

TELECOMMUNICATIONS USE LEASE AGREEMENT
(Fernwood Drive Water Tank)

This lease agreement ("Agreement") is entered into this 9th day of ~~June~~ ^{August}, 2010, between the Township of South Brunswick, a municipal corporation of New Jersey, located at the Municipal Complex, Monmouth Junction, NJ 08852 ("Lessor") and New York SMSA Limited Partnership d/b/a/ Verizon Wireless, located at One Verizon Way, Mail Stop 4AW100, Basking Ridge, NJ 07920 (telephone number 866-862-4404) ("Lessee").

In consideration of the mutual covenants contained herein, and for good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Premises. Lessor is the owner of the following parcel:
Lot 144.8 in Block 96, located at 5 Fernwood Drive, South Brunswick Township, on which is located a water storage facility ("Land"). Lessor hereby leases the following portion of said property to Lessee: Portion of ground space located on the Northeast portion of the property for the location of an equipment enclosure. Space for 12 antennas will be on the existing water tank at an elevation of 170 feet. The ground space and water tank space are collectively referred to as the Premises, as depicted in Exhibit A.
2. Use. The Premises may be used by Lessee only in connection with the provision of communications services, including without limitation, the transmission and the reception of radio communication signals on various frequencies, and for the construction, maintenance and operation of necessary facilities, including but not limited to 12 antennas and an air conditioned equipment shelter. It is understood and agreed that Lessee's ability to use the Premises is contingent upon its obtaining, after the execution date of this Agreement, all certificates, permits, and other approvals (collectively the "Governmental Approvals") that may be required by any federal, state or local authorities as well as satisfactory soil boring tests, environmental investigations, structural analysis, and title report, which will permit Lessee use of the Premises as set forth herein. Lessor agrees to cooperate with Lessee, at Lessee's expense, in making application for obtaining all licenses, permits and any and all other necessary approvals that may be required for Lessee's intended use of the Premises.
3. Tests and Construction. Lessee shall have the right at any time following the full execution of this Agreement to enter upon the Land for the purpose of making necessary engineering surveys and inspections and soil test borings and other reasonably necessary tests ("Tests"), if needed, and for the purpose of constructing the Lessee's Facilities (as defined in Paragraph 6(a) below) and installing the Site Equipment (as defined in Paragraph 9(a) below) (collectively "Construction"). During any Tests or Construction, Lessee will provide Lessor with a certificate of insurance naming Lessor as an additional insured and evidencing liability insurance in the amounts set forth in Paragraph 14 of this Agreement.

a) In conducting any Tests or Construction, Lessee will coordinate the scheduling of same with Lessor as well as cooperate with Lessor so as to minimize any interference with the business

operations currently conducted by Lessor on the Land.

b) No Construction shall occur unless the proposed Facilities and Site Equipment are first reviewed and approved by Lessor.

c) A structural engineering analysis of the water tank shall be performed by Lessee and provided to Lessor prior to Construction in order to ensure that the tank is structurally capable of carrying the extra weight of the antennas and any snow that the antennas may retain on the tank. Any such engineering study must be reviewed and approved by the Township's engineer.

d) All inside and outside surfaces of the water tank that are damaged/disturbed by welding and/or bolting must be cleaned, primed and painted to meet the specifications of the water tank's original coatings. This work must be supervised by a trained inspector.

e) Lessee shall reimburse Lessor at the rate of \$4.48 per thousand gallons for any water that is dumped to waste in order to accommodate construction of the antennas.

f) It is recognized by the parties that if the water storage facility has to be emptied in order to accommodate the construction of the antennas, this will cause a severe pressure drop in those areas of the Township serviced by the water storage facility as well as limit the Township's capability to provide fire protection. If it becomes necessary to drain, disinfect and refill the water storage facility, the work must be done by a qualified contractor acceptable to the Township as quickly as possible. This work cannot be done during the summer season or during any dry/hot spell in the weather.

g) Lessee shall pay Lessor for all labor costs incurred by Lessor for work done by its employees, agents or consultants at the rate of \$12/\$1,000 of value of work, not to exceed Five Thousand Dollars (\$5,000.00) in order to accommodate construction of the antennas. In this regard, Lessee shall post an escrow account with Lessor, in the amount of \$5,000.00, to cover Lessor's cost of plan review, field inspections and engineering costs.

4. Term. This Agreement shall be effective as of the date of execution by both parties, provided, however, the initial term shall be for five (5) years ("Initial Term") and shall commence on the Commencement Date (as hereinafter defined). The Agreement shall commence based upon the date Lessee is granted a building permit by the governmental agency charged with issuing such permits, or the date of execution of the Agreement by the Parties, whichever is later. In the event the date at which Lessee is granted a building permit or the date of execution of the Agreement, whichever is applicable, falls between the 1st and 15th of the month, the Agreement shall commence on the 1st of that month and if such date falls between the 16th and 31st of the month, then the Agreement shall commence on the 1st day of the following month (either the "Commencement Date"). This Agreement shall automatically be extended for three (3) additional five (5) year terms ("Renewal Terms"). Either party may terminate this Agreement following the fifteenth (15th) anniversary of the Commencement Date by giving the other party at least two (2) years prior written notice of the intent to terminate.

5. Rent.

(a) Within 15 days after the Commencement Date and on the first day of each month thereafter, Lessee shall pay to the Lessor as rent Three Thousand and 00/100 Dollars (\$3,000.00) per month ("Rent"). If the Commencement Date is a date other than the first of the month, the Rent for the first calendar month shall be prorated on the basis of the number of actual days in such partial month. Rent shall be payable to Lessor at Township of South Brunswick, P.O. Box 190, Monmouth Junction, NJ 08852, Attention: Township Treasurer.

(b) For any Renewal Term, Lessee shall pay the current Rent, increased by five percent (5%) or any percentage increase which occurred in the Consumer Price Index ("CPI") for the New York-Northeastern New Jersey Metropolitan Statistical Area during the preceding five (5) year period, whichever is higher. The annual rental for the first (1st) five (5) year Renewal Term and each extension thereafter, shall be adjusted by a formula as follows:

$$\text{Renewal Rent} = (\text{Basic Rent}) + ((\text{IR} - \text{IL}) / \text{IL} \times \text{Basic Rent})$$

Definitions: IR is the Consumer Price Index for the month which is three (3) months immediately preceding the month in which the Renewal Term commences.

IL is the Consumer Price Index for the month which is three (3) months immediately preceding the month in which this Agreement commenced.

"Consumer Price Index" shall mean the Consumer Price Index published by the Bureau of Labor Statistics of the United States Department of Labor for Urban Wage Earners and Clerical Workers for All Items (CPI W) U.S. City average or shall mean the successor thereto. In the event the Consumer Price Index is converted to a different standard reference base or otherwise revised, the determination of Renewal Rent for the Renewal Term shall be made with the use of such conversion factor, formula or table for converting the Consumer Price Index as may be published by the Bureau of Labor Statistics, or if the Bureau should fail to publish the same, then with the use of such conversion factor, formula or table for converting the Consumer Price Index as may be published by any nationally recognized publisher of similar statistical information. If the Consumer Price Index ceases to be published and there is no successor thereto, such other index as LESSOR and LESSEE may agree upon shall be substituted for the Consumer Price Index, and if they are unable to agree, then such matter may, at LESSOR's option, be submitted to arbitration in accordance with the then existing commercial rules of arbitration of the American Arbitration Association at the American Arbitration Association office nearest the LESSOR.

(c) If this Agreement is terminated prior to its expiration, Rent shall be prorated as of the date of termination.

6. Improvements; Liability; Utilities; Access.

(a) Lessee has the right to erect, maintain and operate on the Premises communications facilities including utility lines, an air conditioned equipment shelter, radio transmitting and

receiving antennas and supporting structures thereto ("Lessee Facilities"). In connection therewith, Lessee has the right to do all work necessary to prepare, maintain and alter as per approved site plan, the Premises for Lessee's business operations and to install transmission lines connecting the antennas to the transmitters and receivers. All of Lessee's construction and installation work shall be performed at Lessee's sole cost and expense and in a good and workmanlike manner. Title to the Lessee Facilities shall be held by Lessee. All of the Lessee Facilities shall constitute personal property and are not fixtures. Lessee has the right to remove the Lessee Facilities at its sole expense on or before the expiration or earlier termination of the Term or any Renewal Term. At the end of the Agreement, Lessee shall remove all facilities which it placed or allowed to be placed on the site and Lessee shall restore the Premises to its current condition, reasonable wear and tear excepted.

(b) Whenever Lessee desires to undertake any construction, repairs or maintenance work upon or about the antenna location it shall:

- (1) Provide a work schedule to the South Brunswick Township Utilities Director and Information Manager at least seven (7) days in advance, listing the dates that the work will be done on the property;
- (2) Take all reasonable corrective actions at the conclusion of the work day to secure the work area and to prevent the work area from becoming an attractive nuisance which could invite entry by members of the public into the work area;
- (3) Restore the entire area disturbed by the work at least to the condition in which it had existed prior to the work; and
- (4) Comply with all ordinances, regulations and statutes governing the work and obtain all necessary permits therefor, and post performance and/or maintenance bonds if required by the Lessor or any other governmental entity or agency having an interest in the work.

(c) Lessee shall have the right to draw electricity from the electric supply on the land, if available. If Lessee submeters its power from Lessor's electric supply, Lessee shall reimburse Lessor for the actual electricity it consumes at the rate paid by Lessor to the utility company. Lessee shall have the right, at its option and expense, to obtain electrical service from any utility company that provides electric service to the Premises, including the installation of a separate meter and main breaker. Lessee has the right to improve the present utilities on the Premises and to install new utilities (including a standby power generator for Lessee's exclusive use at a location on the Premises acceptable to both parties). Lessee also has the right to bring utilities to the Land in order to service the Premises as per the plan to be approved by the Township. The location of the utility lines shall be as required by Lessee and the applicable utility company. At Lessee's reasonable request, Lessor shall execute necessary documents evidencing such utility easement rights, including a utility easement in favor of Lessee or the applicable utility company. Lessee shall pay for the electricity it consumes in its operations.

(d) Lessor shall provide to Lessee, Lessee's employees, agents and subcontractors access over the Land to the Premises twenty-four (24) hours a day, seven days a week, at no additional charge to Lessee. Notwithstanding such access, Lessee must give prior notice to Lessor's Utilities Department and/or Data Processing before entering the property so as to preserve the security and integrity of the water tank. In cases of emergency, if Lessee is unable to contact anyone from the Utilities Department and/or Data Processing, Lessee shall provide prior notice to South Brunswick Police Dispatch before entering the property.

7. Inspections. Lessee agrees to bear the reasonable cost and expense incurred by the Lessor, subject to the limitations contained in paragraph 3g of this agreement, for inspection of the construction operation conducted hereunder and the Lessor shall have the right, in its sole discretion, to designate such inspectors and engineers or specialized engineering firm deemed necessary for the protection of its property rights and the rights of the public. Said inspectors, engineers, or specialized engineering firm so retained that are not direct employees of the Lessor shall not be considered agents, servants or employees of either the Lessee or the Lessor and their duties shall be limited to the inspection of the operation and the submission to the Lessor of reports concerning the status of the work.

8. Interference.

(a) Lessee shall not operate the Lessee Facilities in a manner that will cause interference to Lessor and any other lessees of the land whose installation predates the Lessee Facilities. All operations by Lessee shall be lawful and in compliance with all Federal Communications Commission ("FCC") requirements.

(b) Subsequent to the installation of the Lessee Facilities, Lessor shall not permit itself, its lessees or licensees to install new equipment at the Premises if such equipment is likely to cause interference with the operations of Lessee's Facilities. Such interference shall be deemed a material breach of this Agreement by Lessor, and Lessee shall have the right to bring a court action against the interfering party or terminate this Agreement.

9. Equipment.

(a) Lessee shall provide all transmitters and receivers and all related electronic equipment ("Site Equipment") required by the installation and operation of Lessee's system. The Site Equipment is and shall remain the sole property of the Lessee and may be removed from the Premises at any time by the Lessee. Lessee shall remove all Site Equipment from the Premises at Lessee's expense upon the termination of this Agreement.

(b) Lessee shall provide all of the equipment and labor necessary for the installation of Lessee's system including the antennas, associated feed lines, isolation equipment and electrical terminals. The equipment provided by Lessee shall remain the sole personal property of Lessee and shall not be deemed fixtures.

(c) Lessee shall, at its sole cost and expense, maintain and repair its Site Equipment.

(d) Subject to all engineering and structural analyses required to ensure that the water storage facility is structurally capable of carrying the extra weight of the antennas and any snow that the antennas may retain on the tank, Lessor shall maintain the water storage facility such that Lessee may use the water storage facility for Lessee's intended purposes contained herein.

10. Indemnification.

(a) Lessee hereby agrees to defend, indemnify and save harmless Lessor, its officials, servants and employees, and each and every one of them from and against all suits, costs, claims, expenses, and judgments of every kind and description against Lessor by agents, servants, employees and contractors of Lessee and from and against all damages and expenses to which the Lessor or any of its officials, servants and employees may be subject to the extent caused by the construction, reconstruction, maintenance, repair, alteration or operations of the Lessee Facilities, except to the extent that such damage or expense is caused by the negligence or willful misconduct of Lessor or any of its officials, servants, employees, agents or contractors.

(b) Lessor agrees to defend, indemnify and save harmless Lessee, its officers, employees, contractors and subcontractors from and against any claims, suits, losses, damages, liabilities and expenses arising out of or in connection with Lessor's negligent acts or omissions or willful misconduct.

11. Restoration; Removal of Antenna System. Lessee agrees that it shall, at its sole cost and expense, restore all of Lessor's real or personal property which is in any way disturbed by the construction and installation herein authorized or by any future maintenance of the installation to at least the condition it was in prior to entry by the Lessee reasonable wear and tear excepted. If the restoration has not been completed within ninety (90) days of completion of the construction or maintenance, the Lessor may give notice to the Lessee and thirty (30) days thereafter may perform the restoration with its own or a contracted work force at Lessee's sole cost and expense. Within ninety (90) days of termination of this Agreement, or any renewal thereof, subject to any force majeure event, Lessee shall remove the Lessee Facilities and Site Equipment from the Premises. If Lessee fails to remove the Lessee Facilities or Site Equipment, the Lessor may effect such removal, with its own or a contracted work force at Lessee's sole cost and expense.

12. Termination.

(a) This Agreement may be terminated without further liability on thirty (30) days prior written notice as follows: (i) by either party upon a default of any covenant or term hereof by the other party, which default is not cured within sixty (60) days of receipt of written notice of default, provided that the grace period for any monetary default is fifteen (15) days from receipt of notice; or (ii) by Lessee for any reason or for no reason provided Lessee delivers written notice of early termination to Lessor prior to the Commencement Date of this Agreement; or (iii) by Lessee if it does not obtain or maintain any license, permit or approval necessary to the construction and operation of Lessee Facilities; or (iv) by Lessee if Lessee is unable to occupy

and utilize the Premises due to an action of the FCC, including without limitation, a take back of channels or change in frequencies; or (v) by Lessee if Lessee determines that the Premises are not appropriate for its operations for economic, environmental or technological reasons, including, without limitation, signal interference.

13. Termination in the Event of Casualty or Condemnation.

(a) In the event of any damage, destruction or condemnation of the Premises or any part thereof, which renders the Premises unusable or inoperable, Lessee shall have the right, but not the obligation, to terminate this Agreement and all of its duties and obligations herein by giving written notice to Lessor within thirty (30) days after such damage, destruction or condemnation, if by virtue of such casualty or condemnation the Premises are no longer adequate for Lessee to continue its operations or any repairs to the Premises have not been completed or cannot reasonably be completed within sixty (60) days from the date of the damage. Rent shall abate as of the date of the damage, destruction or condemnation.

(b) If Lessee does not terminate this Agreement: (1) the Rent payable herein shall be reduced or abated in proportion to the actual reduction or abatement of use of the Premises; and (2) within sixty days from the date of such damage or destruction, Lessor shall make any necessary repairs to the Premises caused by any such damage or destruction.

(c) In the event of condemnation, unless Lessee is allowed by the condemning authority to continue its operations on the Premises, this Agreement shall terminate as of the date title to the land vests in the condemning authority or Lessee is required to cease its operations, whichever is earlier. Lessee shall be entitled to share in the proceeds of any condemnation to the extent that the proceeds include the value of any of Lessee's improvements which are transferred to the condemning authority, moving expenses, prepaid rent and business dislocation expenses.

14. Insurance.

(a) Lessor's Insurance Requirements

Lessor is a member of the Garden State Municipal Joint Insurance Fund (GSMJIF). Within thirty (30) days of the full execution of this Agreement, Lessor shall provide proof of such membership to Lessee.

(b) Lessee's Insurance Requirements

Lessee, at Lessee's sole cost and expense, shall procure and maintain on the Premises and on Lessee's Site Equipment, bodily injury and property damage insurance with a combined single limit of at least One Million and 00/100 Dollars (\$1,000,000.00) per occurrence. Such insurance shall insure, on an occurrence basis, against all liability of Lessee, its employees, and agents arising out of or in connection with Lessee's use of the Premises, all as provided for herein. Lessor shall be named as an additional insured on Lessee's policy. Lessee shall provide to Lessor a certificate of insurance evidencing the coverage required by this paragraph.

(c) All insurance required under this Agreement shall contain an endorsement requiring

thirty (30) days written notice from the insurance company to both parties before cancellation or change in the coverage, scope, and amount of any policy. Each certification of the policy shall be deposited with Lessor within thirty (30) days of the Commencement Date and, on renewal of the policy, not less than thirty (30) days before the expiration of the expiring term of the policy.

15. Waiver of Subrogation. Lessor and Lessee release each other and their respective principals, employees, representatives and agents, from any claims for damage to any person or the Premises or to the Lessee Facilities or Site Equipment thereon caused by, or resulting from, risks insured against under any insurance policies carried by the parties and in force at the time of such damage. Lessor and Lessee shall cause each insurance policy obtained by it to provide that the insurance company waives all right of recovery by way of subrogation against the other in connection with any damage covered by any policy. Neither Lessor nor Lessee shall be liable to the other for damage caused by fire or any of the risks insured against under the insurance policy required by paragraph 14.

16. Premises Security. A security fence consisting of chain link construction or similar but comparable construction may be placed around the perimeter of the site at the discretion of the Lessee. All improvements shall be done at the discretion and option of Lessee. Lessee shall maintain the property in a good condition, reasonable wear and tear excepted.

17. Assignment. The Agreement shall not be sold or assigned by the Lessee without prior approval of Lessor, except to Lessee's principals, affiliates, subsidiaries or to any entity which acquires all or substantially all of the Lessee's assets in the wireless communications market where the Land is located, as defined by the FCC, by reason of a merger, acquisition or other business reorganization. As to other parties, this Agreement may not be sold, assigned or transferred without the written consent of the Lessor, which consent shall not be unreasonably withheld or delayed.

18. Warranty of Title.

(a) Lessor warrants that: (i) Lessor owns the land in fee simple or has an easement thereon and has rights of access thereto; (ii) Lessor has full right to make this Agreement.

(b) Lessor warrants that the making of this Agreement and the performance thereof will not violate any laws, ordinances, restrictive covenants, or the provision of any mortgage, lease, or other agreements under which Lessor is bound and which restricts the Lessor in any way with respect to the use or disposition of the Land.

19. Repairs. Lessee shall not be required to make any repairs to the Premises or Land unless such repairs shall be necessitated by reason of the default or negligence of Lessee, its agent, servants or employees as specified herein.

20. Environmental Conditions. Lessor states that to the best of its knowledge the Land has

not been used for the generation, storage, treatment or disposal of hazardous substances or hazardous wastes. In addition, Lessor states that to the best of its knowledge no hazardous substances, hazardous wastes, pollutants, asbestos, polychlorinated biphenyls (PCBs) petroleum or other fuels (including crude oil or any fraction or derivative thereof) or underground storage tanks (collectively "Environmental Hazards") are located on or about the Land. For purposes of this Agreement, the term "hazardous substances" shall be as defined in the Comprehensive Environmental Response Compensation and Liability Act (42 U.S.C. Section 9601 et seq.) (CERCLA), and any regulation promulgated pursuant thereto. The term "hazardous wastes" shall be as defined in the Resource Conservation and Recovery Act (42 U.S.C. Section 6901 et seq.) (RCRA), any regulations as defined in the Clean Water Act (33 U.S.C. Section 1251 et seq.), and any regulations promulgated pursuant thereto.

21. Miscellaneous.

(a) This Agreement, the Notice of Public Auction and Specific Instructions attached hereto as Exhibit B, constitute the entire agreement and understanding between the parties, and supersedes all offers, negotiations and other agreements concerning the subject matter contained herein. There are no representations or understandings of any kind not set forth herein. Any amendments to this Agreement must be made in writing and executed by both parties.

(b) If any provision of this Agreement is invalid or unenforceable with respect to any party, the remainder of this Agreement or the application of such provision to persons other than those as to whom it is held invalid or unenforceable, shall not be affected and each provision of this Agreement shall be valid and enforceable to the fullest extent by law.

(c) This Agreement shall be binding on and inure to the benefit of the successors and permitted assignees of the respective parties.

(d) The captions of this Agreement have been inserted for convenience only and are not to be construed as part of this Agreement or in any way limiting the scope or intent of its provision.

(e) Any notice or demand required to be given herein (except for the notice required under paragraph 16) shall be made by certified or registered mail, return receipt requested, or reliable overnight courier to the address of the respective parties set forth below:

Lessor: Township of South Brunswick
540 Ridge Road
P.O. Box 190
Monmouth Junction NJ 08852
Attention: Township Manager

With a Copy to: Township of South Brunswick
540 Ridge Road
P.O. Box 190

Monmouth Junction NJ 08852
Attention: Information Technology Manager

Lessee: New York SMSA, Limited Partnership
d/b/a Verizon Wireless
180 Washington Valley Road
Bedminster, New Jersey 07921
Attention: Network Real Estate

Lessor or Lessee may from time to time designate any other address for this purpose by written notice to the other party.

(f) This Agreement shall be construed in accordance with the laws of the State of New Jersey, and the laws of the State of New Jersey will apply to any dispute concerning or arising out of it. The Superior Court of New Jersey with venue in Middlesex County shall be the forum for resolving any dispute concerning or arising out of this Agreement.

(g) Except as specifically provided herein, all rentals paid to the termination date shall be retained by the Lessor.

22. Memorandum of Lease.

Lessor agrees to execute a Memorandum of this Agreement which Lessee may record with the appropriate recording officer. The date set forth in the Memorandum of Lease is for recording purposes only and bears no reference to commencement of either the Term or rent payments.

22. Quiet Enjoyment. Lessor covenants that Lessee, on paying the rent and performing the covenants herein, shall peaceably and quietly have, hold and enjoy the Premises.

(remainder of this page intentionally blank)

IN WITNESS WHEREOF, the parties have executed this agreement as of the date first above written.

ATTEST:

LESSOR: Township of South Brunswick

Linda Z. Dougherty
Dep. Twp. Clerk

Date: 8-9-10

By: *Frank Gambatese*
Frank Gambatese, Mayor

ATTEST/WITNESS:

LESSEE: New York SMSA, Limited Partnership
d/b/a Verizon Wireless

By: Cellco Partnership, its General Partner

Thomas Pymala

Date: 7-21-10

By: 
David R. Heverling
Area Vice President Network
7210

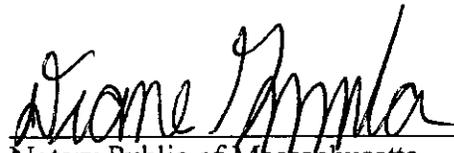
ACKNOWLEDGEMENT

Commonwealth of Massachusetts)
:ss.:

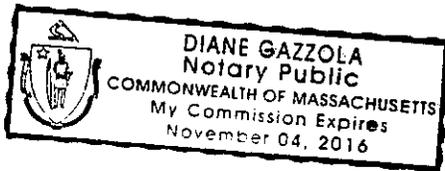
County of Worcester)

On this 21 day of JULY, 2010, before me, the undersigned personally appeared David R. Heverling, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, that by his signature on the instrument, the individual, or the entity, New York SMSA Limited Partnership, d/b/a Verizon Wireless, upon behalf of which the individual acted, executed the instrument, and that such individual made such appearance before the undersigned in the Town of Westborough, County of Worcester, Commonwealth of Massachusetts.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal at my office in said county and state of the day and year first above written.



Notary Public of Massachusetts



STATE OF NEW JERSEY:
SS
COUNTY OF MIDDLESEX:

LINDA DOUGHERTY

I CERTIFY that on *Aug. 9*, 2010, ~~BARBARA NYITRAI~~ personally came before me and she acknowledged under oath, to my satisfaction, that:

- (a) she is the ^{Deputy} Township Clerk of the Township of South Brunswick, the municipal corporation named in this document;
- (b) she is the attesting witness to the signing of this document by Frank Gambatese, Mayor of the Township of South Brunswick;
- (c) this document was signed and delivered by the Township of South Brunswick as its voluntary act duly authorized by a proper resolution of the Township Council;
- (d) she knows the proper seal of the Township of South Brunswick which was affixed to this document; and
- (e) she signed this proof to attest to the truth of these facts.

Signed and sworn to before me
On *August 9*, 2010


Donald J. Sears
An Attorney at Law
In the State of New Jersey

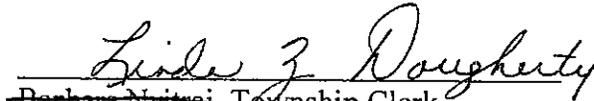

~~Barbara Nyitrai~~, Township Clerk
Dep

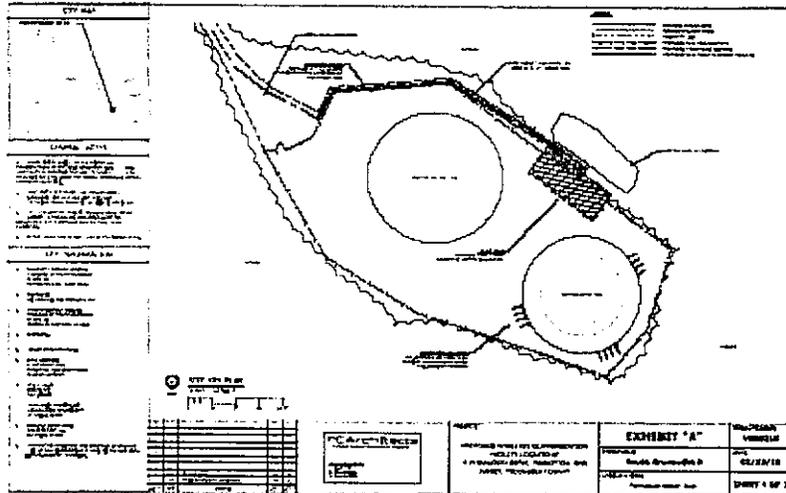
EXHIBIT A

DESCRIPTION OF PREMISES

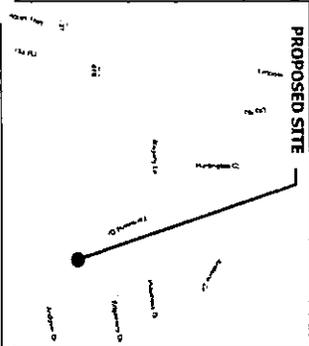
This description of Premises is applicable to the Telecommunications Use Lease Agreement dated August 9, 2010, by and between, Township of South Brunswick as Lessor, and New York SMSA, Limited Partnership d/b/a Verizon Wireless as Lessee.

The Premises is described and/or depicted as follows:

A portion of property located at 5 Fernwood Drive, Princeton (South Brunswick Township), NJ 08540, designated as Lot 144.08 in Block 96 on the tax maps of the Township of South Brunswick, Middlesex County, NJ, as generally indicated in the below drawing(s) (not to scale).



SITE MAP



GENERAL NOTES

1. EXHIBIT "A" AS SUBMITTED IS A CONCEPTUAL REPRESENTATION OF THE LEASE AGREEMENT ONLY. FINAL CONSTRUCTION DRAWINGS MAY VARY TO COMPLY WITH APPLICABLE BUILDING CODES AND ZONING APPROVALS AND WILL SUPERSEDE EXHIBIT "A".
2. TRUE NORTH DETERMINATION GROUND (MNS) ELEVATION AND LATITUDE AND LONGITUDE COORDINATES ARE BASED ON USGS MAP INFORMATION.
3. THE LOCATIONS OF LESSEE'S PROPOSED UTILITIES ARE SUBJECT TO THE REVIEW AND APPROVAL OF THE RESPECTIVE UTILITY COMPANIES AND MAY NEED TO BE RELOCATED.
4. DO NOT SCALE THIS EXHIBIT, UNLESS OTHERWISE NOTED.

SITE INFORMATION

1. **PROPERTY OWNER/LESSOR:**
NO INC 100 SOUTH BRUNSWICK
MIDDLETOWN, NEW JERSEY 08852
 2. **CONTACT:**
KEN ROSSER (732) 339-4000 x 7117
 3. **TOWER OWNER/LESSOR:**
TOWNSHIP OF SOUTH BRUNSWICK
PO BOX 100
MIDDLETOWN JUNCTION, NJ 08852
 4. **CONTACT:**
- LESSEE INFORMATION:**
5. **SITE ADDRESS:**
5 FERROWOOD DRIVE
PRINCETON, NEW JERSEY 08540
MIDDLESEX COUNTY
 6. **LOT:** 4 144.00
BLOCK: 8 96
ZONE: T-01
 7. **LATITUDE:** N 40° 23' 58.31"
LONGITUDE: W 74° 34' 52.67"
DATE/TIME: Q3/04 MWD
 8. **GROUND ELEVATION:**
446.0; 360 FEET +/-
DATE/TIME: Q3/04 MWD
 9. INFORMATION SHOWN ON THIS DRAWING IS BASED ON LIMITED FIELD MEASUREMENTS TAKEN ON 01-14-10 AND A MAP PROVIDED BY THE OWNER.



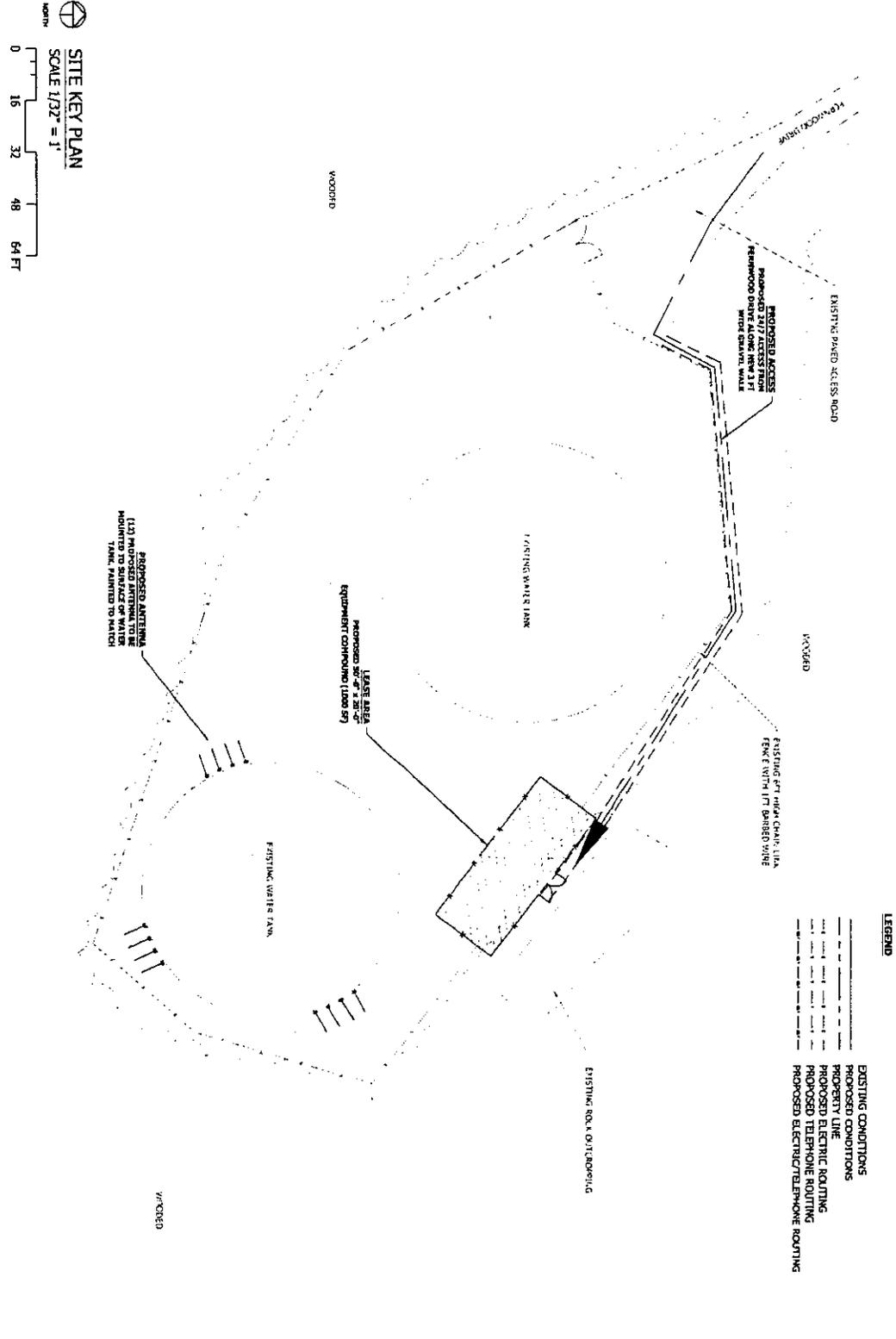
NO.	REVISION	DATE	BY	CHK	DESCRIPTION
1	ISSUED				INDIVIDUALLY LABEL EXISTING UTILITIES
2	REVISED				CONSTRUCTION

FCArchitects
Firm Logo
100 N. 1ST STREET
PRINCETON, NJ 08540
TEL: 609.951.1100
WWW.FCARCHITECTS.COM

PROJECT:
PROPOSED WIRELESS COMMUNICATION FACILITY LOCATED AT 5 FERROWOOD DRIVE, PRINCETON, NEW JERSEY, MIDDLESEX COUNTY

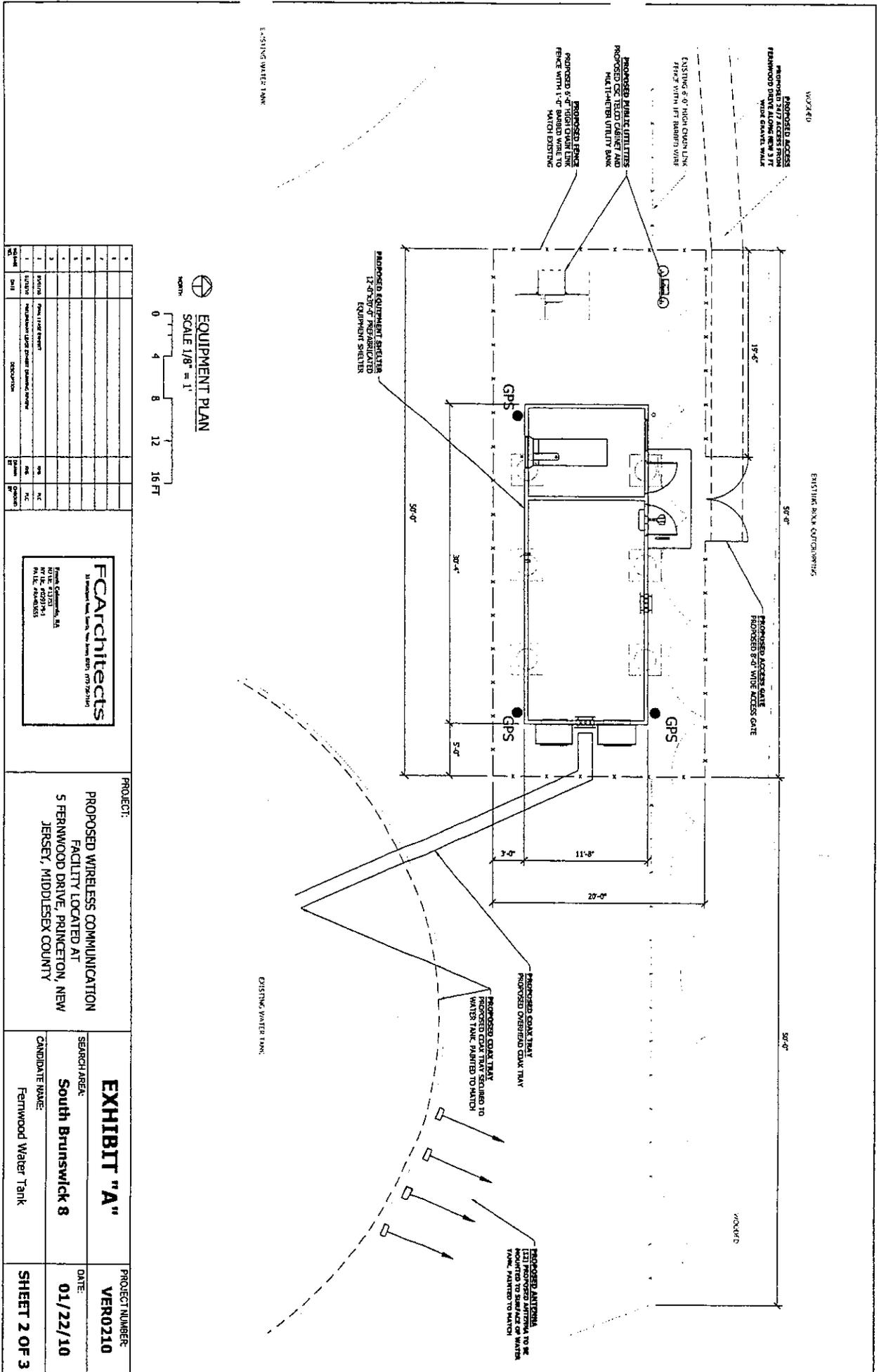
EXHIBIT "A"
SEARCH AREA: South Brunswick 8
CANDIDATE NAME: Ferrowood Water Tank

PROJECT NUMBER: VER0210
DATE: 01/22/10
SHEET 1 OF 3



LEGEND

- EXISTING CONDITIONS
- PROPOSED CONDITIONS
- PROPERTY LINE
- PROPOSED ELECTRIC ROUTING
- PROPOSED TELEPHONE ROUTING
- PROPOSED ELECTRIC/TELEPHONE ROUTING



EQUIPMENT PLAN
 SCALE 1/8" = 1'
 NORTH

NO.	DESCRIPTION	DATE	BY	CHK.
1	PROPOSED EQUIPMENT SHELTER			
2	PROPOSED ANTENNA			
3	PROPOSED COAX TANK			
4	PROPOSED OVERHEAD COAX TANK			
5	PROPOSED ANTENNA			
6	PROPOSED GPS			
7	PROPOSED ACCESS GATE			
8	PROPOSED PUBLIC UTILITIES			
9	PROPOSED FENCE			
10	PROPOSED FENCE			
11	PROPOSED FENCE			
12	PROPOSED FENCE			
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16	PROPOSED FENCE			
17	PROPOSED FENCE			
18	PROPOSED FENCE			
19	PROPOSED FENCE			
20	PROPOSED FENCE			

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 30 Woodland Ave., Suite 200, New Brunswick, NJ 08901
 732.241.1111
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PROJECT:
 PROPOSED WIRELESS COMMUNICATION
 FACILITY LOCATED AT
 5 FERNWOOD DRIVE, PRINCETON, NEW
 JERSEY, MIDDLESEX COUNTY

SEARCH AREA:	EXHIBIT "A"	PROJECT NUMBER:	VER0210
CANDIDATE NAME:	South Brunswick 8	DATE:	01/22/10
	Fernwood Water Tank		SHEET 2 OF 3

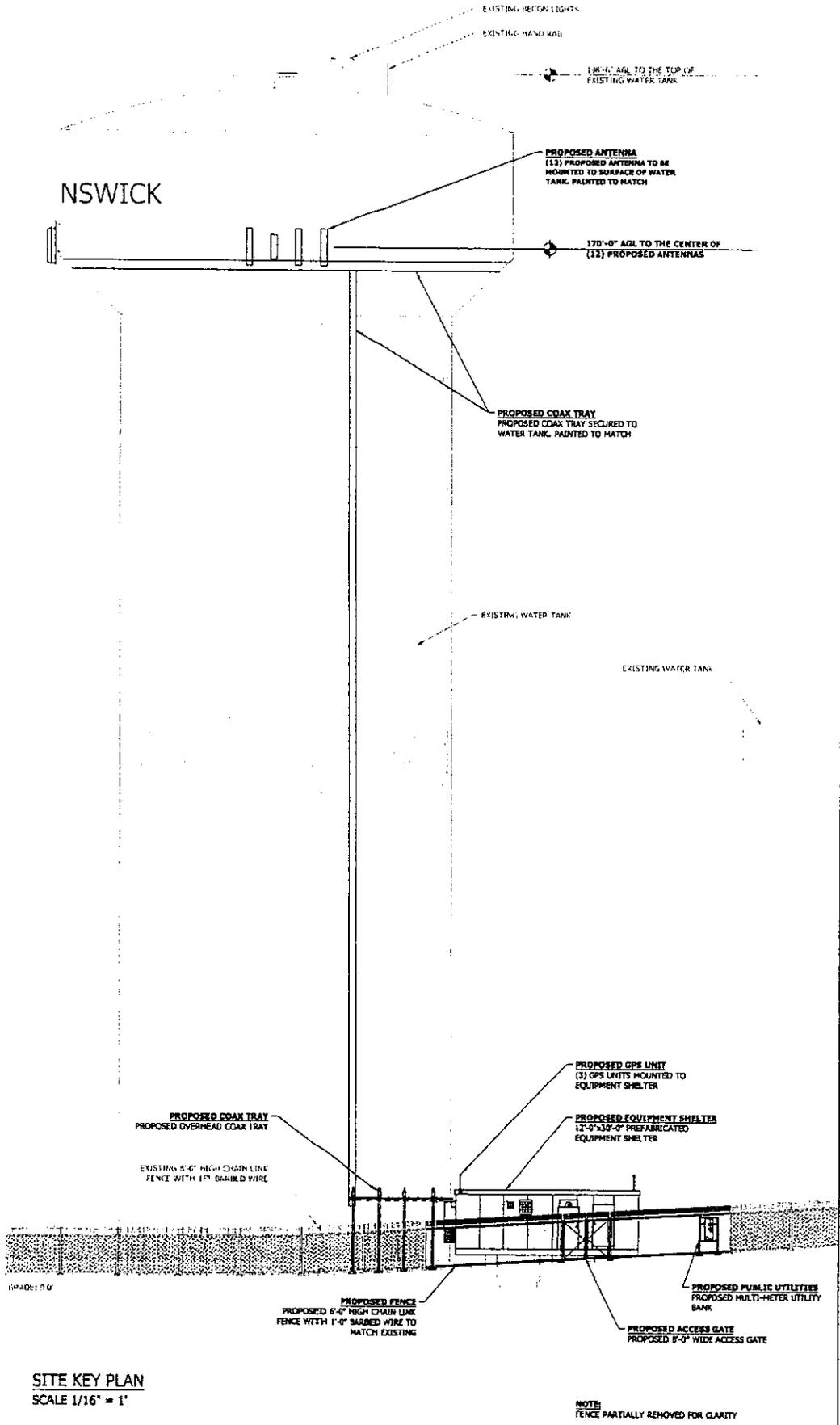
1	PROPOSED	PROPOSED ANTENNA	12	PROPOSED	PROPOSED COAX TRAY
2	EXISTING	EXISTING WATER TANK	12	EXISTING	EXISTING WATER TANK
3	EXISTING	EXISTING FENCE	12	EXISTING	EXISTING FENCE
4	EXISTING	EXISTING LIGHTS	12	EXISTING	EXISTING LIGHTS
5	EXISTING	EXISTING HAND RAIL	12	EXISTING	EXISTING HAND RAIL
6	EXISTING	EXISTING WATER TANK	12	EXISTING	EXISTING WATER TANK
7	EXISTING	EXISTING WATER TANK	12	EXISTING	EXISTING WATER TANK
8	EXISTING	EXISTING WATER TANK	12	EXISTING	EXISTING WATER TANK
9	EXISTING	EXISTING WATER TANK	12	EXISTING	EXISTING WATER TANK
10	EXISTING	EXISTING WATER TANK	12	EXISTING	EXISTING WATER TANK
11	EXISTING	EXISTING WATER TANK	12	EXISTING	EXISTING WATER TANK
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16	EXISTING	EXISTING WATER TANK	12	EXISTING	EXISTING WATER TANK
17	EXISTING	EXISTING WATER TANK	12	EXISTING	EXISTING WATER TANK
18	EXISTING	EXISTING WATER TANK	12	EXISTING	EXISTING WATER TANK
19	EXISTING	EXISTING WATER TANK	12	EXISTING	EXISTING WATER TANK
20	EXISTING	EXISTING WATER TANK	12	EXISTING	EXISTING WATER TANK

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PROJECT:
 PROPOSED WIRELESS COMMUNICATION
 FACILITY LOCATED AT
 5 FERNWOOD DRIVE, PRINCETON, NEW
 JERSEY, MIDDLESEX COUNTY

EXHIBIT "A"
SEARCH AREA:
 South Brunswick 8
CANDIDATE NAME:
 Fernwood Water Tank

PROJECT NUMBER:
 VER0210
DATE:
 01/22/10
SHEET 3 OF 3



SITE KEY PLAN
 SCALE 1/16" = 1'

EXHIBIT B

NOTICE OF INVITATION TO BID

The Township of South Brunswick will be accepting sealed bids for the lease of space on its water tank, with accompanying ground space for an equipment enclosure, located at 35 Fernwood Drive, Princeton (South Brunswick Township), New Jersey, 08540, also known as Lot 144.08 in Block 96 on the tax maps of the Township of South Brunswick. This auction has been authorized under Ordinance No. 2010-11.

All bids must be received no later than May 27, 2010 at 2:00 p.m. Bids shall be opened on May 27, 2010 at 2:00 p.m. in the South Brunswick Municipal Building, 540 Ridge Road (Route 522), Monmouth Junction, New Jersey.

The minimum bid price shall be \$3,000.00 per month. Before any construction or site work is started, a site plan must be submitted to the Information Technology Manager and Utilities Director for review and approval. Any equipment installed as a result of this lease shall not cause any interference with the existing operation on the site.

The successful bidder will be required to maintain liability insurance naming the Township of South Brunswick as an additional insured in an amount not less than a combined single limit of \$1,000,000.00 for injury or damage to one or more persons or property.

The successful bidder shall be subject to such other terms and conditions as are contained in a Telecommunications Use Lease Agreement, a copy of which may be obtained from the Township's website at www.sbtnj.net or in the Township Clerk's office. Interested parties may make arrangements to inspect the site during the week prior to the submission deadline by contacting the Information Technology Manager at 732-329-4000, Ext.7317.

Robert J. Mitchell
Purchasing Agent

To be advertised: Thursday, May 13, 2010
Thursday, May 20, 2010
South Brunswick Post
Monday, May 17, 2010
Home News

To be posted: Beginning Monday, May 10, 2010
Ending Thursday, May 27, 2010
www.sbtnj.net

SPECIFICATIONS AND INSTRUCTIONS TO BIDDERS

General Provisions

1. Sealed proposals will be received by the Office of the Purchasing Agent at the Municipal Building, 540 Ridge Road; Monmouth Junction, in the County of Middlesex and the State of New Jersey at any time on or before May 27, 2010 at 2:00 p.m. Bidders shall be responsible to carefully examine the lease provisions as well as the conditions under which the lease will be awarded. Failure to offer a complete bid, or meet all sections of this invitation, may be deemed just cause for rejection of a bid as not meeting specifications.
2. All bids must be submitted on the attached bidding form furnished by the Township and must be placed in a sealed envelope, plainly marked on the outside, "Bid for Tower Lease". If mailed to the Township, the bid shall be addressed to the Purchasing Agent, Township of South Brunswick, Municipal Building, P.O. Box 190, Monmouth Junction, New Jersey 08852 and shall be plainly marked, "Bid for Tower Lease". All bids must be received prior to or at the time of bid opening, 2:00 p.m. local time. The Township will not assume any responsibility for bids forwarded by mail. It is the bidder's responsibility to see that bids are presented to the Township Official on the hour and at the place designated. Only original documents with original seals and signatures will be accepted. Facsimile or email transmitted documents will be rejected.
3. Bidders are to submit the non-collusion affidavit with the bid proposal form.
4. Bids will be received and awarded in accordance with Chapter 198 of the Public Laws of 1971, commonly referred to as the Local Public Contract Laws. (N.J.S.A. 40A:11-1, et. seq.)
5. The Township Council reserves the right to accept or reject any or all proposals, to waive irregularities and technicalities, and to award in whole or in part to the highest responsible bidder, if it is in the best interest of the Township to do so. Without limiting the generality of the foregoing, any proposal which is incomplete, obscure, or irregular may be rejected. The Township Council intends to award the bid at a public meeting within sixty (60) days after the opening date.
6. The Township reserves the right to postpone the date for presentation and opening of proposals and will give written notice of any such postponement to each prospective bidder as prescribed by law.
7. Failure to sign the bid proposal or give all information requested may result in the bid being rejected.
8. When two or more bids are equal in all respects, award may be made by the Township to the bidder whose bid, in the discretion of the Township, is the most advantageous, price and other factors considered.
9. Where applicable, if there is a discrepancy between the prices written in words and written in

figures, the prices written in words shall govern. Where applicable, if there is a discrepancy whereby the unit price written in words or figures is less than the unit price shown in parentheses, i.e. (Note: not less than \$1.00 per unit), the unit price shown in parentheses shall govern. Where applicable, if there is a discrepancy in the Extended Total of any item, the correct total shall be determined by multiplying the estimated quantity by the unit price written in words and the resulting total shall govern. The correct Extended Total for each item shall then be added to obtain the "Bid Total" or "Total Base Bid" whichever is applicable.

10. The terms and conditions of the lease agreement accompanying the Notice of Invitation to Bid are incorporated herein by reference and are a part of these Specifications as if fully set forth at length.

11. Other mandatory requirements.

N.J.S.A. 10:5-31 et seq., (P.L. 1975, C.127) N.J.A.C. 17:27
MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation gender identity or expression, disability, nationality or sex. Except with respects to affectional or sexual orientation and gender identity or expression the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause;

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex;

The contractor or subcontractor, where applicable, will send to each labor union or representative or workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq. as amended and supplemented from time to time and the Americans with Disabilities Act.

The contractor or subcontractor agrees to make good faith efforts to afford equal employment opportunities to minority and women workers consistent with Good faith efforts to meet targeted county employment goals established in accordance with N.J.A.C. 17:27-5.2, or Good faith efforts to meet targeted county employment goals determined by the Division pursuant to N.J.A.C. 17:27-5.2.

The contractor or subcontractor agrees to inform in writing its appropriate recruitment agencies including, but not limited to, employment agencies, placement bureaus, colleges, universities, labor unions, that it does not discriminate on the basis of age, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, and that it will discontinue the use of any recruitment agency which engages in direct or indirect discriminatory practices.

The contractor or subcontractor agrees to revise any of its testing procedures, if necessary, to assure that all personnel testing conforms with the principles of job-related testing, as established by the statutes and court decisions of the State of New Jersey and as established by applicable Federal law and applicable Federal court decisions.

In conforming with the applicable employment goals, the contractor or subcontractor agrees to review all procedures relating to transfer, upgrading, downgrading and layoff to ensure that all such actions are taken without regard to age, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, consistent with the statutes and court decisions of the State of New Jersey, and applicable Federal law and applicable Federal court decisions.

The contractor shall submit to the public agency, after notification of award but prior to execution of a goods and services contract, one of the following three documents:

Letter of Federal Affirmative Action Plan Approval

Certification of Employee Information Report

Employee Information Report Form AA302

The contractor and its subcontractors shall furnish such reports or other documents to the Division of Public Contracts Equal Employment Opportunity Compliance as may be requested by the office from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Public Contracts Equal Employment Opportunity Compliance for conducting a compliance investigation pursuant

to Subchapter 10 of the Administrative Code at N.J.A.C. 17:27.

AMERICANS WITH DISABILITIES
Equal Opportunity for Individuals with Disability.

The BIDDER and the TOWNSHIP do hereby agree that the provisions of Title II of the Americans With Disabilities Act of 1990 (the "Act") (42 U.S.C. S12101 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs, and activities provided or made available by public entities, and the rules and regulations promulgated pursuant thereto, are made a part of this agreement. In providing any aid, benefit, or service on behalf of the TOWNSHIP pursuant to this agreement, the BIDDER agrees that the performance shall be in strict compliance with the Act. In the event that the BIDDER, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this agreement, the BIDDER shall defend the TOWNSHIP in any action or administrative proceeding commenced pursuant to this Act. The BIDDER shall indemnify, protect, and save harmless the TOWNSHIP, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages, of whatever kind or nature arising out of or claimed to arise out of the BIDDER'S action or failure to act that is alleged to have caused a violation of the Act. The BIDDER shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith.

It is further agreed and understood that the TOWNSHIP assumes no obligation to indemnify or save harmless the BIDDER, its agents, servants, employees and subcontractors for any claim which may arise out of their performance under this agreement. Furthermore, the BIDDER expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the BIDDER'S obligations assumed in this agreement, nor shall they be construed to relieve the BIDDER from any liability, nor preclude the TOWNSHIP from taking any other actions available to it under any other provisions of the agreement or otherwise at law.

NEW JERSEY BUSINESS REGISTRATION REQUIREMENTS

In all contracts with public entities, every contractor shall provide written notice to its subcontractors of the responsibility to submit proof of business registration to the contractor as may be required by law.

Before final payment on the contract is made by the contracting agency, the contractor shall submit an accurate list and the proof of business registration of each subcontractor or supplier used in the fulfillment of the contract, or shall attest that no subcontractors were used.

For the term of the contract, the contractor and each of its affiliates and a subcontractor and each of its affiliates (N.J.S.A.52:32-44(g)(3)) shall collect and remit to the Director, New Jersey Division of Taxation, the use tax due pursuant to the Sales and Use Tax Act on all sales of tangible personal property delivered into this State regardless of whether the tangible personal property is intended for a contract with a contracting agency.

A business organization that fails to provide a copy of a business registration as required pursuant to section 1 of P.L.2001, c.134(C.52:32-44 et al.) or subsection e. or f. of section 92 of P.L. 1977, c.110 (C.5:12-92), or that provides false business registration information under the requirements of either of those sections, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000 for each business registration copy not properly provided under a contract with a contracting agency.

All bidders must submit a copy of their proof of registration with bids.

MEMORANDUM OF LEASE AGREEMENT

THIS MEMORANDUM, made this *9th* day of *August*, 2010 between Township of South Brunswick with its principal offices located at Municipal Complex, Monmouth Junction, New Jersey 08852, Tax ID #*22-6002306*, hereinafter designated LESSOR and New York SMSA Limited Partnership, d/b/a Verizon Wireless, a Limited Partnership of the State of New York, with its principal offices at One Verizon Way, Mail Stop 4AW100, Basking Ridge, New Jersey 07920, hereinafter designated LESSEE.

1. LESSOR and LESSEE entered into a Lease Agreement on *August 9, 2010*, for a term of five years with the right to renew for three (3) additional five year terms.
2. In consideration of the rental set forth in the Agreement, LESSOR hereby leases to LESSEE a portion of that certain Property located at 5 Fernwood Drive, Township of South Brunswick, County of Middlesex, State of New Jersey, and designated as Lot 144.8, Block 96 as shown on the tax map of Township of South Brunswick, together with the non-exclusive right for ingress and egress, all as is more particularly set forth on Exhibit A attached hereto and made a part hereof.
3. A copy of the Lease is on file in the office of the LESSOR and LESSEE.
4. The terms, covenants and provisions of the Agreement of which this is a Memorandum, shall extend to and be binding upon the respective executors, administrators, heirs, successors and assigns of LESSOR and LESSEE.

IN WITNESS WHEREOF, hereunto and to a duplicate hereof, LESSOR and LESSEE have caused this Memorandum to be duly executed on 8-9-10.

WITNESSES:

Linda Z. Dougherty
Dep. Top. Clerk
Linda Z. Dougherty

Diane Gazzola
Diane Gazzola

LESSOR:

BY: Frank Gambatese
Frank Gambatese, Mayor

LESSEE:

New York SMSA Limited Partnership
d/b/a Verizon Wireless
By Celco Partnership
Its General Partner

BY: 
David R. Heverling
Area Vice President Network

Execution Date: 7210

ACKNOWLEDGEMENT

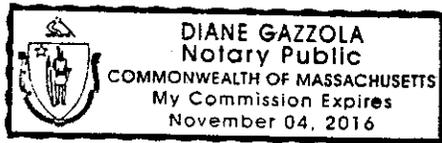
Commonwealth of Massachusetts)

:SS.:

County of Worcester)

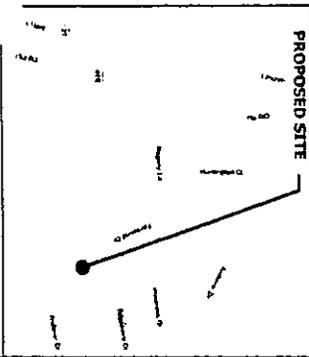
On this 21 day of JULY, 2010, before me, the undersigned personally appeared David R. Heverling, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, that by his signature on the instrument, the individual, or the entity, New York SMSA Limited Partnership, d/b/a Verizon Wireless, upon behalf of which the individual acted, executed the instrument, and that such individual made such appearance before the undersigned in the Town of Westborough, County of Worcester, Commonwealth of Massachusetts.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal at my office in said county and state of the day and year first above written.



Diane Gazzola
Notary Public of Massachusetts

SITE MAP



GENERAL NOTES

1. EXHIBIT 'A' IS SUBMITTED AS A TENTATIVE REPRESENTATION OF THE PROJECT. SMALL AMOUNTS OF CONSTRUCTION SHALL BE NECESSARY TO CONFORM WITH APPLICABLE BUILDING CODES AND ZONING ORDINANCES AND SHALL SUPERSEDE EXHIBIT 'A'.
2. TRUE NORTH, REPRESENTATIONAL, GRADE (AS SHOWN), AND FINISH (AS SHOWN) ELEVATIONS ARE BASED ON LEAS HAW INFORMATION.
3. THE LOCATIONS OF LESSEE'S PROPOSED UTILITIES ARE SUBJECT TO THE REVIEW AND APPROVAL OF THE RESPECTIVE UTILITY COMPANIES AND MAY NEED TO BE RELOCATED.
4. DO NOT SCALE THIS EXHIBIT, UNLESS OTHERWISE NOTED.

SITE INFORMATION

1. PROPERTY OWNERS/LESSOR: TOWNSHIP OF SOUTH BRUNSWICK, PO BOX 190, HENRIEVILLE, NEW JERSEY 08842
 2. CONTACT: KEN VENSCH (732) 228-4008 x 7117
 3. TOWNSHIP COMMONS ADDRESS: TOWNSHIP OF SOUTH BRUNSWICK, PO BOX 190, HENRIEVILLE, NEW JERSEY 08842
 4. CONTRACT:
- LESSEE INFORMATION:**
1. SITE ADDRESS: 5 FERNWOOD DRIVE, PRINCETON, NEW JERSEY 08540, MIDDLESEX COUNTY
 2. LOT # 14448
 3. ZONING: N-1
 4. LATITUDE: N 40° 23' 28.24" W
 5. LONGITUDE: W 74° 34' 32.87" E
 6. DATE: 02/04/10
 7. DRAWN: CHAN HEE
 8. GROUND ELEVATION: 260 FEET +/-
 9. INTERSECTION SHOWN ON THIS DRAWING IS BASED ON LIMITED FIELD MEASUREMENTS TAKEN ON 01-11-10 AND A PLAN PROVIDED BY THE OWNER.

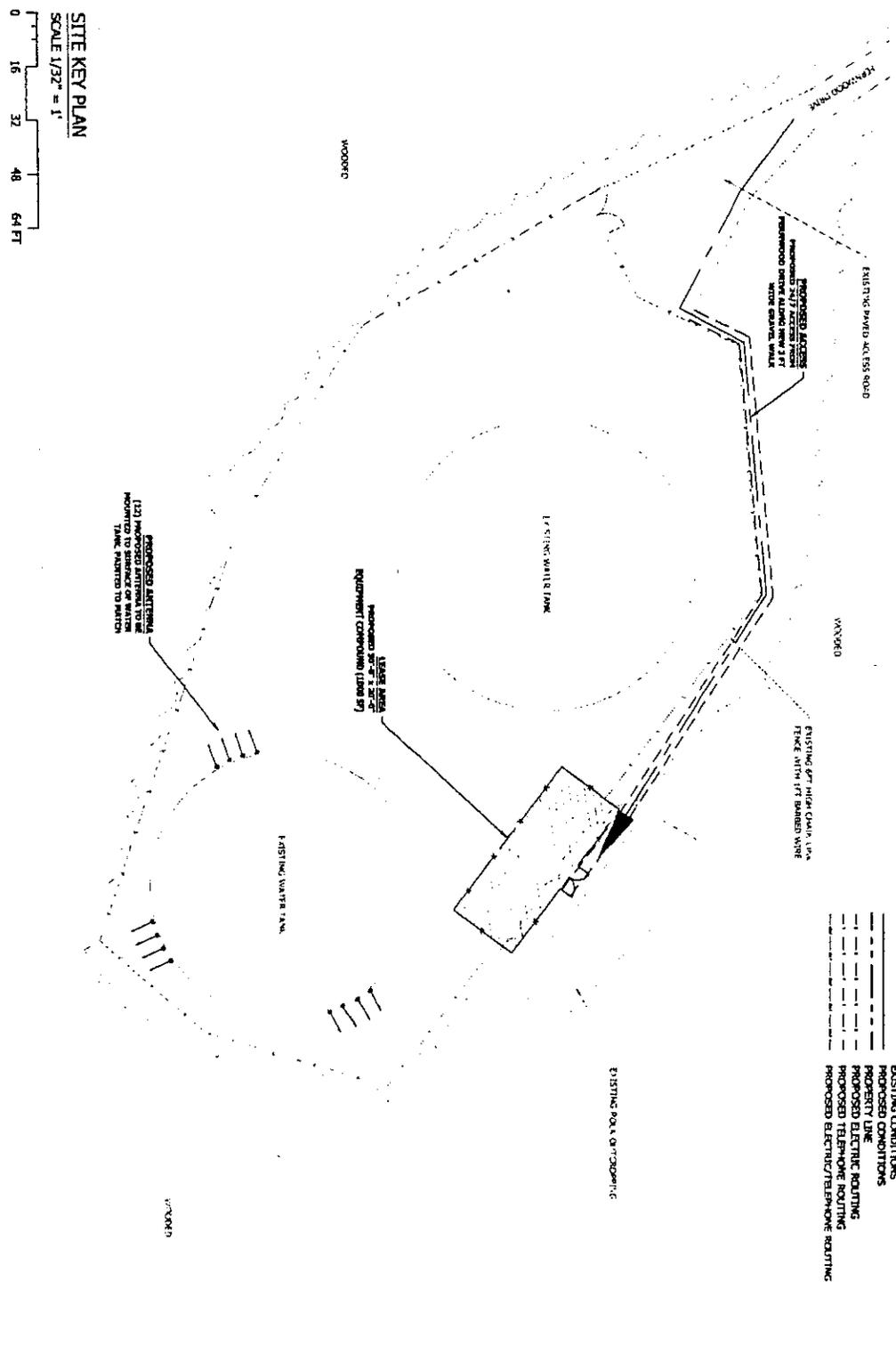


NO.	DESCRIPTION	DATE	BY	CHECKED
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2	REVISION			
3	REVISION			
4	REVISION			
5	REVISION			
6	REVISION			
7	REVISION			
8	REVISION			
9	REVISION			
10	REVISION			

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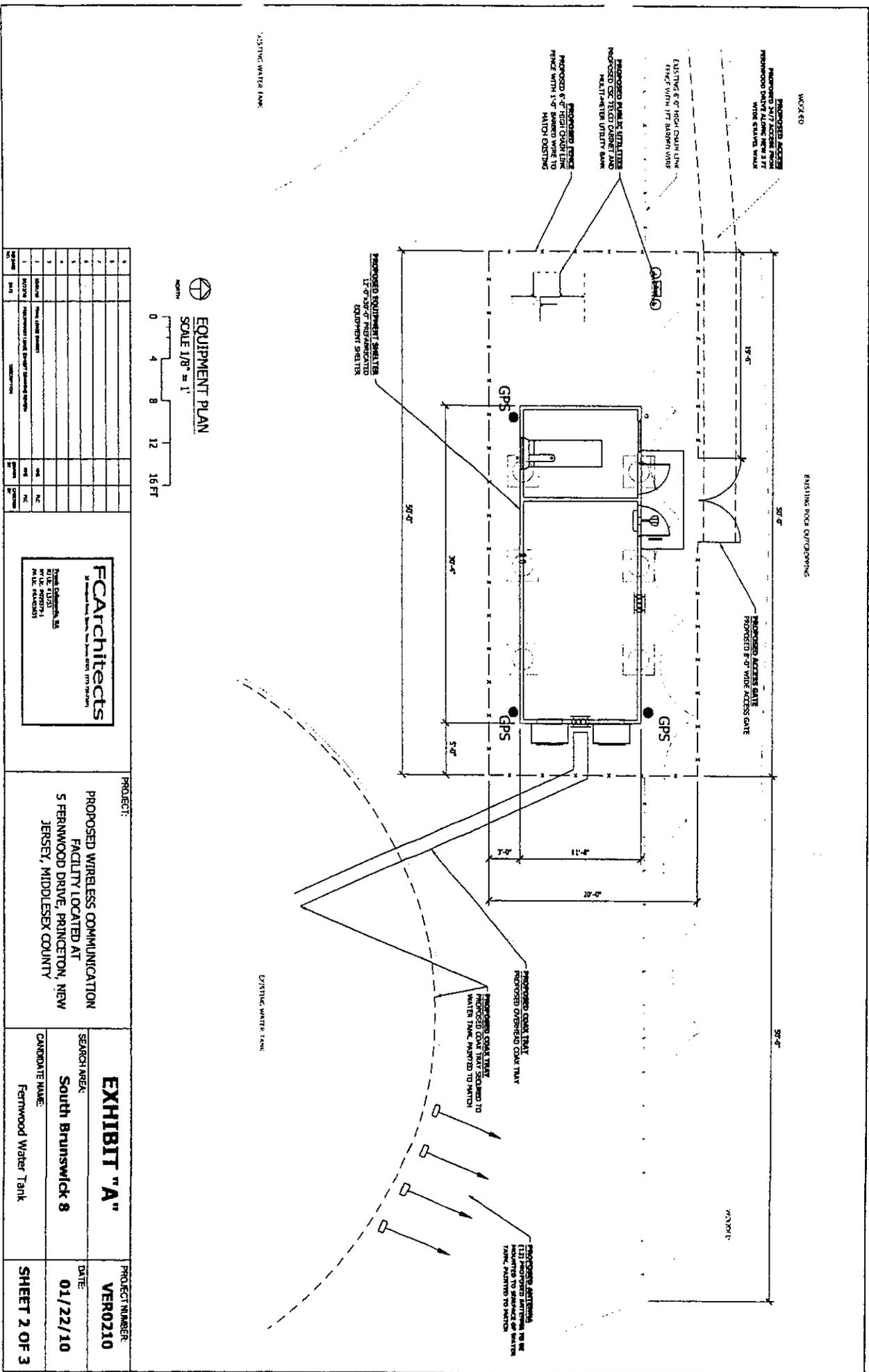
PROJECT:
 PROPOSED WIRELESS COMMUNICATION FACILITY LOCATED AT 5 FERNWOOD DRIVE, PRINCETON, NEW JERSEY, MIDDLESEX COUNTY

EXHIBIT "A"
 SEARCH AREA: South Brunswick 8
 CANDIDATE NAME: Fernwood Water Tank
 PROJECT NUMBER: VER0210
 DATE: 01/22/10
 SHEET 1 OF 3



LEGEND

- EXISTING CONDITIONS
- PROPOSED CONDITIONS
- PROPERTY LINE
- PROPOSED ELECTRIC ROUTING
- PROPOSED TELEPHONE ROUTING
- PROPOSED ELECTRIC/TELEPHONE ROUTING



EQUIPMENT PLAN
 SCALE 1/8" = 1'

NO.	REVISION	DATE	BY	CHK.	DESCRIPTION
1					
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FCArchitects
 30 Mountain Road, Suite 200, Princeton, NJ 08540
 Phone: 609.799.1100
 Fax: 609.799.1101
 www.fcarchitects.com

PROJECT:
 PROPOSED WIRELESS COMMUNICATION FACILITY LOCATED AT 5 FERNWOOD DRIVE, PRINCETON, NEW JERSEY, MIDDLESEX COUNTY

EXHIBIT "A"
 SEARCH AREA: South Brunswick 8
 CANDIDATE NAME: Fernwood Water Tank
 PROJECT NUMBER: VER0210
 DATE: 01/22/10
 SHEET 2 OF 3



NB+C Engineering Services

Proposed Equipment Upgrade on Water Tank L_Sub6 – Carrier Add

Prepared for Verizon Wireless

SITE INFORMATION

Address	5 Fernwood Drive Princeton, NJ 08540, Middlesex County Latitude: 40.39951°, Longitude: -74.58113°
Verizon Site Name	South Brunswick 8-WT
Verizon PSLC Code	461738
Verizon FUZE Project ID	16228326
NB+C Project Number	100574
Date	April 30, 2021

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1.0 INTRODUCTION	3
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5.0 ANALYSIS	5
6.0 CONCLUSIONS & RECOMMENDATIONS	5
APPENDIX A: CALCULATIONS	6

1.0 INTRODUCTION

The existing structure is a 196.5' tall water tank located in Princeton, NJ. Verizon Wireless has proposed to upgrade the existing installation as listed in Table 1. Pursuant to your request, **Network Building + Consulting Engineering Services (“NB+C ES”)** has performed a structural analysis of the existing water tank and existing mounts to determine if the loads induced due to the proposed installation can be safely supported by the existing antenna mounts and to verify if the structure is in compliance with the applicable codes and standards. Information we have received and used for this analysis includes:

- RF Data Sheet provided by Verizon dated December 30, 2020
- A&E Site Walk Notes and Photos prepared by **NB+C ES** dated January 22, 2021
- Previous Structural Letter prepared by M&S dated January 14, 2014
- Construction Drawings prepared by SDG dated January 16, 2017
- Mapping Report prepared by NMCI dated March 18, 2021

2.0 APPURTENANCE LOADING

As per the information provided to us, the following Table 1 shows the final antenna and feed line information.

Table 1 – Final Antenna and Cable Information

Center Line Elevation	No. of Antennas	Antenna Model/ Mount	Carrier	Feed Line (in)
153.0	12	(3) Samsung MT6407-77A Integrated Antenna (4) Commscope SBNHH-1D45B (2) Commscope SBNHH 1D65B (3) CSS X7C-FRO-660 (3) Samsung B5/B13 RRH-BR04C (RFV01U-D2A) (3) Samsung B2/B66A RRH-BR049 (RFV01U-D1A) (1) OVP6 Distribution Box (2) OVP6 Distribution Box	Verizon	(12) 1-5/8” Coax (2) 6x12 Hybrid (1) 6x12 Hybrid

Note: Proposed equipment is shown in **BOLD**.

3.0 ASSUMPTIONS

This report is based on the theoretical capacity of the existing water tank structural elements and is not an assessment of the overall suitability of the existing structure or its components for any particular use other than specified here in this report:

- This report makes no warranties, expressed and/or implied, and disclaims any liability arising from material, fabrication and erection of the existing structure or proposed equipment, and any other existing or proposed components or appurtenances.
- All existing and proposed antennas, mounts, coaxial cable and appurtenances are assumed to be properly installed and configured according to manufacturer requirements.
- All existing structural elements are assumed to be in place and in good condition as evident by site audit photos and visual site observations and were previously designed and constructed in accordance with applicable codes and standards.
- Contractor to verify existing site conditions prior to fabrication and construction. In the event the existing conditions are different than the assumptions made in this report, this shall be brought to the structural engineer's attention before proceeding any further with bidding, fabrication and/or erection.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 1.
- The following assumptions about the water tank were made for this analysis:
 - Foundation of the tank is in good condition.
 - The diameter of the water tank and its pedestal were estimated to be 80' and 50', respectively.
 - The full volume of the tank is assumed to be 1,257,203 gallons.
 - The thickness for the water tank and its pedestal were assumed to be ¼" and ½", respectively.

4.0 APPLICABLE CODES AND STANDARDS

The existing structure was analyzed/designed per the provisions of following applicable codes and standards:

- *2018 International Building Code*
- *ANSI/TIA-222-H – Structural Standards for Antenna Supporting Structures, Antennas, and Small Wind Turbines*
- *Minimum Design Loads for Buildings and Other Structures ASCE/SEI 7-16*
- *AISC Steel Construction Manual, 15th Edition*
- *2018 International Existing Building Code*

5.0 ANALYSIS

Design Loads:

- Ultimate wind speed: 129 mph
- Risk Category: IV
- Exposure: C

Load Combinations:

- D
- D + 0.6W
- 0.6D + 0.6W
- D + 0.7E
- 0.6D + 0.7E

6.0 CONCLUSIONS & RECOMMENDATIONS

Based on the performed analysis of this structure for applied gravity and lateral loads, the existing water tank was found to have **adequate** structural capacity to support the proposed Verizon Wireless telecommunication equipment and are in compliance with building codes and standards listed here in this report. Therefore, the proposed panel antennas and RRHs **may be installed** on existing mounts.

The existing water tank structure was determined to be structurally adequate for the proposed gravity and lateral loads per the 2018 International Existing Building Code (IEBC) Section 806.

Gravity loads were calculated for the original tank structure and for the existing and proposed telecommunications appurtenances. The change in gravity loads due to the existing and proposed telecommunications appurtenances is less than 5% of the loading on the original tank, which is determined to be acceptable.

Lateral wind loads were calculated for the original tank structure and for the existing and proposed telecommunications appurtenances. The change in wind loading due to the existing and proposed telecommunications appurtenances is less than 10% of the loading on the original tank, which is determined to be **acceptable**.

The conclusions reached by **NB+C ES** in this report are only applicable for the previously mentioned existing structural members supporting the Verizon Wireless telecommunications equipment. Further, no structural qualification is made or implied by this report for existing structural members not supporting the Verizon Wireless equipment.

NB+C Engineering Services, LLC

Prepared by: Edgardo P Brandao

Respectfully submitted by:

Krupakaran Kolandaivelu, P.E.

Director of Engineering
NJ PE License No. 24GE04945200

4/30/2021

Reports, Letters and
Drawings with Raised NJ
Seal and PE signature
available upon request.

APPENDIX A: CALCULATIONS



1. DESIGN LOADS

Structure Type: Elevated Steel Water Tank = 1,257,203 gallons Number of Legs = 1

Dead Loads: Water 2/3 Full = 6991445.087 LBS
 Load Per Leg = 6,991,445 LBS

Snow Loads: Snow = 30 PSF

Live Loads: Roof = 20 PSF
 Catwalk = 40 PSF
 Handrail = 50 PLF

Wind Loads:

ASCE 7-16 / IBC 2018

ASCE 7-16 Reference

$F = q_z G C_f A_f$ (lb)

Eq. 26.4-1

$q_z = 0.00256 K_z K_{zt} K_d K_e V^2$ (lb/ft²)

Eq. 26.10-1

Exposure Category	=	C		
Building Risk Category	=	IV		
V (MPH)	=	129		
H	=	153	RAD Antennas	
K _{zt}	=	1.00		Figure 26.8-1
K _d	=	0.85		Table 26.6-1
K _e	=	1.00		Table 26.9-1
G	=	1.00		
G	=	0.85	Antenna Equip.	Section 26.11
C _f	=	1.30		Figure 26.4-1
C _r	=	0.60		Figure 26.4-1

ELEV. feet	Kz <small>Table 26.10-1</small>	qz psf	TANK STRUCTURE		CARRIER	TELECOM APPURTENANCES	
			p, flat psf	p, round psf		p, flat psf	p, round psf
0	0.85	30.74	39.96	18.44		33.97	15.68
20	0.90	32.66	42.46	19.59		36.09	16.66
25	0.95	34.23	44.50	20.54		37.82	17.46
30	0.98	35.57	46.24	21.34		39.30	18.14
35	1.01	36.74	47.76	22.04		40.60	18.74
40	1.04	37.79	49.13	22.67		41.76	19.27
50	1.09	39.61	51.49	23.76		43.77	20.20
60	1.14	41.16	53.50	24.69		45.48	20.99
70	1.17	42.51	55.27	25.51		46.98	21.68
80	1.21	43.73	56.84	26.24		48.32	22.30
90	1.24	44.82	58.27	26.89		49.53	22.86
100	1.27	45.83	59.58	27.50		50.64	23.37
110	1.29	46.76	60.79	28.05		51.67	23.85
120	1.32	47.62	61.91	28.57		52.62	24.29
130	1.34	48.43	62.96	29.06		53.52	24.70
140	1.36	49.19	63.95	29.52		54.36	25.09
150	1.38	49.91	64.89	29.95		55.15	25.46
153	1.38	70.51	91.66	42.30	RAD Antennas	77.91	35.96

2. TOWER DEAD AND WIND LOADS

Diameter of Tank	=	80.00	ft	Estimated		Exposed face of top rail	=	0.00	in	N/A
Height of Dome Roof	=	0.00	ft	N/A		Exposed face of diagonals	=	0.00	in	N/A
Height of Cylinder	=	20.00	ft	Estimated		Exposed face of posts	=	0.00	in	N/A
Height of Bowl	=	20.00	ft	Estimated		Exposed face of toe plate	=	0.00	in	N/A
Diameter of Legs	=	0.00	ft	N/A		Exposed face of ladder	=	0.00	in	N/A
Diameter of flute	=	50.00	ft	Estimated		Exposed face of center Rail	=	0.00	in	N/A
Width of Braces	=	0.00	ft	N/A						
Exposed Face of Hor.	=	0.00	ft	N/A						

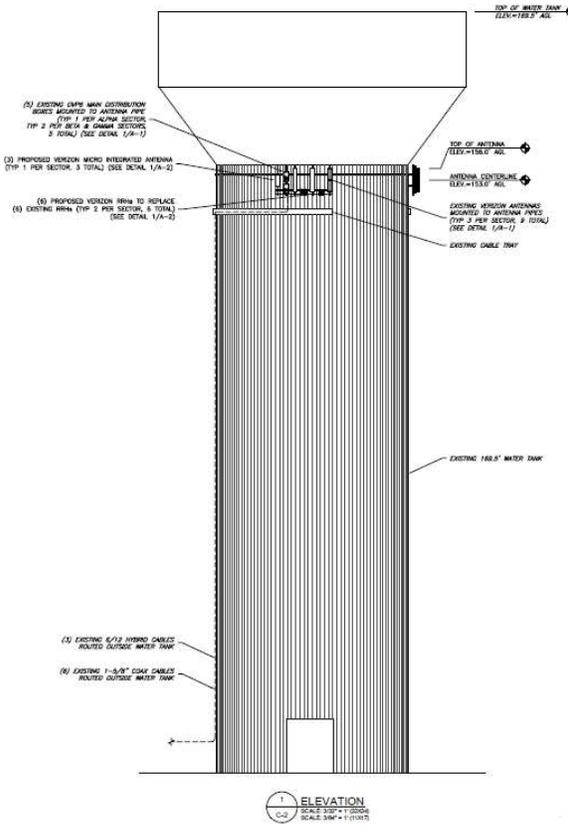
Elev. of CL of Tank	=	180.0	ft
Wind Pressure	=	29.9	psf R
Eff. Frontal A of Tank	=	2,960.00	ft ²
Force On Tank	=	88,645.36	lbs

Elev. of CW	=	0.0	ft	CF	<input type="checkbox"/>
Wind Pressure	=	40.0	psf	F	<input type="checkbox"/>
Wind on Top Rail	=	0.00	plf		
Wind diagonals	=	0.00	plf		
Wind on post	=	0.00	plf		
Wind on bot plate	=	0.00	plf		
Wind on Center rail	=	0.00	plf		
Wind on ladder	=	0.00	plf		
Force at CW Level	=	0.00	lbs		

Elev. of CTR	=	78.0	ft	CF	<input type="checkbox"/>
Wind Pressure	=	25.5	psf	R	<input type="checkbox"/>
Wind on legs	=	0.00	plf		
Wind on braces	=	0.00	plf		
Wind on flute	=	1,275.42	plf		
Wind on ladder	=	0.00	plf		
Force-CTR of section	=	198,964.74	lbs		

Elev. of Center	=	0.0	ft	CF	<input type="checkbox"/>
Wind Pressure	=	40.0	psf	F	<input type="checkbox"/>
Wind on horiz.	=	0.00	plf		
Wind - joint conn. PL	=	26.64	plf		
Force	=	0.00	lbs		

Elev. of CTR	=	0.0	ft	CF	<input type="checkbox"/>
Wind Pressure	=	18.4	psf	R	<input type="checkbox"/>
Wind on legs	=	0.00	plf		
Wind on braces	=	0.00	plf		
Wind on riser pipe	=	922.16	plf		
Wind on ladder	=	0.00	plf		
Force-CTR of section	=	0.00	lbs		



Member	
Count	Length
0	0.00
0	0.00
0	0.00
0	0.00
0	0.00
0	0.00

0	0.00
0	0.00
1	156.00
0	0.00

0	0.00
ignore	0.00

0	0.00
0	0.00
0	0.00
0	0.00



PROJECT NO. 100574

DATE: 4/19/2021

DESIGNED BY: MT

CHECKED BY: EB

PROJECT: South Brunswick 8 - IBC 2018 / ASCE 7-16 / ANSI/TIA-222-H

PAGE: 3 OF 4

Total Weight Empty = **593,302.86** lbs Tank + Pedestal

Total Weight 2/3 Full = **7584747.949** lbs

Total wind load = **287,610.10** lbs

3. EQUIPMENT DEAD AND WIND LOADS

Verizon Mounts	Weight lbs.	Length Exposed(in)	Width/Dia in	Count	Ar ft^2	P lbs.	
2.0" STD Pipe Mount	462.00	73.00	2.38	21.00	1.20	909.16	
2.5" STD Pipe Mount	204.00	73.00	2.88	6.00	1.46	314.45	
Unistruts	137.00	60.00	1.63	18.00	0.68	438.24	
Connector Bent Plates (Estimated)	735.00	36.00	12.00	24.00	3.00	2588.99	
	1538.00				6.34	4250.83	

Verizon Feedlines	Weight lbs.	Length ft	Diameter in	Coax Exposed	Ar ft^2	P (Average) lbs.	
(3) 1.43" Hybrid	1246.40	820.00	1.430	0.00	97.72	0.00	Shielded
(12) 1-5/8" Coax	2361.60	3280.00	1.625	0.00	444.17	0.00	Shielded
	3,608.00				541.88	0.00	

Verizon Antennas	Weight lbs.	Length in	Width in	Depth in	Af ft^2	P lbs.	Sector
SAMSUNG MT6407-77A	81.50	35.12	16.06	5.51	3.92	305.16	Alpha
COMMSCOPE SBNHH-1D45B	64.40	72.00	18.00	7.00	9.00	701.18	Alpha
COMMSCOPE SBNHH-1D45B	64.40	72.00	18.00	7.00	9.00	701.18	Alpha
CSS X7C-FRO-660	32.20	72.00	14.60	8.00	7.30	568.74	Alpha
B2/B66A RFV01U-D1A	90.00	15.50	15.90	12.00	1.71	133.34	Alpha
B5/B13 RFV01DU-D2A	74.50	15.50	15.90	10.20	1.71	133.34	Alpha
OVP6	14.00	15.95	10.15	8.15	1.12	87.59	Alpha
SAMSUNG MT6407-77A	81.50	35.12	16.06	5.51	3.92	305.16	Gamma
COMMSCOPE SBNHH-1D45B	64.40	72.00	18.00	7.00	9.00	701.18	Gamma
COMMSCOPE SBNHH-1D45B	64.40	72.00	18.00	7.00	9.00	701.18	Gamma
CSS X7C-FRO-660	32.20	72.00	14.60	8.00	7.30	568.74	Gamma
B2/B66A RFV01U-D1A	90.00	15.50	15.90	12.00	1.71	133.34	Gamma
B5/B13 RFV01DU-D2A	74.50	15.50	15.90	10.20	1.71	133.34	Gamma
OVP6	14.00	15.95	10.15	8.15	1.12	87.59	Gamma
SAMSUNG MT6407-77A	81.50	35.12	16.06	5.51	3.92	305.16	Beta
COMMSCOPE SBNHH-1D65B	40.60	72.90	11.90	7.10	6.02	469.35	Beta
COMMSCOPE SBNHH-1D65B	40.60	72.90	11.90	7.10	6.02	469.35	Beta
CSS X7C-FRO-660	32.20	72.00	14.60	8.00	7.30	568.74	Beta
B2/B66A RFV01U-D1A	90.00	15.50	15.90	12.00	1.71	133.34	Beta
B5/B13 RFV01DU-D2A	74.50	15.50	15.90	10.20	1.71	133.34	Beta
OVP6	14.00	15.95	10.15	8.15	1.12	87.59	Beta
	1,215.40				95.34	7,427.94	

Other Carrier Antennas	Weight lbs.	Length in	Width in	Depth in	Af ft^2	P lbs.	Count
N/A					0.00	0.00	
	0.00				0.00	0.00	

*Assumed weight & dims.

** Assumed elements not facing wind are shielded



PROJECT NO. 100574

DATE: 4/19/2021

DESIGNED BY: MT

CHECKED BY: EB

PAGE: 3 OF 4

PROJECT: South Brunswick 8 - IBC 2018 / ASCE 7-16 / ANSI/TIA-222-H

Total Weight of Equipment 6,361.40 lbs

Total Wind load of Equipment 11,678.77 lbs

4. CHECK PERCENTAGE INCREASE IN LOADS

Weight (Tank Empty) 1.07 % *OK! Less than 5%*

Weight (Tank 2/3 Full Controls) 0.08 % *OK! Negligible. Seismic check not required.*

Wind 4.06 % *OK! Less than 10%*

5. CONCLUSIONS

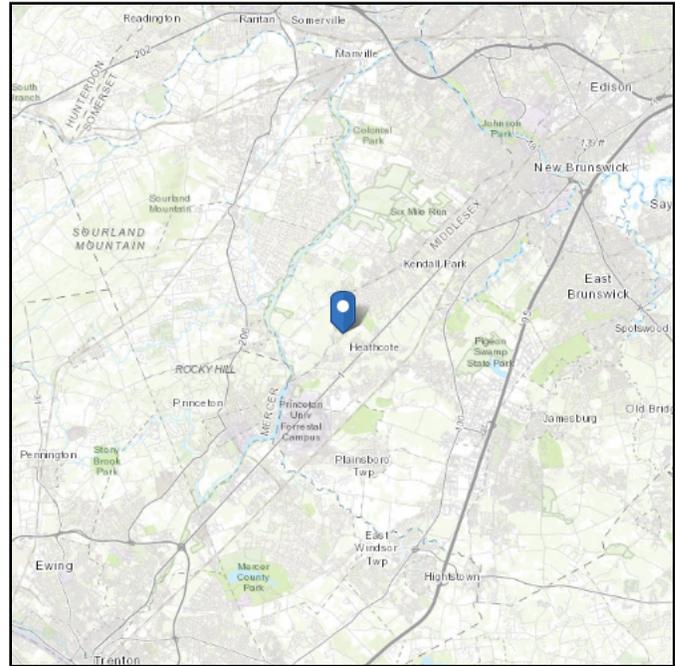
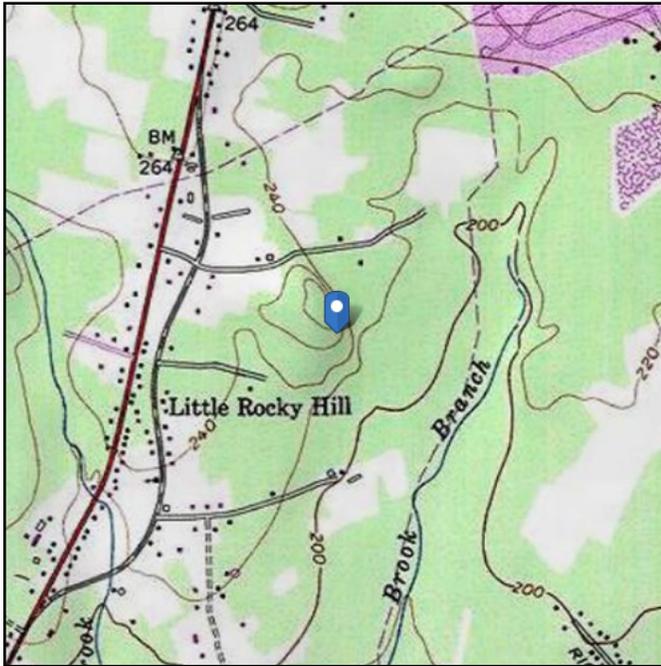
- The proposed Verizon Wireless telecommunication equipment may be installed on the existing pipe mounts.

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 229.75 ft (NAVD 88)
Latitude: 40.399514
Longitude: -74.581125



Wind

Results:

Wind Speed:	129 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	89 Vmph
100-year MRI	95 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1D and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Apr 14 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 1.6% probability of exceedance in 50 years (annual exceedance probability = 0.00033, MRI = 3,000 years).

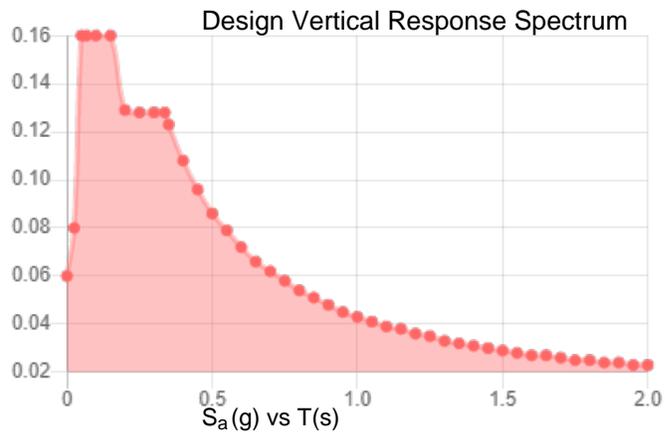
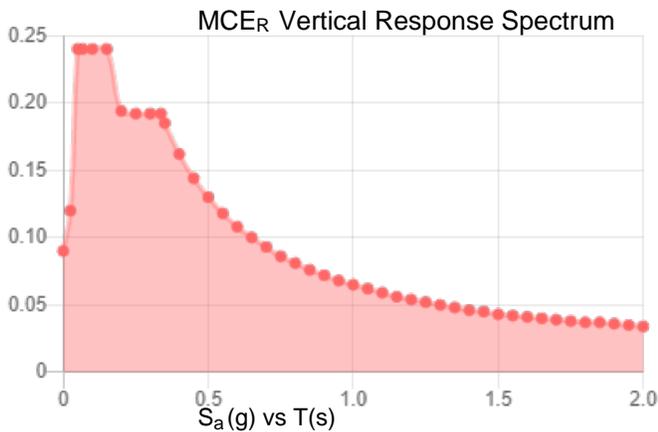
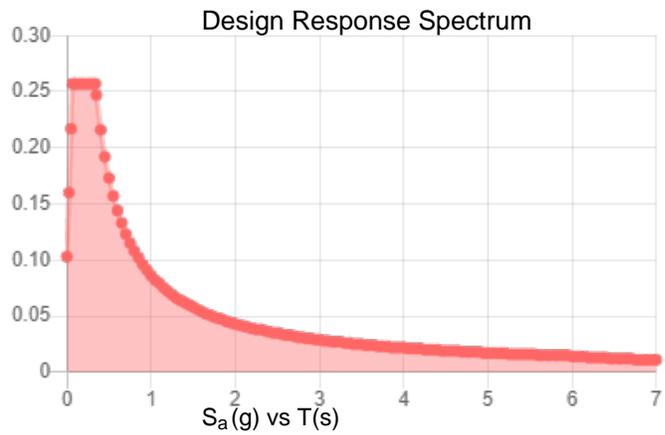
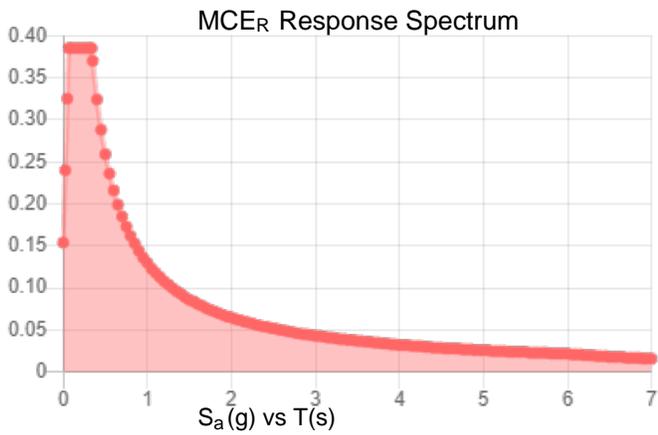
Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

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

Results:

S_S :	0.24	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.143
F_v :	2.4	PGA _M :	0.216
S_{MS} :	0.385	F_{PGA} :	1.515
S_{M1} :	0.13	I_e :	1.5
S_{DS} :	0.257	C_v :	0.781

Seismic Design Category C



Data Accessed: Wed Apr 14 2021
Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 15 F
Gust Speed: 40 mph

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

Date Accessed: Wed Apr 14 2021

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

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

Snow

Results:

Ground Snow Load, p_g : 30 lb/ft²
Elevation: 229.8 ft

Data Source: ASCE/SEI 7-16, Table 7.2-8

Date Accessed: Wed Apr 14 2021

Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow loads at elevations not covered.

Flood

Results:

Flood Zone Categorization: X (unshaded)

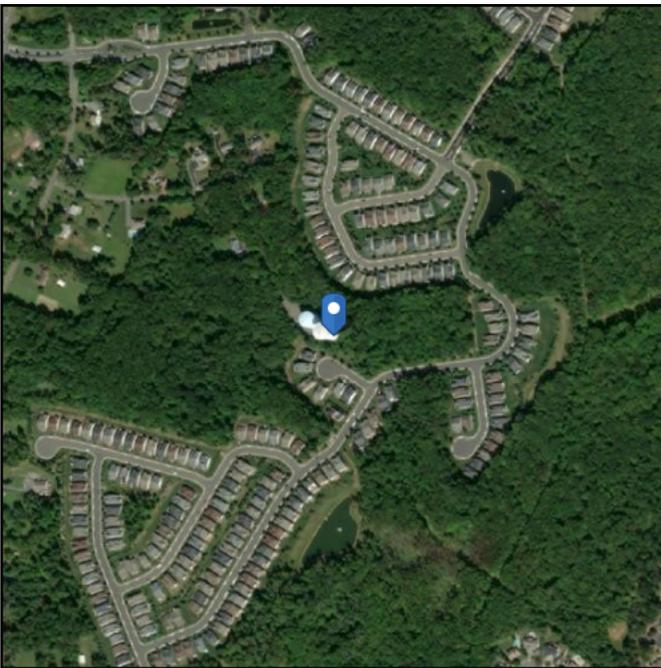
Base Flood Elevation: NAVD88

Data Source: FEMA National Flood Hazard Layer - Effective Flood Hazard Layer for US, where modernized (<https://msc.fema.gov/portal/search>)

Date Accessed: Wed Apr 14 2021

FIRM Panel: If available, download FIRM panel [here](#)

Insurance Study Note: Download FEMA Flood Insurance Study for this area [here](#)



Tsunami

Results:

Tsunami: Not in mapped tsunami design zone.

Data Source: [ASCE Tsunami Design Geodatabase](#)

Date Accessed: Wed Apr 14 2021

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.



SITE NAME: SOUTH BRUNSWICK 8

5 FERNWOOD DRIVE
PRINCETON, NJ 08540
SOUTH BRUNSWICK TOWNSHIP
MIDDLESEX COUNTY

SITE INFORMATION

SCOPE OF WORK: PROJECT CONSISTS OF INSTALLING ADDITIONAL EQUIPMENT AND/OR ANTENNAS TO AN EXISTING WIRELESS TELECOMMUNICATIONS FACILITY.

SITE ADDRESS: 5 FERNWOOD DRIVE
PRINCETON, NJ 08540

JURISDICTION: SOUTH BRUNSWICK TOWNSHIP
MIDDLESEX COUNTY

LATITUDE (NAD 83): 40-23-58.2504N (40.399514°)
LONGITUDE (NAD 83): 74-34-52.05W (-74.581125°)

BLOCK NUMBER: 96
LOT NUMBER: 144.08
PARCEL NUMBER: 21-00096-0000-00144-08-T01

PROPERTY OWNER: TOWNSHIP OF SOUTH BRUNSWICK
540 RIDGE ROAD
MONMOUTH JUNCTION, NJ 08852-2643

VZW SITE ID: NA

FUZE PROJECT ID: 16228326

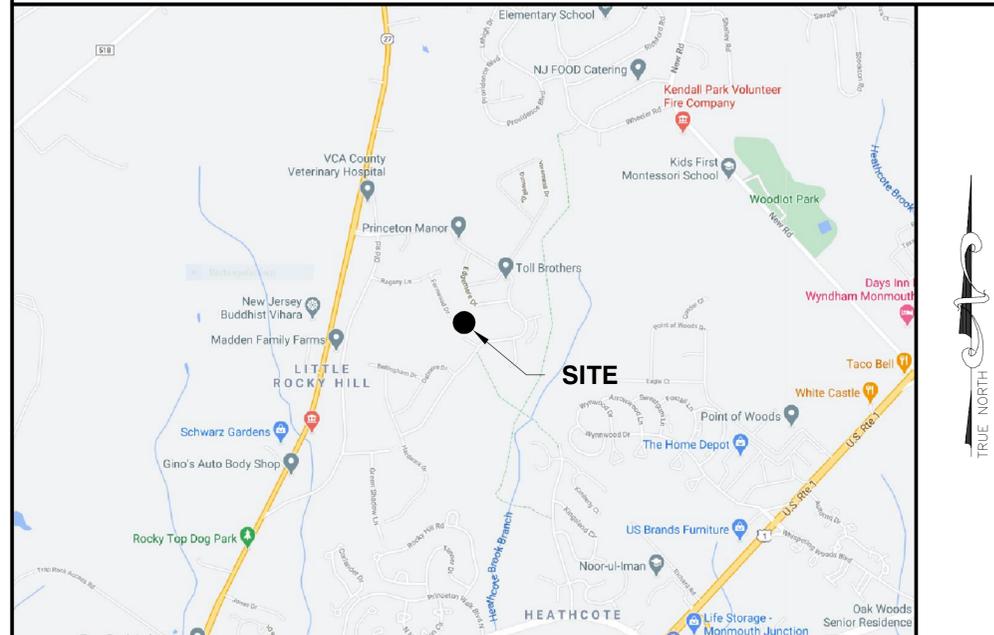
STRUCTURE TYPE: WATER TANK

CONSTRUCTION TYPE: IIB

USE GROUP: U

GROUND ELEVATION: 230.40' (AMSL)

VICINITY MAP



DIRECTIONS

FROM WARREN, NJ: TURN RIGHT ONTO WARREN CORP CENTER DR. TURN RIGHT ONTO KING GEORGE RD. TURN RIGHT ONTO MOUNTAINVIEW RD. TURN LEFT ONTO KING GEORGE RD. TURN RIGHT ONTO MOUNTAIN AVE. KEEP LEFT TO STAY ON MOUNTAIN AVE. TURN LEFT ONTO E UNION AVE. TURN RIGHT ONTO EAST ST. CONTINUE ONTO BOLMER BLVD. AT THE TRAFFIC CIRCLE, CONTINUE STRAIGHT ONTO S MAIN ST. CONTINUE ONTO EASTON AVE. CONTINUE STRAIGHT TO STAY ON EASTON AVE. TURN RIGHT TOWARD DEMOTT LN. TURN RIGHT ONTO DEMOTT LN. TURN RIGHT ONTO AMWELL RD. TURN LEFT ONTO S MIDDLEBUSH RD. TURN RIGHT ONTO NJ-27 S. TURN LEFT ONTO ANDOVER DR. TURN RIGHT AT THE 1ST CROSS STREET ONTO OLD RD. TURN LEFT ONTO RAGANY LN. TURN RIGHT ONTO FERNWOOD DR. LEADS TO LATITUDE 40.401678° AND LONGITUDE -74.582922°. (DRIVEWAY TO COMPOUND)

CODE COMPLIANCE

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

- 2018 INTERNATIONAL BUILDING CODE(NJ EDITION)
- 2014 NATIONAL ELECTRICAL CODE
- 2015 NATIONAL STANDARD PLUMBING CODE
- 2009 NFPA 101, LIFE SAFETY CODE
- 2015 IFC
- AMERICAN CONCRETE INSTITUTE
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION
- MANUAL OF STEEL CONSTRUCTION 15TH EDITION
- ANSI/TIA-222-H
- TIA 607
- INSTITUTE FOR ELECTRICAL & ELECTRONICS ENGINEER 81
- IEEE C2 NATIONAL ELECTRIC SAFETY CODE LATEST EDITION
- TELECORDIA GR-1275
- ANSI/T 311

DRAWING INDEX

T-1	TITLE SHEET
C-1	COMPOUND PLAN
C-2	ELEVATION
A-1	EXISTING ANTENNA PLAN AND SCHEDULE
A-2	PROPOSED ANTENNA PLAN AND SCHEDULE
A-3	ANTENNA DETAILS & PLUMBING DIAGRAM
A-4	EQUIPMENT SPECIFICATIONS
A-5	ALARM WIRING DIAGRAM & COLOR CODING
A-6	SCOPE OF WORK
G-1	SCHEMATIC AND GROUNDING DIAGRAM
GN-1	PMI REQUIREMENTS

DO NOT SCALE DRAWINGS

THESE DRAWINGS ARE FORMATTED TO BE FULL-SIZE AT 22"X34". CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE DESIGNER / ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR MATERIAL ORDERS OR BE RESPONSIBLE FOR THE SAME. CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICE TO PREVENT STORM WATER POLLUTION DURING CONSTRUCTION.

APPROVAL BLOCK

	DATE	APPROVED	APPROVED AS NOTED	DISAPPROVED/ REVISE
CONSTRUCTION MANAGER	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SITE ACQUISITION	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RF ENGINEER	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LESSOR/LESSOR REP	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PROJECT TEAM

APPLICANT: NEW YORK SMSA LIMITED PARTNERSHIP
D/B/A VERIZON WIRELESS
400 WARREN CORPORATE CENTER DRIVE
BUILDING D
WARREN, NJ 07059

PROJECT MANAGEMENT FIRM: NETWORK BUILDING + CONSULTING
1777 SENTRY PARKWAY WEST
VEVA 17, SUITE 400
BLUE BELL, PA 19422
(267) 460-0122

SITE ACQ.: KATE HENNESSY

ENGINEERING FIRM: NB+C ENGINEERING SERVICES, LLC.
1777 SENTRY PARKWAY WEST
VEVA 17, SUITE 400
BLUE BELL, PA 19422
(267) 460-0122

ENGINEER



APPLICANT

NEW YORK SMSA
LIMITED PARTNERSHIP d/b/a
VERIZON WIRELESS
verizon
400 WARREN CORPORATE
CENTER DRIVE
BUILDING D
WARREN, NJ 07059

SITE INFORMATION

SOUTH BRUNSWICK 8
5 FERNWOOD DRIVE
PRINCETON, NJ 08540
SOUTH BRUNSWICK TWP.
MIDDLESEX COUNTY

DESIGN RECORD

REVISIONS

REV	DATE	DESCRIPTION	BY
1	03/17/21	PRELIMINARY CDs	JMC

PROFESSIONAL STAMP

STATE OF NEW JERSEY CERTIFICATE OF
AUTHORIZATION #246GA28226400 EXP 08/31/22

ENGINEER

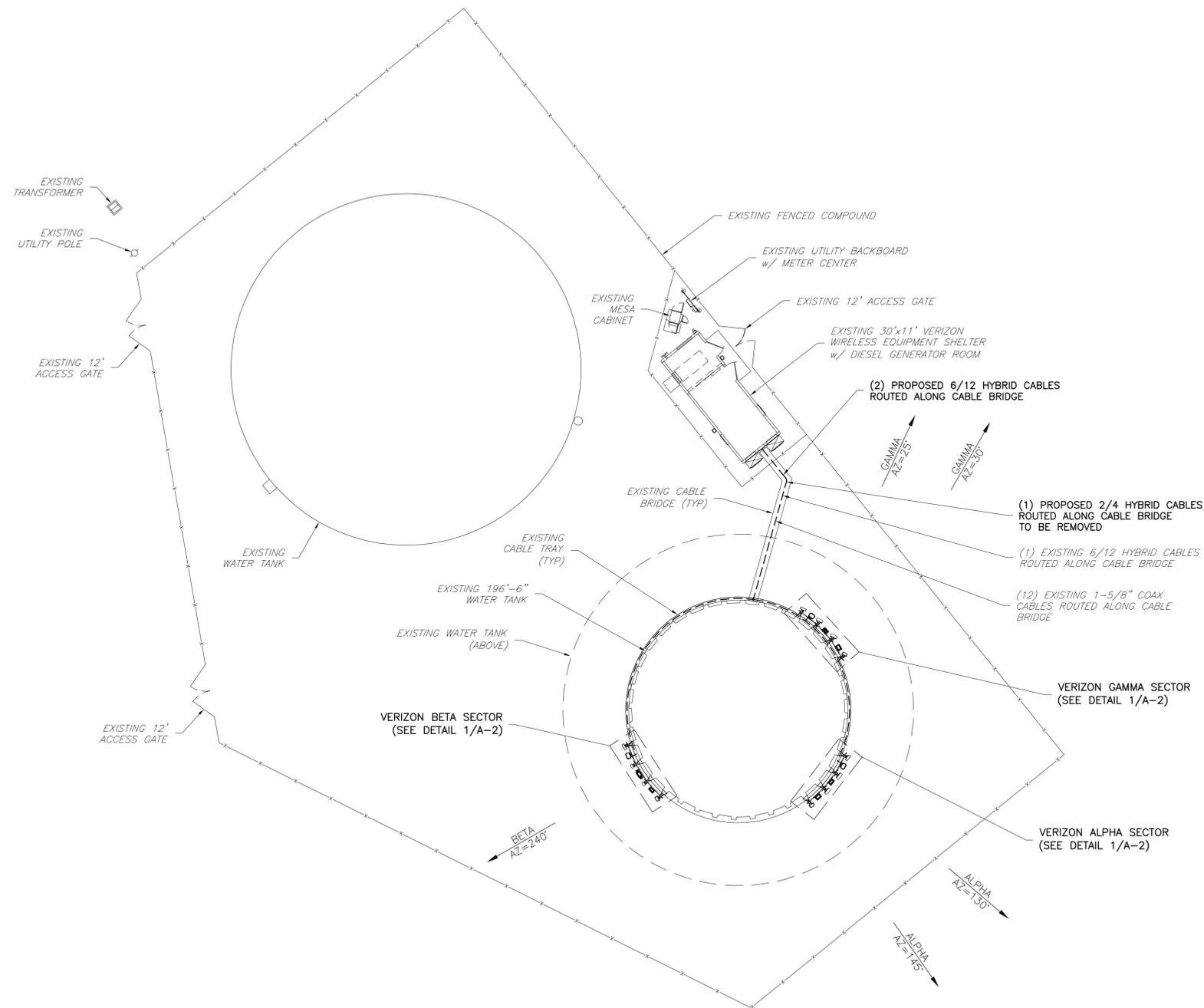
KRUPAKARAN KOLANDAIVELU, P.E.
STATE OF NEW JERSEY
PROFESSIONAL ENGINEER
LICENSE #24GE04945200

SHEET TITLE

TITLE SHEET

SHEET NUMBER

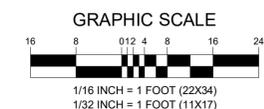
T-1



GENERAL NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY OR OTHER PUBLIC AUTHORITIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
3. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
5. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
8. CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
9. IF ANY UNDERGROUND UTILITIES OR STRUCTURES EXIST BENEATH THE PROJECT AREA, CONTRACTOR MUST LOCATE IT AND CONTACT THE APPLICANT & THE OWNER'S REPRESENTATIVE.
10. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION BY TECHNICIANS APPROXIMATELY 2 TIMES PER MONTH.
11. THIS PLAN IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
12. NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
13. THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION (NO HANDICAP ACCESS REQUIRED).
14. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.

1
C-1 **COMPOUND PLAN**
SCALE: 1/16" = 1' (22X34)
SCALE: 1/32" = 1' (11X17)



ENGINEER

NB+C
TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
1777 SENTRY PARKWAY WEST
VEVA 17, SUITE 400
BLUE BELL, PA 19022
(267) 460-0122

APPLICANT

NEW YORK SMSA
LIMITED PARTNERSHIP d/b/a
VERIZON WIRELESS
verizon
400 WARREN CORPORATE
CENTER DRIVE
BUILDING D
WARREN, NJ 07059

SITE INFORMATION

SOUTH BRUNSWICK 8
5 FERNWOOD DRIVE
PRINCETON, NJ 08540
SOUTH BRUNSWICK TWP.
MIDDLESEX COUNTY

DESIGN RECORD

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	03/17/21	PRELIMINARY CDs	JMC

PROFESSIONAL STAMP

STATE OF NEW JERSEY CERTIFICATE OF
AUTHORIZATION #246GA28226400 EXP 08/31/22

ENGINEER

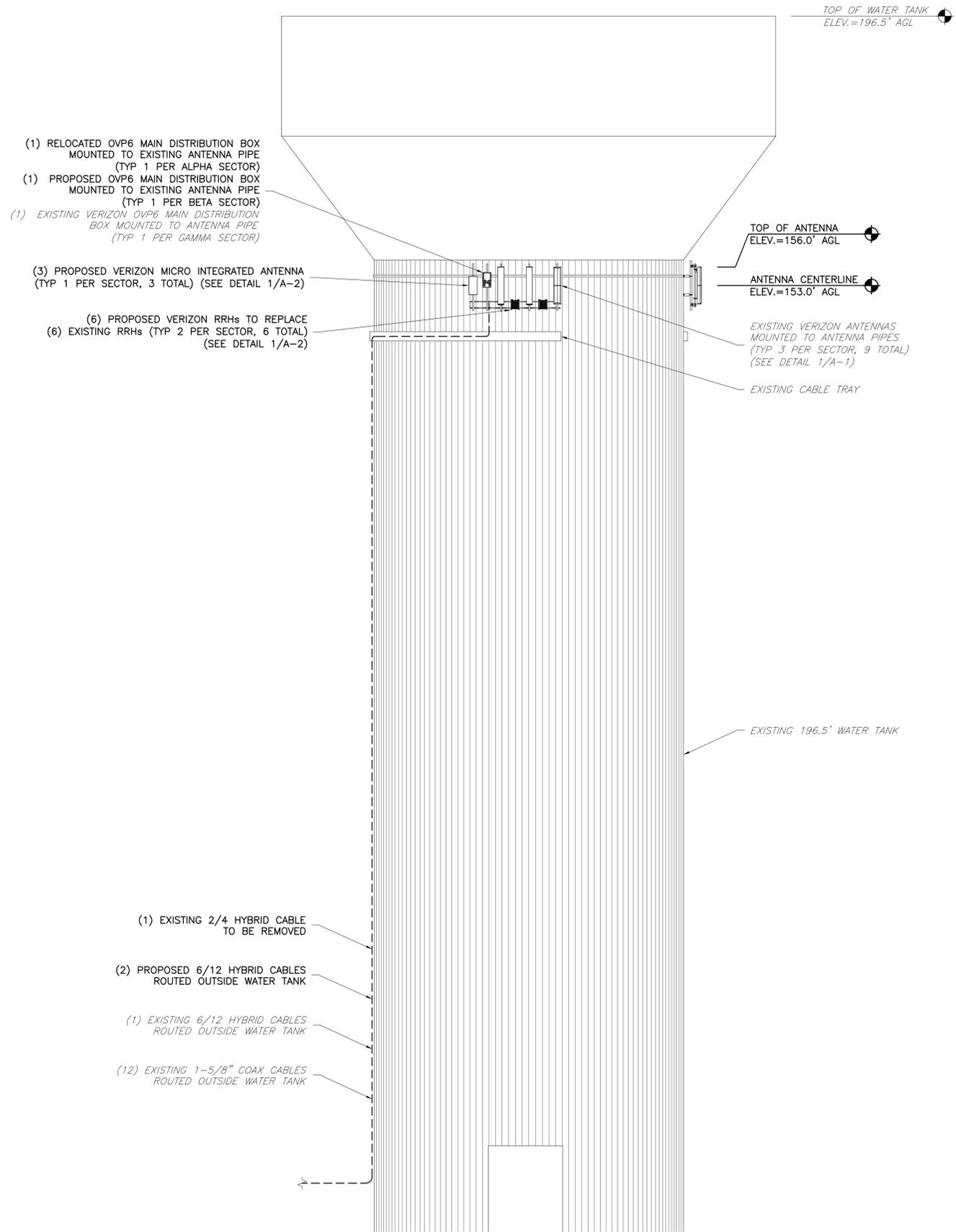
KRUPAKARAN KOLANDAIVELU, P.E.
STATE OF NEW JERSEY
PROFESSIONAL ENGINEER
LICENSE #24GE04945200

SHEET TITLE

**COMPOUND
PLAN**

SHEET NUMBER

C-1



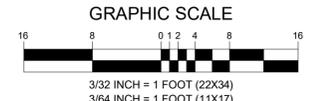
NOTE:
TOP OF PROPOSED ANTENNAS WILL NOT EXCEED TOP OF EXISTING ANTENNAS.

NOTE:
POST-MODIFICATION INSPECTION (PMI) REQUIRED ON ALL SITES. REFER TO SHEET GN-1 OF THESE CONSTRUCTION DRAWINGS, AS WELL AS THE MOUNT ANALYSIS PREPARED BY **XXX** DATED **XXX** FOR ADDITIONAL DETAILS.

NOTE:
PROPOSED EQUIPMENT TO BE PAINTED TO MATCH EXISTING WATER TANK.

NOTE:
(3) OVP2 MAIN DISTRIBUTION BOXES & ASSOCIATED CABLES TO BE REMOVED AND NOT TO BE REPLACED.

1 ELEVATION
SCALE: 3/32" = 1' (22X34)
SCALE: 3/64" = 1' (11X17)



ENGINEER	<p>TOTALLY COMMITTED.</p> <p>NB+C ENGINEERING SERVICES, LLC.</p> <p><small>1777 SENTRY PARKWAY WEST VENA 17, SUITE 400 BLUE BELL, PA 19022 (267) 460-0122</small></p>												
APPLICANT	<p>NEW YORK SMSA LIMITED PARTNERSHIP d/b/a VERIZON WIRELESS</p> <p>400 WARREN CORPORATE CENTER DRIVE BUILDING D WARREN, NJ 07059</p>												
SITE INFORMATION	<p>SOUTH BRUNSWICK 8 5 FERNWOOD DRIVE PRINCETON, NJ 08540 SOUTH BRUNSWICK TWP. MIDDLESEX COUNTY</p>												
DESIGN RECORD	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">REVISIONS</th> </tr> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>03/17/21</td> <td>PRELIMINARY CDs</td> <td>JMC</td> </tr> </tbody> </table>	REVISIONS				REV	DATE	DESCRIPTION	BY	1	03/17/21	PRELIMINARY CDs	JMC
REVISIONS													
REV	DATE	DESCRIPTION	BY										
1	03/17/21	PRELIMINARY CDs	JMC										
PROFESSIONAL STAMP	<p>STATE OF NEW JERSEY CERTIFICATE OF AUTHORIZATION #246GA28226400 EXP 08/31/22</p>												
ENGINEER	<p>KRUPAKARAN KOLANDAIVELU, P.E. STATE OF NEW JERSEY PROFESSIONAL ENGINEER LICENSE #24GE04945200</p>												
SHEET TITLE	<p>ELEVATION</p>												
SHEET NUMBER	<p>C-2</p>												

ENGINEER

APPLICANT

NEW YORK SMSA
LIMITED PARTNERSHIP d/b/a
VERIZON WIRELESS
verizon
400 WARREN CORPORATE
CENTER DRIVE
BUILDING D
WARREN, NJ 07059

SITE INFORMATION

SOUTH BRUNSWICK 8
5 FERNWOOD DRIVE
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DESIGN RECORD

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PROFESSIONAL STAMP

STATE OF NEW JERSEY CERTIFICATE OF
AUTHORIZATION #246GA28226400 EXP 08/31/22

ENGINEER

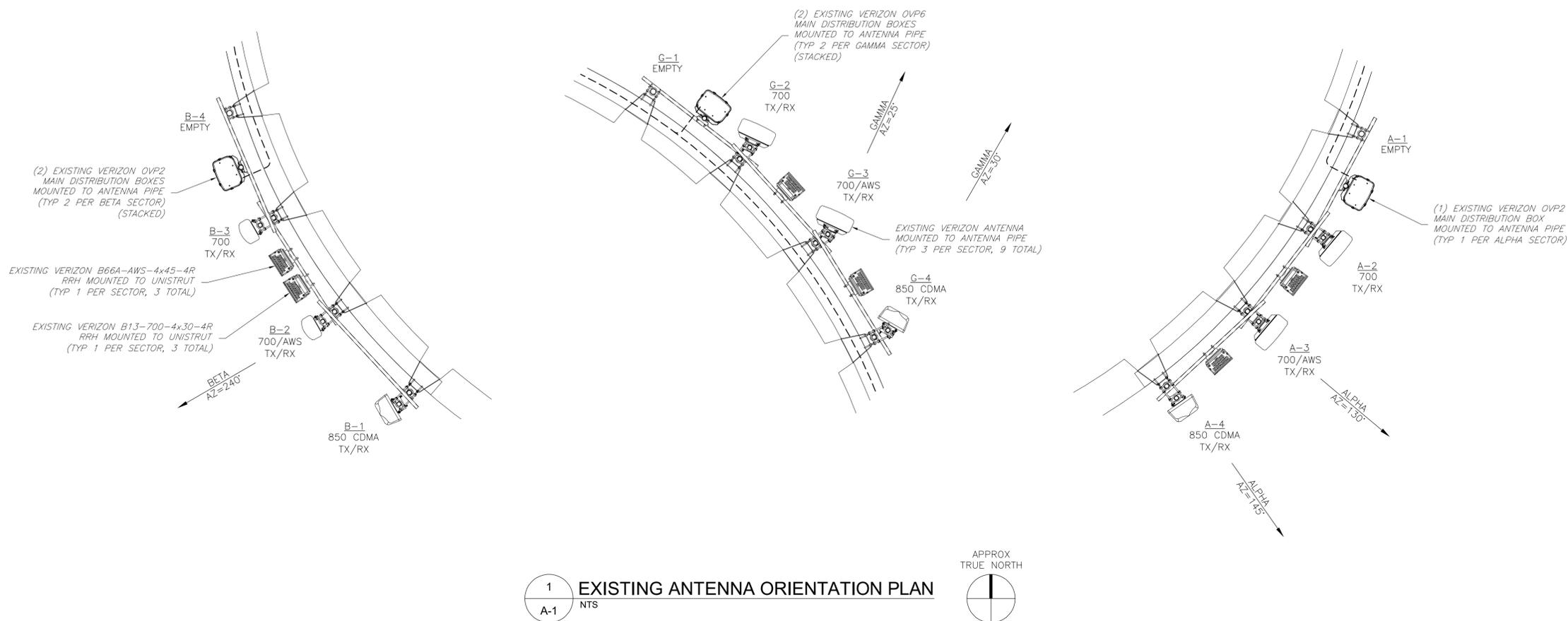
KRUPAKARAN KOLANDAIVELU, P.E.
STATE OF NEW JERSEY
PROFESSIONAL ENGINEER
LICENSE #24GE04945200

SHEET TITLE

**EXISTING
ANTENNA PLAN
& SCHEDULE**

SHEET NUMBER

A-1



EXISTING ANTENNA & RRH SCHEDULE

ANTENNA POSITION	ANTENNA MANUFACTURER	ANTENNA MODEL	RAD CENTER	AZIMUTH	DOWN TILT		RRH QUANTITY & MODEL	TECHNOLOGY	CABLE SIZE, LENGTH & QUANTITY
					MECH	ELEC			
A-1	-	-	-	-	-	-	-	EMPTY	(1) 1.31"Ø HYBRID CABLE (240')
A-2	COMMSCOPE	SBNHH-1D45B	153.00'	130°	2'	7"	B13-700 4x30-4R	700	(2) 1.31"Ø HYBRID CABLE (300')
A-3	COMMSCOPE	SBNHH-1D45B	153.00'	130°	2'	7" 3"	B66A-AWS 4x45-4R	700/AWS	(4) 1-5/8" COAX (280')
A-4	CSS	X7C-FRO-660	153.00'	145°	2'	4"	-	850 CDMA	-
B-1	CSS	X7C-FRO-660	153.00'	240°	3'	4"	-	850 CDMA	(2) 1.31"Ø HYBRID CABLE (300')
B-2	COMMSCOPE	SBNHH-1D65B	153.00'	240°	2'	4"	B13-700 4x30-4R	700	(2) 1.31"Ø HYBRID CABLE (300')
B-3	COMMSCOPE	SBNHH-1D65B	153.00'	240°	2'	4" 0"	B66A-AWS 4x45-4R	700/AWS	(4) 1-5/8" COAX (300')
B-4	-	-	-	-	-	-	-	EMPTY	-
G-1	-	-	-	-	-	-	-	EMPTY	(1) 1.31"Ø HYBRID CABLE (240')
G-2	COMMSCOPE	SBNHH-1D45B	153.00'	25°	2'	6"	B13-700 4x30-4R	700	(1) 1.43"Ø HYBRID CABLE (240')
G-3	COMMSCOPE	SBNHH-1D45B	153.00'	25°	2'	6" 1"	B66A-AWS 4x45-4R	700/AWS	(4) 1-5/8" COAX (240')
G-4	CSS	X7C-FRO-660	153.00'	30°	3'	2"	-	850 CDMA	(4) 1-5/8" COAX (240')

REVISIONS

REV	DATE	DESCRIPTION	BY
1	03/17/21	PRELIMINARY CDs	JMC

PROFESSIONAL STAMP

STATE OF NEW JERSEY CERTIFICATE OF
AUTHORIZATION #246GA28226400 EXP 08/31/22

ENGINEER

KRUPAKARAN KOLANDAIVELU, P.E.
STATE OF NEW JERSEY
PROFESSIONAL ENGINEER
LICENSE #24GE04945200

SHEET TITLE

**PROPOSED
ANTENNA PLAN
& SCHEDULE**

SHEET NUMBER

A-2

ENGINEER

APPLICANT

SITE INFORMATION

DESIGN RECORD

PROFESSIONAL STAMP

ENGINEER

SHEET TITLE

SHEET NUMBER

NOTE:
(3) OVP2 MAIN DISTRIBUTION BOXES & ASSOCIATED CABLES TO BE REMOVED AND NOT TO BE REPLACED.

PROPOSED 2-1/2" NOM. (2-7/8" O.D.) X 5' LONG SCH. 40 GALVANIZED MOUNTING PIPE ATTACHED TO EXISTING ANTENNA PIPE WITH PIPE-TO-PIPE CLAMPS (TYP 1 PER SECTOR, 3 TOTAL)

PROPOSED PIPE TO PIPE CLAMP SITE PRO 1 P/N: SCP10K (OR APPROVED EQUAL) (TYP 2 PER SECTOR)

PROPOSED VERIZON MICRO INTEGRATED ANTENNA MOUNTED TO EXISTING ANTENNA PIPE (TYP 1 PER SECTOR, 3 TOTAL)

(1) EXISTING VERIZON OVP6 MAIN DISTRIBUTION BOX MOUNTED TO ANTENNA PIPE (TYP 1 PER GAMMA SECTOR)

NOTE:
POST-MODIFICATION INSPECTION (PMI) REQUIRED ON ALL SITES. REFER TO SHEET GN-1 OF THESE CONSTRUCTION DRAWINGS, AS WELL AS THE MOUNT ANALYSIS PREPARED BY XXX DATED XXX FOR ADDITIONAL DETAILS.

NOTE:
PROPOSED EQUIPMENT TO BE PAINTED TO MATCH EXISTING WATER TANK.

(1) PROPOSED OVP6 TO REPLACE
(2) OVP2 MAIN DISTRIBUTION BOXES MOUNTED TO EXISTING ANTENNA PIPE (TYP 1 PER BETA SECTOR)

PROPOSED VERIZON B2/B66A RFV01U-D1A RRH TO REPLACE EXISTING RRH MOUNTED TO EXISTING UNISTRUT (TYP 1 PER SECTOR, 3 TOTAL)

PROPOSED VERIZON B5/B13 RFV01U-D2A RRH TO REPLACE EXISTING RRH MOUNTED TO EXISTING UNISTRUT (TYP 1 PER SECTOR, 3 TOTAL)

EXISTING VERIZON ANTENNA MOUNTED TO ANTENNA PIPE (TYP 3 PER SECTOR, 9 TOTAL)

(1) RELOCATED OVP6 TO REPLACE
(1) OVP2 MAIN DISTRIBUTION BOX MOUNTED TO EXISTING ANTENNA PIPE (TYP 1 PER ALPHA SECTOR)

1 PROPOSED ANTENNA ORIENTATION PLAN
A-2 NTS



PROPOSED ANTENNA & RRH SCHEDULE

ANTENNA POSITION	ANTENNA MANUFACTURER	ANTENNA MODEL	RAD CENTER	AZIMUTH	DOWN TILT		RRH QUANTITY & MODEL	TECHNOLOGY	CABLE SIZE, LENGTH & QUANTITY
					MECH	ELEC			
A-1	SAMSUNG	VZS01	153.00'	130°	0°	3°	B5/B13 RFV01U-D2A B2/B66A RFV01U-D1A	L-SUB6GHZ	(1) 1.43"Ø HYBRID CABLE (280') (4) 1-5/8" COAX (280')
A-2	COMMSCOPE	SBNHH-1D45B	153.00'	130°	2°	7°		700/850/PCS	
A-3	COMMSCOPE	SBNHH-1D45B	153.00'	130°	2°	7°		700/850/AWS	
A-4	CSS	X7C-FRO-660	153.00'	145°	2°	4°		850 CDMA	
B-1	CSS	X7C-FRO-660	153.00'	240°	3°	4°	B5/B13 RFV01U-D2A B2/B66A RFV01U-D1A	850 CDMA	(1) 1.43"Ø HYBRID CABLE (300') (4) 1-5/8" COAX (300')
B-2	COMMSCOPE	SBNHH-1D65B	153.00'	240°	2°	7°		700/850/AWS	
B-3	COMMSCOPE	SBNHH-1D65B	153.00'	240°	2°	7°		700/850/PCS	
B-4	SAMSUNG	VZS01	153.00'	240°	0°	3°		L-SUB6GHZ	
G-1	SAMSUNG	VZS01	153.00'	25°	0°	3°	B5/B13 RFV01U-D2A B2/B66A RFV01U-D1A	L-SUB6GHZ	(1) 1.43"Ø HYBRID CABLE (240') (4) 1-5/8" COAX (240')
G-2	COMMSCOPE	SBNHH-1D45B	153.00'	25°	2°	6°		700/850/PCS	
G-3	COMMSCOPE	SBNHH-1D45B	153.00'	25°	2°	6°		700/850/AWS	
G-4	CSS	X7C-FRO-660	153.00'	30°	3°	2°		850 CDMA	

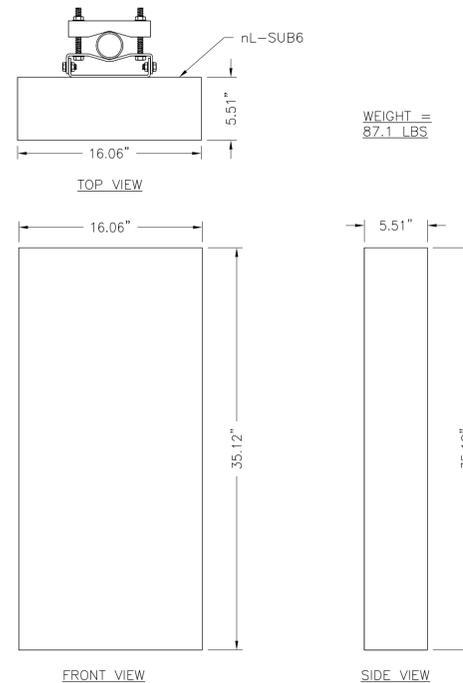
NOTES:
1. CONTRACTOR TO VERIFY PROPOSED ANTENNA INFORMATION IS THE MOST CURRENT DATA AT TIME OF CONSTRUCTION.
2. CONTRACTOR TO CONFIRM CABLE LENGTHS PRIOR TO CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE TO BUILD FROM THE LATEST RF SHEET.

GENERAL ANTENNA NOTES

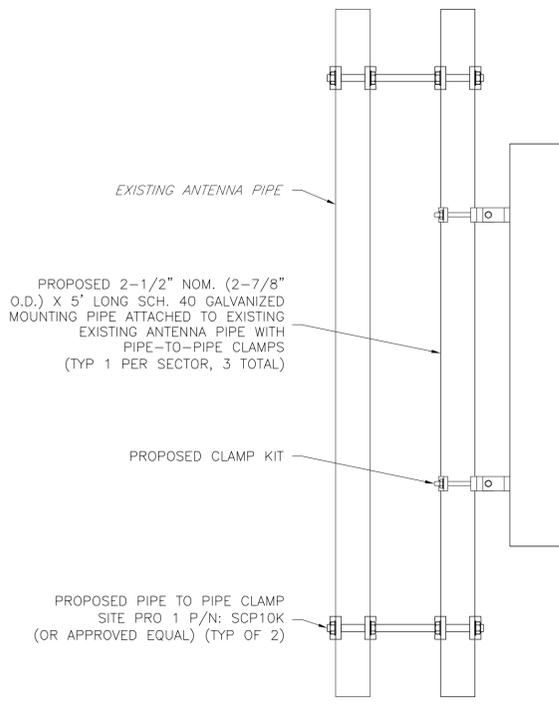
- ALL ANTENNAS TO BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR IS TO COORDINATE AND VERIFY THE PROPOSED DOWNTILTS WITH VERIZON MANAGER PRIOR TO CONSTRUCTION.
- ANTENNA CENTERLINE HEIGHT IS IN REFERENCE TO ELEVATION 0.0'. (EXISTING GRADE)
- CHECK WITH RF ENGINEER FOR LATEST ANTENNA TYPE & AZIMUTH.
- CONTRACTOR SHALL VERIFY ANTENNA TYPE AND AZIMUTH WITH CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.
- ALL CABLE LENGTHS ARE ESTIMATED AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
- COLOR TAPE MARKINGS MUST BE 3/4" WIDE AND UV RESISTANT, SUCH AS SCOTCH 35 VINYL ELECTRICAL COLOR CODING TAPE.
- CONTRACTOR SHALL COORDINATE COLOR CODINGS IN THE FIELD WITH VERIZON REPRESENTATIVE.
- PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT OR MODIFICATION OF THE EXISTING STRUCTURE, A STRUCTURAL ANALYSIS SHALL BE PERFORMED BY THE OWNER'S AGENT TO CERTIFY THAT THE EXISTING/PROPOSED COMMUNICATION STRUCTURE AND COMPONENTS ARE STRUCTURALLY ADEQUATE TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, COAXIAL CABLES AND OTHER APPURTENANCES. THE OWNER'S AGENT SHALL FURNISH A CERTIFICATION LETTER SEALED BY A REGISTERED PROFESSIONAL ENGINEER STATING THAT THIS STRUCTURAL ANALYSIS WAS PREPARED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS.

STRUCTURAL NOTES

- DESIGN REQUIREMENTS PER INTERNATIONAL BUILDING CODE 2018 AND THE ANSI/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED BY FIELD MEASUREMENT AND FROM THE EXISTING STRUCTURAL DRAWINGS. THE GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH CONSTRUCTION.
- STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS - ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN INCLUDING THE COMMENTARY AND THE AISC CODE FOR STANDARD PRACTICE.
- STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM A992. ALL STRUCTURAL STEEL PIPES SHALL CONFORM TO ASTM A53 GRADE B. ALL STRUCTURAL STEEL COMPONENTS AND FABRICATED ASSEMBLIES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
- WELDING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF AMERICAN WELDING SOCIETY (AWS) STRUCTURAL WELDING CODE - STEEL WELD ELECTRODES SHALL BE E70XX.
- ALL COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE AS SPECIFIED BY THE OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL FURNISH ALL CONNECTION HARDWARE REQUIRED TO SECURE THE CABLES. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
- ALL THREADED STRUCTURAL FASTENERS FOR ANTENNA SUPPORT ASSEMBLIES SHALL CONFORM TO ASTM A307 OR ASTM A36. ALL STRUCTURAL FASTENERS FOR STRUCTURAL STEEL FRAMING SHALL CONFORM TO ASTM A325. FASTENERS SHALL BE 5/8" MIN. DIAMETER BEARING TYPE CONNECTIONS WITH THREADS INCLUDED IN THE SHEAR PLANE. ALL EXPOSED FASTENERS, NUTS AND WASHERS SHALL BE GALVANIZED UNLESS OTHERWISE NOTED. CONCRETE EXPANSION ANCHORS SHALL BE HILTI KWIK BOLTS UNLESS OTHERWISE NOTED.
- NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY TRUE NORTH AND INFORM CONSTRUCTION MANAGER OF ANY DISCREPANCY BEFORE STARTING CONSTRUCTION.



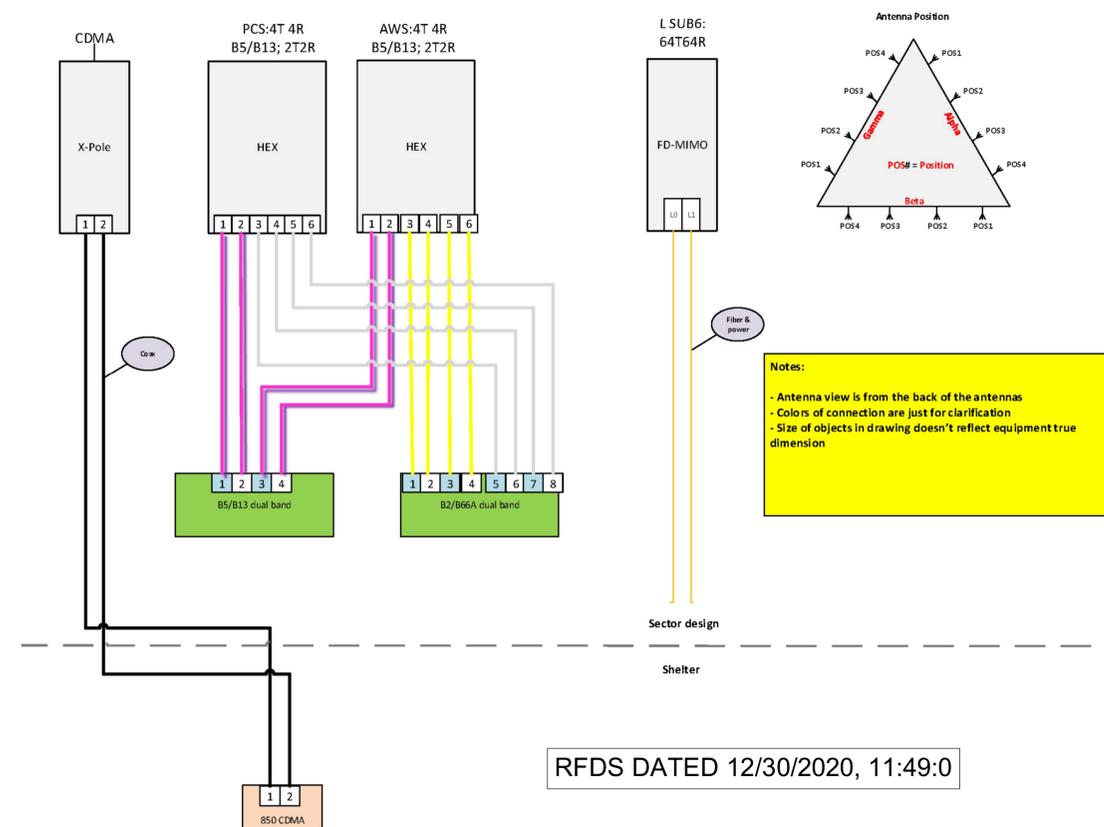
1 VZS01 INTEGRATED ANTENNA
A-3 NTS



2 ANTENNA MOUNTING DETAILS
A-3 NTS

PROPOSED ANTENNA SPECIFICATIONS						
ANTENNA MANUFACTURER	ANTENNA MODEL	QUANTITY	HEIGHT	WIDTH	DEPTH	WEIGHT
SAMSUNG	VZS01	3	35.12"	16.06"	5.51"	87.1 LBS

EXISTING ANTENNA SPECIFICATIONS						
ANTENNA MANUFACTURER	ANTENNA MODEL	QUANTITY	HEIGHT	WIDTH	DEPTH	WEIGHT
COMMSCOPE	SBNHH-1D45B	4	72.0"	17.9"	7.0"	64.3 LBS
COMMSCOPE	SBNHH-1D65B	2	72.8"	11.8"	7.0"	40.5 LBS
CSS	X7C-FRO-660	3	72.0"	14.6"	8.0"	32.2 LBS



RFDS DATED 12/30/2020, 11:49:0

ENGINEER



APPLICANT

NEW YORK SMSA
LIMITED PARTNERSHIP d/b/a
VERIZON WIRELESS
verizon
400 WARREN CORPORATE
CENTER DRIVE
BUILDING D
WARREN, NJ 07059

SITE INFORMATION

SOUTH BRUNSWICK 8
5 FERNWOOD DRIVE
PRINCETON, NJ 08540
SOUTH BRUNSWICK TWP.
MIDDLESEX COUNTY

DESIGN RECORD

REVISIONS			
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PROFESSIONAL STAMP

STATE OF NEW JERSEY CERTIFICATE OF
AUTHORIZATION #24GE08226400 EXP 08/31/22

ENGINEER

KRUPAKARAN KOLANDAIVELU, P.E.
STATE OF NEW JERSEY
PROFESSIONAL ENGINEER
LICENSE #24GE04945200

SHEET TITLE

ANTENNA DETAILS
& PLUMBING
DIAGRAM

SHEET NUMBER

A-3

ENGINEER

APPLICANT

NEW YORK SMSA
LIMITED PARTNERSHIP d/b/a
VERIZON WIRELESS



400 WARREN CORPORATE
CENTER DRIVE
BUILDING D
WARREN, NJ 07059

SITE INFORMATION

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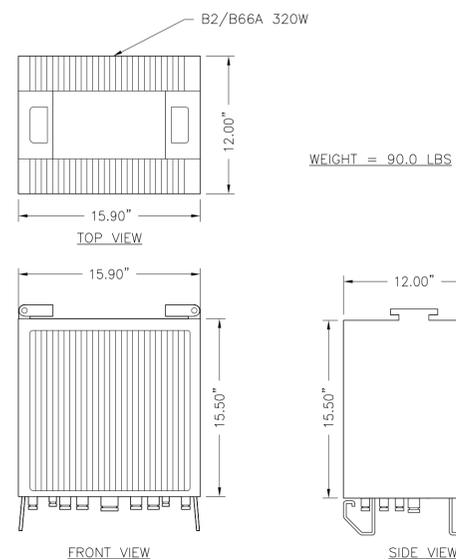
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PROFESSIONAL ENGINEER
LICENSE #24GE04945200

SHEET TITLE

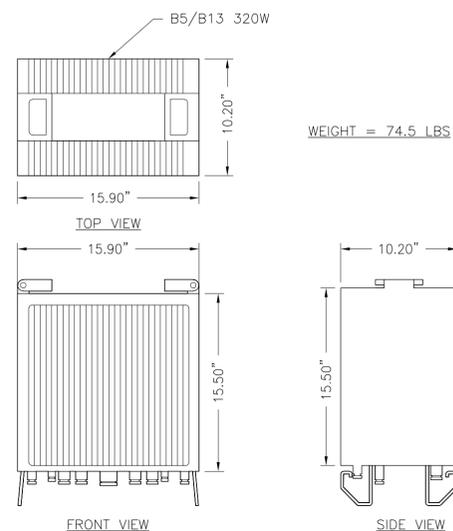
**EQUIPMENT
SPECIFICATIONS
& DETAILS**

SHEET NUMBER

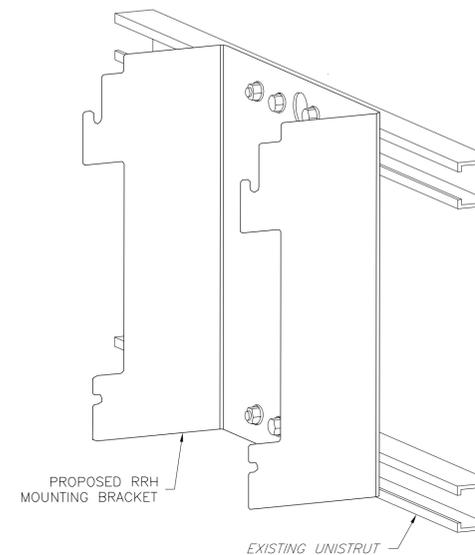
A-4



1 B2/B66A RFV01U-D1A (REMOTE RADIO HEAD)
A-4 NTS



2 B5/B13 RFV01U-D2A (REMOTE RADIO HEAD)
A-4 NTS



3 RRH MOUNTING DETAIL
A-4 NTS

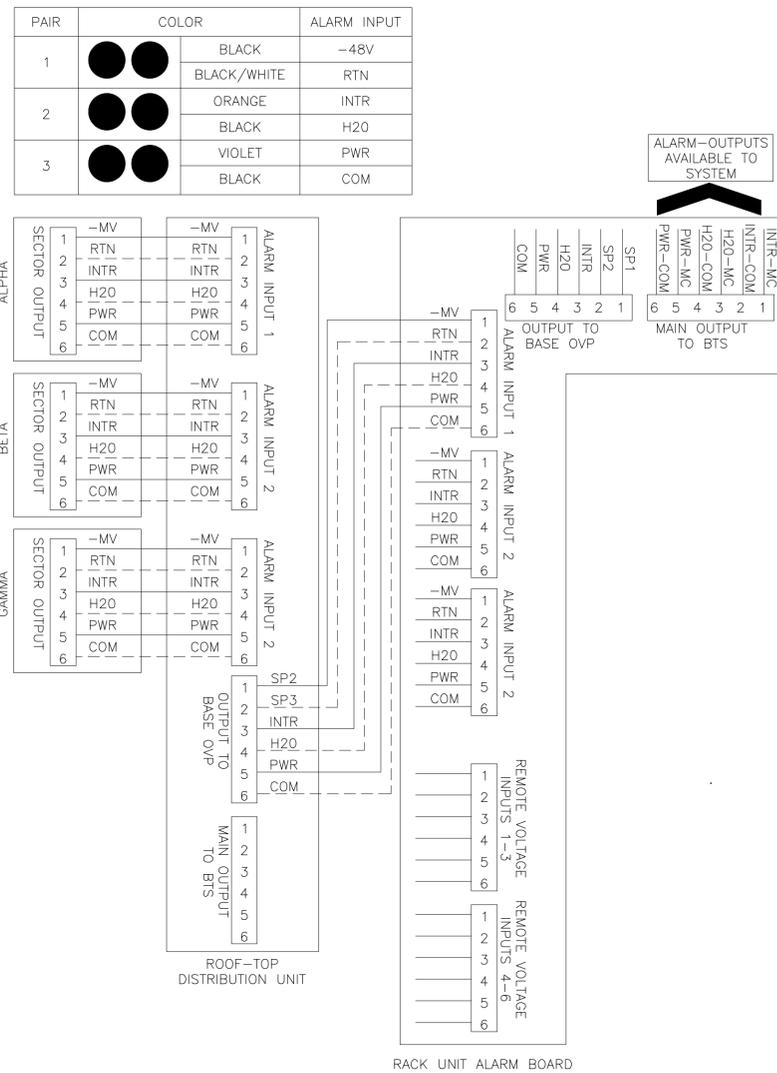
PROPOSED RRH EQUIPMENT SPECIFICATIONS							
MANUFACTURER	MODEL #	LOCATION	QUANTITY	HEIGHT	WIDTH	DEPTH	WEIGHT
SAMSUNG	B2/B66A RFV01DU-D1A	WATER TANK	3	15.50"	15.90"	12.00"	90.0 LBS
SAMSUNG	B5/B13 RFV01DU-D2A	WATER TANK	3	15.50"	15.90"	10.20"	74.5 LBS

EXISTING RRH EQUIPMENT SPECIFICATIONS							
MANUFACTURER	MODEL #	LOCATION	QUANTITY	HEIGHT	WIDTH	DEPTH	WEIGHT
LUCENT	* B13-700 4x30-4R	WATER TANK	3	21.60"	12"	9.0"	56.7 LBS
LUCENT	* B66A-AWS 4x45-4R	WATER TANK	3	25.8"	11.8"	7.2"	67.0 LBS

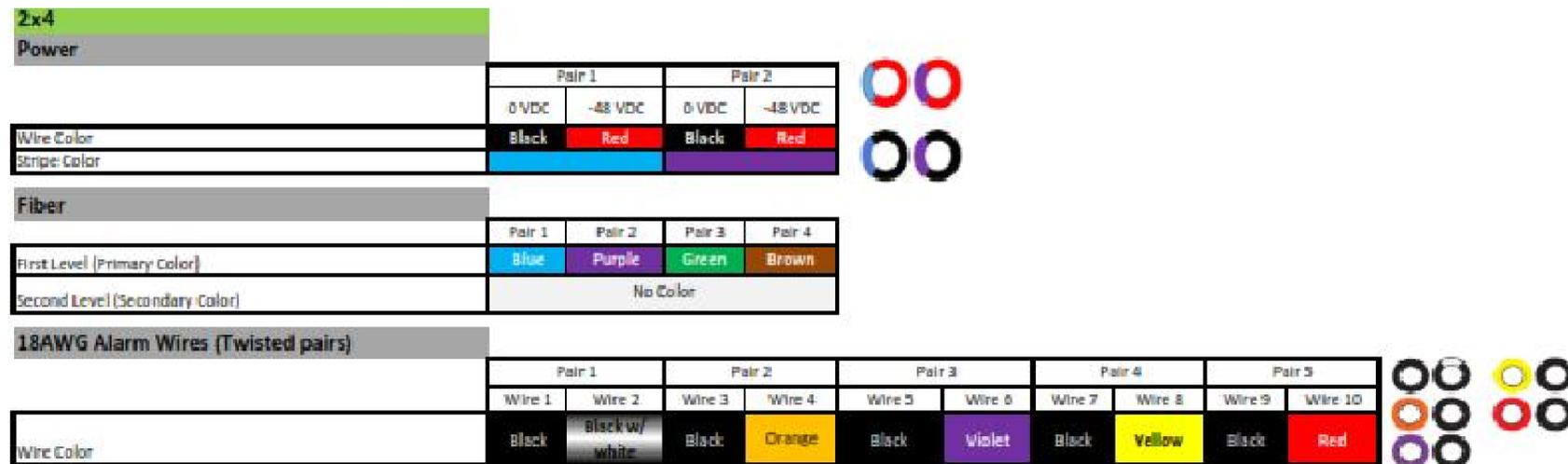
* TO BE REMOVED

EXISTING DISTRIBUTION EQUIPMENT SPECIFICATIONS							
MANUFACTURER	MODEL #	LOCATION	QUANTITY	HEIGHT	WIDTH	DEPTH	WEIGHT
RAYCAP	RXXDC-3315-PF-48	WATER TANK	5	29.00"	15.73"	10.25"	32.0 LBS
RAYCAP	* RXXDC-1064-PF-48	WATER TANK	3	13.58"	10.15"	8.15"	12.1 LBS

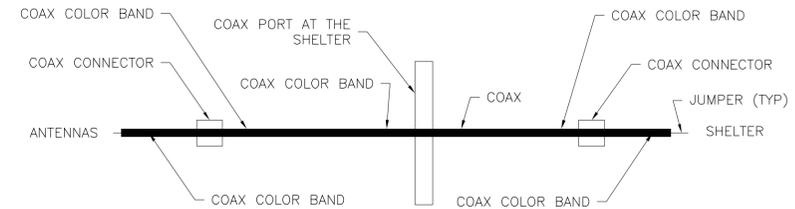
* TO BE REMOVED



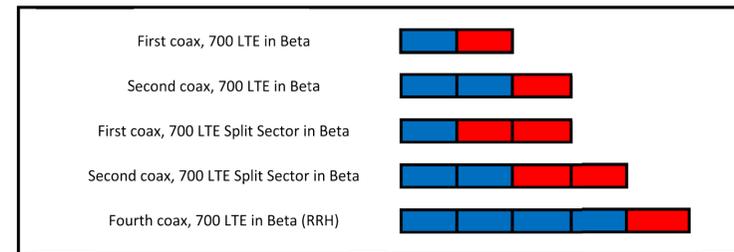
1 RAYCAP ALARM WIRING DIAGRAM
A-5 NTS



2 HYBRIFLEX COLOR CODING
A-5



COLOR CODE PLACEMENT DIAGRAM



Northern New Jersey	
Technology - Band	Sector
LTE-700-Band 13 - Color Code: Sector Color + Red	ALPHA - White
	BETA - Blue
	GAMMA - Green
LTE-AWS-Band 4 - Color Code: Sector Color + Orange	ALPHA - White
	BETA - Blue
	GAMMA - Green
LTE-PCS-Band 2 - Color Code: Sector Color + Brown	ALPHA - White
	BETA - Blue
	GAMMA - Green
EVDO - PCS Band - Color Code: Sector Color + Purple	ALPHA - White
	BETA - Blue
	GAMMA - Green
1X - 850 Band - Color Code: Sector Color	ALPHA - White
	BETA - Blue
	GAMMA - Green
GPS - All Bands	Yellow

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(267) 460-0122

NEW YORK SMSA
LIMITED PARTNERSHIP d/b/a
VERIZON WIRELESS
verizon
400 WARREN CORPORATE
CENTER DRIVE
BUILDING D
WARREN, NJ 07059

SOUTH BRUNSWICK 8
5 FERNWOOD DRIVE
PRINCETON, NJ 08540
SOUTH BRUNSWICK TWP.
MIDDLESEX COUNTY

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	03/17/21	PRELIMINARY CDs	JMC

STATE OF NEW JERSEY CERTIFICATE OF
AUTHORIZATION #246GA28226400 EXP 08/31/22

ENGINEER
KRUPAKARAN KOLANDAIVELU, P.E.
STATE OF NEW JERSEY
PROFESSIONAL ENGINEER
LICENSE #24GE04945200

SHEET TITLE
**ALARM
WIRING DIAGRAM
&
COLOR CODING**

SHEET NUMBER
A-5

VERIZON WIRELESS CONTRACTOR SCOPE OF WORK

MOP FOR RET INSTALLS

- VERIZON WIRELESS CONTRACTOR IS TO SUPPLY AND INSTALL THE PROPOSED CABLE JUMPER (WITH LC TO LC CONNECTORS) FROM THE PROPOSED FIBER TRAYS TO THE PROPOSED MAIN DISTRIBUTION BOX (BOTTOM).
 - VERIZON WIRELESS CONTRACTOR IS TO SUPPLY AND INSTALL ALL MOUNTING HARDWARE AND 1/2" ANTENNA JUMPER CABLES AS REQUIRED DURING CONSTRUCTION.
 - VERIZON WIRELESS CONTRACTOR IS TO INSTALL THE PROPOSED MAIN DISTRIBUTION BOXES (BOTTOM) INSIDE OF THE EXISTING EQUIPMENT SHELTER. THE CONTRACTOR IS TO VERIFY THE LOCATION IN THE EQUIPMENT SHELTER PRIOR TO CONSTRUCTION.
 - VERIZON WIRELESS CONTRACTOR IS TO INSTALL THE PROPOSED MAIN DISTRIBUTION BOX (TOP) MOUNTED ON THE ANTENNA PIPE..
 - VERIZON WIRELESS CONTRACTOR IS TO INSTALL (2) RUNS OF 6/12 HYBRID CABLE FROM THE PROPOSED MAIN DISTRIBUTION BOXES (BOTTOM) TO THE MAIN DISTRIBUTION BOXES (TOP) FOLLOWING THE PATH OF THE EXISTING CABLES.
 - VERIZON WIRELESS CONTRACTOR IS TO MAKE ALL ALARM CONNECTIONS TO THE DISTRIBUTION BOXES AND LEAVE A 40' COIL FOR OTHERS TO PUNCH INTO ALARM BLOCK.
 - VERIZON WIRELESS CONTRACTOR IS TO SEAL ALL DISTRIBUTION BOXES AS REQUIRED DURING CONSTRUCTION.
 - VERIZON WIRELESS CONTRACTOR IS TO INSTALL (9) RUNS OF HELIAX 1/1 HYBRID CABLE FROM THE EXISTING & PROPOSED MAIN DISTRIBUTION BOXES TO THE REMOTE RADIO HEAD UNITS.
 - VERIZON WIRELESS CONTRACTOR IS TO SUPPLY AND INSTALL 1/2" ANTENNA JUMPERS FROM EACH PROPOSED REMOTE RADIO HEAD UNIT (RRH) TO THE PROPOSED ANTENNAS IN ALL SECTORS (36 TOTAL 1/2" ANTENNA JUMPERS).
 - VERIZON WIRELESS CONTRACTOR IS TO INSTALL THE PROPOSED REMOTE RADIO HEAD UNITS IN ALL SECTORS ON THE EXISTING UNISTRUT.
 - VERIZON WIRELESS CONTRACTOR IS TO GROUND ALL REMOTE RADIO HEAD UNITS (RRH) AND DISTRIBUTION BOXES TO THE EXISTING GROUND BARS AS REQUIRED DURING CONSTRUCTION.
 - VERIZON WIRELESS CONTRACTOR IS TO GROUND ALL PROPOSED ANTENNAS TO THE EXISTING GROUND BARS AS REQUIRED DURING CONSTRUCTION.
 - VERIZON WIRELESS CONTRACTOR IS TO COMPLETE THE INSTALLATION OF THE PROPOSED ANTENNAS AND HYBRIFLEX CABLE SYSTEM.
 - VERIZON WIRELESS CONTRACTOR IS TO PERFORM THE FOLLOWING OPTICAL SWEEP TESTS; OTDR AND OPTICAL LOSS. RECOMMENDED UNITS – ANRITSU MT9090, JDSU, EXFO FTB-1/FTB-720 OTDR.
 - VERIZON WIRELESS CONTRACTOR IS TO PERFORM THE FOLLOWING ANTENNA SYSTEM SWEEP TESTS: SYSTEM VZWR / dB RL.
 - VERIZON WIRELESS CONTRACTOR IS TO PROVIDE ALL CLOSE OUT DOCUMENTS AS REQUIRED BY VERIZON WIRELESS.
- SAMSUNG RRH
- DUAL RRH B2/B66A RFV01DU-D1A HELIAX 1/1 HYBRID CABLE CABLE MUST BE CONNECTED TO THE L0 PRIMARY PORT AND (1) EXTRA PAIR OF FIBER CONNECTED TO L1 SECONDARY PORT.
 - DUAL RRH B5/B13 RFV01DU-D2A HELIAX 1/1 HYBRID CABLE MUST BE CONNECTED TO THE L0 PRIMARY PORT.
- INTEGRATED ANTENNA
- VZS01 1/1 HYBRID CABLE MUST BE CONNECTED TO OPT1 PORT AND (2) EXTRA FIBER CABLE TO THE SECONDARY OPT2 PORT.

ANTENNA CREW

1. REVIEW ANTENNA SCHEDULE WITH CELL TECH
 2. FOR EACH SECTOR, LAY ANTENNAS OUT ON THE GROUND AS THEY WILL BE INSTALLED ACCORDING TO THE ANTENNA SCHEDULE
 3. LABELED EACH ANTENNA WITH FACE AND POSITION WITH A SHARPIE (EX:"ALPHA-4")
 4. LABEL ALL MOTORS WITH SHARPIE WITH BAND AND TECHNOLOGY (EX:"700LTE", "AWSLTE","PCSLTE","850VOICE", ETC)
 5. CONNECT ALL AISG CABLES (INCLUDING JUMPERS THAT WILL BE USED IN FINAL ASSEMBLY) PER THE ANTENNA SCHEDULE
 - A. WHEN DAISY CHAINING IS INEVITABLE, AS A GENERAL RULE...
 - I. KEEP LOW AND HIGH BANDS ON SEPARATE AISG CHAINS AS MUCH AS POSSIBLE
 - II. MINIMIZE AMOUNT OF MOTORS PER CHAIN AS MUCH AS POSSIBLE (MAX IS 6)
 - B. WHEN COMPLETED ALL RET MOTOR PORTS NEED TO BE CONNECTED, INCLUDING THE MOTORS NOT BEING USED YET. THE ONLY UNUSED PORT WILL BE THE LAST IN THE DAISY CHAIN, WHICH NEEDS TO BE CAPPED AND WEATHERPROOFED.
 6. ON LAPTOP, FILL OUT THE SOFTCOPY OF THE RET DEPLOYMENT FORM AND SAVE IT, REPLACING THE "#####" WITH THE 6-DIGIT ENB NUMBER IN THE FILENAME (EX: RET DEPLOYMENT FORM_0981234.XLSX")
 7. GIVE A SOFTCOPY OF THE RET DEPLOYMENT FORM TO VZW CELL TECH AND GC/CONSULTANT (EITHER BY EMAIL OR USB STICK)
 8. USING THE SAME LAPTOP WHICH HAS THE RET DEPLOYMENT FORM OPENED, CONNECT THE CONTROL MODULE AND PROVISION EACH MOTOR RESPECTIVELY

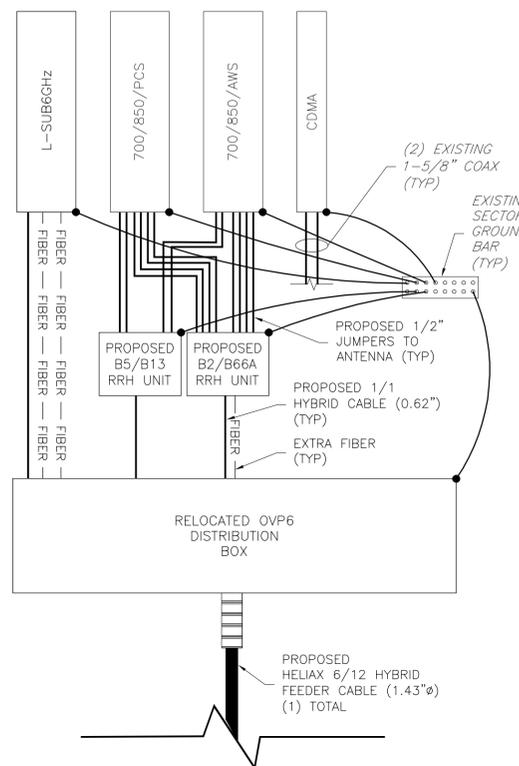
NOTE: CREWS MUST USE SOFTWARE THAT IS SPECIFIC TO THE MOTOR TYPE BEING PROVISIONED (IE- JMA SOFTWARE SHOULD ONLY BE SUED FOR JMA MOTORS)

 - A. COPY AND PASTE "RET FRIENDLY NAME" FROM SPREADSHEET (COLUMN A) TO THE "SECTOR ID" FIELD OF EACH MOTOR
 - B. POPULATE "SET RET TILT"
 - C. POPULATE "MECHANICAL TILT"
 9. CALIBRATE ALL MOTORS
 10. DISCONNECT NECESSARY AISG JUMPERS TO TRANSPORT ANTENNAS SAFELY TO ASSEMBLY
 11. INSTALL ANTENNAS ACCORDING TO THE ANTENNA SCHEDULE, USING THE SHARPIE LABELS AS REFERENCE
 12. RECONNECT ALL AISG JUMPERS
 13. BEFORE PLUGGING INTO EACH RRH, CONNECT MAIN AISG CABLE INTO CONTROLLER TO ENSURE ALL MOTORS ARE STILL SEEN IN THE DAISY CHAIN
 14. PLUG AISG INTO RRH AND NOTIFY VZW TECH OF COMPLETION
- VZW TECH (USER HELP GUIDE: \\WIN-VZWNET\NORTHEAST\PAPM_IMPLEMENTATION\SYSTEM PERFORMANCE\USERS\MOSERGA\RET\)
15. POWER ON RADIO EQUIPMENT AND RUN ANY NECESSARY WOS
 16. "DISCOVER" THE RETS
 - A. LOG INTO SAM
 - I. VERIFY RET LICENSE ALLOCATION IN SAM
 - ENBEQUIPMENT>ENB>ACTIVATIONSERVICE>ISAISGALLOWED=CHECKED
 - II. LOG INTO NEM LOCAL
 - I. GO TO TREE VIEW AND HIGHLIGHT RET SUBUNIT
 - II. ENABLE BUS SCAN
 - CONFIGURATION> ENABLE AISG BUS SCAN
 - III. ALLOCATE CONFIG RIGHTS
 - CONFIGURATION>ALLOCATION CONFIGURATION RIGHTS
 - IV. VERIFY CORRECT NUMBER OF RETS ARE DISCOVERED
 17. "COMMISSION" THE RETS
 - A. LOG INTO NEM LOCAL
 - I. STILL IN TREE VIEW, RIGHT CLICK ON "HW MODULES"
 - II. SELECT "CREATE RET MO"
 - III. RELEASE CONFIG RIGHTS
 - CONFIGURATION>RELEASE CONFIGURATION RIGHTS
 - IV. VERIFY RETSUBUNIT:SECTORNAME, ELECTRICAL TILT, AND MECHANICAL TILT ARE POPULATED
 18. "PROVISION" THE RETS
 - A. LOG INTO SAM
 - I. OPEN UP THE ENB PROPERTIES AND COMPLETE A FULL RESYNC
 - II. IN THE SEARCH TEXTBOX, SEARCH FOR "RETSUBUNIT"
 - III. VERIFY ALL RETS ARE ACCOUNTED FOR AND "RETSUBUNIT:SECTORNAME", "ANTENNAELECTICALTILT", AND "RETSUBUNIT:MECHANICALTILT " ARE ACCURATE

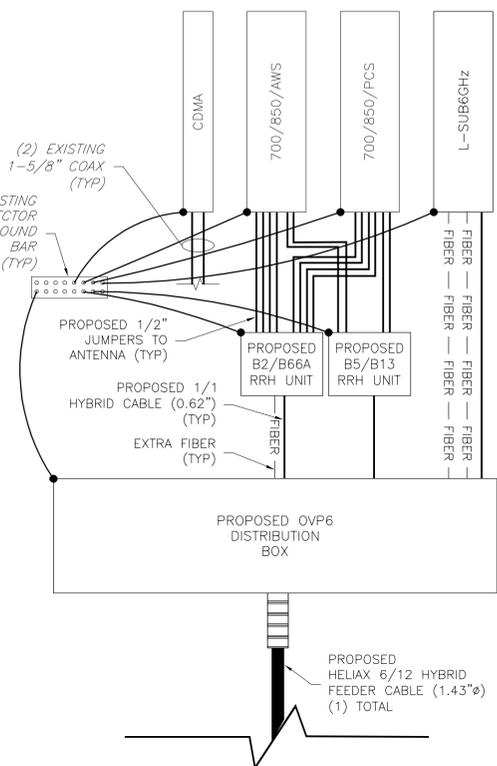
ENGINEER	 TOTALLY COMMITTED. <small>NB+C ENGINEERING SERVICES, LLC. 1777 SENTRY PARKWAY WEST VENA 17, SUITE 400 BLUE BELT, PA 19422 (267) 460-0122</small>												
APPLICANT	NEW YORK SMSA LIMITED PARTNERSHIP d/b/a VERIZON WIRELESS  400 WARREN CORPORATE CENTER DRIVE BUILDING D WARREN, NJ 07059												
SITE INFORMATION	SOUTH BRUNSWICK 8 5 FERNWOOD DRIVE PRINCETON, NJ 08540 SOUTH BRUNSWICK TWP. MIDDLESEX COUNTY												
DESIGN RECORD	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">REVISIONS</th> </tr> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>03/17/21</td> <td>PRELIMINARY CDs</td> <td>JMC</td> </tr> </tbody> </table>	REVISIONS				REV	DATE	DESCRIPTION	BY	1	03/17/21	PRELIMINARY CDs	JMC
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ENGINEER	KRUPAKARAN KOLANDAIVELU, P.E. STATE OF NEW JERSEY PROFESSIONAL ENGINEER LICENSE #24GE04945200												
SHEET TITLE	<h2>SCOPE OF WORK</h2>												
SHEET NUMBER	<h1>A-6</h1>												

NOTE:
 1) TAG ALL EXISTING AND PROPOSED CABLES/JUMPERS PER VERIZON SPECIFICATIONS (SEE RF SCHEDULE).
 2) SEE A-1 & A-2 FOR CABLE LEGHTS.

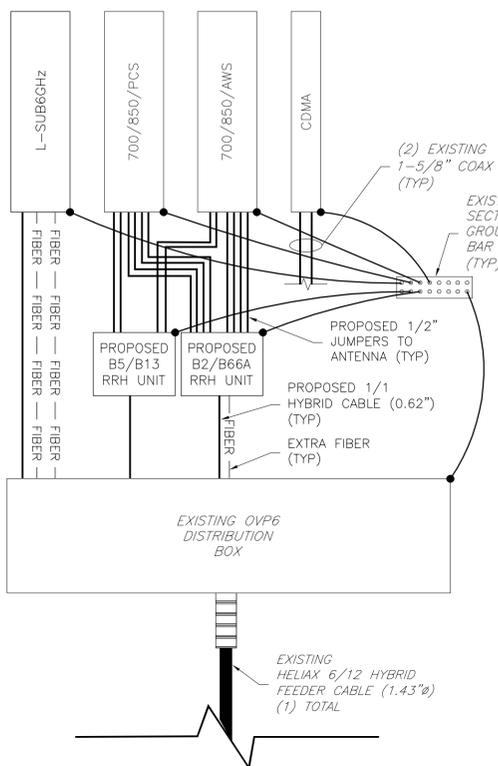
ANTENNA LOCATION (TYP PER ALPHA SECTOR ONLY)



ANTENNA LOCATION (TYP PER BETA SECTOR ONLY)



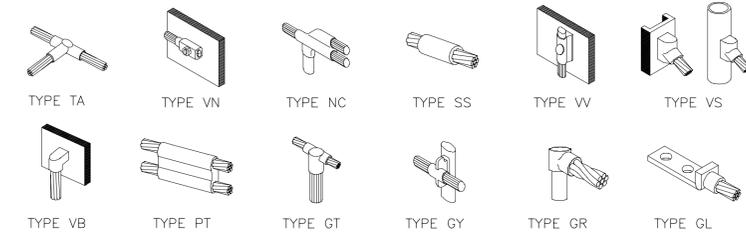
ANTENNA LOCATION (TYP PER GAMMA SECTOR ONLY)



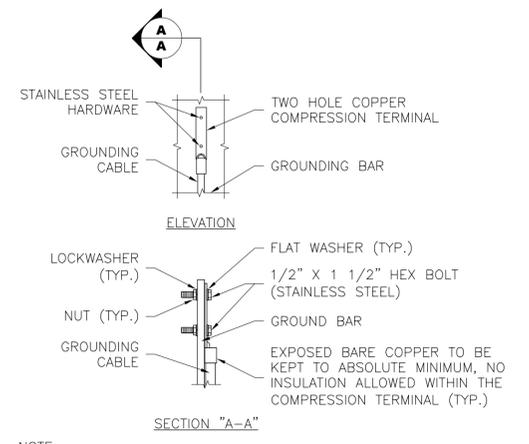
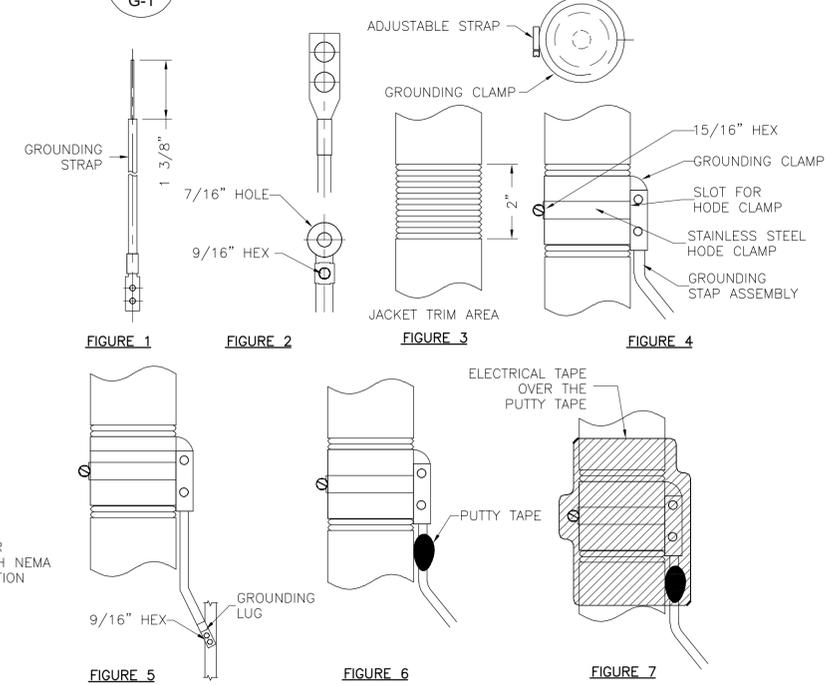
1 GROUNDING RISER DIAGRAM
G-1 NTS

GROUNDING NOTES

- GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
- ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
- ALL WIRES SHALL BE AWG THHN/THWN COPPER UNLESS NOTED OTHERWISE.
- GROUNDING CONNECTIONS TO GROUND RODS, GROUND RING WIRE, TOWER BASE AND FENCE POSTS SHALL BE EXOTHERMIC ("CADWELDS") UNLESS NOTED OTHERWISE. CLEAN SURFACES TO SHINY METAL. WHERE GROUND WIRES ARE CADWELDED TO GALVANIZED SURFACES, SPRAY CADWELD WITH GALVANIZING PAINT.
- GROUNDING CONNECTIONS TO GROUND BARS ARE TO BE TWO-HOLE BRASS MECHANICAL CONNECTORS WITH STAINLESS STEEL HARDWARE (INCLUDING SCREW SET) CLEAN GROUND BAR TO SHINY METAL. AFTER MECHANICAL CONNECTION, TREAT WITH PROTECTIVE ANTIOXIDANT COATING.
- GROUND COAXIAL CABLE SHIELDS AT BOTH ENDS WITH MANUFACTURER'S GROUNDING KITS.
- ROUTE GROUNDING CONDUCTORS THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 12" RADIUS.
- INSTALL #2 AWG GREEN-INSULATED STRANDED WIRE FOR ABOVE GRADE GROUNDING AND #2 BARE TINNED COPPER WIRE FOR BELOW GRADE GROUNDING UNLESS OTHERWISE NOTED.
- REFER TO GROUNDING PLAN FOR GROUND BAR LOCATIONS. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC TYPE ("CADWELDS") TO ANTENNA MOUNTS AND GROUND RING. REMAINING GROUNDING CONNECTIONS SHALL BE COMPRESSION FITTINGS. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO-HOLE LUGS.
- ALL GROUND LEADS EXCEPT THOSE TO THE EQUIPMENT ARE TO BE #2 BARE TINNED COPPER WIRE. ALL EXTERIOR GROUND BARS TINNED COPPER.
- PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETTS KOPR-SHIELD (TM OF JET LUBE INC.). PRIOR TO BOLTING GROUND WIRE LUGS TO GROUND BARS, APPLY KOPR-SHIELD OR EQUAL.
- PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL. FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDIZATION PAINT.

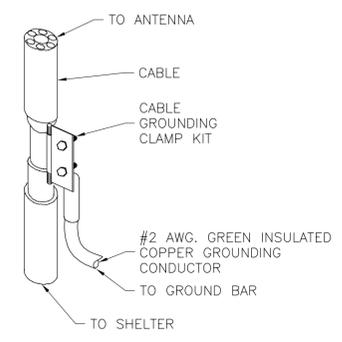


2 CADWELD GROUNDING CONNECTION DETAILS
G-1 NTS

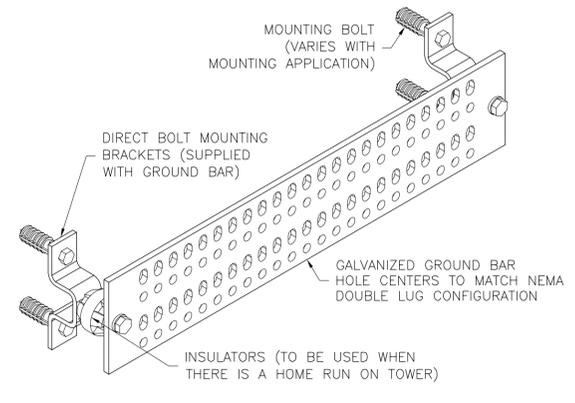


NOTE:
 1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
 2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

3 GROUND BAR CONNECTION DETAIL
G-1 NTS



4 CABLE GROUNDING DETAIL
G-1 NTS



5 GROUND BAR DETAIL
G-1 NTS

6 GROUNDING STRAP WEATHERPROOFING DETAIL
G-1 NTS

ENGINEER

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verizon
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SITE INFORMATION

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PROFESSIONAL STAMP

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ENGINEER

KRUPAKARAN KOLANDAIVELU, P.E.
 STATE OF NEW JERSEY
 PROFESSIONAL ENGINEER
 LICENSE #24GE04945200

SHEET TITLE

**GROUNDING
 DETAILS & NOTES**

SHEET NUMBER

G-1

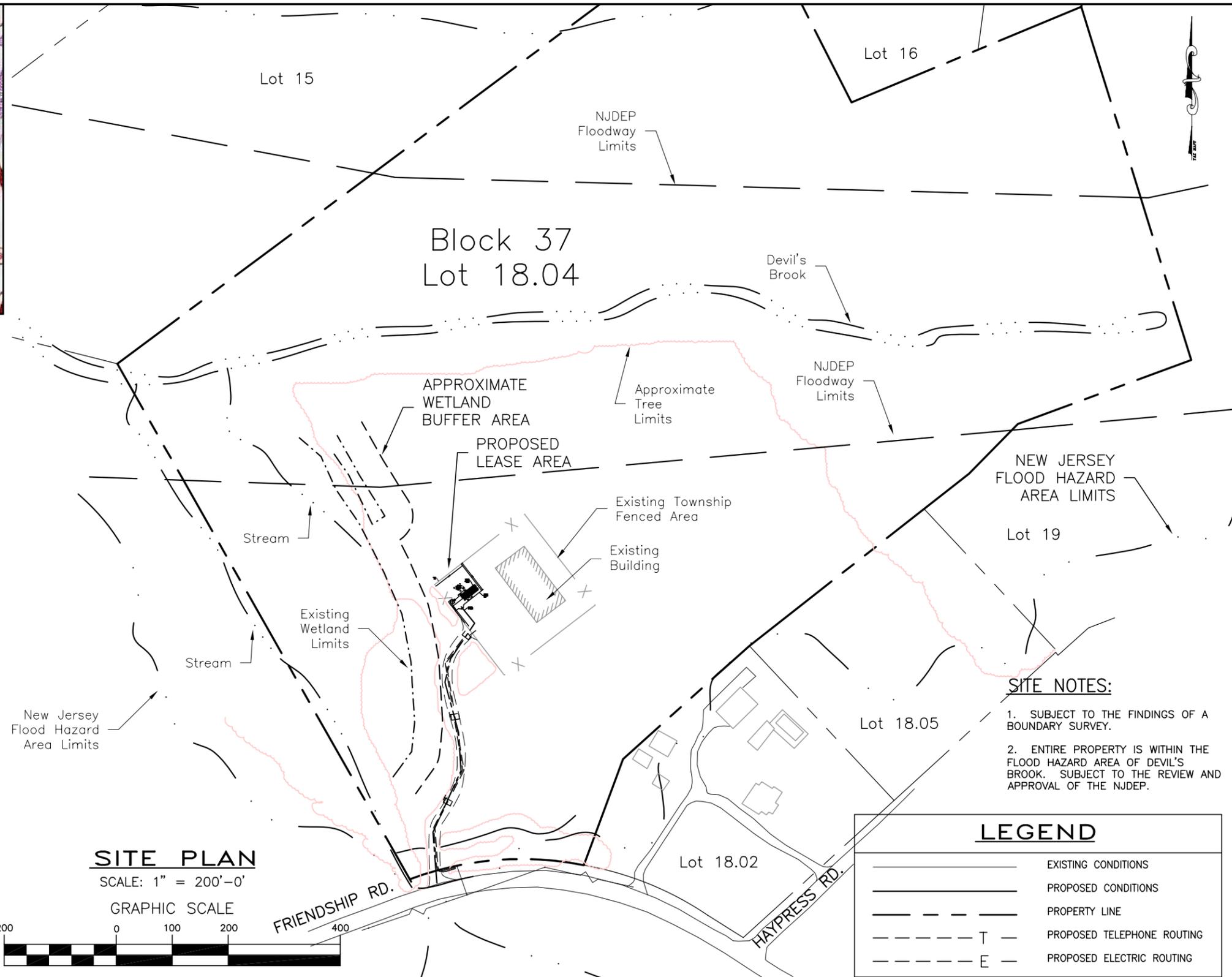
POST-MODIFICATION INSPECTION (PMI) REQUIREMENT

1. PMI REQUIRED FOR ALL SITES, REFER TO VERIZON NSTD-446 SECTIONS 1.5 AND 2.3 FOR MORE INFORMATION.
2. REFER TO THE MOUNT ANALYSIS BY XXX DATED XXX FOR ADDITIONAL DETAILS.
3. GENERAL CONTRACTOR SHALL PROVIDE THE BELOW DOCUMENTATION TO THE ENGINEER OF RECORD VIA EMAIL TO vzwmounts@nbcllc.com, DROPBOX, OR OTHER FILESHARE METHOD. PROVIDE HIGH RESOLUTION PHOTOS (DO NOT COMPRESS).
4. ENGINEER OF RECORD WILL CONDUCT A REVIEW OF THE PROVIDED DOCUMENTS TO PREPARE A PMI REPORT. ENGINEER OF RECORD WILL NOTIFY GENERAL CONTRACTOR IF ANY ADDITIONAL DOCUMENTATION IS REQUIRED TO COMPLETE THE PMI.
5. PMI DOCUMENTATION SHALL BE SUFFICIENT TO CONFIRM THE UPGRADE WAS BUILT AS DESIGNED, INCLUDING EQUIPMENT CHANGES AND STRUCTURAL MODIFICATIONS, AND IS IN ADDITION TO ANY OTHER REQUIRED CLOSEOUT PACKAGE DOCUMENTATION.
6. REQUIRED DOCUMENTATION FOR PMI INCLUDES THE FOLLOWING AT A MINIMUM. REFER TO THE MOUNT ANALYSIS FOR POSSIBLE ADDITIONAL INFORMATION. IF STRUCTURAL MODIFICATIONS ARE REQUIRED, REFER TO THE MODIFICATION DRAWINGS FOR POSSIBLE ADDITIONAL REQUIREMENTS.
 - 6A. PROVIDE PRE-AND-POST CONSTRUCTION PHOTOS OF EACH SECTOR FROM THE MOUNT ELEVATION AND THE GROUND. CONTRACTOR IS RESPONSIBLE FOR ENSURING THE PHOTOS PROVIDED PROVIDE POSITIVE CONFIRMATION THAT THE MODIFICATION/UPGRADE WAS COMPLETED IN ACCORDANCE WITH THESE CONSTRUCTION DRAWINGS AND ANY STRUCTURAL/MOUNT MODIFICATION DRAWINGS. CONTRACTOR SHALL RELAY ANY DATA THAT CAN IMPACT THE PERFORMANCE OF THE MOUNT OR MOUNT MODIFICATION, INCLUDING SAFETY ISSUES. PHOTOS SHALL HAVE A DATE/TIME STAMP IN THE PHOTO. REFER TO THE MOUNT ANALYSIS FOR FILE STRUCTURE SCHEDULE OF PHOTOS. PROVIDE PHOTOS OF THE GATE SIGNS AND CARRIER SHELTER TO IDENTIFY THE TOWER OWNER, SITE NAME, SITE NUMBER, ETC.
 - 6B. VERIFICATION OF THE MEMBER CONNECTIONS, BRACING, AND RELEVANT DIMENSIONS.
 - 6C. VERIFICATION OF THE ANTENNA AND OTHER EQUIPMENT CONFIGURATION (PHOTOS OF MODEL NUMBERS/TAGS FOR ALL EQUIPMENT, AS WELL AS THE FEEDLINE CONFIGURATION). TAKE PHOTOS OF THE BACK SIDE OF EACH SECTOR AS WELL AS CLOSE-UPS OF ALL EQUIPMENT. PHOTOS SHOULD CONFIRM THE HORIZONTAL AND VERTICAL POSITIONING OF THE ANTENNAS AND EQUIPMENT AND SHALL HAVE TAPE MEASURES IN THE PHOTOS TO CONFIRM.
 - 6D. FOR TIE-BACKS, STRUTS, MOUNT PIPES, PHOTOS TO CONFIRM THE ANGLES AND LOCATION OF ATTACHMENT POINT AT BOTH ENDS OF MEMBER, AS WELL AS DIMENSIONS, THICKNESS, AND LENGTHS OF THE MEMBERS. REFER TO THE CHECKLIST IN THE MOUNT ANALYSIS FOR ADDITIONAL INFORMATION.
 - 6E. MOUNT ATTACHMENT TO THE SUPPORTING STRUCTURE, INCLUDING ANY KICKERS OR SUPPORTS, OR TIEBACKS.
 - 6F. MATERIALS USED (TYPE, STRENGTH, DIMENSIONS, ETC). PROVIDE BILL OF MATERIALS AND MATERIAL SPEC TO CONFIRM MATERIAL GRADES AND SIZES. PROVIDE DOCUMENTATION FOR GALVANIZATION OF MEMBERS WHETHER HOT-DIPPED OR COLD-GALVANIZED. IF MATERIALS DIFFER FROM THOSE SPECIFIED ON THESE DRAWINGS, PROVIDE DOCUMENTATION THAT THE "EQUIVALENT" MATERIAL HAS THE SAME SPECIFICATIONS.
 - 6G. MOUNT ORIENTATION/AZIMUTH AND ELEVATION. PROVIDE TAPE DROP PHOTOS OF ANTENNA CENTERLINE(S) AND MOUNT ATTACHMENT POINTS TO THE SUPPORTING STRUCTURE. IF THERE ARE MULTIPLE RAD CENTERS, PROVIDE PHOTOS OF ALL ELEVATIONS.

POST-MODIFICATION INSPECTION (PMI) REQUIREMENT CONT.

- 6H. VERIFICATION THAT THE INSTALL HAS NOT CAUSED DAMAGE TO OR UNPLANNED OBSTRUCTION OF THE FOLLOWING:
 - CLIMBING FACILITIES
 - SAFETY CLIMB IF PRESENT, INCLUDING PHOTOS ABOVE AND BELOW THE MOUNT.
 - LIGHTING SYSTEM
 - OTHER INSTALLED SYSTEMS ON THE STRUCTURE.
 - CONTRACTOR SHALL ENSURE THE SAFETY CLIMB IS SUPPORTED AND NOT ADVERSELY AFFECTED BY THE INSTALLATION OF NEW COMPONENTS. THIS MAY INVOLVE THE INSTALLATION OF WIRE ROPE GUIDES OR OTHER ITEMS TO PROTECT THE WIRE ROPE.
- 6I. OTHER ITEMS DETERMINED BY THE STRUCTURAL ENGINEER TO ENSURE THE MOUNT WILL PERFORM AS DESIGNED. PHOTOS OF RELEVANT MEASUREMENTS, WITH SUFFICIENT DETAILS TO CONFIRM CONNECTION DETAILS, PLACEMENT OF EQUIPMENT, WALL ANCHOR DETAILS, BALLAST QUANTITIES, STRUCTURAL MODIFICATIONS ETC. DIAMETERS AND THICKNESSES OF BOLTS/THREADED RODS/ANGLES/TUBES ETC SHALL HAVE PHOTOS CONFIRMING CALIPER MEASUREMENTS.
 - CONFIRMATION THAT ALL HARDWARE WAS PROPERLY INSTALLED, AND EXISTING HARDWARE WAS INSPECTED FOR ANY ISSUES.
 - FOR BALLAST SLEDS, DOCUMENTATION OF THE WEIGHT OF BALLAST IN EACH SECTOR.
 - FOR WALL ANCHORS, PHOTOS AND MEASUREMENTS OF OUTSIDE AND INSIDE OF CONNECTIONS. DOCUMENTATION OF ADHESIVE USED, SIZE AND LENGTH OF ANCHORS, EFFECTIVE EMBEDMENT DEPTH OF THE ANCHORS, GROUTING OF HOLLOW WALLS, SPACING AND EDGE DISTANCE MEASUREMENTS, AND ANY THROUGH-BOLTS OR BACKING PLATES.
 - FOR STUD WELD CONNECTIONS, DOCUMENTATION TO CONFIRM SURFACE PREPARATION, STUD WELD SIZE, GRADE, LENGTH, AND SPACING.
 - FOR FABRICATED PARTS, SHOP DRAWINGS TO BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION.
 - FOR WELDED PARTS, CERTIFIED WELD INSPECTION.
 - FOR BOLTED PARTS, BOLT INSTALLATION AND TORQUE.
1. CONTRACTOR SHALL PROVIDE, IN ADDITION TO THE ABOVE, AS-BUILT CDS WITH REDLINES IDENTIFYING ANY CHANGES. THE AS-BUILTS SHALL THE CONTRACTOR'S NAME, PREPARER'S SIGNATURE, AND DATE.
2. IF THE MODIFICATION INSTALLATION WOULD FAIL THE PMI ("FAILED PMI"), THE CONTRACTOR SHALL WORK WITH THE ENGINEER OF RECORD TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:
 - 8A. CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENTAL PMI.
 - 8B. OR, WITH THE EOR'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT/UPGRADE USING THE AS-BUILT CONDITION.
8. NOTE: IF LOADING IS DIFFERENT THAN THAT SHOWN IN THESE CONSTRUCTION DRAWINGS OR STRUCTURAL/MOUNT MODIFICATION DRAWINGS, CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY FOR RESOLUTION.
9. THE ENGINEERING FIRM PERFORMING AN ANALYSIS SHALL PROVIDE A CONTRACTOR'S PHOTO LOG AND CHECKLIST TO BE COMPLETED BY THE INSTALLING CONTRACTOR. THE CONTRACTOR SHALL THEN PROVIDE POST-INSTALLATION INFORMATION TO THE STRUCTURAL ENGINEER. THE STRUCTURAL ENGINEER SHALL REVIEW THE DOCUMENTS FOR ANY DEFICIENCIES THAT CAN BE DETERMINED FROM THE DESKTOP REVIEW OF THE DATA. THE ENGINEERING FIRM SHALL THEN PROVIDE DOCUMENTATION TO VZW THAT THE SITE IS COMPLETED, AND THE PMI REPORT IS APPROVED.

ENGINEER	 TOTALLY COMMITTED. <small>NB+C ENGINEERING SERVICES, LLC. 1777 SENTRY PARKWAY WEST VENA 17, SUITE 400 BLUE BELL, PA 19022 (267) 460-0122</small>												
APPLICANT	<small>NEW YORK SMSA LIMITED PARTNERSHIP d/b/a VERIZON WIRELESS</small>  <small>400 WARREN CORPORATE CENTER DRIVE BUILDING D WARREN, NJ 07059</small>												
SITE INFORMATION	<small>SOUTH BRUNSWICK 8 5 FERNWOOD DRIVE PRINCETON, NJ 08540 SOUTH BRUNSWICK TWP. MIDDLESEX COUNTY</small>												
DESIGN RECORD	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">REVISIONS</th> </tr> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>03/17/21</td> <td>PRELIMINARY CDS</td> <td>JMC</td> </tr> </tbody> </table>	REVISIONS				REV	DATE	DESCRIPTION	BY	1	03/17/21	PRELIMINARY CDS	JMC
REVISIONS													
REV	DATE	DESCRIPTION	BY										
1	03/17/21	PRELIMINARY CDS	JMC										
PROFESSIONAL STAMP	<small>STATE OF NEW JERSEY CERTIFICATE OF AUTHORIZATION #246GA28226400 EXP 08/31/22</small>												
ENGINEER	<small>KRUPAKARAN KOLANDAIVELU, P.E. STATE OF NEW JERSEY PROFESSIONAL ENGINEER LICENSE #24GE04945200</small>												
SHEET TITLE	<h2 style="margin: 0;">PMI REQUIREMENTS</h2>												
SHEET NUMBER	<h1 style="margin: 0;">GN-1</h1>												



GENERAL NOTES:

SITE MAP
SCALE: N.T.S.

- EXHIBIT "A" AS SUBMITTED IS A CONCEPTUAL REPRESENTATION OF THE LEASE AGREEMENT ONLY. FINAL CONSTRUCTION DRAWINGS MAY VARY TO COMPLY WITH APPLICABLE BUILDING CODES AND ZONING APPROVALS AND WILL SUPERSEDE EXHIBIT "A".
- TRUE NORTH DETERMINATION, GROUND (AMSL) ELEVATION AND LATITUDE AND LONGITUDE COORDINATES ARE BASED ON DRAWINGS PROVIDED BY PROPERTY MANAGEMENT.
- THE LOCATION OF LESSEE'S PROPOSED UTILITIES ARE SUBJECT TO THE REVIEW AND APPROVAL OF THE RESPECTIVE UTILITY COMPANIES AND MAY NEED TO BE RELOCATED.
- DO NOT SCALE THIS EXHIBIT UNLESS OTHERWISE NOTED.

SITE INFORMATION:

- PROPERTY OWNER/LESSOR: TOWNSHIP OF SOUTH BRUNSWICK
540 RIDGE ROAD
MONMOUTH JUNCTION, NJ 08852
- CONTACT:
- TOWER OWNER/LESSOR: N/A
- CONTACT: N/A
- LESSEE: New York SMSA LIMITED PARTNERSHIP d/b/a VERIZON WIRELESS
141 INDUSTRIAL PARKWAY
BRANCHBURG, NJ 08873
- SITE ADDRESS: 136 FRIENDSHIP ROAD
SOUTH BRUNSWICK, NJ
- LOT: 18.04
BLOCK: 37
ZONE: PL - PUBLIC LAND
LAT. N 40° 21' 42.2"
LONG. W 74° 31' 07.4"
DATUM: NAD 1983
- GROUND ELEVATION: 98± FT AMSL
DATUM: NGVD 1929
- INFORMATION SHOWN ON THIS DRAWING IS BASED ON LIMITED FIELD MEASUREMENTS TAKEN ON AUGUST 18, 2009, TAX MAPS AND NJDEP AERIAL PHOTOGRAPHY.

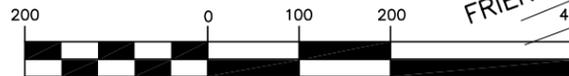
SITE NOTES:

- SUBJECT TO THE FINDINGS OF A BOUNDARY SURVEY.
- ENTIRE PROPERTY IS WITHIN THE FLOOD HAZARD AREA OF DEVIL'S BROOK. SUBJECT TO THE REVIEW AND APPROVAL OF THE NJDEP.

SITE PLAN

SCALE: 1" = 200'-0"

GRAPHIC SCALE



LEGEND

	EXISTING CONDITIONS
	PROPOSED CONDITIONS
	PROPERTY LINE
	PROPOSED TELEPHONE ROUTING
	PROPOSED ELECTRIC ROUTING

REV. NO.	DATE	REVISIONS	DRAWN BY	CHECKED BY
0	8/25/09	FOR REVIEW AND COMMENT	CEN	CEN

AVOCA
ENGINEERS
ARCHITECTS

SUITE 130, 242 OLD NEW BRUNSWICK RD, PISCATAWAY, NJ 08854
PHONE (732) 465-1002 FAX (732) 465-1005

NJ ENGINEERING C.O.A. #24GA27947800 NJ ARCHITECTURE C.O.A. #AC-214

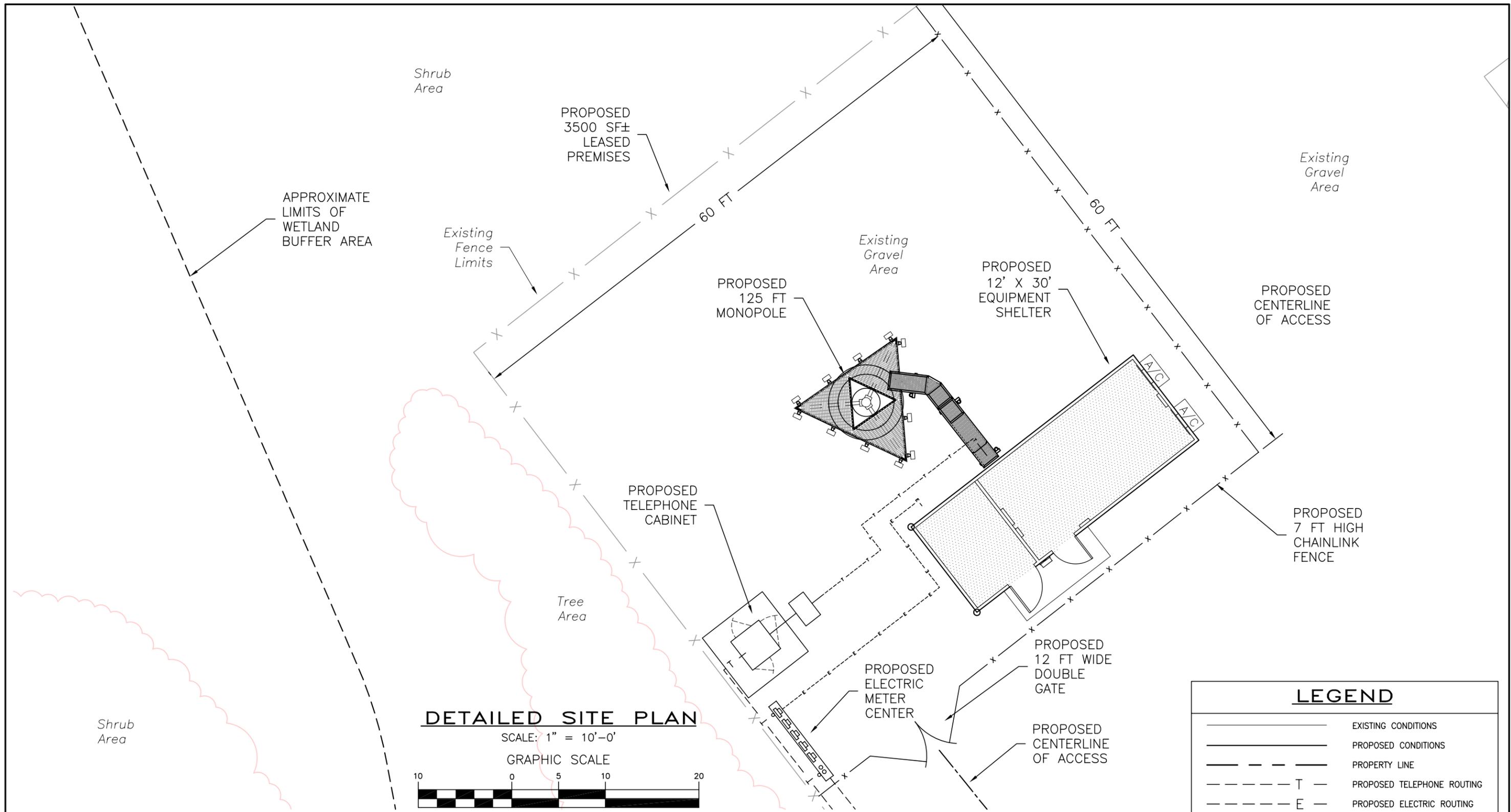
CHRISTOPHER E. NEVILL, P.E. KEVIN LEARY, P.E. SARITA S. MARBELLA, A.I.A.
PROFESSIONAL ENGINEER/PROFESSIONAL PLANNER PROFESSIONAL ENGINEER ARCHITECT
NJ GE36966 SC 14601 NJ GE38226 PA 52767E NJ AH4065 NY 25883
PA 50139E NJPP U5330

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New York SMSA Limited Partnership
d/b/a **verizon wireless**

141 Industrial Parkway
Branchburg, NJ 08876

EXHIBIT "A"	PROJECT NO: 09-VW-045
SEARCH AREA NAME: SOUTH BRUNSWICK 6	LE-1
CANDIDATE NAME: MUNICIPAL DPW PROPERTY	1 OF 3



REV. NO.	DATE	REVISIONS	DRAWN BY	CHECKED BY
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CHRISTOPHER E. NEVILL, P.E. PROFESSIONAL ENGINEER/PROFESSIONAL PLANNER
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KEVIN LEARY, P.E. PROFESSIONAL ENGINEER
NJ GE38226 PA 52767E

SARITA S. MARBELLA, A.I.A. ARCHITECT
NJ A14065 NY 25883

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EXHIBIT "A"

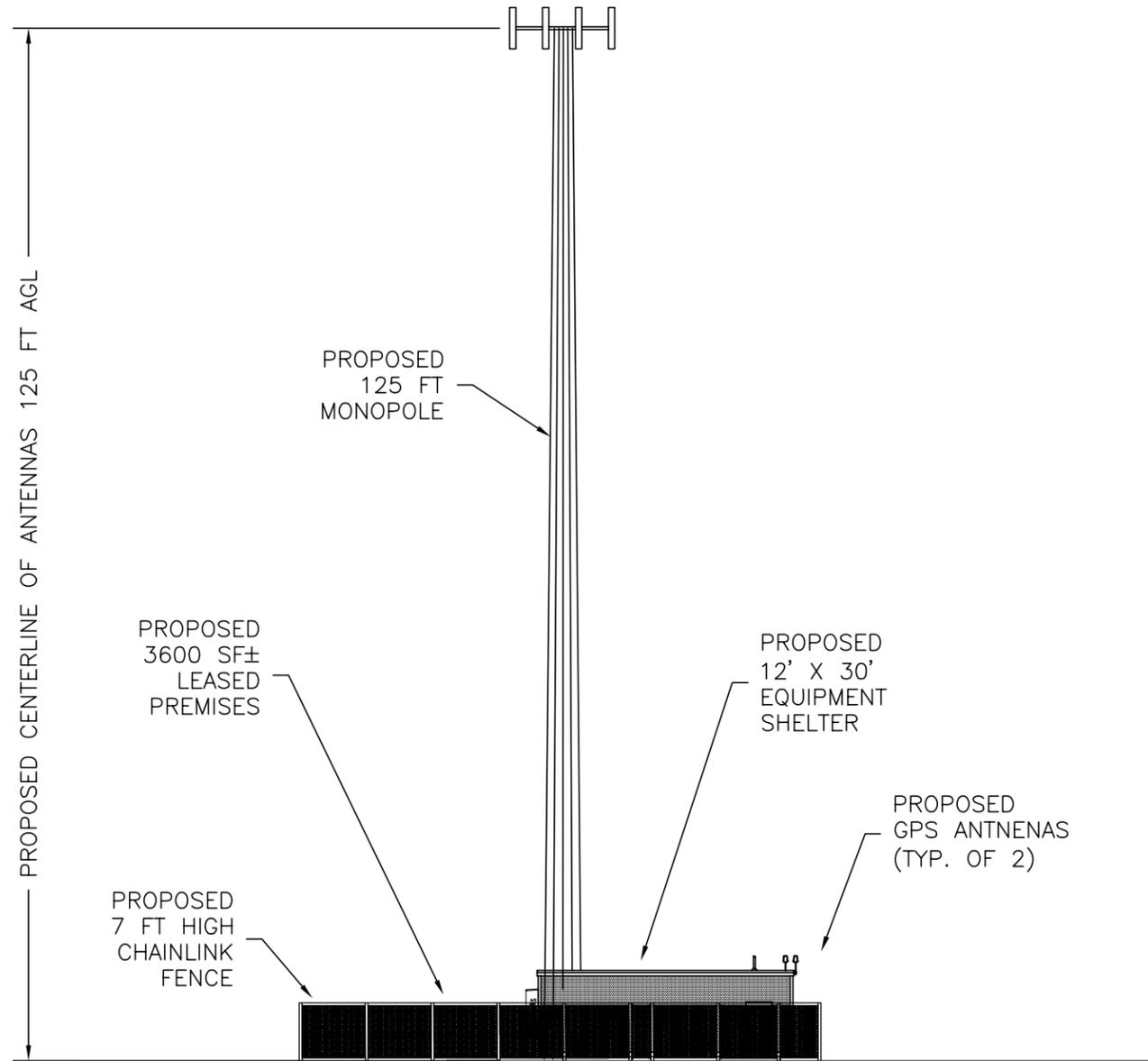
SEARCH AREA NAME:
SOUTH BRUNSWICK 6

CANDIDATE NAME:
MUNICIPAL DPW PROPERTY

PROJECT NO:
09-VW-045

LE-2

2 OF 3



SITE ELEVATION

SCALE: 1" = 10'-0"

GRAPHIC SCALE



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 PROFESSIONAL ENGINEER/PROFESSIONAL PLANNER PROFESSIONAL ENGINEER ARCHITECT
 NJ GE36966 SC 14601 NJ GE38226 PA 52767E NJ A114065 NY 25883
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Branchburg, NJ 08876

EXHIBIT "A"
SEARCH AREA NAME: SOUTH BRUNSWICK 6
CANDIDATE NAME: MUNICIPAL DPW PROPERTY

PROJECT NO: 09-VW-045
LE-3
3 OF 3