



**GENERAL NOTES:**

- ALL REFERENCES TO OWNER IN THESE DOCUMENTS SHALL BE CONSIDERED U.S. CELLULAR OR ITS DESIGNATED REPRESENTATIVE.
- ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE OF NORTH CAROLINA.
- STRUCTURE IS DESIGNED IN ACCORDANCE WITH ANSI/TIA/EIA-222-G, 2005, FOR A 130 MPH 3-SECOND GUST WIND LOAD. THIS CONFORMS TO THE REQUIREMENTS OF THE NORTH CAROLINA BUILDING CODE, 2012 EDITION.
- WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE NORTH CAROLINA BUILDING CODE, 2012 EDITION.
- UNLESS SHOWN OR NOTED OTHERWISE ON THE CONTRACT DRAWINGS, OR IN THE SPECIFICATIONS, THE FOLLOWING NOTES SHALL APPLY TO THE MATERIALS LISTED HEREIN, AND TO THE PROCEDURES TO BE USED ON THIS PROJECT.
- ALL HARDWARE ASSEMBLY MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERSEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.
- IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE, TO INSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.
- BASED ON THE LATEST REVISIONS OF THE CONSTRUCTION DRAWINGS, DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS SHOWN ON THESE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR BEGINNING ANY CONSTRUCTION WORK ON THIS PROJECT. BUILDING DIMENSIONS SHALL BE VERIFIED WITH THESE DRAWINGS PRIOR TO COMMENCING CONSTRUCTION. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND OWNER'S ENGINEER. THESE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR MAY PROCEED WITH WORK. THE OWNER SHALL HAVE A SET OF APPROVED PLANS AVAILABLE ON SITE AT ALL TIMES WHILE WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE EMPLOYEE SHALL BE AVAILABLE FOR CONTACT BY GOVERNING AGENCY INSPECTORS. THE CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE PROCEDURES.
- ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR INSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.
- ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIALS ACCESS, WITH THE RESIDENT LEASING AGENT FOR APPROVAL.
- BILL OF MATERIALS AND PART NUMBERS LISTED ON CONSTRUCTION DRAWINGS ARE INTENDED TO AID CONTRACTOR. CONTRACTOR SHALL VERIFY PARTS AND QUANTITIES WITH MANUFACTURER PRIOR TO BIDDING AND/OR ORDERING MATERIALS.
- ALL PERMITS THAT MUST BE OBTAINED ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
- 24 HOURS PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, THE CONTRACTOR MUST NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY OR CITY) ENGINEER.
- THE CONTRACTOR SHALL REWORK (DRY, SCARIFY, ETC.) ALL MATERIAL NOT SUITABLE FOR SUBGRADE IN ITS PRESENT STATE. AFTER REWORKING, IF THE MATERIAL REMAINS UNSUITABLE, THE CONTRACTOR SHALL UNDERCUT THIS MATERIAL AND REPLACE WITH APPROVED MATERIAL. ALL SUBGRADES SHALL BE PROOFROLLED WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK PRIOR TO PAVING. ANY SOFTER MATERIAL SHALL BE REWORKED OR REPLACED.
- THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL PIPES, DITCHES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL WORK IS ACCEPTED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN DRAINAGE STRUCTURE IN OPERABLE CONDITION.
- ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR ONE YEAR FROM ACCEPTANCE DATE.

**STRUCTURAL STEEL NOTES:**

- THE FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS AND MANUAL OF STEEL CONSTRUCTION, 13TH EDITION.
- UNLESS OTHERWISE NOTED, ALL STRUCTURAL ELEMENTS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
  - STRUCTURAL STEEL, ASTM DESIGNATION A36 OR A992, GR. 50.
  - ALL BOLTS, ASTM A325 TYPE I GALVANIZED HIGH STRENGTH BOLTS.
  - ALL NUTS, ASTM A563 CARBON AND ALLOY STEEL NUTS.
  - ALL WASHERS, ASTM F436 HARDENED STEEL WASHERS.
- ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH AISC SPECIFICATIONS AND MANUAL OF STEEL CONSTRUCTION, 13TH EDITION.
- HOLES SHALL NOT BE FLAME CUT THRU STEEL UNLESS APPROVED BY THE ENGINEER.
- HOT-DIP GALVANIZE ALL ITEMS UNLESS OTHERWISE NOTED, AFTER FABRICATION WHERE PRACTICABLE. GALVANIZING: ASTM A123, ASTM, A153/A153M OR ASTM A653/A653M, G90, AS APPLICABLE.
- REPAIR DAMAGED SURFACES WITH GALVANIZING REPAIR METHOD AND PAINT CONFORMING TO ASTM A780 OR BY APPLICATION OF STICK OR THICK PASTED MATERIAL SPECIFICALLY DESIGNED FOR REPAIR OF GALVANIZING. CLEAN AREAS TO BE REPAIRED AND REMOVE SLAG FROM WELDS. HEAT SURFACES TO WHICH STICK OR PASTE MATERIAL IS APPLIED, WITH A TORCH TO A TEMPERATURE SUFFICIENT TO MELT THE METALLICS IN STICK OR PASTE; SPREAD MOLTEN MATERIAL UNIFORMLY OVER SURFACES TO BE COATED AND WIPE OFF ANY EXCESS.
- A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED BOLTS.
- ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH TO EXCLUDE THE THREADS FROM THE SHEAR PLANE.
- ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
- ALL ASSEMBLY AND ANCHOR BOLTS ARE TO BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED IN SECTION 8.1 OF THE AISC, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", DATED JUNE 30, 2004.
- FLAT WASHERS ARE TO BE INSTALLED WITH BOLTS OVER SLOTTED HOLES.
- DO NOT OVER TORQUE ASSEMBLY BOLTS. GALVANIZING ON BOLTS, NUTS, AND STEEL PARTS MAY ACT AS A LUBRICANT, THUS OVER TIGHTENING MAY OCCUR AND MAY CAUSE BOLTS TO CRACK AND SNAP OFF.
- PAL NUTS ARE TO BE INSTALLED AFTER NUTS ARE TIGHT AND WITH EDGE LIP OUT. PAL NUTS ARE NOT REQUIRED WHEN SELF-LOCKING NUTS ARE PROVIDED.
- GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
- WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.1-2010 STRUCTURAL WELDING CODE - STEEL.

PLANS PREPARED FOR:



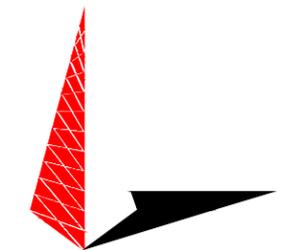
1125 CORPORATE DRIVE  
GREENVILLE, NC 27858  
OFFICE: (252) 439-2000

PROJECT INFORMATION:

**ASHTON  
SITE #: 556349**

12053 ASHTON RD (SR-1411)  
ASHTON, NC 28457  
(PENDER COUNTY)

PLANS PREPARED BY:

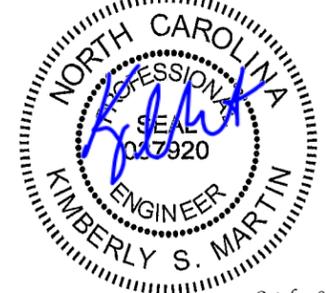


**TOWER ENGINEERING PROFESSIONALS**

326 TRYON ROAD  
RALEIGH, NC 27603-5263  
OFFICE: (919) 661-6351  
www.tepgroup.net

N.C. LICENSE # C-1794

SEAL:



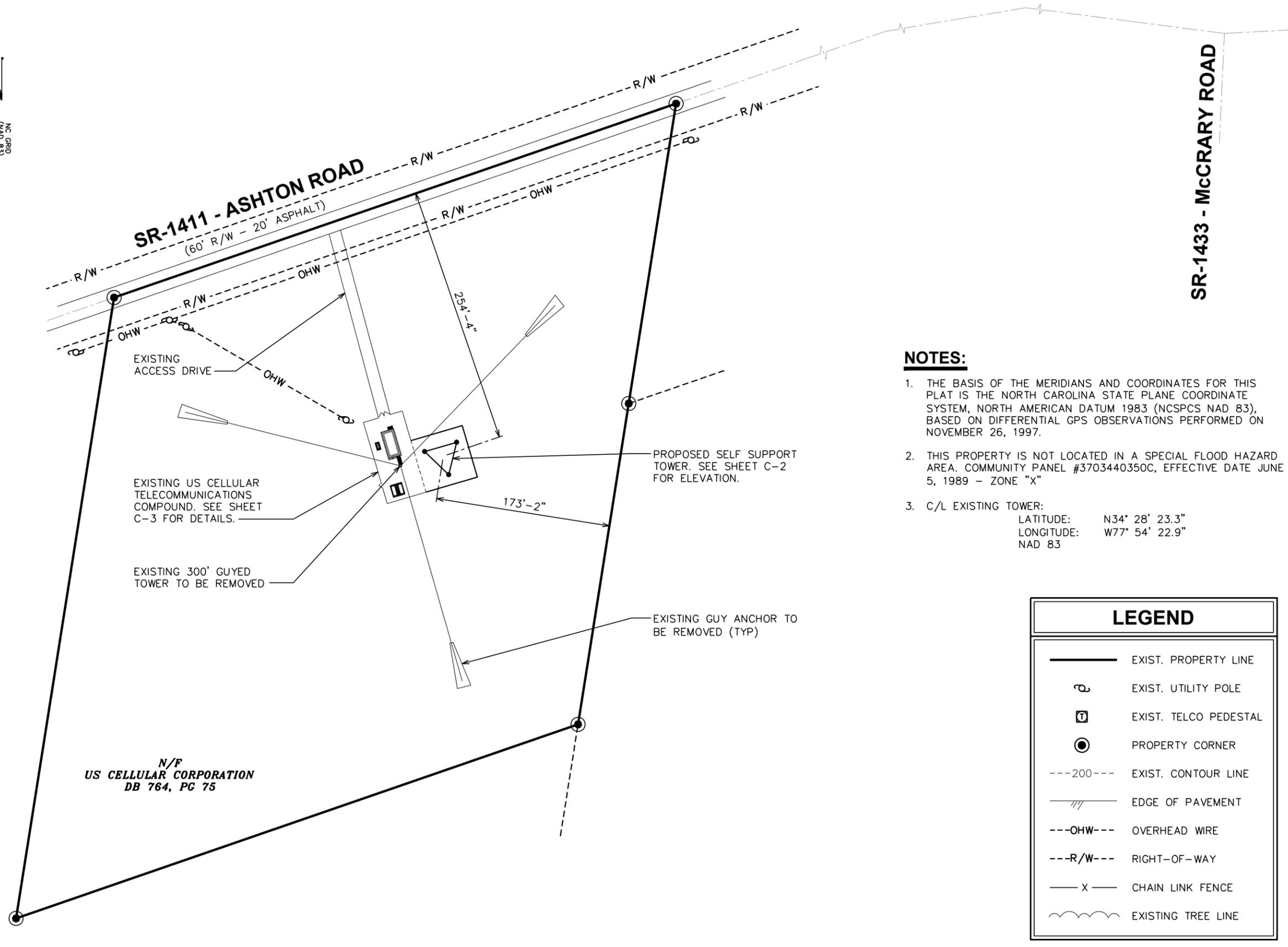
0	10-08-14	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: JHB | CHECKED BY: EBM

SHEET TITLE:

**PROJECT  
NOTES**

SHEET NUMBER: <b>N-1</b>	REVISION: <b>0</b>
TEP #: 31985_24983	



N/F  
US CELLULAR CORPORATION  
DB 764, PG 75

**NOTES:**

1. THE BASIS OF THE MERIDIANS AND COORDINATES FOR THIS PLAT IS THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NCSPCS NAD 83), BASED ON DIFFERENTIAL GPS OBSERVATIONS PERFORMED ON NOVEMBER 26, 1997.
2. THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA. COMMUNITY PANEL #3703440350C, EFFECTIVE DATE JUNE 5, 1989 - ZONE "X"
3. C/L EXISTING TOWER:  
 LATITUDE: N34° 28' 23.3"  
 LONGITUDE: W77° 54' 22.9"  
 NAD 83

**LEGEND**

	EXIST. PROPERTY LINE
	EXIST. UTILITY POLE
	EXIST. TELCO PEDESTAL
	PROPERTY CORNER
	EXIST. CONTOUR LINE
	EDGE OF PAVEMENT
	OVERHEAD WIRE
	RIGHT-OF-WAY
	CHAIN LINK FENCE
	EXISTING TREE LINE



**SITE PLAN**  
SCALE: 1" = 100'

PLANS PREPARED FOR:

1125 CORPORATE DRIVE  
GREENVILLE, NC 27858  
OFFICE: (252) 439-2000

PROJECT INFORMATION:

**ASHTON  
SITE #: 556349**

12053 ASHTON RD (SR-1411)  
ASHTON, NC 28457  
(PENDER COUNTY)

PLANS PREPARED BY:

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OFFICE: (919) 661-6351  
www.tepgroup.net  
N.C. LICENSE # C-1794

SEAL:

January 13, 2015

REV	DATE	ISSUED FOR:
1	1-13-15	CONSTRUCTION REVISION
0	10-08-14	CONSTRUCTION

DRAWN BY: JHB CHECKED BY: EBM

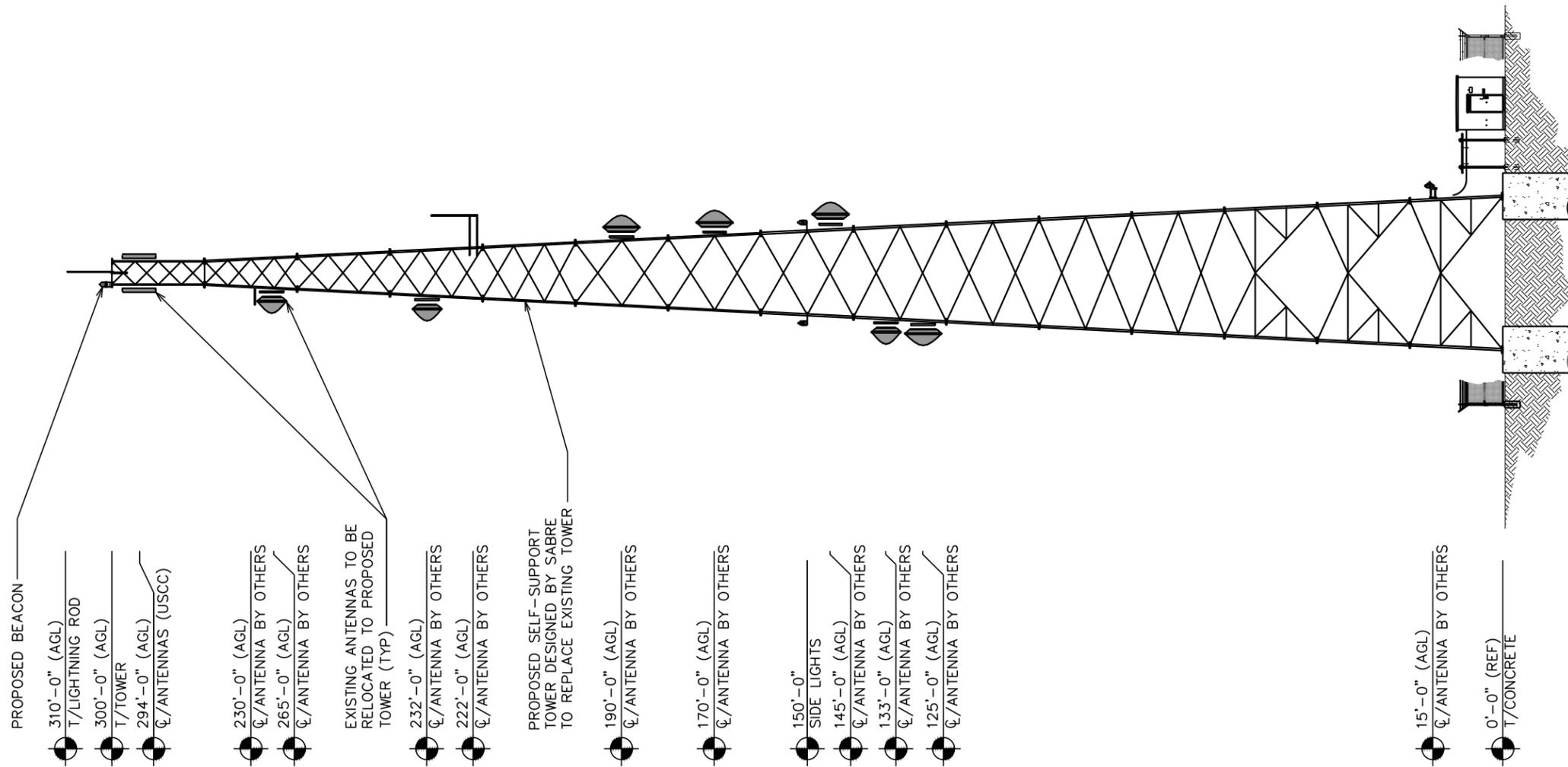
SHEET TITLE:

**SITE PLAN**

SHEET NUMBER: **C-1** REVISION: **1**  
TEP #: 31985\_24983

**NOTES:**

1. TOWER TO REMAIN A GALVANIZED COLOR.
2. TOWER SHALL BE LIT IN ACCORDANCE WITH THE FEDERAL AVIATION ADMINISTRATION.
3. PROPOSED COAX MOUNTED TO WAVEGUIDE LADDER (PROVIDED BY TOWER MANUFACTURER). CONTRACTOR TO COORDINATE WAVEGUIDE LOCATION WITH SHELTER LOCATION SHOWN ON SHEET C-3.



**TOWER ELEVATION**

SCALE: 1" = 30"



PLANS PREPARED FOR:



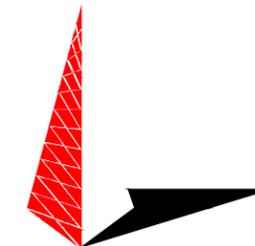
1125 CORPORATE DRIVE  
GREENVILLE, NC 27858  
OFFICE: (252) 439-2000

PROJECT INFORMATION:

**ASHTON**  
**SITE #: 556349**

12053 ASHTON RD (SR-1411)  
ASHTON, NC 28457  
(PENDER COUNTY)

PLANS PREPARED BY:



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N.C. LICENSE # C-1794

SEAL:



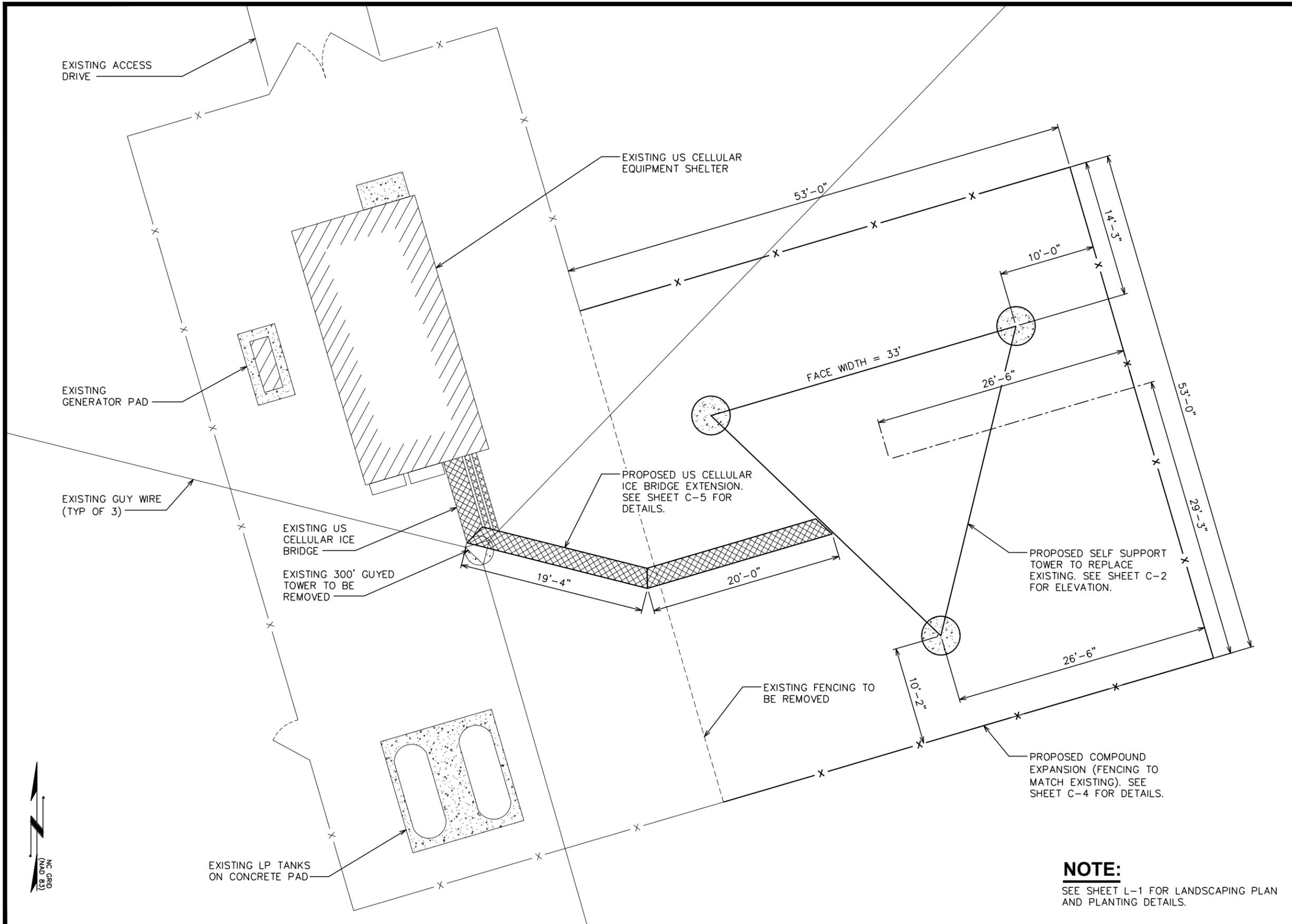
October 8, 2014

0	10-08-14	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: JHB CHECKED BY: EBM

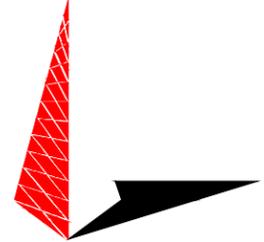
SHEET TITLE:  
**TOWER ELEVATION**

SHEET NUMBER: <b>C-2</b>	REVISION: <b>0</b>
TEP #: 31985_24983	



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PROJECT INFORMATION:  
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**SITE #: 556349**  
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 (PENDER COUNTY)

PLANS PREPARED BY:  
  
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SEAL:  
  
 January 13, 2015

REV	DATE	ISSUED FOR:
1	1-13-15	CONSTRUCTION REVISION
0	10-08-14	CONSTRUCTION

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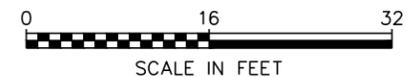
SHEET TITLE:  
**COMPOUND  
 DETAIL**

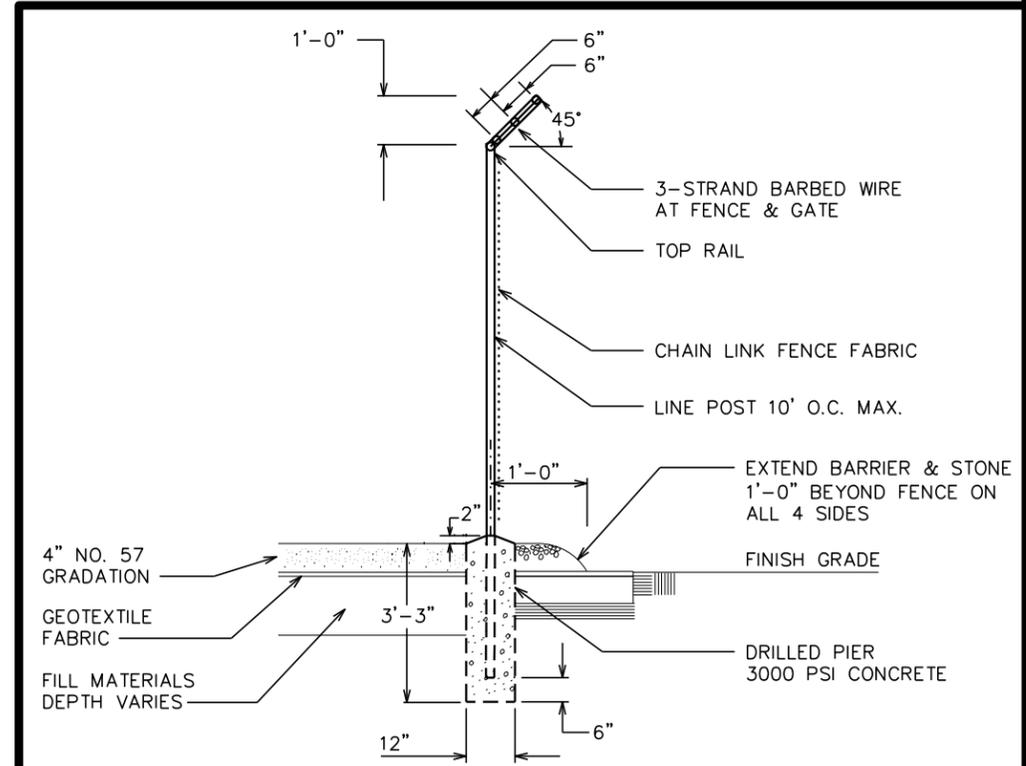
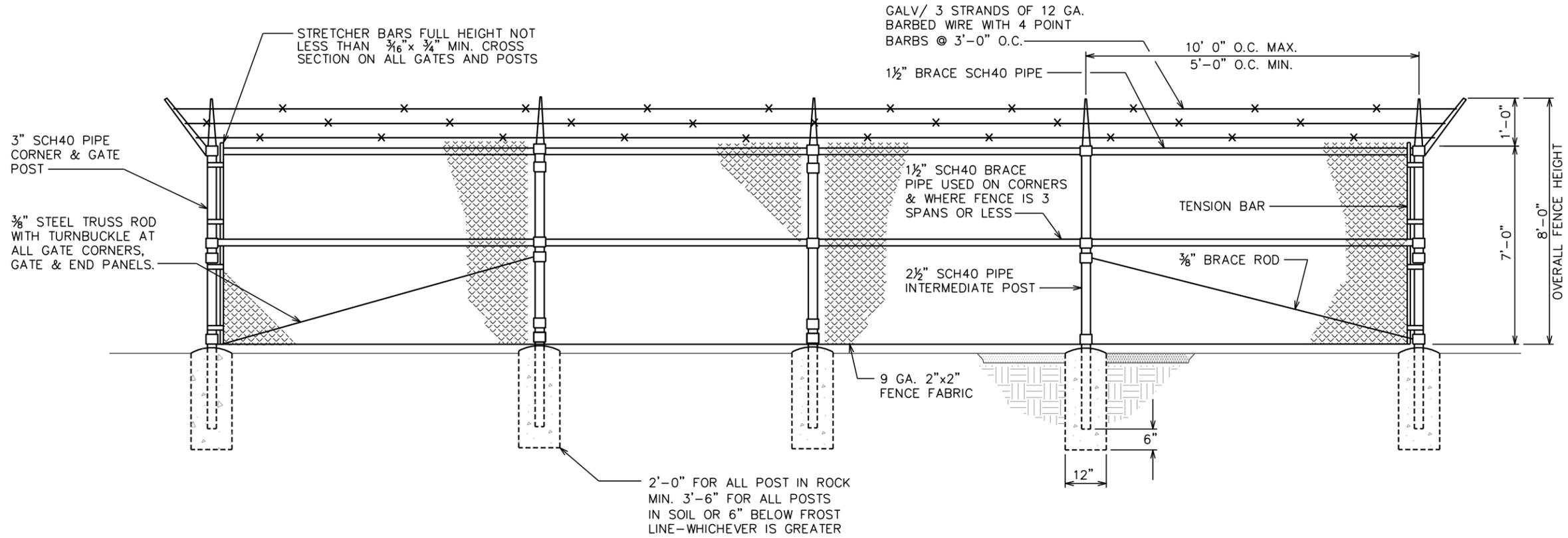
SHEET NUMBER: **C-3** | REVISION: **1**  
 TEP #: 31985\_24983

**COMPOUND DETAIL**

SCALE: 1/16" = 1'-0"

**NOTE:**  
 SEE SHEET L-1 FOR LANDSCAPING PLAN  
 AND PLANTING DETAILS.





PLANS PREPARED FOR:

**U.S. Cellular**

1125 CORPORATE DRIVE  
GREENVILLE, NC 27858  
OFFICE: (252) 439-2000

PROJECT INFORMATION:

**ASHTON  
SITE #: 556349**

12053 ASHTON RD (SR-1411)  
ASHTON, NC 28457  
(PENDER COUNTY)

PLANS PREPARED BY:

**TOWER ENGINEERING PROFESSIONALS**

326 TRYON ROAD  
RALEIGH, NC 27603-5263  
OFFICE: (919) 661-6351  
www.tepgroup.net

N.C. LICENSE # C-1794

SEAL:

January 15, 2015

REV	DATE	ISSUED FOR:
2	1-15-15	CONSTRUCTION REVISION
1	1-13-15	CONSTRUCTION REVISION
0	10-08-14	CONSTRUCTION

DRAWN BY: JHB | CHECKED BY: GMA

SHEET TITLE:

**FENCE  
DETAILS**

SHEET NUMBER: **C-4** | REVISION: **2**

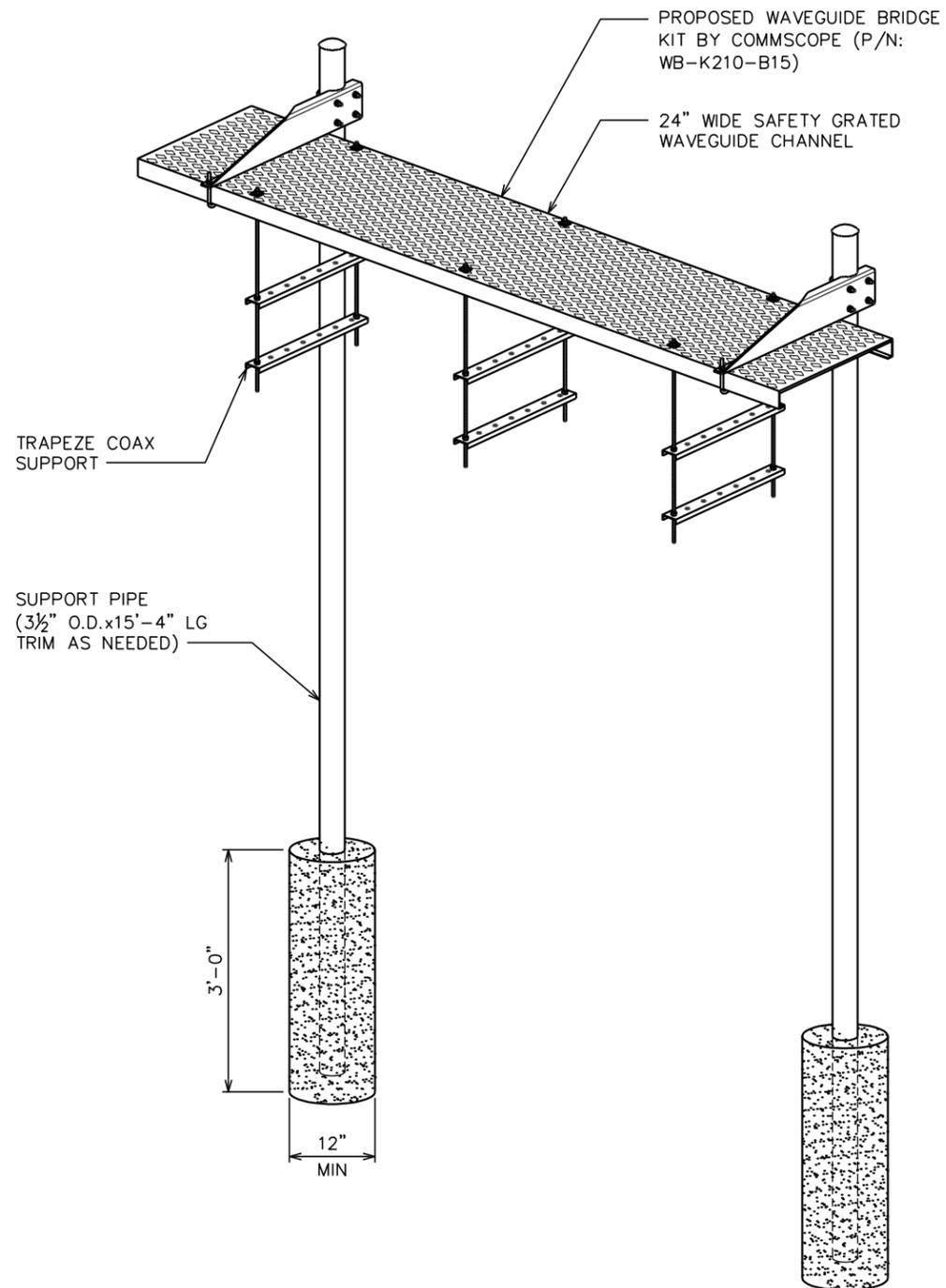
TEP #: 31985\_24983

**TYPICAL FENCE ELEVATION**

SCALE: N.T.S.

**FENCE / BARBED WIRE ARM DETAIL**

SCALE: N.T.S.



PLANS PREPARED FOR:



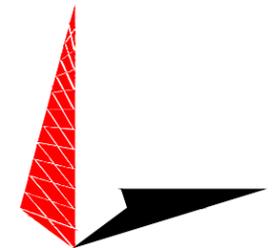
1125 CORPORATE DRIVE  
GREENVILLE, NC 27858  
OFFICE: (252) 439-2000

PROJECT INFORMATION:

**ASHTON**  
**SITE #: 556349**

12053 ASHTON RD (SR-1411)  
ASHTON, NC 28457  
(PENDER COUNTY)

PLANS PREPARED BY:



**TOWER ENGINEERING PROFESSIONALS**

326 TRYON ROAD  
RALEIGH, NC 27603-5263  
OFFICE: (919) 661-6351  
www.tepgroup.net

N.C. LICENSE # C-1794

SEAL:



October 8, 2014

0	10-08-14	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: JHB CHECKED BY: EBM

SHEET TITLE:

**ICE BRIDGE  
DETAIL**

SHEET NUMBER: REVISION:

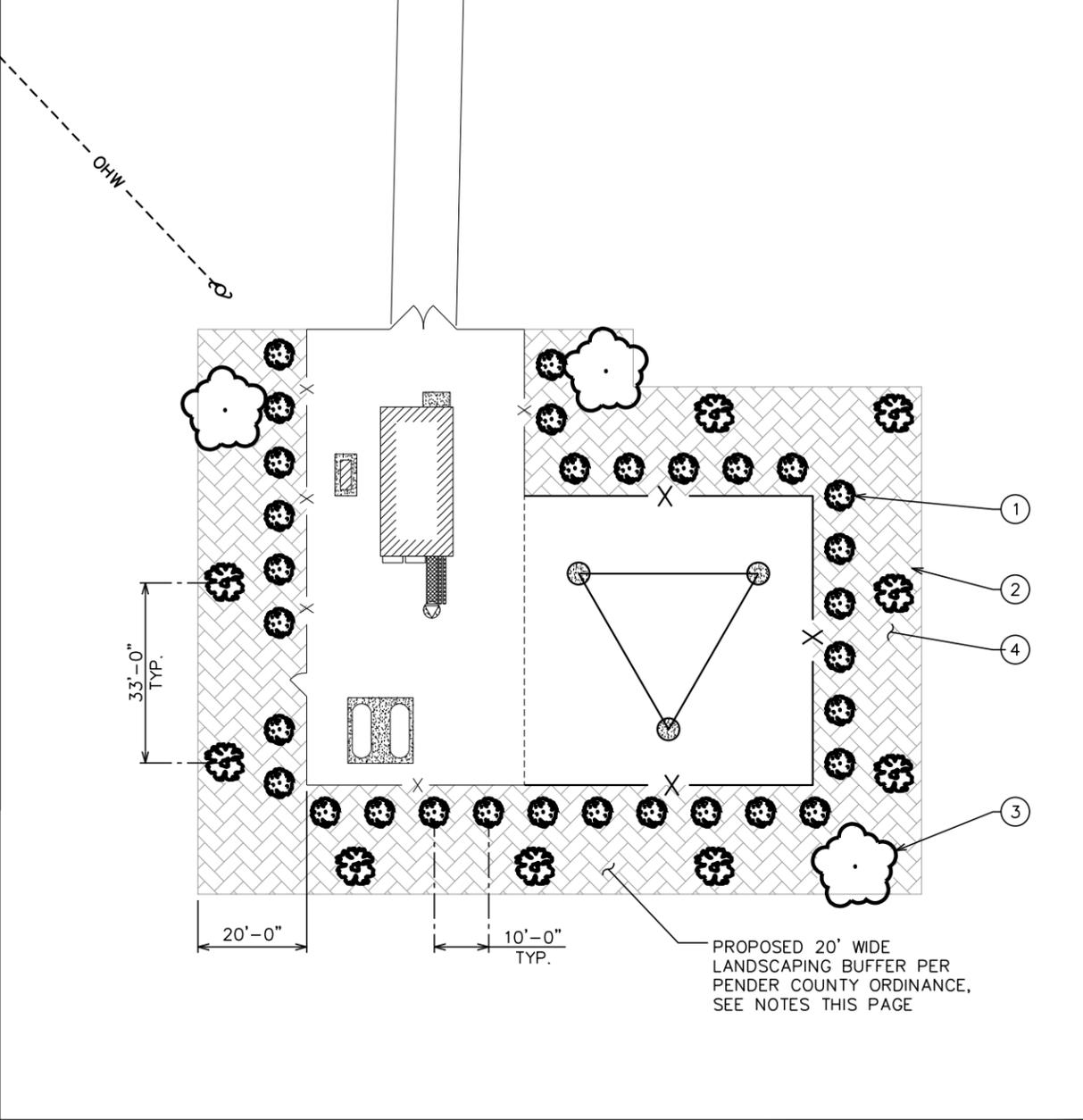
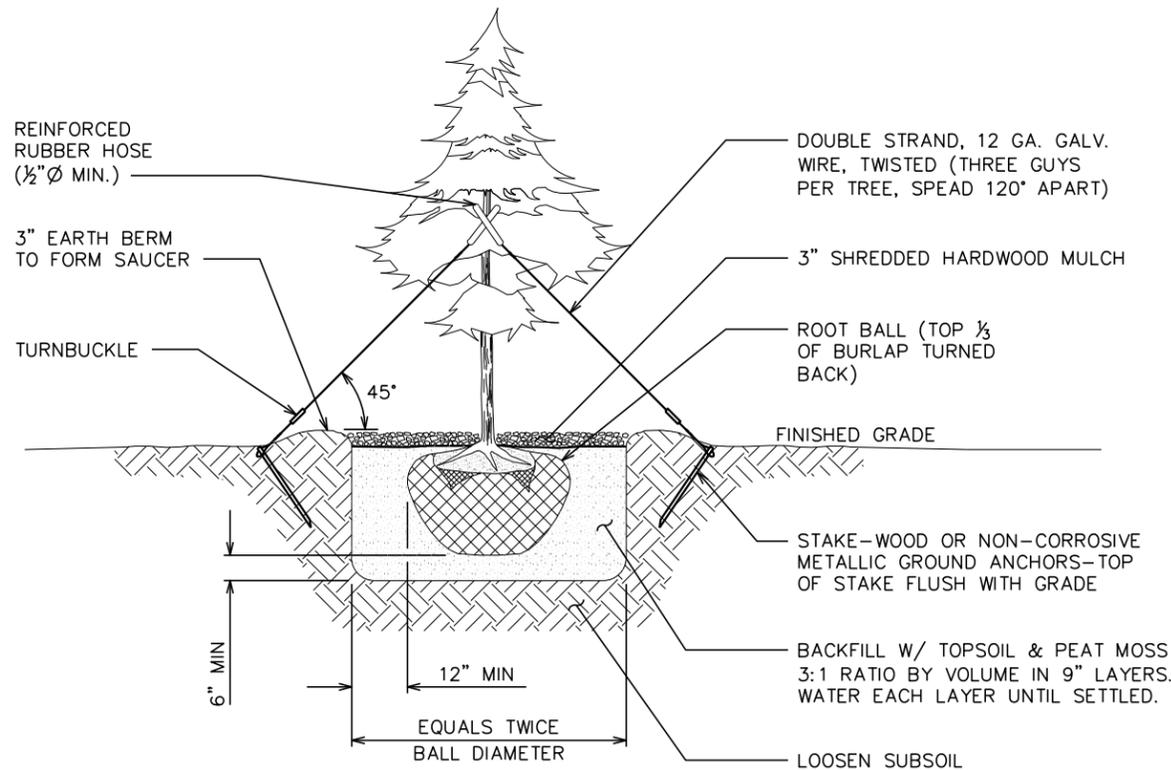
**C-5**

**0**

TEP #: 31985\_24983

**ICE BRIDGE DETAIL**

SCALE: N.T.S.



**LANDSCAPING PLAN**  
SCALE: 1" = 30'

**PLANTING DETAIL**  
SCALE: N.T.S.

**LANDSCAPE NOTES:**

1. TOPSOIL TO BE PROVIDED BY SITE CONTRACTOR IN ROUGH GRADE TO WITHIN 1" OF FINISH GRADE
2. EACH PLANT TO BE IN THE TOP OF ITS CLASS AFTER SHEARING AND PRUNING.
3. EACH PLANT TO BE FREE FROM DISEASE, INSECT INFESTATION, AND MECHANICAL INJURIES, AND IN ALL RESPECTS BE SUITABLE FOR FIELD PLANTING.
4. ALL PLANTS TO BE FULLY GUARANTEED (LABOR AND MATERIALS) FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM DATE OF INSTALLATION.
5. ALL PLANTS SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1-1973, IN REGARD TO SIZING, GROWING, AND B&B SPECIFICATIONS.
6. THE CONTRACTOR SHALL PROTECT ALL EXISTING TREES AND SHRUBS WITHIN THE CONSTRUCTION AREA IDENTIFIED AS "TO REMAIN" FROM DAMAGE BY EQUIPMENT AND CONSTRUCTION ACTIVITIES
7. PLANTS LISTED BELOW MUST BE USED OR AN APPROVED ALTERNATIVE.
8. BUFFERYARD BASED OFF OF REQUIREMENTS OF SECTION 8.2.6 BUFFER (C-3) OF THE PENDER COUNTY UNIFIED DEVELOPMENT ORDINANCE.

**PLANTING SCHEDULE**

ITEM	QTY.	BOTANICAL NAME	COMMON NAME	HEIGHT @ PLANTING	HEIGHT @ MATURITY	SPREAD/CALIPER	SPACING	REMARKS
<b>TREES</b>								
①	31	<i>(Ilex x 'Nellie R. Stevens')</i>	NELLIE R. STEVENS	6'-0" (MIN)	10'-0" (MIN)	1-1/2"	SEE PLAN THIS SHEET	SHOWN AS  (EVERGREEN HEDGE)
②	9	<i>(Lagerstromia indica)</i>	CREPE MYRTLE	8'-0" (MIN)	12'-0" (MIN)	1-1/2"	SEE PLAN THIS SHEET	SHOWN AS  (UNDERSTORY TREE)
③	3	<i>(Crataegus phaenopyrum)</i>	WASHINGTON HAWTHORNE	8'-0" (MIN)	12'-0" (MIN)	1-1/2"	SEE PLAN THIS SHEET	SHOWN AS  (CANOPY TREE)
<b>MULCH</b>								
④	-	-	MULCH	-	-	-	-	APPLY 3"-4" DEEP FROM THE TRUNKLINE TO THE DRIPLINE. FOR GROUND COVER - APPLY 1"-2" DEEP

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**SITE #: 556349**  
12053 ASHTON RD (SR-1411)  
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PLANS PREPARED BY:  
  
**TOWER ENGINEERING PROFESSIONALS**  
326 TRYON ROAD  
RALEIGH, NC 27603-5263  
OFFICE: (919) 661-6351  
www.tepgroup.net  
N.C. LICENSE # C-1794

SEAL:  
  
KIMBERLY S. MARTIN  
January 13, 2015

REV	DATE	ISSUED FOR:
1	1-13-15	CONSTRUCTION REVISION
0	10-08-14	CONSTRUCTION

DRAWN BY: TLL CHECKED BY: EBM

SHEET TITLE:  
**LANDSCAPING PLAN & PLANTING DETAIL**

SHEET NUMBER: **L-1** REVISION: **1**  
TEP #: 31985\_24983

**SCOPE:**

SHALL INCLUDE ALL LABOR, MATERIALS AND APPLIANCES REQUIRED FOR THE FURNISHING, INSTALLING AND TESTING, COMPLETE AND READY FOR OPERATION OF ALL WORK SHOWN ON THE DRAWING AS SPECIFIED HEREIN:

- 1. ELECTRIC SERVICE
- 2. CONDUIT AND RACEWAY
- 3. CONDUCTORS
- 4. MISCELLANEOUS MATERIALS
- 5. TELEPHONE CONDUITS
- 6. LIGHTNING ARRESTING SYSTEM

**CODES:**

THE INSTALLATION SHALL COMPLY WITH ALL LAWS APPLYING TO ELECTRICAL INSTALLATION IN EFFECT WITH THE REGULATIONS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL SAFETY CODE AND THE NCEC, ADMINISTRATIVE RULES WITH THE N.C. ELECTRIC CODE, AND ALL LOCAL GOVERNING CODES AND ORDINANCES WITH THE REGULATION OF THE SERVING UTILITY COMPANY. ALL PERMITS REQUIRED SHALL BE OBTAINED AND, AFTER COMPLETION OF WORK, THE OWNER SHALL BE FURNISHED A CERTIFICATE OF FINAL INSPECTION AND APPROVAL.

**MATERIALS:**

MATERIALS TO BE NEW. USE OF USED OR SUB STANDARD MATERIAL IS NOT ACCEPTABLE. IN THE CASE OF EXISTING METERING EQUIPMENT OR PANELS, REQUIRED COMPONENTS SHALL BE NEW.

**TESTING:**

UPON COMPLETION OF THE INSTALLATION, OPERATE AND ADJUST ALL EQUIPMENT AND SYSTEMS TO MEET SPECIFIED PERFORMANCE REQUIREMENTS. ALL TESTING SHALL BE DONE BY QUALIFIED PERSONNEL.

**GUARANTEE:**

IN ADDITION TO THE GUARANTEE OF THE EQUIPMENT BY THE MANUFACTURER, EACH PIECE OF EQUIPMENT SPECIFIED HEREIN SHALL ALSO BE GUARANTEED FOR DEFECTS OF MATERIAL OR WORKMANSHIP OCCURRING DURING A PERIOD OF ONE (1) YEAR FROM FINAL ACCEPTANCE OF THE WORK BY THE OWNER WITHOUT EXPENSE TO THE OWNER. ALL WARRANTEE CERTIFICATES AND GUARANTEES FURNISHED BY THE MANUFACTURERS SHALL BE TURNED OVER TO THE OWNER.

**CO-ORDINATION**

CONTRACTOR SHALL COORDINATE ALL WORK WITH THE POWER AND TELEPHONE COMPANIES AND SHALL COMPLY WITH ALL SERVICE REQUIREMENTS OF EACH UTILITY COMPANY.

**EXAMINATION OF SITE:**

PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL VISIT THE SITE OF THE JOB AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED ELECTRICAL INSTALLATION AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. FAILURE TO COMPLY WITH THE INTENT OF THIS PARAGRAPH WILL IN NO WAY RELIEVE THE CONTRACTOR OF PERFORMING ALL WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM OR SYSTEMS.

**CUTTING, PATCHING AND EXCAVATION:**

- 1. COORDINATION OF ALL SLEEVES, CHASES, ETC., WILL BE REQUIRED PRIOR TO THE CONSTRUCTION OF ANY PORTION OF THE WORK. ALL CUTTING AND PATCHING OF WALLS, PARTITIONS, FLOORS, AND CHASES IN CONCRETE, WOOD, STEEL OR MASONRY SHALL BE DONE AS PROVIDED ON THE DRAWINGS.
- 2. ALL EXCAVATIONS AND BACKFILLING INCIDENTAL TO THE WORK UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR.

**EXTERIOR CONDUIT:**

ALL EXPOSED CONDUIT SHALL BE NEATLY INSTALLED AND RUN PARALLEL OR PERPENDICULAR TO STRUCTURAL ELEMENTS. SUPPORTS AND MOUNTING HARDWARE SHALL BE HOT DIPPED GALVANIZED STEEL.

**RACEWAYS:**

- 1. ALL CONDUCTORS SHALL BE INSTALLED IN CONDUIT. CONDUIT SHALL BE RIGID STEEL, EMT, OR SCH40 PVC. AS INDICATED ON THE DRAWINGS. ALUMINUM CONDUIT SHALL NOT BE ALLOWED.
- 2. WHERE INSTALLED ON EXTERIORS AND EXPOSED TO DAMAGE, ALL CONDUIT SHALL BE RIGID STEEL.
- 3. CONCEALED CONDUIT IN WALLS OR INTERIOR SPACES ABOVE GRAD MAY BE EMT.
- 4. UNDERGROUND CONDUITS SHALL BE RIGID STEEL OR SCH40 PVC AS INDICATED ON THE DRAWINGS.
- 5. ALL CONDUIT RUNS SHALL USE APPROVED COUPLINGS AND CONNECTORS. PROVIDE INSULATED BUSHING FOR ALL CONDUIT TERMINATIONS. ALL CONDUIT RUNS IN A WET OCATIONS SHALL HAVE WATERPROOF FITTINGS.
- 6. PROVIDE SUPPORTS FOR ALL CONDUITS IN ACCORDANCE WITH NEC REQUIREMENTS. ALL CONDUITS SHALL BE SIZED AS REQUIRED BY NEC.
- 7. BURIAL DEPTH OF ALL CONDUITS SHALL BE AS REQUIRED BY CODE FOR EACH SPECIFIC CONDUIT TYPE AND APPLICATION.
- 7. CONDUIT ROUTES ARE SCHEMATIC. CONTRACTOR SHALL FIELD VERIFY BEFORE BID. COORDINATE ROUTE WITH WIRELESS CARRIER AND BUILDING OWNER.

**EQUIPMENT:**

- 1. ALL DISCONNECT SWITCHES SHALL BE SERVICE ENTRANCE RATED, HEAVY DUTY TYPE.
- 2. NEW CIRCUIT BREAKERS SHALL BE RATED TO WITHSTAND THE MAXIMUM AVAILABLE FAULT CURRENT AS DETERMINED BY THE LOCAL UTILITY. CONTRACTOR SHALL VERIFY MAXIMUM AVAILABLE FAULT CURRENT, AND COORDINATE INSTALLATION WITH THE LOCAL UTILITY BEFORE STARTING WORK.

**CONDUCTORS:**

- 1. FURNISH AND INSTALL CONDUCTORS CALLED FOR IN THE DRAWINGS. ALL CONDUCTORS SHALL HAVE TYPE THWN OR THW (75 °C) INSULATION, RATED FOR 600 VOLTS.
- 2. ALL CONDUCTIONS SHALL BE COPPER, THE USE OF ALUMINUM CONDUCTORS SHALL NOT BE ALLOWED. ALL CONDUCTORS SHALL BE UL LISTED AND SHALL BE PROVIDED AND INSTALLED AS FOLLOWS:
  - A. MINIMUM WIRE SIZE SHALL BE #12 AWG.
  - B. ALL CONDUCTORS SIZE #8 AND LARGER SHALL BE STRANDED. CONDUCTORS SIZED #10 AND SMALLER MAY BE SOLID OR STRANDED.
  - C. CONNECTION FOR #10 AWG AND SMALLER SHALL BE BY TWISTING TIGHT AND INSTALLING INSULATED PRESSURE OR WIRE NUT CONNECTORS.
  - D. CONNECTION FOR #8 AWG AND LARGER SHALL BE BY USE OF STEEL CRIMP-ON SLEEVES WITH NYLON INSULATOR.
- 3. ALL CONDUCTORS SHALL BE COLOR CODED IN ACCORDANCE WITH NEC STANDARDS.
- 4. THE RACEWAY SYSTEM SHALL BE COMPLETE BEFORE INSTALLING CONDUCTORS.

**PENETRATIONS:**

CONTRACTOR SHALL COMPLY WITH UL PENETRATION DETAILS FOR PENETRATIONS OF ALL RATED WALLS, ROOF, ETC.

**GROUNDING:**

- 1. ALL ELECTRICAL NEUTRALS, RACEWAYS AND NON-CURRENT CARRYING PARTS OF ELECTRICAL EQUIPMENT AND ASSOCIATED ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH NEC ARTICLE 250. THIS SHALL INCLUDE NEUTRAL CONDUCTORS, CONDUITS, SUPPORTS, CABINETS, BOXES, GROUND BUSSES, ETC. THE NEUTRAL CONDUCTOR FOR EACH SYSTEM SHALL BE GROUNDED BY ONE POINT ONLY.
- 2. PROVIDE GROUND CONDUCTOR IN ALL RACEWAYS.
- 3. PROVIDE BONDING AND GROUND TO MEET NFPA 780 – LIGHTNING PROTECTION AS A MINIMUM.
- 4. PROVIDE GROUNDING SYSTEM AS INDICATED ON THE DRAWINGS, AS REQUIRED BY THE NATIONAL ELECTRIC CODE AND RADIO EQUIPMENT MANUFACTURERS.

ABBREVIATIONS AND LEGEND			
<p>A – AMPERE</p> <p>AFG – ABOVE FINISHED GRADE</p> <p>ATS – AUTOMATIC TRANSFER SWITCH</p> <p>AWG – AMERICAN WIRE GAUGE</p> <p>BCW – BARE COPPER WIRE</p> <p>BFG – BELOW FINISHED GRADE</p> <p>BKR – BREAKER</p> <p>C – CONDUIT</p> <p>CKT – CIRCUIT</p> <p>DISC – DISCONNECT</p> <p>EGR – EXTERNAL GROUND RING</p> <p>EMT – ELECTRIC METALLIC TUBING</p> <p>FSC – FLEXIBLE STEEL CONDUIT</p> <p>GEN – GENERATOR</p> <p>GPS – GLOBAL POSITIONING SYSTEM</p> <p>GRD – GROUND</p> <p>IGB – ISOLATED GROUND BAR</p> <p>IGR – INTERIOR GROUND RING (HALO)</p> <p>KW – KILOWATTS</p> <p>NEC – NATIONAL ELECTRIC CODE</p> <p>PCS – PERSONAL COMMUNICATION SYSTEM</p> <p>PH – PHASE</p> <p>PNL – PANEL</p> <p>PNLBD – PANELBOARD</p>	<p>PVC – SCH40 RIGID NON-METALLIC CONDUIT</p> <p>RGS – RIGID GALVANIZED STEEL CONDUIT</p> <p>SW – SWITCH</p> <p>TGB – TOWER GROUND BAR</p> <p>UL – UNDERWRITERS LABORATORIES</p> <p>V – VOLTAGE</p> <p>W – WATTS</p> <p>XFMR – TRANSFORMER</p> <p>XMTR – TRANSMITTER</p>		
<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> <p>----E---- UNDERGROUND ELECTRICAL CONDUIT</p> <p>----T---- UNDERGROUND TELEPHONE CONDUIT</p> <p>⊞ KILOWATT-HOUR METER</p> <p>----- UNDERGROUND BONDING AND GROUNDING CONDUCTOR.</p> <p>⊘ GROUND ROD</p> <p>● CADWELD</p> <p>⊠ GROUND ROD WITH INSPECTION WELL</p> </td> <td style="width: 50%;"></td> </tr> </table>		<p>----E---- UNDERGROUND ELECTRICAL CONDUIT</p> <p>----T---- UNDERGROUND TELEPHONE CONDUIT</p> <p>⊞ KILOWATT-HOUR METER</p> <p>----- UNDERGROUND BONDING AND GROUNDING CONDUCTOR.</p> <p>⊘ GROUND ROD</p> <p>● CADWELD</p> <p>⊠ GROUND ROD WITH INSPECTION WELL</p>	
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PLANS PREPARED FOR:

1125 CORPORATE DRIVE  
GREENVILLE, NC 27858  
OFFICE: (252) 439-2000

PROJECT INFORMATION:

**ASHTON  
SITE #: 556349**

12053 ASHTON RD (SR-1411)  
ASHTON, NC 28457  
(PENDER COUNTY)

PLANS PREPARED BY:

**TOWER ENGINEERING PROFESSIONALS**

326 TRYON ROAD  
RALEIGH, NC 27603-5263  
OFFICE: (919) 661-6351  
www.tepgroup.net

N.C. LICENSE # C-1794

SEAL:

October 8, 2014

O	10-08-14	CONSTRUCTION					
REV	DATE	ISSUED FOR:					

DRAWN BY: JHB    CHECKED BY: JRH

SHEET TITLE:

**ELECTRICAL  
NOTES**

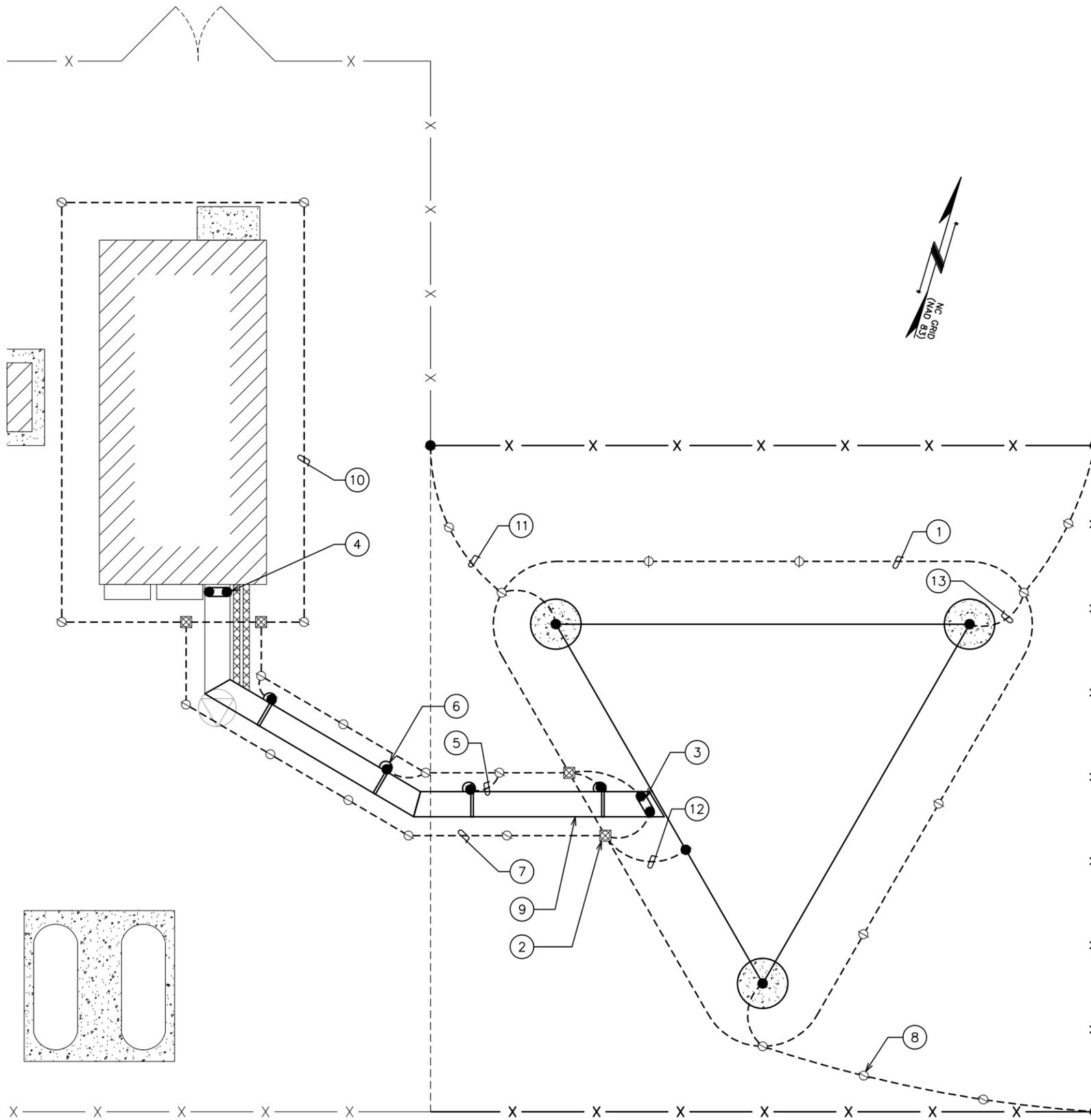
SHEET NUMBER: <b>E-1</b>	REVISION: <b>0</b>
TEP #: 31985_24983	

**DRAWING NOTES:**

- ① PROPOSED TOWER GROUND RING BURIED 24" BFG OR 6" BELOW FROST DEPTH (WHICHEVER IS GREATER)
- ② GROUND ROD WITH INSPECTION WELL AT TOWER GROUND RING (TYP OF 2)
- ③ TOWER BUS BAR
- ④ ICE BRIDGE BUS BAR
- ⑤ #2 AWG ICE BRIDGE BOND BURIED 24" BFG (TYP)
- ⑥ ICE BRIDGE SUPPORT POST (TYP)
- ⑦ #2 AWG BOND TO PROPOSED GROUND RING (TYP OF 2)
- ⑧ 5/8"Øx10' COPPER GROUND ROD (TYP)
- ⑨ ICE BRIDGE
- ⑩ EXISTING SHELTER GROUND RING (GC TO VERIFY LOCATION)
- ⑪ #2 AWG BOND TO FENCE POST (TYP OF 3)
- ⑫ LIGHTNING ROD GROUND TO GROUND RING
- ⑬ TOWER STEEL GROUNDING TO GROUND RING (TYP OF 3)

**GROUNDING NOTES:**

- 1. CONTRACTOR SHALL VERIFY THAT GROUNDING ELECTRODES SHALL BE CONNECTED IN A RING USING #2 AWG BARE TINNED COPPER WIRE. THE TOP OF THE GROUND RODS AND THE RING CONDUCTOR SHALL BE 2 FEET BELOW FINISHED GRADE. GROUNDING ELECTRODES SHALL BE DRIVEN ON 10'-0" CENTERS (8'-0" MIN, 16'-0" MAX); PROVIDE AND INSTALL AS REQUIRED PER TYPICAL GROUNDING PLAN SHOWN BELOW.
- 2. BONDING OF THE GROUNDED CONDUCTOR (NEUTRAL) AND THE GROUNDING CONDUCTORS SHALL BE AT THE SERVICE DISCONNECTING MEANS. BONDING JUMPER SHALL BE INSTALLED PER N.E.C. ARTICLE 250.30.
- 3. GROUND RING CONNECTION CONDUCTORS SHALL BE OF EQUAL LENGTH, MATERIAL, AND BONDING TECHNIQUE.
- 4. CONTRACTOR SHALL ENSURE GROUND RING IS WITHIN 12 TO 36 INCHES OF THE EQUIPMENT PAD. PROVIDE/INSTALL GROUNDING CONNECTION SHOWN ABOVE AS NEEDED PER EXISTING SITE GROUNDING SYSTEM. CONTRACTOR SHALL VERIFY ALL EXISTING SITE GROUNDING CONDITIONS BEFORE STARTING WORK OR PURCHASING EQUIPMENT.
- 5. BOND CIGBE TO EXTERNAL GROUND RING WITH 2 RUNS OF #2 BARE, TINNED, SOLID COPPER CONDUCTOR IN PVC. CONNECT BAR END WITH 2 HOLE LUG, AND "CADWELD" THE OTHER END TO THE EXTERNAL GROUND ROD.
- 6. THE PREFERRED LOCATION FOR COAX GROUNDING IS AT THE BASE OF THE TOWER PRIOR TO THE COAX BEND. BONDING IS SHOWN ON THE ICE BRIDGE DUE TO DIFFICULTY WITH WELDING OR ATTACHING TO TOWER LEGS. CONTRACTOR SHALL ADVISE CONSTRUCTION MANAGER PRIOR TO PLACING CIGBE ON ICE BRIDGE IF MOUNTING TO TOWER LEG IS POSSIBLE.
- 7. CONTRACTOR SHALL VERIFY EXISTING GROUNDING BOND TO THE FENCE POST OR EXTERNAL GROUND RING IN AT LEAST (2) PLACES. PROVIDE AND INSTALL GROUNDING CONNECTIONS AS REQUIRED TO MEET THOSE CONDITIONS.



**TYPICAL EQUIPMENT GROUNDING PLAN**

SCALE: 1" = 10'

PLANS PREPARED FOR:



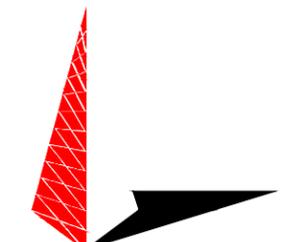
1125 CORPORATE DRIVE  
GREENVILLE, NC 27858  
OFFICE: (252) 439-2000

PROJECT INFORMATION:

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SEAL:



October 8, 2014

0	10-08-14	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: JJM | CHECKED BY: EBM

SHEET TITLE:

**TOWER & EQUIPMENT GROUNDING PLAN**

SHEET NUMBER: REVISION:

**E-2**

**0**

TEP #: 31985\_24983

PLANS PREPARED FOR:



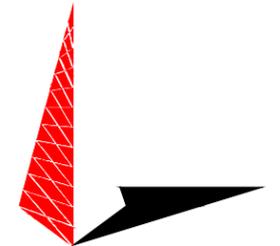
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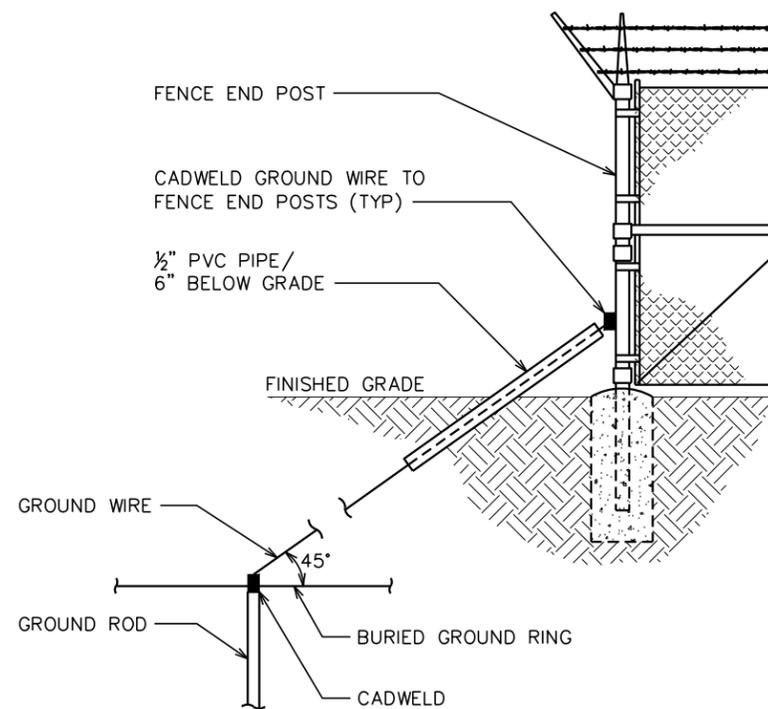
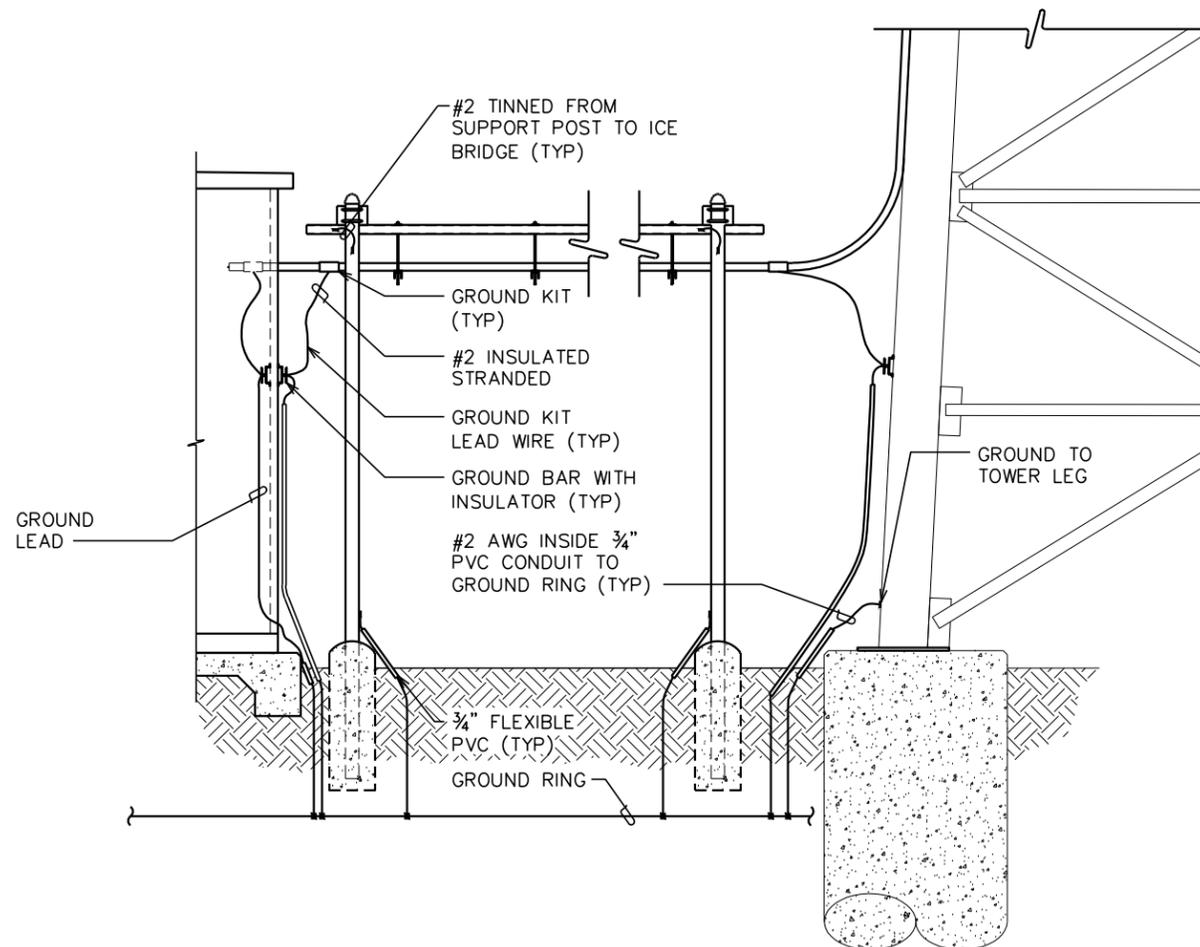
October 8, 2014

0	10-08-14	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: JHB CHECKED BY: JRH

SHEET TITLE:  
**GROUNDING  
DETAILS**

SHEET NUMBER: **E-3** REVISION: **0**  
TEP #: 31985\_24983

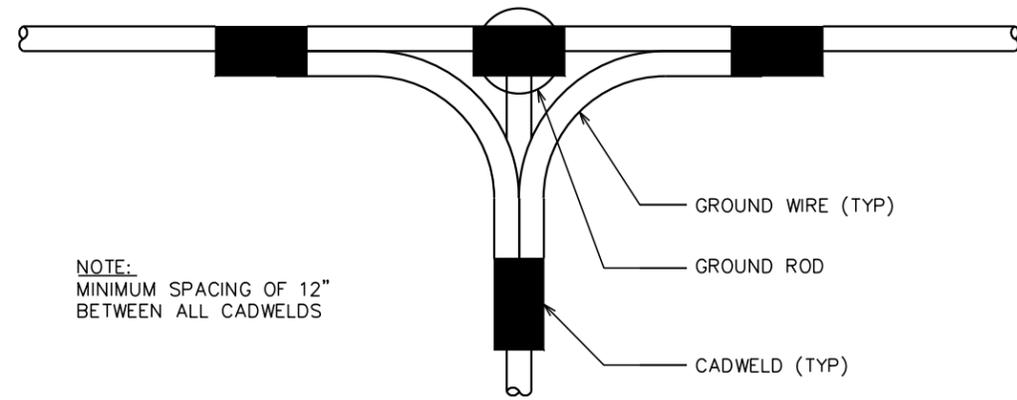


**ICE BRIDGE/COAX/GROUNDING BAR ELEVATION**

SCALE: N.T.S.

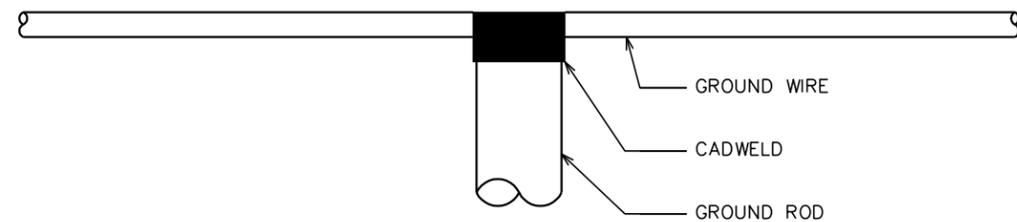
**FENCE GROUNDING DETAIL**

SCALE: N.T.S.

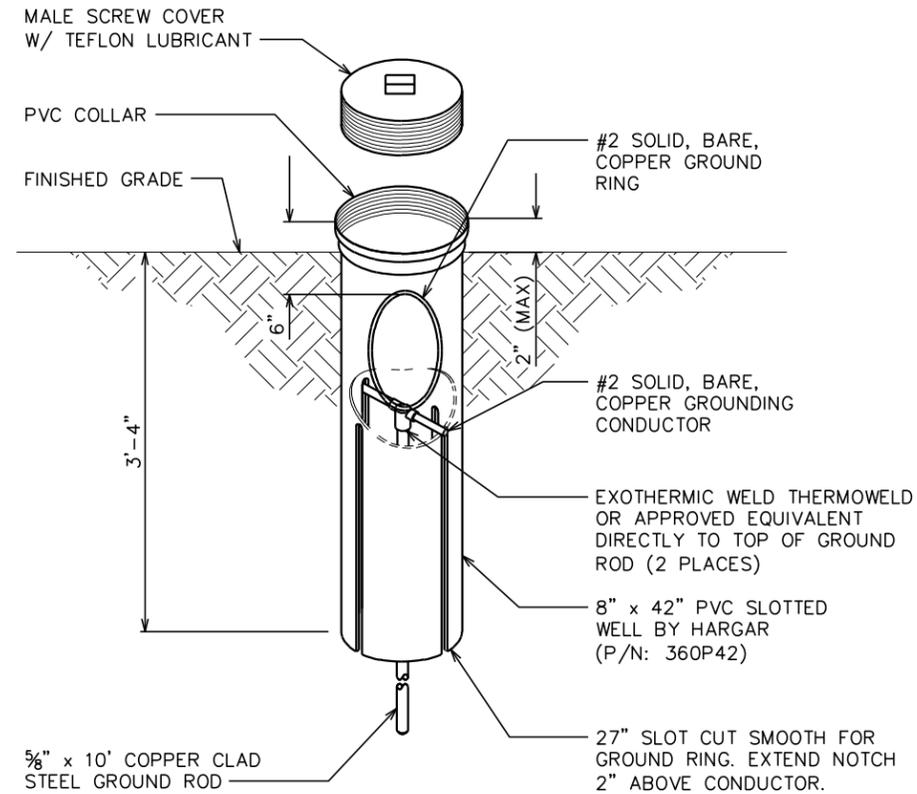


NOTE:  
MINIMUM SPACING OF 12"  
BETWEEN ALL CADWELDS

**TOP VIEW**



**SIDE VIEW**

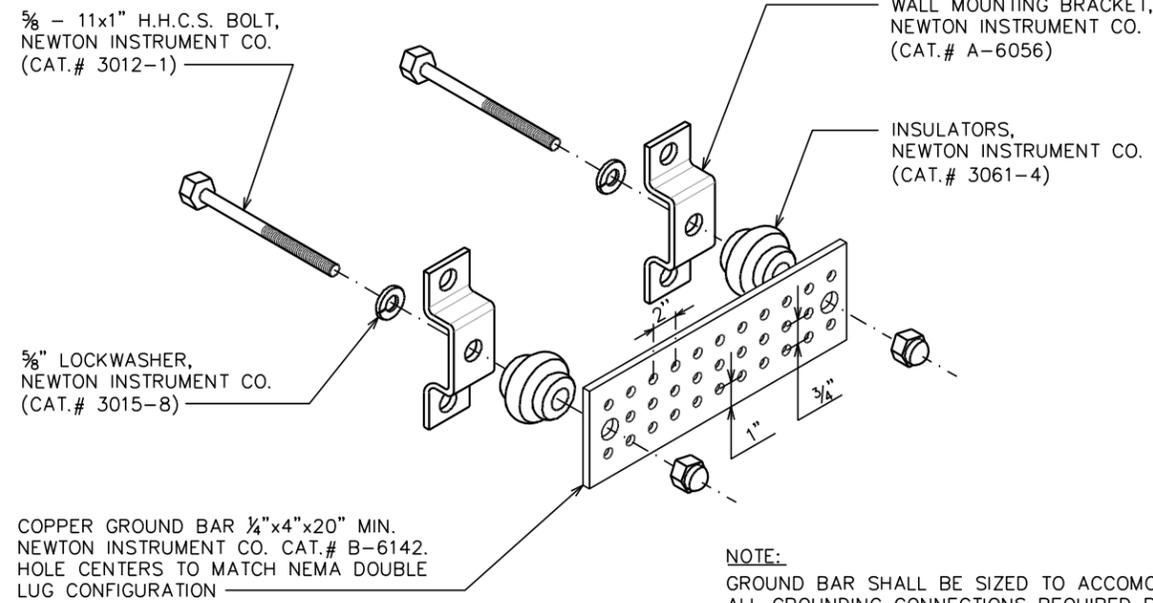


**GROUND ROD WITH INSPECTION WELL**

SCALE: N.T.S.

**CADWELD GROUNDING DETAIL**

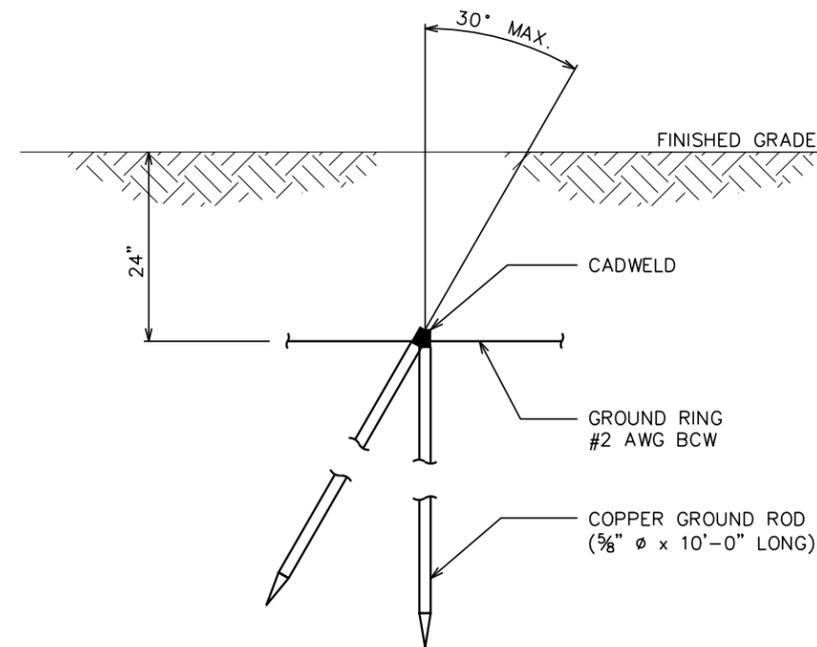
SCALE: N.T.S.



NOTE:  
GROUND BAR SHALL BE SIZED TO ACCOMODATE ALL GROUNDING CONNECTIONS REQUIRED PLUS PROVIDE 50% SPARE CAPACITY.

**STANDARD GROUND BAR DETAIL**

SCALE: N.T.S.



**COPPER-CLAD STEEL GROUND ROD**

SCALE: N.T.S.

PLANS PREPARED FOR:



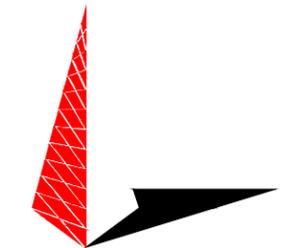
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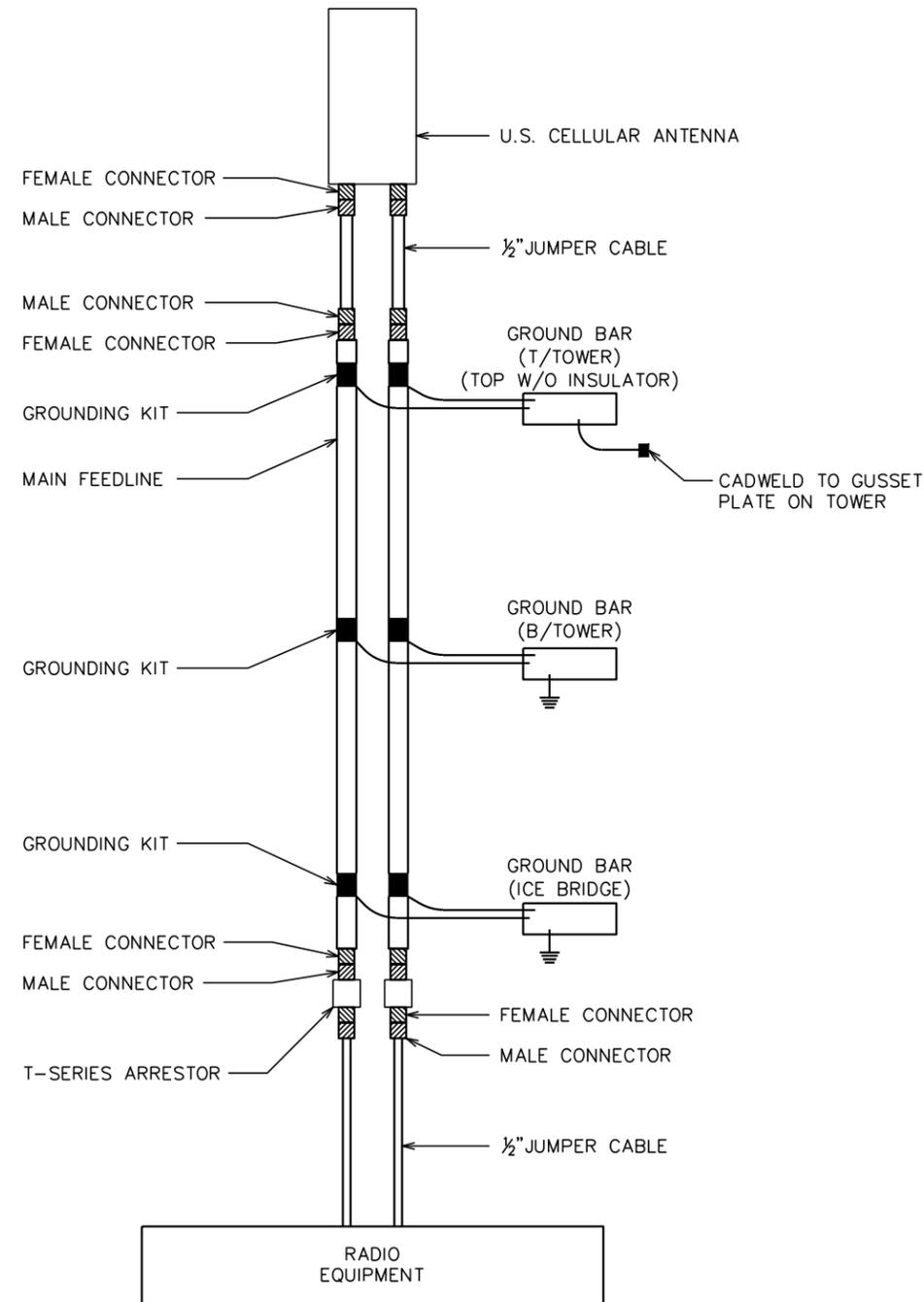


0	10-08-14	CONSTRUCTION
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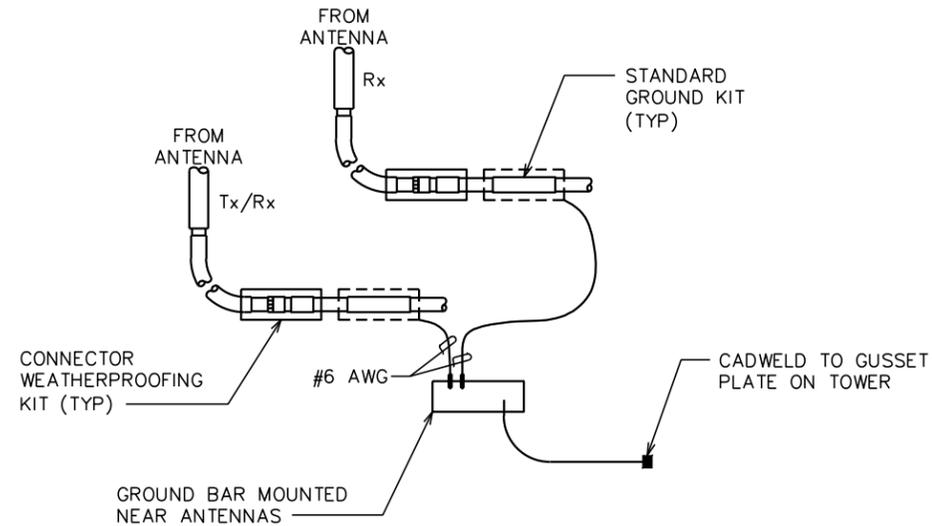
SHEET TITLE:  
**GROUNDING  
DETAILS**

SHEET NUMBER: <b>E-4</b>	REVISION: <b>0</b>
TEP #: 31985_24983	



**ANTENNA CABLE AND GROUNDING SCHEMATIC**

SCALE: N.T.S.

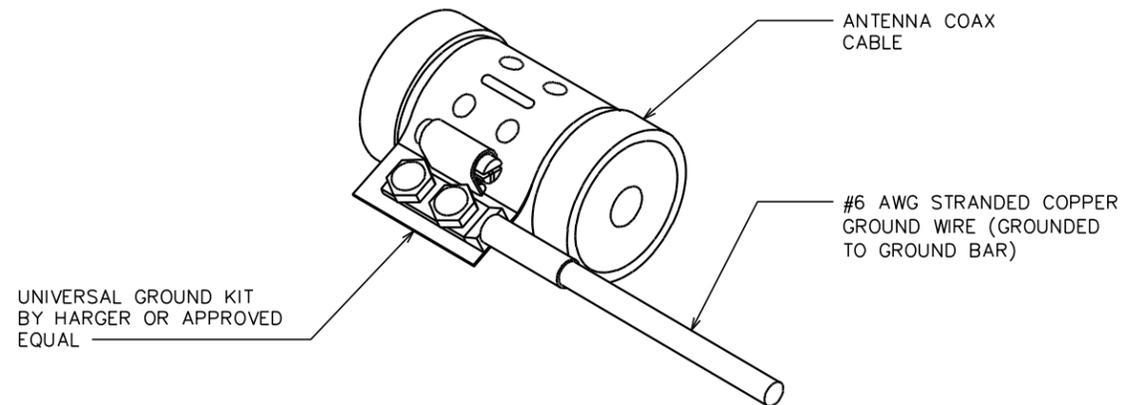


**GROUND WIRE TO GROUND BAR CONNECTION AT ANTENNAS**

SCALE: N.T.S.

**NOTES:**

1. DO NOT INSTALL COAX GROUND KIT AT A BEND.
2. CONTRACTOR TO WEATHERPROOF COAX GROUND.



**CABLE GROUNDING DETAIL**

SCALE: N.T.S.

PLANS PREPARED FOR:



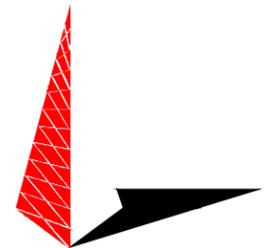
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REV	DATE	ISSUED FOR:

DRAWN BY: JHB | CHECKED BY: JRH

SHEET TITLE:

**GROUNDING  
DETAILS**

SHEET NUMBER: **E-5** | REVISION: **0**

TEP #: 31985\_24983