



**Vance
COUNTY**
NORTH CAROLINA

Special Use Permit Application
Vance County Planning & Development Department

156 Church Street, Suite 3
Henderson, NC 27536
Ph: (252) 738-2080
Fax: (252) 738-2089

For Administrative Use Only:

Case #	
Fee Paid	
BOA Date	

Property Owner Information

Property Owner: JDRF, LLC
 Mailing Address: PO BOX 192
 City: Henderson State: NC Zip Code: 27536
 Phone #: (252) 432-0774 Fax #: () -
 E-mail Address: corva@man60-67@yahoo.com

Applicant Information

Applicant: Southern Towers BTS, LP
 Mailing Address: by Faulk & Foster (contact: Ralph Wyngarden)
 City: 678 Front Ave, Suite 255 State: Grand Rapids Zip Code: MI 49504
 Phone #: (616) 490-9804 Fax #: () -
 E-mail Address: ralph.wyngarden@faulkandfoster.com

Property Information *For multiple properties please attach an additional sheet.*

Property Address: 171 N. Cokesbury Rd, Henderson, NC 27537
 Tax Map Number: _____ PIN (parcel identification #): 0526 02005
 Type of Petition: Special Use Permit
 Existing Zoning: A-R Proposed Zoning: No change
 Acreage: 87.1 Road Frontage: See drawings
 Existing Use: Vacant/Agricultural/Wooded

Deed Reference

- Metes and bounds description attached [see drawings provided]
- Site plan/sketch of proposal attached



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Statement of Justification

1. Application is hereby made for the following use: *Please explain below:*

Special Use Permit for a Commercial Communications Tower
as allowed in the A-R district per the Table of Uses on
page 31 of the zoning ordinance and subject to the requirements
in Section 6.10.0.

2. The intent is to : *Check all that apply:*

- Construct a new structure for a special use;
- Repair the existing structure for the special use;
- Alter and/or expand the existing structure for the special use;
- Other

3. The following requirements have been provided: *Check all that apply:*

- Site plan;
- Property description;
- NC DOT entrance permit (if applicable);

4. Additional information:

Please see Ordinance Compliance Statement and Exhibits
provided.

In order to issue a Special Use Permit, the Board shall consider each of the following conditions, and based on the evidence presented at the hearing(s) make findings in regards to each and must find that the issuance of the Special Use Permit is in the best interest of the county.

A. The use requested is among those listed as an eligible special use in the district in which the subject property is located.

Yes X No

Please see Ordinance Compliance Statement.

B. The use or development is located, designed and proposed to be operated so as to maintain or promote the public health or safety;

Yes X No

Please see Ordinance Compliance Statement



Vance COUNTY

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C. The use or development complies with all required regulations of the Zoning Ordinance and all applicable specific conditions and specifications;

Yes No

Please see Ordinance Compliance Statement.

D. The use or development is located, designed and proposed to be operated so as to maintain or enhance the value of adjoining or abutting property, or that use or development is a public necessity;

Yes No

Please see Ordinance Compliance Statement and Impact Study provided as Exhibit A.

E. The use or development will be in harmony with the area in which it is located and will be in general conformity with the plan of development of the County.

Yes No

Please see Ordinance Compliance Statement.

Property Owners Signature

Date _____

Please sign in blue or black ink

Applicants' Signature

Ralph Wyngarden

Date 10/2/2023

Please sign in blue or black ink

Faulk & Foster, by Ralph Wyngarden, For applicant Southern Towers BTS, LP

Michael Harvey, Director
Vance County Planning and Development
156 Church Street, Suite 003
Henderson, NC 27536

252-738-2080

Letter of Authorization

Applicant: Southern Towers BTS, LP, a Delaware Limited Partnership, by its General Partner, Southern Towers BTS, LLC, a Tennessee Limited Liability Company

Application: Special Use Permit

Southern Towers Site Name: NC-035 Daniel Harris Road

Project: Southern Towers wireless telecommunications tower site including a 195' monopole with 4' lightning rod with Verizon Wireless antennas at a centerline of 190' and Verizon Wireless equipment within a 60' x 60' fenced compound

Address: 171 N. Cokesbury Rd, Henderson, NC 27537

Parcel #: 0526 02005

Owner: JDRF, LLC & Charlie P. Rose, Jr.

This letter will confirm that JDRF, LLC & Charles P. Rose, Jr. own the property referenced above and authorizes Southern Towers BTS, LP, a Delaware Limited Partnership, by its General Partner, Southern Towers BTS, LLC, a Tennessee Limited Liability Company to apply for a Special Use Permit and any other permits or approvals necessary for this project and further authorizes Southern Towers' agent, Ralph Wyngarden, Faulk & Foster, to appear at meetings and sign any application or other documentation necessary to obtain all required permits or approvals necessary for this project.

Owners:



Date: 2023.08.31

12:29:39 -04'00'

John C. Rose Date: _____

Charlie P. Rose, Jr. Date: _____

Michael Harvey, Director
Vance County Planning and Development
156 Church Street, Suite 003
Henderson, NC 27536

252-738-2080

Letter of Authorization

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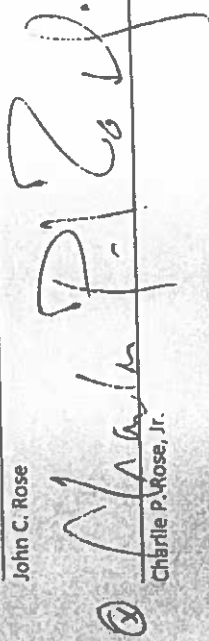
Owner: JDRF, LLC & Charlie P. Rose, Jr.

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Owners:

Date: _____

John C. Rose



Charlie P. Rose, Jr.

Date: 9-11-2023

ORDINANCE COMPLIANCE STATEMENT

Applicant: Southern Towers BTS, LP, a Delaware Limited Partnership, by Its General Partner, Southern Towers BTS, LLC, a Tennessee Limited Liability Company

Application: Special Use Permit

Southern Towers Site Name: NC-035 Daniel Harris Road

Project: Southern Towers BTS, LLC wireless telecommunications tower site including a 195' monopole with 4' lightning rod with Verizon Wireless antennas at a centerline of 190' and Verizon Wireless equipment within a 60' x 60' fenced compound

Address: 171 N. Cokesbury Rd, Henderson, NC 27537

Parcel #: 0526 02005

Zoning District: A-R Agricultural Residential

Owner: JDRF, LLC

Southern Towers BTS, LP, a Delaware Limited Partnership, by its General Partner, Southern Towers BTS, LLC, a Tennessee Limited Liability Company, respectfully submits this statement of compliance with relevant portions of the Vance County Zoning Ordinance.

The Table of Permitted Uses, on page 31 of the Zoning Ordinance, indicates that "Commercial Communications Towers (Cell Towers)" are allowed in the A-R Agricultural Residential District with Special Use Permit approval from the Vance County Board of Adjustment.

Southern Towers' application meets both the specific requirements for wireless communications towers in Section 6.10.O and the general Special Use Permit findings in Section 6.3.A-D. Southern Towers BTS, LLC responses to each ordinance subsection are in **bold italics**:

Wireless Communications Tower Requirements

Vance County Zoning Ordinance Section 6.10.O

This application meets the Wireless Communications Tower requirements found in Section 6.10.O:

O. WIRELESS COMMUNICATIONS TOWERS ("CELL TOWERS")

1. The purpose of the following requirements is to promote and to protect the public health, welfare, and safety by regulating existing and proposed communication towers. The requirements are intended to protect property values, create a more attractive economic and business climate, and enhance and protect the scenic and natural beauty of designated areas.

This proposed site will promote the public health, welfare, and safety by serving the daily communications and internet needs of residents and businesses to create a more attractive economic and business climate and by supporting e911 calls in the event of accident, health crisis, fire, natural disaster, or other emergency. There will be no injury to property values (see Impact Study from certified appraiser Michael Berkowitz provided as Exhibit A). The site is buffered from residences by established forested areas and the FAA does not require tower lighting.

2. General Requirements. When allowed, such towers and associated equipment shall be subject to the following additional requirements:

- a. Towers shall not interfere with normal radio and television reception in the vicinity. Commercial messages shall not be displayed on any tower. Violations shall be considered zoning violations and shall be corrected under the enforcement provisions.

This tower will not interfere with normal radio and television reception in the vicinity. Wireless providers operate on different frequencies than radio and television and are restricted to the frequencies specified in their FCC licenses. A list of Verizon Wireless licensed frequencies is provided as Exhibit B.

b. Lighting shall not exceed the Federal Aviation Administration (FAA) minimum if lighting is required by the FAA. The lights shall be oriented so as not to project directly onto surrounding residential property, consistent with FAA requirements. Prior to issuance of a building permit, the applicant shall be required to submit documentation from the FAA that the lighting is the minimum lighting required by the FAA.

No lighting is proposed. The FAA does not require lighting. The FAA Determination of No Hazard to Air Navigation is provided as Exhibit C.

c. Towers shall be constructed and maintained in conformance with all applicable building code requirements.

Acknowledged and agreed.

d. In order to protect the public from unnecessary exposure to electromagnetic radiation, the tower owner shall provide appropriate Federal Communications Commission (FCC) documentation indicating that the power output levels do not exceed federally approved levels.

An RF Safety Report indicating compliance with all FCC requirements is provided as Exhibit D. When a site meets FCC criteria, the risk is so low that concern about the effects of RF emissions is not a proper basis for local governmental decisions. The Telecommunications Act of 1996, 47 USC § 332(c)(7)(B)(iv) states:

"(iv) No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions."

e. In allowed districts, towers of 75 feet or more require that a Special Use Permit be granted by the Board of Adjustment. The Board of Adjustment may consider variances up to 10 % of the setback requirements for such towers as a part of the Special Use Permit approval.

Acknowledged and agreed. All setback requirements are met and no variance is required.

f. To encourage shared use of towers, the applicant for new wireless facilities shall be required 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. The Board of Adjustment may allow a new wireless facility to be placed within their search ring which includes existing wireless facilities upon being presented with written documentation that (1) appropriate space on the tower is not available, (2) the petitioner has made good faith efforts to negotiate an agreement with the owner of the existing wireless facility, or (3) equipment currently on the tower is not compatible with the proposed equipment. If the petitioner cannot locate on an existing tower and a new tower has to be constructed, the height of the tower cannot exceed two hundred feet (200'). The new tower cannot be located closer than one mile from an existing tower.

There are no existing wireless support structures within the search area. An FCC Antenna Structure Registration Search showing no sites within a 1-mile radius is provided as Exhibit E.

g. All new towers shall be constructed to be able to accommodate at least two or more users so that future co-location will be available. In addition, reasonable accommodation for public service uses is also suggested.

Acknowledged and agreed. The site will accommodate Verizon Wireless and 3 additional future co-locators. Ground space is shown on Sheet C2 and space on the monopole is shown in the elevation view on Sheet C13 of the drawings provided as Exhibit F. Furthermore, an engineer letter documenting that the tower design has sufficient structural integrity to accommodate Verizon Wireless and three additional users is provided as Exhibit J.

3. When permitted, towers shall conform to the following dimensional requirements:
- On top of structures: Towers (with the exception of concealed towers) may not be located on top of structures in any residential district. Towers which are located on top of structures in nonresidential districts (which are not tower accessory structures) shall not be more than 75 feet above the top of the structure. The structure shall meet the normal setbacks of the zone.

Not applicable.

- Setbacks: Towers located on the ground or top of a tower accessory structure:
 - If the tower is more than 75 feet high and adjacent to, inside, or separated by a public right of way from property that is residentially zoned or used, the setback shall be one foot (1') for every foot in height, or the setback of the zoning district, whichever is greater. If the tower is more than 75 feet in height and adjacent to, inside, or separated by a public right of way from nonresidential property, the setbacks shall be one foot (1') for every two feet in height or the setback in the zoning district, whichever is greater, and in no case less than fifty feet (50').

The proposed monopole is 195' high. All setback requirements are met. Measurements from tower center to property lines are as follows as shown on Sheet C1 of the drawings provided as Exhibit F:

North: 253'-9"

South: 223'-7"

East: 660'-10"

West: 248'-11"

- To encourage shared use of towers, applications for towers which will operate with more than one user immediately upon completion may reduce setbacks from adjacent nonresidential property. The setback from adjacent nonresidential property may be reduced by 25% when two users commit to occupy the tower immediately upon its completion, or reduced by 50% when three or more users commit to occupy the tower immediately upon its completion. However, the required setback distance may not be reduced to less than fifty feet (50'). The reductions do not apply if the tower adjoins a residential zone on any side.

No reductions are necessary as the full setback requirement specified above is already met.

- No setbacks shall be required if the tower is to be located on an existing structure.

Not applicable.

4. Residential District. Towers (with the exception of concealed towers) where allowed in residential districts shall conform to the following setbacks:

Acknowledged and agreed that the subsections below all apply only within residential districts.

- Where allowed, towers 75 feet or more in height may be permitted subject to the issuance of a Special Use Permit. A tower shall have a setback from all property lines that is in compliance with this section.

Acknowledged and agreed.

- To prevent a clear view of the base of the tower, the setback shall contain an established forested area with a depth of at least 100 feet. When the 100 foot forested area requirement cannot be met, a natural buffer shall be provided as required in Section 6.10.O.5 below. The Board of Adjustment, when deciding the Special Use Permit, may reduce the setback adjacent to nonresidential property upon consideration

of circumstances which reduce the offsite effects of the tower such as topography, berms, the proximity of other existing or potential uses, and existing vegetation and improvements made to the site to obscure or reduce the visibility of the tower. The Board of Adjustment shall not reduce the required setback from adjacent property which has residential use.

Section 6.10.O.4 is entitled "Residential District." Subsections "a" through "c" are all applicable only within residential zoning districts. Consequently, the reference to "nonresidential property" in this subsection refers to use and cannot refer to zoning classification. That is why the last sentence of this subsection indicates the required setback can't be reduced from "adjacent property which has a residential use." [emphasis added] This subsection is not concerned with a clear view from a residential zoning district but, rather, from a residential use.

In this case, there are residential parcels to the north and east. A depth of at least 100' established forested area is present to buffer these parcels as shown in the aerial photo provided as Exhibit G. A Forest Buffer Preservation Letter signed by the landowners ensuring that the established forested area will be maintained is provided as Exhibit I. While there is no forested area between the site and Cokesbury Road and site location can be seen looking east from the opposite side of Cokesbury Road, the property on the opposite side of Cokesbury Road is also under common ownership by JDRF, LLC and does not contain a residential use. Consequently, applicant's understanding is that the 100' deep forested area requirement does not apply in this direction.

The applicant contends that, because the 100' forested area requirement of this Subsection 6.10.O.4.b is met, the buffers in Subsection 6.10.O.5 below are not required. However, if the Board finds that this Subsection 6.10.O.4.b is not met, then applicant will provide the buffer required by Subsection 6.10.O.5 as shown in the Landscaping Plan on Sheet L1 of the Drawings provided as Exhibit F.

c. No outdoor storage yards shall be allowed on tower sites, storage buildings that are secondary and/or incidental to the primary use of the site are allowed within the provisions of the designated zoning category.

Acknowledged and agreed.

5. Buffers.

- a. The base of the tower, any guy wires, and any associated structures, walls, or fences shall be surrounded by a landscaped buffer. The site developer may have the option of:
(a) providing a buffer around the tower base and associated items individually or (b) providing a buffer around the perimeter of the entire site.
- b. A 10 foot buffer shall be provided between the tower and the property boundaries in all zones other than residential. In all residential zones, the buffer shall be a minimum of 25 feet in width.
- c. The planting shall consist of a mix of deciduous or evergreen trees and evergreen shrubs. Trees shall be planted along the full length of the buffer strip in a triangular pattern with a maximum spacing of 25 feet on centers. The minimum height at planting for trees shall be six feet, and they shall have an expected minimum maturity height of 35 feet under normal growing conditions. There shall also be one row of dense shrubs, spaced not more than eight feet on centers. Shrubs shall be a minimum of two feet high at planting and shall have a minimum expected maturity height of eight feet under normal growing conditions. It is the intent of this section to encourage the use of existing vegetation in whole or in part to meet this requirement.

It is the applicant's contention that the buffers in this Subsection 6.10.O.5 are not required because the 100' forested area requirement of Subsection 6.10.O.4.b above is met as explained above. However, if the Board finds that Subsection

6.10.O.4.b is not met, then applicant will provide the buffer required by this Subsection 6.10.O.5 as shown in the Landscaping Plan on Sheet L1 of the Drawings provided as Exhibit F.

6. Site Plan Requirements. The following information must be supplied with the site plan or building permit application for towers that are 75 feet in height or more prior to any approval:

a. Identification of the intended user(s) of the tower.

The Initial intended user of the tower is Celco Partnership d/b/a Verizon Wireless. The site is also designed to accommodate 3 additional future co-locators.

b. Documentation provided by registered engineer that the tower has sufficient structural integrity to accommodate more than one user.

An engineer letter documenting that the tower design has sufficient structural integrity to accommodate Verizon Wireless and three additional users is provided as Exhibit J.

c. Documentation by the applicant that no suitable existing facilities within the coverage area are available to the applicant.

An FCC Antenna Structure Registration Search showing no sites within a 1-mile radius is provided as Exhibit E.

d. A statement indicating the owner's intent to allow shared use of the tower and how many other users can be accommodated.

A co-location commitment letter from Southern Towers is provided as Exhibit H. As owner of the tower Southern Towers earns additional revenue for each new user on the tower and actively markets available space on the tower in order to maximize the value of its asset. To further support its commitment to future co-location, an engineer letter documenting that the tower design has sufficient structural integrity to accommodate Verizon Wireless and three additional users is also provided as Exhibit J.

7. Co-Location. To further encourage co-location, additional users and associated equipment that do not add to the tower's height may be added without additional approval. However, additional building code regulations may apply. Site plans must show the locations for at least two equipment buildings, even if the tower is proposed for a single user.

Acknowledged and agreed. The site will accommodate Verizon Wireless and 3 additional future co-locators. Ground space is shown on Sheet C2 and space on the monopole is shown in the elevation view on Sheet C13 of the drawings provided as Exhibit F. Furthermore, an engineer letter documenting that the tower design has sufficient structural integrity to accommodate Verizon Wireless and three additional users is provided as Exhibit J.

8. Collocation of small wireless facilities.

Not applicable.

9. Removal of Towers. Towers that are not used for a period of six (6) months or more shall be removed by the owner within one hundred eighty (180) days after receiving notice from the County to remove the tower. To assure the removal of towers that do not meet requirements for use or maintenance, this section serves as notice that the County may remove said tower and may file a lien collectable as taxes against the property.

Acknowledged and agreed.

10. Additional Requirements for Special Use Permits for Telecommunication Towers and Equipment:

a. When considering a Special Use Permit request, the Board of Adjustment shall be required to make a determination of the electromagnetic field (EMF) effects of the tower on the health of the public.

An RF Safety Report indicating compliance with all FCC requirements is provided as Exhibit D. When a site meets FCC criteria, the risk is so low that concern about the effects of RF emissions is not a proper basis for local governmental

decisions. The Telecommunications Act of 1996, 47 USC § 332(c)(7)(B)(iv) states:

"(iv) No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions."

b. All property owners within a 1,500 foot radius and/or adjoining the property where the tower is proposed shall be notified, in writing, of the hearings at which the application will be considered.

No response necessary.

c. Special Use Permits for all towers shall expire unless documentation, including but not limited to an FCC license, is submitted each January to the Board of Adjustment indicating that the tower is being utilized.

No response necessary.

d. The tower shall meet all other applicable supplementary requirements.

The tower will meet all applicable requirements.

Special Use Permit General Findings
Vance County Zoning Ordinance Section 6.3.A-D

This application also meets the Special Use Permit general findings required by Vance County Zoning Ordinance Section 6.3.A-D:

A. That the use will not materially endanger the public health or safety if located according to the plan submitted and approved.

This project will promote general welfare by supporting personal, business, remote learning and other individual and community data and communication needs. This project will promote public health and safety by supporting e911 calls in the event of accident, health crisis, fire, natural disaster or other emergency. NC General Statutes Section 160D-930(a) indicates it is the goal of the state "to ensure the ready availability of reliable wireless service to the public, government agencies, and first responders with the intention of furthering the public safety and general welfare."

B. That the use meets all required conditions and specifications.

Southern Towers BTS, LP, a Delaware Limited Partnership, by its General Partner, Southern Towers BTS, LLC, a Tennessee Limited Liability Company, LLC agrees to comply with all applicable local, state, and federal standards and regulations including the Vance County Wireless Communications Tower requirements as specifically detailed above and as addressed by the supporting documents provided as exhibits.

C. That the use will not substantially injure the value of adjoining or abutting property, or that the use is a public necessity.

This project is a public necessity. NC General Statutes Section 160D-930(a) indicates it is the goal of the state "to ensure the ready availability of reliable wireless service to the public, government agencies, and first responders with the intention of furthering the public safety and general welfare."

The improved public safety and data and communications service will support personal, business, remote learning and other activities in the vicinity. This will directly benefit adjoining or abutting property and consequently maintain/enhance property value.

An Impact Study from certified appraiser Michael Berkowitz showing that the project will not substantially injure the value of adjoining or abutting property is provided as Exhibit A.

D. That the location and character of the use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and in general conformity with the Vance County Land Use Plan. In granting the Special Use Permit the Board of Adjustment may designate only those conditions, in addition to those stated herein, which, in its opinion, assure that the use in its proposed location will be harmonious with the area and with the spirit of this Ordinance and clearly in keeping with the public welfare. All such additional conditions shall be entered in the minutes of the meeting, at which the Special Use Permit is granted, on the Special Use Permit itself, and on the approved plans submitted therewith. All specific conditions shall run with the land and shall be binding on the original applicants for the Special Use Permit, their heirs, successors and assigns. The Special Use Permit shall be signed and dated by the applicant and recorded in the Vance County Register of Deeds.

The Vance County Land Use Plan does not specifically address wireless communications towers other than referencing the regulation of wireless towers by ordinance in Implementation Recommendation 2.K on page 110. As illustrated above, this project meets all ordinance requirements. This site will be a passive, unstaffed low impact use which does not create any significant glare, noise, odor, traffic or other adverse impact on adjoining properties or the neighborhood. Periodic maintenance visits will be a couple of times a month. The appropriateness of the physical location is consistent with good development principles. The location is on a large agricultural parcel with established forested area buffering the residential parcels to the north and east.

The list of concerns expressed by citizens of Vance County on page 89 of the Vance County Land Use Plan includes "The ability of the county's infrastructure to handle growth & development" and the mission statement on page 7 references "Upgrade and expand the county's infrastructure so that it can handle growth and development." While this generally calls to mind water, sewer, electricity, and telephone lines, wireless infrastructure is just as essential. Most people use cell phones as their primary means of communication and it is the primary channel for 911 calls.

Southern Towers BTS, LP, a Delaware Limited Partnership, by its General Partner, Southern Towers BTS, LLC, a Tennessee Limited Liability Company, respectfully requests Special Use Permit approval for this project.

Faulk & Foster, by Ralph Wyngarden, for Southern Towers BTS, LP, a Delaware Limited Partnership, by its General Partner, Southern Towers BTS, LLC, a Tennessee Limited Liability Company.



Date: November 13, 2023

IMPACT STUDY

***Impact Study - Cell Tower
North Cokesbury Road
Henderson, Vance County, NC
27537***

Type Report: Impact Study

***Effective Date
September 9, 2023***



(VAN-001)

EXHIBIT A

September 25, 2023

Mr. Ralph Wyngarden
Faulk & Foster
Senior Zoning Specialist
678 Front Ave. NW
Suite 255
Grand Rapids, MI 49504

RE: Impact Study for Proposed Telecommunications Facility located along northeast side of N. Cokesbury Road, Henderson, Vance County, North Carolina.

Dear Mr. Wyngarden:

I have completed a study of the proposed tower. The scope of the assignment is to provide an analysis and conclusions addressing whether the proposed tower will maintain or enhance the value of contiguous properties. The study is intended to assist Vance County officials in rendering a decision associated with the Special Use Permit application filed for this development.

The proposed location is along the northeast side of N. Cokesbury Road. The site is part of a 142.96-acre parcel that extends across N. Cokesbury Road. The site is zone AR, Agricultural Residential. The surrounding land uses are primarily low-density residential and agricultural uses consistent with the AR district. The siting of the tower, location and surrounding land uses contribute to our conclusions of the study.

The impact study is intended to conform to the Uniform Standards of Professional Appraisal Practice (USPAP), the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute. The impact study is not an appraisal as it does not report a value of any property; however, the study employs appraisal methodology to reach our conclusions of the impact of the proposed development. The impact study is of real property as this is the field of our expertise.

The conclusions of this study are supported by the data and reasoning set forth in the attached narrative. Your attention is invited to the Assumptions and Limiting Conditions section of this report. The analysts certify that we have no present or contemplated future interest in the proposed development, and that our fee for this assignment is in no way contingent upon the conclusions of this study.

EXTRAORDINARY ASSUMPTIONS AND HYPOTHETICAL CONDITIONS:

It is an extraordinary assumption of this report that the improvements as described within this report are compliant with the appropriate ordinance including but not necessarily limited to setbacks, landscaping, access, and other items outside our field of expertise for this assignment.

(VAN-001)

Real Property Appraisers and Consultants
1100 Sundance Drive, Concord, North Carolina 28027
Telephone: 704-605-0595

Mr. Ralph Wyngarden
September 25, 2023
Page 2

These items will be addressed as part of the application by others with expertise within the respective fields.

It is an extraordinary assumption of this report that the proposed development will be constructed as detailed in the report. Further, it is an assumption of the study that the proposed access will be in accordance with all local and state regulations. Maintenance will occur through a non-exclusive easement that we assume is legal access. The access appears consistent with other properties in the area; therefore, the assumption is reasonable.

The content and conclusions of this report are intended for our client and for the specified intended uses only. They are also subject to the assumptions and limiting conditions as well as the specific extraordinary assumption set forth in this report.

It is our opinion that the proposed development will not substantially injure the value of adjacent or abutting properties.

Thank you for the opportunity to be of service. If you have any questions or comments, please contact our office.

Sincerely yours,



MICHAEL P. BERKOWITZ
MPB REAL ESTATE, LLC

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SCOPE OF THE ASSIGNMENT

In accordance with our agreement with the client, this impact study is specific to the needs of our client as part of an application for a special use permit to be considered by Vance County Officials. Our study and the reporting of our study is in agreement with our client as follows:

The proposed development requires a special use permit. The report is intended to address items relevant to the application. The following was extracted from Section 6 of the Vance County Zoning Ordinance (Ordinance) regarding the findings of fact for the approval of a Special Use Permit.

- A. That the use will not materially endanger the public health or safety if located according to the plan submitted and approved.
- B. That the use meets all required conditions and specifications.
- C. That the use will not substantially injure the value of adjoining or abutting property, or that the use is a public necessity.
- D. That the location and character of the use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and in general conformity with the Vance County Land Use Plan. In granting the Special Use Permit the Board of Adjustment may designate only those conditions, in addition to those stated herein, which, in its opinion, assure that the use in its proposed location will be harmonious with the area and with the spirit of this Ordinance and clearly in keeping with the public welfare. All such additional conditions shall be entered in the minutes of the meeting, at which the Special Use Permit is granted, on the Special Use Permit itself, and on the approved plans submitted therewith. All specific conditions shall run with the land and shall be binding on the original applicants for the Special Use Permit, their heirs, successors and assigns. The Special Use Permit shall be signed and dated by the applicant and recorded in the Vance County Register of Deeds.

The study focuses on item C. The analysis focuses on the determination of whether the proposed development will produce a substantial adverse impact on adjacent or abutting properties.

The scope of the assignment includes research of existing towers in the neighborhood. The neighborhoods and their surrounding developments are researched to determine whether the proposed development, referred to as the “Daniel Harris Rd site”, is consistent with the location of other towers in this section of Vance County and their impact, if any, on property values.

The impact study provides an analysis of the surrounding properties. The analysis includes existing improvements, zoning designations and likely development patterns. The existing uses as of the effective date of this report in concert with the market data provided are contributing factors to the conclusions of this study.

PREMISES OF THE STUDY

Identification of Subject

“Daniel Harris Rd” Site

Northeast side N. Cokesbury Road
Henderson, Vance County, NC 27537
Tax Parcel ID: 0526 02005

Client, Purpose, and Intended Use and Intended Users

Mr. Ralph Wyngarden
Faulk & Foster
Senior Zoning Specialist
678 Front Ave. NW
Suite 255
Grand Rapids, MI 49504

The client and intended user are Mr. Ralph Wyngarden and representatives. The intended use is as an aid to assist Vance County officials in rendering a decision regarding an application for a special use permit for the proposed development. The study is not intended for any other use or users.

Analyst

Michael P. Berkowitz

MPB Real Estate, LLC
1100 Sundance Drive
Concord, NC 28027

Property Inspection

Michael Berkowitz inspected the property and neighborhood surrounding the proposed development. Details of surrounding land uses, and observations are provided throughout the report. I also performed off-site visual inspections of several towers located in Vance County. I consider my observations in the context of the market data. They are a contributing factor to my conclusions.

Photographs of the property were taken during Mr. Berkowitz’s inspection.

Extraordinary Assumptions of Report

It is an extraordinary assumption of this report that the improvements as described within this report are compliant with the appropriate ordinance including but not necessarily limited to setbacks, landscaping, access, and other items outside our field of expertise for this assignment. These items will be addressed as part of the application by others with expertise within the respective fields.

It is an extraordinary assumption of this report that the proposed development will be constructed as detailed in the report. Further, it is an assumption of the study that the proposed access will be in accordance with all local and state regulations. Maintenance will occur through a non-exclusive easement that we assume is legal access. The access appears consistent with other properties in the area; therefore, the assumption is reasonable.

Should the extraordinary assumptions not exist, we reserve the right to amend this study.

Effective Date of Study

September 9, 2023

Date of Report

September 25, 2023

Type Report

Impact Study Report

Study Development and Reporting Process

In preparing this study, the analyst:

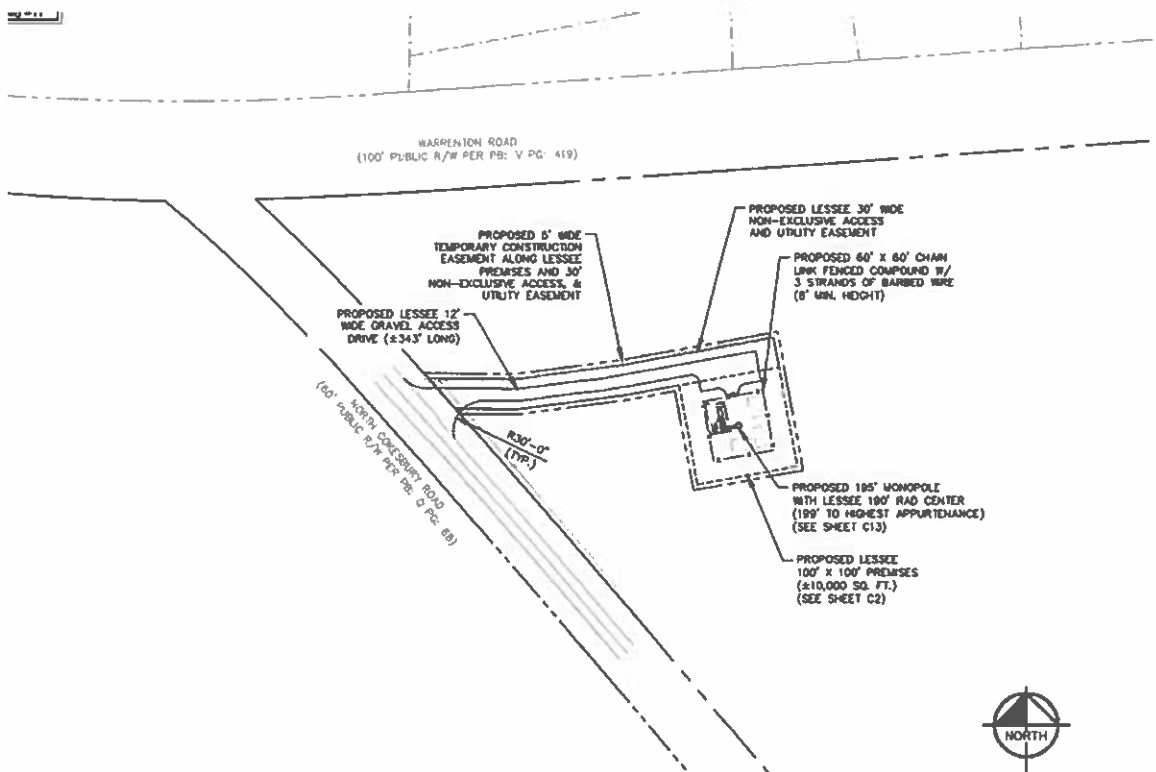
- Analyzes physical affects, if any, of the proposed construction on adjacent or abutting properties;
- Reviews plans for the proposed development to determine whether it is in compliance with the Vance County Ordinance for items within my field of expertise;
- Reviews site plan provided by our client with respect to the physical characteristics of the proposed development;

- Reviews Section 6 of the Vance County Ordinance regarding the approval process for a special use permit;
- Researches market data around existing cell towers in Vance County to determine whether the proposed development is in accordance with the other similar developments in the area.

PROPOSED FACILITY

Tower

Based on information provided to the analyst, the proposed tower will consist of a 195-foot monopole communications tower. The proposed tower will be on a portion of the site that is the southeast quadrant of the intersection of Warrenton and N. Cokesbury Roads. The following exhibit was provided for the assignment.



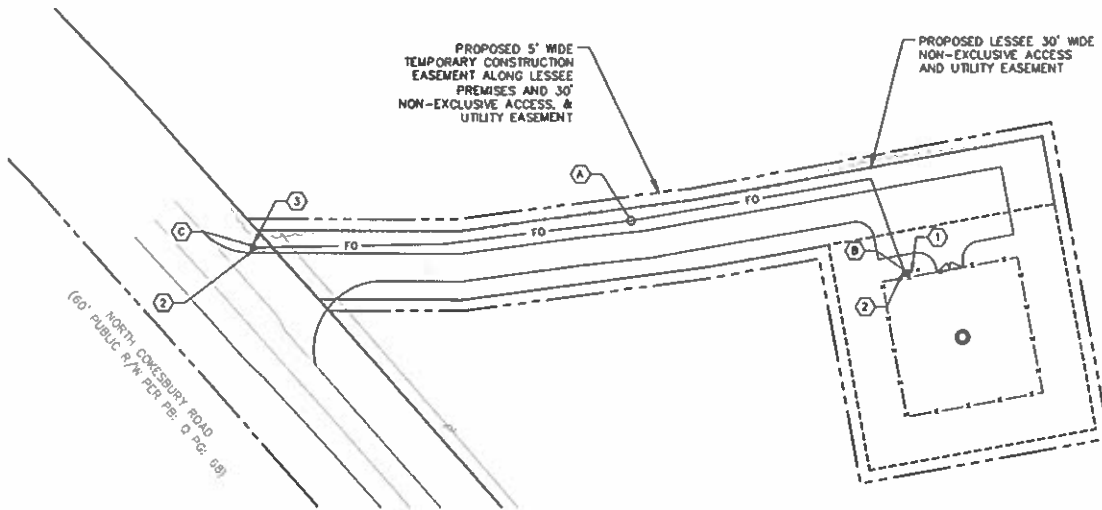
Site Improvements

The site improvements include an eight-foot chain link fence with three strands of barbed wire. The proposed construction

will create a clearing within a small, wooded area of the site for construction. The plans do not include a landscaping plan.

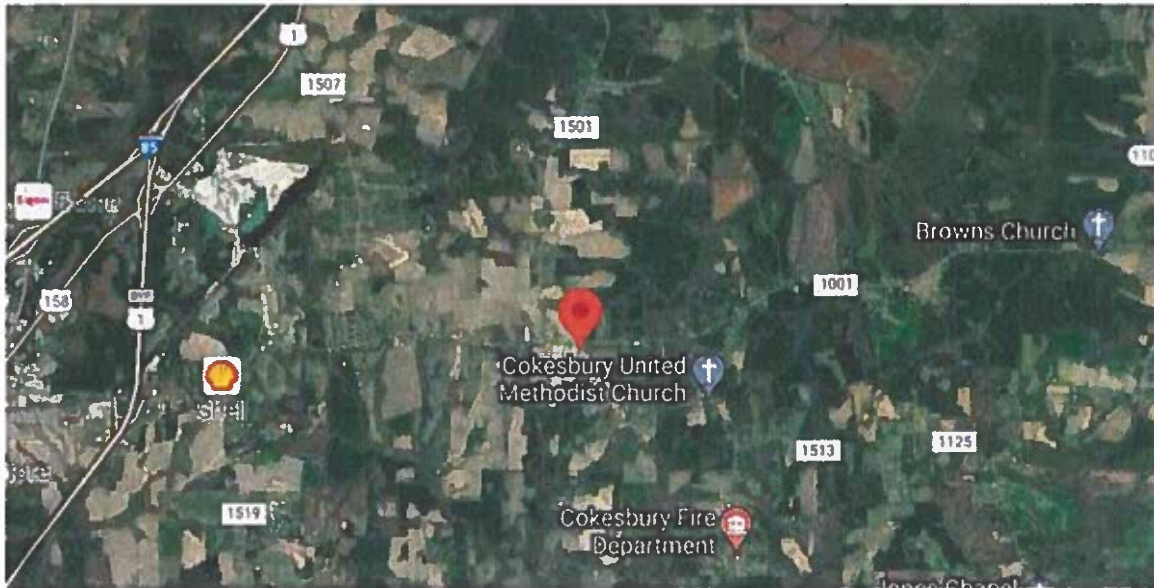
Access

The access to the site will be through a 30-foot-wide non-exclusive access and utility easement. The access appears consistent with access for other properties in the area. We assume the access is legal and conforms to local and state regulations. Given the consistency with other access drives in the area, the assumption is reasonable.



Location

The proposed tower is in the northeastern portion of a 142.96-acre parcel in a rural portion of Vance County. While we will detail the surrounding developments later in the study, the uses in the area include a mixture of residential, institutional, and agricultural uses. The subject has an AR, Agricultural/Residential designation consistent with most of the properties in the immediate area. Our research revealed some event centers in the area, which are common as agribusiness and agricultural tourism trades.



SURROUNDING LAND USES

The proposed development is located on a 142.96-acre tract of land used for agricultural purposes. The general area includes residential developments of varying densities, agricultural land, and institutional uses.

The following chart provides a summary of the adjacent or abutting properties followed by an aerial photograph. The listing on the following chart is based on public records for reference purposes. We provide a brief analysis of each category and address the potential impact on property values later in the report. The parcel for the proposed development is outlined on the aerial photos taken from the Vance County GIS. For the purposes of the analysis, we do not consider the land across the street from the proposed site as it is part of the same parcel and under the same ownership.

Adjacent/Abutting Properties Summary				
PIN	Owner	Acres	Address	Use
0527 03011	Jean Hendrick	1.04	3764 Warrenton Road	Residential
0527 03021	Jean Hendrick	2.77	Warrenton Road	Residential
0527A01012	Greenway Investment Prop LLC	0.98	125 Nans Lane	Residential
0527A01011	Loretta Lin	0.93	117 Nans Lane	Residential
0527A01010	Amer Properties LLC	0.94	89 Nans Lane	Residential
0527A01009	Emanuel Seward	0.95	73 Nans Lane	Residential
0527A02001	Premier Investments	8.56	Pete Abbott Lane	Vacant
0527A01006	Selwyn Evans	0.92	106 N. Cokesbury Road	Residential
0527A02012	Latonya Henderson	0.85	88 N. Cokesbury Road	Residential
0616 01008	Lord of Lands, Inc.	2.38	3535 Warrenton Road	Residential
0616 01005	Curwood Properties LLC	1.00	Warrenton Road	Residential
0617 01006	Curwood Properties LLC	1.01	3625 Warrenton Road	Residential
0616 01019	Jerome & Ella Boyd Trust	0.61	3657 Warrenton Road	Residential
0616 01010	Eduardo Calles	0.86	3699 Warrenton Road	Residential
0616 01011	Vernice Evans	0.53	3733 Warrenton Road	Residential



The adjacent/abutting properties include low-density residential and vacant land. We have excluded the property across N. Cokesbury Road from the analysis as it is under the same ownership as the proposed development. Most of the residential properties are improved with mobile homes. Public records identify the improvements as personal property in

most cases. We have included the properties across Warrenton Road from the subject.

Vacant Land – The adjacent/abutting properties include one vacant site that has the physical characteristics of a residential lot. The location is within in an existing subdivision that includes several mobile homes.

Single Family Residential – The residential properties in the area consist of primarily mobile homes. There are a few stick-built dwellings. Based on our review of these properties, the improvements are older, which is common for rural areas throughout North Carolina.

As we will discuss in the following section, the scope of the assignment is to determine whether the proposed development is in accordance with the Vance County Ordinance regarding the approval of a special use permit application and the development of wireless communications support structures. The items within our field of expertise are detailed in the following section.

VANCE COUNTY ZONING ORDINANCE

As part of the assignment, I reviewed Section 6 of the Vance County Ordinance regarding the approval process for a special use permit. We reviewed Section 6.10.O regarding regulations associated with the development of a telecommunications tower. These sections identify several items that will be addressed by others and included in the application. Therefore, the remainder of the report focuses on the items provided in the Scope of Work section.

- A. That the use will not materially endanger the public health or safety if located according to the plan submitted and approved.
- B. That the use meets all required conditions and specifications.
- C. That the use will not substantially injure the value of adjoining or abutting property, or that the use is a public necessity.
- D. That the location and character of the use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and in general conformity with the Vance County Land Use Plan. In granting the Special Use Permit the Board of Adjustment may designate only those conditions, in addition to those stated herein, which, in its opinion, assure that the use in its proposed location will be harmonious with the area and with the spirit of this Ordinance and clearly in keeping with the public welfare. All such additional conditions shall be entered in the minutes of the meeting, at which the Special Use Permit is granted, on the Special Use Permit itself, and on the approved plans submitted therewith. All specific conditions shall run with the land and shall be binding on the original applicants for the Special Use Permit, their heirs, successors and assigns. The Special Use Permit shall be signed and dated by the applicant and recorded in the Vance County Register of Deeds.

Based on our review of the ordinance, the remainder of the study focuses on the relation to adjacent/abutting properties and potentially injurious effect of the tower on real property values. The potential impact on these properties is the visual impact of the proposed tower.

We will discuss property values later in the report. We acknowledge that the proposed 195-foot tower will have a height more than any structure in the immediate area. However, the siting and surrounding developments will minimize to the extent possible, the visual impact on surrounding properties.

Summary

The items within our field of expertise focus on the aesthetic impact of the proposed development on values of adjacent/abutting properties. This is based on the existing developments as detailed earlier in the study. The existing infrastructure, location and property uses reduces the visual impact of the tower.

MARKET RESEARCH

A potential issue associated with the impact of the proposed development is on real property values of adjacent/abutting properties. We researched towers in Vance County and identified the development patterns around these towers. After analyzing the market data, we compare this information to the proposed site and the physical characteristics and development patterns surrounding the proposed development.

Vance County Towers

Our research revealed only three towers within three miles of the proposed tower. The towers are clustered west of the proposed tower in proximity to the Interstate 85 corridor. The absence of towers in the area is likely the impetus for the development. The comparability of towers to the proposed development is a significant factor in developing a credible conclusion of the study. Towers are selected for a variety of reasons including but not necessarily limited to:

- *Location* – The proposed location is in a rural area of Vance County.
- *Surrounding Developments* – The surrounding developments include vacant land and low-density residential properties.
- *Construction Type/Height* – The proposed tower is a monopole tower with a height of 195 feet.

For the research of towers, we rely on information from antennasearch.com, which we consider a reliable source of information. The number of towers in this area of Vance County is limited. Some of the towers were not visible from the street or aerial photos. We exclude these towers as some towers receive approval and the information available does not show a date of construction. We have excluded the towers listed with a height of under 100 feet. Research of the three towers found revealed inadequate quality and quantity of data to develop a credible study.

Given the absence of local data, we have provided the results of several studies performed in rural areas with similar surrounding developments.

Rural Towers

A tower is in Rowan County in a residential area of Tareyton Drive. This is an older residential area with most of the dwellings constructed in the 1970’s similar to the stick-built residential improvements near the proposed tower. As shown on the following aerial, the tower is in an open field with a higher visual impact than the subject. The tower is a monopole telecommunications tower with a height of 195 feet.



The following sales were found in the area. The two properties highlighted in green have the highest level of visual impact from the tower.

Sales Summary									
Parcel	Address	Land (Acres)	Bedrooms	Baths	SF	Year Built	Sale Date	Sales Price	Price/SF
102 561	3009 Daisy Ct	0.25	3	1	1,600	1974	1/13/17	\$ 35,000	\$ 21.88
102 622	442 Newcastle Rd	0.22	3	1	1,100	1974	12/29/17	\$ 45,000	\$ 40.91
102 507	3218 Spring Valley	0.34	4	2	1,538	1972	10/10/16	\$ 78,000	\$ 50.72
102 491	3220 Spring Valley	0.3	3	1	1,092	1972	12/14/17	\$ 99,000	\$ 90.66
152 857	655 Kilborne Dr.	0.2	3	1	1,050	1978	8/21/15	\$ 37,000	\$ 35.24
152 839	601 Dundeen Dr.	0.22	3	1	1,075	1978	12/31/15	\$ 36,000	\$ 33.49
152 820	630 Dundeen Dr.	0.2	3	1	1,050	1977	1/5/17	\$ 48,000	\$ 45.71
152 797	636 Colebrook Dr.	0.2	3	1	1,000	1977	11/30/16	\$ 60,000	\$ 60.00
137 766	609 Belfast Dr.	0.21	3	1	1,050	1976	7/28/14	\$ 45,000	\$ 42.86
137 758	602 Belfast Dr.	0.2	3	1	1,050	1976	8/21/15	\$ 30,000	\$ 28.57
137 734	657 Belfast Dr.	0.21	3	1	1,050	1976	11/21/17	\$ 53,000	\$ 50.48

All the sales have similar lot sizes, location and year built. As with many older homes, the most significant factor influencing the price paid is the condition of the improvements. The first “green” sale in the chart included a basement, which would require an adjustment. The presence of the basement skews the price paid per square foot. Upon further research, this dwelling was reported as “needing some work”. From a price point, the sale is on the lower end of the range, which is reasonable given the reported condition of the improvements and presence of a basement.

The second “green” sale did not include a basement and was reported to be in fair condition. Again, this sale is consistent with the other sales in the data set. The analysis of this sale shows consistency with other residential sales in the area despite its location and visual impact from the tower. We note that the tower is only partially visible from this property consistent with the residential properties near the proposed development.

For a previous study in Gaston County, we found a tower with some low-density residential developments. This tower is located closer to the road in an open field with a significantly higher visual presence than the proposed tower. The following exhibits provide an aerial and street scene for the tower.



1852 County Line Road

As shown on the previous aerial, there are residential developments in Gaston County across the street from the tower. This 195-foot tower is a monopole construction. As with most rural areas of North Carolina, the market data is limited. The following data consists of some modular homes that sold along County Line Road across the street from the tower to some modular homes that sold in Lewis Farm Estates. The following chart provides a summary of the sales.

Property Sales Summary						
Address	Sale Date	Sales Price	Acres	SF	Price/SF	Year Built
1848 County Line Road	5/24/11	\$ 100,000	1	1,908	\$ 52.41	1999
1846 County Line Road	11/16/07	\$ 90,000	1.03	1,512	\$ 59.52	2004
1519 Lewis Farm Road	3/5/15	\$ 116,000	2.42	1,842	\$ 62.98	1999
1526 Lewis Farm Road	8/29/07	\$ 170,000	2.88	2,881	\$ 59.01	2006

In the analysis of these sales, there are several factors that contribute to the price paid. The smaller lot sizes for the properties near the tower would warrant a downward adjustment to these sales. Regardless, the range of prices paid per square foot is considered small. The indication from this analysis is that similar single family dwelling prices paid are comparable despite the visual impact of the cell tower. The market data indicates that even with absence of a vegetative buffer, the tower does not substantially injure the value of adjacent/abutting properties.

Another tower on a residentially zoned property is located along the NC Highway 138 corridor in Stanly County. The tower is a monopole with a height of 195 feet. Research of the market for the adjacent properties revealed a sale of the adjacent property to the north of the property improved with the tower. The following chart provides a summary of sales found in the area. The sale of the adjacent property is highlighted in yellow. The other sales are for properties providing similar utility.

Matched Pair Analysis								
Sale Date	Address	Acres	Size (SF)	Year Built	BR	BA	Sale Price	Price/SF
3/12/20	12483 NC Hwy 138	2	1,500	1955	3	1	\$ 140,000	\$ 93.33
1/30/20	12514 NC Hwy 138	1.91	1,070	1954	2	1	\$ 103,000	\$ 96.26
6/13/19	32621 Chapel Rd.	2.59	1,734	1993	3	2	\$ 150,000	\$ 86.51
10/26/17	32612 Chapel Rd.	2.04	1,421	1981	2	1	\$ 114,000	\$ 80.23
5/10/20	33515 S. Stanly School Rd.	14.46	1,008	1959	2	1	\$ 117,000	\$ 116.07
1/17/19	12028 NC Hwy 138	1.06	1,860	1947	3	2	\$ 160,000	\$ 86.02
4/16/19	12018 NC Hwy 138	0.95	1,501	1949	3	1	\$ 149,000	\$ 99.27
6/18/18	11636 NC Hwy 138	0.68	1,709	1945	3	1	\$ 115,000	\$ 67.29
6/16/19	12273 Old Aquadale Rd.	1.2	1,865	1965	3	1.5	\$ 170,000	\$ 91.15

As shown on the previous chart, the sale of the property adjacent to the tower site is on the upper end of the range on a price per square foot as well as price point. After researching and adjusting these sales for physical and market variances in comparison to the sale adjacent to the tower, the analysis indicates that there is no diminution in value caused by the presence of a tower on the adjacent property.

We also provide the results from a study in Robeson County. The scope of the impact study addressed the potential impact of value on properties in the neighborhood. The following provides market data for the towers found in Robeson County that are a similar market to the proposed development.

The following data is segregated into two categories: single family homes and vacant land. For all the data sets, the properties highlighted in yellow are those properties along the same corridor as the tower. These properties are compared to properties highlighted in green, which are along similar streets without a tower. We include additional market data as background for the paired sales analyses.



474 Long Road

This tower has a height of 180 feet. As with the surrounding developments for the other towers selected for comparison in this study, the land uses in the area are primarily agricultural. The low-density residential developments include homes constructed over a wide time span including some estate style homes. The market data for single family dwellings are summarized in the following chart.

SFD SALES						
Address	Sale Date	Sales Price	Year Built	SF	Acres	\$/SF
46 SURRY	5/25/2005	\$68,000	1986	1,152	2.34	\$ 59.03
121 SURRY	10/29/2007	\$93,000	1978	1,443	1	\$ 64.45
285 JUNE	5/15/2009	\$41,000	2000	1,632	1	\$ 25.12
992 LONG RD	8/20/2007	\$57,500	1978	972	1	\$ 59.16
867 LONG RD	11/5/2009	\$27,000	1962	800	1.52	\$ 33.75
719 LONG RD	6/8/2015	\$87,000	1989	1,437	4.37	\$ 60.54
1148 LONG RD	8/14/2015	\$227,500	2005	2,029	1.8	\$ 112.12

The analysis of these sales includes several factors including but not necessarily limited to size, age, and lot size. The most compelling market data is the consistency in the prices paid per square foot for the highlighted properties. The comparison of the data shows some offsetting characteristics but does provide evidence that the cell tower located along Long Road does not substantially injure property values in the area.

The second data set is for land sales found in the area. The highlighted properties are for residential lots consistent with the low-density development patterns in the neighborhood.

LAND SALES				
Address	Sale Date	Sales Price	Acres	\$/Acre
181 TROY DR	6/11/2010	\$150,000	19.63	\$ 7,641
WILKES RD	5/1/2013	\$20,000	7.39	\$ 2,706
859 LONG RD	8/22/2012	\$15,000	1.24	\$ 12,097
OFF LONG RD	3/24/2015	\$22,000	3.43	\$ 6,414

Contrary to the market data for single family dwellings, the most compelling information from this data set is the price point for the residential lots. The size of the lots is the most influential factor on price point. Again, the market data indicates that the tower has not impeded demand for land along the Long Road corridor nor has it injured land values in the area.



7746 E Hwy 211



This tower has a height of 300-feet, which includes a light atop the guyed tower. I have applied the same methodology with the previous analyses and segregated the data into single family dwellings and vacant land. The sales for single family dwellings are summarized in the following chart.

SFD SALES						
Address	Sale Date	Sales Price	Year Built	SF	Acres	\$/SF
913 HARRIS RD	1/31/2017	\$65,000	2005	1,443	1	\$ 45.05
4642 OLD ALLENTON	12/7/2015	\$64,000	1950	912	1	\$ 70.18
146 BEAR BAY	11/13/2014	\$48,000	1980	1,456	2.69	\$ 32.97
877 OLD ALLENTON	6/25/2013	\$46,500	1969	1,506	1.5	\$ 30.88
9697 NC 211	6/26/2012	\$61,000	1955	1,170	1.24	\$ 52.14
8355 E NC HWY 211	6/3/2015	\$75,000	1988	1,152	4.22	\$ 65.10

The physical variance in this data set would require a higher level of adjustment. Notwithstanding this fact, the sales along the 211 corridor provide a similar price point and price paid per square foot. The offsetting nature of the variances is reflected in the similar price point for most sales with the

property closest to the tower having the highest price point. The analysis of this data set provides further evidence to our conclusion.

The following chart provides a summary of land sales for the area. Again, applying the same methodology as the previous analyses.

LAND SALES				
Address	Sale Date	Sales Price	Acres	\$/Acre
NC HWY 211	12/17/2014	\$17,500	0.59	\$ 29,661
699 BAY BEAR	6/18/2015	\$17,000	8.13	\$ 2,091
HARRIS RD	5/14/2015	\$8,500	1	\$ 8,500
HARRIS RD	8/17/2015	\$9,000	1.27	\$ 7,087
3 PITTMAN	4/4/2014	\$250,000	93.22	\$ 2,682
WILKES	5/1/2013	\$20,000	7.39	\$ 2,706
481 HARRIS RD	2/8/2013	\$25,500	0.92	\$ 27,717
538 DERWOOD	9/17/2012	\$45,000	17.74	\$ 2,537
DERWOOD	7/19/2012	\$80,000	24.84	\$ 3,221
PITTMAN	5/21/2012	\$15,000	14.08	\$ 1,065

The best matched pair in this data set is from the sales of two mobile home lots. While the price point was higher for the sale on Harris Road, the price per acre was higher for the lot on Highway 211. This indicates that size was a significant factor in the price paid. The only other sale found lies on the lower end of the range of the data set, which is considered reasonable given its physical characteristics including some areas that appear to be undevelopable.



Kinlaw Road

The land sales in the area provide the most compelling evidence in the neighborhood for this tower. The following chart provides a summary of land sales in the area.

LAND SALES				
Address	Sale Date	Sales Price	Acres	\$/Acre
HOWELL RD	5/25/2012	\$98,000	47	\$ 2,085
TARHEEL RD	12/12/2012	\$13,000	3.37	\$ 3,858
346 BARNHILL	9/3/2013	\$28,500	8	\$ 3,563
5168 TARHEEL	1/3/2014	\$30,000	9.15	\$ 3,279
KINLAW RD	9/4/2014	\$27,000	6.87	\$ 3,930

The sale closest to the tower sold for the highest price per acre. Again, the market data for land around this cell tower indicates that the tower maintains or enhances land values in the neighborhood.

The following is a summary of single-family dwelling sales found in the neighborhood.

SFD SALES						
Address	Sale Date	Sales Price	Year Built	SF	Acres	\$/SF
88 BARNHILL	4/30/2012	\$76,000	1995	1,458	2.01	\$ 52.13
6876 HOWELL	5/22/2012	\$55,000	1988	1,344	1.98	\$ 40.92
7889 HOWELL	12/17/2012	\$37,500	1950	1,454	1.86	\$ 19.23
5168 TARHEEL	5/9/2013	\$125,000	1958	1,980	5	\$ 63.84
6225 HOWELL	8/10/2016	\$200,000	1999	2,837	1.01	\$ 100.05
6257 HOWELL	2/10/2017	\$225,000	2007	3,303	1	\$ 112.11
306 TARHEEL	10/17/2013	\$177,500	1953	3,087	5.03	\$ 90.89
3647 TARHEEL	9/5/2014	\$46,000	1992	1,296	0.92	\$ 23.09
5478 TARHEEL	10/3/2014	\$125,000	2002	1,920	8.4	\$ 62.44
8191 HOWELL	11/10/2014	\$71,000	1980	1,032	1.02	\$ 35.86
470 KINLAW RD	12/31/2014	\$42,500	1982	1,338	1.5	\$ 21.44
KINLAW RD	6/15/2015	\$73,500	1962	1,485	0.89	\$ 37.46

The review of sales of single-family dwellings reveals that age and condition of the improvements is the most significant factor in the prices paid. Development in the area is sparse and supply side pressures in the market and low number of transactions indicates that the neighborhood is in the stable phase of its economic development. This is similar to the subject's neighborhood. The sales price paid for the properties along the corridor of the tower and other corridors is consistent.



Davidson Drive



This tower is in Bladen County. The surrounding developments are comparable to the subject. The tower is located off Davidson Drive. The single-family dwelling sales in the neighborhood were insufficient in quantity (two sales found), to provide a credible analysis. However, the sales of land as shown on the following chart provide a reflection of the market. The following chart is a summary of the sales. Note the two first sales in the chart are for mobile home lots.

LAND SALES				
Address	Sale Date	Sales Price	Acres	\$/Acre
2392 GUYTON	7/19/2012	\$10,000	1	\$ 10,000
300 GASTON DR	2/23/2015	\$19,000	1.7	\$ 11,176
MASSEY RD	10/16/2012	\$25,000	15.35	\$ 1,629
GUYTON ROAD	5/31/2013	\$9,000	0.98	\$ 9,184
GUYTON RD	10/18/2013	\$20,000	5.57	\$ 3,591
MASSEY RD	12/3/2013	\$6,000	0.9	\$ 6,667
MASSEY RD	4/23/2014	\$31,500	12.37	\$ 2,546
1023 STORMS RD	3/20/2015	\$9,000	2	\$ 4,500
303 GASTON DR	8/29/2015	\$11,000	0.89	\$ 12,360

The land sales for lots near the tower are consistent with other lot sales found with no visual influence from the tower. The two lots highlighted in yellow reflect the upper end of the range for vacant land. The market data indicates that development near the tower has not influenced the normal course of development for the immediate area. Further, the market data indicates that buyers are paying similar prices for lots within the visual sphere of influence of a cell tower.

Other Considerations

Other potential impacts to the surrounding area include noise, traffic and lighting. The operation of a cell tower is essentially silent and would not influence the surrounding developments. The additional traffic caused by the proposed development is nominal and would likely occur for routine maintenance. Any increases in traffic do not impact the adjacent or abutting properties.

Conclusions

The sparse market activity and towers in this portion of Vance County indicates that the market is stable. The mixture of land uses is likely to continue for the foreseeable future. These uses are not impeded by the development of a cell tower. The results of studies including those included in this report show consistency between prices paid for land and single-family dwellings in rural areas where cell towers are present. Therefore, I conclude that the proposed development of a cell tower will not be a detriment to property values in the area.

Subject Neighborhood

In addition to the market activity for existing towers, we also consider the surrounding developments for the subject. The question posed for this study is “would the development of the telecommunications support structure warrant a downward adjustment to adjacent properties?”

When considering a qualitative adjustment in an appraisal, the appraiser must consider all factors that could contribute to an adjustment. The aesthetics and location of the proposed development as well as the existing developments are a factor in developing our opinion. The factors considered in developing our opinion include but are not necessarily limited to:

- The market has not shown a detrimental impact on development patterns in areas with visual influence from a tower.
- The existing infrastructure along N. Cokesbury and Warrenton Roads includes above ground electrical

lines that pose a higher level of visual impact than the proposed tower despite its proposed height.


- The siting of the proposed tower in conjunction with the vegetative buffer will obscure most if not all the tower from nearby properties.

All the external factors would contribute to the aesthetic appeal and a hypothetical valuation of properties in the neighborhood. The multitude of factors would indicate that multicollinearity for aesthetics exists for properties adjacent to or abutting the subject. Multicollinearity arises when multiple items correlate with each other. Multiple factors can cause a distortion of the impact of any of the factors individually without consideration for all the factors that contribute to the common issue.

In the case of the proposed development, all the residential properties include significant tree cover between the proposed tower and their respective improvements. To attribute any adjustment to the proposed development would be misleading and not result in a credible adjustment. In other words, any adjustment for the development of a tower on a nearby property without consideration of the numerous other aesthetic influences would not be credible.

Conclusion

The proposed development has siting and existing buffers to minimize to the extent possible the visual impact of the proposed tower. It is my opinion that the proposed development will not substantially detract from the aesthetics or character of the neighborhood because of its location, existing vegetative buffer, and existing external influences. Based on the quantitative and qualitative analyses presented in this study, we conclude that the proposed tower will not substantially injure the values of adjacent or abutting properties.



Michael P. Berkowitz

ADDENDA

Certifications

(VAN-001)

MPB REAL ESTATE, LLC

CERTIFICATION OF THE ANALYST

I, Michael P. Berkowitz, certify that, to the best of my knowledge and belief,

1. The statements of fact contained in this report are true and correct.
2. 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.
3. 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.
4. I have performed no services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment.
5. I have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.
6. My engagement in this assignment was not contingent upon developing or reporting predetermined results.
7. 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 study.
8. The reported analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the *Uniform Standards of Professional Appraisal Practice*.
9. The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.
10. I have made a personal inspection of the property that is the subject of this report.
11. No one provided significant real property appraisal assistance to the person(s) signing this certification other than those individuals having signed the attached report.



A handwritten signature in black ink that reads "Michael P. Berkowitz".

Michael P. Berkowitz
 (NC State Certified General Real Estate Appraiser #A6169)
 (SC State Certified General Real Estate Appraiser #CG6277)

September 25, 2023
 Date

(Rev: 06/18/12)

ASSUMPTIONS AND LIMITING CONDITIONS

ASSUMPTIONS AND LIMITING CONDITIONS

Limit of Liability

The liability of MPB REAL ESTATE, LLC and employees is limited to the client only and to the fee actually received by our firm. Further, there is no accountability, obligation, or liability to any third party. If this report is placed in the hands of anyone other than client, the client shall make such party aware of all limiting conditions and assumptions of the assignment and related discussions. Further, client will forever indemnify and hold MPB REAL ESTATE, LLC, its officers, and employees harmless from any claims by third parties related in any way to the appraisal or study which is the subject of the report. Third parties shall include limited partners of client if client is a partnership and stockholders of client if client is a corporation, and all lenders, tenants, past owners, successors, assigns, transferees, and spouses of client. MPB REAL ESTATE, LLC will not be responsible for any costs incurred to discover or correct any deficiencies of any type present in the property, physically, financially, and/or legally.

Copies, Distribution, Use of Report

Possession of this report or any copy of this report does not carry with it the right of publication, nor may it be used for other than its intended use; the physical report remains the property of MPB REAL ESTATE, LLC for the use of the client, the fee being for the analytical services only.

The bylaws and regulations of the Appraisal Institute require each member and candidate to control the use and distribution of each report signed by such member or candidate; except, however, the client may distribute copies of this report in its entirety to such third parties as he may select; however, selected portions of this report shall not be given to third parties without the prior written consent of the signatories of this report. Neither all nor any part of this report shall be disseminated to the general public by the use of advertising media, public relations, news, sales or other media for public communication without the prior written consent of MPB REAL ESTATE, LLC.

Confidentiality

This report is to be used only in its entirety and no part is to be used without the whole report. All conclusions and opinions concerning the analysis as set forth in the report were prepared by MPB REAL ESTATE, LLC whose signatures appear on the report. No change of any item in the report shall be made by anyone other than MPB REAL ESTATE, LLC. MPB REAL ESTATE, LLC shall have no responsibility if any such unauthorized change is made.

MPB REAL ESTATE, LLC may not divulge the material contents of the report, analytical findings or conclusions, or give a copy of the report to anyone other than the client or his designee as specified in writing except as may be required by the Appraisal Institute as they may request in confidence for ethics enforcement, or by a court of law or body with the power of subpoena.

Trade Secrets

This report was obtained from MPB REAL ESTATE, LLC and consists of "trade secrets and commercial or financial information" which is privileged and confidential and exempted from disclosure under 5 U.S.C. 552 (b) (4) of the Uniform Commercial Code. MPB REAL ESTATE, LLC shall be notified of any request to reproduce this report in whole or in part.

Information Used

No responsibility is assumed for accuracy of information furnished by or work of others, the client, his designee, or public records. We are not liable for such information or the work of subcontractors. The comparable data relied upon in this report has been confirmed with one or more parties familiar with the transaction or from affidavit or other sources thought reasonable; all are considered appropriate for inclusion to the best of our factual judgment and knowledge. An impractical and uneconomic expenditure of time would be required in attempting to furnish unimpeachable verification in all instances, particularly as to engineering and market-related information. It is suggested that the client consider independent verification as a prerequisite to any transaction involving sale, lease, or other significant commitment of funds for the subject property.

Financial Information

Our value opinion(s) have been based on unaudited financials, and other data provided to us by management and/or owners. If these reports are found to be inaccurate, we reserve the right to revise our value opinion(s). It is noted we are depending on these accounting statements as being accurate and our interpretation of these statements as being accurate as well. If these assumptions later prove to be false, we reserve the right to amend our opinions of value.

Testimony, Consultation, Completion of Contract for Report Services

The contract for report, consultation, or analytical service is fulfilled and the total fee payable upon completion of the report, unless otherwise specified. MPB REAL ESTATE, LLC or those assisting in preparation of the report will not be asked or required to give testimony in court or hearing because of having made the report, in full or in part, nor engage in post report consultation with client or third parties except under separate and special arrangement and at an additional fee. If testimony or deposition is required because of any subpoena, the client shall be responsible for any additional time, fees, and charges, regardless of issuing party.

Exhibits

The illustrations and maps in this report are included to assist the reader in visualizing the property and are not necessarily to scale. Various photographs, if any, are included for the same purpose as of the date of the photographs. Site plans are not surveys unless so designated.

Legal, Engineering, Financial, Structural or Mechanical Nature, Hidden Components, Soil
No responsibility is assumed for matters legal in character or nature, nor matters of survey, nor of any architectural, structural, mechanical, or engineering nature. No opinion is rendered as to the title, which is presumed to be good and marketable. The property is appraised as if free and clear, unless otherwise stated in particular parts of the report. The legal description is assumed to be correct as used in this report as furnished by the client, his designee, or as derived by MPB REAL ESTATE, LLC.

MPB REAL ESTATE, LLC has inspected as far as possible, by observation, the land and the improvements; however, it was not possible to personally observe conditions beneath the soil, or hidden structural, mechanical or other components, and MPB REAL ESTATE, LLC shall not be responsible for defects in the property which may be related.

The report is based on there being no hidden, unapparent, or apparent conditions of the property site, subsoil or structures or toxic materials which would render it more or less valuable. No

responsibility is assumed for any such conditions or for any expertise or engineering to discover them. All mechanical components are assumed to be in operable condition and status standard for properties of the subject type. Conditions of heating, cooling, ventilation, electrical, and plumbing equipment are considered to be commensurate with the condition of the balance of the improvements unless otherwise stated. We are not experts in this area, and it is recommended, if appropriate, the client obtain an inspection of this equipment by a qualified professional.

If MPB REAL ESTATE, LLC has not been supplied with a termite inspection, survey or occupancy permit, no responsibility or representation is assumed or made for any costs associated with obtaining same or for any deficiencies discovered before or after they are obtained. No representation or warranties are made concerning obtaining the above mentioned items.

MPB REAL ESTATE, LLC assumes no responsibility for any costs or consequences arising due to the need, or the lack of need, for flood hazard insurance. An agent for The Federal Flood Insurance Program should be contacted to determine the actual need for Flood Hazard Insurance.

Legality of Use

The report is based on the premise that there is full compliance with all applicable federal, state and local environmental regulations and laws unless otherwise stated in the report; further, that all applicable zoning, building and use regulations, and restrictions of all types have been complied with unless otherwise stated in the report. Further, it is assumed that all required licenses, consents, permits, or other legislative or administrative authority, local, state, federal and/or private entity or organization have been or may be obtained or renewed for any use considered in the value estimate.

Component Values

The distribution of the total valuation in this report between land and improvements applies only under the existing program of utilization. The separate valuations for land and building must not be used in conjunction with any other report and are invalid if so used.

Auxiliary and Related Studies

No environmental or impact studies, special market study or analysis, highest and best use analysis, study or feasibility study has been required or made unless otherwise specified in an agreement for services or in the report.

Dollar Values, Purchasing Power

The market value estimated and the costs used are as of the date of the estimate of value, unless otherwise indicated. All dollar amounts are based on the purchasing power and price of the dollar as of the date of the value estimate.

Inclusions

Furnishings and equipment or personal property or business operations, except as specifically indicated and typically considered as a part of real estate, have been disregarded with only the real estate being considered in the value estimate, unless otherwise stated. In some property types, business and real estate interests and values are combined.

Proposed Improvements, Conditional Value

Improvements proposed, if any, onsite or offsite, as well as any repairs required, are considered for purposes of this report to be completed in a timely, good and workmanlike manner, according to information submitted and/or considered by MPB REAL ESTATE, LLC. In cases of proposed construction, the report is subject to change upon inspection of property after construction is completed.

Value Change, Dynamic Market, Influences, Alteration of Estimate

The estimated value, which is defined in the report, is subject to change with market changes over time. Value is highly related to exposure, time, promotional effort, terms, motivation, and conditions surrounding the offering. The value estimate considers the productivity and relative attractiveness of the property physically and economically in the marketplace.

In cases of reports involving the capitalization of income benefits, the estimate of market value or investment value or value in use is a reflection of such benefits and MPB REAL ESTATE, LLC' interpretation of income and yields and other factors derived from general and specific client and market information. Such estimates are as of the date of the estimate of value; thus, they are subject to change as the market and value is naturally dynamic.

The “estimate of market value” in the report is not based in whole or in part upon the race, color, or national origin of the present owners or occupants of the properties in the vicinity of the property appraised.

Report and Value Estimate

Report and value estimate are subject to change if physical or legal entity or financing differ from that envisioned in this report.

Management of the Property

It is assumed that the property which is the subject of this report will be under prudent and competent ownership and management.

Hazardous Materials

Unless otherwise stated in this report, the existence of hazardous substances, including without limitation, asbestos, polychlorinated biphenyls, petroleum leakage, or agricultural chemicals, which may or may not be present on the property, or other environmental conditions, were not called to the attention of nor did MPB REAL ESTATE, LLC become aware of such during their inspection. MPB REAL ESTATE, LLC had no knowledge of the existence of such materials on or in the property unless otherwise stated. MPB REAL ESTATE, LLC, however, is not qualified to test such substances or conditions. If the presence of such substances such as asbestos, urea formaldehyde foam insulation, or other hazardous substances or environmental conditions, may affect the value of the property, the value estimate is predicated on the assumption that there is no such condition on or in the property or in the proximity that it would cause a loss in value. No responsibility is assumed for any such conditions, nor for any expertise or engineering knowledge required to discover them.

Soil and Subsoil Conditions

Unless otherwise stated in this report, MPB REAL ESTATE, LLC does not warrant the soil or subsoil conditions for toxic or hazardous waste materials. Where any suspected materials might

be present, we have indicated in the report; however, MPB REAL ESTATE, LLC are not experts in this field and recommend appropriate engineering studies to monitor the presence or absence of these materials.

Americans with Disabilities Act (ADA)

“MPB REAL ESTATE, LLC has not made a specific compliance survey and analysis of this property to determine whether or not it is in conformity with the various detailed requirements of the Americans with Disabilities Act (ADA), which became effective January 26, 1992. It is possible that a compliance survey of the property together with a detailed analysis of the requirements of the ADA could reveal that the property is not in compliance with one or more of the requirements of the Act. If so, this fact could have a negative effect upon the value of the property. Since MPB REAL ESTATE, LLC has no direct evidence relating to this issue, we did not consider possible non-compliance with the requirements of ADA in estimating the value of the property.”

Qualifications of the Analyst

QUALIFICATIONS OF THE ANALYST

Michael P. Berkowitz

**MPB Real Estate, LLC
1430 South Mint Street, Suite 102
Charlotte, North Carolina 28203
(704) 334-4686
FAX (704) 334-2759**

EDUCATION AND CREDENTIALS

- **Duke University**
Major: Economics 1985-1989

- **Central Piedmont Community College**
 - R-1 - Introduction to Real Estate Appraisal, 2002
 - R-2 - Valuation Principles and Procedures, 2002
 - R-3 - Applied Residential Property Valuation, 2002
 - G-1 - Introduction to Income Property Appraisal, 2003

- **Bob Ipock and Associates**
 - G-2 - Advanced Income Capitalization Procedures, 2003
 - G-3 - Applied Property Income Valuation 2004

- **Appraisal Institute**
 - 520 Highest and Best Use and Market Analysis, 2004
 - Seminar Rates, Multipliers and Ratios 2005
 - 530 Advanced Sales Comparison and Cost Approaches 2006
 - Seminar Apartment Appraisal, Concepts & Applications 2009
 - Seminar Appraising Distresses Commercial Real Estate 2009
 - Seminar Appraising Convenience Stores 2011
 - Seminar Analyzing Operating Expenses 2011

AFFILIATIONS AND ACTIVITIES

- **Association Memberships**
North Carolina State Certified General Real Estate Appraiser, October 2006, Certificate No. A6169

RELATED EXPERIENCE

- Provided real estate consulting services for a variety of clients including real estate brokers, property owners and financial planners
- Performed financial feasibility studies for multiple property types including golf communities, and renovation projects.
- Developed plan for self-contained communities.
- Racetrack expertise

APPRAISAL EXPERIENCE

A partial list of types of properties appraised include:
Retail Properties, Single and Multi-Tenant, Proposed and Existing
Office Single and Multi-Tenant Proposed and Existing
Mixed-Use Properties, Proposed and Existing
Industrial Properties, Warehouse, Flex and Manufacturing
Vacant Land
Condemnation
C-Stores
Race Tracks

CLIENTELE

Bank of America
Transylvania County
Cabarrus County
Mecklenburg County
City of Statesville
NC Department of Transportation
Henry County, GA
Town of Loudon, NH
First Citizens Bank
RBC Centura Bank
City of Charlotte
City of Concord
Union County
BB & T
Aegon USA Realty Advisors
Sun Trust Bank
First Charter Bank
Regions Bank
Charlotte Housing Authority
Alliance Bank and Trust
Broadway Bank
Duke Energy Corporation
Jim R. Funderburk, PLLC
Hamilton, Fay, Moon, Stephens, Steele & Martin
Senator Marshall A. Rauch
Perry, Bundy, Plyler & Long, LLP
Robinson, Bradshaw & Hinson
CSX Real Property
Baucom, Clayton, Burton, Morgan & Wood, PA
City of Mount Holly
Our Towns Habitat for Humanity
Parker, Poe, Adams & Bernstein, LLP
Central Carolina Bank

Southern Community Bank and Trust

Callsigns

Callign	Market	Radio Code	Block Number	State	County	Licensee Name	Wholly Owned	Total MHz	Freq Range 1	Freq Range 2	Freq Range 3	Freq Range 4	Regulatory Power	Threshold (W)	POPs /Sq MI	Status	Action	Approved for Insvc
WQGE359	Raleigh - Durham, NC	CW	BTA368 C	37181	Vance	Alitel Corporation	Yes	10.000	1895.000-1900.000	1975.000-1980.000	.000-.000	.000-.000	267.8	1640	167.95	Active	added	Yes
WRNF661	Rocky Mount, NC	PM	PEA109 A5	37181	Vance	Cellico Partnership	Yes	20.000	3780.000-3800.000	.000-.000	.000-.000	.000-.000	1608.19	1640	167.95	Active	added	Yes
WRHE978	Rocky Mount, NC	UU	PEA109 M10	37181	Vance	Cellico Partnership	Yes	100.000	38500.000-388000.000	.000-.000	.000-.000	.000-.000	0	0	167.95	Active		Yes
WOGA915	Raleigh-Durham-Chapel Hill, NC	AW	BEA019 B	37181	Vance	Cellico Partnership	Yes	20.000	1720.000-1730.000	2120.000-2130.000	.000-.000	.000-.000	235.87	1640	167.95	Active	added	Yes
WRNF662	Rocky Mount, NC	PM	PEA109 B1	37181	Vance	Cellico Partnership	Yes	20.000	3800.000-3820.000	.000-.000	.000-.000	.000-.000	1608.19	1640	167.95	Active	added	Yes
WRNF663	Rocky Mount, NC	PM	PEA109 B2	37181	Vance	Cellico Partnership	Yes	20.000	3820.000-3840.000	.000-.000	.000-.000	.000-.000	1608.19	1640	167.95	Active	added	Yes
WRNF657	Rocky Mount, NC	PM	PEA109 A1	37181	Vance	Cellico Partnership	Yes	20.000	3700.000-3720.000	.000-.000	.000-.000	.000-.000	1286.55	1640	167.95	Active	added	Yes
KNKN770	North Carolina 7 - Rockingham	CL	CMA571 B	37181	Vance	Alitel Corporation	Yes	25.000	835.000-845.000	880.000-890.000	846.500-849.000	891.500-894.000	399.63 - PSD	400	167.95	Active	added	Yes
WRNF659	Rocky Mount, NC	PM	PEA109 A3	37181	Vance	Cellico Partnership	Yes	20.000	3740.000-3760.000	.000-.000	.000-.000	.000-.000	1286.55	1640	167.95	Active	added	Yes
WQGN685	Raleigh - Durham, NC	CW	BTA368 C	37181	Vance	Cellico Partnership	Yes	10.000	1900.000-1905.000	1980.000-1985.000	.000-.000	.000-.000	267.8	1640	167.95	Active	added	Yes
WRB847	Raleigh - Durham, NC	UU	BTA368 L2	37181	Vance	Cellico Partnership	Yes	425.000	27825.000-28350.000	.000-.000	.000-.000	.000-.000	0	0	167.95	Active		Yes
WRHE982	Rocky Mount, NC	UU	PEA109 M5	37181	Vance	Cellico Partnership	Yes	100.000	38000.000-38100.000	.000-.000	.000-.000	.000-.000	0	0	167.95	Active		Yes
WQDD240	Raleigh - Durham, NC	CW	BTA368 C	37181	Vance	Cellico Partnership	Yes	10.000	1905.000-1910.000	1985.000-1990.000	.000-.000	.000-.000	267.8	1640	167.95	Active	added	Yes
WRHE983	Rocky Mount, NC	UU	PEA109 M6	37181	Vance	Cellico Partnership	Yes	100.000	38100.000-38200.000	.000-.000	.000-.000	.000-.000	0	0	167.95	Active		Yes
WRHE981	Rocky Mount, NC	UU	PEA109 M4	37181	Vance	Cellico Partnership	Yes	100.000	37800.000-38000.000	.000-.000	.000-.000	.000-.000	0	0	167.95	Active		Yes
WRNF660	Rocky Mount, NC	PM	PEA109 A4	37181	Vance	Cellico Partnership	Yes	20.000	3760.000-3780.000	.000-.000	.000-.000	.000-.000	1286.55	1640	167.95	Active	added	Yes
WQJQ690	Southeast	WU	REA002 C	37181	Vance	Cellico Partnership	Yes	22.000	746.000-757.000	776.000-787.000	.000-.000	.000-.000	155.21	1000	167.95	Active	added	Yes
WRNF658	Rocky Mount, NC	PM	PEA109 A2	37181	Vance	Cellico Partnership	Yes	20.000	3720.000-3740.000	.000-.000	.000-.000	.000-.000	1286.55	1640	167.95	Active	added	Yes
WRHE984	Rocky Mount, NC	UU	PEA109 M7	37181	Vance	Cellico Partnership	Yes	100.000	38200.000-38300.000	.000-.000	.000-.000	.000-.000	0	0	167.95	Active		Yes
WRHE977	Rocky Mount, NC	UU	PEA109 M1	37181	Vance	Cellico Partnership	Yes	100.000	37500.000-37700.000	.000-.000	.000-.000	.000-.000	0	0	167.95	Active		Yes
WRHE986	Rocky Mount, NC	UU	PEA109 M9	37181	Vance	Cellico Partnership	Yes	100.000	38400.000-38500.000	.000-.000	.000-.000	.000-.000	0	0	167.95	Active		Yes
WRHE985	Rocky Mount, NC	UU	PEA109 M8	37181	Vance	Cellico Partnership	Yes	100.000	38300.000-38400.000	.000-.000	.000-.000	.000-.000	0	0	167.95	Active		Yes

EXHIBIT B

WRBA848	Raleigh-Durham, NC	UU	8TA388	L1	37181	Vance	Cellco Partnership	Yes	425,000	27500,000-27925,000	.000-.000	.000-.000	.000-.000	0	187.85	Active	Yes
WRHE980	Rocky Mount, NC	UU	PEA109	M3	37181	Vance	Cellco Partnership	Yes	100,000	37800,000-37900,000	.000-.000	.000-.000	.000-.000	0	187.95	Active	Yes
WQGA716	Southeast	AW	REA002	F	37181	Vance	Cellco Partnership	Yes	20,000	1745,000-1755,000	.000-.000	.000-.000	.000-.000	1640	167.95	Active	Yes
WRHE979	Rocky Mount, NC	UU	PEA109	M2	37181	Vance	Cellco Partnership	Yes	100,000	37700,000-37800,000	.000-.000	.000-.000	.000-.000	0	187.95	Active	Yes



Mail Processing Center
 Federal Aviation Administration
 Southwest Regional Office
 Obstruction Evaluation Group
 10101 Hillwood Parkway
 Fort Worth, TX 76177

Aeronautical Study No.
 2023-ASO-27662-OE

Issued Date: 09/28/2023

Ryan C. Bradley
 Southern Towers (RB)
 250 Signal Mountain Rd
 Suite B
 Chattanooga, TN 37405

**** 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 NC-035 Daniel Harris Road
 Location: Henderson, NC
 Latitude: 36-21-09.92N NAD 83
 Longitude: 78-18-58.66W
 Heights: 492 feet site elevation (SE)
 199 feet above ground level (AGL)
 691 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)

See attachment for additional condition(s) or information.

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 in accordance with FAA Advisory circular 70/7460-1 M.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 03/28/2025 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.

EXHIBIT C

- (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, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, 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 includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

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.

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 (817) 222-4104, or diana.v-ctr.pinos@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2023-ASO-27662-OE.

Signature Control No: 599163240-600529862
Diana Pinos
Technician

(DNE)

Attachment(s)
Additional Information
Frequency Data
Map(s)

cc: FCC

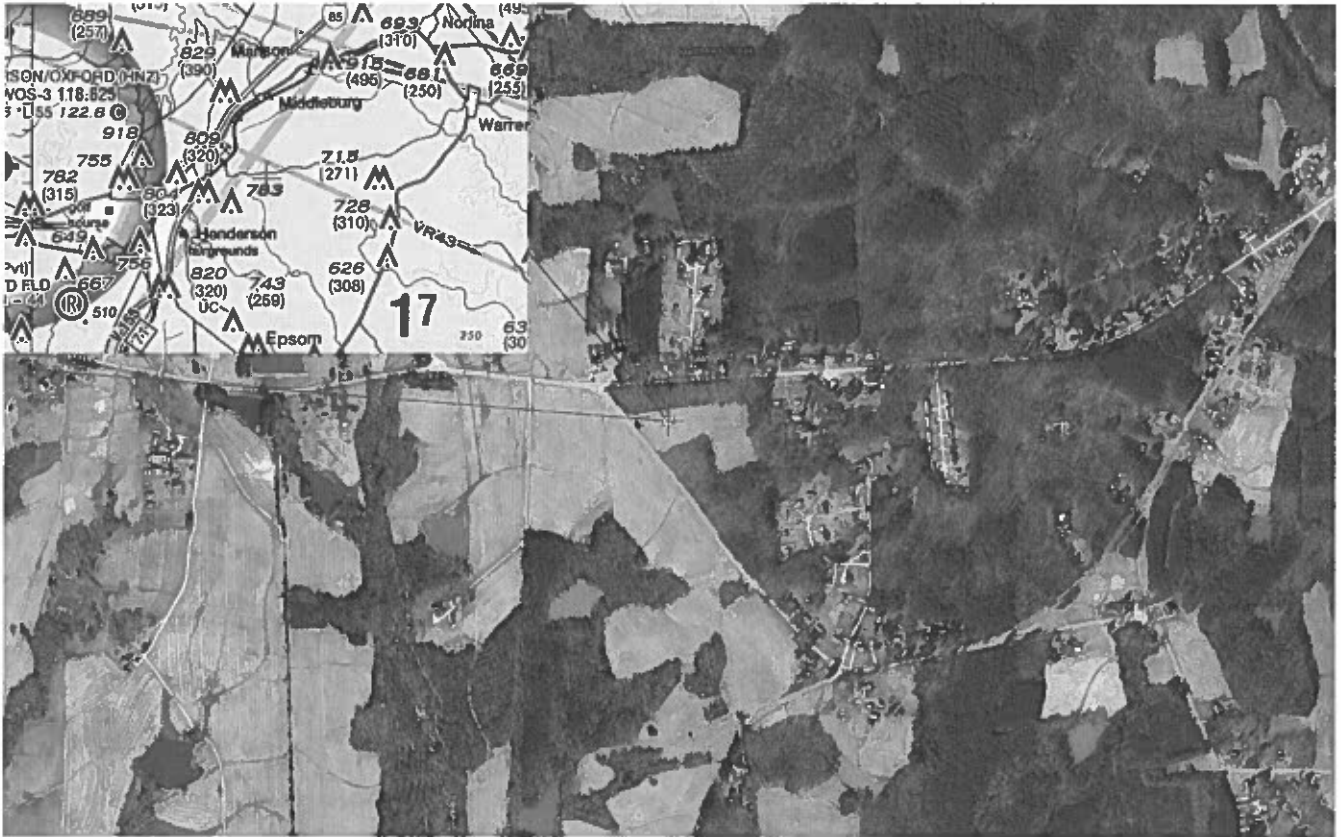
Additional information for ASN 2023-ASO-27662-OE

Request the Antenna Tower be equipped with NVG compatible lighting, and applicable FAA lighting/paint/markings. For any questions on this request, contact Mrs. Latrivia Williams Air Force Representative to the FAA at 770-313-2135; email: Latrivia.williams@salasobrien.com.

Frequency Data for ASN 2023-ASO-27662-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
6	7	GHz	55	dBW
6	7	GHz	42	dBW
10	11.7	GHz	55	dBW
10	11.7	GHz	42	dBW
17.7	19.7	GHz	55	dBW
17.7	19.7	GHz	42	dBW
21.2	23.6	GHz	55	dBW
21.2	23.6	GHz	42	dBW
614	698	MHz	1000	W
614	698	MHz	2000	W
698	806	MHz	1000	W
806	901	MHz	500	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
929	932	MHz	3500	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
1670	1675	MHz	500	W
1710	1755	MHz	500	W
1850	1910	MHz	1640	W
1850	1990	MHz	1640	W
1930	1990	MHz	1640	W
1990	2025	MHz	500	W
2110	2200	MHz	500	W
2305	2360	MHz	2000	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W
2496	2690	MHz	500	W

Verified Map for ASN 2023-ASO-27662-OE





Radio Frequency Exposure

RF Safety and NIER Analysis Report

09/08/2022

Site: DANIEL HARRIS RD

Henderson, NC

Prepared for: Verizon

EXHIBIT D

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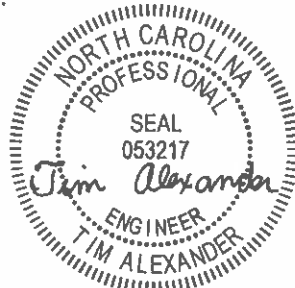
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1 Certification

This report, prepared by Pramira, Inc. for **Verizon**, is intended to document compliance and evaluate power density levels as outlined in the report. The computations, analysis, and resulting report and conclusions were based on applicable FCC guidelines and regulations for maximum permissible exposure to humans consistent with FCC OET Bulletin 65, Edition 97-01.

Additionally, Pramira, Inc. certifies that the assumptions are valid and that the data used within Pramira control are accurate, including information collected as part of Pramira field surveys. Pramira, Inc. does not however certify the accuracy or correctness of any data provided to Pramira, Inc. for this analysis and report by Verizon or other third parties working on behalf of Verizon.

I certify that the attached RF exposure analysis and report is correct to the best of my knowledge, and all calculations, assumptions and conclusions are based on generally acceptable engineering practices:



SIGNED, 8 SEP 2023
EXPIRES, 31 DEC 2023

Tim Alexander, PE
Digitally signed by Tim Alexander, PE
DN: cn=Tim Alexander, PE, o=Proteus Power Engineering, ou,
email=proteuspower@outlook.com, c=US
Date: 2023.09.08 08:45:17 -0700

Tim Alexander, P.E.

Report Prepared by: Abdelsalam Masoud, 09/08/2023
Report Reviewed by: Mike Arnold, 09/08/2023

2 Executive Summary

This report provides the results of an RF power density analysis performed for Verizon at site DANIEL HARRIS RD in accordance with the Federal Communications Commission (FCC) rules and regulations for RF emissions described in OET Bulletin 65, Edition 97-01.

This report addresses RF safety for two classified groups defined by OET Bulletin 65: Occupational/ Controlled and General Population/ Uncontrolled. Based on the analysis, this site will be **Compliant** with FCC rules and regulations and Verizon's Signage and Barrier Policy if the mitigation details provided in Table 1 are implemented.

Final Compliant Configuration						
	GUIDELINES	NOTICE	CAUTION	WARNING	NOC INFO	BARRIER/MARKER
Access Point(s)	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []
Alpha	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []
Beta	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []
Gamma	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []

NOTE: The table represents either the signage/barriers installed / removed OR items required by the market (if mitigation is not installed by consultant/vendor).

Specialty Sign Detail

Location	N/A
Access Point	N/A
Alpha	N/A
Beta	N/A
Gamma	N/A

NOTE: The tables above represent EXISTING compliance items implemented at this location.

Notes/ Additional Compliance Requirements(s):
This site is Compliant.

Table 1: Mitigation Requirements for Compliance

2.1 Conclusion and Recommendations

- The results of the analysis indicate that the power density levels in the generally accessible areas on the **Antenna Level** will not exceed the FCC's MPE limit for General Population.
- The results of the analysis indicate that the power density levels in the generally accessible areas on the **Ground Level** will not exceed the FCC's MPE limit for General Population.
- The max theoretical % MPE (General Public) is **8661.73%** directly in front of antennas beams at the **Antenna level**. Notice that the power density levels will exceed the FCC's MPE limit for General Population, Occupational, and 10x the Occupational in front of the antennas which it is not generally accessible area.
- This site is Compliant no Mitigation is required.

Note: Modifications to the site; and/or increases in channel counts or power levels exceeding those listed in this report will require additional evaluation to determine compliance.

3 Introduction

The purpose of this analysis and report is to evaluate the cumulative power density levels of all non-excluded antennas located on the site and identify any areas of concern that require mitigation. This report also assesses the site's compliance with FCC OET Bulletin 65; "Guidelines for Human Exposure to Radio-frequency Electromagnetic Fields".

The power density simulation performed for this site utilized RoofMaster® analysis software. All antennas were assigned an operating frequency and transmit power and were deemed to be operating at 100% of their rated output power.

3.1 Site Description:

- **Site Name:** DANIEL HARRIS RD
- **Street Address:** 171 N Cokesbury Rd
Henderson, NC 27537
- **Latitude:** 36° 21' 9.9252" N
- **Longitude:** 78° 18' 58.662" W
- **Structure Type:** Monopole
- **Structure Height:** ± 195' AGL
- **Co-Locators/ Other Antennas:** CD shows Co-locator antennas. Since no co-locator data was provided, a general antenna configuration was used modeling the Unknown carrier. However, until those details can be confirmed in the Post analysis, (Unknown) was used as identifier in the report. C/Ls were estimated from the CDs.
- **BTS Equipment Location:** The Verizon Equipment is located on the Ground.

3.2 Site Configuration Being Modeled

- This is a Monopole application where Verizon antennas will be mounted to mounting pipes on the Monopole.
- This is a Four-sector site supporting LTE at 700, 850, 1900, and 2100 MHz, 5GNR at 850MHz, and C-Band at 3700 MHz for all sectors. All LTE assumes 4x4 MIMO.
- The values of the antennas rad center for all sectors (190') are based on the CDs and RFDS. These values must be verified on the site audit for the post study.
- All technologies were evaluated assuming the maximum number of channels and were running at maximum power 100% of the time.

4 Predictive Analysis Details

For purposes of this analysis, RoofMaster® was configured to provide an output based on the appropriate MPE limit(s) published in the FCC's guidelines. The antenna information was loaded into RoofMaster®, an MPE predictive analysis tool by Waterford Consultants, LLC.

4.1 Analysis Locations:

Number of Elevations Analyzed: 3

- Elevation Level
- Antenna Level
- Ground Level

4.2 Antenna Inventory

The following table contains the technical data used to simulate the power density that may be encountered with all antennas simultaneously operating at full rated power with the exception of any excluded antennas cited in this document. If co-locator's antennas exist and specific antenna details could not be secured, generic antennas, frequencies, and transmit powers were used for modeling. The assumptions used are based on past experience with communications carriers.

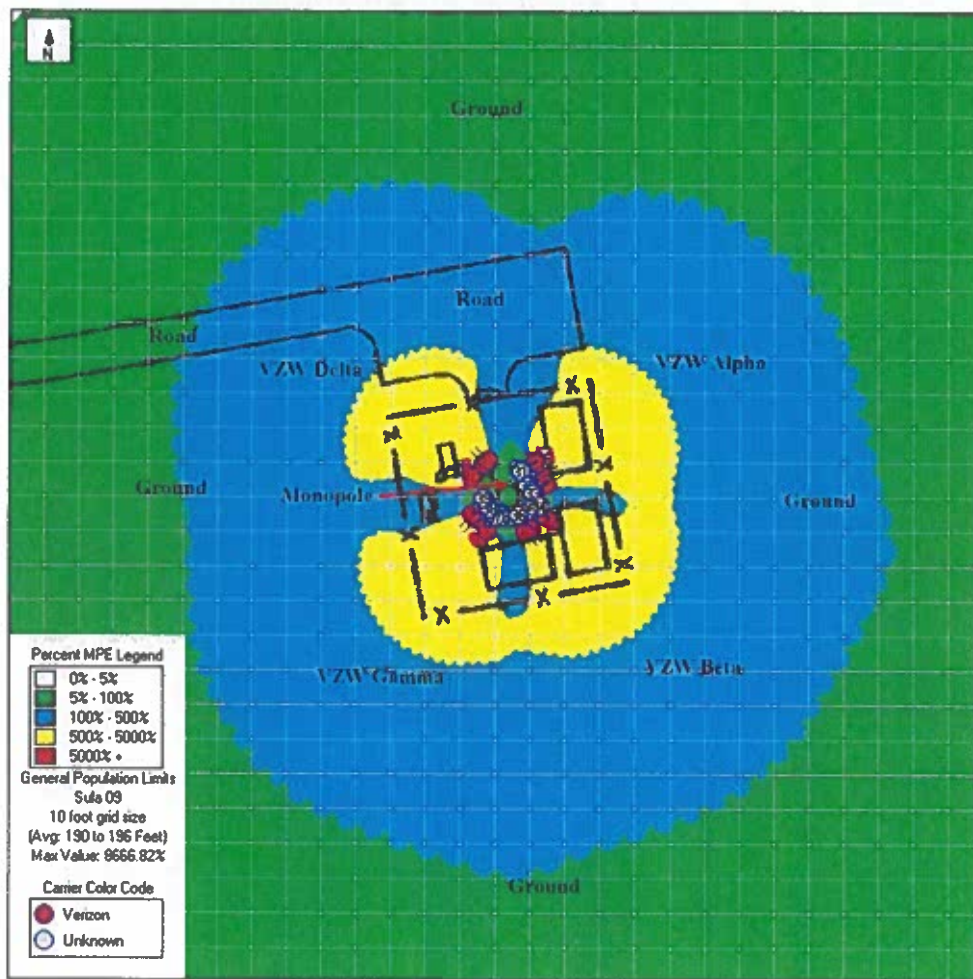
RF	Name	(MHz)	Trans Freq	Trans Power	Trans Gain	Other Freq	Calc Power	MO-FIR (Deg.)	Mfg.	Model	Elevation Z (ft)	Antenna Level Z (ft)	Ground Z (ft)	Type	(ft)	Dist	Width	Orien	Leaf
VZ Alpha_Ant1	C-Band	3700	320.0	1	0.0	320.0	0	0	ERICSSON	AIR6449	Various	0.0	190.0	Panel	2.8	23.55	11	60	
VZ Alpha_Ant2	L700	730	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.2	65	60	
VZ Alpha_Ant2	L850	880	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.53	62	60	
VZ Alpha_Ant2	L2100	2110	40.0	4	0.5	142.6	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	15.82	62	60	
VZ Alpha_Ant3	L700	730	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.2	65	60	
VZ Alpha_Ant3	L850	880	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.53	62	60	
VZ Alpha_Ant3	L1900	1900	40.0	4	0.5	142.6	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	15.17	66	60	
VZ Beta-Ant1	C-Band	3700	320.0	1	0.0	320.0	0	0	ERICSSON	AIR6449	Various	0.0	190.0	Panel	2.8	23.55	11	140	
VZ Beta-Ant2	L700	730	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.2	65	140	
VZ Beta-Ant2	L850	880	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.53	62	140	
VZ Beta-Ant2	L2100	2110	40.0	4	0.5	142.6	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	15.82	62	140	
VZ Beta-Ant3	L700	730	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.2	65	140	
VZ Beta-Ant3	L850	880	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.53	62	140	
VZ Beta-Ant3	L1900	1900	40.0	4	0.5	142.6	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	15.17	66	140	
VZ Gamma-Ant1	C-Band	3700	320.0	1	0.0	320.0	0	0	ERICSSON	AIR6449	Various	0.0	190.0	Panel	2.8	23.55	11	220	
VZ Gamma-Ant2	L700	730	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.2	65	220	
VZ Gamma-Ant2	L850	880	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.53	62	220	
VZ Gamma-Ant2	L2100	2110	40.0	4	0.5	142.6	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	15.82	62	220	
VZ Gamma-Ant3	L700	730	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.2	65	220	
VZ Gamma-Ant3	L850	880	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.53	62	220	
VZ Gamma-Ant3	L1900	1900	40.0	4	0.5	142.6	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	15.17	66	220	
VZ Delta-Ant1	C-Band	3700	320.0	1	0.0	320.0	0	0	ERICSSON	AIR6449	Various	0.0	190.0	Panel	2.8	23.55	11	315	
VZ Delta-Ant2	L700	730	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.2	65	315	
VZ Delta-Ant2	L850	880	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.53	62	315	
VZ Delta-Ant2	L2100	2110	40.0	4	0.5	142.6	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	15.82	62	315	
VZ Delta-Ant3	L700	730	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.2	65	315	
VZ Delta-Ant3	L850	880	40.0	2	0.5	71.3	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	13.53	62	315	
VZ Delta-Ant3	L1900	1900	40.0	4	0.5	142.6	0	0	COMMSCOPE	NHH-65C-R2B	Various	0.0	190.0	Panel	8.0	15.17	66	315	
Unknown-Ant1	L700	700	40.0	4	0.5	142.6	0	0	Unknown	Unknown	---	-11.0	179.0	Unknown	8.0	13.2	65	60	
Unknown-Ant2	L1900	1900	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-11.0	179.0	Unknown	8.0	15.17	66	60	
Unknown-Ant3	L2100	2100	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-11.0	179.0	Unknown	8.0	15.82	62	60	
Unknown-Ant4	L700	700	40.0	4	0.5	142.6	0	0	Unknown	Unknown	---	-11.0	179.0	Unknown	8.0	13.2	65	140	
Unknown-Ant5	L1900	1900	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-11.0	179.0	Unknown	8.0	15.17	66	140	
Unknown-Ant6	L2100	2100	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-11.0	179.0	Unknown	8.0	15.82	62	140	
Unknown-Ant7	L700	700	40.0	4	0.5	142.6	0	0	Unknown	Unknown	---	-11.0	179.0	Unknown	8.0	13.2	65	220	
Unknown-Ant8	L1900	1900	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-11.0	179.0	Unknown	8.0	15.17	66	220	
Unknown-Ant9	L2100	2100	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-11.0	179.0	Unknown	8.0	15.82	62	220	
Unknown-Ant10	L700	700	40.0	4	0.5	142.6	0	0	Unknown	Unknown	---	-22.0	168.0	Unknown	8.0	13.2	65	60	
Unknown-Ant11	L1900	1900	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-22.0	168.0	Unknown	8.0	15.17	66	60	
Unknown-Ant12	L2100	2100	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-22.0	168.0	Unknown	8.0	15.82	62	60	
Unknown-Ant13	L700	700	40.0	4	0.5	142.6	0	0	Unknown	Unknown	---	-22.0	168.0	Unknown	8.0	13.2	65	140	
Unknown-Ant14	L1900	1900	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-22.0	168.0	Unknown	8.0	15.17	66	140	
Unknown-Ant15	L2100	2100	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-22.0	168.0	Unknown	8.0	15.82	62	140	
Unknown-Ant16	L700	700	40.0	4	0.5	142.6	0	0	Unknown	Unknown	---	-22.0	168.0	Unknown	8.0	13.2	65	220	
Unknown-Ant17	L1900	1900	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-22.0	168.0	Unknown	8.0	15.17	66	220	
Unknown-Ant18	L2100	2100	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-22.0	168.0	Unknown	8.0	15.82	62	220	
Unknown-Ant19	L700	700	40.0	4	0.5	142.6	0	0	Unknown	Unknown	---	-33.0	157.0	Unknown	8.0	13.2	65	60	
Unknown-Ant20	L1900	1900	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-33.0	157.0	Unknown	8.0	15.17	66	60	
Unknown-Ant21	L2100	2100	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-33.0	157.0	Unknown	8.0	15.82	62	60	
Unknown-Ant22	L700	700	40.0	4	0.5	142.6	0	0	Unknown	Unknown	---	-33.0	157.0	Unknown	8.0	13.2	65	140	
Unknown-Ant23	L1900	1900	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-33.0	157.0	Unknown	8.0	15.17	66	140	
Unknown-Ant24	L2100	2100	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-33.0	157.0	Unknown	8.0	15.82	62	140	
Unknown-Ant25	L700	700	40.0	4	0.5	142.6	0	0	Unknown	Unknown	---	-33.0	157.0	Unknown	8.0	13.2	65	220	
Unknown-Ant26	L1900	1900	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-33.0	157.0	Unknown	8.0	15.17	66	220	
Unknown-Ant27	L2100	2100	80.0	2	0.5	142.6	0	0	Unknown	Unknown	---	-33.0	157.0	Unknown	8.0	15.82	62	220	

The antenna Z-heights listed above are referenced to the Elevation, Antenna, and Ground levels.

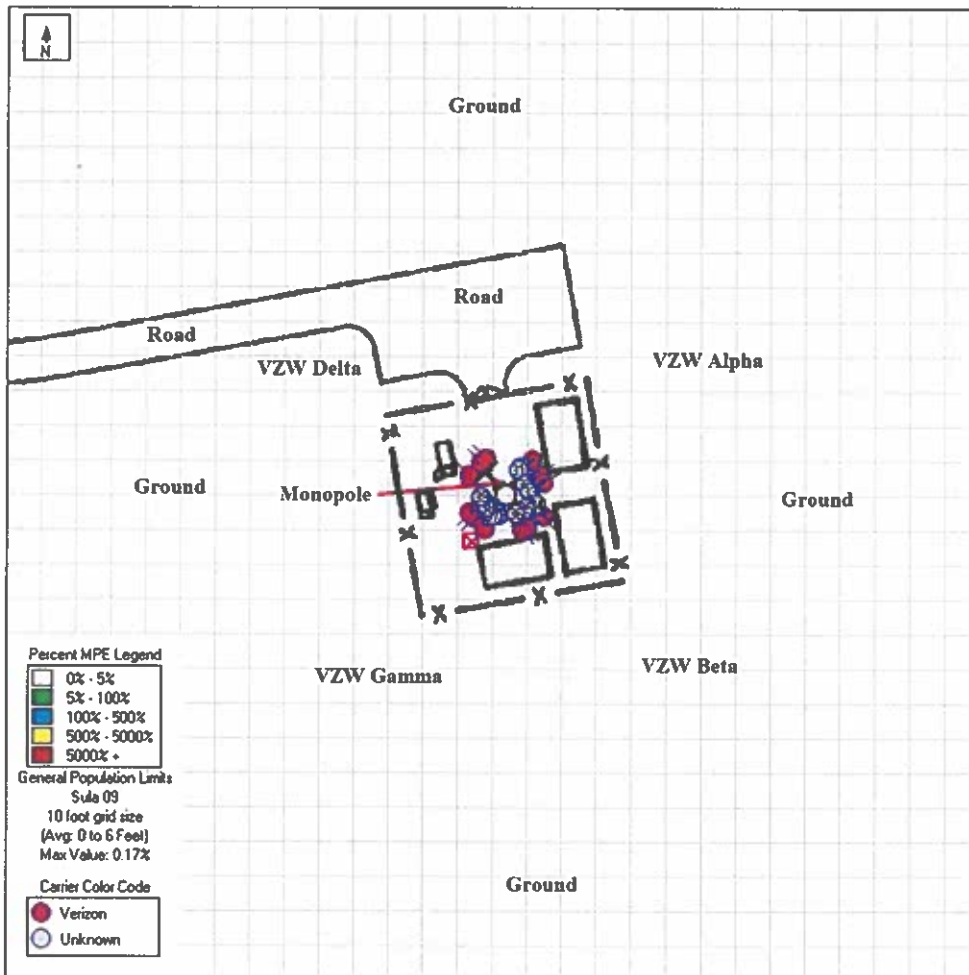
4.3 RF Emissions Diagram(s) - All Transmitters

The following Diagram(s) represent the theoretical spatially averaged Maximum Permissible Exposure (MPE) percentages that are expected for each study's elevation. An additional 1% Occupational MPE Limit (5% General Population MPE limit) is included to demonstrate where Verizon is a significant contributor to the accessible areas where multiple carriers' transmitters may be present.

Reference Plane: Antenna Level



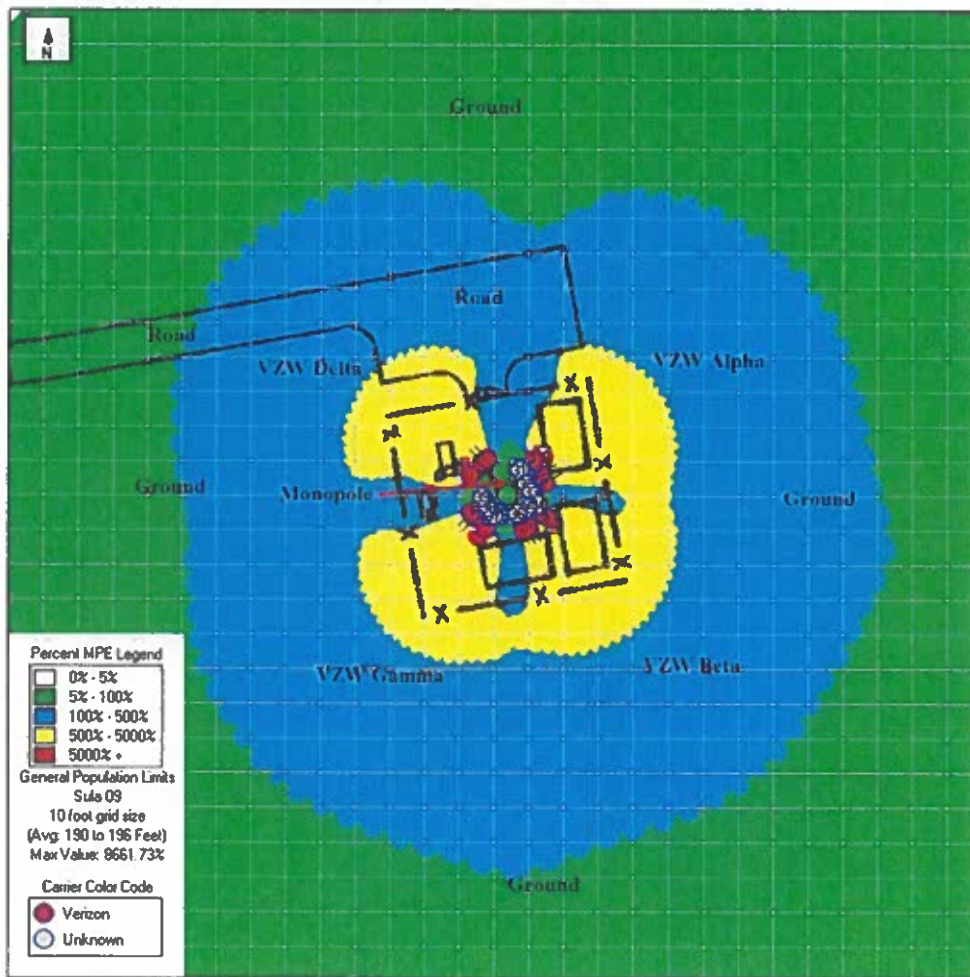
Reference Plane: Ground Level



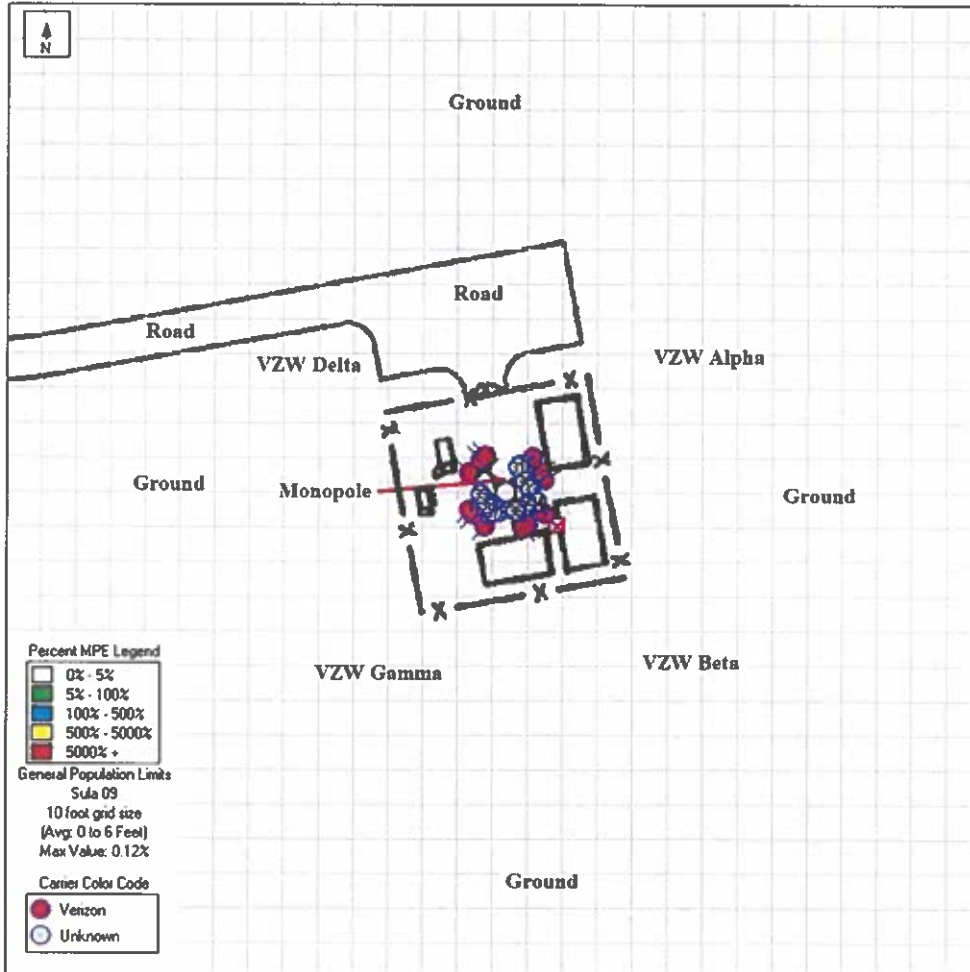
4.4 RF Emissions Diagram(s) - Verizon Transmitters Only

The following Diagram(s) represent the theoretical spatially averaged Maximum Permissible Exposure (MPE) percentages that are expected for each study's elevation. An additional 1% Occupational MPE Limit (5% General Population MPE limit) is included to demonstrate where Verizon is a significant contributor to the accessible areas where multiple carriers' transmitters may be present.

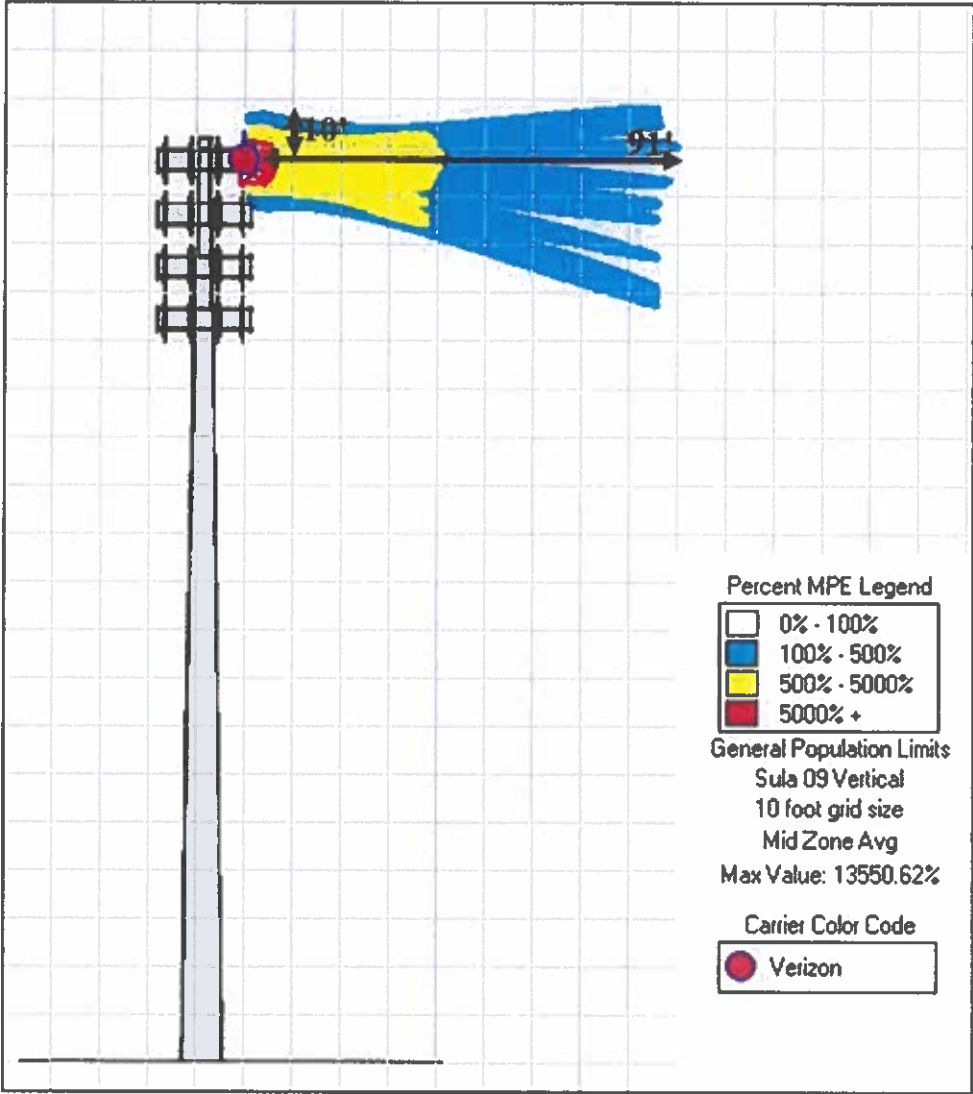
Reference Plane: Antenna Level



Reference Plane: Ground Level




Reference Plane: Elevation Level



5 Signage/ Mitigation

5.1 Signage/ Barrier Detail

Final Compliant Configuration							
	GUIDELINES	NOTICE	CAUTION	WARNING	NOC INFO	BARRIER/MARKER	
Access Point(s)	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/>	
Alpha	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/>	
Beta	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/>	
Gamma	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/> []	<input type="checkbox"/>	

NOTE: The table represents either the signage/barriers installed / removed OR items required by the market (if mitigation is not installed by consultant/vendor).

Specialty Sign Detail

Location	N/A
Access Point	N/A
Alpha	N/A
Beta	N/A
Gamma	N/A

NOTE: The tables above represent EXISTING compliance items implemented at this location.

Notes/ Additional Compliance Requirements(s):
This site is Compliant.

Table 2: Mitigation Requirements for Compliance

5.2 Signage/ Barrier Diagram

N/A

6 Conclusions and Recommendations

- The results of the analysis indicate that the power density levels in the generally accessible areas on the **Antenna Level** will not exceed the FCC's MPE limit for General Population.
- The results of the analysis indicate that the power density levels in the generally accessible areas on the **Ground Level** will not exceed the FCC's MPE limit for General Population.
- The max theoretical % MPE (General Public) is 8661.73% directly in front of antennas beams at the **Antenna level**. Notice that the power density levels will exceed the FCC's MPE limit for General Population, Occupational, and 10x the Occupational in front of the antennas which it is not generally accessible area.
- This site is Compliant no Mitigation is required.

Note: Modifications to the site; and/or increases in channel counts or power levels exceeding those listed in this report will require additional evaluation to determine compliance.

7 Appendix A: FCC Compliance and RF Safety Policies

In August of 1997, the FCC published OET Bulletin 65 Edition 97-01 to regulate methods for evaluating compliance with FCC guidelines for human exposure to radiofrequency (RF) electromagnetic fields. The FCC guidelines for human exposure to RF electromagnetic fields incorporate two categories of limits; namely “Controlled” (a.k.a. Occupational) and “Uncontrolled” (a.k.a. General Public). The guidelines offer suggested methods for evaluating fixed RF transmitters to ensure that the controlled and uncontrolled limits deemed safe by the FC for human exposure are not exceeded.

OET Bulletin 65 recommended guidelines are intended to allow an applicant to “make a reasonably quick determination as to whether a proposed facility is in compliance with the limits.” In addition, the guidelines offer alternate supplementary considerations and procedures such as field measurements and more detailed analysis that should be used for multiple emitter situations.

These guidelines define RF as emissions in the frequency range of 300 kHz to 100 GHz. The FCC define Maximum Permissible Exposure (MPE) limits within this frequency range based on limits recommended by the National Council on Radiation Protection and Measurement, the Institute of Electrical and Electronics Engineers (IEEE), and by the American National Standards Institute (ANSI).

The specific MPE limits defined by the FCC are as follows:

Limits for Occupational/Controlled Exposure				
Frequency Range [MHz]	Electric Field Strength (E) [V/m]	Magnetic Field Strength (H) [A/m]	Power Density (S) [mW/Cm ²]	Averaging Time E ^2, H ^2 or S [minutes]
0.3 - 3.0	614	1.63	100*	6
3.0 - 30	1842/f	4.89/f	900/f ² *	6
30 - 300	61.4	0.163	1	6
300 - 1,500	-	-	f/300	6
1,500 - 100,000	-	-	5	6

Limits for General Population/Uncontrolled Exposure				
Frequency Range [MHz]	Electric Field Strength (E) [V/m]	Magnetic Field Strength (H) [A/m]	Power Density (S) [mW/Cm ²]	Averaging Time E ^2, H ^2 or S [minutes]
0.3 - 3.0	614	1.63	100*	30
3.0 - 30	842/f	2.19/f	180/f ² *	30
30 - 300	27.5	0.073	0.2	30
300 - 1,500	-	-	f/1500	30
1,500 - 100,000	-	-	1	30

f = frequency





*Plane-wave equivalent power density


The FCC states that “Occupational/ Controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for Occupational/ Controlled exposure also apply in situations when an individual is transient through a location where Occupational/ Controlled limits apply provided he or she is made aware of the potential for exposure.”

For General Population/ Uncontrolled limits, the FCC states that “General Population/ Uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not fully be aware of the potential for exposure or cannot exercise control over their exposure.”

For purposes of this analysis, all limits are evaluated against the Power Density limits.

Typical guidelines for determining whether Occupational/ Controlled limits can be applied include ensuring the environment (such as a rooftop) as limited/controlled access via locked doors or physical barrier that are preferably controlled by a landlord that is aware of the situation and can inform anyone going through the locked door of the existence of the RF emissions. Such notification/awareness is typically accomplished by means of signage on the door, or other access to the area of concern, as well as signage on or near the antennas. Examples of such signs include the following:

GUIDELINES	NOTICE	CAUTION	WARNING
This sign will inform anyone of the basic precautions to follow when entering an area with transmitting radiofrequency equipment.	This sign indicates that RF emissions may exceed the FCC General Population MPE limit.	This sign indicates that RF emissions may exceed the FCC Occupational MPE limit.	This sign indicates that RF emissions may exceed at least 10x the FCC Occupational MPE limit.
			

NOC INFORMATION	
Information signs are used as a means to provide contact information for any questions or concerns. They will include specific cell site identification information and the Verizon Wireless Network Operations Center phone number.	

Standards for when to use each of the above signs for Occupational situations are as follows:

No sign required: <20% of Occupational MPE
Blue Sign, Notice: 20% to <100% of MPE
Yellow Sign, Caution: 100% to <1000% of MPE
Red Sign, Warning: ≥1000% of MPE

All MPE references are to the FCC Occupational limits.

8 Appendix B: Overview of RoofMaster® Functions and Assumptions

RoofMaster® is a RF Compliance software package designed to enable the analysis, assessment and mitigation of communications sites with respect to human exposure to radiofrequency electromagnetic fields.

RoofMaster® was developed in 2008 by Waterford Consultants to support compliance assessments performed at single and multi-operator wireless locations throughout North America and has been in service since 2008. Real-world experience in evaluating thousands of base station installations is reflected in the RoofMaster® design approach. This document provides a guide for creating simulations of RF hazard conditions through the characterization of antenna systems and site features and through FCC-specified computational analysis.

On any structure, one may encounter antennas installed by wireless service providers, public safety and other FCC-licensed and unlicensed operators. Siting constraints have resulted in diverse and complex environments accessible to people performing a variety of activities around these antennas. RoofMaster® supports the characterization of these locations to convey important information regarding RF sources and accessible areas necessary to evaluate the potential for human exposure to hazardous levels of RF energy.

RoofMaster® supports the depiction of communications sites through the display of construction drawing or aerial photography image files as well as providing line drawing tools. These representations are scalable to enable the modeling of any location.

RoofMaster® utilizes a three-dimensional spatial framework consisting of a 1000 x 1000 grid with unlimited vertical dimensions necessary for the positioning of antennas and modeling of RF conditions at each grid point throughout the space. Predictive analysis is performed on a study plane at a specified elevation. The subsequent sections of this guide provide the steps necessary to create a site representation and conduct these studies.

RoofMaster® employs several power density prediction models based on the computational approaches set forth in the Federal Communications Commission's Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields, OET Bulletin 65. This guideline utilizes several antenna and operational parameters in calculating the power density contributions from each emitter at specified points throughout the study space. RoofMaster® enables antennas to be fully defined in site specific aspects as well as through the use of a library of manufacturer data. The parameters include:

- § Antenna model
- § Radiation patterns
- § Aperture length
- § Gain
- § Beamwidth
- § Antenna radiation center
- § Azimuth
- § Mechanical downtilt
- § Location
- § Frequency
- § Power into antenna

In OET-65, the Cylindrical Model is presented as an approach to determine the spatially averaged power density in the near field directly in front of an antenna. In order to implement this model in all directions, RoofMaster® utilizes the antenna manufacturer horizontal pattern data. Additionally, RoofMaster® incorporates factors that reduce the power density by the inverse square of horizontal and vertical distance beyond the near field region.

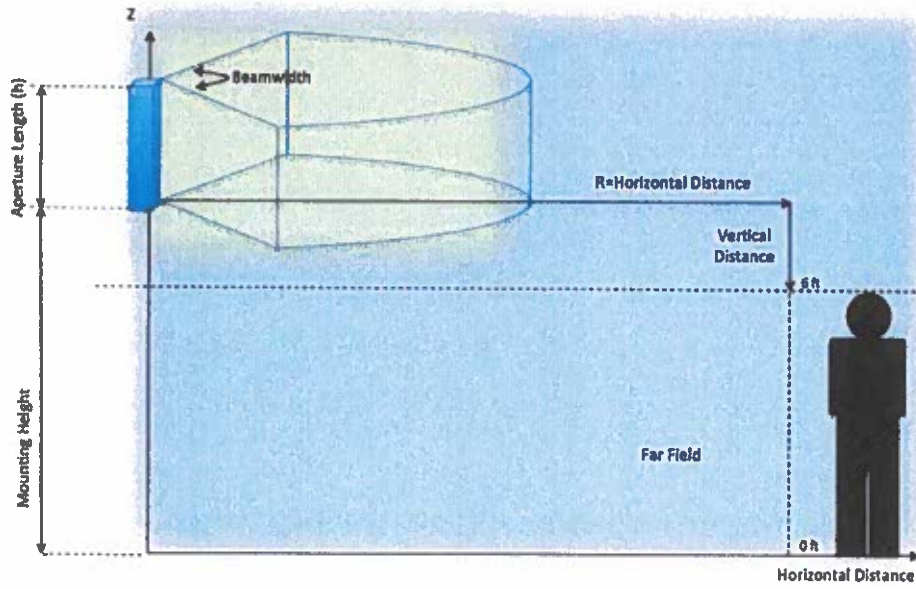
Power density is calculated as follows:

$$S = \left(\left(\frac{360}{\text{Beamwidth}} \right) \frac{P_{in} G_H H_r V_r}{2 \pi R h} \right) \frac{\mu W}{cm^2}$$

- S is the spatially averaged power density value
- R is the horizontal distance meters to the study point
- h is the aperture length in meters
- P_{in} is power into the antenna input port in Watts

RoofMaster® Implementation:

- G_H is gain offset to study point as specified in manufacturer horizontal pattern
- P_{in} is adjusted by the portion of the antenna aperture in the 0-6 ft. vertical study zone
- H_r accounts for 1/R² Far Field roll off which starts at 2*h
- V_r accounts for 1/ (vertical distance)² roll off from antenna bottom to the top of the 0-6 ft. study zone (or antenna top to bottom of 0-6 ft. study zone)



9 References

FCC (1997). “Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields”; Federal Communications Commission; Office of Engineering and Technology, OET Bulletin 65, Edition 97-01, August.

Waterford Consultants, LLC (2008). RoofMaster® User Guide, Waterford Consultants, LLC.

10 Limited Warranty

Pramira, Inc. warrants that this analysis was performed in good faith using the methodologies and assumptions covered in this report and that data used for the analysis and report were obtained by Pramira, Inc. employees or representatives via site surveys or research of Verizon's available information. In the event that specific third-party details were not available, best efforts were made to use assumptions that are based on industry experience of various carriers' standards without violating any confidential information obtained under non-disclosure terms.

Pramira, Inc. also warrants that this analysis was performed in accordance with industry acceptable standards and methods.

There are no other warranties, express or implied, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose, relating to this agreement or to the services rendered by Pramira hereunder. In no event shall Pramira be held liable to Verizon, or to any third party, for any indirect, special, incidental, or consequential damages, including but not limited to loss of profits, loss of data, loss of good will, and increased expenses. In no event shall Pramira be liable to Verizon for damages, whether based in contract, tort, negligence, strict liability, or otherwise, exceeding the amount payable hereunder for the services giving rise to such liability.



Antenna Structure Registration

[FCC](#) > [WTB](#) > [ASR](#) > [Online Systems](#) > ASR Search

[FCC Site Map](#)

ASR Registration Search

Registration Search Results

[ADVANCED SEARCH](#) [HELP](#)

[New Search](#) [Refine Search](#) [Printable Page](#)

Displayed Results

No matches found

PA = Pending Application(s)

To try again, you can perform a [new search](#) or [refine your existing search](#).

Specified Search

Latitude='36-21-9.9 N', Longitude='78-18-58.7 W', Radius=1.6 Kilometers

ASR Help

[ASR License Glossary](#) - [FAQ](#) - [Online Help](#) - [Documentation](#) - [Technical Support](#)

ASR Online Systems

[TOWAIR](#)- [CORES](#) - [ASR Online Filing](#) - [Application Search](#) - [Registration Search](#)

About ASR

[Privacy Statement](#) - [About ASR](#) - [ASR Home](#)

Registration Search

By Registration Number

[FCC](#) | [Wireless](#) | [ULS](#) | [CORES](#)

[Help](#) | [Tech Support](#)

Federal Communications Commission
45 L Street NE
Washington, DC 20554

Phone: 1-877-480-3201
TTY: 1-717-338-2824
[Submit Help Request](#)

EXHIBIT E

Southern Towers BTS

EXHIBIT F

NC-035 DANIEL HARRIS RD

SITE ADDRESS (E-911 TBD)

NORTH COKESBURY ROAD
 HENDERSON, NC 27537
 VANCE COUNTY
 LATITUDE: 36° 21' 09.93" N
 LONGITUDE: 78° 18' 58.67" W
 TAX/PIN #: 0526 02005
 ZONING: AR

VANCE COUNTY SHERIFF DEPARTMENT
 156 CHURCH ST # 4
 HENDERSON, NC 27536
 PHONE: (252) 738-2200
 ATTN: CUSTOMER SERVICE

COKESBURY FIRE DEPARTMENT
 1516 S COKESBURY RD
 HENDERSON, NC 27537
 PHONE: (252) 492-5667
 ATTN: CUSTOMER SERVICE



VICINITY MAP



DRIVING DIRECTIONS

JURISDICTION:
 VANCE COUNTY

STATE:
 NORTH CAROLINA

TOWER TYPE:
 MONOPOLE TOWER

TOWER HEIGHT:
 185' (199' TO HIGHEST APPURTENANCE)

NUMBER OF CARRIERS:
 0 EXISTING, 1 PROPOSED

USE:
 PROPOSED TELECOMMUNICATIONS TOWER
 AND UNMANNED EQUIPMENT

FLOOD INFO
 SITE IS LOCATED WITHIN FEMA FLOOD MAP
 AREA 3720260400J DATED 04/16/2007 WITHIN
 FLOOD ZONE X.

PROJECT SUMMARY

DEVELOPER
 SOUTHERN TOWERS BTS, LP
 250 SIGNAL MOUNTAIN RD, SUITE B
 CHATTANOOGA, TN 37405
 PHONE: (423) 531-6300
 ATTN: DAVE HODDER

PROPERTY OWNER
 JORF LLC
 PO BOX 192
 HENDERSON, NC 27536
 PHONE: (252) 432-0774
 ATTN: STEPHEN LOUW

CONSULTANT
 KIMLEY-HORN AND ASSOCIATES, INC.
 11720 AMBER PARK DRIVE, SUITE 600
 ALPHARETTA, GEORGIA 30008
 PHONE: (770) 845-6100
 ATTN: DAVID FRANKLIN

CONTACTS

SHEET NO.	SHEET TITLE
T1	COVER SHEET
T2	APPENDIX B - BUILDING CODE SUMMARY
-	SITE SURVEY (SHEET 1 OF 3)
-	SITE SURVEY (SHEET 2 OF 3)
-	SITE SURVEY (SHEET 3 OF 3)
N1	GENERAL NOTES
C0	OVERALL PARCEL PLAN
C1	OVERALL SITE PLAN
C1.1	SITE PLAN
C2	EQUIPMENT PAD LAYOUT
C3	EQUIPMENT RACK DETAIL - FRONT
C4	EQUIPMENT RACK DETAIL - REAR
C5	CONCRETE PAD FOUNDATION DETAILS
C6	FENCE, GATE, AND COMPOUND DETAILS
C7	GRAVING AND EROSION CONTROL PLAN
C8	ACCESS ROAD DETAILS
C9	SITE SIGNAGE DETAILS
C10	WAVEGUIDE BRIDGE DETAILS
C11	ANTENNA AND TOWER ELEVATION DETAILS
C12	LANDSCAPING PLAN
C13	ELECTRICAL NOTES
L1	UTILITY SERVICE ROUTING PLAN
E1	METER RACK DETAILS
E2	ELECTRICAL SINGLE LINE DIAGRAM
E3	PANEL SCHEDULE
E4	ELECTRICAL DETAILS
E5	GROUNDING NOTES
E6	GROUNDING PLAN
E7	GROUNDING SINGLE LINE DIAGRAM
E8	GROUNDING DETAILS
E9	GROUNDING DETAILS
E10	GROUNDING DETAILS
E11	GROUNDING DETAILS
E12	GROUNDING DETAILS

SHEET INDEX

VANCE COUNTY PLANNING AND DEVELOPMENT
 156 CHURCH ST # 3
 HENDERSON, NC 27536
 PHONE: (252) 738-2080
 ATTN: CUSTOMER SERVICE

PERMIT INFORMATION

Southern Towers BTS

PROJECT INFORMATION:
 SITE NAME:
 NC-035 DANIEL HARRIS RD
 SITE No.: NC-035
 PROJECT #: 16311960
 NORTH COKESBURY ROAD
 HENDERSON, NC 27537
 VANCE COUNTY

PLANS PREPARED BY:
Kimley-Horn
 11720 AMBER PARK DRIVE, SUITE 600
 ALPHARETTA, GA 30008
 PHONE: (770) 845-6100
 FAX: (770) 845-6101
 NC License P-002

REV	DATE	ISSUED FOR
9		
8		
7		
6		
5		
4		
3		
2	11/03/23	CONSTRUCTION DRG
1	01/12/23	CONSTRUCTION DRG
0	12/09/22	CONSTRUCTION DRG

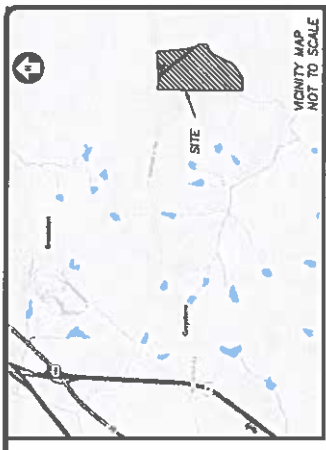
JOBA PROJECT NUMBER:
 01300641

DRAWN BY: _____
 CHECKED BY: _____
 WFB DWP

COVER SHEET

SHEET NUMBER:
T1

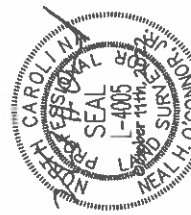
This document, together with the message and e-mail attachments, is an electronic copy of the original document. It is intended only for the specific person named, or an addressee of the named person. If you are not the named person, you should not disseminate, distribute or act on this information. If you have received this document in error, please notify the system manager. This document contains confidential and/or proprietary information of Kimley-Horn and Associates, Inc. All rights reserved.



SURVEYOR'S CERTIFICATION:

I, Neal H. O'Connor, Jr., hereby certify the survey shown hereon to: Celico Partnership db/a Verizon Wireless and Miller & Martin, PLLC. I also do hereby certify that this map was drawn under my supervision from an actual GPS/conventional field survey made under my supervision, and accurately depicts the locations of this site as surveyed in the field and is not intended to represent a Boundary Survey of the Property or Properties shown hereon. This survey is not for Recordation purposes.

Neal H. O'Connor, Jr.
 Neal H. O'Connor, Jr.
 NCPLS # L-4100
 Date
 October 11th, 2022



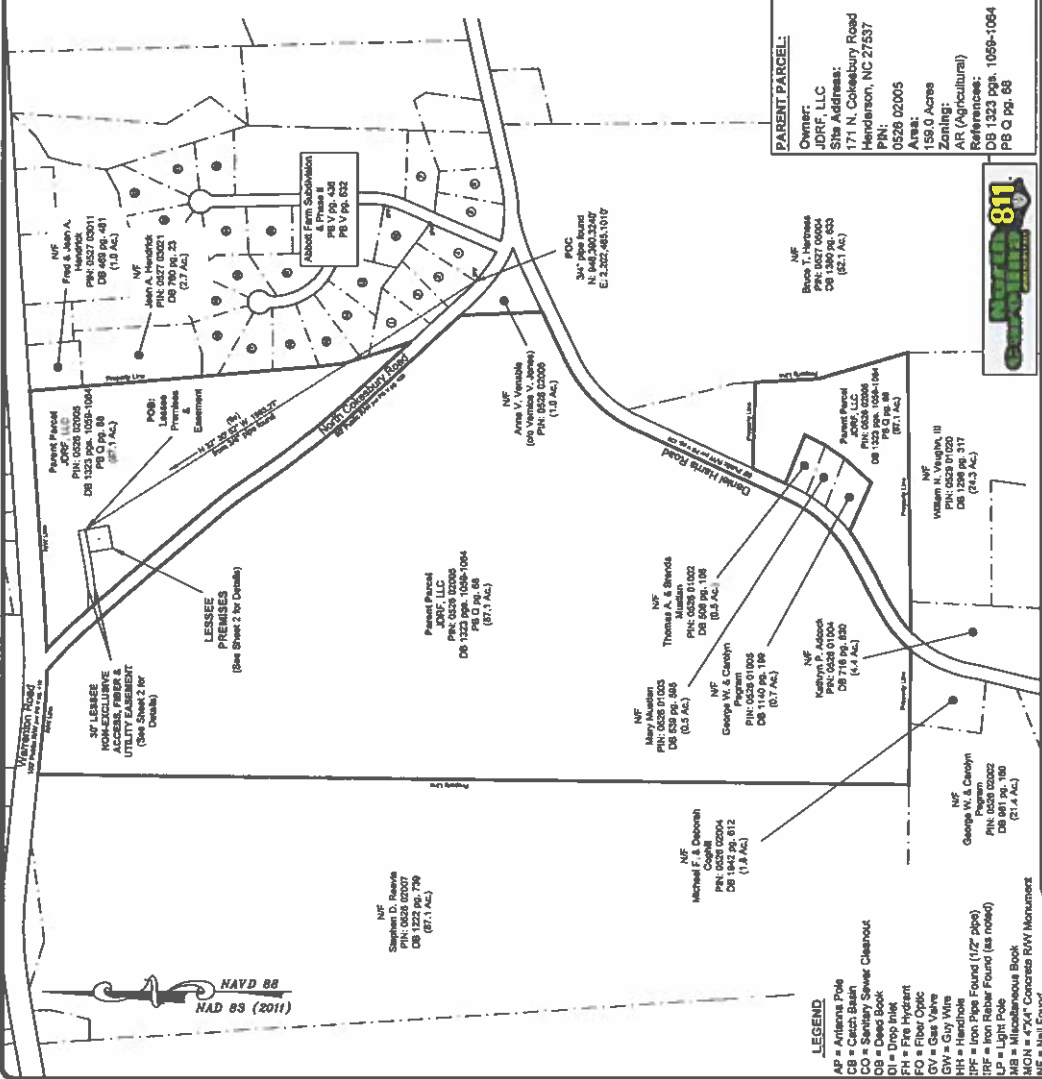
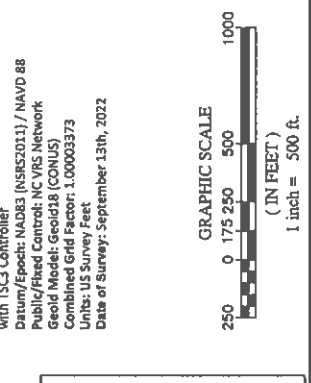
- LINE TYPE LEGEND**
- Lease & 3' Easement Line
 - Parcel Line
 - Fence Line
 - Curb & Gutter
 - Right of Way Line
 - Overhead Electric Power Line
 - River Line (Property)
- HATCH LEGEND**
- Concrete
 - Grass
 - Brick Walkway
 - Wall

GENERAL NOTES

- This Specific Purpose Survey is for the Lease Premises and Easements Only. This Specific Purpose Survey was prepared for the exclusive use of Celico Partnership db/a Verizon Wireless and Miller & Martin, PLLC and exclusively for the transfer of the Lease Premises and the Rights of Easement shown hereon and shall not be used as an exhibit or evidence in the fee simple transfer of the Parent Parcel nor any portion or portions thereof. Boundary information shown hereon has been compiled from tax maps and deed descriptions only. No boundary survey of the Parent Parcel was performed.
- This drawing does not represent a boundary survey.
- The Specific Purpose Survey was prepared with the benefit of a title report which may reveal additional conveyances, easements, or rights-of-way not shown hereon.
- Survey equipment used for angular & linear measurements: Trimble S5 Robotic Total Station.
- The 1' contours and spot elevations shown on the Specific Purpose Survey are adjusted to NAVD 88 Datum (computed using GEOID 18) and have a vertical accuracy of +/- 0.5'.
- Contours outside the immediate site area are approximate.
- Bearings shown on this Specific Purpose Survey are based on Grid North (NAD83).
- Per FEMA Floodplain Maps, this site is located in an area designated as Zone X (Areas of Minimal Flood Hazard), Community Panel #: 2804.
- FIRM Map #: 3720280400 Dated April 16th, 2007.
- No wetland areas have been investigated by this Specific Purpose Survey.
- All zoning information should be verified with Vance County Zoning Officials.
- Any underground utilities shown hereon have been located from above ground field survey information. The Surveyor makes no guarantees that any underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The Surveyor further does not warrant that any underground utilities shown are in the exact location indicated although they are located as accurately as possible from information available. The Surveyor has not physically located any underground utilities.

POSITIONAL ACCURACY:

Class of Survey: Class "A"
 Positional Accuracy: $\leq 1.0''$
 GPS Procedure: NGS Network RTK using a Trimble SPS985 GPS Rover with TSC3 Controller
 Datum/EPOCH: NAD83 (NAD83/2011) / NAVD 88
 Public/Private Control: NC VRS Network
 Geoid Model: Geoid18 (CONUS)
 Combined Grid Factor: 1.00003373
 Units: US Survey Feet
 Date of Survey: September 13th, 2022



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 Kannapolis, NC 28149
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SPECIFIC PURPOSE SURVEY
 TOWER LESSEE
 PREMISES SITE
 SHEET 1 OF 3
 (see final version of drawing)

Daniel Harris Rd
 NORTH COKEBURY ROAD
 HENDERSON, NC 27537
 VANCE COUNTY

DATE OF SURVEY: SEPTEMBER 13TH, 2022

REVISIONS		
No.	DATE	DESCRIPTION

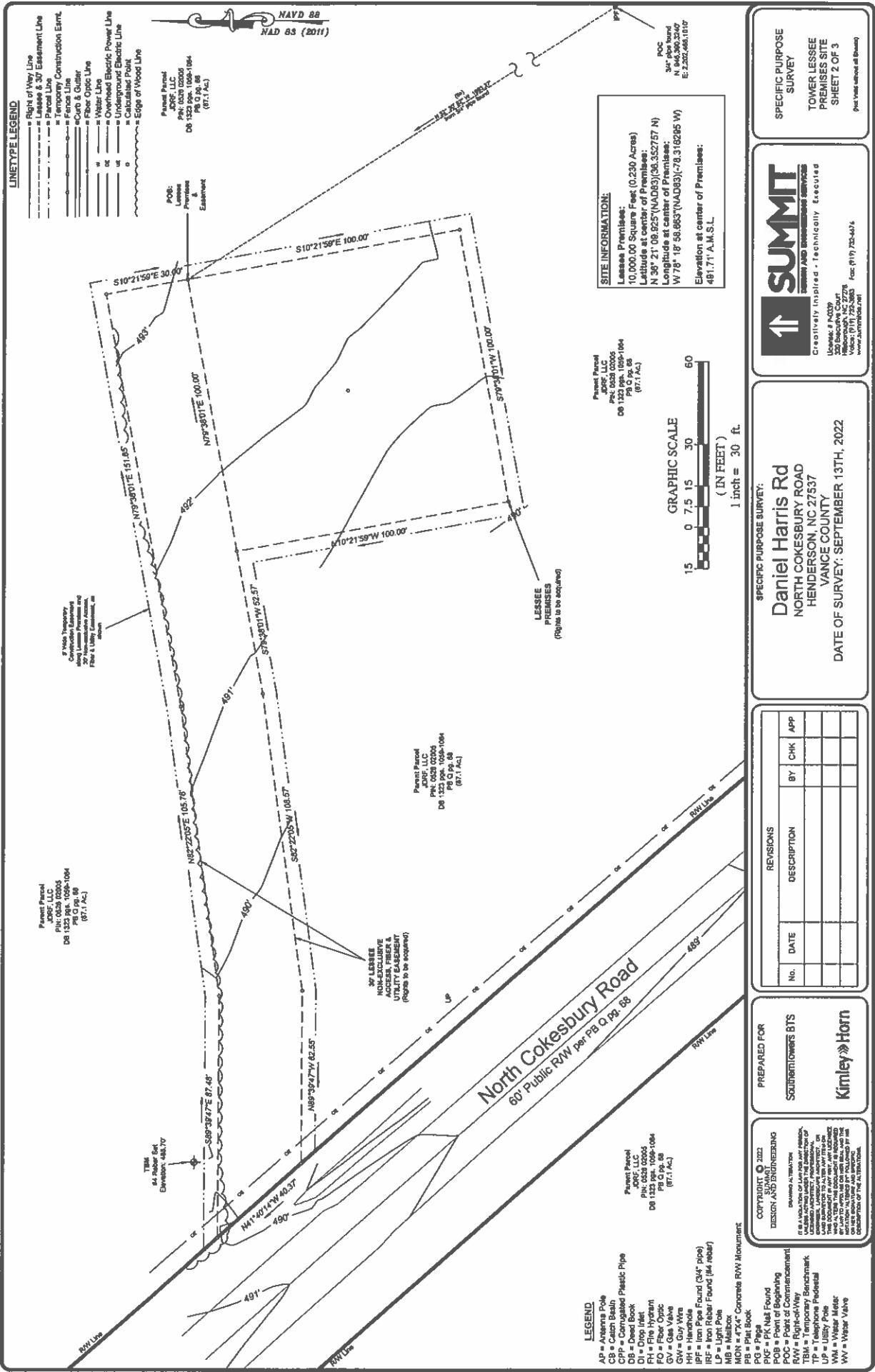
SOUTHEASTERN BITS

PREPARED FOR
Kimley-Horn

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 DESIGN AND ENGINEERING
 IN THE ACTION OF THE SURVEYOR, THE SURVEYOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE SURVEY. THE SURVEYOR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE DATA PROVIDED BY OTHER SOURCES. THE SURVEYOR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE DATA PROVIDED BY OTHER SOURCES. THE SURVEYOR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE DATA PROVIDED BY OTHER SOURCES.

LEGEND

- AP = Arizona Pole
- CB = Catch Basin
- CO = Conduit
- CS = Sanitary Sewer Cleanout
- CG = Dead End
- CH = Top of Hill
- FO = Fiber Optic
- GA = Gas Valve
- GW = Guy Wire
- HH = Handhole
- IPF = Iron Pipe Found (1/2" pipe)
- IPR = Iron Pipe Found (its noted)
- LP = Light Pole
- MB = Miscellaneous Book
- MGN = 4" x 4" Concrete RW Monument
- NF = Nail Found
- PC = Pig Cabinet
- PG = Page
- SM = Mail Stop
- PCE = Point of Easement
- POB = Point of Beginning
- POC = Point of Commencement
- RW = Right-of-Way
- TBM = Temporary Benchmark
- TP = Telephone Post
- UP = Utility Pole
- WW = Water Valve



LINE TYPE LEGEND

- Right of Way Line
- - - - - Leases & 30' Easement Line
- Parcel Line
- - - - - Temporary Construction Easement
- Easement Line
- Fiber Optic Line
- Water Line
- Overhead Electric Power Line
- Underground Electric Line
- Calculated Point
- Edge of Wood Line

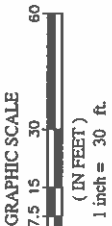


LEGEND

- AP = Asbestos Pipe
- CB = Catch Basin
- CPP = Compulsated Plastic Pipe
- DB = Dead Book
- DI = Drop Inlet
- FI = Fire Hydrant
- FO = Fire Hose
- GW = Guy Wire
- HH = Handhole
- IPF = Iron Pipe Found (3/4" pipe)
- IRF = Iron Rebar Found (1/4 rebar)
- LP = Light Pole
- MB = Manhole
- MH = Manhole
- MC = Manhole
- MP = Manhole
- PP = Pit
- PK = Pit
- PKF = Pit Nail Found
- POB = Point of Beginning
- PCC = Point of Commencement
- RF = Right of Footing
- TRM = Tripod
- TP = Telephone Pedestal
- UP = Utility Pole
- WM = Water Meter
- WW = Water Valve

SITE INFORMATION:
 Lessee's Premises:
 10,000.00 Square Feet (0.230 Acres)
 Latitude at center of Premises:
 N 36° 21' 08.525"N (NAD83) (36.352757 N)
 Longitude at center of Premises:
 W 78° 18' 58.863"W (NAD83) (-78.316295 W)
 Elevation at center of Premises:
 481.71' A.M.S.L.

Parent Parcel
 DRF, LLC
 PL# 0528 02005
 DB 1323 pp. 1059-1064
 PG 5 pg. 95
 (87.1 Ac.)



Parent Parcel
 DRF, LLC
 PL# 0528 02005
 DB 1323 pp. 1059-1064
 PG 5 pg. 95
 (87.1 Ac.)

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 DB 1323 pp. 1059-1064
 PG 5 pg. 95
 (87.1 Ac.)

SPECIFIC PURPOSE SURVEY
 TOWER LESSEE
 PREMISES SITE
 SHEET 2 OF 3
 (see sheet 1 of 3)

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 Hatteras, NC 27537
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 www.summitsurvey.com

SPECIFIC PURPOSE SURVEY:
 Daniel Harris Rd
 NORTH COKESBURY ROAD
 HENDERSON, NC 27537
 VANCE COUNTY
 DATE OF SURVEY: SEPTEMBER 13TH, 2022

No.	DATE	REVISIONS DESCRIPTION	BY	CHK	APP

PREPARED FOR
 SOUTHERN OWNERS BITS
 Kimley Horn

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 SUMMIT
 DESIGN AND ENGINEERING
 IT IS A VIOLATION OF LAW AND ANY OTHER
 LEGISLATION TO REPRODUCE, TRANSMIT, OR
 USE IN ANY MANNER THE CONTENTS OF THIS
 DRAWING OR ANY PART THEREOF WITHOUT
 THE WRITTEN PERMISSION OF THE
 ENGINEER OR ARCHITECT.

LEGEND

TITLE EXCEPTIONS FOR PARENT PARCEL:

This survey was made with the aid of Title work prepared by Fidelity National Title, report date of 09/16/2022, examined from 01/16/1933 to 09/09/2022, being Order Number 37808071 for the Parent Parcel to determine the impacts of existing title exceptions listed below:

1. Taxes
2. [Not a matter of surveying.]
3. Matters as shown and noted on Plat recorded in Plat Book Q, Page 68.
4. [All matters of surveying concerning this item are shown herein.]
5. Easement in favor of Carolina Power & Light Company set forth in instrument recorded on February 3, 1937 in Deed Book 135, Page 215.
6. [This item is applicable to the Parent Parcel only, is blanket in nature with no plottable descriptions.]
7. Right of Way Agreement in favor of State Highway and Public Works Commission set forth in instrument recorded on March 18, 1955 in Deed Book 303, Page 110.
8. [This item is applicable to the Parent Parcel only, refers to Warrenton Road R/W but the deed descriptions are not plottable.]
9. General Permit in favor of The Carolina Telephone and Telegraph Company, Inc., set forth in instrument recorded on February 1, 1956 in Deed Book 310, Page 679.
10. [This item is applicable to the Parent Parcel only, is blanket in nature with no plottable descriptions.]
11. Rural Line Permit in favor of Carolina Telephone and Telegraph Company set forth in instrument recorded on February 25, 1959 in Deed Book 337, Page 601.
12. [This item is applicable to the Parent Parcel only, is blanket in nature with no plottable descriptions.]
13. Easement in favor of Carolina Power & Light Company set forth in instrument recorded on August 13, 1975 in Deed Book 502, Page 347.
14. [This item is applicable to the Parent Parcel only, is blanket in nature with no plottable descriptions.]
15. Easement in favor of Carolina Power & Light Company set forth in instrument recorded on July 9, 1976 in Deed Book 510, Page 169.
16. [This item is applicable to the Parent Parcel only, is blanket in nature with no plottable descriptions.]

PARENT PARCEL:

Property located in the Town of Henderson, Middleburg Township, Vance County, North Carolina.

All that certain piece, parcel or tract of land lying and being situated on the east-side of North Cokesbury Road, 0.6 miles south of the intersection with Warrenton Road, in Vance County, North Carolina, containing one-hundred fifty-nine and 00/100 Acres (159.00 Acres), more or less, and being the same property conveyed to JDRF, LLC by Deed Book 1323 pages 1059-1064 and dated February 24th, 2017, and recorded in the Vance County Register of Deeds.

TAX PARCEL ID NUMBER: 0525 02005

LESSEE PREMISES:

All that tract or parcel of land lying and being in the Town of Henderson, Middleburg Township, Vance County, North Carolina, and being the same property conveyed to JDRF, LLC by Deed Book 1323 pages 1059-1064 and dated February 24th, 2017, and recorded in the Vance County Register of Deeds and being more particularly described as follows:

To find the Point of Beginning, Commencing at a 3/4" pipe found on the Right of Way of North Cokesbury Road (Having a 60' Public Right of Way) at the corner of Lots 3 & 4, Abbott Farm, Subdivision as shown on Plat Book "Y" page 436, having a North Carolina Grid North (NAD83) value of N 946,390.3240' and E 2,202,465.1010' and being labeled POINT OF COMMENCEMENT; thence with a tie-line N 32° 30' 52" W 1993.27 feet to a point being the Point of Beginning for the 30-foot wide Lessee Non-Exclusive Access, Fiber & Utility Easement and the TRUE POINT OF BEGINNING for the Lessee Premises; thence S 10° 21' 59" E 100.00 feet to a point; thence S 79° 38' 01" W 100.00 feet to a point; thence N 10° 21' 59" W 100.00 feet to a point; thence N 79° 38' 01" E 100.00 feet to the POINT OF BEGINNING.

Bearings based on North Carolina Grid North, NAD83.

Said described parcel containing 0.230 Acres (10,000.00 square feet), more or less and subject to any and all easements, reservations, restrictions and conveyances of record, being shown hereon for Celco Partnership d/b/a Verizon Wireless and Miller & Martin, PLLC.

30' LESSEE NON-EXCLUSIVE ACCESS, FIBER & UTILITY EASEMENT

Together with a 30-foot wide Lessee Non-Exclusive Access, Fiber & Utility Easement lying and being in the Town of Henderson, Middleburg Township, Vance County, North Carolina, and being the same property conveyed to JDRF, LLC by Deed Book 1323 pages 1059-1064 and dated February 24th, 2017, and recorded in the Vance County Register of Deeds and being more particularly described as follows:

To find the Point of Beginning, Commencing at a 3/4" pipe found on the Right of Way of North Cokesbury Road (Having a 60' Public Right of Way) at the corner of Lots 3 & 4, Abbott Farm Subdivision as shown on Plat Book "Y" page 436, having a North Carolina Grid North (NAD83) value of N 946,390.3240' and E 2,202,465.1010' and being labeled POINT OF COMMENCEMENT; thence with a tie-line N 32° 30' 52" W 1993.27 feet to a point being the Point of Beginning for the Lessee Premises and the TRUE POINT OF BEGINNING for the 30-foot wide Lessee Non-Exclusive Access, Fiber & Utility Easement; thence with Lessee Premises S 79° 38' 01" W 100.00 feet to a point; thence leaving Lessee Premises S 79° 38' 01" W 52.57 feet to a point; thence S 82° 22' 05" W 108.57 feet to a point; thence N 89° 39' 47" W 62.55 feet to a point on said Right of Way; thence with said Right of Way N 41° 40' 14" W 40.37 feet to a point; thence leaving said Right of Way S 89° 39' 47" E 87.48 feet to a point; thence N 82° 22' 05" E 105.76 feet to a point; thence N 79° 38' 01" E 151.85 feet to a point; thence S 10° 21' 59" E 30.00 feet to the POINT OF BEGINNING.

Bearings based on North Carolina Grid North, NAD83.

Said described parcel containing 0.230 Acres (10,031.72 square feet), more or less and subject to any and all easements, reservations, restrictions and conveyances of record, being shown hereon for Celco Partnership d/b/a Verizon Wireless and Miller & Martin, PLLC.

LESSEE PREMISES AND 30' LESSEE NON-EXCLUSIVE ACCESS, FIBER & UTILITY EASEMENTS & FOOT WIDE TEMPORARY CONSTRUCTION EASEMENT

Also conveyed is a Lessee 5 foot wide Temporary Construction Easement along the above described Lessee Premises and the 30-foot wide Lessee Non-Exclusive Access, Fiber & Utility Easement being shown hereon for Celco Partnership d/b/a Verizon Wireless and Miller & Martin, PLLC.

REVISIONS		BY	CHK	APP
No.	DATE			

PREPARED FOR
SOUTHWESTERS BITS
Kimley-Horn

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NO WARRANTY IS MADE BY THE ENGINEER OR ARCHITECT FOR THE INFORMATION PROVIDED BY THE CLIENT AND USER OF THIS DOCUMENT.

SPECIFIC PURPOSE SURVEY:
Daniel Harris Rd
NORTH COKEBURY ROAD
HENDERSON, NC 27537
VANCE COUNTY
DATE OF SURVEY: SEPTEMBER 13TH, 2022

SPECIFIC PURPOSE SURVEY
TOWER LESSEE PREMISES SITE SHEET 3 OF 3
ONE VIEW without all sheets

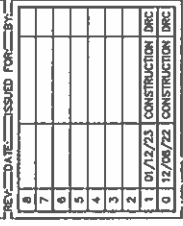


Southern Towers BTS

PROJECT INFORMATION:
 SITE NAME:
 DANIEL HARRIS RD
 SITE No.: Z14104
 PROJECT #: 16311980
 NORTH CONCERNARY ROAD
 HUNTERDON TOWNSHIP
 WARREN COUNTY

PLANS PREPARED BY:
Kimley-Horn
 11750 ALBERTA DRIVE, SUITE 600
 ALPHARETTA, GA 30201
 PHONE: 770-111-4200
 FAX: 770-111-4202
 NC LICENSE #P-0122

NO.	DATE	ISSUED FOR
1	01/12/23	CONSTRUCTION DEC
2	02/05/23	CONSTRUCTION DEC



DATA PROJECT NUMBER:
 013209444

DRAWN BY: WTB
CHECKED BY: DMF

SHEET TITLE:

GENERAL NOTES

SHEET NUMBER:
 N1

1.00 GENERAL NOTES

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

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

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

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

1.05 WAVEGUIDE BRIDGE AND EQUIPMENT CABINETS ARE SHOWN FOR REFERENCE ONLY; REFER TO SEPARATE DRAWINGS FOR SPECIFIC INFORMATION.

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

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

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

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

1.10 THE CONTRACTOR IS HEREBY NOTIFIED THAT PRIOR TO COMMENCING CONSTRUCTION, HE IS RESPONSIBLE FOR CONTACTING VERIZON TO OBTAIN ALL NECESSARY PERMITS AND TO REQUEST A UTILITY CONFERENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR 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.

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

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

1.13 CONTRACTOR TO PROVIDE ANY NECESSARY SIGNAGE PER VERIZON PROJECT MANAGER'S INSTRUCTIONS. SEE DETAIL ON SHEET C11.

2.00 EQUIPMENT FOUNDATION NOTES

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

2.02 EXCAVATE A MINIMUM 18" BELOW PROPOSED EQUIPMENT FOUNDATIONS OF EXPANSIVE, ORGANIC, UNCONSOLIDATED OR OTHERWISE UNACCEPTABLE MATERIAL AND REPLACE WITH WELL-COMPACTED MATERIAL, ACCEPTABLE TO VERIZON.

2.03 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. COORDINATE ALL RELOCATIONS WITH THE PROPERTY OWNER.

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

2.05 CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 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.

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

2.07 FIBERS FOR CONCRETE SHALL BE FIBERMESH 650, 100 PERCENT VIRGIN POLYPROPYLENE FIBRILLATED FIBERS, #3 PATENTED TECHNOLOGY PATENTED TECHNOLOGY, CONTAINING NO REPROCESSED OLEFIN MATERIALS. THE FIBERS SHALL COMPLY WITH THE ASTM C1117 AND MANUFACTURED SPECIFICALLY FOR THE SECONDARY REINFORCEMENT OF CONCRETE.

2.08 THE FIBERS SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED MANUFACTURING FACILITY. UNLESS OTHERWISE STATED, FIBERMESH 650 MACRO-SYNTHETIC FIBERS SHALL BE ADDED TO THE CONCRETE AT THE BATCHING PLANT AT THE RECOMMENDED APPLICATION RATE OF 3 LBS/10' AND MIXED FOR A SUFFICIENT TIME (MINIMUM 5 MINUTES AT FULL MIXING SPEED) TO ENSURE EVEN DISTRIBUTION OF THE FIBERS THROUGHOUT THE CONCRETE. FIBROS CONCRETE REINFORCEMENT SHALL BE MANUFACTURED BY FIBERMESH, 4019 INDUSTRY DRIVE, CHATTANOOGA, TN 37416 USA, TEL: 800 621-1274, WEBSITE: WWW.FIBERMESH.COM

2.09 AT THE REQUEST OF THE VERIZON WIRELESS PROJECT MANAGER, TEST CYLINDERS SHALL BE MOULDED AND LABORATORY CURED IN ACCORDANCE WITH ASTM C31. THREE CYLINDERS SHALL BE TAKEN FOR EACH DAY'S CONCRETE POUR. ALL TEST CYLINDERS SHALL BE TESTED IN ACCORDANCE WITH THE LATEST REVISION TO ASTM C63.

2.10 CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 1/2" x 45° CHAMFER, UNLESS OTHERWISE NOTED.

2.11 CONCRETE FORMWORK IS TO BE STRIPPED WITHIN 48 HOURS. VIBRATION OF THE FORMWORK SHALL BE LIMITED TO A MINIMUM OF 10 HOURS. VIBRATION OF THE 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 UNLESS OTHERWISE DIRECTED BY VERIZON WIRELESS' PROJECT MANAGER.

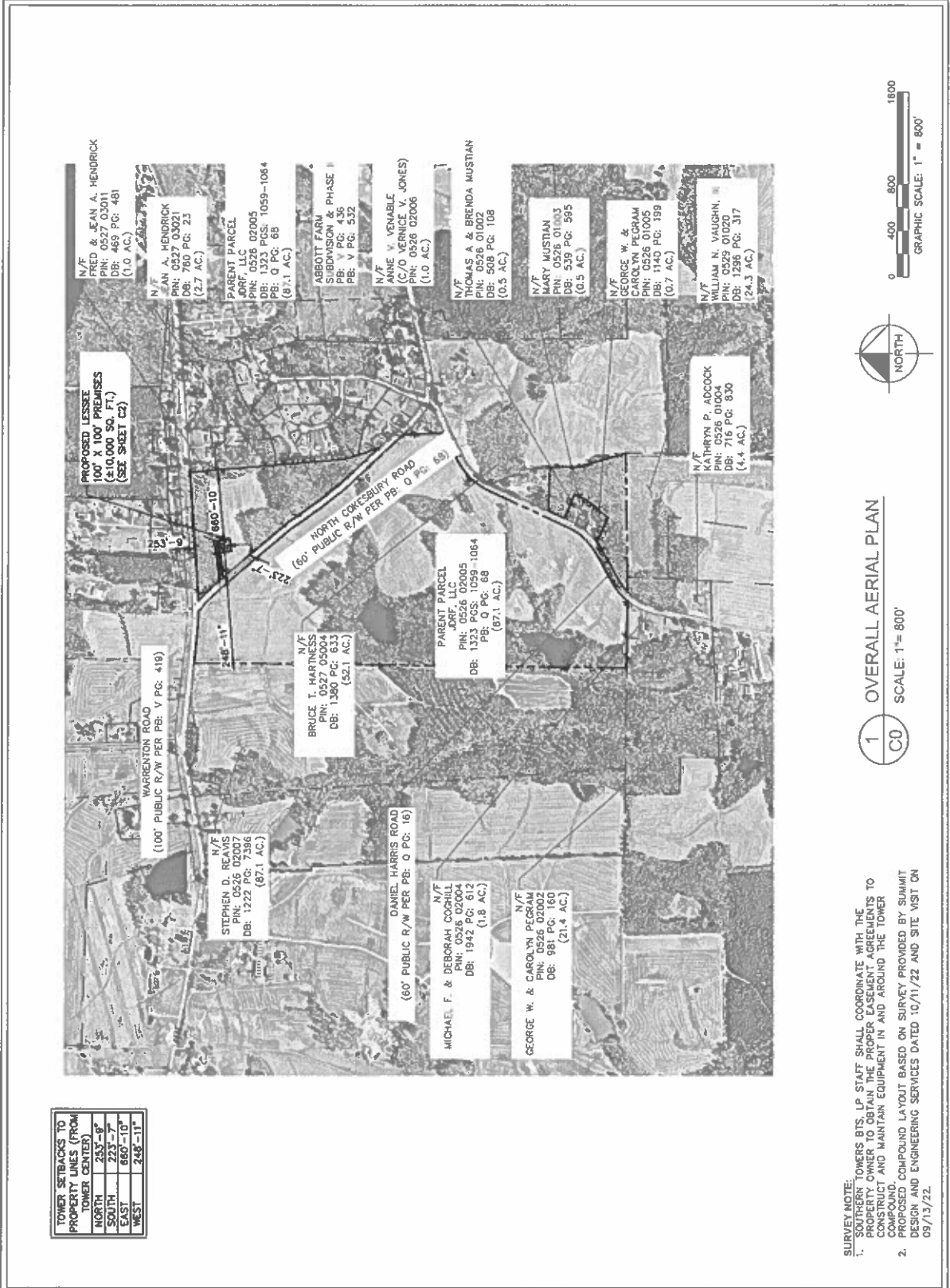
2.12 TOPS OF CONCRETE FOUNDATION MUST BE WITHIN 0.02' OF ELEVATION REQUIRED.

2.13 TOP OF FOUNDATION FINISH TO BE LEVEL ±1/8" IN 10'.

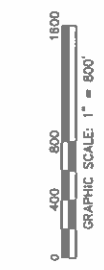
2.14 TOP OF FOUNDATION TO HAVE MEDIUM BROOM FINISH.

2.15 CONTRACTOR SHALL REFER TO DRAWINGS OF OTHER TRADES AND VENDOR DRAWINGS FOR EMBEDDED ITEMS AND RECESSES NOT SHOWN ON THE STRUCTURAL DRAWINGS. CONTRACTOR SHALL VERIFY PLACEMENT OF EQUIPMENT AND LOCATION OF CONDUIT FOR MANUFACTURER'S AND VENDORS' SPECIFICATIONS. ALL RECESSES SHALL BE REPAIRED BY THE CONTRACTOR TO PROVIDE ALL OPENINGS AND SLEEVES FOR PROPER DISTRIBUTION OF ALL UTILITIES.

SouthernTowers BTS	PROJECT INFORMATION: SITE NAME: NC-035 DANIEL HARRIS RD SITE No.: NC-035 PROJECT #: 18311980 NORTH COVENSURRY ROAD WANCE COUNTY	Kimley»Horn 11725 HANCOCK DRIVE, SUITE 400 ANNE ARBOR, MI 48106 PHONE: 734-964-6200 FAX: 734-964-6202 NC License # 0002		REV: _____ DATE: _____ ISSUED FOR: _____ BY: _____	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td style="width:5%;">B</td><td style="width:5%;"> </td></tr> <tr><td>7</td><td> </td></tr> <tr><td>8</td><td> </td></tr> <tr><td>9</td><td> </td></tr> <tr><td>4</td><td> </td></tr> <tr><td>3</td><td> </td></tr> <tr><td>2</td><td> </td></tr> <tr><td>1</td><td> </td></tr> <tr><td>0</td><td>11/03/23 CONSTRUCTION DRG</td></tr> </table>	B		7		8		9		4		3		2		1		0	11/03/23 CONSTRUCTION DRG		DVA PROJECT NUMBER: 013509441 DRAWN BY: _____ CHECKED BY: _____ WTS: _____ DWF: _____ SHEET TITLE: _____	OVERALL AERIAL PLAN SHEET NUMBER: C0
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TOWER SETBACKS TO PROPERTY LINES (FROM TOWER CENTER)	
NORTH	253'-8"
SOUTH	223'-7"
EAST	660'-10"
WEST	248'-11"



1 OVERALL AERIAL PLAN
C0 SCALE: 1"=800'

- SURVEY NOTE:**
- SOUTHERN TOWERS BTS, LP STAFF 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 SUMMIT DESIGN AND ENGINEERING SERVICES DATED 10/11/22 AND SITE VISIT 05/13/22.

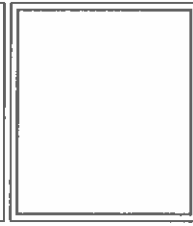
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Southernlowers BTS

PROJECT INFORMATION:
 SITE NAME:
 DANIEL HARRIS RD
 SITE No.: 721404
 PROJECT #: 16311980
 NORTH COESBURY ROAD
 HENRIETTA, WANCE COUNTY, NC

PLANS PREPARED BY:
Kimley»Horn
 11720 JAMES EARL OWE, SUITE 600
 10000 WOODBURN ROAD
 PHOENIX, AZ 85028
 PHONE: 602-998-8888
 FAX: 602-998-8889
 NC License F-10102

REV#	DATE	ISSUED FOR
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0	12/09/22	CONSTRUCTION DRC



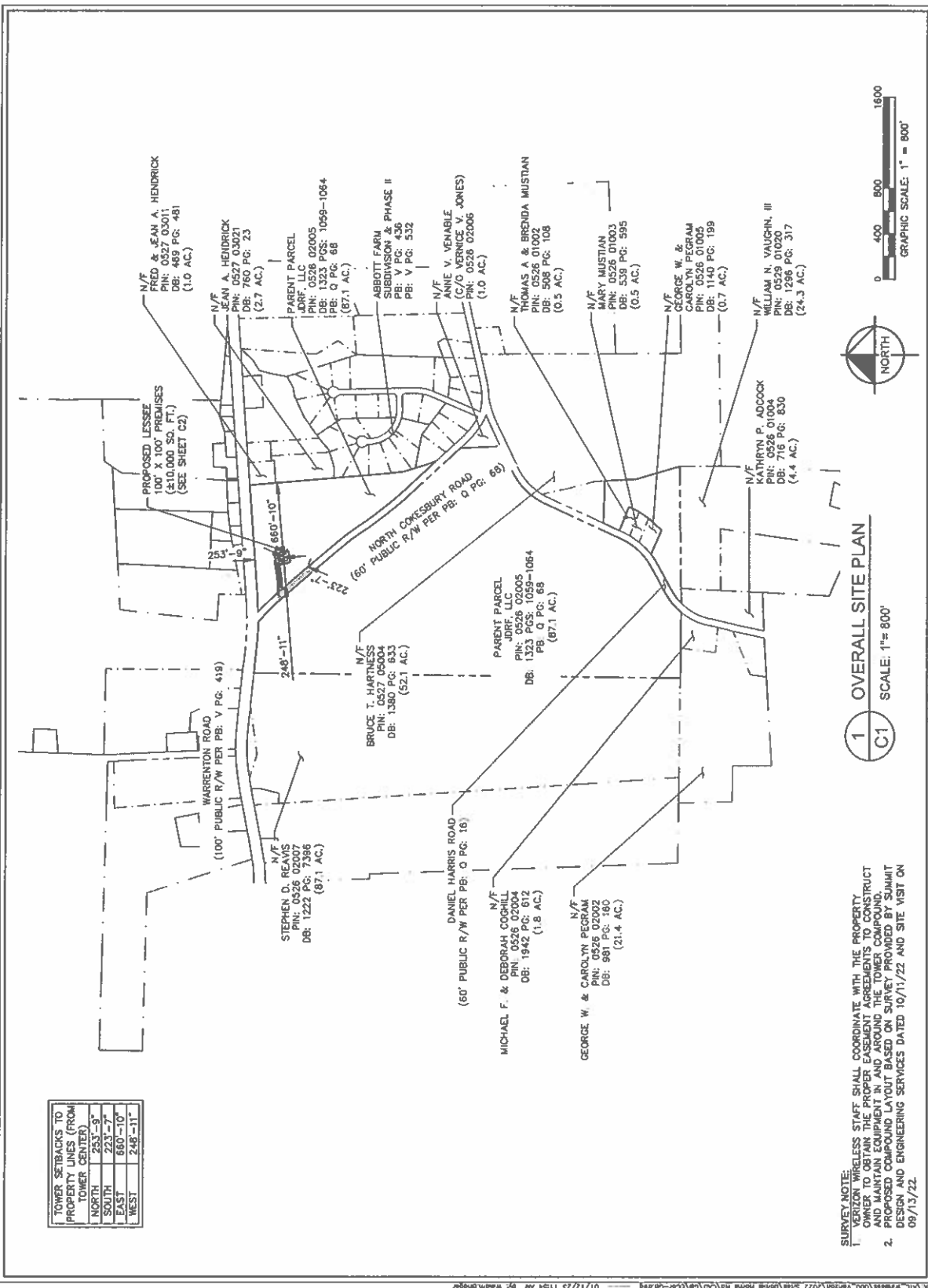
FOHA PROJECT NUMBER:
 013509441

DRAWN BY: DMP
 CHECKED BY: DMP

SHEET TITLE:
OVERALL PARCEL PLAN

SHEET NUMBER:
C1

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SURVEY NOTE:
 1. VERIZON WIRELESS STAFF SHALL COORDINATE WITH THE PROPERTY OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN AND AROUND THE TOWER COMPOUND.
 2. PROPOSED COMPOUND LAYOUT BASED ON SURVEY PROVIDED BY SUMMIT DESIGN AND ENGINEERING SERVICES DATED 10/11/22 AND SITE VISIT ON 09/13/22.

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Southern Towers BTS

PROJECT INFORMATION:
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 DANIEL HARRIS RD
 SITE No.: 721404
 PROJECT #: 19311990
 NORTH CONESBURY ROAD
 WARREN COUNTY, NC 28787

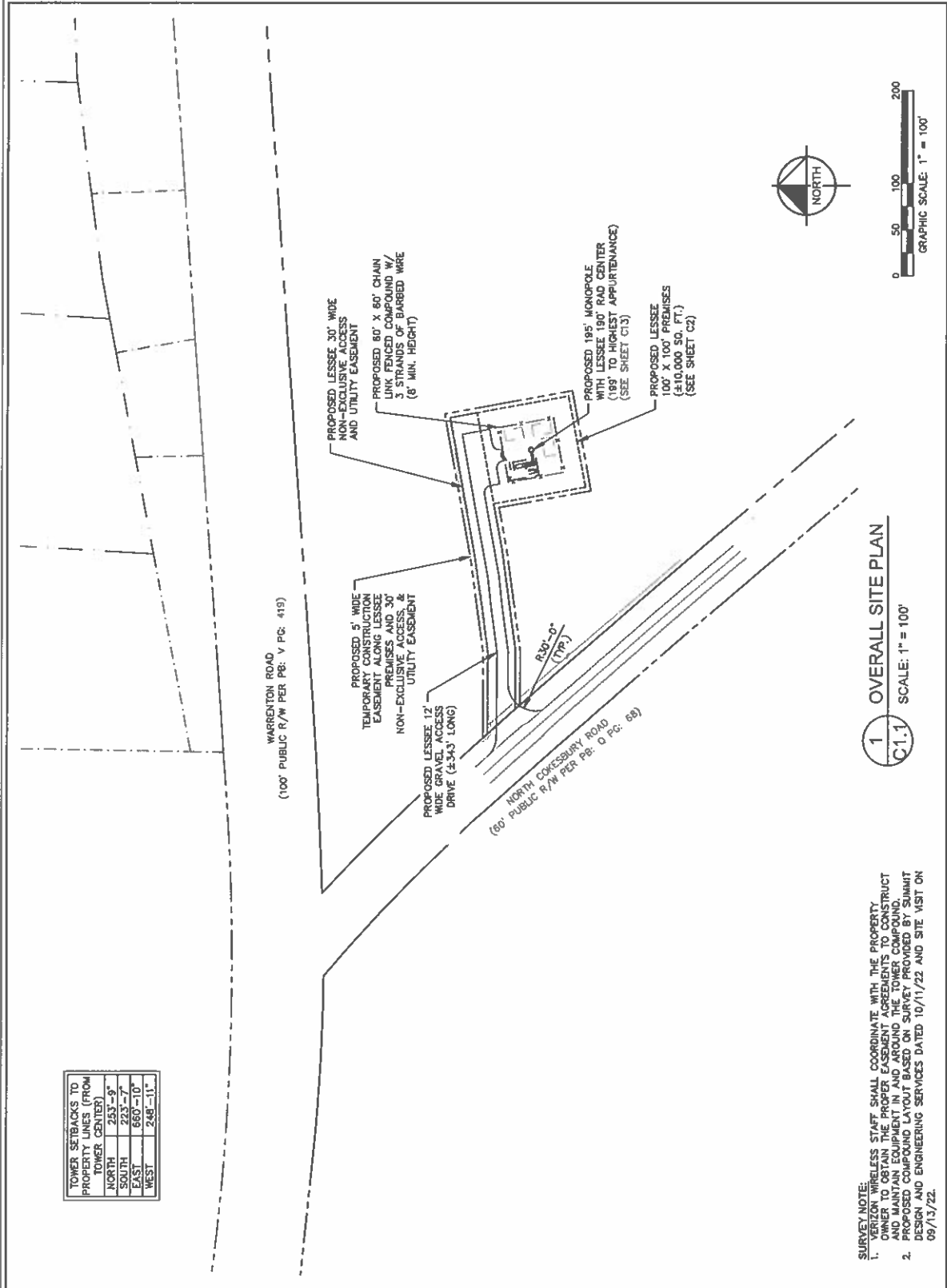
PLANS PREPARED BY:
Kimley»Horn
 11750 ALBERT PARK DR., SUITE 100
 FARMERS BRANCH, NC 27504
 PHONE: 770-310-2200
 FAX: 770-310-2201
 NC License # 0102

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1	01/12/23	CONSTRUCTION DEC.
0	12/08/22	CONSTRUCTION DEC.

2024 PROJECT NUMBER:
 01309441
 DRAWN BY: DMF
 CHECKED BY:
 SHEET TITLE:
 OVERALL SITE PLAN



SHEET NUMBER:
 C1.1



TOWER SETBACKS TO PROPERTY LINES (FROM TOWER CENTER)	
NORTH	253'-9"
SOUTH	223'-7"
EAST	650'-10"
WEST	248'-11"

SURVEY NOTE:
 1. VERIZON WIRELESS STAFF SHALL COORDINATE WITH THE PROPERTY OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN AND AROUND THE TOWER COMPOUND.
 2. PROPOSED COMPOUND LAYOUT BASED ON SURVEY PROVIDED BY SUMMIT DESIGN AND ENGINEERING SERVICES DATED 10/11/22 AND SITE VISIT ON 09/13/22.

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Southern Towers BTS

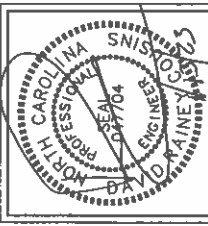
PROJECT INFORMATION:
 SITE NAME:
 DANIEL HARRIS RD
 SITE No.: 721404
 PROJECT #: 18311980
 NORTH CONSERVATORY ROAD
 HUNTERDON TOWNSHIP
 WANCE COUNTY NJ

PLANS PREPARED BY:

 11720 AMER PARK DR., SUITE 600
 WASHINGTON, NJ 07882
 PHONE: 770-316-1200
 FAX: 770-316-1201
 WWW.KHENGINEERS.COM
 NJ License P-0102

REV.	DATE	ISSUED FOR:
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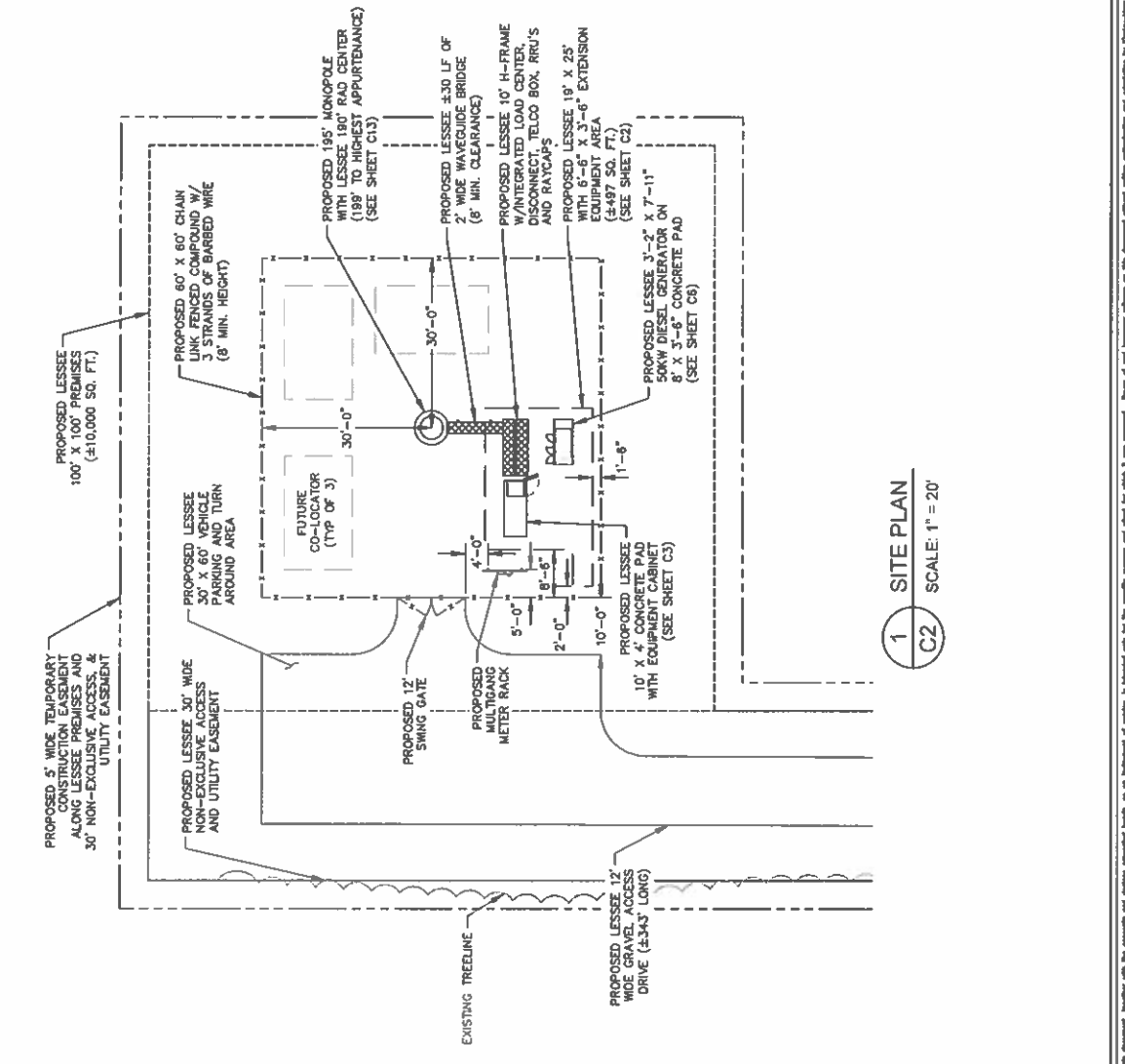
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 CHECKED BY:
 DMP
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SITE PLAN



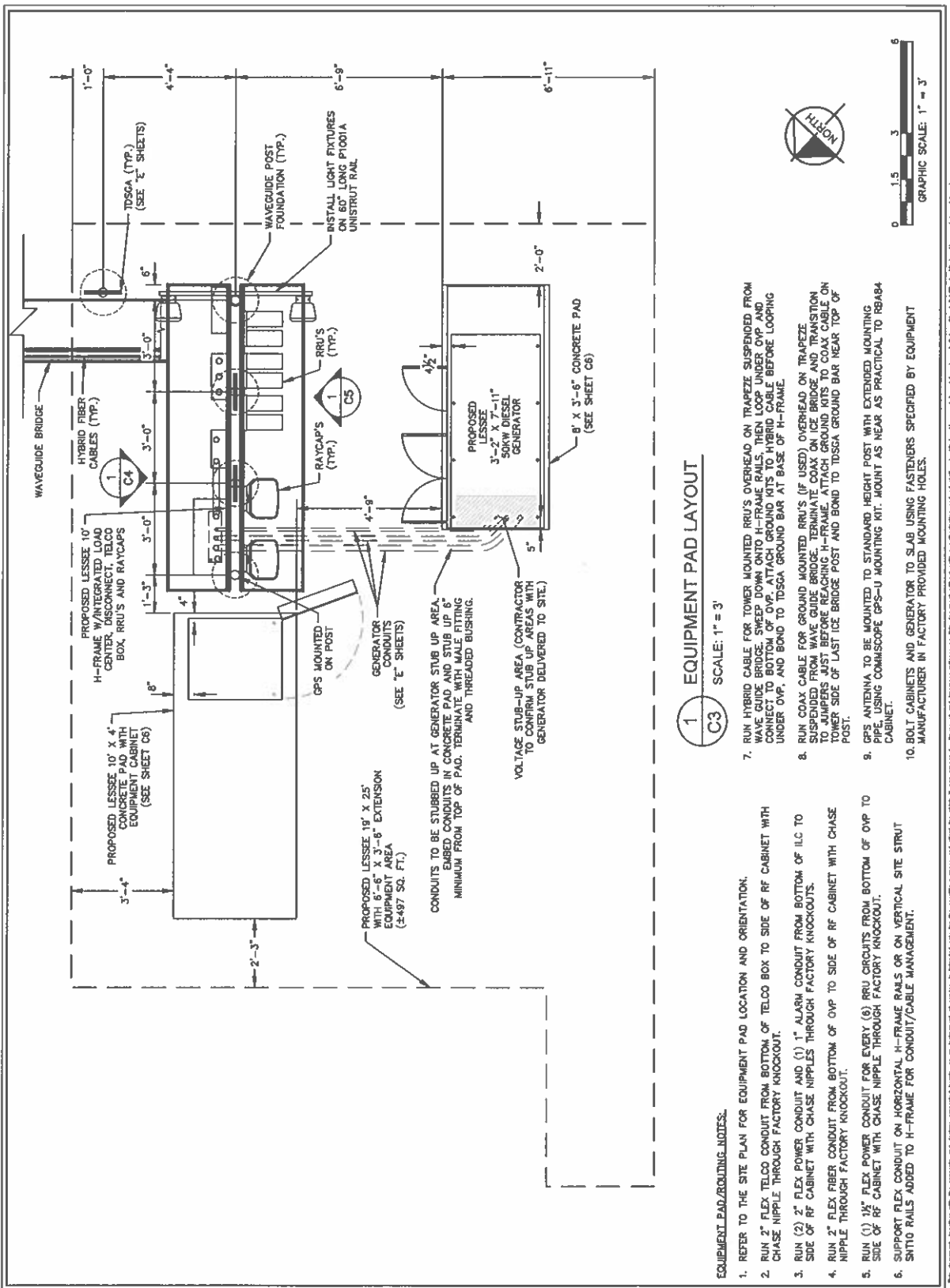
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 013502441
 DRAWN BY:
 WTB
 CHECKED BY:
 DMP
 SHEET TITLE:
SITE PLAN

SHEET NUMBER:
C2

- SITE NOTES:**
1. VERIZON WIRELESS STAFF SHALL COORDINATE WITH THE PROPERTY OWNER AND/OR TOWER OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN AND AROUND THE TOWER COMPOUND.
 2. PROPOSED COMPOUND LAYOUT BASED ON SURVEY PROVIDED BY CONSULTING DESIGN AND ENGINEERING SERVICES DATED 10/11/22 AND SITE VISIT ON 09/13/22.
 3. CONTRACTOR TO CONFIRM WITH VERIZON CONSTRUCTION MANAGER THAT THE SHELTER/EQUIPMENT SHOWN HAS BEEN ORDERED/SCHEDULED FOR DELIVERY TO THIS SITE.
 4. THE BASIS OF EQUIPMENT DESIGN INCLUDES ONE (1) RF CABINET, ONE (1) FUTURE BATTERY CABINET, AND ONE (1) FUTURE EXPANSION CABINET.
 5. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND MODIFYING SCOPE OF WORK TO ACCOMMODATE ANY CHANGES IN THE EXACT EQUIPMENT PROCURED BY VERIZON WIRELESS. COORDINATE ANY CHANGES WITH VERIZON WIRELESS CONSTRUCTION MANAGER.
 6. ROUTE COAX/FIBER UP TOWER PER STRUCTURAL ANALYSIS BY TOWER OWNER.
 7. TOWER DIMENSIONS SHOWN ON THIS PLAN ARE FOR TOWER CENTER LOCATION. CONTRACTOR TO OBTAIN COPY OF TOWER ERECTION DRAWINGS FROM VERIZON CONSTRUCTION MANAGER PRIOR TO DRILLING TOWER FOUNDATIONS. CASSIONS AND TOWER SHOWN ON THIS PLAN ARE ILLUSTRATIVE. SEE DESIGN DRAWING BY OTHERS. DO NOT SCALE.
 8. INSTALL 3/4" O.D. GALVANIZED STEEL POST FOR TOSCA-PA14 GROUND BAR. POST TO EXTEND 7/8" ABOVE GRADE AND SHALL BE EMBEDDED IN A 12" CONCRETE FOOTING A MINIMUM OF 36". FOOTING SHALL EXTEND A MINIMUM OF 42" BELOW GRADE.



Southern Towers BTS	PROJECT INFORMATION: SITE NAME: DANIEL HARRIS RD SITE No.: 721404 PROJECT #: 18311890 NORTH CONCERN RD NEWCASTLE, NC 28557 WANCE COUNTY	Kimley»Horn 11720 JAMES WALKER DR., SUITE 600 RALEIGH, NC 27617 PHONE: 770-316-4300 FAX: 770-316-4305 W1 License F-2102	REVISIONS: ISSUED FOR: BY:		DWA PROJECT NUMBER: 013509441 DRAWN BY: _____ CHECKED BY: _____ WTS: _____ DWF: _____ SHEET TITLE: EQUIPMENT PAD LAYOUT SHEET NUMBER: C3
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EQUIPMENT PAD/INSTALLATION NOTES:

1. REFER TO THE SITE PLAN FOR EQUIPMENT PAD LOCATION AND ORIENTATION.
2. RUN 2" FLEX TELCO CONDUIT FROM BOTTOM OF TELCO BOX TO SIDE OF RF CABINET WITH CHASE NIPPLE THROUGH FACTORY KNOCKOUT.
3. RUN (2) 2" FLEX POWER CONDUIT AND (1) 1" ALARM CONDUIT FROM BOTTOM OF ILC TO SIDE OF RF CABINET WITH CHASE NIPPLES THROUGH FACTORY KNOCKOUT.
4. RUN 2" FLEX FIBER CONDUIT FROM BOTTOM OF OVP TO SIDE OF RF CABINET WITH CHASE NIPPLE THROUGH FACTORY KNOCKOUT.
5. RUN (1) 1/2" FLEX POWER CONDUIT FOR EVERY (6) RRU CIRCUITS FROM BOTTOM OF OVP TO SIDE OF RF CABINET WITH CHASE NIPPLE THROUGH FACTORY KNOCKOUT.
6. SUPPORT FLEX CONDUIT ON HORIZONTAL H-FRAME RAILS OR ON VERTICAL SITE STRUT.
7. RUN HYBRID CABLE FOR TOWER MOUNTED RRU'S OVERHEAD ON TRAPEZOID SUSPENDED FROM WAVE GUIDE BRIDGE. SWEEP DOWN ONTO H-FRAME RAILS, THEN LOOP UNDER OVP AND CONNECT TO BOTTOM OF OVP. ATTACH GROUND KITS TO HYBRID CABLE BEFORE LOOPING UNDER OVP, AND BOND TO TDSGA GROUND BAR AT BASE OF H-FRAME.
8. RUN COAX CABLE FOR GROUND MOUNTED RRU'S (IF USED) OVERHEAD ON TRAPEZOID SUSPENDED FROM WAVE GUIDE BRIDGE. TERMINATE COAX ON ICE BRIDGE AND TRANSITION TO JUMPERS JUST BEFORE REACHING H-FRAME. ATTACH GROUND KITS TO COAX CABLE ON TOWER SIDE OF LAST ICE BRIDGE POST AND BOND TO TDSGA GROUND BAR NEAR TOP OF POST.
9. GPS ANTENNA TO BE MOUNTED TO STANDARD HEIGHT POST WITH EXTENDED MOUNTING PIPE. USING COMPASS ROPE GPS-U MOUNTING KIT. MOUNT AS NEAR AS PRACTICAL TO RB984A CABINET.
10. BOLT CABINETS AND GENERATOR TO SLAB USING FASTENERS SPECIFIED BY EQUIPMENT MANUFACTURER IN FACTORY PROVIDED MOUNTING HOLES.



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Southern Towers BTS

PROJECT INFORMATION:

SITE NAME:
DANIEL HARRIS RD
SITE No.: 721404
PROJECT #: 19311990
NORTH CONESBURT ROAD
NORTH CONESBURT, VA 22827
VANUE COUNTY

PLANS PREPARED BY:

Kimley-Horn

11720 ALABAMA AVE., SUITE 600
ANNAPOLIS, MD 21403
PHONE: 770-818-1300
FAX: 770-818-1302
NC License # 1-0102

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0	12/08/22	CONSTRUCTION	ERC

PROFESSIONAL ENGINEER
STATE OF NORTH CAROLINA
EXPIRES 12/31/2024
NO. 704
KIMLEY-HORN & ASSOCIATES, INC.

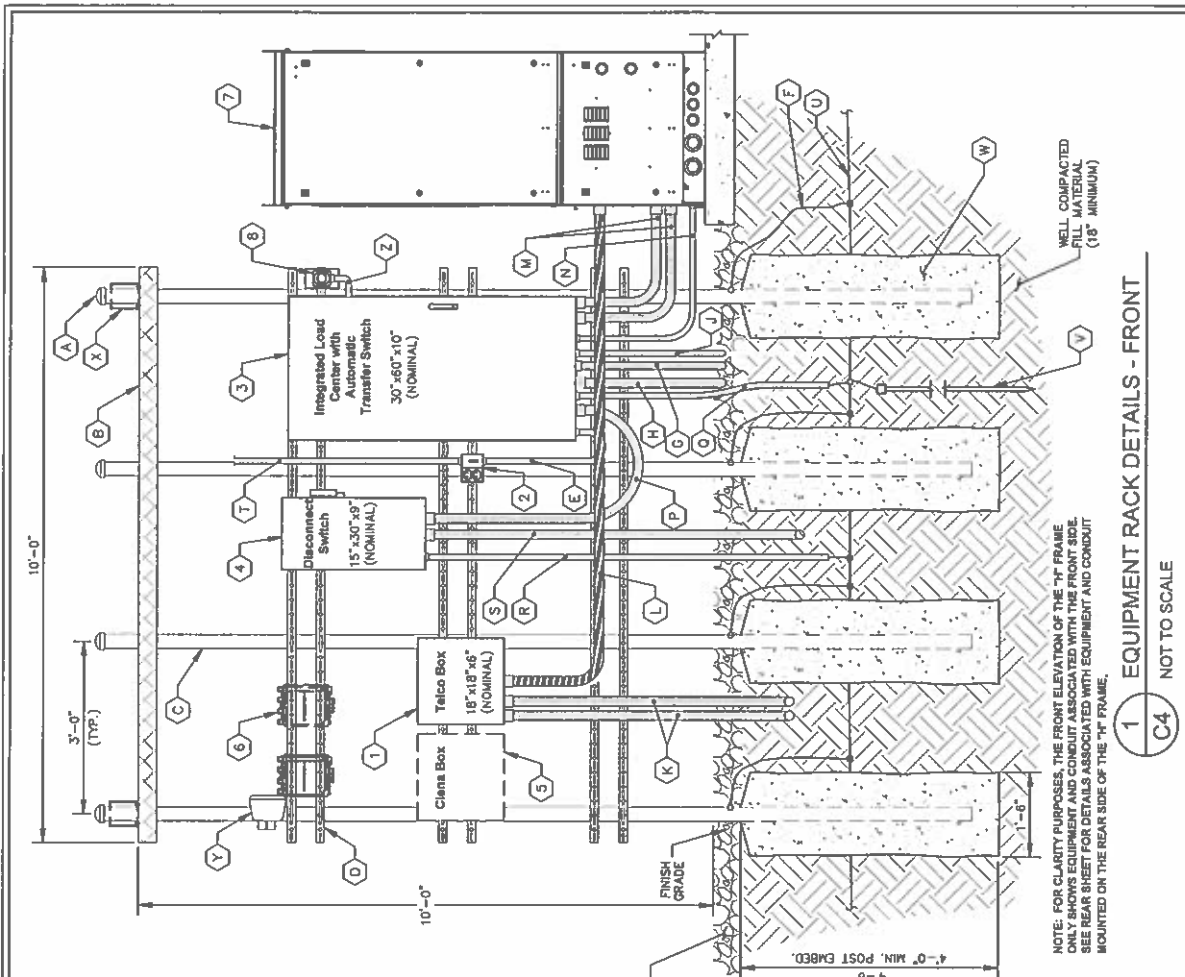
PROJECT NUMBER:
013509441

DESIGNED BY:
WTB

CHECKED BY:
DUF

SHEET TITLE:
EQUIPMENT RACK
DETAIL - FRONT

SHEET NUMBER:
C4



- KEY NOTES - CONDUIT, CONDUCTORS, & MISC**
- A GALVANIZED RIGID STEEL CAP, TYPICAL.
 - B ICE BRIDGE, SEE CIVIL SHEETS FOR ADDITIONAL DETAILS.
 - C 3" GALVANIZED RIGID STEEL PIPE, TYPICAL.
 - D 1 1/2" x 1 1/2" GALVANIZED STEEL CHANNEL (UNISTRUT #P1000) WITH PLASTIC END CAP (UNISTRUT #2880), TYPICAL.
 - E 1" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO LIGHTS/DUPLEX OUTLET.
 - F ONE (1) #2 AWG BARE SOLID TINNED COPPER BONDING CONDUCTOR (BC) FROM H-FRAME VERTICAL PIPE TO GROUND RING, EXOTHERMIC WELD BOTH ENDS.
 - G 1" PVC CONDUIT FOR ROUTING GENERATOR CONTROL AND ALARM SIGNAL CABLES TO THE GENERATOR.
 - H 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO THE GENERATOR.
 - I 1" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO THE GENERATOR BATTERY CHARGER AND THE GENERATOR BLOCK HEATER.
 - J TWO (2) 2" PVC TELCO CONDUITS, WITH TWO (2) PULL ROPES EACH.
 - K 2" FLEX CONDUIT FOR TELCO CABLES TO RF CABINET. REFER TO ROUTING NOTES ON EQUIPMENT PAD LAYOUT.
 - L (2) 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO RF CABINET. REFER TO ROUTING NOTES ON EQUIPMENT PAD LAYOUT.
 - M 1" PVC CONDUIT FROM INTEGRATED LOAD CENTER (ILC) TO RF CABINET FOR ALARM SIGNAL CABLE. REFER TO ROUTING NOTES ON EQUIPMENT PAD LAYOUT.
 - N 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS FROM THE DISCONNECT SWITCH TO THE UTILITY BREAKER IN THE ILC.
 - O 3/4" PVC CONDUIT WITH ONE (1) - #2 AWG BARE TINNED COPPER FROM GROUNDING LUG IN ILC TO GROUND ROD, EXOTHERMIC WELD TO GROUND ROD.
 - P 3/4" PVC CONDUIT WITH ONE (1) - #2 AWG BARE TINNED COPPER FROM GROUNDING LUG IN DISCONNECT SWITCH TO GROUND RING, EXOTHERMIC WELD TO GROUND RING.
 - Q 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS FROM THE UTILITY COMPANY METER TO THE DISCONNECT SWITCH.
 - R 1" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO AREA LIGHTS.
 - S GROUND RING (SEE "E" SHEETS).
 - T GROUND ROD, EXOTHERMIC WELD TO GROUND RING (SEE "E" SHEETS).
 - U CONCRETE FOUNDATION FOR H-FRAME VERTICAL PIPE. CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI, AND INCLUDE FIBERMESH B50.
 - V WB-K210-B15 HORSEHEAD SUPPORT BRACKET (SEE "WAVEGUIDE BRIDGE DETAILS" SHEET). THRU BOLTS REQUIRED FOR ATTACHMENT IN LIEU OF FACTORY PROVIDED U-BOLTS.
 - W INSTALL LIGHT FIXTURES ON 60" LONG P1001A UNISTRUT RAIL (SEE "EQUIPMENT PAD LAYOUT" SHEET). ATTACH P1001A TO H-FRAME POST USING TWO (2) UBS UNISTRUT CLAMPS. LIGHTS TO BE INSTALLED 7'-6" ABOVE GRADE.
 - X 1" PVC CONDUIT FOR ROUTING POWER CONDUCTORS FROM THE ILC TO THE EMERGENCY GENERATOR STOP SWITCH.
- KEY NOTES - ELECTRICAL EQUIPMENT**
- 1 NEMA 3R ENCLOSURE TELCO BOX WITH REMOVABLE FRONT PANEL, PVC, (18" x 18" x 6" NOMINAL).
 - 2 20 AMP (SC) DUPLEX RECEPTACLE AND TIMER SWITCH, ENERLITES HET08 SERIES (OR APPROVED EQUIVALENT) IN LOCKABLE NEMA 3R ENCLOSURE, 2 GANG BOX WITH RED DOT 20AMP-W COVER.
 - 3 200 AMP 120/240 VOLT INTEGRATED LOAD CENTER WITH 42 SPACE PANEL AND AUTOMATIC TRANSFER SWITCH (30" x 60" x 10" NOMINAL).
 - 4 SE RATED, 240 V, 200 AMP, 2-POLE, NON-FUSED DISCONNECT IN NEMA 3R ENCLOSURE.
 - 5 CEMA ETHERNET IF REQUIRED (COORDINATE WITH VERIZON CONSTRUCTION MANAGER FOR ADDITIONAL CONDUIT AND WIRING REQUIREMENTS).
 - 6 DIPLEXERS "AS NEEDED".
 - 7 VERIZON RF CABINET - REAR VIEW.
 - 8 EMERGENCY SHUTOFF SWITCH FOR GENERATOR MOUNTED ON 4" x 7" GALVANIZED J-BOX COVER PLATE.
- NOTE: FOR CLARITY PURPOSES, THE FRONT ELEVATION OF THE "H" FRAME ONLY SHOWS EQUIPMENT AND CONDUIT ASSOCIATED WITH THE FRONT SIDE. SEE REAR SHEET FOR DETAILS ASSOCIATED WITH EQUIPMENT AND CONDUIT MOUNTED ON THE REAR SIDE OF THE "H" FRAME.
- WELL COMPACTED FILL MATERIAL (18" MINIMUM)
- FINISH GRADE
- 4'-6" MIN. POST EMBED.
- 10'-0"
- 10'-0"
- 3'-0" (TYP.)
- 1'-8"
- 4'-6"
- 6" OF #57 STONE MIN.
- 1 EQUIPMENT RACK DETAILS - FRONT
- C4 NOT TO SCALE

Southern Towers BTS

PROJECT INFORMATION:
 SITE NAME:
 DANIEL HARRIS RD
 SITE No. 721404
 PROJECT #. 18311990
 NORTH CONCERN RD
 WANCE COUNTY
 VAHCE COUNTY

PLANS PREPARED BY:
Kimley-Horn
 1720 JONES BLVD, SUITE 400
 WILMINGTON, NC 28403
 PHONE: 770-918-0300
 FAX: 770-918-0302
 NC License # 0102

DATE ISSUED FOR: BY:
 1 01/12/23 CONSTRUCTION DRC
 0 12/09/22 CONSTRUCTION DRC



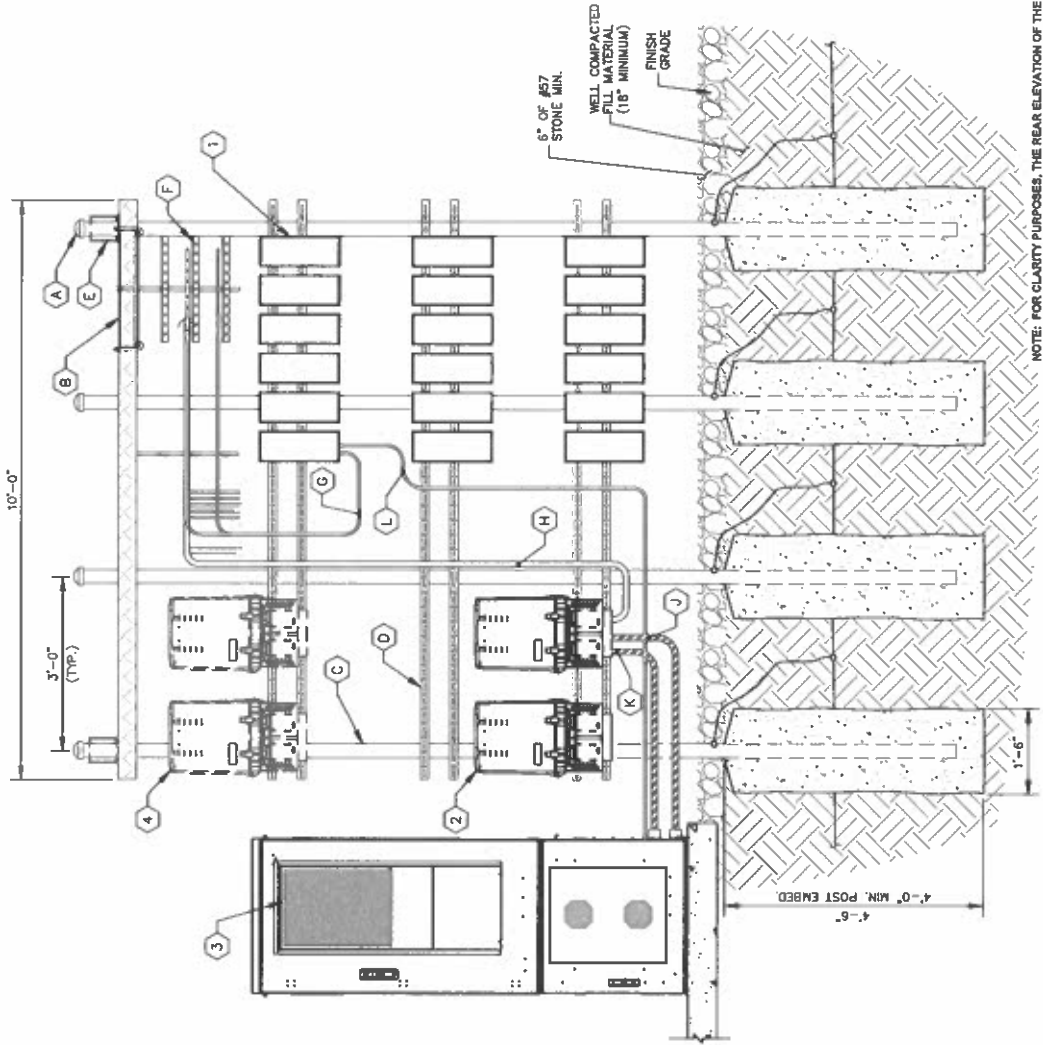
PROJECT NUMBER: 013009441
 DRAWN BY: DUF
 CHECKED BY:
 SHEET TITLE:
 SHEET NUMBER: C5

KEY NOTES - CONDUIT, CONDUCTORS, & MISC

- A GALVANIZED RIGID STEEL CAP, TYPICAL
- B ICE BRIDGE. SEE CIVIL SHEETS FOR ADDITIONAL DETAILS.
- C 3" GALVANIZED RIGID STEEL PIPE, TYPICAL
- D 1 1/2" X 1 1/8" GALVANIZED STEEL CHANNEL (UNISTRUT #F1000) WITH PLASTIC END CAP (UNISTRUT #P2860), TYPICAL
- E WB-K210-B15 HORSEHEAD SUPPORT BRACKET (SEE "WAVEGUIDE BRIDGE DETAILS" SHEET). THRU BOLTS REQUIRED FOR ATTACHMENT IN LIEU OF FACTORY PROVIDED U-BOLTS.
- F ICE BRIDGE RUNNING TOWARDS TOWER (SEE "EQUIPMENT PAD LAYOUT" SHEET).
- G COAX JUMPER CABLES INTO BOTTOM OF RRU'S, TYPICAL
- H HYBRID CABLES RUNNING INTO BOTTOM OF RAYCAPS, TYPICAL (SEE NOTE 7 ON "EQUIPMENT PAD LAYOUT" SHEET).
- I 1 1/2" POWER FLEX CONDUIT RUNNING FROM BOTTOM OF RAYCAPS TO CABINET, TYPICAL (SEE "EQUIPMENT PAD LAYOUT" SHEET).
- J 2" FIBER FLEX CONDUIT RUNNING FROM BOTTOM OF RAYCAPS TO CABINET, TYPICAL (SEE "EQUIPMENT PAD LAYOUT" SHEET).
- K FIBER/POWER JUMPER TO RRU (TYP FOR EACH RRU).

KEY NOTES - ELECTRICAL EQUIPMENT

- 1 VERIZON RF RRU'S (MODEL, QUANTITY OF, AND CONFIGURATION DETERMINED BY RF DESIGN).
- 2 VERIZON RAYCAPS (MODEL, QUANTITY OF, AND CONFIGURATION DETERMINED BY RF DESIGN).
- 3 VERIZON RF CABINET - FRONT VIEW.
- 4 FUTURE VERIZON RAYCAPS.



1 EQUIPMENT RACK DETAILS - REAR
 C5 NOT TO SCALE

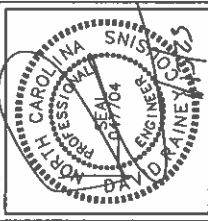
Southern Towers BTS

PROJECT INFORMATION:
 SITE NAME:
 DANIEL HARRIS RD
 SITE No. 721404
 PROJECT #. 19311990
 NORTH CONCERNWAY ROAD
 HENRICO COUNTY, VA 23127

PLANS PREPARED BY:
Kimley-Horn
 11720 ARDEN PARK DRIVE, SUITE 600
 MANASSAS, VA 20108
 PHONE: 703-111-1200
 FAX: 703-111-1202
 NC License # 40202



REV	DATE	ISSUED FOR	BY
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0	12/09/22	CONSTRUCTION	IRC

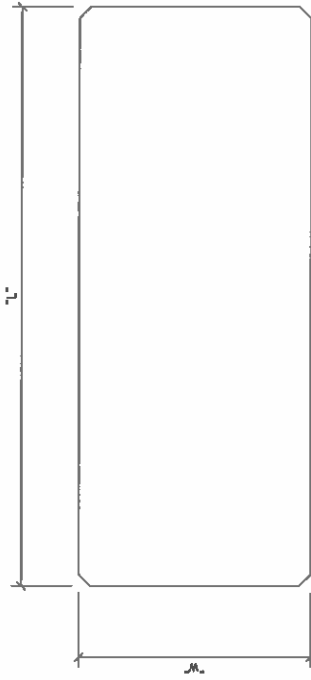


PROJECT NUMBER: 013509441
 DRAWN BY: [Blank]
 CHECKED BY: DMF

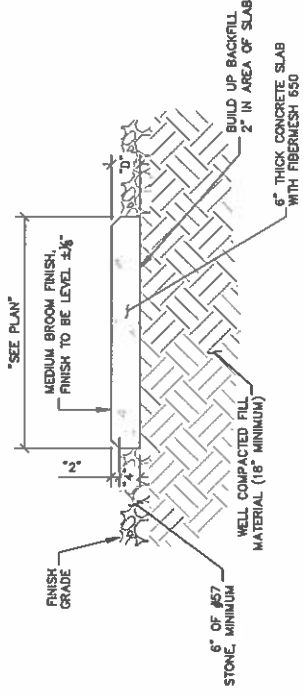
SHEET TITLE:
CONCRETE PAD FOUNDATION DETAILS

SHEET NUMBER:
C6

CONCRETE PAD SCHEDULE			
PAD TYPE	"L"	"W"	REINFORCEMENT
EQUIPMENT PAD	10'-0"	4'-0"	SEE DETAIL 2/C6
GENERATOR PAD	8'-0"	3'-6"	SEE DETAIL 2/C6



1 CONCRETE PAD PLAN
 C6 NOT TO SCALE



2 CONCRETE PAD FOUNDATION SECTION
 C6 NOT TO SCALE

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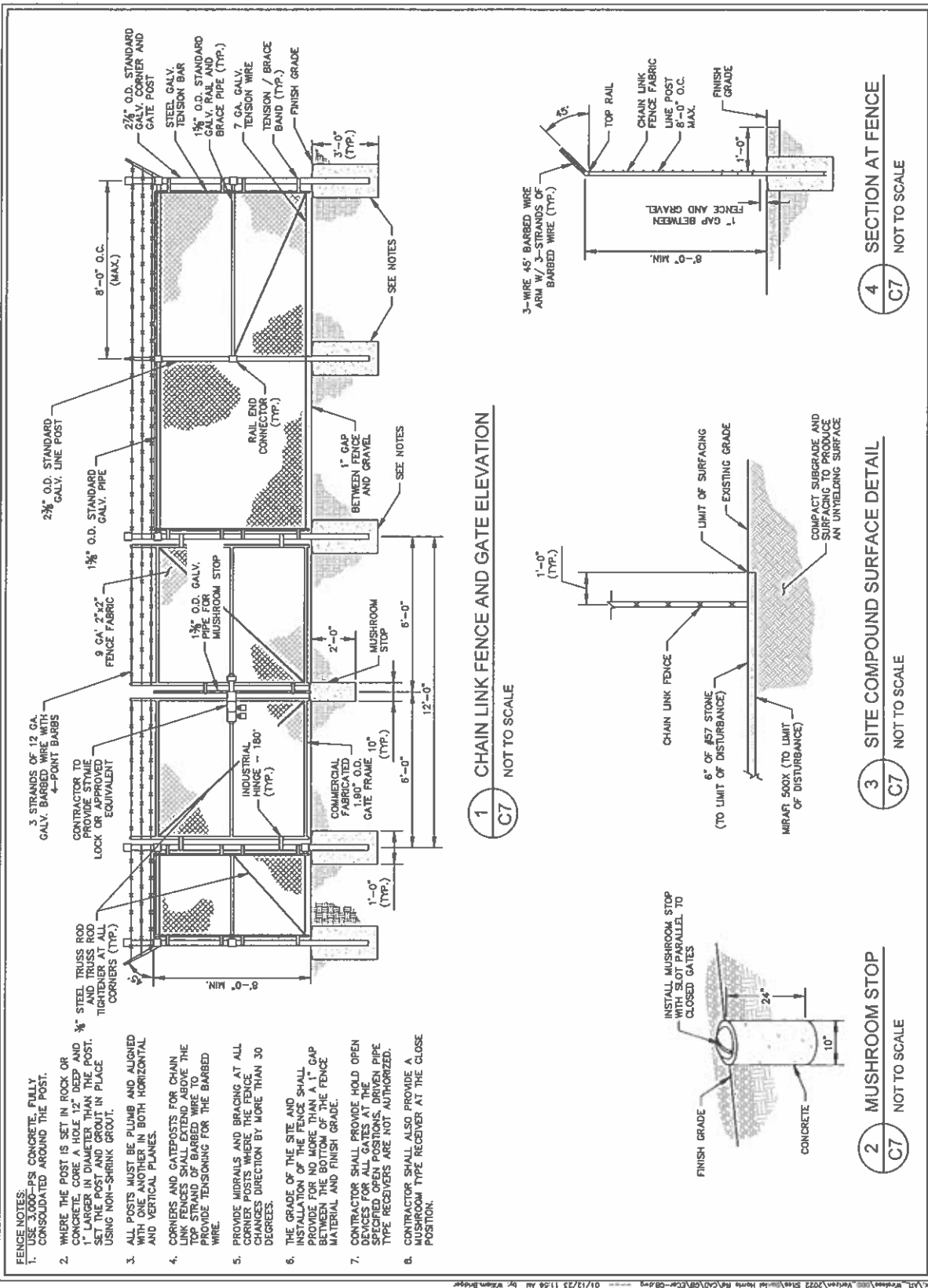
PROJECT INFORMATION:
 SITE NAME:
 DANIEL HARRIS RD
 SITE No.: 721404
 PROJECT #: 16311980
 NORTH CONCOURSE ROAD
 HENRIEVA COUNTY, NC

PLANS PREPARED BY:
Kimley-Horn
 11720 JAMES PARK DRIVE, SUITE 600
 RALEIGH, NC 27617
 PHONE: 770-218-0200
 FAX: 770-218-0202
 NC License F-0122

REV	DATE	ISSUED FOR
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1	01/12/23	CONSTRUCTION DRG
0	12/09/22	CONSTRUCTION DRG

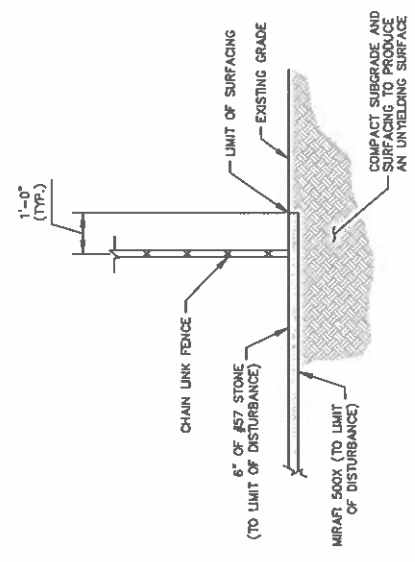


JOHN PROJECT NUMBER:
 013209441
 DRAWN BY: WTB
 CHECKED BY: DJF
 SHEET TITLE:
FENCE, GATE, AND COMPOUND DETAILS
 SHEET NUMBER:
C7

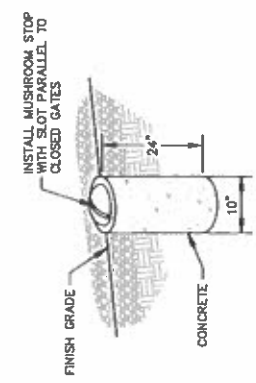


- FENCE NOTES:**
- USE 3,000-PSI CONCRETE, FULLY CONSOLIDATED AROUND THE POST.
 - WHERE THE POST IS SET IN ROCK OR CONCRETE, CORE A HOLE 12" DEEP AND LARGER IN DIAMETER THAN THE POST. SET THE POST IN PLACE USING NON-SHRINK GROUT.
 - ALL POSTS MUST BE PLUMB AND ALIGNED WITH ONE ANOTHER IN BOTH HORIZONTAL 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 OVERLAPS 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 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.

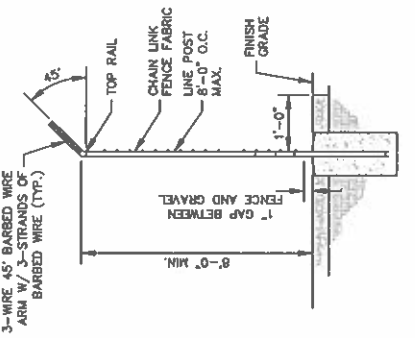
1 CHAIN LINK FENCE AND GATE ELEVATION
 C7 NOT TO SCALE



3 SITE COMPOUND SURFACE DETAIL
 C7 NOT TO SCALE

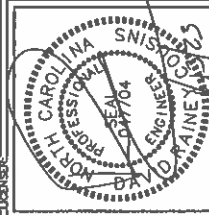


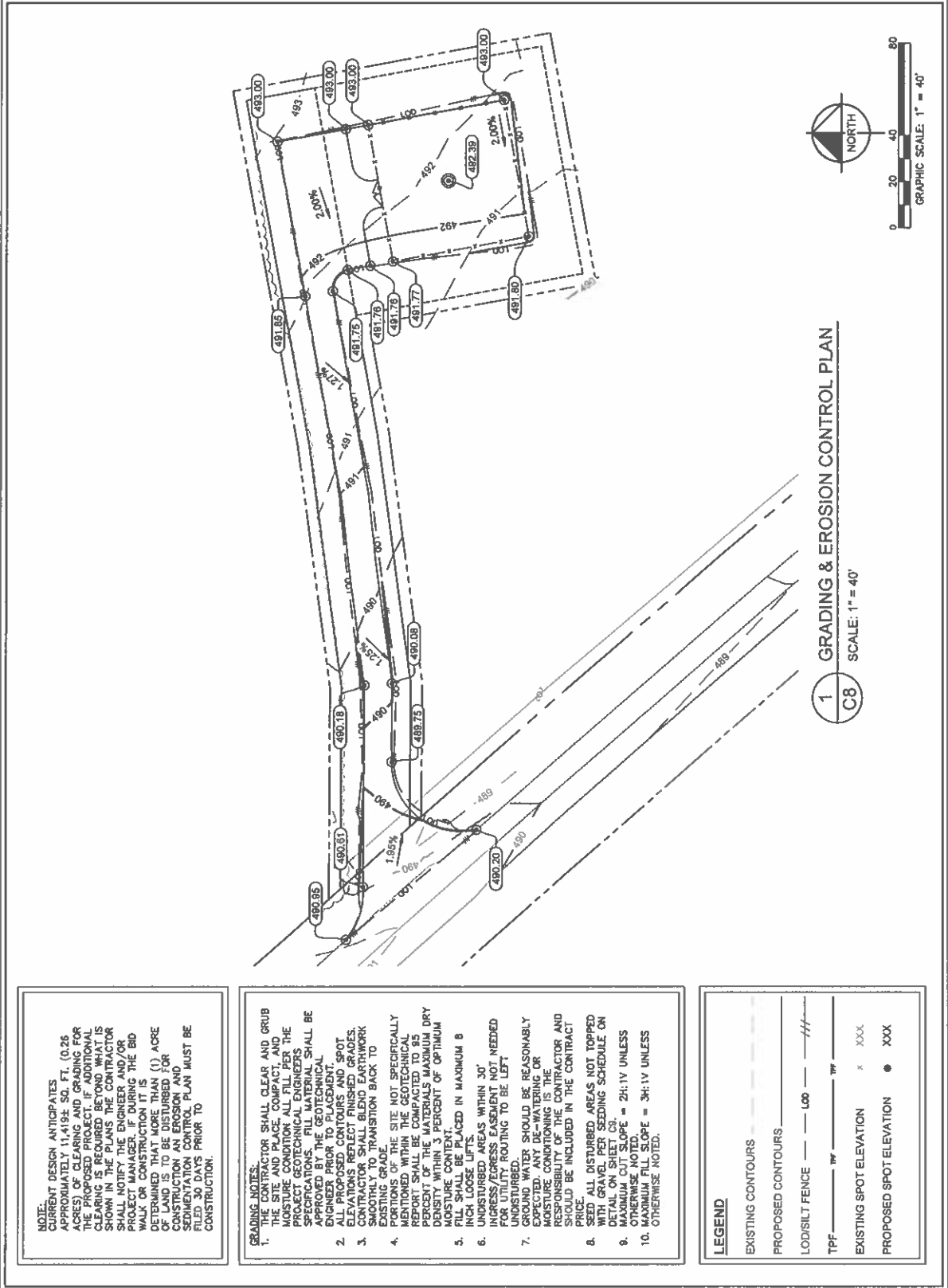
2 MUSHROOM STOP
 C7 NOT TO SCALE



4 SECTION AT FENCE
 C7 NOT TO SCALE

This document, together with the message and design presented herein, is an instrument of service, to be used only for the specific purpose and shall be void if not properly used. Plans of and Engineer address in the instrument, without modification and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

Southernlowers BTS	PROJECT INFORMATION: SITE NAME: DANIEL HARRIS RD SITE No.: 721404 PROJECT #: 16311980 NORTH CONCERNARY ROAD HENNING COUNTY WANCE COUNTY	Kimley»Horn 11720 JAMES PATE DR SUITE 600 RALEIGH, NC 27615-4280 PHONE: 770-415-4280 FAX: 770-415-4281 NC License # 0-03		REV: DATE: ISSUED FOR: BY:	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>8</td><td></td></tr> <tr><td>7</td><td></td></tr> <tr><td>6</td><td></td></tr> <tr><td>5</td><td></td></tr> <tr><td>4</td><td></td></tr> <tr><td>3</td><td></td></tr> <tr><td>2</td><td></td></tr> <tr><td>1</td><td>01/12/23 CONSTRUCTION DRG</td></tr> <tr><td>0</td><td>12/08/22 CONSTRUCTION DRG</td></tr> </table>	8		7		6		5		4		3		2		1	01/12/23 CONSTRUCTION DRG	0	12/08/22 CONSTRUCTION DRG		2024 PROJECT NUMBER: 013526441	DRAWN BY: DMF CHECKED BY: DMF	GRADING AND EROSION CONTROL PLAN	SHEET NUMBER: C8
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2																												
1	01/12/23 CONSTRUCTION DRG																											
0	12/08/22 CONSTRUCTION DRG																											



NOTE:
 CURRENT DESIGN ANTICIPATES APPROXIMATELY 11,419± SQ. FT. (0.26 ACRES) OF CLEARING AND GRADING FOR THE PROPOSED PROJECT. 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. PRESENT AND PROPOSED EROSION CONTROL PLAN MUST BE FILED 30 DAYS PRIOR TO CONSTRUCTION.

- GRADING NOTES:**
1. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE COMPACT AND MOISTURE CONDITION ALL FILL PER THE PROJECT GEOTECHNICAL ENGINEERS SPECIFICATIONS. FILL MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. PROPOSED ELEVATIONS REFLECT FINISHED GRADES. CONTRACTOR SHALL BLEND EARTHWORK SMOOTHLY TO TRANSITION BACK TO EXISTING GRADE.
 2. PORTIONS OF THE SITE NOT SPECIFICALLY NOTED WITHIN THE GEOTECHNICAL REPORT SHALL BE CONSIDERED TO BE A MINIMUM PERCENT OF THE MATERIALS MAXIMUM DRY MOISTURE CONTENT.
 3. FILL SHALL BE PLACED IN MAXIMUM 8 INCH LOOSE LIFTS.
 4. UNDISTURBED AREAS WITHIN 30' FROM EXISTING ELEVATION NOT NEEDED FOR LESS/FRESH ELEVATION TO BE LEFT UNDISTURBED.
 5. GROUND WATER SHOULD BE REASONABLY EXPECTED. ANY DE-WATERING OR MOISTURE CONDITIONING IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE INCLUDED IN THE CONTRACT PRICE.
 6. SEED ALL DISTURBED AREAS NOT TOPPED WITH GRAVEL PER SEEDING SCHEDULE ON DETAIL ON SHEET C9.
 7. MAXIMUM CUT SLOPE = 2H:1V UNLESS OTHERWISE NOTED.
 8. MAXIMUM FILL SLOPE = 3H:1V UNLESS OTHERWISE NOTED.

LEGEND

EXISTING CONTOURS	---	
PROPOSED CONTOURS	---	
LODI/SILT FENCE	---	
TPF	---	
EXISTING SPOT ELEVATION	x	XXX
PROPOSED SPOT ELEVATION	●	XXX

Southern Towers BTS

PROJECT INFORMATION:
 SITE NAME: DANIEL HARRIS RD
 SITE No.: 721404
 PROJECT #: 16311980
 NORTH CONCERNARY ROAD
 HENRIETTA, NY 14457
 WARREN COUNTY

PLANS PREPARED BY:
Kimley-Horn
 11720
 JAMES H. HORN, P.E., PRINCIPAL
 1000 WEST 10TH STREET, SUITE 400
 HENRIETTA, NY 14457
 PHONE: 716-635-0200
 FAX: 716-635-0201
 WEBSITE: WWW.KHENGINEERS.COM
 NY License #0-02

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0	12/08/22	CONSTRUCTION DRG



PKA PROJECT NUMBER: 013009441
 DRAWN BY: DMF
 CHECKED BY: DMF
 SHEET TITLE: GRADING AND EROSION CONTROL DETAILS
 SHEET NUMBER: C9

SEEDING SCHEDULE FOR WINTER / SPRING
CONSTRUCTION ACTIVITIES

SEEDING MIXTURE
 Species: Ryegrass
 Rate (lb/acre): 120
 Common Bermudagrass
 Rate (lb/acre): 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 1/4" excelsior matting, or other effective chemical lining material to cover the bottom of channels and ditches. This lining should extend above the highest calculated depth of flow. On channel side slopes above the height and in grasshops not requiring temporary lining, apply 4,000 lb/acre grass straw and other cover by stapling matting over the top.

MAINTENANCE
 A minimum of 3 weeks is required for establishment. Inspect and spot-mulch frequently. Fertilize the following Apr. with 50 lb/acre nitrogen.

SEEDING SCHEDULE FOR SUMMER
CONSTRUCTION ACTIVITIES

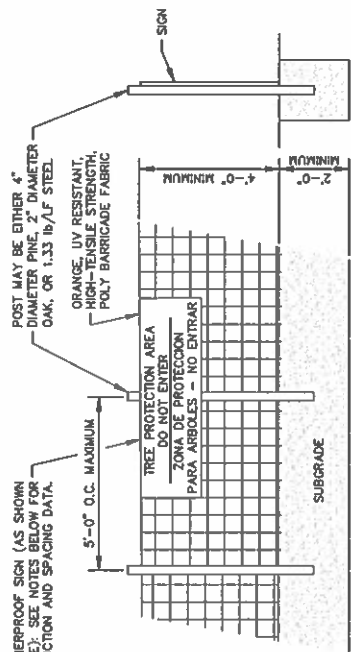
SEEDING MIXTURE
 Species: Ryegrass
 Rate (lb/acre): 120
 Annual lespedeza (Kobe in Piedmont and Coastal Plain, Karen in Mountains)
 Rate (lb/acre): 50
 Omit annual lespedeza when duration of temporary cover is not to extend beyond June.

SOIL AMENDMENTS
 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
 Fertilize if growth is not fully adequate. Re-seed, re-fertilize and mulch immediately following erosion or other damage.

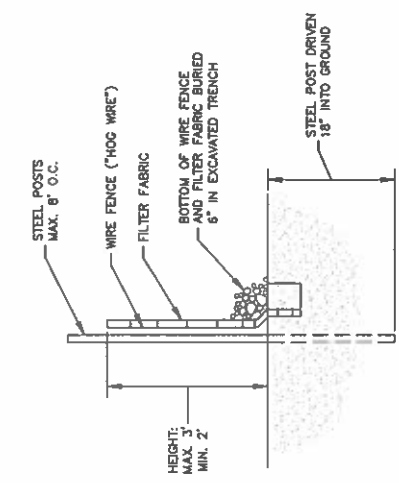
EROSION CONTROL NOTES:

1. EROSION CONTROLS SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION TO BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE.
2. ALL EXCAVATED SOILS NOT NEEDED ON SITE FOR BACKFILL OPERATIONS SHALL BE STORED AT THE PROPERTY OF THE CONTRACTOR. EXCESS SOILS SHALL BE TAKEN OFF SITE AND LEGALLY DISPOSED OF.
3. SOIL REMAINING ON SITE SHALL HAVE SILT FENCE TIGHTLY PLACED AROUND THE ENTIRE CIRCUMFERENCE OF THE PILE.
4. PROVIDE EROSION CONTROLS AS NECESSARY TO PREVENT EXISTING SOILS FROM DRAINING OFF SITE OR INTO EXISTING DRAINAGE STRUCTURES.
5. ERECTION OF EROSION CONTROLS SHALL BE IN ACCORDANCE WITH STATE AND LOCAL EROSION CONTROL REGULATIONS.



NOTES:
 INSTALL TREE PROTECTION FENCE AND SIGNAGE PRIOR TO PROTECTION OF EXISTING TREES. TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT. ADDITIONAL SIGNS MAY BE REQUIRED BASED ON ACTUAL FIELD CONDITIONS.

2 TREE PROTECTION FENCE
 C9 NOT TO SCALE



SECTION 1 SEDIMENT FENCE (SILT FENCE)
 C9 NOT TO SCALE

SouthernOwens BTS

PROJECT INFORMATION:
 SITE NAME:
 DANIEL HARRIS RD
 SITE No.: 721404
 PROJECT #: 16311990
 NORTH COMMONWAY ROAD
 HARRISBORO, TN 37057
 WANCE COUNTY

PLANS PREPARED BY:
Kimley-Horn
 11750 JEFFERSON AVE, SUITE 100
 ANN ARBOR, MI 48106
 PHONE: 734-769-5300
 FAX: 734-769-5302
 IN License # 4802

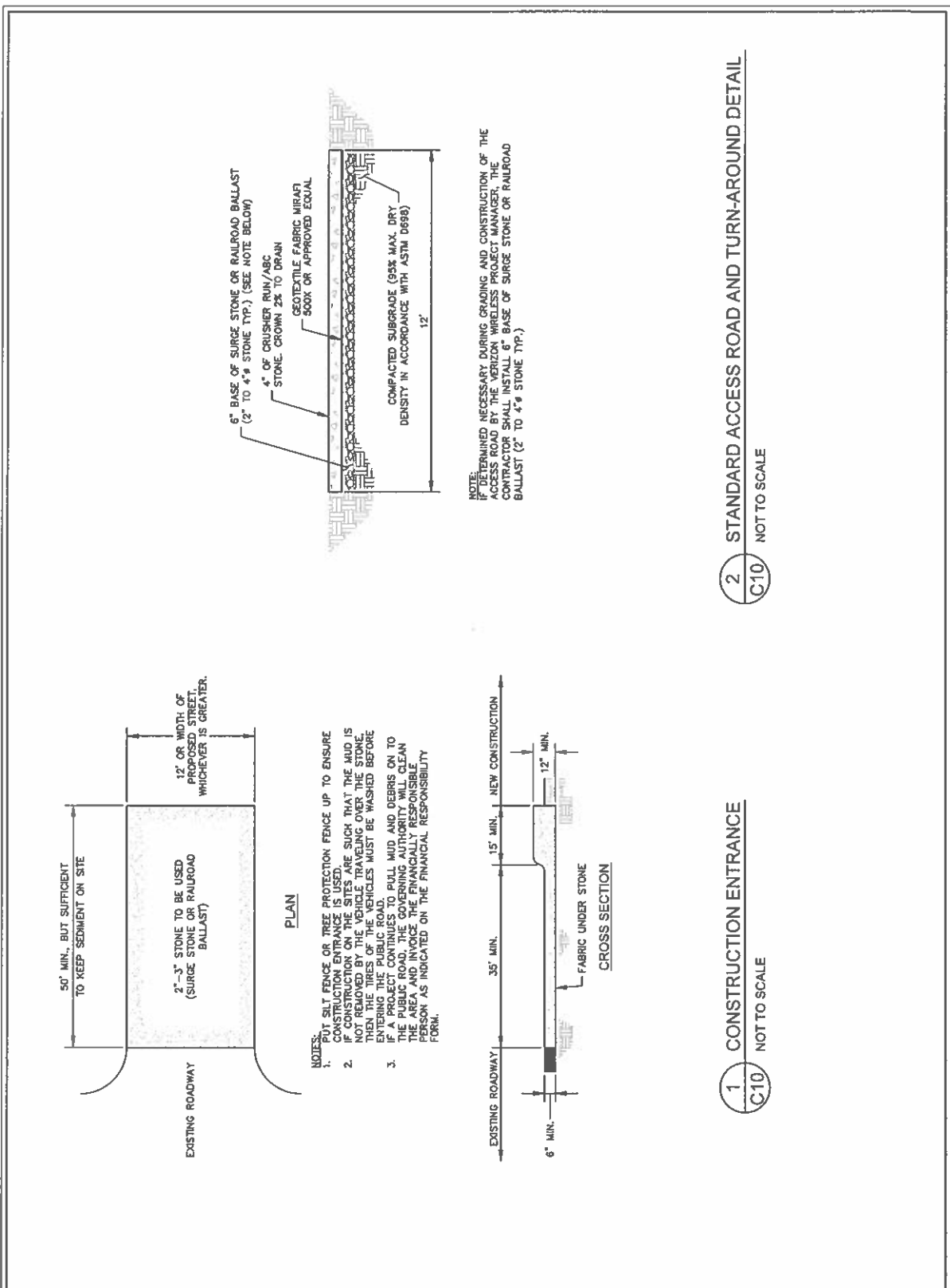
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1	12/02/22	CONSTRUCTION DRG

DESIGNER:
 NORTH CAROLINA PROFESSIONAL ENGINEERS AND SURVEYORS
 #047704
 WAINESVILLE, NC

SHA PROJECT NUMBER: 013509441
 DRAWN BY: WTB
 CHECKED BY: DNF
 SHEET TITLE:
 SHEET NUMBER: C10

ACCESS ROAD DETAILS

SHEET NUMBER: C10



Southern Towers BTS

PROJECT INFORMATION:
SITE NAME: DANIEL HARRIS RD
SITE NO.: 721404
PROJECT #: 18311980
 NORTH CONCERNARY ROAD
 HENRICO COUNTY
 VIRGINIA

PLANS PREPARED BY:
Kimley-Horn
 11725 ALBERTA AVENUE, SUITE 400
 ALPHARETTA, GA 30201
 PHONE: 770-418-3200
 FAX: 770-418-3202
 WWW.KHENGINEERS.COM
 INC. LICENSE # 1-1012

DATE ISSUED FOR:
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 1 01/12/23 CONSTRUCTION DRG
 0 12/09/22 CONSTRUCTION DRG

CONTRACTOR:

PROJECT NUMBER: 013509441
DRAWN BY: WTB
CHECKED BY: DMF
SHEET TITLE: SITE SIGNAGE DETAILS
SHEET NUMBER: C11

1 SIGN PLACEMENT PLAN VIEW
 NOT TO SCALE

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

2 TYPICAL SIGNS AND SPECIFICATIONS
 NOT TO SCALE

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

2 INFORMATION
 This is a Verizon Wireless Antenna Site
 Site ID: 800-254-6620
 For information visit: www.verizonwireless.com

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

4 WARNING
 12" WIDE X 18" HIGH

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

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

7 FCC REGISTRATION SIGN
 20" WIDE X 4" HIGH

7 FCC REGISTRATION SIGN
 FCC TOWER REGISTRATION NO.
 XXXXXXXX

7 FCC REGISTRATION SIGN
 20" WIDE X 4" HIGH

SIGNAGE NOTES:
 1. SIGNS SHALL BE FABRICATED FROM CORROSION RESISTANT PRESSED METAL AND PAINTED WITH LONG LASTING UV RESISTANT FINISHES. SIGNS SHALL BE MOUNTED TO THE TOWER, GATE, AND FENCE USING A MINIMUM OF 8 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 SIGN PLACEMENT FRONT GATE VIEW
 NOT TO SCALE

HERE AND ON ANY GATED ACCESS ENTRY

SEE DETAIL ABOVE

FRONT GATE

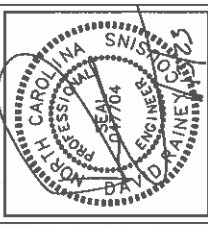
Southernowers BTS

PROJECT INFORMATION:
 SITE NAME:
 DANIEL HARRIS RD
 SITE NO.: 721404
 PROJECT #: 18311990
 NORTH CONSERVATORY ROAD
 HUNTERDON TOWNSHIP
 VANCE COUNTY

DESIGNED BY:
Kimley-Horn
 17780 WILSON DRIVE, SUITE 400
 ALPHARETTA, GA 30201
 PHONE: 770-814-2200
 FAX: 770-814-2202
 NC License # 0422

NO.	DATE	ISSUED FOR
1	01/12/23	CONSTRUCTION DRG
2	12/04/22	CONSTRUCTION DRG

DESIGNER:
 1 01/12/23 CONSTRUCTION DRG
 2 12/04/22 CONSTRUCTION DRG

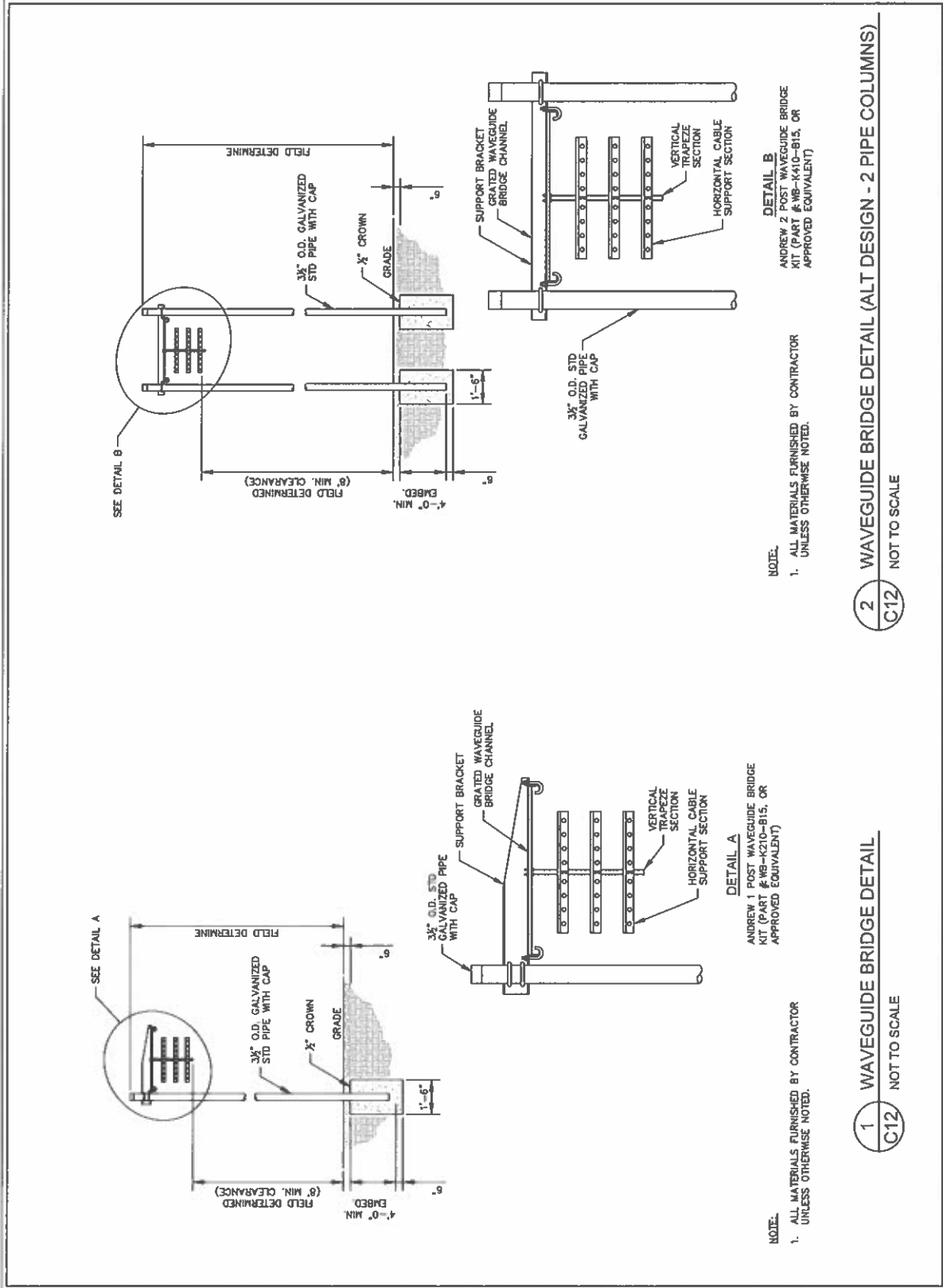


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 013509441
 DRAWN BY:
 CHECKED BY:
 WTD
 DWF

WAVEGUIDE BRIDGE DETAILS

SHEET NUMBER:
C12

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DETAIL B
 ANDREW 2 POST WAVEGUIDE BRIDGE
 KIT (PART #WB-K10-B15, OR
 APPROVED EQUIVALENT)

NOTE:
 1. ALL MATERIALS FURNISHED BY CONTRACTOR
 UNLESS OTHERWISE NOTED.


2 WAVEGUIDE BRIDGE DETAIL (ALT DESIGN - 2 PIPE COLUMNS)
C12 NOT TO SCALE

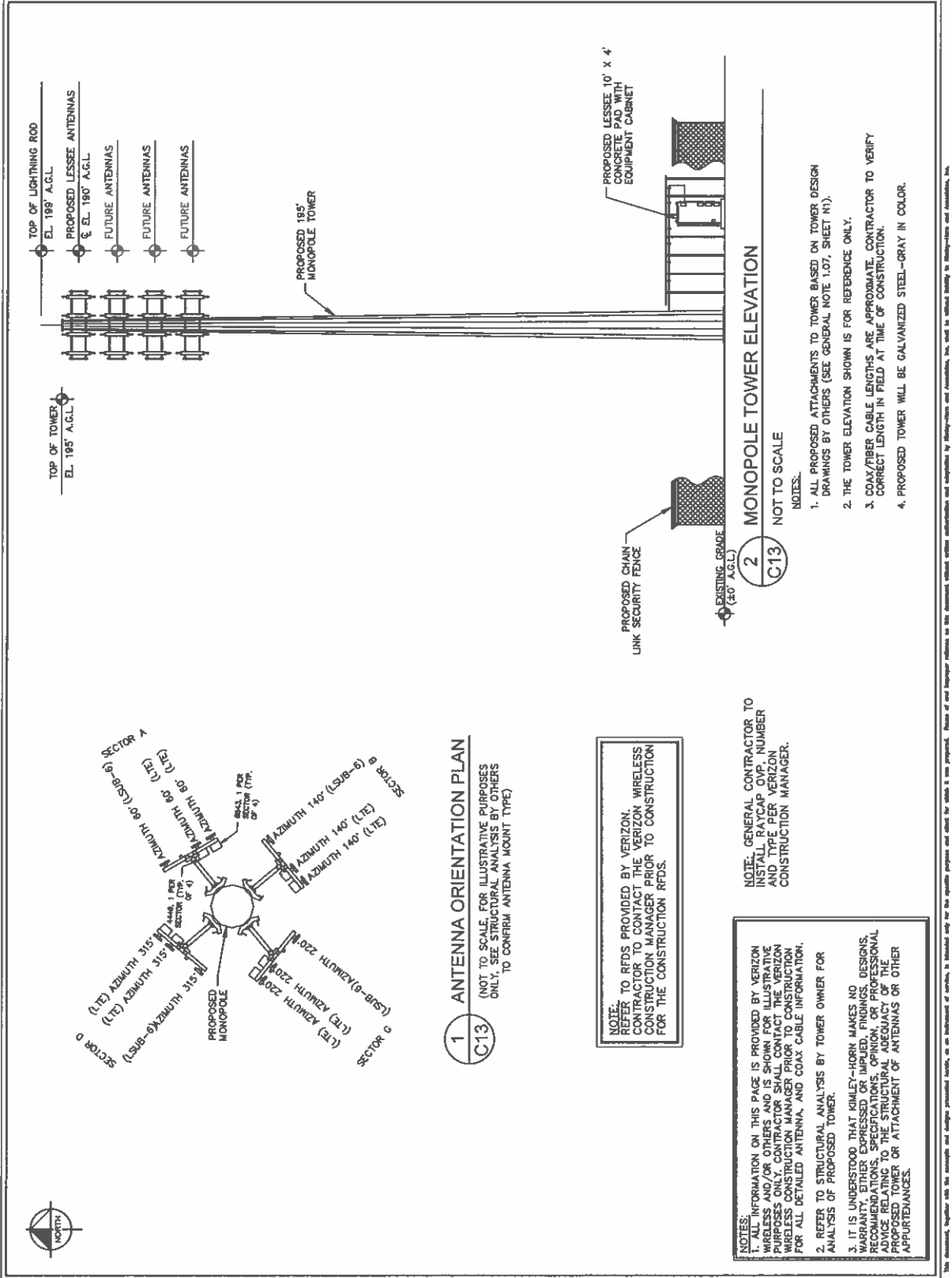
DETAIL A
 ANDREW 1 POST WAVEGUIDE BRIDGE
 KIT (PART #WB-K20-B15, OR
 APPROVED EQUIVALENT)

NOTE:
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1 WAVEGUIDE BRIDGE DETAIL
C12 NOT TO SCALE

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Southern Towers BTS	PROJECT INFORMATION: SITE NAME: DANIEL HARRIS RD SITE No.: 721404 PROJECT #: 16311890 NORTH CONCRESSARY ROAD HUNTERDON TOWNSHIP WARREN COUNTY, NJ	PLANS PREPARED BY:  11750 UNIVERSITY DRIVE, SUITE 600 ANN ARBOR, MI 48106-1500 PHONE: 734-769-4300 FAX: 734-769-4328 NJ License # P-0103	REVISIONS: <table border="1"> <tr><th>NO.</th><th>DATE</th><th>ISSUED FOR</th></tr> <tr><td>8</td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td></tr> <tr><td>1</td><td>01/22/23</td><td>CONSTRUCTION DRG</td></tr> <tr><td>0</td><td>12/08/22</td><td>CONSTRUCTION DRG</td></tr> </table>	NO.	DATE	ISSUED FOR	8			7			6			5			4			3			2			1	01/22/23	CONSTRUCTION DRG	0	12/08/22	CONSTRUCTION DRG	FOR ILLUSTRATIVE PURPOSES ONLY. NO SIGNATURE REQUIRED	JOB# PROJECT NUMBER: 013209441 DRAWN BY: CHECKED BY: WTB DWF SHEET TITLE: ANTENNA AND TOWER ELEVATION DETAILS SHEET NUMBER: C13
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0	12/08/22	CONSTRUCTION DRG																																	



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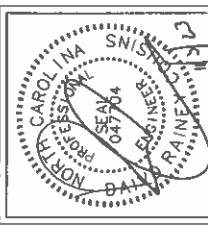
SOUTHERNTOWERS BTS

PROJECT INFORMATION:
 SITE NAME:
 NC-035 DANIEL HARRIS RD
 SITE No.: NC-035
 PROJECT #: 16311980
 NORTH CONCERNARY ROAD
 WANCE, CAROLINA

PLANS PREPARED BY:
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 PHONE: 703-814-1200
 FAX: 703-814-1201
 NC License # 7-4022

REV#	DATE	ISSUED FOR	BY
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DATE: 11/03/23
 CONSTRUCTION: JRG
 LICENSE:



PROJECT NUMBER:
 01509441
 DRAWN BY: DUF
 CHECKED BY:

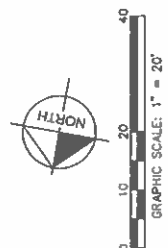
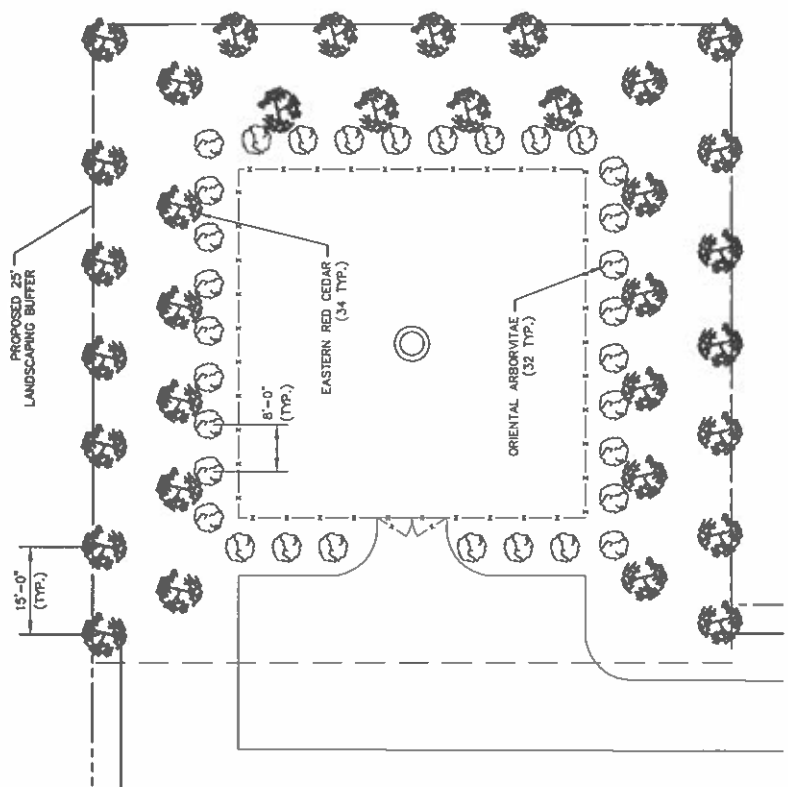
LANDSCAPING PLAN

SHEET NUMBER:
 L1

GENERAL LANDSCAPE NOTES:

- 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.
- 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.
- ALL DISTURBED AREAS NOT COVERED BY HARDSCAPE OR PLANT MATERIALS SHALL BE COVERED WITH SEED AND STRAW. 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 REASON FOR OBTAINABLE SIZE AND VARIETY OF THE PLANT HAVING THE SAME ESSENTIAL CHARACTERISTICS AS THE PLANT SPECIFIED.
- 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.
- ALL SURVIVABLE TREES AND SHRUBS SHALL BE EDGED INTO A PLANTING BED AND MULCHED PER DETAIL. ALL INDIVIDUAL TREES AND SHRUBS SHALL BE MULCHED TO THE TRUNK AND SHALL BE MULCHED AS SHOWN ON THE DETAILS. UNLESS OTHERWISE INDICATED, ALL BED EDGES SHALL BE A DEEP CUT CLEAN SPADE EDGE.
- 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 PENETRATE DUT WITHIN TWENTY-FOUR HOURS. SHOULD ANY AREA NOT DRAIN PROPERLY, A PERFORATED DRAIN LINE SHALL BE INSTALLED; ON THE PLANTS RELOCATED.
- THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY IF HE ENCOUNTERS ANY UNSUITABLE SURFACE OR SUBSURFACE DRAINAGE CONDITIONS, SOIL DEPTH, LATENT SOILS, HARD PAW, UTILITY LINES, OR OTHER CONDITIONS THAT WILL DEGRADE 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.
- THE CONTRACTOR SHOULD VERIFY LANDSCAPING/TREE PLANTING LOCATIONS WITH THE PUBLIC UTILITIES DEPARTMENT TO AVOID CONFLICTS WITH WATER, SEWER, AND GAS LINES.
- PLANTS SHALL BE SO TRAINED IN DEVELOPMENT AND APPEARANCE AS TO BE UNQUESTONABLE 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.
- THERE SHALL BE NO CIRCLING OR GIRDLING ROOTS. CIRCLING ROOTS SHOULD BE CUT IN AT LEAST ONE PLACE.
- 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.
- THE TREE CANOPY SHOULD BE SYMMETRICAL AND FREE OF LARGE WOUNDS. 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.
- 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.
- IF ANY OF THE ABOVE CONDITIONS ARE NOT MET, TREES MAY BE REJECTED.
- TREE PROTECTION DEVICES MUST BE INSTALLED AND INSPECTED PRIOR TO ANY CLEARING, GRUBBING, OR GRADING OF THE SITE BY THE LOCAL ARBORIST.

SYM/KEY	QTY.	BOTANICAL NAME	COMMON NAME	SPECIFICATION	
				ROOT HEIGHT	SPACING
RC	34	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	B&B	15' O.C.
OA	32	PLATYCODON ORIENTALIS	ORIENTAL ARBORVITAE	B&B	8' O.C.



1 LANDSCAPING PLAN
 SCALE: 1" = 20'

LEGEND	
	EASTERN RED CEDAR
	ORIENTAL ARBORVITAE

ELECTRICAL NOTES

1.00 CODES, STANDARDS, & SPECIFICATIONS

- 1.01 IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL MATERIALS AND LABOR RELATED DIRECTLY OR INDIRECTLY TO ALL ELECTRICAL WORK DOCUMENTED IN THESE DRAWINGS SHALL BE PROVIDED AND PERFORMED IN CONFORMANCE WITH ALL CURRENT GOVERNING CODES, STANDARDS, AND PROFESSIONAL STANDARD OF CARE TO INCLUDE THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM), UNDERWRITERS LABORATORY (UL), NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA), AMERICAN STANDARDS ASSOCIATION (ASA), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), AND THE NATIONAL ELECTRICAL CODE (NEC).
- 1.02 MATERIALS SHALL BE NEW AND SHALL CONFORM TO ALL APPLICABLE CURRENT GOVERNING STANDARDS ESTABLISHED FOR EACH ITEM BY ASTM, UL, NEMA, ASA, AND NFPA.
- 1.03 ALL ELECTRICAL WORK SHALL COMPLY WITH ALL APPLICABLE STATE, COUNTY, AND MUNICIPAL CODES AND ORDINANCES, AS WELL AS ALL CURRENT GOVERNING STANDARDS AND SPECIFICATIONS AS REQUIRED BY NEC, NEMA, ANSI, NFPA, UL, IEC, AND THE LOCAL UTILITY COMPANY.
- 1.04 ALL ELECTRICAL GROUNDING SHALL COMPLY WITH THE CURRENT EDITION OF THE NEC.
- 1.05 CONTRACTOR SHALL MAINTAIN UL LISTED FIRE RATINGS AT ALL WALL PENETRATIONS.
- 1.06 CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE OF 36" IN FRONT OF ALL ELECTRICAL EQUIPMENT AS REQUIRED BY NEC. MINIMUM CLEARANCE SHALL BE OBSERVED FOR BOTH THE FRONT AND THE REAR OF THE METER H-FRAME RACK AND THE EQUIPMENT H-FRAME RACK.

2.00 GENERAL

- 2.01 CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS AND ASSOCIATED FEES RELATED TO THE PROJECT AND SHALL DELIVER A COPY OF ALL PERMITS TO THE JURISDICTION REPRESENTATIVE.
- 2.02 CONTRACTOR SHALL SCHEDULE AND SHOULD ATTEND ALL INSPECTIONS REQUIRED BY THE JURISDICTION HAVING AUTHORITY.
- 2.03 CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, ACCESSORIES, ETC., FOR A COMPLETE WORKING ELECTRICAL INSTALLATION.
- 2.04 ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE BUILDING CODES AND LOCAL ORDINANCES, INSTALLED IN A WORKMANLIKE MANNER, AND SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.
- 2.05 CONTRACTOR SHALL PROTECT ADJACENT EQUIPMENT AND FINISHES FROM DAMAGE AND SHALL REPAIR TO ORIGINAL CONDITION ANY ITEMS DAMAGED AS A RESULT OF THE WORK.
- 2.06 CONTRACTOR SHALL REPAIR ANY LANDSCAPING DISTURBED DURING CONSTRUCTION.
- 2.07 IF CONDUIT RUNS HAVE MORE THAN THREE (3) CONSECUTIVE 90 DEGREE TURNS, THE CONTRACTOR SHALL INSTALL PULL BOXES AS REQUIRED BY NEC.
- 2.08 CONTRACTOR SHALL INDICATE THE LOCATION OF ALL CAPPED UNDERGROUND SPARE CONDUIT ON THE RECORD DRAWINGS SUBMITTED TO THE OWNER.
- 2.09 CONTRACTOR SHALL COORDINATE EXACT ROUTING OF CONDUIT WITH OWNER. ALL CONDUIT SHALL BE ROUTED WITHIN 3 FEET, EITHER SIDE, OF PERMETER FENCING.

3.00 MATERIALS

- 3.01 ALL EQUIPMENT AND MATERIALS SHOWN SHALL BE CONSIDERED NEW UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
- 3.02 FINAL CONNECTIONS OF EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS, AND INSTRUCTIONS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT SUPPLIED BY VERIZON.
- 3.03 CONTRACTOR SHALL PROVIDE AN UPDATED PANELBOARD DIRECTORY FOR THE PANEL FROM WHICH THE NEW VERIZON EQUIPMENT CIRCUIT WILL BE CONNECTED. CONTRACTOR SHALL SUBMIT UPDATED DIRECTORY IN A PLASTIC COVER TO THE BUILDING OWNER FOR APPROVAL PRIOR TO INSTALLATION.
- 3.04 CONTRACTOR SHALL FIELD DETERMINE ACTUAL CONDUIT ROUTING AND SHALL OBTAIN APPROVAL FROM THE TOWER OWNER OF THE PROPOSED ROUTING PRIOR TO CONDUIT INSTALLATION.
- 3.05 ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION AND ALL TERMINATIONS SHALL BE RATED FOR AT LEAST 75 DEGREES CELSIUS.
- 3.06 ALL NEUTRAL CONDUCTORS SHALL HAVE WHITE INSULATION. ALL GROUND CONDUCTORS SHALL HAVE GREEN INSULATION. COLOR TAPE IDENTIFICATION OF THESE CONDUCTORS IS NOT PERMITTED.
- 3.07 CONTRACTOR SHALL SEAL ALL CONDUITS ENTERING AN ENCLOSURE WITH CONDUIT SEALANT THAT IS COMPATIBLE WITH THE INSULATION OF THE CONDUCTORS IN THE CONDUIT.
- 3.08 CONDUIT RUNS SHALL HAVE A CONTINUOUS DOWNWARD SLOPE FROM ALL EQUIPMENT TO PREVENT WATER INFILTRATION.
- 3.09 ALL CONDUIT SHALL BE SCHEDULE 40 PVC UNLESS NOTED OTHERWISE ON THE PLANS. WHEN CONDUIT IS ROUTED UNDER A ROADWAY, SCHEDULE 80 PVC CONDUIT SHALL BE UTILIZED. MANUFACTURED BEND RADI SHALL BE PER NEC.
- 3.10 CONTRACTOR SHALL PROVIDE TWO (2) 200 POUND TEST POLYETHYLENE PULL CORDS IN ALL CONDUITS AND ALL INTERDUITS. PULL CORDS SHALL BE SECURED AT EACH END OF CONDUIT RUNS. ALL SPARE CONDUIT ENDS SHALL BE CAPPED WITH MANUFACTURED PVC FITTINGS.
- 3.11 CONTRACTOR SHALL BOND EACH METALLIC CONDUIT ENTERING AN ENCLOSURE WITH #8 MIN AWG INSULATED COPPER BONDING JUMPER PER NEC. CONTRACTOR SHALL BOND ALL ELECTRICAL EQUIPMENT TO THE H-FRAME RACK ON WHICH EQUIPMENT IS MOUNTED WITH #8 MIN AWG INSULATED COPPER BONDING JUMPERS PER NEC.
- 3.12 CONTRACTOR SHALL IDENTIFY THE END OF ALL SPARE UNDERGROUND CONDUITS AND PROVIDE AND INSTALL 90 DEGREE ELBOWS WITH VERTICAL CONDUIT EXTENSIONS TO EXTEND 3" ABOVE FINISHED CRUSHED AGGREGATE GRADE. CONTRACTOR SHALL TERMINATE CONDUITS WITH MANUFACTURED CONDUIT CAPS THAT THE CONTRACTOR HAS PAINTED ORANGE.
- 3.13 CONTRACTOR SHALL PROVIDE AND INSTALL AN ENGRAVED PHENOLIC PLATE ON THE FRONT OF THE INTEGRATED LOAD CENTER. THE WORDING ON THE PLATE SHALL READ AS FOLLOWS: "MAXIMUM DRAW OF ALL RECTIFIERS AND EQUIPMENT ON THE LOAD CENTER CANNOT EXCEED 50KW. IF ADDITIONAL POWER IS REQUIRED, THE EXISTING 50KW GENERATOR MUST BE REPLACED."

4.00 PRE-CONSTRUCTION COORDINATION

- 4.01 CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID AND NOTE ANY UTILITIES THAT MAY AFFECT THEIR WORK. ALL SUCH CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO BID.
- 4.02 THE CONTRACTOR SHALL PROVIDE A UTILITY LOCATOR AND SHALL VERIFY THE ACTUAL LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- 4.03 CONTRACTOR SHALL VERIFY, PRIOR TO ROUGH-IN, THAT SITE CONDITIONS ALLOW FOR THE PLACEMENT OF THE ELECTRICAL EQUIPMENT AS SHOWN ON THE PLANS.
- 4.04 CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRICAL UTILITY REGARDING THE EXACT LOCATION OF THE TRANSFORMER, ALL METERING REQUIREMENTS, AND CONDUIT ROUTING BETWEEN TRANSFORMER AND METER.
- 4.05 CONTRACTOR SHALL COORDINATE WITH LOCAL TELCO UTILITY REGARDING THE EXACT LOCATION OF THE TELCO SERVICE ENTRY POINT.
- 4.06 CONTRACTOR SHALL COORDINATE WITH AUTHORITY HAVING JURISDICTION REGARDING LOCAL FROST LINE REQUIREMENTS FOR RACEWAY MATERIAL SELECTION AND INSTALLATION.
- 4.07 CONTRACTOR SHALL PERFORM AN ARC FLASH ANALYSES AT THE INTEGRATED LOAD CENTER AND PROVIDE ARC FLASH LABEL PER NEC.
- 4.08 ALL CIRCUIT BREAKERS AND EQUIPMENT SHALL HAVE A MINIMUM AIC RATING OF 10,000 AMPS. IF THE RATING OF EQUIPMENT IS LESS THAN 10,000 AMPS, THE CONTRACTOR SHALL PERFORM A SHORT CIRCUIT ANALYSIS TO DETERMINE THE REQUIRED AIC RATING FOR THE CIRCUIT BREAKERS AND EQUIPMENT. PRIOR TO PURCHASING EQUIPMENT, THE CONTRACTOR SHALL CONTACT THE ELECTRIC UTILITY AND OBTAIN IN WRITING THE MAXIMUM AVAILABLE FAULT CURRENT (AFC) AT THE UTILITY SERVICE POINT. PROVIDE A SHORT CIRCUIT ANALYSIS TO DETERMINE THE REQUIRED AIC RATING FOR ALL ELECTRICAL EQUIPMENT. CONTRACTOR SHALL ENSURE ALL ELECTRICAL EQUIPMENT, CIRCUIT BREAKERS, DISCONNECTS, FUSES, AND PANELBOARDS HAVE A FAULT CURRENT INTERRUPTING RATING GREATER THAN THE AVAILABLE FAULT CURRENT.

Southern Towers BTS

PROJECT INFORMATION:

SITE NAME:
DANIEL HARRIS RD
SITE No.: 721404
PROJECT #: 1931980
NORTH CONSERVATORY ROAD
HUNTERDON TOWNSHIP
VAUXE COUNTY

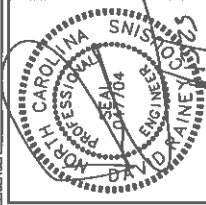
PLANS PREPARED BY:

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NC License 17-042

REV: DATE: ISSUED FOR: BY:

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0	12/08/22	CONSTRUCTION DRG	

LOGSHEET:



DVA PROJECT NUMBER:

01350444

DRAWN BY: CHECKED BY:

WTB DUF

SHEET TITLE:

ELECTRICAL
NOTES

SHEET NUMBER:

E1

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Southern Towers BTS

PROJECT INFORMATION:

SITE NAME:
DANIEL HARRIS RD
SITE No.: 721404
PROJECT #: 16311980
NORTH CONSERVATORY ROAD
MAYACK, VA
VAKE COUNTY

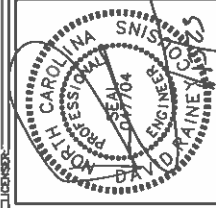
PLANS PREPARED BY:

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REV DATE ISSUED FOR BY

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DRAWN BY: CHECKED BY:

WB DUF
013500441

SHEET TITLE:

UTILITY SERVICE ROUTING PLAN

SHEET NUMBER:

E2

KEY NOTES - ELECTRICAL EQUIPMENT

- 1 UTILITY METER H-FRAME (SEE DETAIL 1/E4).
- 2 POWER STUB UP (SEE NOTE 4.04 ON SHEET E1).
- 3 EXISTING UT FIBER HANDHOLE/PEDESTAL (CONTRACTOR TO CONFIRM EXISTENCE AND LOCATION).
- 4 TRAFFIC RATED TELCO VAULT LABELED "VZW FIBER". (SEE NOTE 4.05 ON SHEET E1)
- 5 TELCO BOX (SEE SHEET C4).
- 6 CIENA UNIT, IF NEEDED (SEE SHEET C4).
- 7 INTEGRATED LOAD CENTER (SEE SHEET C4).
- 8 VERIZON CONCRETE EQUIPMENT PAD (SEE SHEET C6).
- 9 VERIZON CONCRETE GENERATOR PAD (SEE SHEET C6).
- 10 DISCONNECT SWITCH (SEE SHEET C4).

KEY NOTES - CONDUIT, CONDUCTORS, & MISC.

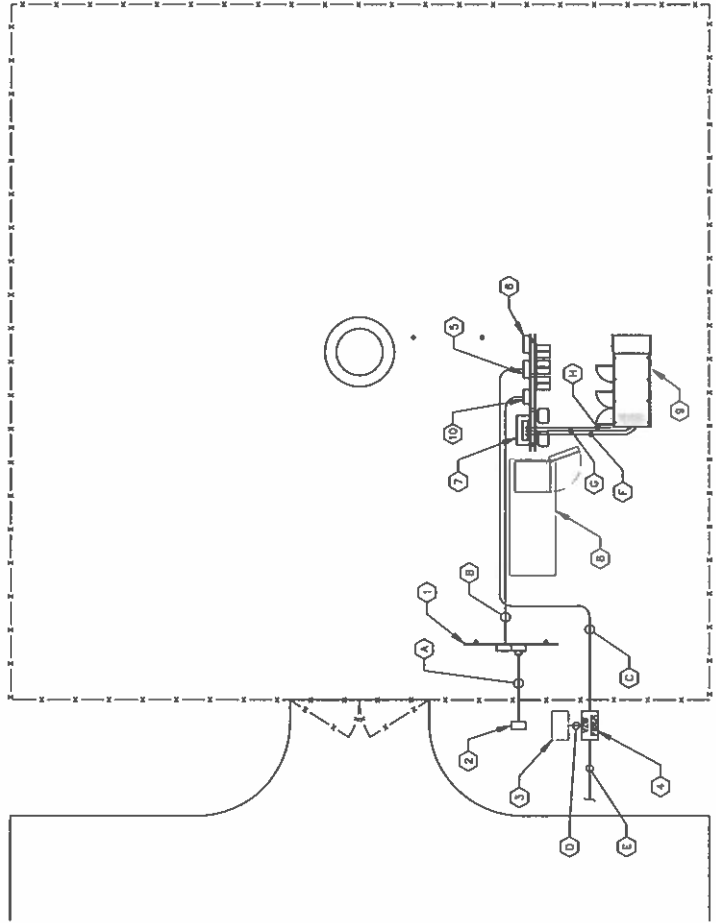
- A TWO (2) 4" PVC POWER CONDUITS FOR INCOMING SERVICE LATERALS FROM LOCAL UTILITY (SEE TRENCH DETAIL 2/E7).
- B 2" PVC POWER CONDUIT FROM PROPOSED METER RACK TO EQUIPMENT RACK (SEE TRENCH DETAIL 2/E7).
- C TWO (2) 2" PVC TELCO CONDUITS, WITH TWO (2) PULL ROPES EACH (SEE TRENCH DETAIL 2/E7).
- D 4" PVC BRIDGE FIBER CONDUIT. (IF NO EXISTING UT FIBER HANDHOLE/PEDESTAL IS PRESENT CONTRACTOR TO PROVIDER A 5" LONG CAPPED STUB BRIDGE CONDUIT).
- E TWO (2) 2" PVC CONDUITS FROM RIGHT OF WAY W/TWO (2) PULL ROPES (SEE TRENCH DETAIL 2/E7 AND SHEET E3).
- F 2" PVC CONDUIT FOR ROUTING POWER CONDUCTOR TO THE GENERATOR. (SEE TRENCH DETAIL 2/E7).
- G 1" PVC CONDUIT FOR ROUTING GENERATOR CONTROL AND ALARM SIGNAL CABLES TO THE GENERATOR (SEE TRENCH DETAIL 2/E7).
- H 1" PVC CONDUIT FOR ROUTING POWER CONDUCTOR TO THE GENERATOR BATTERY CHARGER AND THE GENERATOR BLOCK HEATER (SEE TRENCH DETAIL 2/E7).

NOTES:

GENERAL CONTRACTOR IS TO CONFIRM WITH VERIZON CONSTRUCTION MANAGER WHETHER INSTALLATION OF THE TWO (2) 2" CONDUITS TO THE RIGHT OF WAY WILL BE PART OF THE INITIAL CONSTRUCTION.



1 UTILITY SERVICE ROUTING PLAN
E2 SCALE: 1" = 10'



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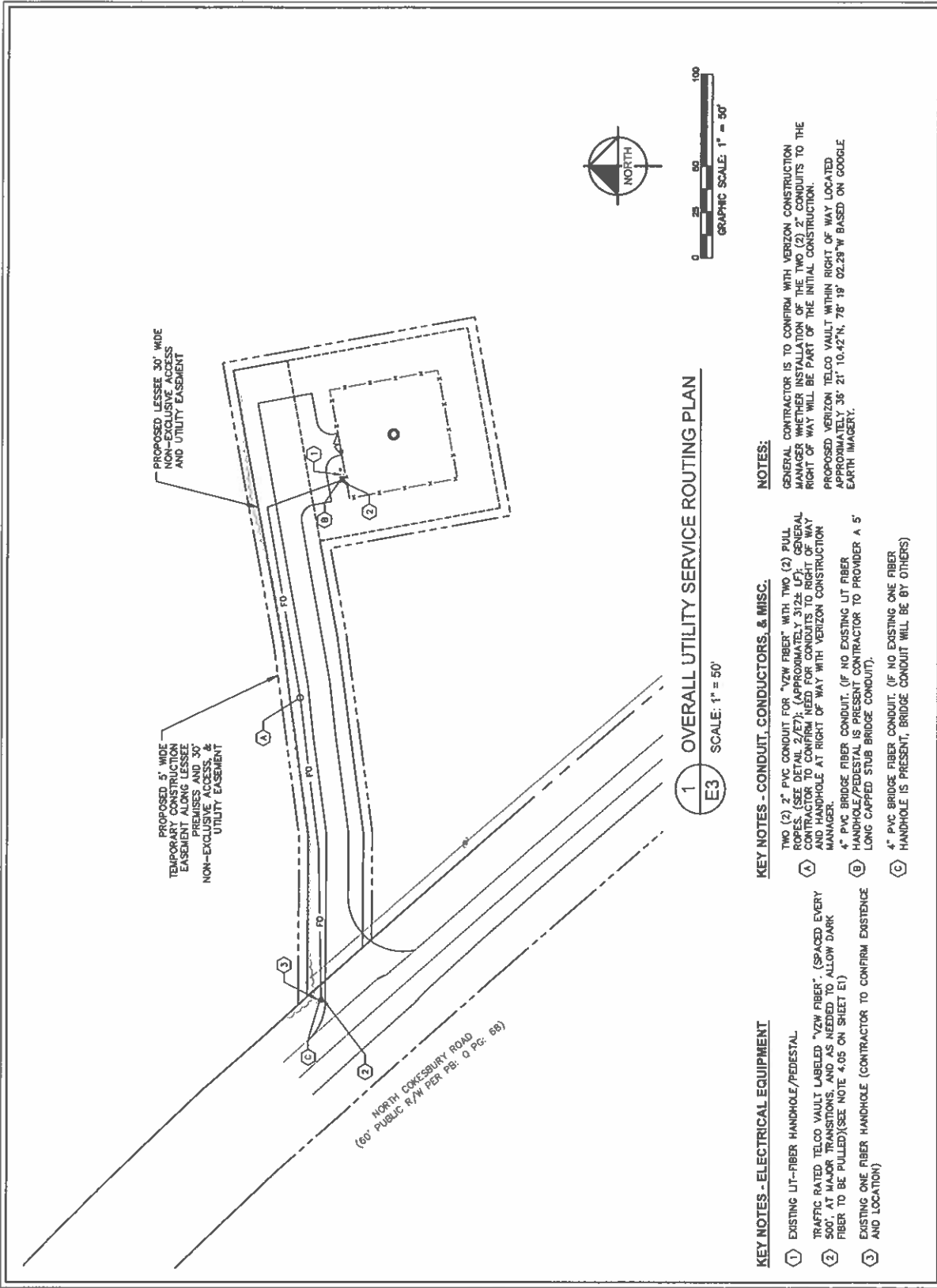
PROJECT INFORMATION:
 SITE NAME:
 DANIEL HARRIS RD
 SITE No.: 721404
 PROJECT #: 18311980
 NORTH CONESBURY ROAD
 HAYWARD, MISSISSIPPI
 YANCEY COUNTY

PLANS PREPARED BY:
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 FAX 770-818-1202
 NC License # 9102

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PROFESSIONAL ENGINEER
 NORTH CAROLINA
 EXPIRES 12/31/24
 DAVID M. HAINES
 04

PROJECT NUMBER: 01300441
 DRAWN BY: DNF
 SHEET TITLE: OVERALL UTILITY ROUTING PLAN
 SHEET NUMBER: E3



1 OVERALL UTILITY SERVICE ROUTING PLAN
 E3 SCALE: 1" = 50'

KEY NOTES - ELECTRICAL EQUIPMENT

- 1 EXISTING UT--FIBER HANDHOLE/PEDESTAL.
- 2 TRAFFIC RATED TELCO VAULT LABELED "VZW FIBER" (SPACED EVERY 500' AT MAJOR TRANSITIONS, AND AS NEEDED TO ALLOW DARK FIBER TO BE PULLED)(SEE NOTE 4.05 ON SHEET E1)
- 3 EXISTING ONE FIBER HANDHOLE (CONTRACTOR TO CONFIRM EXISTENCE AND LOCATION)

KEY NOTES - CONDUIT, CONDUCTORS, & MISC.

- TWO (2) 2" PVC CONDUIT FOR "VZW FIBER" WITH TWO (2) PULL ROPES. (SEE DETAIL 2/E7); (APPROXIMATELY 3124' LF). GENERAL CONTRACTOR TO CONFIRM NEED FOR CONDUITS TO RIGHT OF WAY AND HANDHOLE AT RIGHT OF WAY WITH VERIZON CONSTRUCTION MANAGER.
- 4" PVC BRIDGE FIBER CONDUIT. (IF NO EXISTING UT FIBER HANDHOLE/PEDESTAL IS PRESENT CONTRACTOR TO PROVIDER A 5' LONG CAPPED STUB BRIDGE CONDUIT).
- 4" PVC BRIDGE FIBER CONDUIT. (IF NO EXISTING ONE FIBER HANDHOLE IS PRESENT, BRIDGE CONDUIT WILL BE BY OTHERS)

NOTES:

GENERAL CONTRACTOR IS TO CONFIRM WITH VERIZON CONSTRUCTION MANAGER WHETHER INSTALLATION OF THE TWO (2) 2" CONDUITS TO THE RIGHT OF WAY WILL BE PART OF THE INITIAL CONSTRUCTION.
 PROPOSED VERIZON TELCO VAULT WITHIN RIGHT OF WAY LOCATED APPROXIMATELY 36' 21" 10.42°N, 78' 18" 02.28°W BASED ON GOOGLE EARTH IMAGERY.

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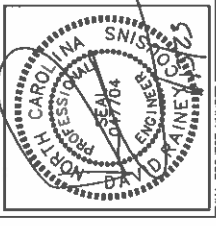
Southern Towers BTS

PROJECT INFORMATION:
 SITE NAME:
 DANIEL HARRIS RD
 SITE No.: 721404
 PROJECT #: 18311890
 NORTH CONCOURSE ROAD
 HENRICE COUNTY
 HENRICE COUNTY

PLANS PREPARED BY:
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REV	DATE	ISSUED FOR
8		
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1	01/12/23	CONSTRUCTION DRC
0	12/08/22	CONSTRUCTION DRC

DESIGNER:
 1 01/12/23 CONSTRUCTION DRC
 0 12/08/22 CONSTRUCTION DRC



DCA PROJECT NUMBER:
 013509441
 DRAWN BY: _____ CHECKED BY: _____
 WTB DNF
 SHEET TITLE:

METER RACK DETAILS

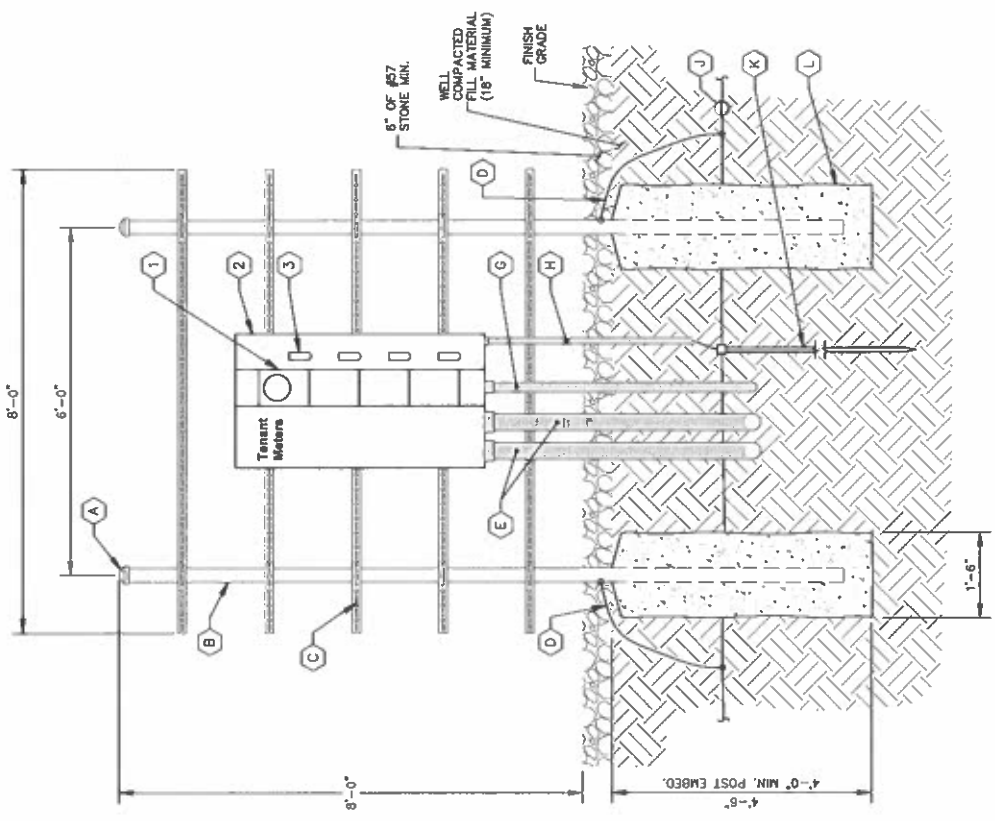
SHEET NUMBER:
E4

KEY NOTES - CONDUIT, CONDUCTORS, & MISC

- (A) GALVANIZED RIGID STEEL CAP, TYPICAL
- (B) 3" GALVANIZED RIGID STEEL PIPE, TYPICAL
- (C) 1 1/2" x 1 1/2" GALVANIZED STEEL CHANNEL (UNISTRUT #P1000 OR APPROVED EQUIVALENT) WITH PLASTIC END CAP (UNISTRUT #P2860), TYPICAL
- (D) ONE (1) #2 AWG BARE SOLID TINNED COPPER BONDING CONDUCTORS (BC) FROM H-FRAME VERTICAL PIPE TO GROUND RING, EXOTHERMIC WELD BOTH ENDS.
- (E) 4" PVC CONDUIT FOR INCOMING SERVICE LATERALS FROM LOCAL UTILITY, TYPICAL OF 2.
- (F) KEYWOTE NOT USED.
- (G) 2" PVC CONDUIT FOR ROUTING FEEDERS TO NON-FUSED DISCONNECT SWITCH.
- (H) 3/4" PVC CONDUIT WITH ONE (1) - 2/0 BARE STRANDED TINNED COPPER GROUNDING ELECTRODE CONDUCTOR (GEC) FROM GROUNDING LUG TO GROUND ROD, EXOTHERMIC WELD SEC TO GROUND ROD.
- (J) GROUND RING (SEE "E" SHEETS).
- (K) GROUND ROD, EXOTHERMIC WELD TO GROUND RING. (SEE "E" SHEETS).
- (L) CONCRETE FOUNDATION FOR H-FRAME VERTICAL PIPE. CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI AND INCLUDE FIBERMESH 850-3E.

KEY NOTES - ELECTRICAL EQUIPMENT

- (1) 200 AMP METER SOCKET IN NEMA 3R ENCLOSURE, TYPICAL OF 4. ONLY TOP SOCKET WILL RECEIVE METER UNDER THIS CONTRACT.
- (2) 800 AMP, 22KVAIC, 4 GANG, SERVICE ENTRANCE RATED METER CENTER IN NEMA 3R ENCLOSURE. BOND TO RACK PER NEC.
- (3) 200 AMP, 2 POLE (22KVAIC) DISCONNECT CIRCUIT BREAKER FOR TOP METER ONLY. CONTRACTOR SHALL MOUNT THE METER CENTER SUCH THAT THE TOP CIRCUIT BREAKER IS NO MORE THAN 6" ABOVE GRADE.



1 METER RACK DETAILS
 E4
 NOT TO SCALE

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Southern Towers BTS

PROJECT INFORMATION:

SITE NAME:
DANIEL HARRIS RD
SITE No.: 721404
PROJECT #: 16311990
NORTH CROSBURY ROAD
NORTH CROSBURY, VA 22927
VAUCE COUNTY

PLANS PREPARED BY:

Kimley-Horn

11720 JAMES LANE, SUITE 400
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PHONE: 703-819-1300
FAX: 703-819-1302
WE: Lincview P-6002

REVISIONS:

NO.	DATE	ISSUED FOR	BY
1	08/12/23	CONSTRUCTION	IRC
2	12/09/22	CONSTRUCTION	IRC



PROJ. TITLE: _____

PROJ. NO.: _____

PROJ. DATE: _____

PROJ. LOCATION: _____

PROJ. CLIENT: _____

PROJ. CONTRACT NO.: _____

PROJ. SHEET NO.: _____

PROJ. SHEET TOTAL: _____

PROJ. PROJECT NUMBER: 013309441

PROJ. DATE: _____

PROJ. CHECKED BY: _____

PROJ. DRAWN BY: WFB

PROJ. DIMF: _____

PROJ. SHEET TITLE: _____

ELECTRICAL SINGLE LINE DIAGRAM

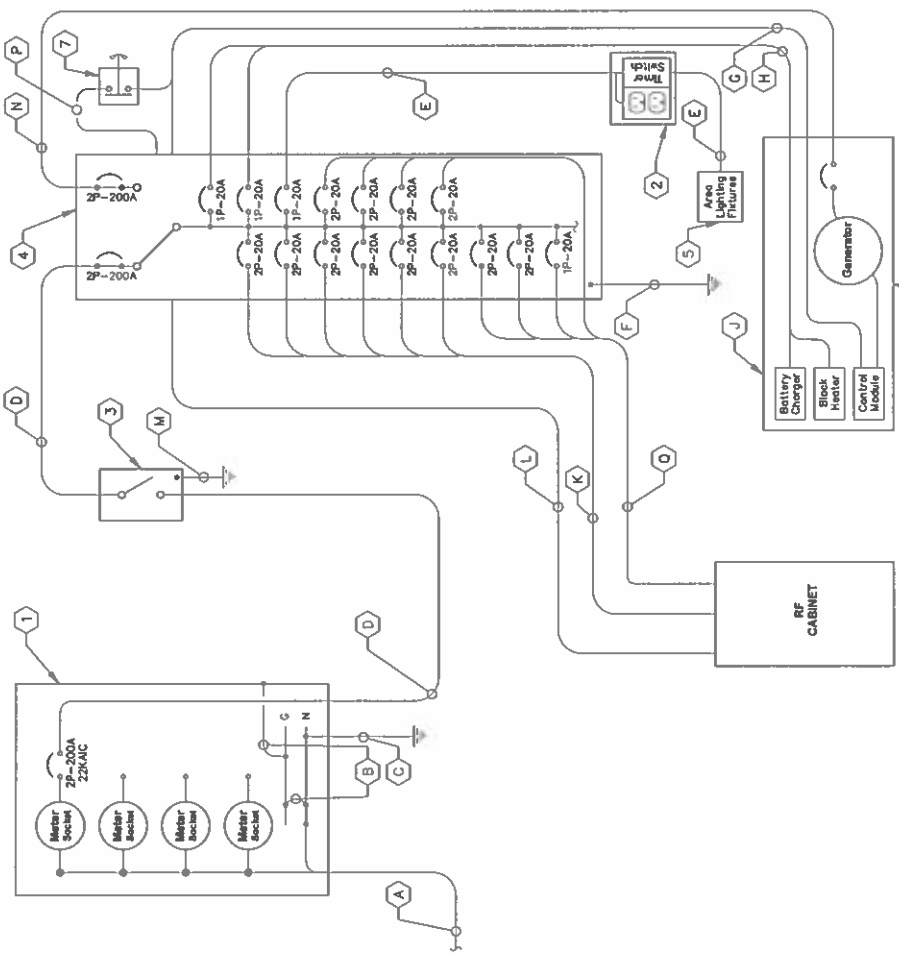
SHEET NUMBER: E5

KEY NOTES - CONDUIT, CONDUCTORS, & MISC

- A TWO (2) 4" CONDUITS BY CONTRACTOR FOR INCOMING SERVICE LATERALS BY LOCAL UTILITY FOR 800 AMP, 120/240 VOLT SINGLE PHASE SERVICE.
- B BOND GROUND BUS TO NEUTRAL BUS AND GROUND BUS TO ENCLOSURE WITH 2/0 BONDING JUMPERS.
- C ONE (1) 2/0 BARE STRANDED TINNED COPPER GEC TO GROUND ROD. EXOTHERMIC WELD GEC TO GROUND ROD.
- D THREE (3) 3/0 CONDUCTORS AND ONE (1) #6 AWG GROUND IN 2" CONDUIT.
- E TWO (2) #12 AWG CONDUCTORS AND ONE (1) #12 AWG GROUND IN 1" CONDUIT.
- F ONE (1) #2 BARE TINNED COPPER FROM GROUNDING LUG IN ILC TO GROUND ROD. EXOTHERMIC WELD TO GROUND ROD.
- G AUTOMATIC TRANSFER SWITCH ALARM AND GENERATOR CONTROL CABLES IN 1" CONDUIT.
- H FOUR (4) #12 CONDUCTORS AND ONE (1) #12 AWG GROUND IN 1" CONDUIT.
- I THE GENERATOR, WHEN UTILIZING A TWO POLE ATS WITH A SOLID NEUTRAL, IS NOT A SEPARATELY DERIVED SYSTEM, THEREFORE, DO NOT BOND THE NEUTRAL TO THE GROUND AT THE GENERATOR.
- J TWELVE (12) #10 AWG THIN CONDUCTORS AND THREE (3) #10 AWG EG IN 2" PVC CONDUIT.
- K ALARM CABLES IN 1" PVC CONDUIT.
- L ONE (1) #2 BARE TINNED COPPER FROM GROUNDING LUG IN DISCONNECT SWITCH TO GROUND RING, EXOTHERMIC WELD TO GROUND RING.
- M THREE (3) 3/0 AWG CONDUCTORS AND ONE (1) #4 AWG EG IN 2" CONDUIT. VERIFY GENERATOR BREAKER DOES NOT EXCEED 200 AMPS.
- N 1" PVC CONDUIT FOR ROUTING POWER CONDUCTORS FROM THE ILC TO THE EMERGENCY GENERATOR STOP SWITCH.
- O TWELVE (12) #10 AWG THIN CONDUCTORS AND THREE (3) #10 AWG FOR RECEPTS AND TWO (2) #10 THIN CONDUCTORS AND ONE (1) #10 AWG FOR CABINET MOUNTED GFI OUTLET, ALL IN ONE 2" PVC CONDUIT.

KEY NOTES - ELECTRICAL EQUIPMENT

- 1 FURNISH AND INSTALL 800 AMP, 3-WIRE, SINGLE PHASE, 120/240 VOLT, 2-PHASE, FOUR-SPACE METAL-CLAMP METER CENTER WITH 200 AMP RATED METER SOCKETS IN NEMA 3R ENCLOSURE. SE RATED. CONTRACTOR SHALL FURNISH AND INSTALL 200 AMP CIRCUIT BREAKER AT METER BASE IF NOT ALREADY EXISTING.
- 2 20 AMP GFCI DUPLEX OUTLET RECEPTACLE AND TIMER SWITCH, ENERLITES HET06 SERIES (OR APPROVED EQUIVALENT) IN LOCKABLE NEMA 3R ENCLOSURE.
- 3 FURNISH AND INSTALL SE RATED 240 V, 200 AMP, 2 POLE, NON-FUSED DISCONNECT IN NEMA 3R ENCLOSURE.
- 4 200 AMP, 120/240 VOLT, ILC WITH 42 SPACE PANE AND AUTOMATIC TRANSFER SWITCH (ATS) WITH 200 AMP BREAKERS SHALL BE RATED TO IAC MINIMUM. ILC IS FURNISHED BY VEW AND INSTALLED BY GENERAL CONTRACTOR.
- 5 FURNISH AND INSTALL TWO (2) AREA LIGHTS, (LITHONIA HFR-250M-TA120-DNA-LPT), (OR APPROVED EQUIVALENT).
- 6 50 KW DIESEL GENERATOR. CONTRACTOR SHALL COORDINATE SPECIFIC GENERATOR CONFIGURATION WITH OWNER AND INSTALL THE GENERATOR IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. GENERATOR BREAKER SIZED AND PROVIDED BY GENERATOR MANUFACTURER.
- 7 EMERGENCY GENERATOR STOP SWITCH IN NEMA 3R ENCLOSURE WILL BE FURNISHED BY VERIZON AND INSTALLED BY GC.



REQUIRED SIGNAGE PER NEC 702 AT SERVICE DISCONNECT & INTEGRATED LOAD CENTER

"WARNING: Sheet hazard exists if grounding electrode conductor or bonding jumper connection is disconnected. Disconnecting the grounding electrode conductor or bonding jumper will cause the standby generator to start. To ensure safe operation, the generator must be turned OFF using emergency stop switch."

1 ELECTRICAL SINGLE LINE DIAGRAM
E5 NOT TO SCALE

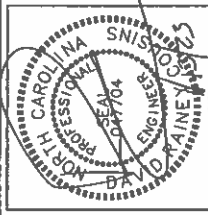
Southern Towers BTS

PROJECT INFORMATION:
 SITE NAME:
 DANIEL HARRIS RD
 SITE No.: 721404
 PROJECT #: 16311890
 NORTH CONCERNARY ROAD
 NEWCASTLE, NC 27577

PLANS PREPARED BY:
Kimley»Horn
 11750 AUSTIN AVENUE, SUITE 600
 FARMERS BRANCH, NC 27504
 PHONE: 770-316-1300
 FAX: 770-316-1302
 NC LICENSE #1002

REV	DATE	ISSUED FOR	BY
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1	07/02/23	CONSTRUCTION DRC	
0	12/08/22	CONSTRUCTION DRC	

NOVA PROJECT NUMBER:
 013509441
 DRAWN BY:
 WB
 CHECKED BY:
 DHF
 SHEET TITLE:
PANEL SCHEDULE



SHEET NUMBER:
E6

PANEL SCHEDULE - VERIZON INTEGRATED LOAD CENTER

Volts: 240/120 Volts
 Phase, Wires: Single Phase, 3 Wire
 Mounting Type: Surface
 Enclosure Type: NEMA 3R

MCB Size: 200 Amps
 AIC Rating: 10,000 Amps min
 Bus Rating: 200 Amps
 Neutral Rating: 100%

Load Served	Load (kVA)		Circuit Nbr	Circuit Bkr Size	Phase A B	Ckt Nbr	Circuit Bkr Size	Load (kVA) A B	Load Served
	A	B							
RECTIFIER 1	1.78	1.78	2	1P-20	1	2	1P-20	0.58	AREA LIGHTS/GFCI
RECTIFIER 2	1.78	1.78	3	1P-20	2	4	1P-20	1.50	GEN BLOCK HEATER
RECTIFIER 3	1.78	1.78	5	2P-20	3	6	1P-20	0.30	GEN BATTERY CHARGER
RECTIFIER 4	1.78	1.78	7	2P-20	4	8	---	0.00	SPACE
RECTIFIER 5	1.78	1.78	9	2P-20	5	10	1P-20	0.18	CAB DUPLEX (OUTLET)
RECTIFIER 6	1.78	1.78	11	2P-20	6	12	---	0.00	SPACE
RECTIFIER 7	1.78	1.78	13	2P-20	7	14	2P-20	1.78	RECTIFIER 9
RECTIFIER 8	1.78	1.78	15	2P-20	8	16	2P-20	1.78	RECTIFIER 10
RECTIFIER 9	1.78	1.78	17	2P-20	9	18	2P-20	0.00	RECTIFIER 11 (SPARE)
RECTIFIER 10	1.78	1.78	19	2P-20	10	20	2P-20	0.00	RECTIFIER 12 (SPARE)
RECTIFIER 11	1.78	1.78	21	2P-20	11	22	2P-20	0.00	SPACE
RECTIFIER 12	1.78	1.78	23	2P-20	12	24	2P-20	0.00	SPACE
RECTIFIER 13	1.78	1.78	25	2P-20	13	26	2P-20	0.00	SPACE
RECTIFIER 14	1.78	1.78	27	2P-20	14	28	2P-20	0.00	SPACE
RECTIFIER 15	1.78	1.78	29	2P-20	15	30	---	0.00	SPACE
RECTIFIER 16	1.78	1.78	31	2P-20	16	32	---	0.00	SPACE
RECTIFIER 17	1.78	1.78	33	---	17	34	---	0.00	SPACE
RECTIFIER 18	1.78	1.78	35	---	18	36	---	0.00	SPACE
RECTIFIER 19	1.78	1.78	37	---	19	38	---	0.00	SPACE
RECTIFIER 20	1.78	1.78	39	2P-30	20	40	---	0.00	SPACE
RECTIFIER 21	1.78	1.78	41	---	21	42	---	0.00	SPACE
TVSS (INTERNAL TO ILC)	0.00	0.00						4.62	Sub-Total (kVA)
	14.24	14.24						5.08	Sub-Total (kVA)

LOAD SUMMARY

Load Description	Connected Load (kVA)		Demand Factor	Demand Load (kVA)	
	A	B		A	B
RECTIFIERS/EQUIP	17.80	17.80	1.00	17.80	17.80
LARGEST MOTOR	0.00	0.00	1.00	0.00	0.00
ALL OTHER MOTORS	0.00	0.00	1.00	0.00	0.00
LIGHTING	0.40	0.00	1.25	0.50	0.00
DUPLEX RECEPTACLES	0.36	0.00	1.00	0.36	0.00
TOTAL MISCELLANEOUS	0.30	1.50	1.00	0.30	1.50
Total Demand Current per Phase				18.96	19.30
Total Demand Power				158.00	161.00
				KVA	Amps
				38.26	KVA

Sub-Total (kVA)
 18.86 19.30 Total Connected (kVA)
 38.16 Demand Load (kVA)
 38.26 A B

*NOTE: CIRCUIT LOAD AND DEMAND FACTOR PROVIDED BY VERIZON.

1 PANEL SCHEDULE
E6 NOT TO SCALE

Southern Towers BTS

PROJECT INFORMATION:

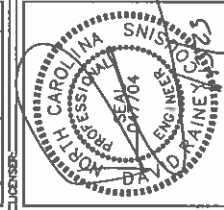
SITE NAME:
DANIEL HARRIS RD
SITE No.: 721404
PROJECT #: 16311880
NORTH CONCERNARY ROAD
NEWCASTLE, VA 23057
VAUCE COUNTY

PLANS PREPARED BY:

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PHONE: 770-414-1200
FAX: 770-414-1201
NC License #1-0102

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2024 PROJECT NUMBER:

01300441

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DMF

CHECKED BY:

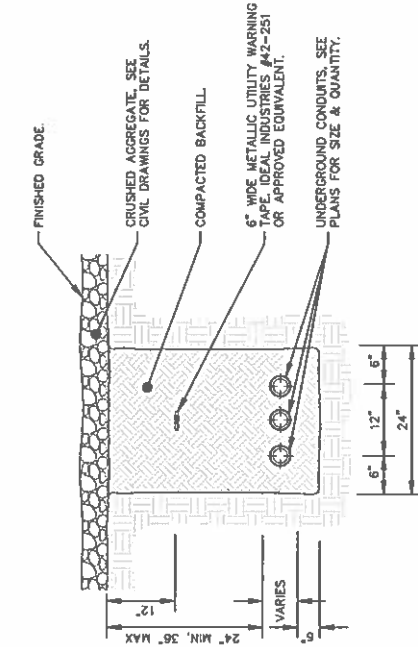
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SHEET TITLE:

ELECTRICAL
DETAILS

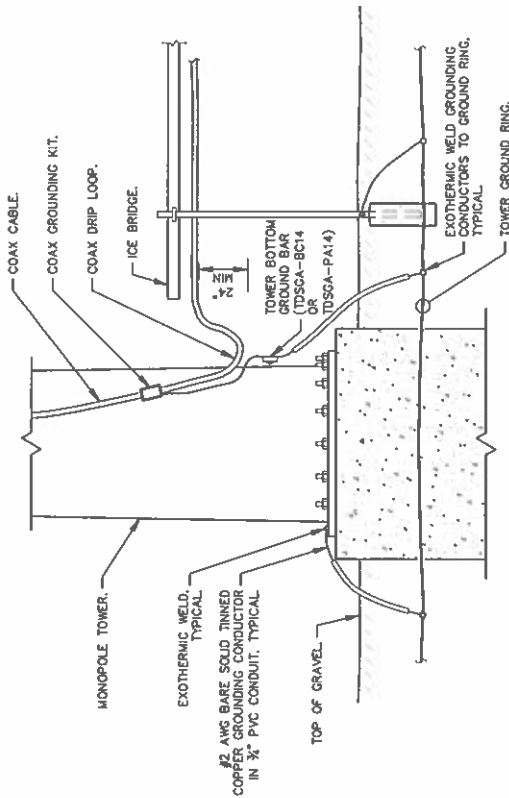
SHEET NUMBER:

E7



- NOTES:
1. IF GROUND SURFACE IS OTHER THAN NEWLY GRAVELED AREA, CONTRACTOR IS TO RESTORE TO ORIGINAL CONDITION.
 2. PROVIDE PVC CONDUIT BELOW GRADE EXCEPT AS NOTED BELOW.
 3. PROVIDE SCHEDULE 40 OR SCHEDULE 80 PVC CONDUIT & ELBOWS AT STUB UP LOCATIONS (I.E. POLES, EQUIPMENT, ETC.)
 4. PROVIDE SCHEDULE 80 PVC CONDUIT BELOW PARKING LOTS AND ROADWAYS.

2 TYPICAL TRENCH DETAIL
E7 NOT TO SCALE



1 DRIP LOOP DETAIL
E7 NOT TO SCALE

GROUNDING NOTES

1. THE GROUND RING SHALL CONSIST OF #2 AWG BARE SOLID TINNED COPPER (STC) CONDUCTOR, UNLESS NOTED OTHERWISE, BURIED AT 30" BELOW FINISHED GRADE (OR BELOW FROST LINE), LOCATE 24" MINIMUM AND 36" MAXIMUM FROM EQUIPMENT AREA AND FROM TOWER FOUNDATION. ALL CONNECTIONS SHALL BE MADE USING A PARALLEL TYPE EXOTHERMIC WELD, UNLESS NOTED OTHERWISE.
2. INSTALL GROUND RODS AS SHOWN AND AS REQUIRED. GROUND RODS TO BE COPPER CLAD STEEL 5/8" DIAMETER AND 10FT IN LENGTH. SPACING BETWEEN GROUND RODS SHALL BE 10FT MINIMUM AND 15FT MAXIMUM. TOP OF GROUND ROD TO BE 30" MINIMUM BELOW GRADE (OR BELOW FROST LINE). BOND TOP OF GROUND ROD TO GROUND WIRE WITH EXOTHERMIC WELD. DO NOT EXOTHERMICALLY WELD ANYTHING TO GROUND ROD (CLAMPED WIRE WHICH PASSES OVER TOP OF GROUND ROD (CLAMPED CONNECTIONS TO GROUND ROD PER TOWER MANUFACTURERS DETAILS ARE ACCEPTABLE).
3. EQUIPMENT GROUNDING SHALL HAVE A MINIMUM OF 4 GROUND RODS. INSTALL AT THE CORNERS OF THE GROUND RING PLUS ADDITIONAL RODS AS REQUIRED TO COMPLY WITH THE SPACING REQUIREMENTS. TOWER GROUND RING SHALL HAVE A MINIMUM OF 3 GROUND RODS. EXCEPT USE 4 RODS AT A MONOPOLE TOWER. WHEN SPREAD TOWER FOOTING WOULD PREVENT GROUND RODS FROM BEING INSTALLED AT CORNERS, GROUND RODS SHALL BE VERTICAL 1" DIAMETER PVC SLEEVES EMBEDDED IN FOOTING TO ALLOW INSTALLATION OF GROUND RODS.
4. EQUIPMENT GROUND RING AND TOWER GROUND RING SHALL BE BONDED TOGETHER WITH TWO #2 STC GROUND LEADS, TYPICALLY ONE ON EACH SIDE OF ICE BRIDGE.
5. BOND TOWER TO TOWER GROUND RING AT THREE LOCATIONS WITH #2 STC GROUND LEAD. SELF-SUPPORT TOWERS SHALL HAVE EACH LEG BONDED TO GROUND RING. MONOPOLES AND GUYED TOWERS SHALL HAVE GROUND LEADS EQUALLY SPACED AROUND TOWER. EXOTHERMICALLY WELD GROUND LEADS TO TOP OF BASE PLATES. OR ATTACH TO TOWER USING TOWER MANUFACTURER PROVIDED DETAIL.
6. PROVIDE #2 STC RADIALS FROM THE TOWER GROUND RING TO EACH FENCE CORNER POST. RADIALS SHALL HAVE GROUND RODS AS PER THE REQUIRED SPACING. THE GROUND ROD AT THE END OF EACH RADIAL SHALL BE 24" MAXIMUM FROM FENCE CORNER POST. EQUIPMENT AREA GROUND RING AND CONNECTING GROUND LEADS BETWEEN EQUIPMENT AREA AND TOWER GROUND RING(S) MAY BE POSSED AS PART OF THE GROUNDING TO THE FENCE CORNER POST CLOSEST TO THE EQUIPMENT AREA.
7. MINIMUM BEND RADIUS FOR #2 AWG GROUND WIRE IS 12". EXCEPT USE 24" FOR TOWER GROUND RINGS AND EQUIPMENT PAD GROUND RINGS.
8. GROUND ALL EXTERIOR EXPOSED METAL OBJECTS. USE TWO HOLE 3/4" METRIC CONDUIT FOR ALL SWANNECK CONNECTIONS. STAINLESS STEEL HARDWARE ON ALL HARDWARE CONNECTIONS. CLEAN ALL SURFACES (AND STRIP PAINTED SURFACES) TO BARE BRIGHT METAL PRIOR TO MAKING GROUND CONNECTIONS. APPLY ANTI-OXIDE COMPOUND TO ALL CONNECTIONS. APPLY ZINC RICH PAINT (COLD GALV.) TO ALL EXOTHERMIC WELDS, AND TO ANY METAL EXPOSED BY CLEANING, STRIPPING, GRINDING, CUTTING OR DRILLING.
9. ALL GROUNDING CONDUCTORS ABOVE GRADE SHALL BE RUN IN 3/4" FLEXIBLE PVC CONDUIT. CONDUIT SHALL BEGIN WITHIN 3/4" OF ABOVE GROUND CONNECTION POINT. SHALL EXTEND 24" BELOW GRADE MINIMUM, AND SHALL BE FILLED WITH SEALANT AT ABOVE GROUND CONNECTION POINT. SECURE CONDUIT EVERY 24" ON VERTICAL RUNS AND EVERY 36" ELSEWHERE WITH NON-METALLIC TIES.
- 10A. AT GUYED AND SELF SUPPORT TOWERS MOUNT TDSCA-PA14 TOWER BOTTOM GROUND BAR ON DEDICATED POST DIRECTLY BELOW COAX CABLES COMING OFF TOWER. POST TO BE 3.5" OD GALVANIZED SCHEDULE 40 PIPE WITH GALVANIZED PIPE CAP. TOP OF POST TO BE 78" ABOVE GRADE. EMBED POST 30" MINIMUM IN 12" DIAMETER BY 36" DEEP MINIMUM CONCRETE FOOTING WITH TOP OF FOOTING 6" BELOW GRADE. IF TOWER FOUNDATION OBSTRUCTS AUGERED FOOTING, USE POST WITH 10" SQUARE GALVANIZED STEEL FLANGE PLATE WELDED TO BOTTOM AND BOLT FLANGE TO TOP OF CONCRETE TOWER FOOTING.
- 10B. AT MONOPOLE TOWERS CLAMP TDSCA-BC14 GROUND BOTTOM GROUND BAR DIRECTLY TO TOWER. IF RUNNING COAX INSIDE MONOPOLE, CLAMP ONTO BOTTOM LIP OF EXIT PORT. IF BANDING COAX TO OUTSIDE OF TOWER, CLAMP ONTO STEEL ANGLE WHICH IS 4" ABOVE GRADE. CLAMP TO BOTTOM OF GROUND RING WITH TWO #2 STC LEADS LUGGED TO GROUND BAR AND EXOTHERMICALLY WELDED TO GROUND RING.
11. AT EQUIPMENT AREA, INSTALL TDSCA-PA14 EXTERIOR GROUND BAR (THRU-BOLTED STYLE) AT BASE OF (2) INTERIOR H-FRAME POSTS AND AT TOP OF ICE BRIDGE POST WHICH IS NEAREST TO (BUT CLOSER TO TOWER THAN) THE COAX CABLE TERMINATION. MOUNT GROUND BAR TO H-FRAME POSTS AT 6" ABOVE GRAVEL AND TO ICE BRIDGE POST AT 6FT ABOVE GRAVEL.
12. ALL ICE BRIDGE SECTIONS ARE TO BE JUMPED TOGETHER WITH #2 WIRE. EITHER BARE TINNED COPPER OR GREEN INSULATED STRANDED. ICE BRIDGE SHALL BE GROUND ED AT EACH END WITH #2 STC WIRE LUGGED TO ICE BRIDGE AND EXOTHERMICALLY WELDED TO UPPER PORTION OF NEAREST ICE BRIDGE POST. ICE BRIDGE WITH JUMPERS AT EACH END SHALL BE ASSEMBLED WILL BE OTHER THAN THOSE SHOWN. THE ASSEMBLY WILL BE CONSIDERED AS A SINGLE ICE BRIDGE SECTION FOR GROUNDING PURPOSES.
13. BOND EACH ICE BRIDGE POST, H-FRAME POST OR DEDICATED GROUNDING POST TO BURRED GROUNDING SYSTEM WITH #2 STC WIRE LUGGED TO GROUND RING. EACH POST TO HAVE EXOTHERMICALLY WELDED TO GROUND RING. EACH POST TO HAVE SEPARATE GROUND LEAD DIRECTLY TO GROUND RING - DO NOT DAISY CHAIN POSTS TOGETHER.
14. BOND EACH RF CABINET TO EQUIPMENT GROUND RING WITH #2 AWG TINNED SOLID BARE COPPER CONDUCTOR LUGGED TO CABINET AND EXOTHERMICALLY WELDED TO GROUND RING. EACH RF CABINET BODY USING LOCATION AT WHICH STUDIOS ON CABINET CHASSIS HAVE DIRECT GROUND WIRE CONNECTION TO CABINET INTERNAL GROUND BAR. RUN CONDUIT AND CONDUCTOR ACROSS BACK OF CABINET (DO NOT RUN TOWARDS NEAREST CORNER OF CABINET AND THEN BEND GROUND WIRE NEARLY). ACROSS CONCRETE PAD BELOW CABLE LADDER, THEN DOWN INTO GRAVEL AREA.
15. BOND EACH BATTERY CABINET TO GROUND RING WITH #2 AWG TINNED SOLID BARE COPPER CONDUCTOR LUGGED TO CABINET BODY AND EXOTHERMICALLY WELDED TO GROUND RING. RUN GROUND LEAD IN FLEX CONDUIT ALONG BACK OF RB472 CABINET. ACROSS CONCRETE PAD BELOW CABLE LADDER, THEN DOWN INTO GRAVEL AREA. CONNECT TWO HOLE LUG TO BACK OF CABINET AT FACTORY PROVIDED GROUNDING STUDS.
16. BOND GENERATOR TO GROUND RING WITH #2 STC AT TWO DIAGONALLY OPPOSITE LOCATIONS BY DRILLING AND BOLTING TWO HOLE LUG TO PINS ON GENERATOR BASE STRUCTURE. GROUND LEADS SHOULD TAKE SHORTEST PATH ACROSS CONCRETE PAD TO GRAVEL AREA, THEN CONTINUE TO GROUND RING.
17. WHERE PROPANE TANK IS INSTALLED TO FUEL GENERATOR, BOND PROPANE TANK TO GROUND RING WITH A SINGLE #2 STC CLAMPED TO FILLER PIPE OF PROPANE TANK AND EXOTHERMICALLY WELDED TO GROUND RING. GROUND LEAD SHOULD RUN TO TANK SUPPORT AND TAKE SHORTEST PATH ACROSS CONCRETE PAD TO GRAVEL AREA. LOCATE TANK AT LEAST 10 FEET FROM FENCE. FUEL LINE IS METAL. LOCK TIGHT CROSSES EQUIPMENT. PROPANE TANK FUEL LINE TO EQUIPMENT GROUND RING WHERE THE TWO LINES CROSS WITH A SINGLE #2 STC CLAMPED TO FUEL LINE AND EXOTHERMICALLY WELDED TO GROUND RING.
18. BOND GPS ANTENNA and GPS ANTENNA MOUNT TO TDSCA GROUND SYSTEM USING TWO #2 STC LEADS LUGGED TO GROUND RING AND EXOTHERMICALLY WELDED TO TDSCA ANTENNA MOUNT. GREEN INSULATED STRANDED GROUND WIRE.
19. PROVIDE TWO GROUND RODS OUTSIDE GATES OF COMPOUND. DISTANCE BETWEEN GROUND RODS SHALL MATCH WIDTH OF GATE OPENING, AND DISTANCE FROM FENCE SHALL MATCH LENGTH OF LONGEST INDIVIDUAL GATE LEAF. BOND GATE POSTS TOGETHER WITH GROUND LEAD WHICH RUNS PAST AND CONNECTS TO GROUND RODS OUTSIDE GATES.
20. BOND EACH GATE POST WITH #2 STC TO NEAREST PORTION OF GROUNDING SYSTEM INSIDE COMPOUND.
21. BOND EACH GATE TO GATE POST WITH FLEXIBLE INSULATED OR GREEN INSULATED #2 COPPER OR EXOTHERMICALLY WELDED STRAP TO BOTH GATE AND GATE POSTS.
22. ANY METAL FENCE POST WITHIN 6FT OF A GROUND RING OR OBJECT SHALL BE BONDED TO THE NEAREST GROUND RING. ANY METAL FENCE WITHIN 6FT OF A GROUND RING SHALL HAVE THE LINE POSTS BONDED TO THE GROUND RING AT 20FT MAXIMUM INTERVALS AS MEASURED ALONG THE LENGTH OF THE FENCE.
23. WHERE GROUND BASED RRVS, RAYCAP OVP'S OR DIPLEXERS ARE INSTALLED AT THE EQUIPMENT AREA, BOND EACH COMPONENT TO NEAREST TDSCA GROUND BAR BELOW THE COMPONENT WITH #2 GREEN INSULATED STRANDED GROUND WIRE. SINGLE HOLE LUG OR RING TYPE CONNECTOR IS SUITABLE FOR CONNECTION TO GROUNDING STUD ON EACH COMPONENT.
24. NOTIFY VZV CM TO INSPECT GROUND RING BEFORE BACKFILLING. CONTRACTOR SHALL HIRE A JTD PARTY TO PERFORM AN IEEE81 FALL OF POTENTIAL METHOD GROUND TEST. MAXIMUM ALLOWABLE RESISTANCE TO GROUND IS 5 OHMS. PROVIDE ADDITIONAL GROUND SYSTEM COMPONENTS AS REQUIRED TO ACHIEVE THIS VALUE.
25. REFER TO TOWER GROUNDING DIAGRAM AND NOTES FOR GROUND SYSTEM REQUIREMENTS ON THE TOWER.
26. GROUNDING OF ALL ELECTRICAL EQUIPMENT SHALL BE AS PER NEC. MUNICIPAL AND UTILITY COMPANY REQUIREMENTS.

PROJECT INFORMATION:

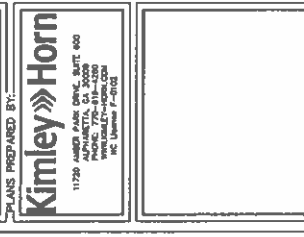
SITE NAME:
DANIEL HARRIS RD
SITE NO.: 721404
PROJECT #: 18311890
NORTH COUNTRY ROAD
VANCE COUNTY

PLANS PREPARED BY:

Kimley»Horn
1739 W. RIVERVIEW BLVD., SUITE 400
RALEIGH, NC 27607
PHONE: 770-811-5300
FAX: 770-811-5301
WWW.KIMLEY-HORN.COM
NC License # 005

DATE ISSUED FOR: 01/13/23

8	REVISION
7	
6	
5	
4	
3	
2	
1	10/12/23 CONSTRUCTION [RBC]
0	12/09/22 CONSTRUCTION [RBC]



OWNER: _____

DESIGNER: _____

DATE: _____

APPROVED BY: _____

CHECKED BY: _____

TITLE: _____

DWF: _____

SHEET TITLE: _____

SHEET NUMBER: _____

GROUNDING NOTES

SHEET NUMBER: **E8**

SouthernTowers BTS

PROJECT INFORMATION:

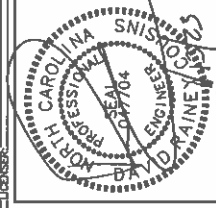
SITE NAME:
DANIEL HARRIS RD
SITE No.: 721404
PROJECT #: 18311890
NORTH CONCERNARY ROAD
RTE 17/237
VANCOE COUNTY

PLANS PREPARED BY:



11720 WILSONVILLE RD, SUITE 400
WILSONVILLE, OR 97158
PHONE: 770-819-1200
FAX: 770-819-1202
NC License # 49022

REV	DATE	ISSUED FOR	BY
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1	01/12/23	CONSTRUCTION	ERC
0	12/09/22	CONSTRUCTION	ERC



PROJ. PROJECT NUMBER:

013509443

DESIGNED BY:

WFB

CHECKED BY:

DUF

SHEET TITLE:

GROUNDING PLAN

SHEET NUMBER:

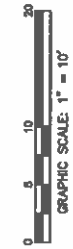
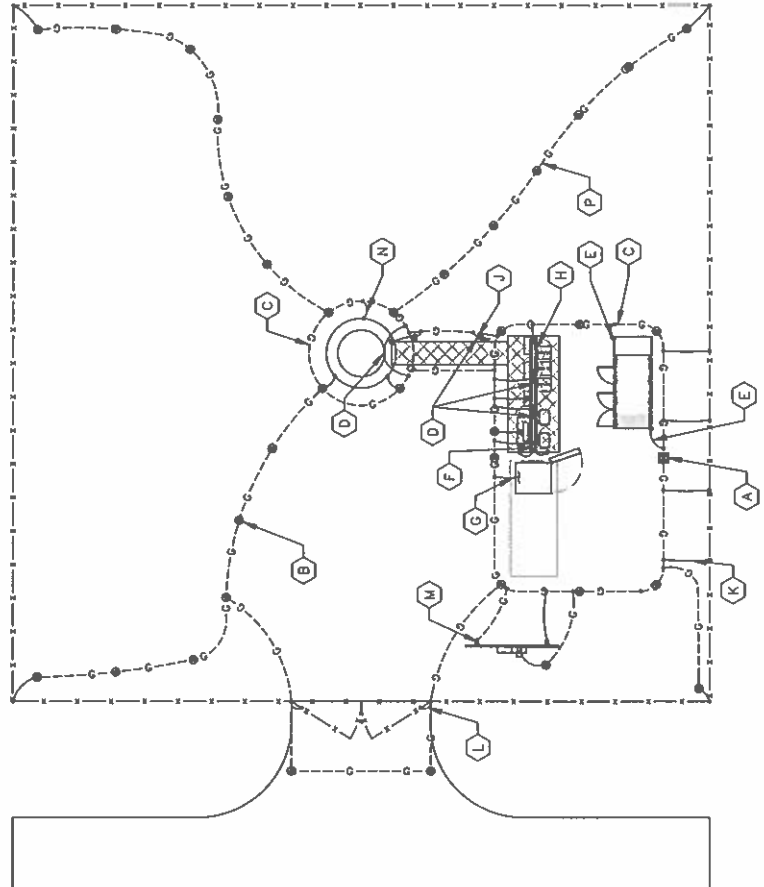
E9

KEY NOTES - GROUNDING EQUIPMENT

- (A) GROUND ROD TEST WELL (SEE DETAIL 1/E11).
- (B) GROUND ROD, TYPICAL (SEE DETAIL 2/E11 AND NOTES 2 AND 3 ON EB).
- (C) TOWER AND EQUIPMENT GROUND RING (SEE NOTES 1, 3, 4, 5, 6 AND 7 ON EB).
- (D) TUSCAL-PA14 OR TUSCAL-BC14, WHERE APPLICABLE (SEE NOTES 10 AND 11 ON EB).
- (E) GENERATOR GROUNDING (SEE NOTE 16 ON EB).
- (F) GPS ANTENNA GROUNDING (SEE NOTE 18 ON EB).
- (G) RF CABINET GROUNDING (SEE NOTE 14 ON EB).
- (H) RRUS AND OVP'S GROUNDING (SEE NOTE 23 ON EB).
- (J) ICE BRIDGE POST BOND TO GROUND RING, TYPICAL (SEE NOTES 12 AND 13 ON EB).
- (K) FENCE POST GROUNDING, TYPICAL (SEE NOTE 22 ON EB).
- (L) GATE GROUNDING, TYPICAL (SEE NOTES 19, 20 & 21 ON EB).
- (M) UTILITY H-FRAME GROUNDING, TYPICAL (SEE SHEET E3 AND NOTE 13 ON EB).
- (N) TOWER GROUNDING, TYPICAL (SEE NOTES 5, 6 & 25 ON EB).
- (P) GROUND RADIALS, TYPICAL (SEE NOTE 6 ON EB).
- (Q) REFER TO SHEETS EA, E10, E11 & E12 FOR GROUNDING NOTES, DETAILS, AND SPECIFICATIONS.

LEGEND:

- G --- GROUND RING
- G --- GROUND ROD EXTERNICALLY WELDED TO GROUND RING
- EXOTHERMIC WELD
- ⊗ GROUND ROD TEST WELL (SEE DETAIL 1/E11)
- ⊕ MECHANICAL CONNECTION



1 GROUNDING PLAN
E9 SCALE: 1" = 10'

01/13/23 12:01 PM BY: William Bledsoe

SouthernTowers BTS

PROJECT INFORMATION:

SITE NAME:
DANIEL-HARRIS RD
SITE No.: 721404
PROJECT #: 183111960
NORTH CRESSENT ROAD
VANCE COUNTY

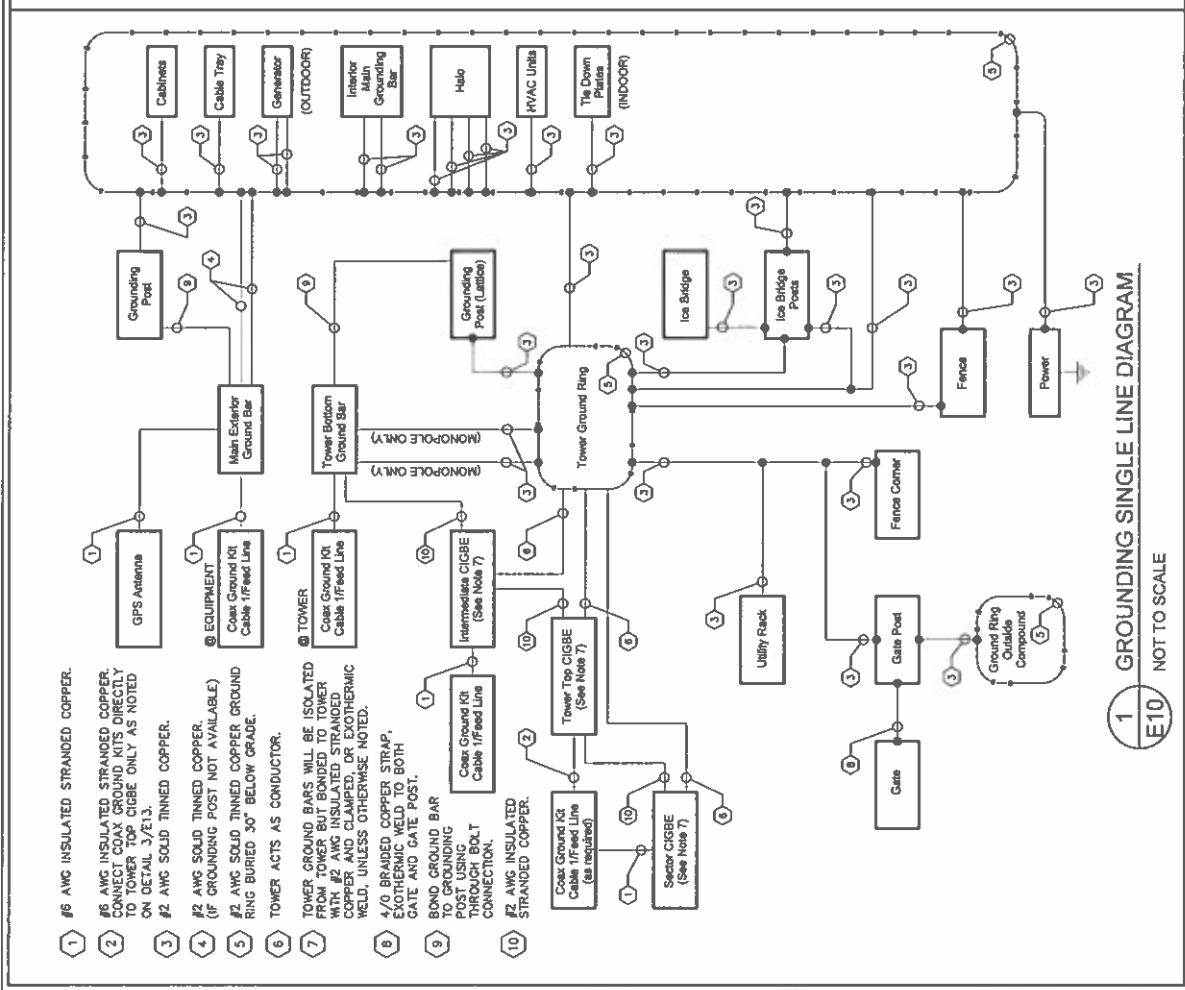
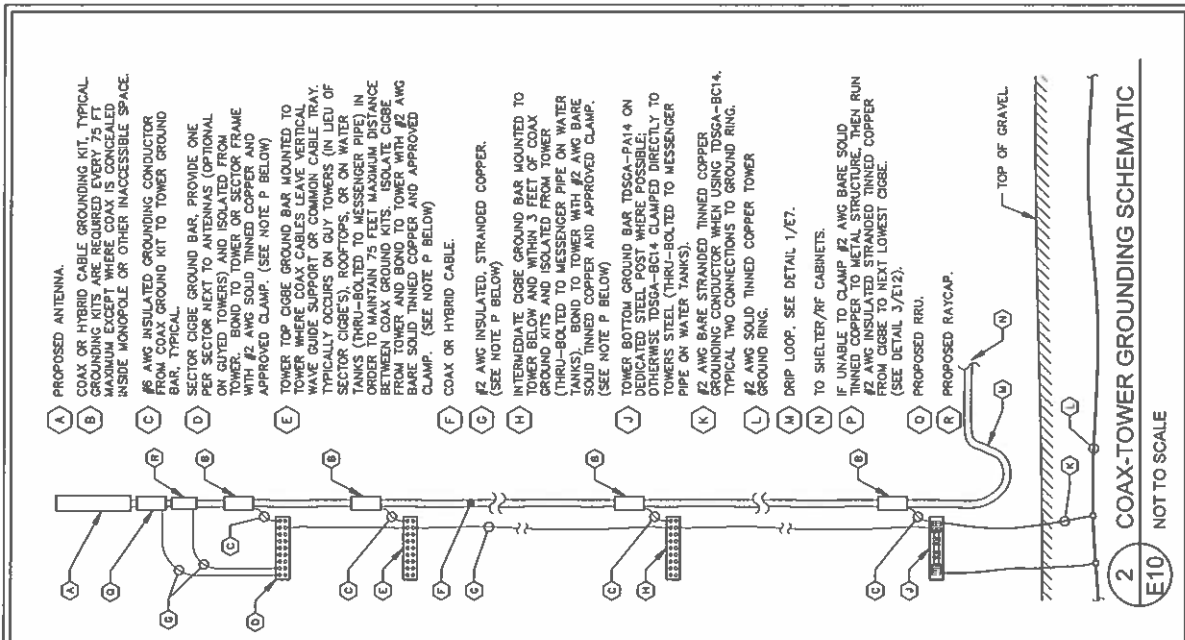
PLANS PREPARED BY:

Kimley-Horn
11720 WILSON ROAD, SUITE 400
CHARLOTTE, NC 28268
PHONE: 770-416-1300
FAX: 770-416-1302
NC License # 4002

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0	12/09/22	CONSTRUCTION	IRC



PROJ. NO.: 183111960
SHEET TITLE: GROUNDING SINGLE LINE DIAGRAM
SHEET NUMBER: E10



This document, together with the drawings and design presented herein, is prepared only for the specific project and site for which it was prepared. It is intended only for the specific project and site for which it was prepared. It is not to be used for any other project or site without the express written consent of Kimley-Horn and Associates, Inc. Kimley-Horn and Associates, Inc. shall not be held liable for negligence and malpractice by Kimley-Horn and Associates, Inc.

Southern Towers BTS

PROJECT INFORMATION:
 SITE NAME:
 DANIEL HARRIS RD
 SITE No.: 721404
 PROJECT #: 16311890
 NORTH CONCERNRY ROAD
 HENNINGTON, NC 27537
 VANCE COUNTY, NC

PLANS PREPARED BY:
Kimley-Horn
 11720 ARLINGTON AVENUE SUITE 800
 WASHINGTON, DC 20028
 PHONE: 703-618-1300
 FAX: 703-618-1305
 NC License # 5702
 NC License # 6102

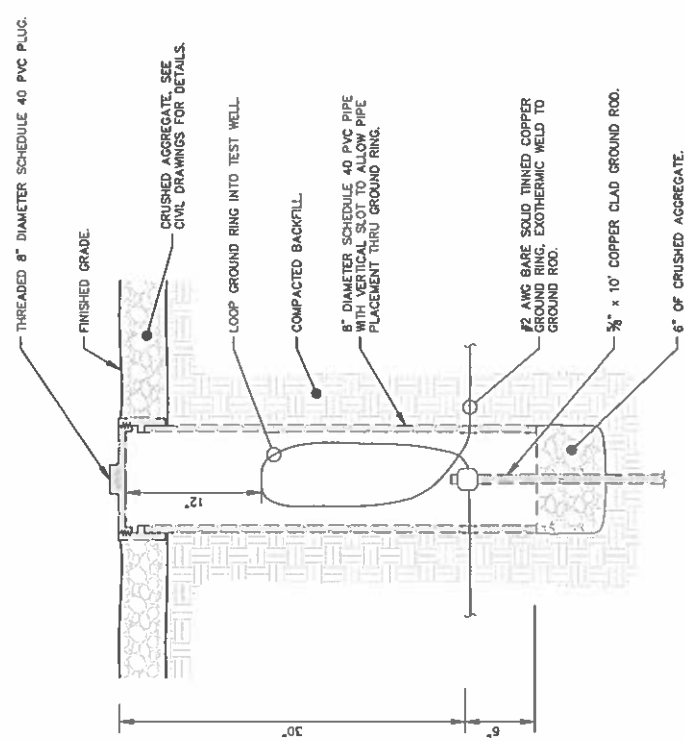
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DESIGNER:
 NORTH CAROLINA PROFESSIONAL ENGINEERS AND SURVEYORS
 STATE NO. 704
 DATE 12/09/22

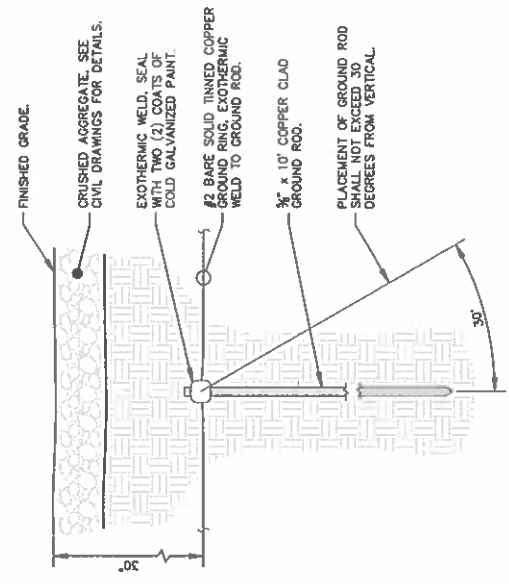
DMA PROJECT NUMBER:
 013509441
 DRAWN BY: _____ CHECKED BY: _____
 SHEET TITLE: _____ DIMF: _____
 SHEET NUMBER: _____

GROUNDING DETAILS

SHEET NUMBER: **E11**



1 GROUND ROD TEST WELL DETAIL
 E11 NOT TO SCALE



2 GROUND ROD INSTALLATION DETAIL
 E11 NOT TO SCALE

K:\V11_16311890_1000_VetPlan\1000_VetPlan\2023 Shared\Kimley-Horn RA\CAD\B\CAD\CE-CR-08.dwg --- 01/12/23 12:02 PM by: William Binkoff

This document, together with the drawings and designs provided herein, is the intellectual property of Kimley-Horn and Associates, Inc. and is not to be used for any other purpose without the written consent of Kimley-Horn and Associates, Inc. It is to be used only for the specific project and shall be void if not printed. Plans of and designs prepared hereon, to include all other details in this document, shall be subject to the provisions of the contract for the design and construction of the project.

Southern Towers BTS

PROJECT INFORMATION:
 SITE NAME:
 DANIEL HARRIS RD
 SITE No.: 721404
 PROJECT #: 63111890
 NORTH COKESBURY ROAD
 HUNTSVILLE, TN 37427
 VANDE COUNTY

PLANS PREPARED BY:
Kimley»Horn
 11720 UNIVERSITY DRIVE SUITE 600
 HUNTSVILLE, TN 37421
 PHONE: 724-814-4300
 FAX: 724-814-4301
 NC License F-6102

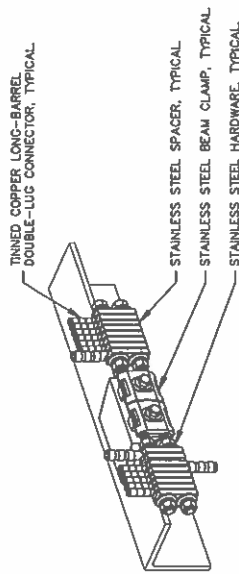
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0	12/09/22	CONSTRUCTION (PRC)

DESIGNER:
 NORTH CAROLINA PROFESSIONAL ENGINEERS
 2025704
 STAINESVILLE, VA

PROJECT NUMBER:
 013509441
 DRAWN BY: WTB
 CHECKED BY: DMF
 SHEET TITLE:
GROUNDING DETAILS

SHEET NUMBER:
E12

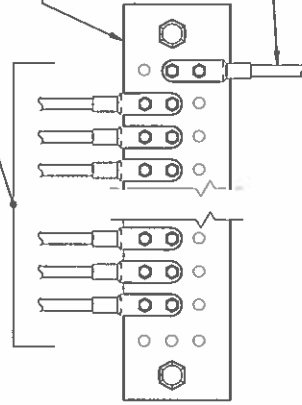
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1 BAR NONE GROUNDED BEAM CLAMP (TDSGA-BC14)
 NOT TO SCALE
 E12

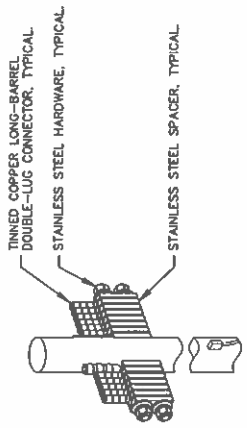
#6 AWG INCOMING GROUNDING CONDUCTORS FROM COAX GROUNDING KITS. (FOR TOWER TOP CIGBE'S OCCURS ONLY ON GUYED TOWERS, OR ON OTHER STRUCTURES WHERE REQUIRED TO ACHIEVE 75 FT MAXIMUM DISTANCE BETWEEN COAX GROUNDING LOCATIONS.)

CIGBE GROUND BARS ON ANTENNA TOWER, ISOLATE FROM TOWER.

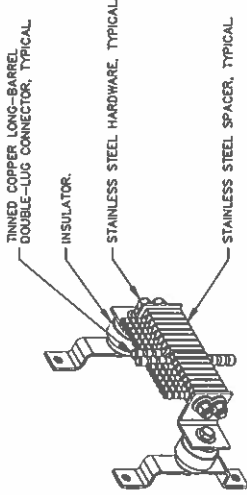


3 ANTENNA GROUND WIRE INSTALLATION DETAIL
 NOT TO SCALE
 E12

- NOTES:
- ALL CIGBE GROUND BARS ON TOWER ARE TO BE ERICO TDSCA. TYPICALLY USE TDSCA-WB17 ISOLATED FROM UNISTRUT BRACKET.
 - IF CIGBE CANNOT BE CONNECTED TO TOWER WITH #2 AWG GROUNDING CONDUCTOR, USE CLAMP OR EXOTHERMIC WELD, THEN RUN #2 AWG INSULATED GROUNDING CONDUCTOR TO NEXT LOWER CIGBE. SECURE GROUND LEAD WITH NON-METALLIC TIES AT SAME SPACING AS COAX SUPPORTS.



2 BAR NONE POST MOUNTED (TDSGA-PA14)
 NOT TO SCALE
 E12



4 BAR NONE INSULATED (TDSGA-WB17)
 NOT TO SCALE
 E12

AERIAL VIEW



EXHIBIT G

Michael Harvey, Director
Vance County Planning and Development
156 Church Street, Suite 003
Henderson, NC 27536

252-738-2080

Letter of Authorization & Co-location Commitment

Applicant: Southern Towers BTS, LP, a Delaware Limited Partnership, by its General Partner, Southern Towers BTS, LLC, a Tennessee Limited Liability Company

Application: Special Use Permit

Southern Towers Site Name: NC-035 Daniel Harris Road

Project: Southern Towers wireless telecommunications tower site including a 195' monopole with 4' lightning rod with Verizon Wireless antennas at a centerline of 190' and Verizon Wireless equipment within a 60' x 60' fenced compound

Address: 171 N. Cokesbury Rd, Henderson, NC 27537

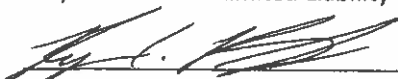
Parcel #: 0526 02005

Owner: JDRF, LLC

This letter will confirm that Southern Towers BTS, LP, a Delaware Limited Partnership, by its General Partner, Southern Towers BTS, LLC, a Tennessee Limited Liability Company authorizes Ralph Wyngarden, Faulk & Foster, to appear at meetings and sign any application or other documentation necessary to obtain all required permits or approvals necessary for this project.

Southern Towers will comply with Vance County Zoning Ordinance Sections 6.10.O.2.g and 6.10.O.6.d by marketing the available colocations of the tower and designing the site to accommodate Verizon Wireless plus 3 additional future providers as shown in the drawings submitted.

Southern Towers BTS, LP, a Delaware Limited Partnership, by its General Partner, Southern Towers BTS, LLC, a Tennessee Limited Liability Company



Ryan Bradley, Site Acquisition Project Manager

Date: 10/27/23

Southern Towers
250 Signal Mountain Road, Suite B
Chattanooga, TN 37405
423-531-6300, ext 115
RBradley@Southern-Towers.com

EXHIBIT H

Michael Harvey, Director
Vance County Planning and Development
156 Church Street, Suite 003
Henderson, NC 27536

252-738-2080

Forest Buffer Preservation Letter

Applicant: Southern Towers BTS, LP, a Delaware Limited Partnership, by its General Partner, Southern Towers BTS, LLC, a Tennessee Limited Liability Company

Application: Special Use Permit

Southern Towers Site Name: NC-035 Daniel Harris Road

Project: Southern Towers wireless telecommunications tower site including a 195' monopole with 4' lightning rod with Verizon Wireless antennas at a centerline of 190' and Verizon Wireless equipment within a 60' x 60' fenced compound

Address: 171 N. Cokesbury Rd, Henderson, NC 27537

Parcel #: 0526 02005

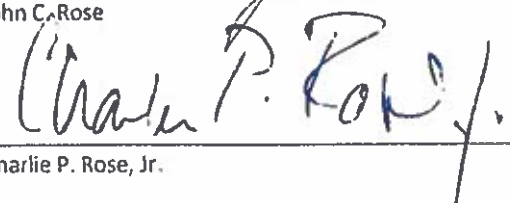
Owner: JDRF, LLC & Charlie P. Rose, Jr.

In order to prevent a clear view of the base of the tower from adjacent residences and residential districts, this letter will confirm that JDRF, LLC (by John C. Rose) & Charles P. Rose, Jr, owners of the property referenced above, agree to preserve current established forested area consistent with Vance County Zoning Ordinance Section 6.10(O)(4)(b) and with the narrative and site plan submitted by Southern Towers and that owners further acknowledge that to ensure compliance with Section 6.10(O)(4)(b), existing vegetation cannot be disturbed or otherwise removed from the property surrounding the tower that would reduce the depth of this forested area below 100 feet.

Owners:



John C. Rose Date: 10-31-2023



Charlie P. Rose, Jr. Date: 11-3-2023

EXHIBIT I

November 2, 2023

Brooke Krempin
Arcosa Telecom Structures
4020 Tull Avenue
Muskogee, OK 74403
(918) 910-2410



B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject: Engineering Letter

Arcosa Designation: **Site Name** Daniel Harris Road
Site Number: A493

Engineering Firm Designation: **B+T Group Project Number:** 169170.001.01.0001

Site Data: **North Cokesbury Road, Henderson, Vance County, NC**
Latitude 36.352758 Longitude -78.316297
195 Foot - Monopole Tower

Dear Brooke Krempin,

B+T Group is pleased to submit this "Engineering Letter" for the structural integrity of the above-mentioned tower.

The purpose of the letter is to confirm the suitability and compliance of the tower to accommodate Verizon Wireless with the three additional carriers. This is consistent with the guidelines as stated in the TIA-222-H standard and 2018 North Carolina Building Code (2015 IBC) based upon a 3-second gust wind speed of 113 mph.

Based on the review of the tower design (dated 09/09/2023), the tower was designed to accommodate four total carriers at four separate elevations, one of which is to be for Verizon Wireless, under the aforementioned building code and wind speed criteria.

We have determined the tower structure IS sufficient to accommodate all four carriers.

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and Arcosa Telecom Structures. If you have any questions or need further assistance on this or any other projects, please give us a call.

Engineering letter prepared by: John Landon

Respectfully submitted by: B+T Engineering, Inc.



Brad R. Milanowski, P.E.

Section	1	2	3	4
Length (ft)	53,000	53,000	53,000	52,000
Number of Sides	16	16	16	16
Thickness (in)	0.250	0.375	0.438	0.500
Socket Length (ft)	4.250	5.750	7.000	7.000
Top Dia (in)	18,000	28,225	37,870	47,115
Bot Dia (in)	29,690	39,805	48,530	58,555
Grade			A672-65	
Weight (lb)	3.4	7.3	10.9	14.8

195.0 ft

142.0 ft

93.3 ft

46.0 ft

1.0 ft



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 1"x10'	200	Sector1(CaAa=10000 Sq.In)No Ice (Carrier 3)	161
Sector1(CaAa=13333.33 Sq.In)No Ice (Carrier 1)	191	Sector2(CaAa=10000 Sq.In)No Ice (Carrier 3)	161
Sector2(CaAa=13333.33 Sq.In)No Ice (Carrier 1)	191	Sector3(CaAa=10000 Sq.In)No Ice (Carrier 3)	161
Sector3(CaAa=13333.33 Sq.In)No Ice (Carrier 1)	191	Sector1(CaAa=10000 Sq.In)No Ice (Carrier 4)	146
Sector1(CaAa=10000 Sq.In)No Ice (Carrier 2)	178	Sector2(CaAa=10000 Sq.In)No Ice (Carrier 4)	146
Sector2(CaAa=10000 Sq.In)No Ice (Carrier 2)	178	Sector3(CaAa=10000 Sq.In)No Ice (Carrier 4)	146
Sector3(CaAa=10000 Sq.In)No Ice (Carrier 2)	178		

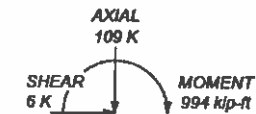
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

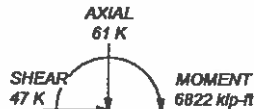
TOWER DESIGN NOTES

1. Tower is located in Vance County, North Carolina.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 113 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 30 mph basic wind w/ h 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. Please see feedline plan for proper feedline placement. Deviation from plan may reduce tower capacity.
9. Design is preliminary and subject to change.

ALL REACTIONS ARE FACTORED



30 mph WIND - 1.500 in ICE



TORQUE 0 kip-ft
REACTIONS - 113 mph WIND

Job: Proposal Design - Daniel Harris Road (Site# NC-0.			
Project: 195' MP/36.38275833, -78.316297			
Client: Southern Towers	Drawn by: Vignesh Nayak	App'd:	
Code: TIA-222-H	Date: 09/09/23	Scale: NTS	
Phone:	Path:	Dwg No. E-1	