' - 0" Dia. cage with #5 ties at 6" centers in top 8 feet and at 12" centers in rest of pier.
- 3) Concrete Volume = 75.4 Cu. Yds.

(See attached Shaft Reinforcing Program results for reinforcement calculations)

219093
DWG



SHAFT REINFORCING PROGRAM VER. 2006.1

DESIGNED BY: DWG
ENG. FILE NO.: 219093
DATE: 8/26/2016 2:27:49 PM
CUSTOMER: TOWERCOM

INPUT DATA

C = 138.40 Kips Vc = 408.75 Kips Mc = 7,766.88 Ft-K
T = .00 Kips Vt = .00 Kips Mt = .00 Ft-K
Fy = 60.00 Ksi Fyt = 60.00 Ksi L.F. = 1.00
H = 96.00 In. Ds = 84.00 In. F'c = 4.50 Ksi
U = 1.00 Irs = Round

*** SHAFT CROSS SECTION IS ROUND ***

SUMMARY OF ANALYSIS

Minimum area of steel req'd. = 44.18 sq.in. (Rhomin = .0061)
Maximum steel area limit = 579.06 sq.in. (Rhomax = .0800)

CIRCULAR TIE DATA

$V_u < .85 * V_c / 2$, shear reinforcement is not required

Customer: TOWERCOM
 Project: 195 FT TAPERED STEEL POLE
 Site: CLEARWATER LAKE
 Engr. File: 219093
 Build Code: ANSI/TIA-222-G-2005



Mat Foundation

ver.2.2.9

Design Parameters

Description	Load Case					Service
	1	2	3	4	5	
Total Moment, ft-kips	7,383.70	7,241.60	1,261.27			1,862.36
Total Shear, kips	48.08	48.02	7.24			12.19
Total Tower Wt, kips	82.86	62.11	138.39			69.16
Max. Uplift, kips	N/A	N/A	N/A			N/A
Shear, kips	N/A	N/A	N/A			N/A
Max Download, kips	N/A	N/A	N/A			N/A
Shear	N/A	N/A	N/A			N/A
Soil L.F.	1.20	0.90	1.20			1.00
Concrete L.F.	1.20	0.90	1.20			1.00

Foundation	
Ht. AGL, ft	0.50
Depth, ft.	6.00
Pole	
Butt OD, ft	5.04
Offset, in	.00
Soil	
Blow Count	N/A
Inplace Unit Wt, pcf	110.00
Submerged Unit Wt, pcf	60.00
Friction Angle, ϕ , deg.	30.00
Cohesion, ksf	N/A
Uplift Angle, deg.	30.00
Water Depth, ft	None
Ult Bearing Capacity, ksf	5.00

Mat	
Thickness, ft	2.00
Width, ft	29.00
EA, in	21.00
Batter, in/ft	0.00

Pier	
Height, ft	4.50
Diameter, ft	8.00
No. Piers	1
Shape	Square

Anchor Bolts	
Diameter, in	2.2500
No.	18
Length, in	84.00
Bolt Circle, in	66.88
Projection, in	12.00
Concrete	
28 Day Strength, ksi	4.50
Dry Unit Wt, pcf	150.00
Wet Unit Wt, pcf	88.00

Pocket	
Diameter, in	N/A
Thickness, ft	N/A

Rebar Fy	
Vertical, ksi	60.00
Circular, ksi	60.00
Horizontal, ksi	60.00

← REV'G' PRESUMPTIVE 'CLAY'

Results

ϕM_N - Parallel Axis 7,707.78 ft-kips
 ϕM_N - Diagonal Axis 7,835.63 ft-kips
 Moment - Interaction Ratio 0.980
 ϕV_N - Lateral Load 168.31 kips
 Lateral Load - Interaction Ratio 0.285

Final Mat Dimension : 29.00 x 29.00 x 2.00 ft. thick w/ (1) 8.00 ft. Square Pier
 Final Pocket Dimension : Pockets not required
 Total Volume of Concrete : 73.0 yd³

Designed By: DWG
 Date: 26 Aug. 16 @ 03:59 PM

Checked By: HA
 Date: 8/29/16

Customer: TOWERCOM
 Project: 195 FT TAPERED STEEL POLE
 Site: CLEARWATER LAKE
 Engr. File: 219093
 Build Code: ANSI/TIA-222-G-2005



Mat Foundation

ver.2.2.9

OTM Capacity

Controlling Load Case: 2 [Wind w/Min. Dead Load]

Foundation Width = 29.00 ft

$M_U = 7,553.7$ ft-kips

	ϕM_N , ft-kips	x, ft	N	σ_{UR}
Parallel	7,707.8	6.082	0.210	5.00
Diagonal	7,835.6	13.281	0.324	5.00

$\phi M_N = 7,707.78$ ft-kips

IRatio = 0.980

$\phi V_N = 168.31$ kips

IRatio = 0.285

Mat Design

$\gamma_e = 123.33$ pcf

Exterior Slab	x, ft	N	σ_R , ksf	P_s , kips	P_{su} , kips	Moment, ft-kips/ft		Shear, kips/ft	
						DownLoad Side	Uplift Side	Download Side	Uplift Side
Parallel	6.520	0.225	3.50	20.22	0.00	128.32	55.13	18.45	9.91
Diagonal	13.899	0.339	3.42	20.22	0.00	81.13	32.35	19.15	7.85

Punching Shear	Download			Uplift			Description
	Interior	Edge	Corner	Interior	Edge	Corner	
b_o , ft	38.33	N/A	N/A	N/A	N/A	N/A	2-Way Shear
V_{su} , psi	123.56	N/A	N/A	N/A	N/A	N/A	
ϕV_c , psi	208.25	N/A	N/A	N/A	N/A	N/A	
IR	0.59	N/A	N/A	N/A	N/A	N/A	
$0.5 * M_{ult}$, ft-kips	2,280.0			N/A			Moment transfer to slab
B_e , ft	14.0			N/A			
M_{ult} , ft-kips/ft	162.9			N/A			
Edge Distances: a = 14.50 ft. b = 14.50 ft. c = 14.50 ft.							

Summary	Max. Value	Utilization
Slab Moment, ft-kips/ft	162.86	0.985
Slab Shear, kips/ft	19.15	0.737
Punching Shear, psi	123.56	0.593
Soil Bearing Required, σ_{UR} , ksf	4.66	0.932

Mat Reinforcement	
Min. Steel Area (Strength)	1.973 in ² /ft.
Min. Steel Area (Temperature)	.259 in ² /ft.
Steel Strain Actual	0.011
Minimum Steel Strain Required	0.005

46 - #10 Horizontal bars equally spaced @7.60 in., each way, top and bottom, total of 184, $A_s = 2.009$ in²/ft

Designed By: DWG
 Date: 26 Aug.16 @ 03:59 PM

Checked By: *HA*
 Date: 8/29/16

Customer: TOWERCOM
Project: 195 FT TAPERED STEEL POLE
Site: CLEARWATER LAKE
Engr. File: 219093
Build Code: ANSI/TIA-222-G-2005



Mat Foundation

ver.2.2.9

Pier Design

Controlling Load Case: 1 [Wind w/Max. Dead Load]

C = 82.86 kips	Vc = 48.08 kips	Mc = 7,600.06 ft-kips
T = .00 kips	Vt = .00 kips	Mt = .00 ft-kips
Fy = 60.00 ksi	Fyt = 60.00 ksi	L.F. = 1.00
H = 96.00 in.	Ds = 87.00 in.	F'c = 4.50 ksi
U = 1.00	Irs = Square	

*** NOTE: Pier cross section is Square ***

SUMMARY OF ANALYSIS

Minimum area of steel required	= 46.080 in ²	(Rhomin = 0.0050)
Area of steel provided.	= 48.137 in ² ✓	(Rhoactual = 0.0052)
Maximum steel area limit	= 579.060 in ²	(Rhomax = 0.0628)

(38) #10 Vertical Bars equally spaced w/ #5 Circular Ties @ 6" on center.

CIRCULAR TIE DATA

$V_u < 0.85 * V_c / 2$, shear reinforcement is not required

Use maximum tie spacing specified in ACI 318,
Section 7.10.5 for compression reinforcement.

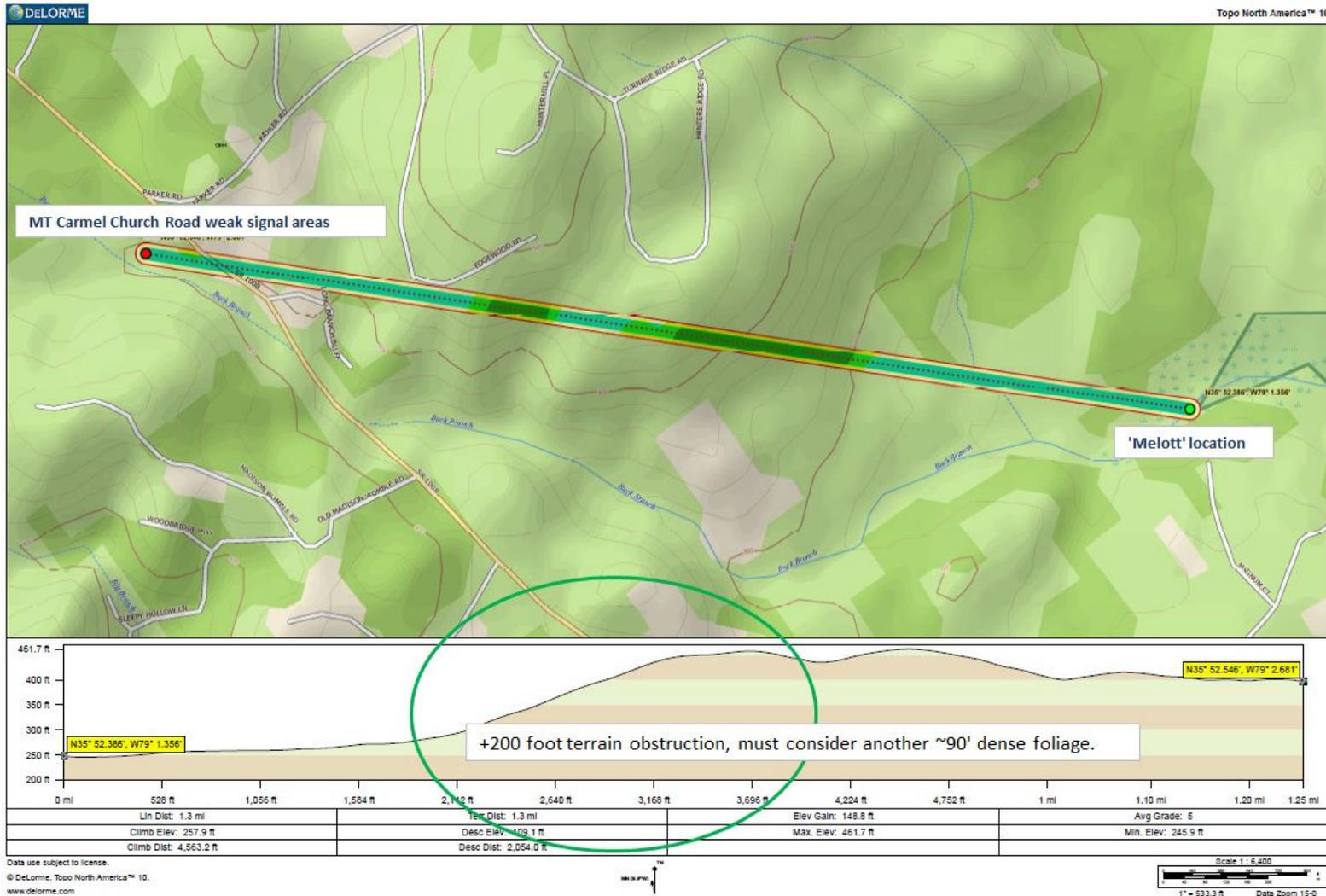
DEVELOPMENT LENGTH MODIFIERS FOR BAR DEVELOPMENT

Modifier for tension development = 0.952
Modifier for compression development = 0.610
REQUIRED Ld = MODIFIER * BASIC Ld * ACI 318 MODIFIERS, (12 in. min.)

Designed By: DWG
Date: 26 Aug. 16 @ 03:59 PM

Checked By: HA
Date: 8/29/16

Appendix A: 'Melott' candidate terrain view



TowerCom[®]

APPLICATION FOR ZONING APPROVAL BY TOWERCOM IV, LLC FOR THE CONSTRUCTION OF A WIRELESS TELECOMMUNICATIONS SUPPORT STRUCTURE AND RELATED APPURTENANCES

(CLEARWATER LAKE SITE)

GENERAL CERTIFICATION

TowerCom IV, LLC (the "Applicant") agrees to comply with Section 5.10.8.A.d.i-iii of the Orange County Unified Development Ordinance (the "Ordinance") and certifies that the proposed telecommunication support structure:

1. Will be maintained in a safe manner;
2. Will comply with all conditions of all applicable permits and authorizations; and
3. Will comply with all applicable and permissible local, State, and Federal rules and regulations.

TOWERCOM IV, LLC

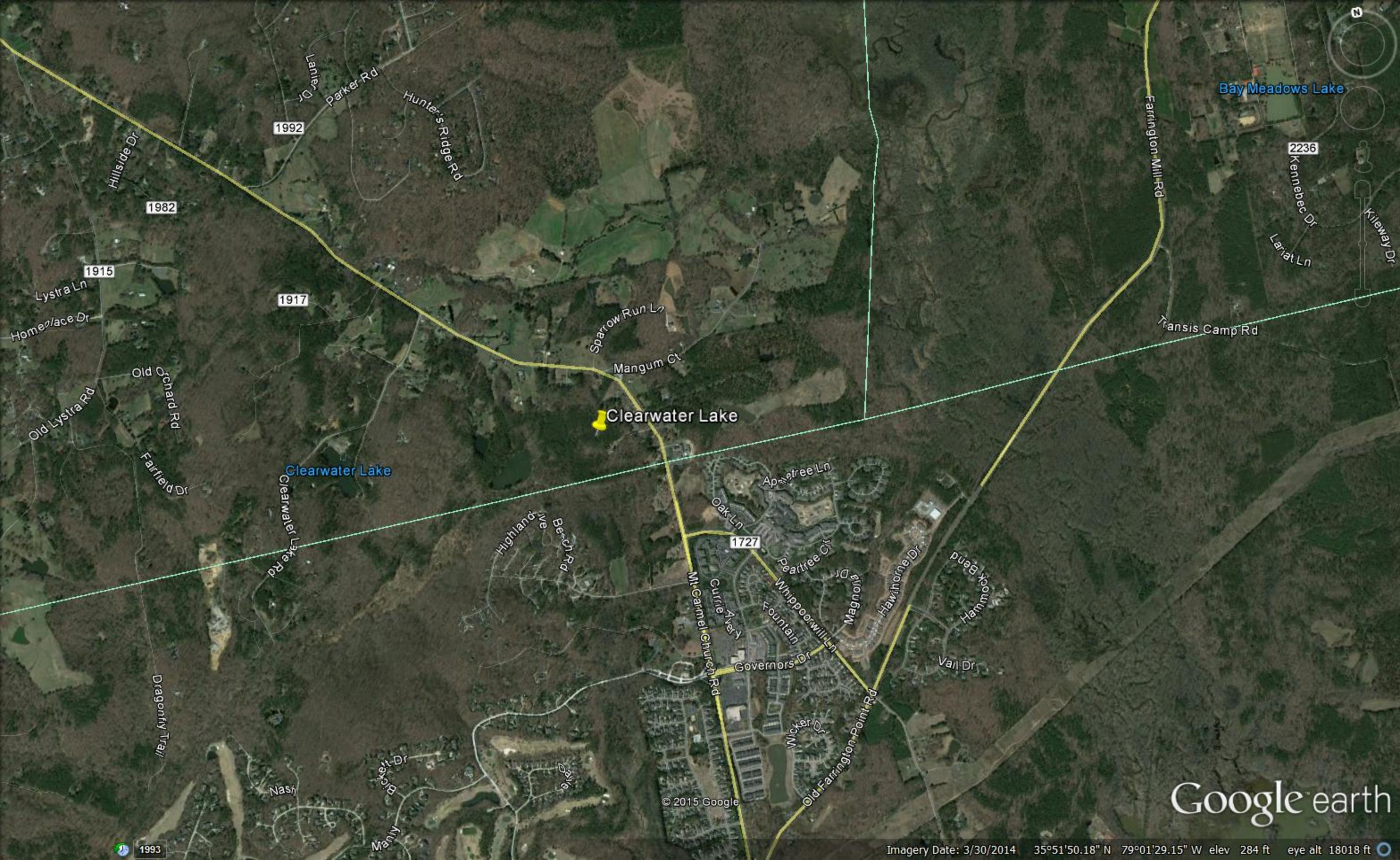
BY: 

NAME:

George Davis

ITS:

Senior VP / Managing Partner



Bay Meadows Lake

2236

Kileway Dr

Lariat Ln

Kennebec Dr

Transis Camp Rd

Farrington Mill Rd

Clearwater Lake

Sparrow Run Ln

Mangum Ct

1917

1982

1915

Lystra Ln

Homeplace Dr

Old Lystra Rd

Old Orchard Rd

Fairfield Dr

Clearwater Lake

Clearwater Lake Rd

Dragonfly Trail

Highland Ave

Beach Rd

Apple tree Ln

Oak Ln

1727

Pear tree Ct

Whippoorwill Ln

Fountain Dr

Governors Dr

Wicker Dr

Old Farrington Point Rd

Mt Carmel Church Rd

Curtis Ave

Wicker Dr

Old Farrington Point Rd

Hawthorne Dr

Magnolia Dr

Hawthorne Dr

Hammock Bend

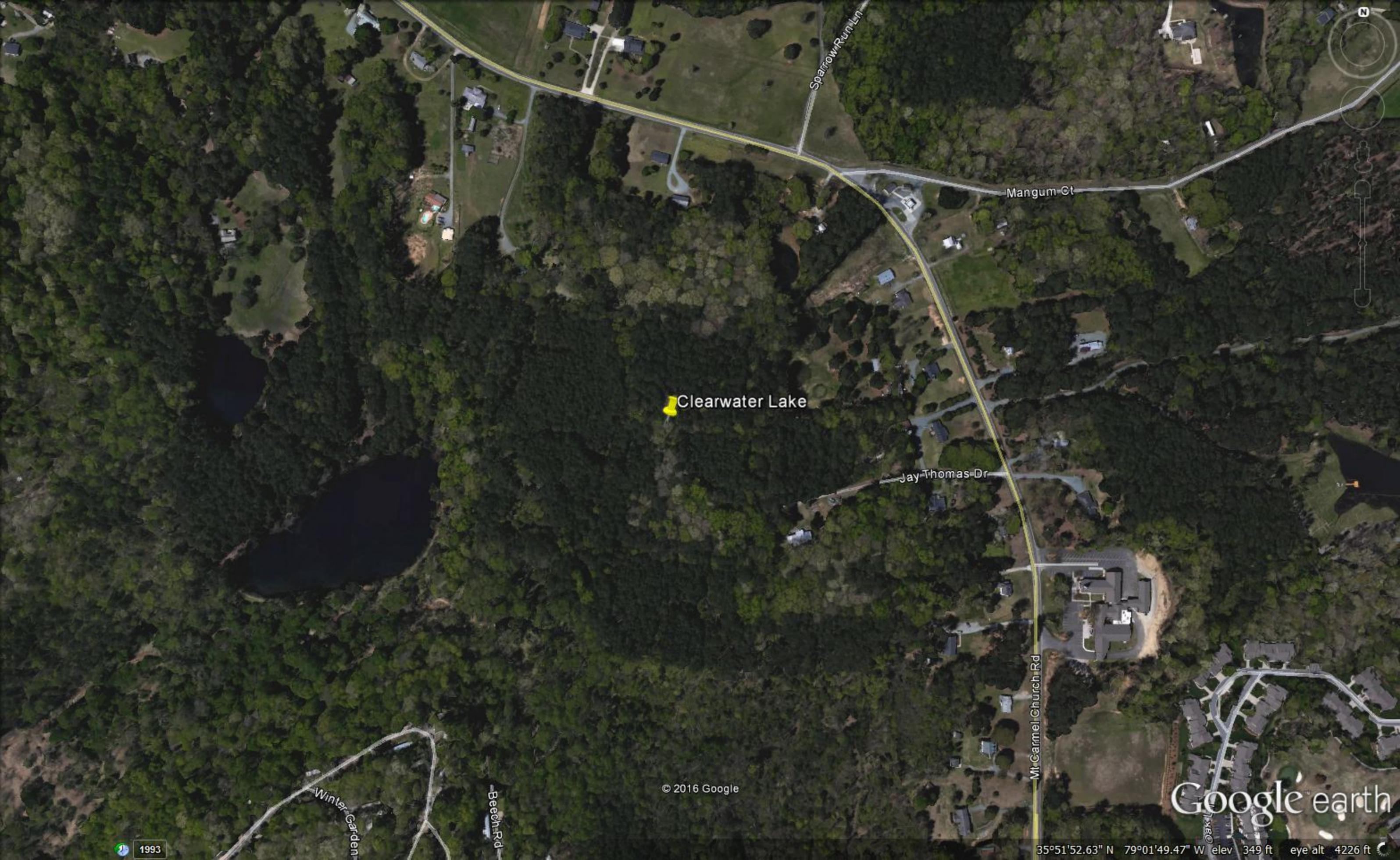
Vail Dr

© 2015 Google

Google earth

1993

Imagery Date: 3/30/2014 35°51'50.18" N 79°01'29.15" W elev 284 ft eye alt 18018 ft



Clearwater Lake

Sparrow Run Ln

Mangum Ct

Jay Thomas Dr

Mt Carmel Church Rd

Beech Rd

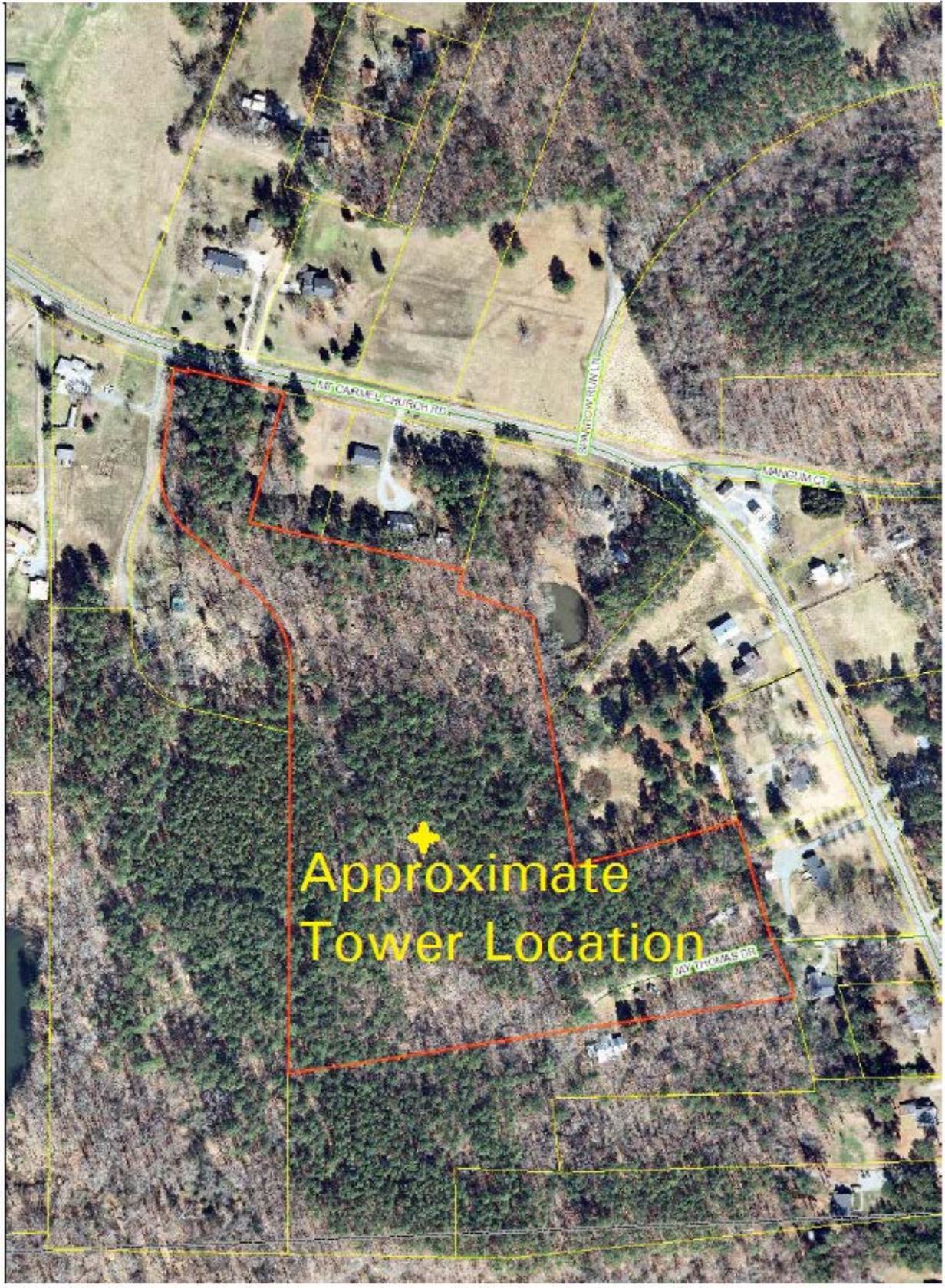
Winter Garden

© 2016 Google

Google earth

1993

35°51'52.63" N 79°01'49.47" W elev 349 ft eye alt 4226 ft



+

Approximate
Tower Location



Mount Carmel Church Road - looking toward the site



Mount Carmel Church Road - looking Southeast from site access



Mount Carmel Church Road - looking west from site access











Network Information

Verizon Wireless FCC License in Orange County, NC	
Type	License#
Cellular	KNKA293, KNKA358
700 MHz LTE	WQJQ690
AWS LTE	WQGA915
PCS	WQDD240, WQGN685

Nearby Existing Verizon Wireless Facilities				Power (watts)		
Site	Lattitude (NAD 83)	Longitude (NAD 83)	Distance	700 ERP	AWS EIRP	PCS EIRP
UNC CAMPUS	35-54-12.74 N	79-02-51.94 W	3mi.	97	175	175
CULBRETH	35-53-23.42 N	79-03-57.86 W	3mi.	147	142	
EDWARDS MOUNTAIN	35-50-02.30 N	79-03-06.90 W	2.5mi.	147		
FARRINGTON	35-54-11.10 N	78-58-49.10 W	4mi.	88	127	
FARRINGTON MILL	35-51-57.09 N	78-59-49.79 W	2mi.	97	195	
FRIDAY CENTER	35-54-00.00 N	79-00-52.00 W	3mi.	99	150	164
CARRBORO	35-54-08.90 N	79-04-11.59 W	3.5mi.	83	153	108
DAIMLER	35-51-42.68 N	79-05-05.40 W	3.5mi.	99	199	
CHEEK	35-50-20.00 N	79-05.26.00 W	4mi.	104.25		



HBXX-6516DS-VTM | HBXX-6516DS-A2M

Single Band Quad Port Antenna, 1710–2180 MHz, 65° horizontal beamwidth, RET compatible

- Each DualPol® array can be independently adjusted for greater flexibility
- Excellent gain, VSWR, front-to-back ratio, and PIM specifications for robust network performance
- Ideal choice for site collocations and tough zoning restrictions
- Great solution to maximize network coverage and capacity

Electrical Specifications

Frequency Band, MHz	1710–1880	1850–1990	1920–2180
Gain, dBi	17.7	18.0	18.0
Beamwidth, Horizontal, degrees	67	66	64
Beamwidth, Vertical, degrees	7.5	7.0	6.6
Beam Tilt, degrees	0–10	0–10	0–10
USLS (First Lobe), dB	18	18	18
Front-to-Back Ratio at 180°, dB	30	30	30
CPR at Boresight, dB	22	22	21
CPR at Sector, dB	8	9	9
Isolation, dB	30	30	30
VSWR Return Loss, dB	1.4 15.6	1.4 15.6	1.4 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350
Polarization	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	1710–1880	1850–1990	1920–2180
Gain by all Beam Tilts, average, dBi	17.2	17.2	17.5
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.3	±0.5
	0 ° 17.0	0 ° 17.1	0 ° 17.4
Gain by Beam Tilt, average, dBi	5 ° 17.3	5 ° 17.4	5 ° 17.7
	10 ° 17.0	10 ° 17.0	10 ° 17.2
Beamwidth, Horizontal Tolerance, degrees	±2.7	±2.3	±3.5
Beamwidth, Vertical Tolerance, degrees	±0.5	±0.4	±0.4
USLS, beampeak to 20° above beampeak, dB	18	19	19
Front-to-Back Total Power at 180° ± 30°, dB	26	26	26
CPR at Boresight, dB	22	22	22
CPR at Sector, dB	9	9	9

* 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.](#)

General Specifications

Antenna Type	Sector
Band	Single band
Brand	DualPol®
Operating Frequency Band	1710 – 2180 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Low loss circuit board
Radome Material	PVC, UV resistant
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	4
Wind Loading, frontal	419.0 N @ 150 km/h 94.2 lbf @ 150 km/h
Wind Loading, lateral	113.0 N @ 150 km/h 25.4 lbf @ 150 km/h
Wind Loading, rear	488.0 N @ 150 km/h 109.7 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 150 mph

Dimensions

Depth	166.0 mm 6.5 in
Length	1297.0 mm 51.1 in
Width	305.0 mm 12.0 in
Net Weight, without mounting kit	13.9 kg 30.6 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator HBXX-6516DS-A2M

Packed Dimensions

Depth	292.0 mm 11.5 in
Length	1427.0 mm 56.2 in
Width	402.0 mm 15.8 in
Shipping Weight	23.5 kg 51.8 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



Included Products

600899A-2 — 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



LNX-6515DS-VTM | LNX-6515DS-A1M

Single Band Antenna, 698–896 MHz, 65° horizontal beamwidth, RET compatible

- Excellent choice to maximize both coverage and capacity in suburban and rural applications
- Fully compatible with Andrew remote electrical tilt system for greater OpEx savings
- Exceptional horizontal pattern roll-off and strong front-to-back ratio
- Extended bandwidth allows one antenna to serve multiple frequency allocations
- Great solution to maximize network coverage and capacity
- The RF connectors are designed for IP67 rating and the radome for IP56 rating

Electrical Specifications

Frequency Band, MHz	698–806	806–896
Gain, dBi	16.7	17.6
Beamwidth, Horizontal, degrees	65	64
Beamwidth, Vertical, degrees	9.7	8.6
Beam Tilt, degrees	0–8	0–8
USLS (First Lobe), dB	17	17
Front-to-Back Ratio at 180°, dB	32	27
CPR at Boresight, dB	24	27
CPR at Sector, dB	15	13
Isolation, dB	30	30
VSWR Return Loss, dB	1.4 15.6	1.4 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°
Impedance	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–806	806–896
Gain by all Beam Tilts, average, dBi	16.6	16.9
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.3
	0 ° 16.6	0 ° 17.0
Gain by Beam Tilt, average, dBi	4 ° 16.6	4 ° 17.0
	8 ° 16.4	8 ° 16.8
Beamwidth, Horizontal Tolerance, degrees	±1	±0.9
Beamwidth, Vertical Tolerance, degrees	±0.6	±0.4
USLS, beampeak to 20° above beampeak, dB	18	18
Front-to-Back Total Power at 180° ± 30°, dB	25	23
CPR at Boresight, dB	24	27
CPR at Sector, dB	15	13

* 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.](#)

General Specifications

Antenna Type	Sector
Band	Single band
Brand	DualPol®
Operating Frequency Band	698 – 896 MHz

LNX-6515DS-VTM | LNX-6515DS-A1M

Performance Note

Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Aluminum
Radome Material	Fiberglass, UV resistant
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	2
Wind Loading, frontal	878.0 N @ 150 km/h 197.4 lbf @ 150 km/h
Wind Loading, lateral	273.0 N @ 150 km/h 61.4 lbf @ 150 km/h
Wind Loading, rear	1033.0 N @ 150 km/h 232.2 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 150 mph

Dimensions

Depth	180.5 mm 7.1 in
Length	2453.0 mm 96.6 in
Width	301.0 mm 11.9 in
Net Weight, without mounting kit	19.8 kg 43.7 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator LNX-6515DS-A1M

Packed Dimensions

Depth	295.0 mm 11.6 in
Length	2718.0 mm 107.0 in
Width	392.0 mm 15.4 in
Shipping Weight	36.9 kg 81.4 lb

Regulatory Compliance/Certifications

Agency

RoHS 2011/65/EU
China RoHS SJ/T 11364-2006
ISO 9001:2008

Classification

Compliant by Exemption
Above Maximum Concentration Value (MCV)
Designed, manufactured and/or distributed under this quality management system



Included Products

DB380-3 — Pipe Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Used for wide panel antennas. Includes

LNX-6515DS-VTM | LNX-6515DS-A1M

three clamp sets.

DB5083D — Downtilt Mounting Kit for 2.4"-4.5" (60-115 mm) OD round members. Consists of two DB5083 heavy-duty, galvanized steel downtilt mounting brackets. This kit is compatible with the DB380-3 pipe mount for panel antennas with three mounting points.

* **Footnotes**

Performance Note Severe environmental conditions may degrade optimum performance



Network Information (continued)

Antenna and power information for proposed CLEARWATER LAKE site.

Sector	Antenna Model	Radio Information	Pointing Azimuth	Max Radio Tx Power		FCC Max ERP	Designed ERP	Frequency	Modulation	FCC Class of Service
				Capability (Watts)	Designed TX power					
1	LNx-6515DS	RUL01 (shelter)	60	60	40	1000	111.68	746 - 757 Mhz 776 - 787 Mhz	LTE 64-QAM	WU - 700 Mhz Upper Band (Block C), Mobile/Fixed Broadband
2	LNx-6515DS	RUL01 (shelter)	180	60	40	1000	111.68	746 - 757 Mhz 776 - 787 Mhz	LTE 64-QAM	WU - 700 Mhz Upper Band (Block C), Mobile/Fixed Broadband
3	LNx-6515DS	RUL01 (shelter)	300	60	40	1000	111.68	746 - 757 Mhz 776 - 787 Mhz	LTE 64-QAM	WU - 700 Mhz Upper Band (Block C), Mobile/Fixed Broadband
1	HBXX-6516DS	RRUS12-B4	60	60	60	1640 (EIRP)	494.21 (EIRP)	2120-2130 Mhz, 2135-2140 Mhz 1720-1730 Mhz, 1735-1740 Mhz	LTE 64-QAM	AWS (1710-1755 and 2110-2155 MHz), Mobile/Fixed Broadband
2	HBXX-6516DS	RRUS12-B4	180	60	60	1640 (EIRP)	494.21 (EIRP)	2120-2130 Mhz, 2135-2140 Mhz 1720-1730 Mhz, 1735-1740 Mhz	LTE 64-QAM	AWS (1710-1755 and 2110-2155 MHz), Mobile/Fixed Broadband
3	HBXX-6516DS	RRUS12-B4	300	60	60	1640 (EIRP)	494.21 (EIRP)	2120-2130 Mhz, 2135-2140 Mhz 1720-1730 Mhz, 1735-1740 Mhz	LTE 64-QAM	AWS (1710-1755 and 2110-2155 MHz), Mobile/Fixed Broadband
1	HBXX-6516DS	RRUS12-B2	60	60	60	1640 (EIRP)	372.74 (EIRP)	1975-1990 Mhz 1895-1910 Mhz	LTE 64-QAM	CW - PCS Broadband, Mobile/Fixed Broadband
2	HBXX-6516DS	RRUS12-B2	180	60	60	1640 (EIRP)	372.74 (EIRP)	1975-1990 Mhz 1895-1910 Mhz	LTE 64-QAM	CW - PCS Broadband, Mobile/Fixed Broadband
3	HBXX-6516DS	RRUS12-B2	300	60	60	1640 (EIRP)	372.74 (EIRP)	1975-1990 Mhz 1895-1910 Mhz	LTE 64-QAM	CW - PCS Broadband, Mobile/Fixed Broadband



Michael Harvey, Supervisor/Planner III
Orange County Planning & Inspections Department
131 W. Margaret Lane, Suite 201
Hillsborough, North Carolina 27278

RE: Non-Interference Statement for Clearwater Lake

Dear Mr. Harvey:

Section 5.10.8.A.1.q of the Orange County Unified Development Ordinance (the "Ordinance") requires "certification that the NIER levels at the proposed site are within the threshold levels adopted by the FCC."

TowerCom IV, LLC proposes to construct a wireless telecommunication support structure at the Clearwater Lake site upon which Verizon Wireless will be the anchor tenant. Verizon Wireless operates a Wireless Network authorized by the Federal Communications Commission (FCC) to provide wireless communication throughout the nation, including Orange County, North Carolina. Verizon Wireless' operation and network are licensed and regulated by the FCC. The FCC rules governing the operation of wireless telecommunications facilities are designed to protect co-channel and adjacent licenses against harmful interference. The FCC has exclusive jurisdiction over these requirements.

The proposed "Clearwater Lake" Verizon Wireless facility is in compliance with all applicable FCC requirements. Verizon Wireless' engages in the following practices pertinent to complying with FCC requirements:

1. Verizon Wireless locates its transmitting antenna(s) in order to maximize vertical and horizontal separation from other operator's systems to minimize interference potential;
2. All operating hardware at the site is type-accepted by the FCC as far as emission levels within Verizon Wireless' licensed frequency band in addition to spurious emissions outside of Verizon Wireless frequency band;
3. The power levels generated by the base station hardware and corresponding effective radiated power (ERP) from the transmit antenna(s) are within the limitations specified by Part 22 of the Commission's Rules; and



4. Intermodulation studies are prepared and analyzed considering all carriers on the tower to ensure no mixing of frequencies will create harmful interference to/from Verizon Wireless' wireless system.

Verizon Wireless is committed to providing state of the art wireless services that benefits your community. If you have any questions please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "David Haughney", written over a horizontal line.

David Haughney
RF Engineer – Verizon Wireless

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
1120 SANCTUARY PKWY, #150 GASA5REG
ALPHARETTA, GA 30009-7630

Table with Call Sign (WQJQ690), File Number, and Radio Service (WU - 700 MHz Upper Band (Block C)).

FCC Registration Number (FRN): 0003290673

Table with columns: Grant Date, Effective Date, Expiration Date, Print Date, Market Number, Channel Block, Sub-Market Designator, Market Name, 1st Build-out Date, 2nd Build-out Date, 3rd Build-out Date, 4th Build-out Date.

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.

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).

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**Federal Communications Commission
Wireless Telecommunications Bureau**

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
1120 SANCTUARY PKWY, #150 GASAS5REG
ALPHARETTA, GA 30009-7630

Call Sign KNKA358	File Number
Radio Service CL - Cellular	
Market Numer CMA071	Channel Block A
Sub-Market Designator 0	

FCC Registration Number (FRN): 0003290673

Market Name Raleigh-Durham, NC
--

Grant Date 04-14-2015	Effective Date 08-07-2015	Expiration Date 05-15-2025	Five Yr Build-Out Date	Print Date
---------------------------------	-------------------------------------	--------------------------------------	-------------------------------	-------------------

Site Information:

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
11	35-40-33.0 N	078-42-53.0 W	130.4	88.4	1007412

Address: .25 MILES W OF INT. SR 1010 & LAKE WHEELER

City: McCullers Crossroads **County:** WAKE **State:** NC **Construction Deadline:**

Antenna: 4 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	89.900	127.300	132.400	115.400	121.100	96.500	108.600	101.100
Transmitting ERP (watts)	16.300	28.080	27.070	10.810	1.710	0.250	0.210	2.940
Antenna: 5 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	89.900	127.300	132.400	115.400	121.100	96.500	108.600	101.100
Transmitting ERP (watts)	0.520	0.730	5.930	29.720	52.840	30.410	6.350	1.080
Antenna: 6 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	89.900	127.300	132.400	115.400	121.100	96.500	108.600	101.100
Transmitting ERP (watts)	19.630	3.410	0.450	0.400	1.600	11.300	40.090	50.470

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: ALLTEL COMMUNICATIONS, LLC

ATTN: REGULATORY
ALLTEL COMMUNICATIONS, LLC
1120 SANCTUARY PKWY, #150 GASASREG
ALPHARETTA, GA 30009-7630

Call Sign KNKA293	File Number 0007022839
Radio Service CL - Cellular	
Market Numer CMA071	Channel Block B
Sub-Market Designator 0	

FCC Registration Number (FRN): 0018437624

Market Name Raleigh-Durham, NC
--

Grant Date 01-05-2016	Effective Date 01-05-2016	Expiration Date 02-09-2026	Five Yr Build-Out Date	Print Date 01-05-2016
---------------------------------	-------------------------------------	--------------------------------------	-------------------------------	---------------------------------

Site Information:

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
-----------------	-----------------	------------------	----------------------------------	--------------------------------------	---

3 36-02-26.5 N 079-13-16.1 W 211.8

Address: BUCKHORN CELL SITE: SR 1114, 2.6 MILES SOUTH OF

City: BUCKHORN **County:** ORANGE **State:** NC **Construction Deadline:**

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	98.000	103.100	101.200	117.400	126.800	112.500	109.600	109.800
Transmitting ERP (watts)	29.000	29.000	29.000	29.000	29.000	29.000	29.000	29.000

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
-----------------	-----------------	------------------	----------------------------------	--------------------------------------	---

5 35-52-35.5 N 078-26-47.0 W 113.7

Address: Rolesville Cell Site. Michelle Mill Rd. .2 miles SE 0.2 MILE SE OF INTERSECTION

City: ROLESVILLE **County:** WAKE **State:** NC **Construction Deadline:**

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	64.700	77.600	98.300	99.900	103.400	117.000	108.900	95.200
Transmitting ERP (watts)	89.100	89.100	39.800	7.100	0.400	0.500	4.200	31.600

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.

REFERENCE COPY

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
1120 SANCTUARY PKWY, #150 GASA5REG
ALPHARETTA, GA 30009-7630

Call Sign WQGA915	File Number
Radio Service AW - AWS (1710-1755 MHz and 2110-2155 MHz)	

FCC Registration Number (FRN): 0003290673

Grant Date 11-29-2006	Effective Date 03-30-2016	Expiration Date 11-29-2021	Print Date
Market Number BEA019	Channel Block B	Sub-Market Designator 0	
Market Name Raleigh-Durham-Chapel Hill, NC			
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.

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
1120 SANCTUARY PKWY, #150 GASA5REG
ALPHARETTA, GA 30009-7630

Table with Call Sign (WQPZ961), File Number, and Radio Service (AW - AWS) details.

FCC Registration Number (FRN): 0003290673

Table with columns: Grant Date, Effective Date, Expiration Date, Print Date, Market Number, Channel Block, Sub-Market Designator, Market Name, 1st-4th Build-out Dates.

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...

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...

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
1120 SANCTUARY PKWY, #150 GASA5REG
ALPHARETTA, GA 30009-7630

Table with Call Sign (WQDD240), File Number (0007310592), and Radio Service (CW - PCS Broadband).

FCC Registration Number (FRN): 0003290673

Table with columns: Grant Date, Effective Date, Expiration Date, Print Date, Market Number, Channel Block, Sub-Market Designator, Market Name, 1st Build-out Date, 2nd Build-out Date, 3rd Build-out Date, 4th Build-out Date.

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

This authorization is conditioned upon the full and timely payment of all monies due pursuant to Sections 1.2110 and 24.711 of the Commission's Rules and the terms of the Commission's installment plan as set forth in the Note and Security Agreement executed by the licensee. Failure to comply with this condition will result in the automatic cancellation of this authorization.

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.

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).

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: ALLTEL COMMUNICATIONS, LLC

ATTN: REGULATORY
ALLTEL COMMUNICATIONS, LLC
1120 SANCTUARY PKWY #150 - GASA5REG
ALPHARETTA, GA 30009

Call Sign WQGE359	File Number 0007310447
Radio Service CW - PCS Broadband	

FCC Registration Number (FRN): 0018437624

Grant Date 08-29-2016	Effective Date 08-29-2016	Expiration Date 09-17-2026	Print Date 08-30-2016
Market Number BTA368	Channel Block C		Sub-Market Designator 4
Market Name Raleigh-Durham, NC			
1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

This authorization is conditioned upon the full and timely payment of all monies due pursuant to Sections 1.2110 and 24.711 of the Commission's Rules and the terms of the Commission's installment plan as set forth in the Note and Security Agreement executed by the licensee. Failure to comply with this condition will result in the automatic cancellation of this authorization.

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
1120 SANCTUARY PKWY, #150 GASA5REG
ALPHARETTA, GA 30009-7630

Table with Call Sign (WQGN685), File Number (0007310579), and Radio Service (CW - PCS Broadband).

FCC Registration Number (FRN): 0003290673

Table with columns: Grant Date, Effective Date, Expiration Date, Print Date, Market Number, Channel Block, Sub-Market Designator, Market Name, 1st Build-out Date, 2nd Build-out Date, 3rd Build-out Date, 4th Build-out Date.

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

This authorization is conditioned upon the full and timely payment of all monies due pursuant to Sections 1.2110 and 24.711 of the Commission's Rules and the terms of the Commission's installment plan as set forth in the Note and Security Agreement executed by the licensee. Failure to comply with this condition will result in the automatic cancellation of this authorization.

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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ROSTER OF PROPERTY OWNERS WITHIN ONE THOUSAND FEET (1000') OF 1941 MT. CARMEL CHURCH ROAD, CHAPEL HILL, NORTH CAROLINA 27514

PIN	Owner 1	Owner2	Address	City	State	Zip
9797017320	JESSE C RILEY	SYLVIA RILEY	1800 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27517
9787903749	FRANCES HOWELL FRIDAY	JOHN M MULLEN	1637 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27514
9797002653	DAVID R BARNES	PATRICIA T BARNES	1725 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27517
9797002059	PHILIP M SPARROW	CYNTHIA R PURVIS	1729 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27517
9797203235	WALLACE S GRAGG	ESTA H GRAGG	10008 CREW	CHAPEL HILL	NC	27517
9797019116	JAMES MICHAEL CAMPBELL, JR.	CAROL R CAMPBELL	1812 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27514
9797109338	ROBERT W BRITT		717 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27514
9797203645	NATHALIE WORTHINGTON TRUST		6822 22ND AVE #222	ST PETERSBURG	FL	33710
9797111286	JESSE C RILEY	SYLVIA S RILEY	1800 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27517
9796290405	WYNNE C THOMAS TRUSTEE		1003 JAY THOMAS DR	CHAPEL HILL	NC	27517
9797005005	EDWARD S WILLIAMS		81112 ALEXANDER	CHAPEL HILL	NC	27517
9787909927	JONATHAN M SPARROW		1544 CLEARWATER LAKE RD	Chapel Hill	NC	27517
9797108903	JAMES F ANDERSON, JR.	SOLVEIG K ANDERSON	204 EDGEWATER CIR	Chapel Hill	NC	27516
9797104314	ARVILLA STIFFLER	JAMES M JOHNSON	1841 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27514
9797116321	RYAN BAYLEY	INDIA BAILEY	7015 SPARROW RUN LN	CHAPEL HILL	NC	27517
9796281089	WILLIAM D GOODRICH		1175 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27517
9797207103	LARRY T SHORT		2002 MT CARMEL CH RD	CHAPEL HILL	NC	27517
9796099658	BUCKNER FAMILY FARM TRUST		109 W FRANKLIN ST SUITE 1	ROCKINGHAM	NC	28379
9797019356	CARLA R HORNER	FRANK HORNER	1808 MT CARMEL CHURCH RD	Chapel Hill	NC	27517
9797017320	JESSE C RILEY	SYLVIA RILEY	1800 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27517
9786993441	DOVEFIELD, LLC		901 WILLOW DR, SUITE 2	CHAPEL HILL	NC	27514
9797008868	JAMES M CAMPBELL, JR.	CAROL R CAMPBELL	1812 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27514
9787908007	JONATHAN M SPARROW		1154 CLEARWATER LAKE RD	Chapel Hill	NC	27517
9797008522	FRANK M MARONEY		1811 MT CARMEL CHURCH RD	Chapel Hill	NC	27514
9797205340	WALLACE S GRAGG	ESTA H GRAGG	10008 CREW	CHAPEL HILL	NC	27517
9797100429	CLARENCE OAKLEY		1819 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27517
9796294466	L SHORT, LLC		P O BOX 150	CHAPEL HILL	NC	27514
9796088785	THOMAS M CHEEK, JR.	SUSIE M CHEEK	993 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27514
9797013402	CUB CREEK PROPERTY, LLC		129 TIMBERHILL PLACE	CHAPEL HILL	NC	27514
9787917613	CUB CREEK PROPERTY, LLC		100 TIMBERHILL PLACE, UNIT 129	CHAPEL HILL	NC	27514
9797111615	FRANKIE D HORNER, JR.	CARLA R HORNER	1808 MT CARMEL CHURCH RD	Chapel Hill	NC	27517
9796293115	MOUNT CARMEL BAPTIST CHURCH OF CHAPEL HILL NORTH CAROLINA INC		2016 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27514
9787907688	JONATHAN M SPARROW		1154 CLEARWATER LAKE RD	Chapel Hill	NC	27517
9796190185	NITA B HONEYCUTT		7984 OLD GRAHAM RD	PITTSBORO	NC	27312
9796199911	NORMAN JAMES HORTON		1923 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27514
9796290637	HELGA HORTON		1937 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27517
9796291368	JANET LEIGH MCDUFFIE	LLOYD G BELPERAIN	2009 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27517
9797107003	CHARLES C DANIEL, III	MYRA DANIEL	222 ROBERTSON RD	ROXBORO	NC	27574
9797002474	CHERNOFF AMBER A CORBIN		1733 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27517
9796196140	MOUNT CARMEL BAPTIST CHURCH OF CHAPEL HILL NORTH CAROLINA INC		2016 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27514
9796399672	L SHORT, LLC		P O BOX 150	CHAPEL HILL	NC	27514
9796093295	DOVEFIELD, LLC		901 WILLOW DR STE 2	CHAPEL HILL	NC	27514
9796383969	CAROLINA MEADOWS		100 CAROLINA MEADOWS	CHAPEL HILL	NC	27517
978602766704	DOVEFIELD, LLC		901 WILLOW DRIVE, SUITE 2	CHAPEL HILL	NC	27514

ROSTER OF PROPERTY OWNERS WITHIN ONE THOUSAND FEET (1000') OF 1941 MT. CARMEL CHURCH ROAD, CHAPEL HILL, NORTH CAROLINA 27514

978602974756	NATURE TRAIL ASSOCIATES		9073 NEMO STREET	WEST HOLLYWOOD	CA	90069
979600085856	DOVEFIELD, LLC		901 WILLOW DRIVE, SUITE 2	CHAPEL HILL	NC	27514
979600088897	AARON HONEYCUTT		7984 OLD GRAHAM RD	PITTSBORO	NC	27312
979600185900	WILLIAM D GOODRICH		1175 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27514
979600181672	DONALD L CHEEK	RONALD CHEEK	4348 CHATHAM CHURCH RD	SANFORD	NC	27330
979600000000	BEN F CHEEK	ELLEN CHEEK	1130 MADISON WOMBLE RD	CHAPEL HILL	NC	27514
979600183401	LOIS C HOENIG		309 LINDSEY ST EXT	CARRBORO	NC	27510
979600180105	ALICE D CHEEK MARTINDALE		5 CAROLINA MEADOWS, APT 303	CHAPEL HILL	NC	27517
979600186601	ROCKY M CCAMPBELL	KIMBERLEIGH MCCAMPBELL	11310 GOVERNORS DR	CHAPEL HILL	NC	27517
979600189607	JOHN W HUFFSTETLER	PHILIP M HUFFSTETLER	231 PITTSBORO SCHOOL RD	PITTSBORO	NC	27312
979600185391	CAROLINA MEADOWS INC		100 CAROLINA MEADOWS	CHAPEL HILL	NC	27517
979600185391	CAROLINA MEADOWS INC		100 CAROLINA MEADOWS	CHAPEL HILL	NC	27517
979600189114	CAROLINA MEADOWS INC		100 CAROLINA MEADOWS	CHAPEL HILL	NC	27517
979600283619	MT CARMEL BAPTIST CHURCH OF CHAPEL HILL NORTH CAROLINA INC		2016 MT CARMEL CHURCH RD	CHAPEL HILL	NC	27514
979600356551	CAROLINA MEADOWS INC		100 CAROLINA MEADOWS	CHAPEL HILL	NC	27517
979600382317	CAROLINA MEADOWS INC		100 CAROLINA MEADOWS	CHAPEL HILL	NC	27517



PENNINGTON
L A W F I R M , L L C

LAURA D. ASKINS, ESQUIRE
LAURAASKINS@PENNLAWFIRM.COM
*LICENSED IN NORTH CAROLINA

November 22, 2016

VIA FED EX AND EMAIL

Michael Harvey, Supervisor/Planner III
Orange County Planning & Inspections Department
131 W. Margaret Lane, Suite 201
Hillsborough, North Carolina 27278

RE: BALLOON TEST AND NEIGHBORHOOD INFORMATION NOTICE BY
TOWERCOM IV, LLC FOR THE CONSTRUCTION OF A NEW
TELECOMMUNICATION TOWER AND RELATED APPURTENANCES

(CLEARWATER LAKE SITE / PC LAW NO. 1265-001)
(SITE ADDRESS: 1941 MT. CARMEL CHURCH ROAD, CHAPEL HILL,
NORTH CAROLINA 27514)

Dear Mr. Harvey:

TowerCom IV, LLC proposes to build a new telecommunication tower and related appurtenances at the above-referenced address. Graham Herring will be conducting a Balloon Test pursuant to Section 5.10.8 of the Orange County Unified Development Ordinance, as well as providing a visual depiction of the tower site visibility. The Balloon Test will be flown on Saturday, October 15, 2016 for four (4) consecutive hours between 10:00 a.m. and 2:00 p.m. In case of poor weather or visibility, the balloon test will be held during the same hours on the first weekday thereafter that weather permits. This meeting date/time shall also serve as the Neighborhood Information Meeting (NIM) required for all special use permit applications.

Sincerely,

PENNINGTON LAW FIRM, L.L.C.

A handwritten signature in blue ink that reads "Laura D. Goode".

Laura D. Goode

1501 Main Street, Suite 600 (29201)
Post Office Box 2844, Columbia, South Carolina 29202
Telephone: 803-929-1070 Fax: 803-929-1075

www.pennlawfirm.com



September 28, 2016

Michael Harvey, Supervisor/Planner III
Orange County Planning & Inspections Department
131 W. Margaret Lane, Suite 201
Hillsborough, North Carolina 27278

RE: APPLICATION FOR ZONING APPROVAL BY TOWERCOM IV, LLC FOR
THE CONSTRUCTION OF A NEW TELECOMMUNICATION TOWER AND
RELATED APPURTENANCES

Dear Mr. Harvey:

Per the Orange County Unified Development Ordinance the following is required:

5.10.8.B.3.d: Evidence that the applicant has investigated the possibilities of placing the proposed equipment on an existing wireless support structure. Such evidence shall consist of:

- i. A listing of all wireless telecommunications support structures within a two (2) mile radius of the proposed wireless support structure site and a listing of all wireless support structure, utility poles and other structures in the vicinity of the proposed facility that are technically feasible for utilization by the applicant to fill all or a substantial portion of the telecommunications service need identified by the Applicant pursuant to section 5.10.8(A)(1)(s). Documents shall be submitted at the time of application filing that indicates the applicant's ability or inability to co-locate on the identified tower(s) and reasons why.

And

5.10.8.B.4.a: The telecommunications equipment planned for the proposed wireless support structures cannot be accommodated on an existing wireless support structures due to one or more of the following reasons:

- i. The planned equipment would exceed the structural capacity of existing and approved wireless support structures, considering existing and planned use of those wireless support structures and the wireless support structures cannot be reinforced to accommodate planned or equivalent equipment at a reasonable cost.
- ii. The planned equipment would cause radio frequency interference with other existing or planned equipment for these wireless support structures, and the interference cannot be prevented at a reasonable cost.
- iii. Existing or approved wireless support structures do not have space on which the equipment can be placed so it can function effectively and reasonably in parity with similar existing or approved equipment.
- iv. No tower or other suitable facility exists in an area where the equipment to be placed on the tower will function in its intended manner.



North Carolina General Statute Section 153A-349.52(c)(3) establishes that “a county may require applicants for new wireless facilities to evaluate the reasonable feasibility of collocating new antennas and equipment on an existing wireless support structure or structures *within the applicant’s search ring.*” (emphasis added) The search ring for the proposed site is smaller than a two (2) mile radius, thus mandating the Applicant to prove an inability to collocate on structures outside the search ring violates North Carolina General Statute Section 153A-349.52(c)(3). Please note that it remains the position of TowerCom and Verizon Wireless that the North Carolina General Statutes control the review and approval of this Application, but in the interest of time, we are submitting the information requested by Section 5.10.8.B.3.d.i of the Ordinance. TowerCom and Verizon Wireless reserve their rights to challenge the validity of any portion of the Ordinance, as it relates to this application, and any future application, which TowerCom and/or Verizon Wireless considers to be invalid or inconsistent with the mandates of the North Carolina General Statutes, and the submission of this information will not be deemed a waiver of such rights.

Please let this letter serve as certification that the Applicant has investigated the possibilities of placing the proposed equipment on an existing wireless support structure.

No tower or other suitable facility exists within the area where the equipment to be placed on the tower will function in its intended manner. There is one (1) wireless telecommunications support structure within a two (2) mile radius of the proposed site. This wireless telecommunications support structure is not within the search area for the tower. Verizon Wireless is already co-located on this wireless telecommunications support structure, shown as the “Farrington Mill” site in the Map of Existing Verizon Wireless Sites. There are no wireless telecommunications support structures within the search area and no alternative structures of sufficient height within the search area feasible for collocation. Therefore, a new telecommunication tower is required. Please refer to the Search Ring Map, attached hereto as Exhibit 5. Please also refer to the Map of Existing Verizon Wireless Sites, attached hereto as Exhibit 6.

Sincerely,

A handwritten signature in blue ink, appearing to read 'John A. Yeagley', is written over a light blue horizontal line.

John A Yeagley
Senior Site Acquisition Specialist



Mail Processing Center
 Federal Aviation Administration
 Southwest Regional Office
 Obstruction Evaluation Group
 10101 Hillwood Parkway
 Fort Worth, TX 76177

Aeronautical Study No.
 2015-ASO-15999-OE

Issued Date: 11/18/2015

Patricia Alemparte Glass
 Tower Com (PAG)
 5611 NC Hwy 55
 Suite 201
 Durham, NC 27713

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Antenna Tower Clearwater Lake
 Location: Chapel Hill, NC
 Latitude: 35-51-52.84N NAD 83
 Longitude: 79-01-50.83W
 Heights: 276 feet site elevation (SE)
 199 feet above ground level (AGL)
 475 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

This determination expires on 05/18/2017 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (718) 553-2611. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2015-ASO-15999-OE.

Signature Control No: 267198953-273101266

(DNE)

Angelique Eersteling
Technician

Attachment(s)
Frequency Data

cc: FCC

Frequency Data for ASN 2015-ASO-15999-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
698	806	MHz	1000	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1850	1910	MHz	1640	W
1930	1990	MHz	1640	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W

TOWER/STRUCTURE REMOVAL BOND

Bond Number TBD

KNOW ALL MEN BY THESE PRESENTS, TowerCom IV, LLC, as Principal, and Western Surety Company, a Corporation duly organized under the laws of the State of South Dakota, as Surety, are held and firmly bound unto Orange County, North Carolina, 200 S Cameron Street, Hillsborough, NC 27278, as Obligee, in the sum of Eighty One Thousand Five Hundred Thirty Seven Dollars and 50 cents lawful money of the United States, for payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents, the liability of the Surety being limited to the penal sum of this bond regardless of the number of years the bond is in effect.

WHEREAS, the Principal has entered into a written agreement with the property owner for the placement of a tower or structure furnishing telephone, television or other electronic media service which agreement sets forth the terms and conditions which govern the use of such towers and structures and which agreement is hereby specifically referred to and made part hereof, and

WHEREAS, Orange County, North Carolina, 200 S Cameron Street, Hillsborough, NC 27278 Ordinance requires the submission of a bond guaranteeing the maintenance, replacement, removal or relocation of said tower or structure, Site: 1941 Mt. Carmel Church Road, Chapel Hill, NC 27514 – Clearwater Lake.

NOW THEREFORE, the condition of this obligation is such, that if the above bounden Principal shall perform in accordance with the aforesaid ordinance and/or agreement, and indemnify the Obligee against all loss caused by Principal's breach of any ordinance or agreement relating to maintenance, replacement, removal or relocation of a tower or structure, then this obligation shall be void, otherwise to remain in full force and effect unless cancelled as set forth below.

THIS BOND may be cancelled by the Surety by giving sixty (60) days written notice by certified mail to the Orange County, North Carolina, 200 S Cameron Street, Hillsborough, NC 27278. Such cancellation shall not affect any liability the Surety may have or incurred under this bond prior to the effective date of the termination.

THIS BOND is signed, sealed, dated on the 14th day of September. This bond is effective the 14th day of September, 2016.

TowerCom IV, LLC _____

By: _____

Western Surety Company _____

By: _____

Kyle C Whitman, Attorney-in-Fact

This bond is continuous and remains in full force and effect until cancelled according to the terms herein stated above; however, for verification purposes you may contact the insurance agent: Greene-Hazel/HUB International, 10739 Deerwood Park Boulevard, #200, Jacksonville, FL 32256 Telephone Number (904)398-1234. Changes required in the bond can be accomplished by a change rider issued by the agent.

The liability of the Surety shall be limited to the amount set forth and is not cumulative.



South Carolina Tel-Con

P.O. Box 27131
Greenville, SC 29616
(864) 322-5743 Phone
(864) 292-0817 Fax

8/16/168

TowerCom
5611 NC Highway 55, Suite 201
Durham, NC 27713

Attn: George Davis

Ref: Clearwater Lake Demo

PROPOSAL

Clearwater Lake Demo:

1. Remove existing 195' Monopole.
2. Remove all ground equipment.
3. Restore site.

Total Cost = \$74,125.00

Quote good for 30 days. We propose to furnish materials and labor at the prices and terms as stipulated above:

The Undersigned accepts this proposal and all its terms
And conditions as a binding contract subject only to the
approval of the credit of the Buyer by the Seller which shall not be
unreasonably withheld.

Company: _____

By: _____

Title: _____

Date: _____

**SOUTH CAROLINA TEL-CON
NC GC License #43392**


8/16/16

License Year

2016

License No.

43392

North Carolina

Licensing Board for General Contractors

This is to Certify That:

South Carolina Tel-Con, Inc.
Greenville, SC

is duly registered and entitled to practice

General Contracting

Limitation: Unlimited
Classification: Building; PU (Communications)

until

December 31, 2016

when this Certificate expires.

Witness our hands and seal of the Board.

Dated, Raleigh, N.C.

January 1, 2016

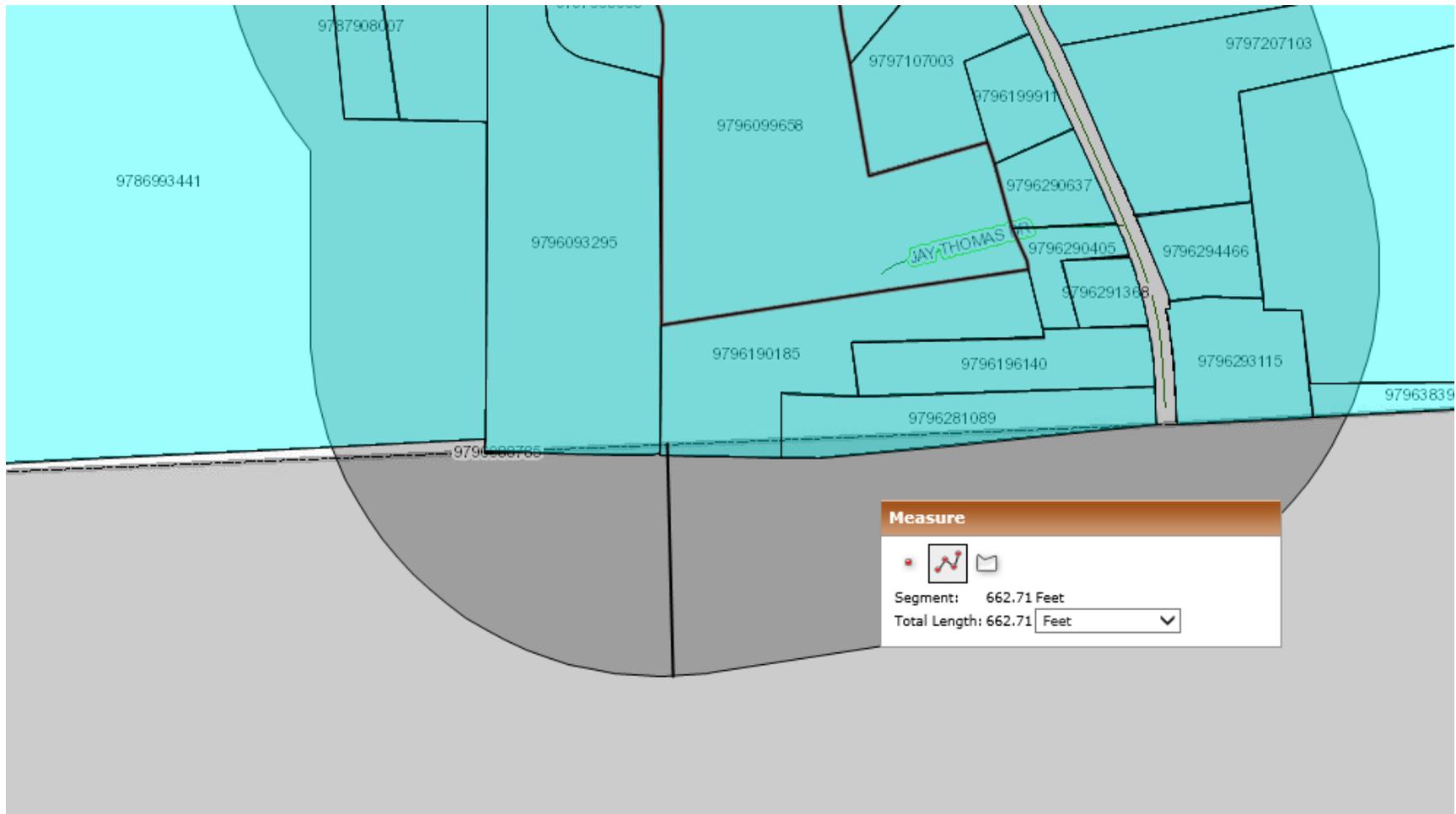
This certificate may not be altered.

Mrs. Hambl
Chairman

C. Paul Wiener
Secretary-Treasurer



Note: Since Chatham County GIS website will not allow a buffer to be built on a parcel in Orange County, measurements were taken from the drawn buffer created by the Orange County Interactive Mapping website to determine the extent of the 1,000' buffer into Chatham County with those measurements used to identify parcels in Chatham County within the buffer.





September 16, 2016

Michael Harvey, Supervisor/Planner III
Orange County Planning & Inspections Department
131 W. Margaret Lane, Suite 201
Hillsborough, North Carolina 27278

RE: APPLICATION FOR ZONING APPROVAL BY TOWERCOM IV, LLC FOR THE CONSTRUCTION OF A NEW WIRELESS TELECOMMUNICATION TOWER AND RELATED APPURTENANCES

Technological Infeasibility of Flush Mounted Antennas – Clearwater Lake Site

Dear Mr. Harvey:

Per **Section 5.10.8.B.4.p.i** of the Orange County Unified Development Ordinance the following is required:

All new or replacement antennas, except omni-directional whip antennas, shall be flush-mounted or as close to flush-mounted as is technologically possible on any facility, so long as such does not have the effect of prohibiting the provision of service to the intended service area, alone or in combination with another site(s), unless the applicant can prove that it is technologically impracticable.

Please let this letter serve as certification that it is technologically impracticable to flush mount the antennas on the proposed new Clearwater Lake telecommunication tower.

A flush mount antenna design imposes a restriction of a single antenna panel per sector and three (3) sectors maximum, meaning a maximum of three (3) total antennas can be used when antennas are flush mounted. To meet the RF objective for the Clearwater Lake site, initially, a total of nine (9) antennas are required, three (3) on each of three (3) sectors. Up to three (3) additional antennas, one (1) on each of three (3) sectors could be required in the future, for a potential total of twelve (12) antennas, four (4) on each of three (3) sectors. Reducing the number of antennas to a total of three (3) by flush mounting would have the effect of prohibiting the provision of service in the intended service area as it would reduce the ability to meet the network objective of increasing coverage in the Clearwater Lake area, and reduce the ability to provide the needed capacity offload to the existing UNC Campus Verizon Wireless site. Therefore, flush mounting would not to meet the RF objective for the site, making flush mounting technologically impracticable. This single panel per sector design also inhibits RF engineering from obtaining the optimal azimuths required because the antennas must be mounted flush to the pole, restricting their pointing direction and tilt. This limitation on obtaining optimal azimuths would further diminish the ability to meet the RF objective for the Clearwater Lake site, making flush mounting technologically impracticable.

Additionally, flush mounted antennas, because they combine multiple antenna elements for several frequency bands into a single antenna radome, have lower gain characteristics and require additional in-line components to combine/de-combine frequencies which in turn add more losses to the transmission system. Typical Flush-Mount concealed designs also limit the ability to employ top-mounted radios or amplifiers which again introduce more path losses into the design. Verizon Wireless' optimal design for this site includes six (6) top mounted radios, two (2) per sector, specifically for our higher band AWS and PCS frequencies since these frequencies are less tolerant to losses and require noise filtering and low noise amplification as close to the received signal as possible (at the antenna). These factors result in significantly reduced coverage footprint and capacity capability for flush mount concealed antenna designs as opposed to traditional designs that impose less restrictions on the antenna configuration. Thus, the Clearwater Lake site's ability to provide additional coverage and capacity offload would be greatly reduced by flush mounting of the proposed antennas, and as a result the RF objective for the site would not be met, making flush mounting technologically impracticable.

From a technology/modulation perspective, the flush mount design is inferior because it cannot support optimal use of the latest 4G and developing 5G technologies for superior capacity and performance. These technology advancements include 4-way receive, 4-way transmit, Smart Antenna Beam Forming and Multiple Input/Multiple Output (MIMO). These technologies require multiple spatially separated antennas to greatly improve performance, speed and capacity compared to a flush mount design that offers no spatial separation between antennas of a sector and limits the amount of antenna ports/elements that can be utilized for MIMO. Lin Zhong, associate professor of computer science at Rice University, made the following statements supporting MIMO in a recent interview, "MIMO, or 'multiple-input, multiple-output,' is a wireless networking technique aimed at transferring data more efficiently by having several antennas work together to exploit a natural phenomenon that occurs when signals are reflected en route to a receiver. The phenomenon, known as multipath, can cause interference, but MIMO alters the timing of data transmissions in order to increase throughput using the reflected signals. MIMO is already used for 4G LTE and in the latest version of Wi-Fi, called 802.11ac.... It increases capacity further by effectively focusing signals on individual users, allowing numerous signals to be sent over the same frequency at once... If you have more antennas, you can serve more users," says professor Zhong. In this regard, flush mounting would further diminish the quality of service provided by the proposed Clearwater Lake site.

For all of the above-mentioned reasons, flush mounting of the proposed antennas on the Clearwater Lake new telecommunication tower is no technologically feasible.

Sincerely,

**CELLCO PARTNERSHIP
D/B/A VERIZON WIRELESS**

David Haughney

David Haughney
RF Design Engineer

LICENSE OR PERMIT BOND

Bond Number: _____

KNOW ALL PERSONS BY THESE RESENTS, That we TowerCom IV, LLC, of 5611 NC Highway 55, Suite 201, Durham, NC 27713, hereinafter referred to as the Principal, and Western Surety Company, as Surety, are held and firmly bound unto Orange County, North Carolina, of 200 S Cameron St, Hillsborough, NC 27278, hereinafter referred to as the Obligee, in the sum of Seventy-Five Thousand Dollars (\$75,000.00), for the payment of which we bind ourselves, our legal representatives, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, That whereas, the Principal has made application for a license or permit to the Obligee for the purpose of adhering to Orange County, NC County Ordinance 5.10 - Special Use Permit – Clearwater Lake.

NOW, THEREFORE, if Principal shall faithfully comply with all ordinances, rules and regulations which have been or may hereafter be in force concerning said License or Permit, and shall save and keep harmless the Obligee from all loss or damage which it may sustain or for which it may become liable on account of the issuance of said license or permit to the Principal, then this obligation shall be void, otherwise, to remain in full force and effect.

THIS BOND may be cancelled by the Surety by giving sixty (60) days written notice by certified mail to the Orange County, NC, 200 S Cameron Street, Hillsborough, NC 27278. Such cancellation shall not affect any liability the Surety may have or incurred under this bond prior to the effective date of the termination.

THIS BOND is signed, sealed, dated on the 27th day of September, 2016.

(Principal)

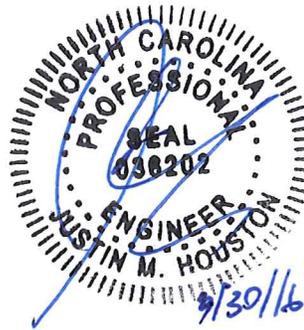
By _____ (Seal)

(Surety)

By _____ (Seal)

*Hydrology Study and Stormwater
Management*

Verizon Wireless
Clearwater Lake
Orange County, North Carolina



September 29, 2016

Kimley-Horn and Associates, Inc.
10 Roswell Street, Suite 210
Alpharetta, GA 30009

Table of Contents

- I. Hydrology Report
 - 1.0 Background
 - 1.1 Project Description
 - 1.2 Objectives
 - 1.3 Scope and Strategy
 - 1.4 Model Development
 - 2.0 Pre-developed Conditions
 - 2.1 Overview
 - 2.2 Drainage
 - 2.3 Summary
 - 3.0 Post-developed Conditions
 - 3.1 Overview
 - 3.2 Flow Routed to Detention
 - 3.3 Summary
 - 4.0 Summary of Flows
 - 5.0 Nutrient Loading
- Appendix A – Basin Maps and Exhibits
 - 1) Exhibit 1 - Pre-development Basin Map
 - 2) Exhibit 2 –Post-development Basin Map
 - 3) Exhibit 3 – Hydrologic Soil Map
- Appendix B – ICPR Model Input and Output
- Appendix C – Nutrient Loading

I. Hydrology Report

1.0 Background

1.1 Project Description

Verizon Wireless proposes to place a cell phone tower in Orange County, North Carolina, South of Mt. Carmel Road. The proposed tower will be accessed via private drive.

A portion of the drive is existing and will be widened to support equipment. The Site will also include the addition of a new monopole tower, fencing and equipment shelter. To reduce the flow increase by the additional impervious area, a small depression has been added south of the tower pole to retain basin flow.

1.2 Objectives

The purpose of the following study is to evaluate the pre and post-developed hydrologic conditions of the proposed development in order to determine appropriate site design measures or detention requirements for stormwater runoff and to determine the proposed nutrient loading increase generated by the site. The project's stormwater requirements are regulated by Orange County.

The current Orange County Unified Development Ordinance requires developments having over 12,000 square feet of disturbance to meet the nutrient loading contribution levels and cause no increase in peak flow for the 1 year – 24 hour storm event.

The existing Project Site does not have a stormwater management system in place. The site is mostly undeveloped area, with only a small private drive and residential infrastructure.

The proposed project site utilizes a dry detention area to meet the peak allowable flow rates and detention requirements.

1.3 Scope and Strategy

The Project Site flows from the north to the south end of the site. Given the small scope of the project, there is only one outfall point at the south end of the site. The total contributing area for the site is approximately 7.6 acres.

The Pre and Post development basins were analyzed to determine the flow increase with the additional gravel drive extension and equipment shelters. Based on the increase impervious area, the peak flow for the 1 year – 24 hour storm event increased. To reduce the small increase in flow, a small depression was added to the south end of the site and routed to reduce the peak flow increase.

1.4 Model Development

The hydrology study utilized ICPR to model the pre-developed and post-developed drainage conditions as well as the proposed dry detention area. The program used the SCS Curve Number Method to calculate the drainage flows for the 1 year frequency storm. The ICPR reports are included in Appendix B for the pre and post-developed conditions, respectively, and are highlighted within this report. The precipitation data used in ICPR to generate the stormwater flows and intensities was obtained from the National Oceanic and Atmospheric Administration's (NOAA) website. This information can be found in the ICPR Report located in Appendix B.

2.0 Pre-developed Conditions

2.1 Overview

The existing Project Site discussed in this report consists of a residential home, gravel drive, undeveloped woods and pasture. The site contains elevation changes from 309± feet along the north end of the site to 274± feet near the south end of the site.

The soil for the site is classified as WsB (White Store Loam, 2 to 6 percent slopes) per the USDA Web Soil Survey from the United States Department of Agriculture website (<http://websoilsurvey.nrcs.usda.gov/app/>). The Web Soil Survey is attached in Appendix A of this report. The soils were found to be in hydrologic soil group D.

2.2 Drainage

The Drainage Basin Pre drains via sheet flow and shallow concentrated flow to POA-1. POA-1 is located along the southern end of the site.

The 7.6 acres of flow was modeled in ICPR. The basin is are shown in Table 1 below, and the area is shown graphically in Exhibit 2 in Appendix A. The time of concentration, T_c , for the pre-developed flow is shown in Table 2. The T_c path is also shown on Exhibit 2 in Appendix A.

Table 1. Pre-developed On-site Runoff Coefficient.

Sub-Area Description	CN	Area, acres
Drainage Basin Pre		
Roof	98	0.16
Parking Lot (Asphalt)	98	0.30
Manage Pervious	80	7.14
TOTAL	81.09	7.6

Table 2. Pre-developed On-site T_c .

Sub-Area Description	Overland Flow, min	Shallow Concentrated Flow, Min	Open Channel Flow, Min	T_c Calculated, min	T_c , min
Drainage Basin Pre	17.34	9.89	0.00	27	30

2.4 Summary

A summary of the pre-developed basins are shown in Table 3.

Table 3. Summary of Pre-developed Conditions

Sub-Area Description	CN	Area, acre	T_c , min
Pre Onsite	81.09	7.6	30

3.0 Post-developed Conditions

3.1 Overview

The project includes a new Verizon Wireless tower, infrastructure, and access drive. The drainage basin of 7.6 acres will be routed through a small dry detention area at the south end of the site.

3.2 Flow Routed to Detention

The flow routed to the proposed detention consists of all the runoff from drainage basin Post Drainage Basin and is analyzed at POA-1. The total on-site area routed to the detention system (7.6 acres) is modeled in ICPR. It consists of the existing residence, managed pervious areas, and the Verizon Wireless Infrastructure.

The post-developed basin that are routed to the detention systems are shown in Table 4 below, and the area is shown graphically in Exhibit 3 in Appendix A. The times of concentration, T_c , for the post-developed on-site flows are shown in Table 5. The T_c path is also shown on Exhibit 3 in Appendix A.

Table 4. Post-developed On-site Runoff Coefficient.

Sub-Area Description	CN	Area, acre
Drainage Basin Post		
Roof	98	0.24
Parking Lot (Asphalt)	98	0.66
Manage Pervious	80	6.70
TOTAL	82.13	7.6

Table 5. Post-developed On-site T_c .

Sub-Area Description	Overland Flow, min	Shallow Conc. Flow, min	Open Channel Flow, Min	T_c , min Calculated	T_c , min
Drainage Basin Post	17.34	9.89	0.00	27	30

3.3 Summary

A summary of the post-developed conditions is in Table 6. The ICPR model is employed to determine the maximum peak combination of the flows for the Project Site.

Table 6. Summary of Post-developed Conditions

Sub-Area Description	CN	Area, acre	T_c , min
Post Onsite A	82.13	7.6	30

4.0 Summary of Flows

The summaries of flows are shown in Table 7 for the 1 year frequency storm. These tables demonstrate that the proposed post-developed peak discharge rate will be less than or equal to the pre-developed condition at all points of analyses, thus meeting the stormwater requirements for Orange County.

Table 7. Summary of Flows at POA-1

Return Frequency	Q_{Pre} (ft ³ /s)	Q_{Post} (ft ³ /s)	$Q_{Post} \leq Q_{Pre}?$ (ft ³ /s)
1-year	4.73	4.31	Yes

5.0 Nutrient Loading

The proposed site is located in the Upper New Hope Creek Arm within the Jordan Lake area. Under this area, the Nitrogen Loading is limited to 2.2 lbs per acre per year and the Phosphorus Loading is limited to 0.82 lbs per acre per year.

The proposed development has been analyzed using the North Carolina Watershed Characteristics Ver2.0 excel file. The proposed Post-Development loadings are 3.01 lbs per acre per year for Nitrogen and 0.46 lbs per acre per year for Phosphorus Loading.

Based on this, the site meets the requirement for Phosphorus. The development will need to purchase credits to offset the nutrient loading for Nitrogen from 3.01 to 2.2. The North Carolina Watershed Characteristics Ver2.0 excel file is located in Appendix C.

APPENDIX A

EXHIBIT 1

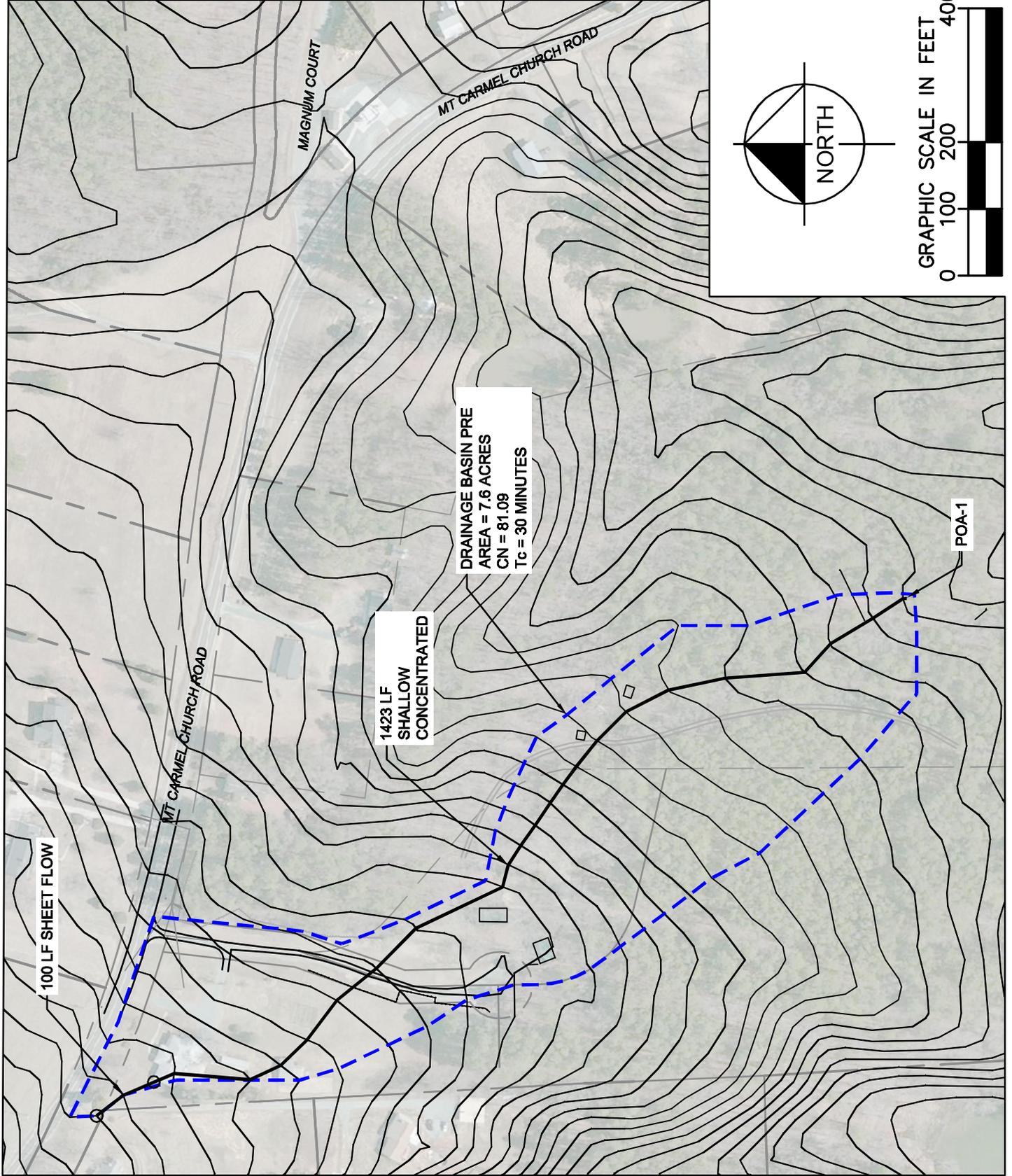


EXHIBIT 2

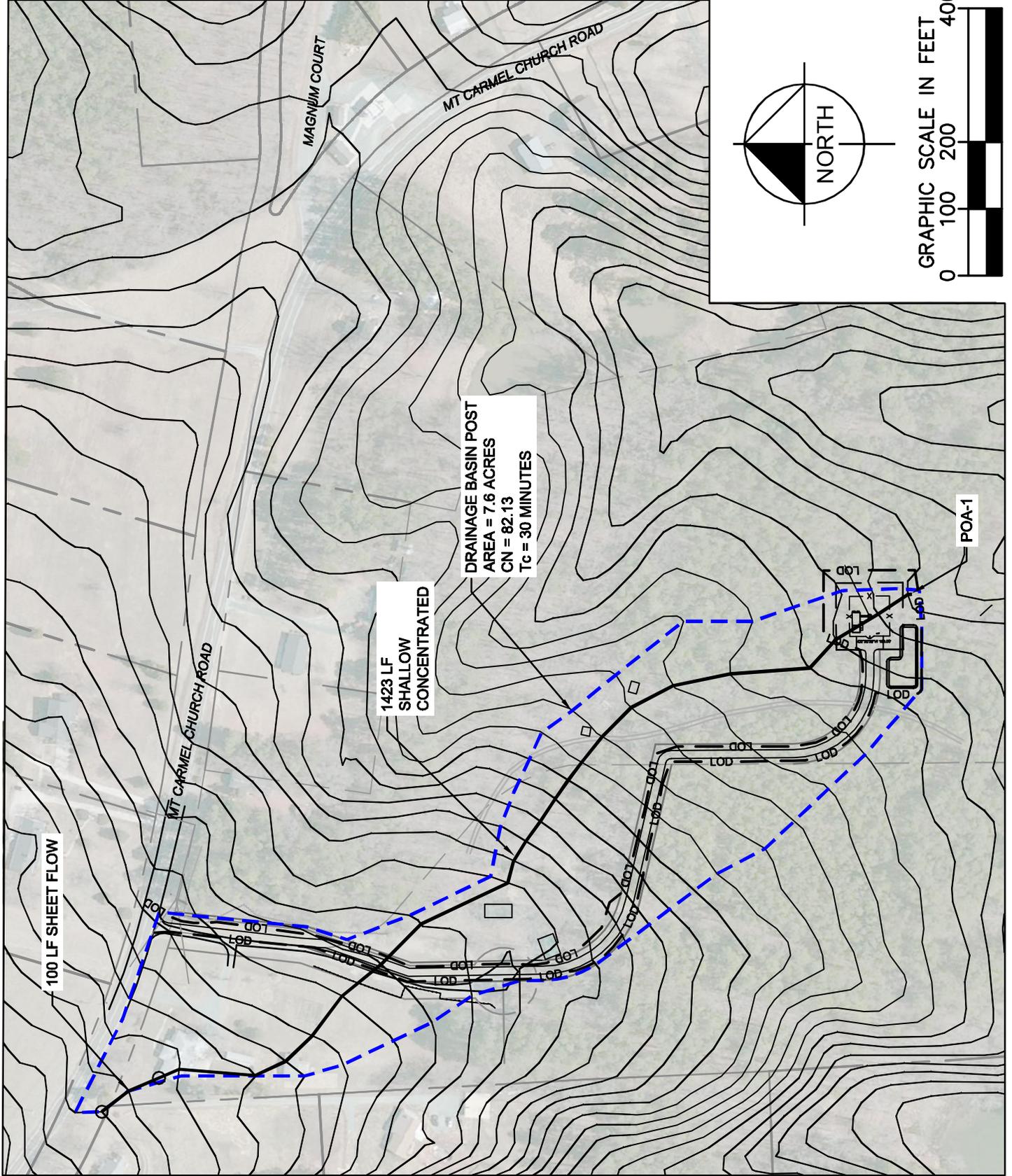
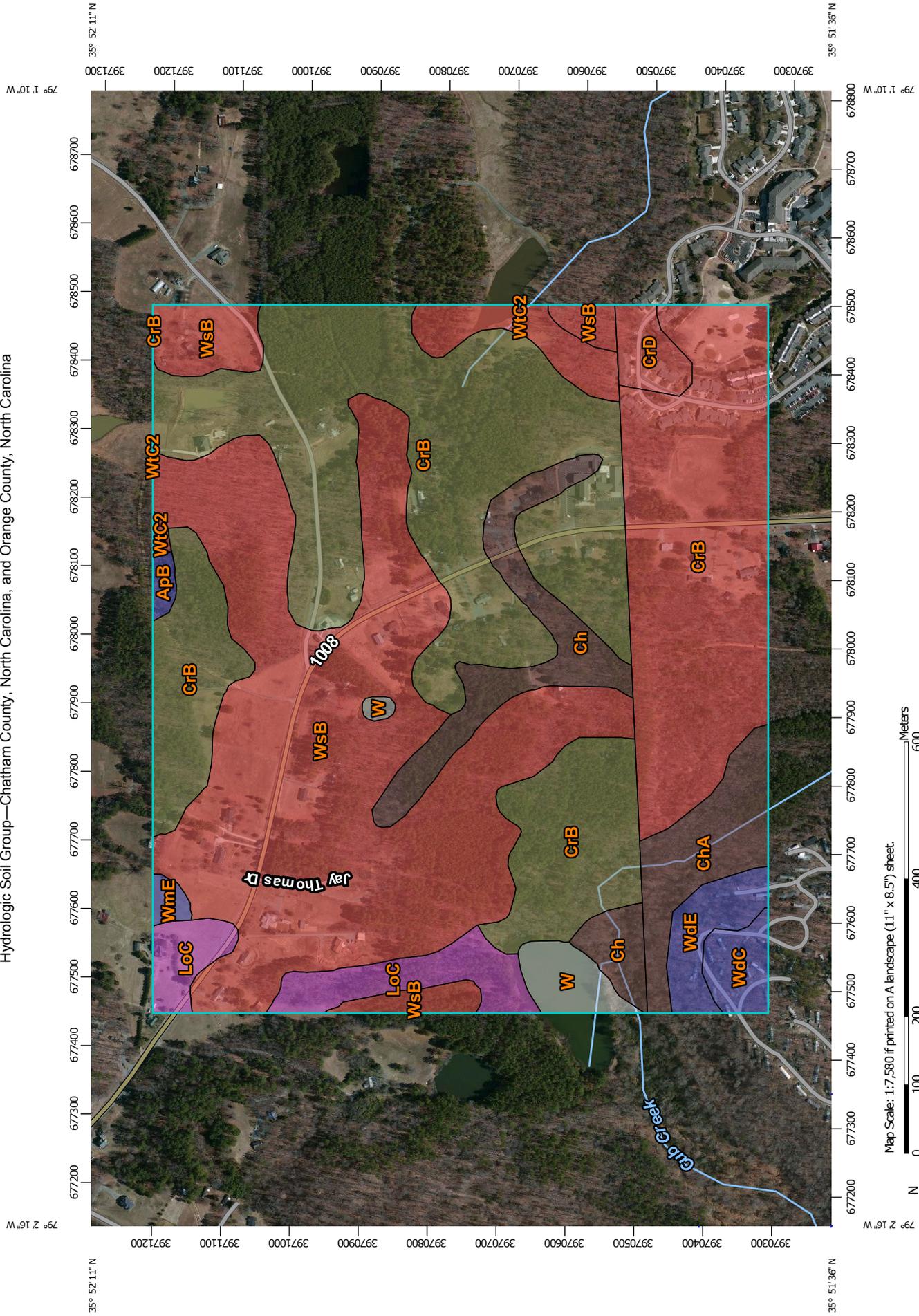


EXHIBIT 3

Hydrologic Soil Group—Chatham County, North Carolina, and Orange County, North Carolina



MAP LEGEND

- Area of Interest (AOI)**
 Area of Interest (AOI)
- Soils**
- Soil Rating Polygons**
-  A
 -  A/D
 -  B
 -  B/D
 -  C
 -  C/D
 -  D
 -  Not rated or not available
- Soil Rating Lines**
-  A
 -  A/D
 -  B
 -  B/D
 -  C
 -  C/D
 -  D
 -  Not rated or not available
- Soil Rating Points**
-  A
 -  A/D
 -  B
 -  B/D

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Chatham County, North Carolina
 Survey Area Data: Version 18, Sep 13, 2015

Soil Survey Area: Orange County, North Carolina
 Survey Area Data: Version 15, Sep 16, 2015

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 11, 2011—Mar 3, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

- Water Features**
-  Streams and Canals
- Transportation**
-  Rails
 -  Interstate Highways
 -  US Routes
 -  Major Roads
 -  Local Roads
- Background**
-  Aerial Photography

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Chatham County, North Carolina (NC037)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
ChA	Chewacla and Wehadkee soils, 0 to 2 percent slopes, frequently flooded	B/D	8.0	3.5%
CrB	Creedmoor-Green Level complex, 2 to 6 percent slopes	D	33.5	14.6%
CrD	Creedmoor-Green Level complex, 10 to 15 percent slopes	D	2.7	1.2%
WdC	Wedowee sandy loam, 2 to 15 percent slopes, bouldery	B	2.8	1.2%
WdE	Wedowee sandy loam, 15 to 35 percent slopes, bouldery	B	4.0	1.7%
Subtotals for Soil Survey Area			50.9	22.2%
Totals for Area of Interest			229.0	100.0%

Hydrologic Soil Group— Summary by Map Unit — Orange County, North Carolina (NC135)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
ApB	Appling sandy loam, 2 to 6 percent slopes	B	0.7	0.3%
Ch	Chewacla loam, 0 to 2 percent slopes, frequently flooded	B/D	12.2	5.3%
CrB	Creedmoor fine sandy loam, 2 to 8 percent slopes	C/D	72.2	31.5%
LoC	Louisburg (Wateree) sandy loam, 6 to 15 percent slopes	A	8.5	3.7%
W	Water		3.4	1.5%
WmE	Wedowee sandy loam, 15 to 25 percent slopes	B	0.8	0.3%
WsB	White Store loam, 2 to 6 percent slopes	D	75.6	33.0%
WtC2	White Store clay loam, 6 to 15 percent slopes, moderately eroded	D	4.7	2.1%
Subtotals for Soil Survey Area			178.1	77.8%
Totals for Area of Interest			229.0	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX B

Clearwater Lake
Input: ALL

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

=====
=== Hydrology Simulations ===
=====

Name: 001
Filename: K:\ATL_Wireless\TowerCom\Clearwater Lake\ENG\HYDRO\ICPR\001.R32
Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Scsii-24
Rainfall Amount(in): 2.95

Time(hrs) Print Inc(min)

30.000 5.00

Name: 1 Inch
Filename: K:\ATL_Wireless\TowerCom\Clearwater Lake\ENG\HYDRO\ICPR\1 Inch.R32
Override Defaults: Yes
Storm Duration(hrs): 1.00
Rainfall File: Scsii-24
Rainfall Amount(in): 1.00

Time(hrs) Print Inc(min)

30.000 5.00

=====
=== Routing Simulations ===
=====

Name: 001 Hydrology Sim: 001
Filename: K:\ATL_Wireless\TowerCom\Clearwater Lake\ENG\HYDRO\ICPR\001.I32
Execute: Yes Restart: No Patch: No
Alternative: No
Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 30.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

999.000 15.000
Group Run

BASE Yes

Name: 1 inch Hydrology Sim: 1 Inch
Filename: K:\ATL_Wireless\TowerCom\Clearwater Lake\ENG\HYDRO\ICPR\1 inch.I32
Execute: No Restart: No Patch: No
Alternative: No
Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 1.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 10.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

10.000 5.000
Group Run

BASE Yes

Clearwater Lake
Input: ALL

Clearwater Lake
Output: 1 YEAR - 24 HOUR STORM EVENT

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
POND 1	BASE	001	12.45	274.66	275.10	0.0050	3111	12.25	5.02	12.45	4.31
POST OUTFALL	BASE	001	0.00	271.00	275.00	0.0000	2	12.45	4.31	0.00	0.00
PRE OUTFALL	BASE	001	0.00	271.00	275.00	0.0000	0	12.25	4.73	0.00	0.00

APPENDIX C

Watershed Characteristics Ver2.0

Clear All Values

Return to Instructions

Proceed to BMP Characteristics

Skip to Development Summary

Instructions

1. Select your physiographic/geologic region. (see map on 'instructions' page)
2. Enter the area of the entire development in square feet (ft²).
3. Select the location that is most representative of the site's precipitation characteristics. (see map on 'instructions' page)
4. For each applicable land use, enter the total area of that land use that lies within the development under pre-development conditions.
5. For each applicable land use, enter the total area of that land use that lies within the development under post-development conditions, before BMP implementation.
6. Ensure that the sum of pre- and post-development areas entered equal the original development area.
7. Continue to "BMP Characteristics" tab.

Additional Guidelines

- For non-residential watersheds, indicate acreages of each land use type in Column 1 for both pre- and post-development conditions.
- For residential watersheds, complete the required information in Column 2 for both pre- and post-development conditions.
- If a given land use is not present in the given watershed, leave the cell blank or enter a zero.
- Ensure that land use areas entered for both pre- and post-development conditions match the total development area entered in cell O21.
- Residential areas may be entered by average lot size (column, part A), or may be separated into individual land uses (column 2, part B) -- do NOT list out individual land uses within an area already described by lot size.
- Unless runoff flowing onto the development from offsite is routed separately around or through the site, the offsite catchment area draining in must be included in the acreage values of the appropriate land use(s) and treated.

Physiographic/Geologic Region:	Piedmont
Soil Hydrologic Group	A
Precipitation location:	Cairboro

Total Development Area (ft ²):	45,684
Development Name:	Clearwater Lake
Model Prepared By:	Kimley-Horn & Associates, Inc.

COLUMN 1 -- NON-RESIDENTIAL LAND USES					
	TN EMC (mg/L)	TP EMC (mg/L)	Pre-Development (ft ²)	Post-Development (ft ²)	
COMMERCIAL					
Parking lot	1.44	0.16	13,195	28,721	
Roof	1.08	0.15	7,058	10,658	
Open/Landscaped	2.24	0.44			
INDUSTRIAL					
Parking lot	1.44	0.39			
Roof	1.08	0.15			
Open/Landscaped	2.24	0.44			
TRANSPORTATION					
High Density (interstate, main)	3.67	0.43			
Low Density (secondary, feeder)	1.4	0.52			
Rural	1.14	0.47			
Sidewalk	1.4	1.16			
PERVIOUS					
Managed pervious	3.06	0.59	310,998	291,872	
Unmanaged (pasture)	3.61	1.56			
Forest	1.47	0.25			
JURISDICTIONAL LANDS*					
Natural wetland			
Riparian buffer			
Open water			
LAND TAKEN UP BY BMPs	1.08	0.15			

COLUMN 2 -- RESIDENTIAL LAND USES						
	Custom Lot Size (ac)	Age (yrs)	TN EMC (mg/L)	TP EMC (mg/L)	Pre-Development (ft ²)	Post-Development (ft ²)
PART A						
1/4-ac lots		
1/2-ac lots		
1-ac lots		
2-ac lots		
Multi-family		
Townhomes		
Custom Lot Size		
PART B						
Roadway		..	1.4	0.52		
Driveway		1.0	1.44	0.39		
Parking lot		..	1.44	0.39		
Roof		..	1.08	0.15		
Sidewalk/Patio		..	1.4	1.16		
Lawn		..	2.24	0.44		
Managed pervious		..	3.06	0.59		
Forest		..	1.47	0.25		
Natural wetland*			
Riparian buffer*			
Open water*			
LAND TAKEN UP BY BMPs		..	1.08	0.15		

*Jurisdictional land uses are not included in nutrient/flow calculations.

Total post-development land use areas do not sum to equal entered development size!!!

LAND USE AREA CHECK	
Total Development Area Entered (ft ²):	45,684
Total Pre-Development Calculated Area (ft ²):	331,251
Total Post-Development Calculated Area (ft ²):	331,251



September 28, 2016

Mrs. Laura Goode
Pennington Law Firm, LLC
1501 Main Street
Columbia, South Carolina 29201

RE: Clearwater Lake Facility Siting Certification

Dear Mrs. Goode,

Section 5.10.8.B.4.b of the Orange County Unified Development Ordinance establishes that:

- i. Applicants for facilities shall locate, site, and erect said facilities according to the following priorities, in the following order:
 - a. On existing County-owned facilities without increasing the height of the tower or structure.
 - b. On existing Facilities without increasing the height of the tower or structure.
 - c. On County-owned properties or facilities.
 - d. On properties in areas zoned for commercial or industrial use.
 - e. On properties in areas zoned Agricultural Residential (AR).
 - f. On properties in areas zoned for residential use.
- ii. If an Applicant proposes to place telecommunications equipment at a location that is not a preferred priority 1 site, then the Applicant must provide a detailed explanation as to why a higher priority site is not proposed. The explanation shall be in the form of a written report demonstrating the Applicant's review of the above locations in order of priority and the reason(s) for the site selection. The explanation shall, at a minimum, include the information required by section 5.10.8(B)(3)(e).
- iii. The Application shall not be approved unless it demonstrates that the telecommunications equipment may not be sited at a higher priority site because of commercial impracticability or because no higher priority site is available that would serve to provide the telecommunications service need identified by the Applicant as provided for in section 5.10.8.A.1.s.
- iv. An Applicant may not by-pass sites of higher priority merely because the site proposed is the only site leased or selected. Agreements between providers limiting or prohibiting collocation shall not be a valid basis for any claim of commercial impracticability.



- v. Notwithstanding that a potential site may be situated in an area of highest priority or highest available priority, an application shall not be approved if it conflicts with the provisions and requirements of this Ordinance.

Please let this letter serve as certification that Verizon Wireless performed an extensive engineering study to identify the best location for an additional wireless telecommunications facility to serve the Clearwater Lake Area. In a review of the search area:

- a. As confirmed with the Orange County Planning Department, there are no existing County-owned facilities for collocation without increasing the height of the tower or structure within the search ring for the Clearwater Lake Area;
- b. There are no other existing Facilities for collocation without increasing the height of the tower or structure within the search ring for the Clearwater Lake Area;
- c. As confirmed with the Orange County Planning Department, there are no existing County-owned properties or facilities within the search ring for the Clearwater Lake Area;
- d. There are no properties zoned for commercial or industrial use within the search ring for the Clearwater Lake Area that will allow for the construction of a telecommunication tower in compliance with the requirements of the Orange County Unified Development Ordinance;
- e. There are no properties zoned Agricultural Residential (AR) within the search ring for the Clearwater Lake Area;

Therefore, because facility siting is not possible at any of the above-listed locations, the proposed telecommunication facility will be located on a property zoned Rural Buffer (RB).

Sincerely,

A handwritten signature in blue ink, appearing to read 'John A. Yeagley', is written over a light blue horizontal line.

John A Yeagley
Senior Site Acquisition Specialist



September 28, 2016

Mrs. Laura Goode
Pennington Law Firm, LLC
1501 Main Street
Columbia, South Carolina 29201

RE: Clearwater Lake Tower Separation Certification

Dear Mrs. Goode,

Section 5.10.8.B.4.b.vi of the Orange County Unified Development Ordinance establishes that:

- vi. Wireless support structures shall not be located within one-half (1/2) mile of any existing monopole, lattice, or guyed wireless telecommunications support structure.
 - a. An exception may be allowed when the Applicant can sufficiently demonstrate that:
 - i. Appropriate space on the existing telecommunication wireless support structure is not available; or
 - ii. The Applicant has made good faith effort to negotiate an agreement with the owner of the existing wireless telecommunication support structure and has been unsuccessful, which must be documented in writing; or
 - iii. The telecommunication equipment on the existing wireless telecommunication support structure is not compatible with the proposed telecommunication equipment of the Applicant; or
 - iv. Adequate coverage by the Applicant cannot be met at the location of the existing wireless telecommunication support structure; or
 - v. The existing wireless telecommunication support structure cannot be reasonably modified to accommodate additional collocation by the Applicant.
 - b. Exceptions shall only be allowed after a thorough analysis of the search area, provided by the Applicant is performed by the County's consultant or Staff, indicating that coverage is not possible on an existing wireless support structure at the four-carrier capacity or other user capacity that can be achieved. There must be an eighty (80%) percent approval vote of the deciding board for this specific finding to pass the exception criteria.

Please let this letter serve as certification that there are no existing monopole, lattice, or guyed wireless telecommunications support structures within one-half (1/2) mile of the proposed wireless support structure.

Sincerely,

A handwritten signature in blue ink, appearing to read "John A. Yeagley".

John A Yeagley
Senior Site Acquisition Specialist

IMPACT ANALYSIS OF
A PROPOSED TELECOMMUNICATIONS TOWER ON
THE VALUES OF CONTIGUOUS PROPERTIES

LOCATED ON

1941 MOUNT CARMEL CHURCH ROAD
ORANGE COUNTY, NORTH CAROLINA

AS OF

AUGUST 18, 2016

FOR

TOWERCOM
5611 HIGHWAY 55, SUITE 201
DURHAM, NC 27713

BY

DAVID A SMITH, MAI, SRA
POST OFFICE BOX 51597
DURHAM, NORTH CAROLINA 27717-1597

PART ONE - INTRODUCTION



DAVID A. SMITH, MAI, SRA

P.O. BOX 51597
DURHAM, NORTH CAROLINA 27717-1597
PHONE (919) 493-1534
smithappraiser@verizon.net



September 29, 2016

TowerCom
5611 Highway 55, Suite 201
Durham, NC 27713

As requested, I have inspected the site of a proposed telecommunications tower and the contiguous properties. The proposed tower would be located at 1941 Mount Carmel Church Road in Orange County, North Carolina near the Town of Chapel Hill.

The purpose of this assignment is to analyze the effect of the proposed tower on the properties that are contiguous to the proposed tower site. The intended use of this assignment is to assist the approving body in determining if the proposed tower should be approved. The intended users of this report are officers and employees of TowerCom and anyone they designate.

As requested, a summary report has been prepared. This is not an appraisal, but is a consulting assignment. This report assumes that the proposed tower has been constructed.

The properties were inspected on August 18, 2016 which is the effective date of this report and analysis. I made all necessary investigations and analyses. Based on a set of plans of the proposed tower, an inspection of the proposed tower and the contiguous properties, an analysis of data gathered and facts and conclusions as contained in the following report of 18 pages, and subject to the assumptions and limiting conditions as stated, it is my opinion that the proposed tower will maintain or enhance the value of contiguous properties.

I certify that I have personally inspected the site of the proposed tower and those properties that are contiguous to it. I further certify that I have no interest either present or contemplated in the property and that neither the employment to make this analysis nor the compensation is contingent upon the result of the analysis.

Respectfully submitted,

David A. Smith

David A. Smith, MAI, SRA
NC State-Certified General Real Estate Appraiser #A281



TABLE OF CONTENTS

	PAGE
PART ONE-INTRODUCTION	
Letter of Transmittal	1
Table of Contents	2
Certification of Value	3
PART TWO-PREMISES OF THE ANALYSIS	
Statement of Competence	4
Extraordinary Assumptions and Hypothetical Conditions	4
General Assumptions and Limiting Conditions	4
Purpose, Intended Use and Users of the Report	6
Definition of Value	6
Date of Analysis and Date of Report	7
Property Rights	7
Scope of Work	7
PART THREE-PRESENTATION OF DATA	
Neighborhood and Locational Data	8
Description of Larger Property	8
Description of Contiguous Properties	9
PART FOUR-ANALYSIS OF DATA AND CONCLUSIONS	
Estimated Effect of the Proposed Telecommunications Tower	11
Conclusion	12
Qualifications of the Appraiser	14
ADDENDA	
Location Map	
Aerial Map	
Flood/Topo Map	
Zoning Map	
Tax Card	
Photographs of Subject	
Tower Detail	
Cobble Ridge Tower Detail	
Cobble Ridge Photographs	
Sunset Ridge Photographs	

CERTIFICATION

I certify that, to the best of my knowledge and belief,...

The statements of fact contained in this report are true and correct.

The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, impartial, and unbiased professional analyses, opinions, and conclusions.

I have no present or prospective interest in the property that is the subject of this report, and no personal interest with respect to the parties involved.

I have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.

My engagement in this assignment was not contingent upon developing or reporting predetermined results.

My compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this report.

My analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the *Uniform Standards of Professional Appraisal Practice*.

I have made a personal inspection of the property that is the subject of this report.

No one provided significant real property appraisal assistance to the person signing this certification.

The reported analysis, opinions, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and the Standards of Professional Appraisal Practice of the Appraisal Institute.

The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.

As of the date of the report, I have completed the requirements of the continuing education program of the Appraisal Institute.

This assignment was not made, nor was the report rendered on the basis of a requested minimum valuation, specific valuation, or an amount, which would result in approval of a credit transaction.

Unless otherwise stated in this report, I have not performed any services regarding the subject property within the three year period immediately preceding acceptance of this assignment as an appraiser or in any other capacity.

I have not performed any service regarding this property for the prior three years.

David A. Smith

David A. Smith, MAI, SRA

PART TWO – PREMISES OF THE REPORT

STATEMENT OF COMPETENCE

I have completed all of the requirements to become a state certified general appraiser for the State of North Carolina and all of the requirements for the MAI designation. In addition I have successfully completed USPAP courses and continuing education seminars for over thirty years as well as preparing real estate appraisal reports over the same period. More detailed information about the courses and seminars are in the qualifications section of this report. I have prepared similar analyses and feel competent to perform this analysis.

EXTRAORDINARY ASSUMPTIONS AND HYPOTHETICAL CONDITIONS

An extraordinary assumption is an assumption, directly related to a specific assignment, which if found to be false, could alter the appraiser's opinions or conclusions. A hypothetical condition is something that is contrary to what exists but is supposed for the purpose of the analysis. This analysis assumes that the proposed tower has been constructed.

No other extraordinary assumptions or hypothetical conditions are made.

GENERAL ASSUMPTIONS AND LIMITING CONDITIONS

The report has been made with the following general assumptions:

1. Possession of this report, or a copy thereof, does not carry with it the right of publication.
2. The appraiser by reason of this report is not required to give further consultation or testimony or to be in attendance in court with reference to the property in question unless arrangements have been previously made.
3. Neither all nor any part of the contents of this report (especially any conclusions, the identity of the appraiser, or the firm with which the appraiser is connected) shall be disseminated to the

public through advertising, public relations, news, sales or other media without the prior written consent and approval of the appraiser.

4. Definitions used in this report have been taken from *The Dictionary of Real Estate Appraisal*, 5th ed., published by the Appraisal Institute, copyright 2010, unless otherwise stated.

5. I relied on a set of plans identified as “TowerCom, Clearwater Lake,” prepared by Kimley Horn and last revised September 1, 2016. For purposes of this report, this information is assumed to be correct. Copies of pages from these plans are in the addenda.

6. I relied on public records from the Orange and Wake County Tax Offices and Register of Deeds, the Triangle Multiple Listing Service and antennasearch.com for information regarding properties analyzed in this report. For purposes of this report, this information is assumed to be correct.

PURPOSE, INTENDED USE AND USERS OF THE REPORT

The purpose of this assignment is to determine the effect of a proposed telecommunications tower on contiguous properties. The intended use of this assignment is to assist the approving body in determining if the proposed tower should be approved. The intended users of this report are officers and employees of TowerCom and anyone they designate.

DEFINITION OF VALUE

The opinions of value in this analysis are the market values. The definition of market value is that used by federally regulated financial institutions. This definition is as follows:

The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

1. buyer and seller are typically motivated;
2. both parties are well informed or well advised, and acting in what they consider their best interests;
3. a reasonable time is allowed for exposure in the open market;
4. payment is made in terms of cash in United States dollars or in terms of financial arrangements comparable thereto; and

5. the price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

DATE OF ANALYSIS AND DATE OF REPORT

The effective date of the analysis is August 18, 2016. The date of the report is September 29, 2016.

PROPERTY RIGHTS

The ownership interest considered in this analysis is the fee simple interest. The properties may be leased or have other property rights transferred, but the effect is for the fee simple value of the properties. The definition of fee simple as used in this report is:

Absolute ownership unencumbered by any other interest or estate, subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power, and escheat.

SCOPE OF WORK

The scope of the report involves collection and confirmation of data relative to the property with the proposed tower and the contiguous properties. I made an inspection of the proposed tower site and referred to a set of plans for the tower. I also made an exterior inspection, from the street right-of-way of those properties that are contiguous to the proposed tower property. I researched properties around existing cell towers to locate those that sold for comparison purposes. I located a subdivision in Wake County to judge the effect of the proposed tower on property values of the properties that are contiguous to cellular tower sites.

PART THREE – PRESENTATION OF DATA

NEIGHBORHOOD AND LOCATIONAL DATA

The proposed tower is located in southeast Orange County, North Carolina near Chatham and Durham Counties. It is located about two miles from the city limits of Chapel Hill. This area is in a rural buffer which is defined by the Orange County Unified Development Ordinance as:

“The purpose of the Rural Buffer (RB) District is to provide locations for rural residential developments and agricultural, silvicultural or horticultural uses which serve to buffer or separate more intensively planned and/or developed portions of Orange County. Development within the Rural Buffer (RB) District is at very low densities (the minimum lot size per dwelling unit is two acres) and relies on individual wells and ground absorption systems for domestic water supply and sewage disposal, respectively.”

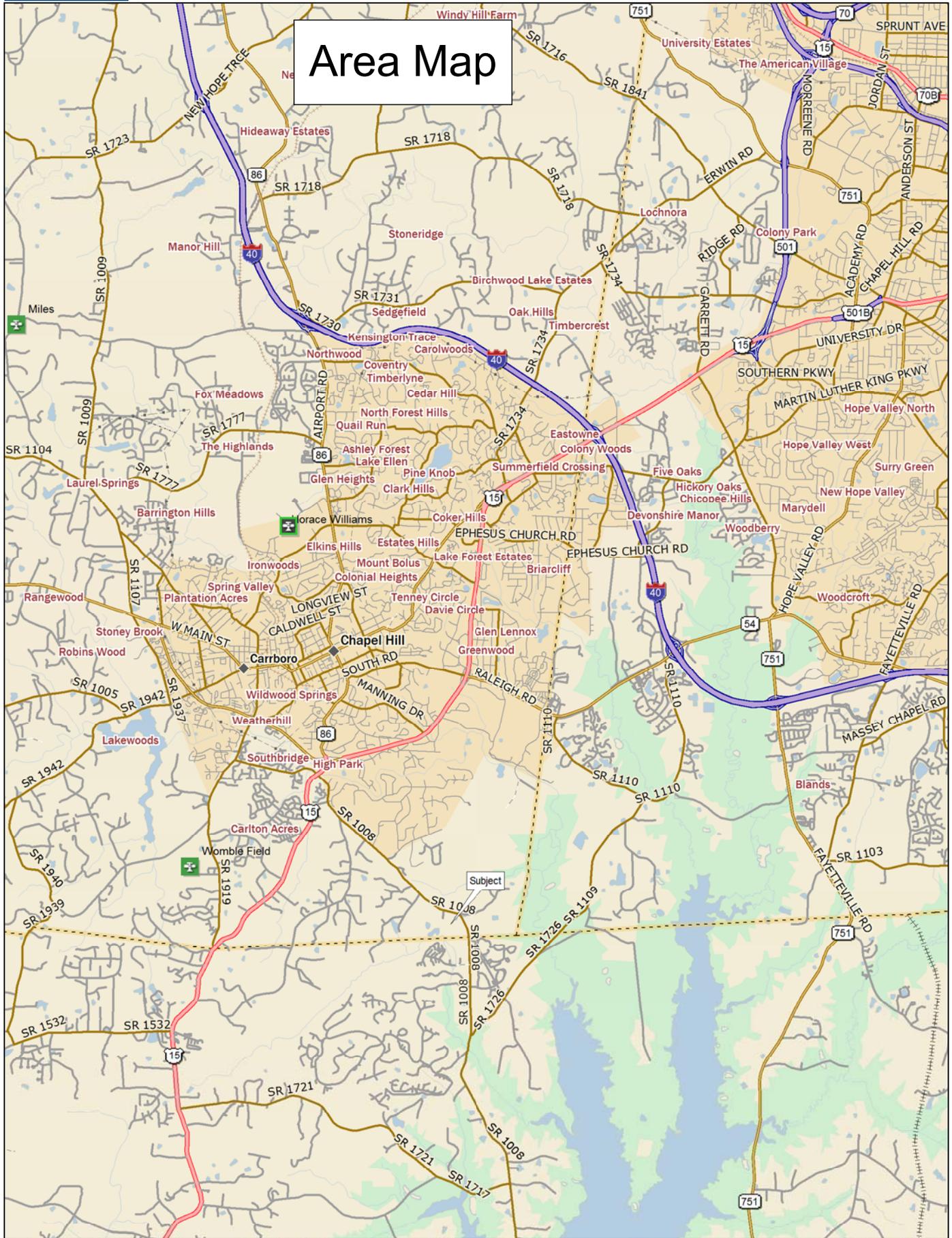
There are a few nonresidential uses in the area of the subject including two small stores and a conference center but the majority of the uses are scattered single family residences, fields and forestland. A location map for the subject on the following page. The area is popular and property values should increase at a rate higher than inflation.

DESCRIPTION OF LARGER PROPERTY

Since the purpose of this report is to estimate the effect of the proposed tower on contiguous properties and not the property the tower is on, only a brief description of the subject site is given. More detail of the site is in the addenda.

The land where the tower will be located is owned by Buckner Family Farm Trust. The Orange County tax office identifies it with a PIN of 9796.09.9658. According to tax records, the land area is 18.9 acres and there are \$1,250 worth of improvements. Tax records show a market value of the land of \$330,992. The zoning for the property is RB (Rural Buffer) and it is located in the Jordan Lake Protected Area. The site is almost completely wooded.

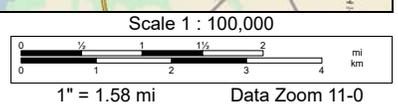
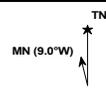
Area Map



Data use subject to license.

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www.delorme.com



DESCRIPTION OF THE PROPOSED TOWER AND LEASED AREA

The tower will be of monopole design 195 feet in height with a 4 foot lightning rod. The tower will be unlit. In addition to the tower there will be four pads for equipment shelters and a generator. These will all be less than eleven feet in height. The tower will be located on a 100' x 100' leased area. A 60' x 60' area will be enclosed with an eight foot high chain link fence with three strand barbed wire. There will also be a 20' x 40' turn around area to the west of the fenced area. Access will be from a 30 foot wide access and utility easement across two adjoining properties to Wilbuck Avenue, a private road. The easement will be 12 foot wide gravel. The nearest property boundary will be 220' 10" to the west. The nearest boundary to the east will be 432' 11".

DESCRIPTION OF CONTIGUOUS PROPERTIES

There are thirteen properties that adjoin the property where the cell tower will be located. A chart of these properties is on the following page.

Eleven of the properties are improved with single family dwellings ranging in size from 1,244 square feet to 2,448 square feet on lots ranging in size from 1 acre to 6.58 acres. The improvements year built range is generally from 1947 to 1984 with two exceptions. One was built in 1897 and the other in 2006. Some of the lots are cleared but most are partially cleared or wooded. The last property is a 13.3 acre vacant wooded tract.

DAVID A. SMITH, MAI, SRA

PIN	Size	Building Size	Year Built	Building Value	Land Value	Total Value
9797.002747	2.53	2,448	1960	\$223,882	\$116,025	\$339,907
9797.00.5005	2.33	722	1897	\$8,537	\$103,914	\$112,451
9796.09.3295	13.3			\$0	\$247,407	\$247,407
9796.19.0185	6.58	2,106	1966	\$154,951	\$133,048	\$287,999
9796.29.0405	1.1	1,344	2006	\$135,055	\$58,473	\$193,528
9796.29.0637	1.46	1,860	1970	\$148,451	\$73,733	\$222,184
9796.19.9911	1.54	1,371	1947	\$118,548	\$77,165	\$195,713
9797.10.7003	4.37	1,970	1952	\$176,500	\$148,100	\$324,600
9797.10.4314	3.36	1,244	1947	\$128,520	\$131,687	\$260,207
9797.10.0429	1	1,537	1962	\$140,832	\$92,265	\$233,097
9797.00.8522	1	1,362	1955	\$81,265	\$65,038	\$146,303
9797.00.8868	1.64	2,403	1984	\$274,099	\$83,093	\$357,192
9797.01.7320	5.87	2,058	1954	\$196,157	\$113,969	\$310,126

PART FOUR – ANALYSIS OF DATA AND CONCLUSIONS

ESTIMATED EFFECT OF THE PROPOSED TELECOMMUNICATIONS TOWER

The potential adverse effects from any proposed improvement are: environmental hazards, noise, odor, lighting, traffic and visual impact. Based on the plans of the proposed tower and conversations with those associated with it, there will be no environmental hazards associated with the proposed use. Also after construction there should be no significant adverse noise since the site is unmanned and none of the proposed items produce any significant noise. The improvement should also not produce any adverse odors. Also traffic should not cause any significant adverse impact since the facility requires only periodic maintenance. If the tower is visible this has the potential to cause adverse impacts on the adjoining properties.

The tower site will be fenced and is completely surrounded by mature trees. If the trees are removed a 40' wide landscape buffer would be installed. All of the non-tower improvements will not be visible off of the property. The only potential adverse effect is the visual impact of the tower itself on the adjoining properties.

The property closest to the tower site has a PIN of 9796.09.3295 which will be 220' 10" from the proposed tower. The next closest is over 400 feet from the proposed tower. The closest property is heavily wooded and the area between the leased area of the tower site and the property line is also heavily wooded.

Of the adjoining properties, the type with the greatest potential for an adverse effect are the single family dwellings.

To estimate the effect of a cell tower on adjoining properties, I located a subdivision where a cell tower was located on one of the lots. The tower was built in 2002. The subdivision is known as Cobble Ridge and is in Holly Springs. The houses range in value from \$265,000 to over \$400,000. There are about 45 lots including the tower lot and the non-tower lots are all improved with dwellings. Using Triangle MLS information I prepared a chart showing adjusted per square foot selling prices of houses from 2003 to 2005 since this is when the majority of sales occurred and it was before the recession.

The properties were similar in most respects. They are two story in design, close in size had two car garages, fireplaces and no basements. I made adjustments for sales dates, year built and differences in number of baths. I then divided the adjusted selling price by the square footage of the dwellings. I separated the properties that adjoined the tower site and those directly across the street from the tower site from the other properties in the subdivision. The yards are well landscaped and the properties further from the tower have limited views of it. The adjusted per square foot selling price of the properties adjoining or across the street from the tower site gave an average of \$122.70 compared to an average of \$120.35 for those not adjoining or across the street from the tower. This indicates that the properties away of the tower have a slightly lesser value but this small rate is within the margin of error.

I also considered a nearby subdivision that has no tower view at all. Sunset Ridge is about 1,100 feet east of Cobble Ridge and the houses are similar. I consider sales along both sides of Gablewood Lane and Middlecrest Way south of Holly Springs Road, some forty lots. I made the same adjustments as I did for Cobble Ridge and the result was an average per square foot selling price of \$121.49 which is slightly lower than the per square foot selling price of the lots in Cobble Ridge that are adjacent to or across the street from the cell tower site.

CONCLUSION

Cellular telephones have become a necessary and desired item in today's world. Many potential buyers of real estate expect cellular communications just as they expect electric service and lack of this service could adversely affect value. In order to meet this need, telecommunications towers have become a common part of the landscape in much the same way that power and telephone lines and other utilities have. Like these utilities, telecommunications towers are needed in locations throughout the country. As such they are in harmony with the area in the same way that other utilities are.

Based on a set of plans of the proposed tower, an inspection of the proposed tower site and the surrounding and adjoining properties, an analysis of data gathered and facts and conclusions as contained in this report and subject to the assumptions and limiting conditions as stated, it is my opinion that the proposed development will maintain or enhance the value of contiguous properties.

COBBLE RIDGE ADJOINING OR ACROSS THE STREET FROM TOWER

Address	Sold Price	Closing Date	Year Built	Full Baths	Half Baths	Living Area	Adjust Per SF
200 Cobblepoint Way	\$340,000	10/15/2004	2004	2	1	\$355,875	\$128.43
201 Cobblepoint Way	\$320,000	9/15/2005	2003	2	1	\$329,271	\$122.77
209 Cobblepoint Way	\$250,000	12/29/2003	2003	2	1	\$270,363	\$120.38
205 Cobblepoint Way	\$285,000	12/22/2003	2003	2	1	\$308,381	\$125.05
205 Cobblepoint Way	\$336,000	11/2/2005	2003	3	1	\$340,938	\$113.34
212 Cobblepoint Way	\$315,000	9/30/2005	2005	2	1	\$317,382	\$119.36
213 Cobblepoint Way	\$281,000	12/1/2003	2003	2	1	\$304,547	\$122.46
217 Cobblepoint Way	\$338,000	4/5/2005	2004	3	1	\$345,512	\$127.17
220 Cobblepoint Way	\$305,000	10/14/2004	2004	2	1	\$319,266	\$122.79
400 Landbridge Lane	\$262,500	8/20/2005	2005	2	1	\$265,370	\$119.37
401 Landbridge Lane	\$303,000	5/28/2004	2003	2	1	\$323,844	\$128.36
404 Landbridge Lane	\$299,900	5/27/2004	2004	2	1	\$317,413	\$127.07
405 Landbridge Lane	\$334,900	7/15/2004	2004	3	1	\$349,651	\$118.57
						Average	\$122.70

COBBLE RIDGE AWAY FROM TOWER

Address	Sales Price	Closing Date		Year Built		Full Bath	Half Bath		Living Area	Adjust Per SF
104 Cobblepoint Way	\$302,500	9/26/2005	\$ 304,887	2005	\$ 304,887	2	1	\$304,887	2,831	\$107.70
105 Cobblepoint Way	\$340,900	7/11/2005	\$ 345,747	2005	\$ 345,747	3	1	\$342,303	2,867	\$119.39
108 Cobblepoint Way	\$280,000	7/29/2005	\$ 283,567	2005	\$ 283,567	2	1	\$283,567	2,519	\$112.57
109 Cobblepoint Way	\$290,000	5/14/2004	\$ 304,206	2003	\$ 310,290	3	1	\$306,846	2,800	\$109.59
112 Cobblepoint Way	\$379,900	1/28/2005	\$ 390,423	2004	\$ 394,327	2	1	\$394,327	3,408	\$115.71
113 Cobblepoint Way	\$311,000	6/30/2004	\$ 325,033	2003	\$ 331,534	2	1	\$331,534	2,600	\$127.51
116 Cobblepoint Way	\$275,000	12/17/2003	\$ 291,839	2003	\$ 297,676	2	1	\$297,676	2,397	\$124.19
117 Cobblepoint Way	\$334,500	12/17/2004	\$ 344,920	2004	\$ 348,369	3	1	\$344,925	2,963	\$116.41
120 Cobblepoint Way	\$349,900	7/29/2004	\$ 364,855	2003	\$ 372,152	2	1	\$372,152	3,123	\$119.16
121 Cobblepoint Way	\$303,500	10/30/2003	\$ 323,282	2003	\$ 329,747	2	1	\$329,747	2,461	\$133.99
125 Cobblepoint Way	\$310,000	10/13/2003	\$ 330,638	2003	\$ 337,251	2	1	\$337,251	2,565	\$131.48
200 Charlesfort Lane	\$357,000	6/20/2005	\$ 362,692	2005	\$ 362,692	3	1	\$359,248	3,116	\$115.29
200 Wynecreek Circle	\$330,000	1/23/2004	\$ 349,203	2003	\$ 356,187	3	1	\$352,743	3,331	\$105.90
201 Charlesfort Lane	\$376,900	6/15/2005	\$ 383,065	2005	\$ 383,065	3	1	\$379,621	3,248	\$116.88
204 Charlesfort Lane	\$335,000	7/22/2005	\$ 339,461	2004	\$ 342,855	2	1	\$342,855	2,810	\$122.01
204 Wynecreek Circle	\$299,900	5/21/2004	\$ 314,418	2004	\$ 317,563	3	1	\$314,119	2,417	\$129.96
205 Charlesfort Lane	\$359,900	5/30/2005	\$ 366,260	2005	\$ 366,260	3	1	\$362,816	2,945	\$123.20
208 Charlesfort Lane	\$347,900	6/15/2005	\$ 353,590	2004	\$ 357,126	2	1	\$357,126	2,860	\$124.87
209 Charlesfort Lane	\$401,500	9/6/2005	\$ 405,328	2005	\$ 405,328	3	0	\$403,564	3,052	\$132.23
301 Landbridge Lane	\$349,900	6/25/2005	\$ 355,335	2005	\$ 355,335	3	1	\$351,891	2,957	\$119.00
									Average	\$120.35

SUNSET RIDGE

Address	Sold Price	Closing Date	Year Built	Full Baths	Half Baths	Living Area
125 Gablewood Lane	\$280,000	3/31/2003	2003	2	1	\$118.88
101 Gablewood Lane	\$295,000	4/24/2003	2003	2	1	\$122.02
201 Gablewood Lane	\$237,990	4/25/2003	2003	2	1	\$115.82
120 Gablewood Lane	\$300,000	5/13/2003	2003	2	1	\$123.59
113 Gablewood Lane	\$306,300	5/15/2003	2003	2	1	\$114.97
200 Gablewood Lane	\$229,333	5/16/2003	2003	2	1	\$111.42
300 Gablewood Lane	\$239,988	6/2/2003	2003	2	1	\$113.49
209 Gablewood Lane	\$243,500	6/6/2003	2003	2	1	\$110.23
121 Gablewood Lane	\$283,150	6/19/2003	2003	2	1	\$136.37
100 Gablewood Lane	\$291,000	6/30/2003	2003	3	0	\$125.45
304 Middlecrest Way	\$287,500	7/1/2003	2003	2	1	\$118.17
305 Middlecrest Way	\$243,000	7/18/2003	2003	2	1	\$112.72
316 Gablewood Lane	\$266,000	7/25/2003	2002	2	1	\$123.69
300 Middlecrest Way	\$259,400	8/15/2003	2003	2	1	\$116.66
309 Middlecrest Way	\$226,450	8/15/2003	2003	2	1	\$114.15
308 Middlecrest Way	\$283,500	8/21/2003	2003	3	0	\$127.34
317 Middlecrest Way	\$284,017	8/28/2003	2003	2	1	\$127.60
316 Middlecrest Way	\$297,600	9/10/2003	2003	2	1	\$127.79
301 Middlecrest Way	\$262,900	9/26/2003	2003	2	1	\$114.42
104 Gablewood Lane	\$273,900	9/30/2003	2003	2	1	\$123.97
112 Middlecrest Way	\$297,500	11/14/2003	2003	2	1	\$121.37
315 Gablewood Lane	\$270,000	11/17/2003	2003	2	1	\$123.24
313 Middlecrest Way	\$237,900	12/10/2003	2003	2	1	\$94.94
108 Middlecrest Way	\$297,000	12/12/2003	2003	2	1	\$120.55
320 Middlecrest Way	\$284,900	1/8/2004	2003	2	1	\$125.10
312 Middlecrest Way	\$309,900	1/12/2004	2003	2	1	\$128.71
105 Middlecrest Way	\$319,900	2/27/2004	2003	2	1	\$127.21
117 Gablewood Lane	\$320,000	5/6/2004	2002	2	1	\$124.81
105 Gablewood Lane	\$249,500	7/31/2004	2003	2	1	\$116.63
101 Gablewood Lane	\$325,000	11/12/2004	2003	2	1	\$124.29
100 Gablewood Lane	\$334,455	3/10/2005	2003	3	0	\$130.81
109 Middlecrest Way	\$330,000	10/9/2005	2004	2	1	\$121.63
121 Gablewood Lane	\$340,000	10/14/2005	2003	2	1	\$134.55
128 Gablewood Lane	\$322,000	12/29/2005	2002	2	1	\$138.21
						\$121.49



DAVID A. SMITH, MAI, SRA

DAVID A SMITH & ASSOCIATES, INC.
P.O. BOX 51597
DURHAM, NORTH CAROLINA 27717-1597
PHONE (919) 493-1534



QUALIFICATIONS OF DAVID A. SMITH, MAI, SRA

The appraiser, David A. Smith, was affiliated with Charles W. Smith Associates from 1976 to 2003. After the retirement of Charles W. Smith in 2003 he formed Smith & Whitfield, Inc. and later David A. Smith & Associates. Prior to 1981 most of the time was spent in research and gathering the other background experience necessary to appraisers. Starting in 1981, he began co-authoring residential appraisals with Mr. Charles W. Smith, MAI, SRPA and after 1982 began writing residential reports on his own. In 1988 he was awarded the RM designation. With the merger of the American Institute of Real Estate Appraisers and the Society of Real Estate Appraisers in January of 1991, the RM designation will no longer be awarded and all RM's were given the option to convert their designation to SRA. Mr. Smith made that election.

Since 1985 he has been primarily authoring and co-authoring non-single family reports. He has also trained and supervised several appraisers preparing all types of appraisal reports as well as authoring them himself. In 1991 he was awarded the MAI designation of the Appraisal Institute. He is also a State-Certified General Real Estate Appraiser for the State of North Carolina (No. A281).

EDUCATION: A.B., Duke University, 1981

COMPLETED APPRAISAL INSTITUTE COURSES:

Real Estate Appraisal Principles (Exam 1A-1/8-1)
University of North Carolina, 1981

Residential Valuation (Exam 8-2)
University of North Carolina, 1981

Basic Valuation Procedures (Exam 1A-2)
University of North Carolina, 1983

Standards of Professional Practice (Exam SPP)
University of North Carolina, 1983, 1997

Capitalization Theory & Techniques, A (Exam 1B-A)
University of Colorado, 1984

Capitalization Theory & Techniques, B (Exam 1B-B)
University of Colorado, 1984

Valuation Analysis and Report Writing (Exam 2-2)
University of North Carolina, 1987

Case Studies in Real Estate Valuation (Exam 2-1)
University of North Carolina, 1987

Advanced Sales Comparison & Cost Approaches
Atlanta Georgia, 2002

General Market Analysis and Highest and Best Use
Atlanta, Georgia, 2007

APPRAISAL INSTITUTE SEMINARS:

Highest and Best Use, 1988
Industrial Valuation, 1988
Rates, Ratios and Reasonableness, 1988
Valuation of Leased Fee Interests, 1989
Current Problems in Industrial Valuation, 1989
Methods of Subdivision Analysis, 1989
Expert Witness in Litigation, 1989
Discounted Cash Flow, 1990
RTC Appraisal Standards, 1990
Preparation and Use of the UCIAR Form, 1990
Standards of Professional Practice Update, 1990
Commercial Construction Overview, 1991
Appraising Troubled Properties, 1991
Appraisal Regulations of the Federal Banking Association, 1992
Real Estate Law for Appraisals, 1992
Appraising Apartments, 1993
Discounted Cash Flow Analysis, 1994
Appraiser's Legal Liabilities, 1994
Understanding Limited Appraisals & Reporting Options, 1994
Analysis Operating Expenses, 1995
Future of Appraisals, 1996
Highest and Best Use Applications, 1996
Litigation Skills for the Appraiser, 1997
Eminent Domain & Condemnation Appraising, 1998
Matched Pairs/Highest & Best Use/Revisiting Report Options, 1998
Valuation of Detrimental Conditions, 1998
Appraisal of Nonconforming Uses, 2000
Using GIS to Keep Pace with Changes in Real Estate Industry, 2001
Feasibility Analysis, Market Value and Investment Timing, 2002
Analyzing Commercial Lease Clauses, 2002
Standards of Professional Appraisal Practice, 2002
Effective Appraisal Writing, 2003
Supporting Capitalization Rates, 2004
National USPAP Update, 2004
Rates and Ratios: Making Sense of GIMs, OARs, and DCFs, 2005
The Road Less Traveled: Special Use Properties, 2005
National USPAP Updated, 2006
Appraisal Consulting: A Solutions Approach, 2006

What Clients Would Like Their Appraisers to Know, 2007
Valuation of Detrimental Conditions, 2007
Business Practice and Ethics, 2007
Office Building Valuation: A contemporary Perspective, 2008
Subdivision Analysis, 2008
National USPAP Update, 2009
Effective Appraisal Writing, 2009
Appraisal Curriculum, 2009
Discounted Cash Flow Model: Concepts, Issues and Apps., 2009
National USPAP Update, 2010

OTHER SEMINARS:

Commercial Segregated Cost Seminar, Marshall & Swift, 1988
Appraisal Guide and Legal Principles, Department of Transportation, 1993
The Grammar Game, Career Track, 1994

MEMBERSHIPS:

Appraisal Institute, MAI #09090
Appraisal Institute, SRA/RM #2248
Durham Board of Realtors
North Carolina Association of Realtors
National Association of Realtors

CERTIFICATION:

State Certified General Real Estate Appraiser for North Carolina, #A281

OTHER:

Member of City of Durham Audit Oversight Committee, 2002 – 2006
Member Durham Board of Adjustment, 1994 - 2002
Member Durham City/County Zoning Commission, 1990 – 1995
Broad Member, John Avery Boys and Girls Club, 1994-2002
Trustee Durham Historical Preservation Society, 1992 - 1995
Vice President of the Candidates, 1989, NC Chapter 40
President of the Candidates, 1990, NC Chapter 40
Candidate of the Year, 1990, NC Chapter 40

RECENT CLIENTS:

LENDING INSTITUTIONS

Bank of America
Branch Bank & Trust
Suntrust Bank
RBC Centura
Community Investment Corporation of North Carolina

Fidelity Bank
First Citizens Bank
First Union National Bank
Harrington Bank
Mechanics & Farmers Bank
Mutual Community Savings Bank
North Carolina Mutual Insurance Company
Roxboro Savings Bank
Self Help Credit Union
Southern National Bank
Cardinal State Bank

MUNICIPALITIES AND OTHER GOVERNMENT AGENCIES

City of Durham, North Carolina
County of Durham, North Carolina
Orange County, North Carolina
Town of Chapel Hill, North Carolina
North Carolina Department of Transportation
Housing Authority of Durham
Durham Public Schools
Veteran's Administration

OTHER

Blue Cross and Blue Shield of North Carolina
Carolina Power & Light
Cimarron Capital
Duke Energy Company
Durham Technical Institute
General Telephone of the Southeast
IBM Corporation
Moore & Van Allen
Maupin, Taylor & Ellis
Northgate Associates
Property Advisory Services
Stubbs, Cole, Breedlove & Prentis
Teer Associates
The Pantry
Ticon, Inc.
UDI Community Development Corporation
Womble, Carlyle & Sandridge

In addition, Mr. Smith has made appraisals for other lending institutions, municipalities, individuals, corporations, estates and attorneys. Appraisal assignments have been made throughout the Triangle, North Carolina, and South Carolina.

Properties appraised include all types of single family residential, multi-family residential, office, retail, commercial, industrial and specialty type uses both vacant and improved, existing and proposed.

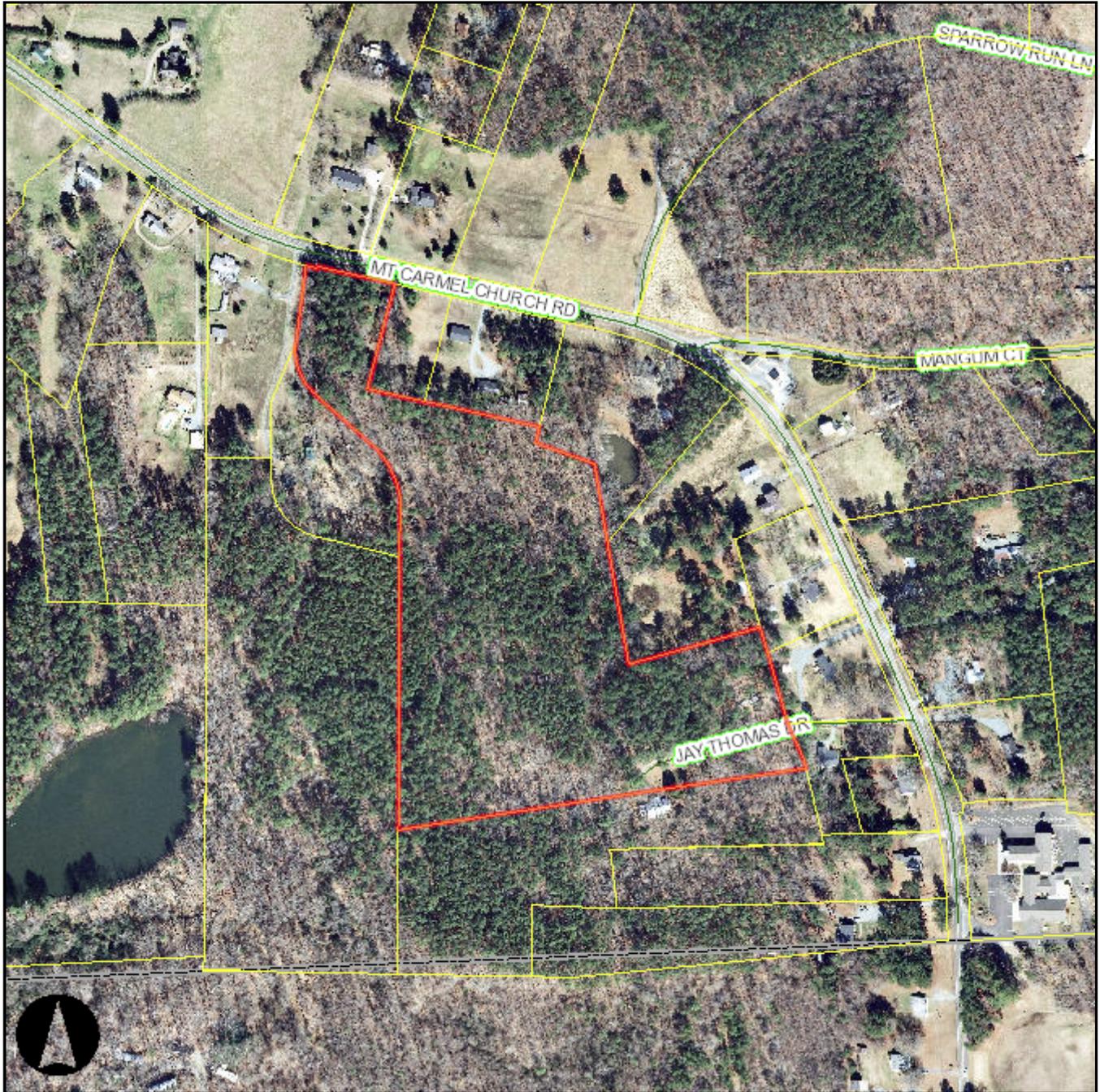
Appraisal assignments were for a variety of purposes including: mortgage loans, estate planning, condemnation, bankruptcy and equitable distribution.

ADDENDA



Orange County, NC GIS

Aerial Map



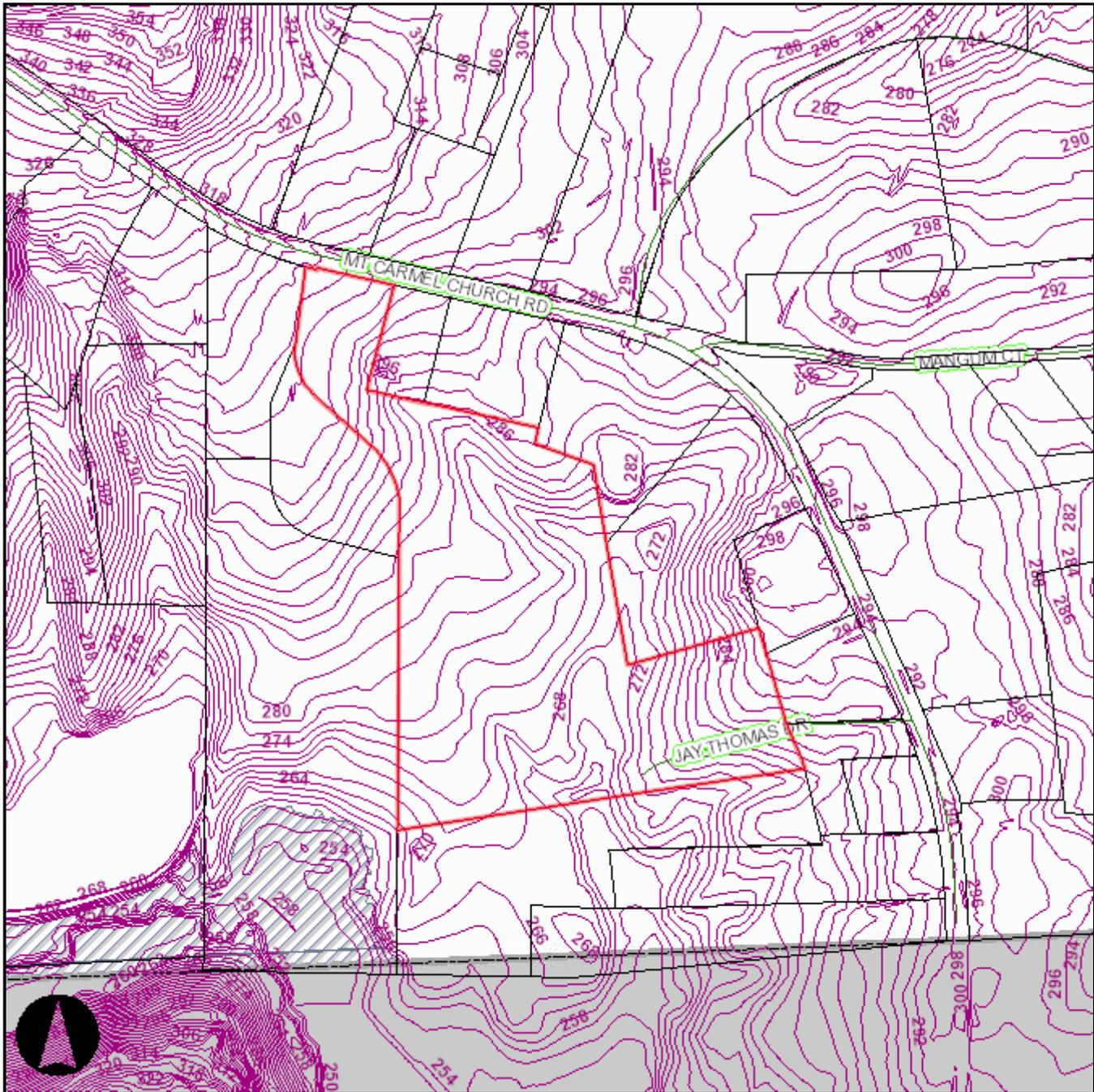
1 inch = 400 feet

Created on 8/15/2016. Orange County, North Carolina.



Orange County, NC GIS

Flood Topo Map



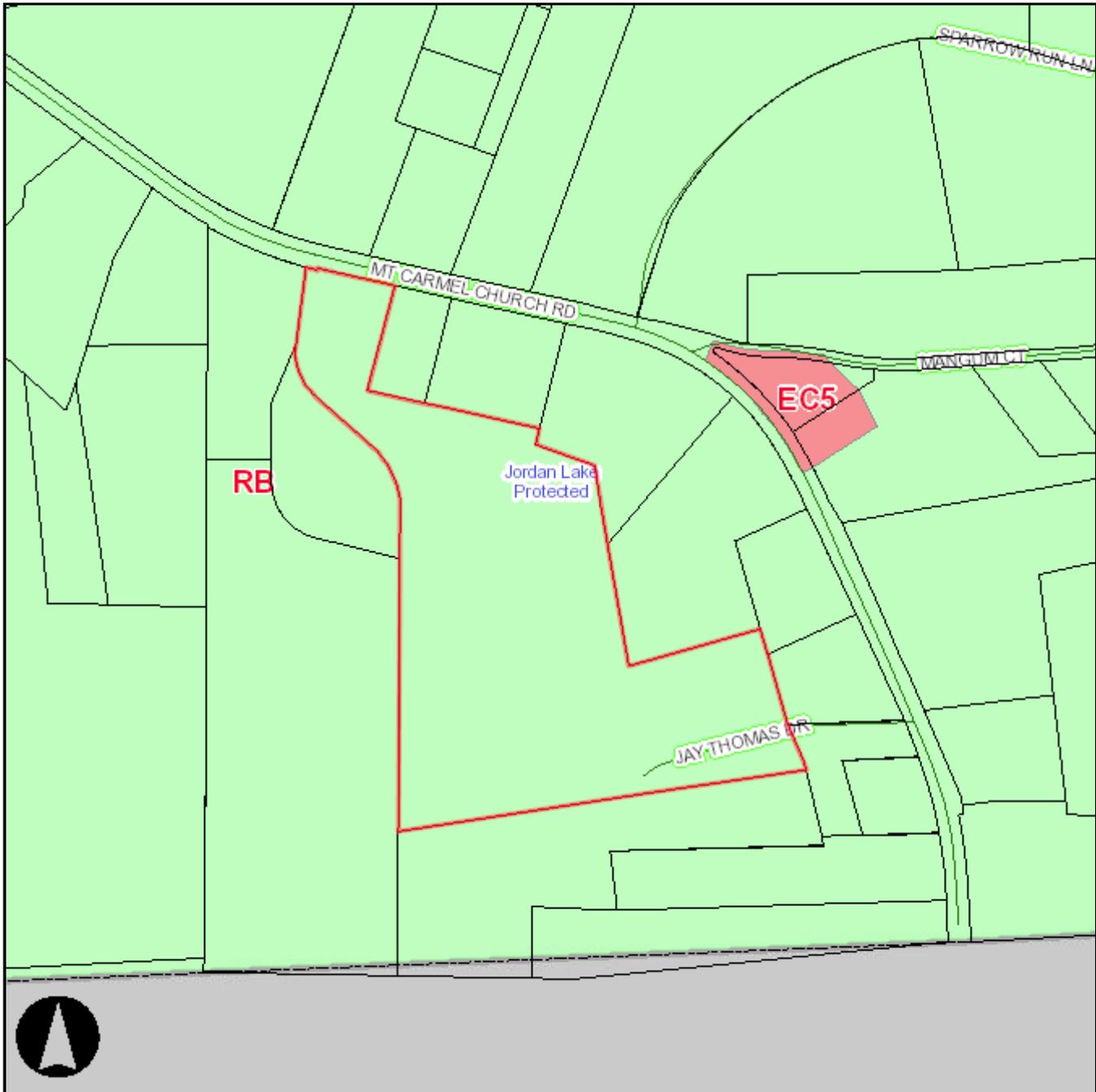
1 inch = 400 feet

Created on 8/15/2016. Orange County, North Carolina.



Orange County, NC GIS

Zoning Map



1 inch = 400 feet

Created on 8/15/2016. Orange County, North Carolina.



Orange County, NC GIS

Tax Card

Search Results (1)

shape	ESRI.ArcGIS.ADF.Web.Geometry.Polygon
PIN	9796099658
PINSTATUS	ACTIVE
OWNER_TYPE	
IOFLAG	
OWNER1_LAST	BUCKNER FAMILY FARM
OWNER1_FIRST	TRUST
OWNER2_LAST	
OWNER2_FIRST	
ADDRESS1	109 W FRANKLIN ST SUITE 1
ADDRESS2	
CITY	ROCKINGHAM
STATE	NC
ZIPCODE	28379
TOWNSHIP	7
SIZE	18.9
UOM	A
CALC_ACRES	18.58
SUBCODE	
LEGAL_DESC	S/S SR 1008
RATECODE	17
SCHOOL_SYSTEM	Chapel Hill/Carrboro Schools
LANDVALUE	6426
BLDGVALUE	1250
BLDGCNT	
VALUATION	7676
TAXSTATUS	A
FARMUSE	
USEVALUE	330992
DEEDREF	2185/29
LEGALREF	
DATESOLD	1/17/2001 12:00:00 AM
TAXSTAMPS	0
STAMPVALUE	0
SUBDIVISION_NAME	
TOWNSHIP_NAME	CHAPEL HILL
SQFT	NaN
YEARBUILT	
SHAPE.fid	18483835
shape.area	786380.85337917

PHOTOGRAPHS OF SUBJECT



End of Jay Thomas Drive into the Subject



Jay Thomas Drive as seen from Mt. Carmel Church Road

PHOTOGRAPHS OF SUBJECT



Mt. Carmel Church Road From Mangum Court



Wilbuck Road

TowerCom

PROJECT INFORMATION:

VERIZON NAME:
CLEARWATER LAKE
VERIZON No.: TBD
1941 MT. CARMEL CHURCH ROAD
CHAPEL HILL, NC 27517
ORANGE COUNTY

CURRENT ISSUE DATE:

09/01/16

ISSUED FOR:

CONSTRUCTION

REV.: DATE: ISSUED FOR: BY:

0	09/01/16	CONSTRUCTION	WCE

CONSULTANT:

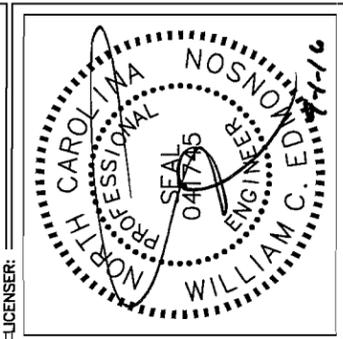
Kimley»Horn

2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GA 30092
PHONE: 770-825-0744
WWW.KIMLEY-HORN.COM
NC License F-0102

CONSULTANT:

DRAWN BY: CHK.: APV.:

MWD	KRM	WCE
-----	-----	-----



SHEET TITLE:

COVER SHEET

SHEET NUMBER: REVISION:

T1 0

012055945

Copyright Kimley-Horn and Associates, Inc., 2015

NOTE:
SITE IS LOCATED WITHIN FEMA FLOOD MAP
AREA 3710979600K DATED 02/02/2007
WITHIN FLOOD ZONE X.

TowerCom

WITH VERIZON WIRELESS
PROPOSED 195' MONOPOLE

CLEARWATER LAKE

SITE ADDRESS

1941 MT. CARMEL CHURCH ROAD
CHAPEL HILL, NC 27514
ORANGE COUNTY
LATITUDE: 35° 51' 52.848" N
LONGITUDE: 79° 01' 50.836" W
TAXI/PIN #: 9796099658
ZONING: RB

MUNICIPALITY:
ORANGE COUNTY

STATE:
NORTH CAROLINA

TOWER TYPE:
MONOPOLE TOWER

TOWER HEIGHT:
195' (199' TO HIGHEST APPURTENANCE)

NUMBER OF CARRIERS:
0 EXISTING, 1 PROPOSED

USE:
PROPOSED TELECOMMUNICATIONS TOWER
AND UNMANNED EQUIPMENT SHELTER

CONSULTANT
KIMLEY-HORN AND ASSOCIATES, INC.
2 SUN COURT, SUITE 450
PEACHTREE CORNERS, GEORGIA 30092
PHONE: (678) 533-3928
ATTN.: KEITH MARKLAND

PROJECT SUMMARY

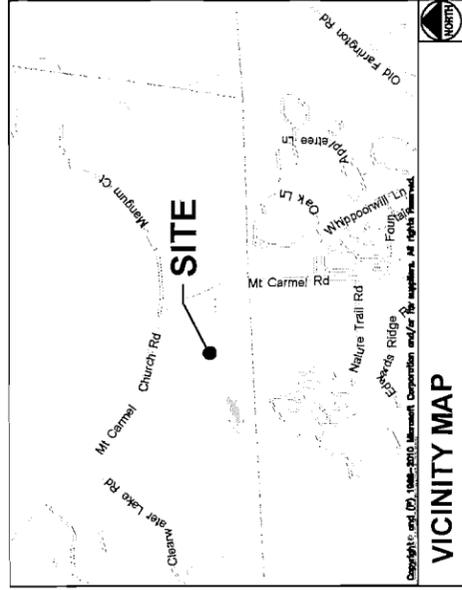
DEVELOPER
TOWERCOM
5611 HWY 55, SUITE 201
DURHAM, NC 27713
PHONE: (919) 666-2903
ATTN.: GEORGE DAVIS

POWER COMPANY
DUKE PROGRESS
PHONE: (800) 769-3766
ATTN.: CUSTOMER SERVICE

TELEPHONE COMPANY
AT&T
PHONE: (800) 344-7485
ATTN.: CUSTOMER SERVICE

PROPERTY OWNER
BUCKNER FAMILY FARM TRUST
109 W FRANKLIN ST. STE 101
ROCKINGHAM, NC 28379
PHONE: (910) 997-5076
ATTN.: RIC BUCKNER

CONTACTS



VICINITY MAP

FROM CHARLOTTE OFFICE: START OUT GOING SOUTHWEST ON RESEARCH DRIVE TOWARDS HARRIS BLVD 0.4 MILE; TURN LEFT ONTO W WY HARRIS BLVD 0.4 MILE; TURN LEFT ONTO THE I-85N RAMP 0.3 MILE; MERGE ONTO I-85N 42.1 MILES; KEEP LEFT AT THE FORK TO STAY ON I-85N 32.8 MILES; KEEP RIGHT AT THE FORK TO CONTINUE ON I-85BUS N/ US-29N/ US-70E, FOLLOWING SIGNS FOR GREENSBORO 12.0 MILES; MERGE ONTO I-40E/ I-85N 15.8 MILES; TAKE EXIT 148 FOR NC-54 TOWARD CHAPEL HILL/ CARRBORO 0.3 MILE; TURN RIGHT ONTO NC-54/E HARDEN ST 23.3 MILES; TAKE THE US-15S/ US-501'S RAMP TO NC-86N/ UNC CHAPEL HILL/ PITTSBORO 0.2 MILE; TURN RIGHT ONTO US-15S/ US-501'S/ S COLUMBIA ST 0.1 MILE; TURN LEFT AT THE 1ST CROSS STREET ONTO MT CARMEL CHURCH RD 2.3 MILES; ARRIVE AT DESTINATION ON THE RIGHT.

DRIVING DIRECTIONS

SHEET	DESCRIPTION	REV.
T1	COVER SHEET	0
T2	APPENDIX B: BUILDING CODE SUMMARY	0
--	SITE SURVEY (SHEET 1 OF 3)	0
--	SITE SURVEY (SHEET 2 OF 3)	0
--	SITE SURVEY (SHEET 3 OF 3)	0
C1	OVERALL SITE PLAN	0
C2	SITE PLAN	0
C3	FOUNDATION AND SHELTER TIE DOWN DETAILS	0
C4	SHELTER ELEVATIONS	0
C5	FENCE, GATE, AND COMPOUND DETAILS	0
C6.1	GRADING PLAN 1 OF 2	0
C6.2	GRADING PLAN 2 OF 2	0
C7.1	EROSION CONTROL PLAN PHASE 1 1 OF 2	0
C7.2	EROSION CONTROL PLAN PHASE 1 2 OF 2	0
C7.3	EROSION CONTROL PLAN PHASE 2 1 OF 2	0
C7.4	EROSION CONTROL PLAN PHASE 2 2 OF 2	0
C8	GRADING AND EROSION CONTROL DETAILS	0
C8.1	GRADING AND EROSION CONTROL DETAILS	0
C8.2	GRADING AND EROSION CONTROL DETAILS	0
C9	ACCESS ROAD DETAILS	0
C10	SITE SIGNAGE DETAILS	0
C11	WAVEGUIDE BRIDGE DETAILS	0
C12	ANTENNA AND TOWER ELEVATION DETAILS	0
E1	BASIC SERVICE ROUTING PLAN	0
E2	GROUNDING PLAN	0
E3	SINGLE-LINE DIAGRAM	0
E4	ELECTRICAL DETAILS	0
E5	H-FRAME DETAIL	0
E6	GROUNDING DETAIL	0
SHEET INDEX		

ORANGE COUNTY PLANNING & INSPECTIONS
200 S. CAMERON ST
HILLSBOROUGH, NC 27278
PHONE: (919) 732-8181
ATTN.: CUSTOMER SERVICE

PERMIT INFORMATION

BCSC
 BATEMAN CIVIL SURVEY COMPANY
 Bateman Civil Survey Co, PC
 2524 Reclamation Avenue, Apex, NC 27539
 Phone: 919.577.1080 Fax: 919.577.1081
 NCBSLS FROM C-237B

ertzo wireless
 481 BUSINESS CENTER DRIVE
 CHARLOTTE, NORTH CAROLINA 28202

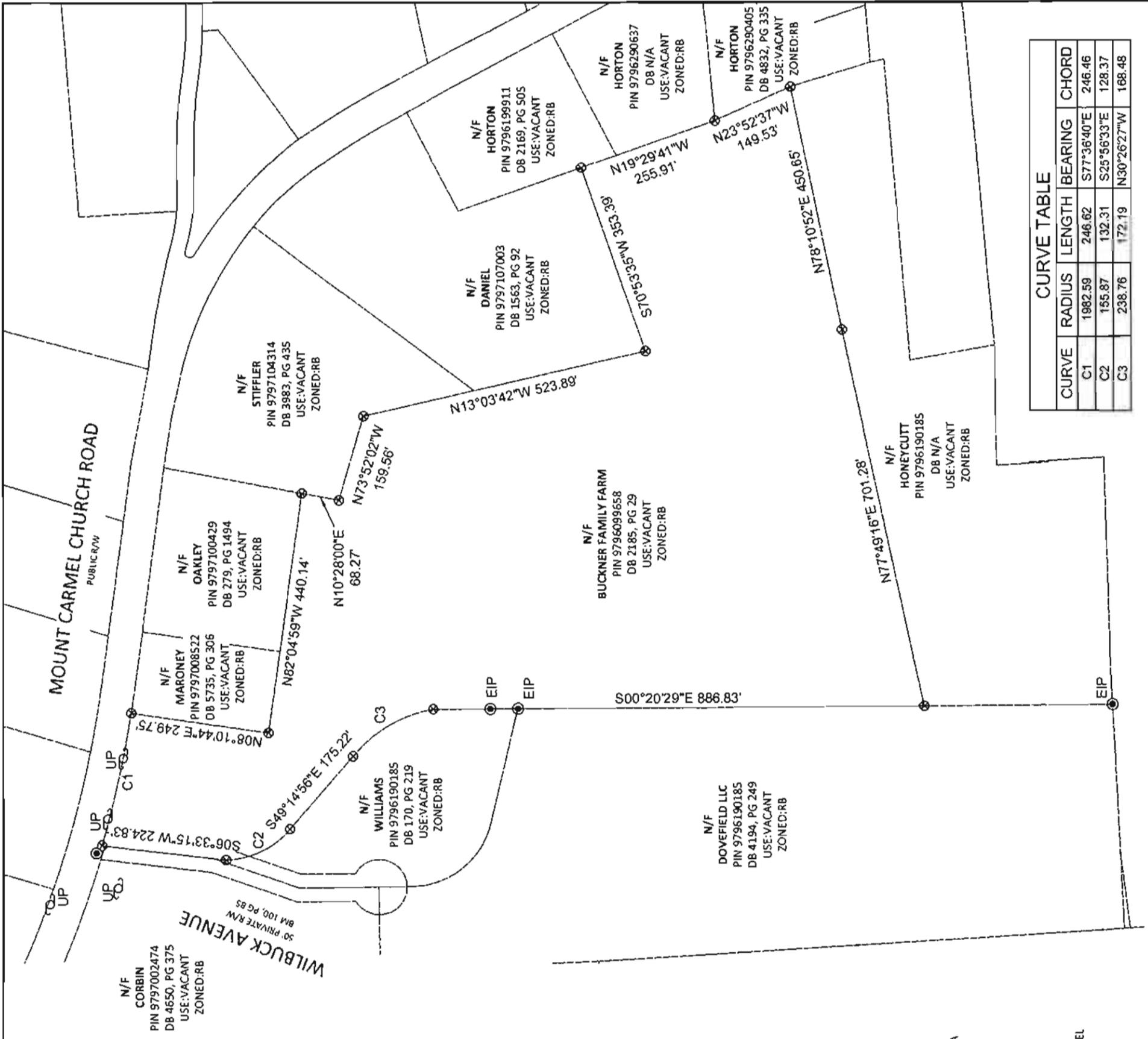
Kimley»Horn
 2 Sun Court, Suite 450
 Peachtree Corners, GA
 30082

DRAWN BY: JCH
 CHECKED BY: JWB
 DRAWING NO: 3/15/15
 PROJECT NO: 150237
 DATE: 3/11/2015
 SCALE: AS SHOWN
 PROJECT: CLEARWATER LAKE
 SURVEYOR: JEFFREY W. BAKER, PLS
 REGISTRATION NO. 37121
 EXPIRES: 03/31/2018

NO.	DATE	DESCRIPTION
1.	6/01/15	Relocate Rights of Way & Legal
2.	6/29/15	Title Report
3.	7/01/15	Relocate Rights of Way & Legal
4.	7/10/15	Field Locate House & Barn
5.	7/22/15	Submit Final Survey

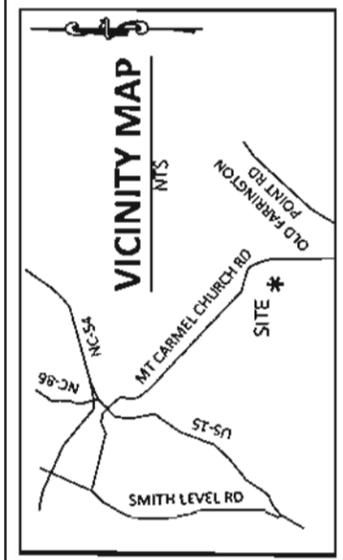
CLEARWATER LAKE
 301003
 1941 MT. CARMEL CHURCH RD.
 CHAPEL HILL, NC, 27517
 ORANGE COUNTY

DATE OF SURVEY: 3-11-2015
BCSC JOB # 150237
SHEET TITLE: SURVEY
SHEET NUMBER: 1 OF 3



CURVE TABLE

CURVE	RADIUS	LENGTH	BEARING	CHORD
C1	1982.59	246.62	S77°36'40"E	246.46
C2	155.87	132.31	S25°56'33"E	128.37
C3	238.76	172.19	N30°26'27"W	168.48



LEGEND

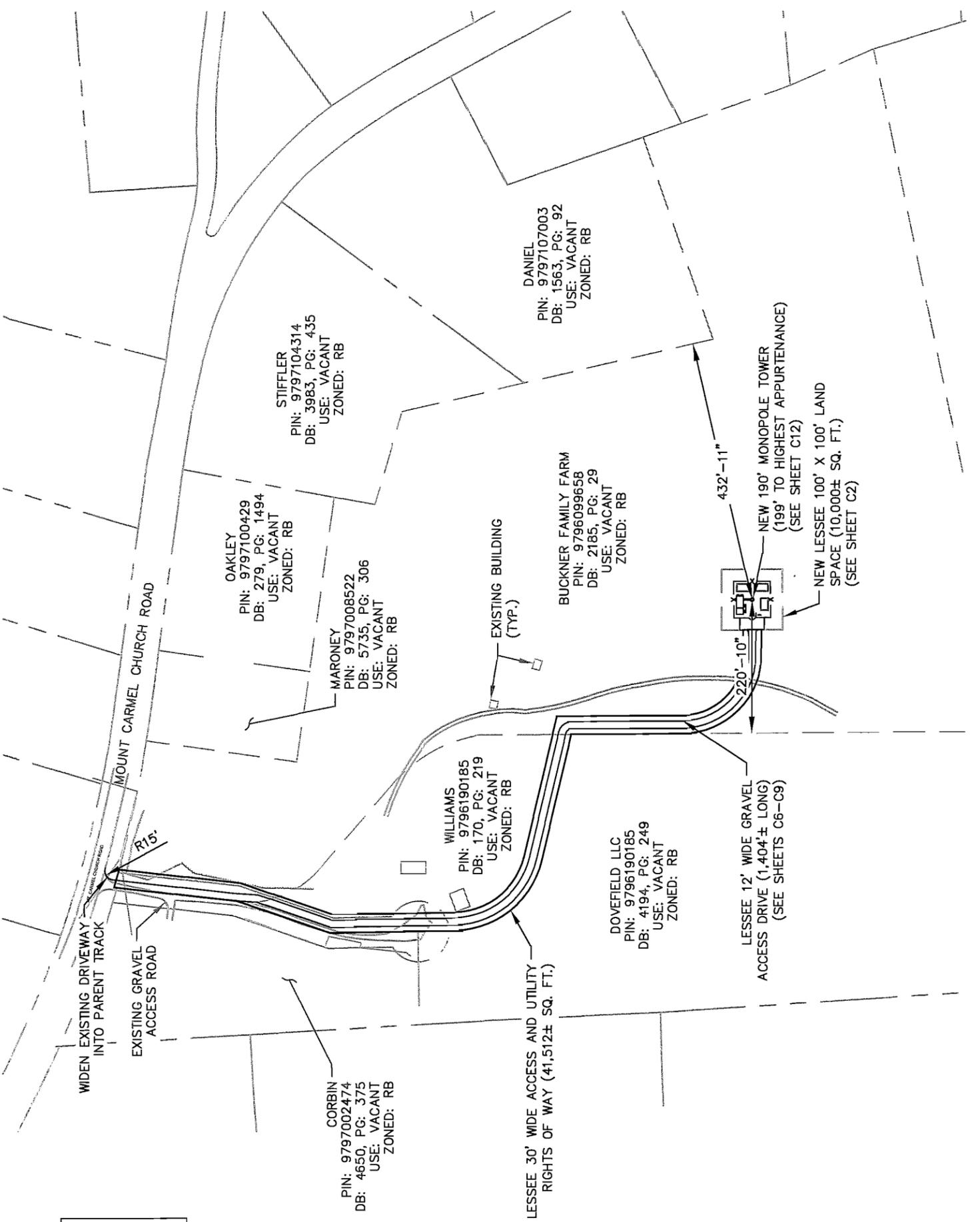
- EXIST. UTILITY POLE
- ⊕ EXIST. TELE PED
- NAIL FOUND
- ⊗ IRON PIPE FOUND
- ⊙ COMPUTED POINT
- ⊠ CONCRETE MONUMENT

8.55" MAGNETIC DECLINATION

SCALE: 1" = 200'

GENERAL NOTES

- THIS SURVEY WAS PREPARED BY BATEMAN CIVIL SURVEY CO., UNDER THE SUPERVISION OF JEFFREY W. BAKER, PLS.
- THIS PLAN HAS BEEN PREPARED FOR LAYOUT AND PERMITTING PURPOSES ONLY.
- THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES SHOWN WERE TAKEN FROM EXISTING FIELD EVIDENCE, EXISTING DEEDS AND PLATS OF PUBLIC RECORD, AND INFORMATION SUPPLIED TO THE SURVEYOR BY THE CLIENT
- VERTICAL DATUM, THE LATITUDE, LONGITUDE AND STATE PLANE COORDINATES, IF SHOWN, ARE GIVEN IN NORTH AMERICAN DATUM OF 1983 (NAD83).
- FIELD EQUIPMENT USED: TOPCON TOTAL STATION, EPOCH 35.
- ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES AND ALL BEARINGS ARE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM UNLESS OTHERWISE SHOWN
- PROPERTY OWNER: BUCKNER FAMILY FARM TRUST
 109 W. FRANKLIN STREET, SUITE 1, ROCKINGHAM, NC, 28379
- THIS MAP IS NOT A CERTIFIED SURVEY AND HAS NOT BEEN REVIEWED BY A LOCAL GOVERNMENT AGENCY FOR COMPLIANCE WITH ANY APPLICABLE LAND DEVELOPMENT REGULATIONS.
- ALL EQUIPMENT AND IMPROVEMENTS ARE LOCATED WITHIN THE LEASE AREA
- THE PROPERTY LIES IN ZONE "X", PER NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE PANEL 9797, RATE MAP 3710579700K, DATED: FEBRUARY 2, 2007 AND PANEL 9796, RATE MAP 3710579600K, DATED: FEBRUARY 2, 2007.
- PROPERTY INFORMATION DERIVED FROM ORANGE COUNTY GIS.



TOWER SETBACKS TO PROPERTY LINES (FROM TOWER CENTER)	
NORTH	703'-6"
SOUTH	382'-1"
EAST	432'-11"
WEST	220'-10"

1 OVERALL SITE PLAN
C1
SCALE: 1" = 200'

SURVEY NOTE:
 1. TOWERCIN PROJECT MANAGER 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 BATEMAN CIVIL SURVEY CO. DATED 03/13/2015 AND SITE VISIT ON 02/19/2015.



TowerCom

PROJECT INFORMATION:
 VERIZON NAME:
 CLEARWATER LAKE
 VERIZON No.: TBD
 1941 MT. CARMEL CHURCH ROAD
 CHAPEL HILL, NC 27517
 ORANGE COUNTY

CURRENT ISSUE DATE:
 09/01/16

ISSUED FOR:
 CONSTRUCTION

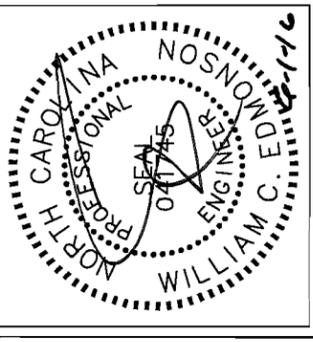
REV.-DATE: ISSUED FOR: BY:

REV.	DATE	ISSUED FOR	BY
0	09/01/16	CONSTRUCTION WCE	

CONSULTANT:
Kimley»Horn
 2 SUN COURT, SUITE 450
 PEACHTREE CORNERS, GA 30092
 PHONE: 770-825-0744
 WWW.KIMLEY-HORN.COM
 NC License F-0102

CONSULTANT:

DRAWN BY: CHK: APV: WCE
 MWD KRM WCE



SHEET TITLE:
OVERALL SITE PLAN

SHEET NUMBER: REVISION:
C1 **0**
 012055945



PROJECT INFORMATION:
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 VERIZON No.: TBD
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 ORANGE COUNTY

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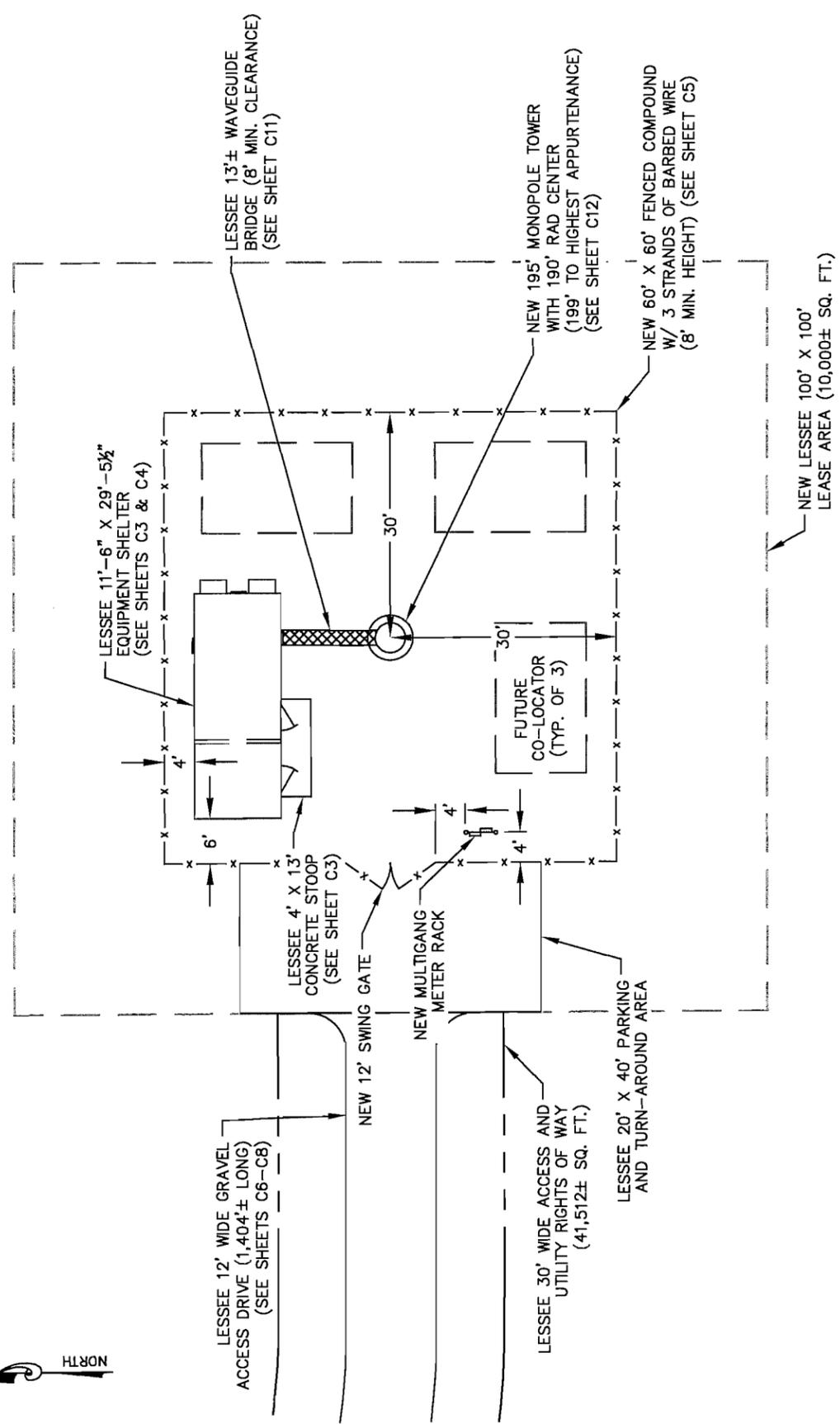


SHEET TITLE:
SITE PLAN

SHEET NUMBER: **C2**
 REVISION: **0**
 012055945

GENERAL NOTES:

- 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.
- 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.
- 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.
- CONTRACTOR SHALL REVIEW AND BE FAMILIAR WITH SITE CONDITIONS AS SHOWN ON THE ATTACHED SITE PLAN AND/OR SURVEY DRAWINGS.
- WAVEGUIDE BRIDGE AND PRE-FAB SHELTER ARE SHOWN FOR REFERENCE ONLY. REFER TO SEPARATE PRE-ENGINEERED DRAWINGS FOR SPECIFIC INFORMATION INCLUDING FOOTINGS AND WAVEGUIDE BRIDGE LOCATION.
- ALL FINISHED GRADES SHALL SLOPE MINIMUM 1/4 IN./FT. AWAY FROM EQUIPMENT IN ALL DIRECTIONS. CONTRACTOR SHALL SLOPE SWALES AS REQUIRED ALONG EXISTING TERRAIN TO DRAIN AWAY FROM COMPOUND AND ACCESS DRIVE.
- 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 FROM VERIZON PROJECT MANAGER TO CONFIRM COAX ROUTING AND ANTENNA MOUNT INFORMATION.
- THE CONTRACTOR SHALL PROVIDE ADEQUATE EXCAVATION SLOPING, SHORING, BRACING, AND GUYS IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL SAFETY ORDINANCES.
- 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 MATERIALS SHALL BE COMPACTED.
- 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 THIS CONTRACT WILL BE REQUIRED TO NOTIFY NORTH CAROLINA 811 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.
- CONTRACTOR TO PROVIDE DUMPSTER AND PORTABLE TOILET FACILITY DURING CONSTRUCTION.
- CONTRACTOR TO PROVIDE STYME LOCK, DAISY CHAIN OR EQUIVALENT AS APPROVED BY CONSTRUCTION MANAGER.
- CONTRACTOR TO PROVIDE ANY NECESSARY SIGNAGE PER TOWERCOM PROJECT MANAGERS INSTRUCTIONS. SEE DETAIL ON SHEET C10.



1
C2
 SCALE: 1" = 20'

- SURVEY NOTE:**
- TOWERCOM PROJECT MANAGER SHALL COORDINATE WITH THE PROPERTY OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN AND AROUND THE TOWER COMPOUND.
 - PROPOSED COMPOUND LAYOUT BASED ON SURVEY PROVIDED BY BATEMAN CIVIL SURVEY CO. DATED 03/13/2015 AND SITE VISIT ON 02/19/2015.
- SHELTER NOTE:**
- CONTRACTOR TO CONFIRM WITH VERIZON CONSTRUCTION MANAGER THAT THE SHELTER SHOWN ABOVE HAS BEEN ORDERED/SCHEDULED FOR DELIVERY TO THIS SITE.
- COAX NOTE:**
- ROUTE COAX/FIBER UP TOWER PER TOWER DESIGN DRAWING BY TOWER OWNER.
- TOWER NOTE:**
- 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.



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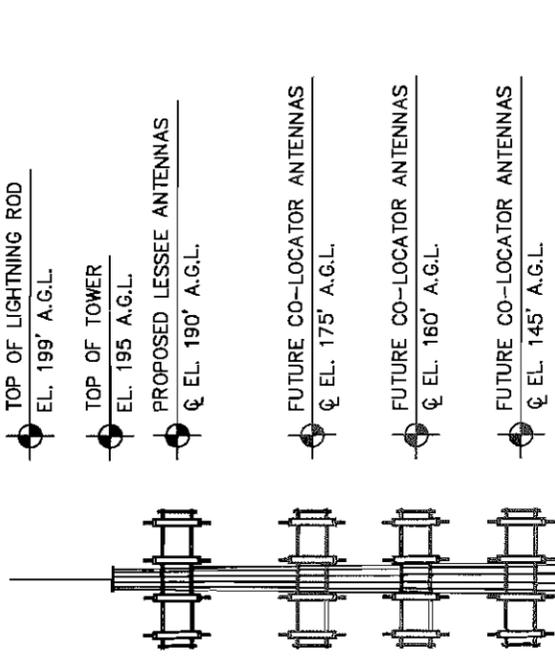
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 NC License F-0102

CONSULTANT:
 DRAWN BY: MWD
 CHK.: KRM
 APV.: WCE
 LICENSEE: WCE

FOR
 ILLUSTRATIVE
 PURPOSES ONLY-
 NO SIGNATURE
 REQUIRED

SHEET TITLE:
**ANTENNA AND
 TOWER ELEVATION
 DETAILS**

SHEET NUMBER:
C12
 REVISION:
 0
 012055945



NOTE: FUTURE CO-LOCATORS RAD CENTERS TO BE DESIGNED FOR (12) 8'X1'X6" PANELS, (9) RRU 24"X13"X7" AND (12) 1-5/8" LINES

PROPOSED 195' MONOPOLE TOWER

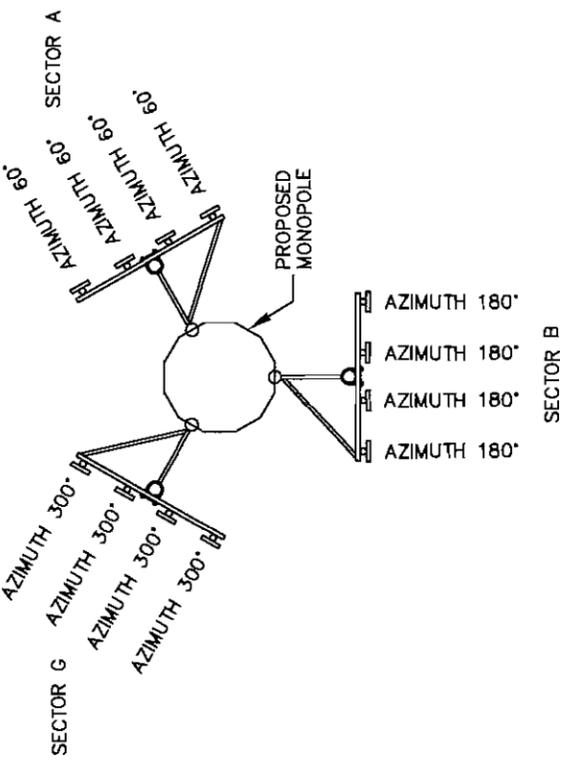
PROPOSED LESSEE EQUIPMENT SHELTER (11'-6" X 29'-5 1/2")

PROPOSED CHAIN LINK SECURITY FENCE

EXISTING GRADE (+0.0' ± AGL)

2 MONOPOLE TOWER ELEVATION - EAST VIEW
 (FACING WEST)
 NOT TO SCALE

- NOTES:
- ALL PROPOSED ATTACHMENTS TO TOWER BASED ON TOWER DESIGN DRAWINGS BY OTHERS (SEE GENERAL NOTE 7, SHEET C2).
 - THE TOWER ELEVATION SHOWN IS FOR REFERENCE ONLY.
 - FIBER/COAX CABLE LENGTHS ARE APPROXIMATE. CONTRACTOR TO VERIFY CORRECT LENGTH IN FIELD AT TIME OF CONSTRUCTION.
 - PROPOSED BUILDING WILL HAVE BROWN AGGREGATE FINISH.
 - PROPOSED TOWER WILL BE GALVANIZED STEEL-GRAY IN COLOR AND UNLIT.
 - PROPOSED ANTENNAS ALSO LIGHT GRAY IN COLOR.



1 ANTENNA ORIENTATION PLAN

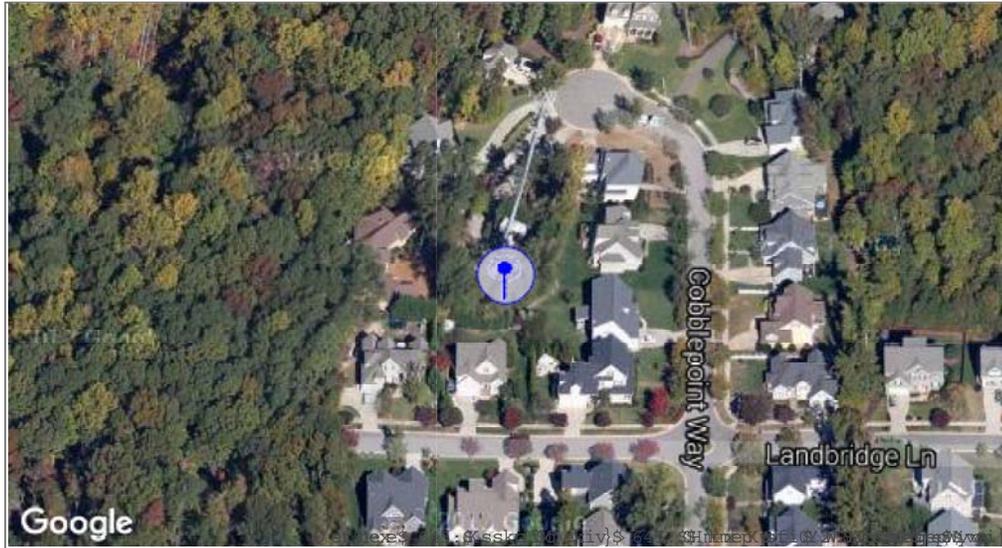
(NOT TO SCALE, FOR ILLUSTRATIVE PURPOSES ONLY, SEE STRUCTURAL ANALYSIS BY OTHERS TO CONFIRM ANTENNA MOUNT TYPE)

ANTENNA SECTOR	AZIMUTH IN DEGREES	MECHANICAL DOWN TILT	LICENSED FREQUENCY	ANTENNA* (QTY) MAKE/MODEL	REMOTE RADIO UNIT	COMPOSITION CABLES		
						LENGTH	QTY	COAX SIZE
SECTOR A	60°	0°	850	-	-	-	-	-
	60°	0°	1900	(1) ANDREW/ HBXX6516DS-A2M	RRUSB12-B2 W/A2	260'±	-	-
	60°	0°	2100	(1) ANDREW/ HBXX6516DS-A2M	RRUSB12-B4 W/A2	260'±	-	-
	60°	0°	700	(2) ANDREW/ LNX-6515DS-A1M	-	260'±	4	1-5/8"φ
SECTOR B	180°	0°	850	-	-	-	-	-
	180°	0°	1900	(1) ANDREW/ HBXX6516DS-A2M	RRUSB12-B2 W/A2	260'±	-	-
	180°	0°	2100	(1) ANDREW/ HBXX6516DS-A2M	RRUSB12-B4 W/A2	260'±	-	-
	180°	0°	700	(2) ANDREW/ LNX-6515DS-A1M	-	260'±	4	1-5/8"φ
SECTOR G	300°	0°	850	-	-	-	-	-
	300°	0°	1900	(1) ANDREW/ HBXX6516DS-A2M	RRUSB12-B2 W/A2	260'±	-	-
	300°	0°	2100	(1) ANDREW/ HBXX6516DS-A2M	RRUSB12-B4 W/A2	260'±	-	-
	300°	0°	700	(2) ANDREW/ LNX-6515DS-A1M	-	260'±	4	1-5/8"φ

* CONTRACTOR ALSO TO INSTALL ANY RAYCAP BOXES AS NECESSARY. VERIFY WITH VERIZON WIRELESS PROJECT MANAGER PRIOR TO INSTALLATION.

NOTES:
 1. ALL INFORMATION ON THIS PAGE IS PROVIDED BY VERIZON WIRELESS 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 TOWER OWNER FOR ANALYSIS OF EXISTING TOWER.
 3. IT IS UNDERSTOOD THAT KIMLEY-HORN MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, FINDINGS, DESIGNS, RECOMMENDATIONS, SPECIFICATIONS, OPINION, OR PROFESSIONAL ADVICE RELATING TO THE STRUCTURAL ADEQUACY OF THE EXISTING TOWER OR ATTACHMENT OF ANTENNAS OR OTHER APPURTENANCES.

Details of Cobble Ridge Subdivision Tower



• **Ownership Info**

Owner Company:	CROWN CASTLE EAST AREA	Address:	Not Recorded
Contact:	Not Recorded		
Phone:	Not Recorded		
Email:	Not Recorded		

• **Structure Characteristics**

Filing #:	2015-ASO-8377-OE	Ground Elev:	398.0 feet
Latitude:	35.658	Height Of Structure:	205.1 feet
Longitude:	-78.817	Overall Height:	603.0 feet
Structure Type:	Tall Structure	Structure Address:	Not Recorded
Status:	Unknown		
Date Filed:	08/11/2015		

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www.flukenetworks.com/WifiAnalyzer

PHOTOGRAPHS OF COBBLE RIDGE



Cobble Ridge Away from Tower



Cobble Ridge Away from Tower

PHOTOGRAPHS OF COBBLE RIDGE



Adjoining Tower



Adjoining Tower

PHOTOGRAPHS OF COBBLE RIDGE



Adjoining Tower



Adjoining Tower

PHOTOGRAPHS OF COBBLE RIDGE



Adjoining Tower



Adjoining Tower

PHOTOGRAPHS OF COBBLE RIDGE



Adjoining Tower

PHOTOGRAPHS OF SUNSET RIDGE



Sunset Ridge



Sunset Ridge

PHOTOGRAPHS OF SUNSET RIDGE



Sunset Ridge

**APPLICATION FOR ZONING APPROVAL BY TOWERCOM IV, LLC FOR THE
CONSTRUCTION OF A WIRELESS TELECOMMUNICATIONS SUPPORT
STRUCTURE AND RELATED APPURTENANCES**

(CLEARWATER LAKE SITE)

TOWER BONDS CERTIFICATION

Sections 5.10.8.B.3.f, 5.10.8.B.4.t, and 5.10.8.B.5 of the Orange County Unified Development Ordinance (the "Ordinance") require the following:

5.10.8.B.3.f: Draft bond which will guarantee the removal of the wireless support structure in the event that it is abandoned or unused for a period of twelve (12) months;

5.10.8.B.4.t: All abandoned communication wireless support structures shall be removed within twelve (12) months of the cessation of use. A bond or other security guaranteeing the removal of the tower in the event that it is abandoned or unused for a period of twelve (12) months shall be posted. A cost estimate shall be provided by a qualified General Contractor licensed in the State of North Carolina. The amount of the security shall be one hundred ten (110%) percent of the estimate;

5.10.8.B.5:

- a. The applicant and the owner of record of any proposed facility property site shall, at its cost and expense, be jointly required to execute and file with the County a bond, or other form of security acceptable to the County as to type of security and the form and manner of execution, in an amount of at least Seventy-Five Thousand (\$75,000.00) Dollars for a tower and with such sureties as are deemed sufficient by the County to assure the faithful performance of the terms and conditions of this Section and conditions of any Special Use Permit issued pursuant to this Section.
- b. The full amount of the bond or security shall remain in full force and effect throughout the term of the Special Use Permit and/or until any necessary site restoration is completed to restore the site to a condition comparable to that, which existed prior to the issuance of the original Special Use Permit. Tower Inspection

TowerCom IV, LLC ("TowerCom") agrees to comply with the above-referenced Ordinance Sections. TowerCom has requested and obtained a draft performance bond and a draft removal bond to be provided by Western Surety Company and has submitted the same as exhibits to the Application. The only thing lacking with respect to securing the aforementioned bonds is paying any required fee for the same to be issued. Please let this letter serve as certification that upon zoning approval,

TowerCom has the ability to pay the required fees and obtain the said bonds, and will pay the required fees and obtain the said bonds and submit to the Orange County Planning Department prior to issuance of a building permit for the proposed facility.

TOWERCOM IV, LLC

BY:



NAME:

George Davis

ITS:

Vice President



ORANGE COUNTY | NORTH CAROLINA

Orange County NC Property Zoning Report

PIN# 9796099658

Jurisdiction

County

Zoning Designations

RB - Rural Buffer

The purpose of the district is to provide for development at very low densities relying on individual wells and ground absorption systems for domestic water supply and sewage disposal, respectively.

Overlay Districts

Watershed Zoning Overlay Designation: Jordan Lake Protected

Additional Info

