

January 28, 2016

State of Connecticut Connecticut Siting Council 10 Franklin Square New Britain, CT 06051

RE: Notification of Construction Completion on telecommunication facilities

To whom it may concern:

Sprint hereby acknowledges that the list of attached sites have completed construction per the approval granted on the specified date. For sites with conditions, I have attached proof of compliance documentation for your records. Please advise if further information is needed.

Very truly yours

Florence Nícolas

Florence Nicolas Sprint Network Deployment – Project Manager OFFICIAL NOTICES: Mail documents to: Sprint Property Services Mailstop KSOPHT101-Z2650 6391 Sprint Parkway



EM/TS #	Address	Town	Sprint ID	Decision Date
EM-SPRINT-077-140613	60 Adams Street	Manchester	CT23XC557	07/07/2014
EM-SPRINT-089-140804	1679 Stanley Street	New Britain	CT03XC098	08/22/2014
EM-SPRINT-159-141015	23 Kelleher Court	Wethersfield	CT58XC967	10/31/2014
EM-SPRINT-131-14112	625 Spring Street	Southington	CT03XC087	11/28/2014

Project: Sprint Site CT58XC967 (Wethersfield Colo)

Location: 23 Kelleher Court – Firehouse #3, Wethersfield, CT 06109

Owner: Town of Wethersfield

Owner's Address: Sprint: 1 International Boulevard, Mahwah, NJ 07495 T-Mobile: 35 Griffin Road South, Bloomfield, CT 06002

Structural Engineer of Record: James R. Skowronski Ramaker & Associates 1120 Dallas Street Sauk City, WI 53583

To the best of my information, knowledge and belief, the Special Inspections required for this project, and itemized in the *Statement of Special Inspections* submitted for permit, have been performed and all discovered discrepancies have been reported and resolved.

Comments:

(Attach continuation sheets if required to complete the description of corrections.)

Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report.

Respectfully submitted, Special Inspector

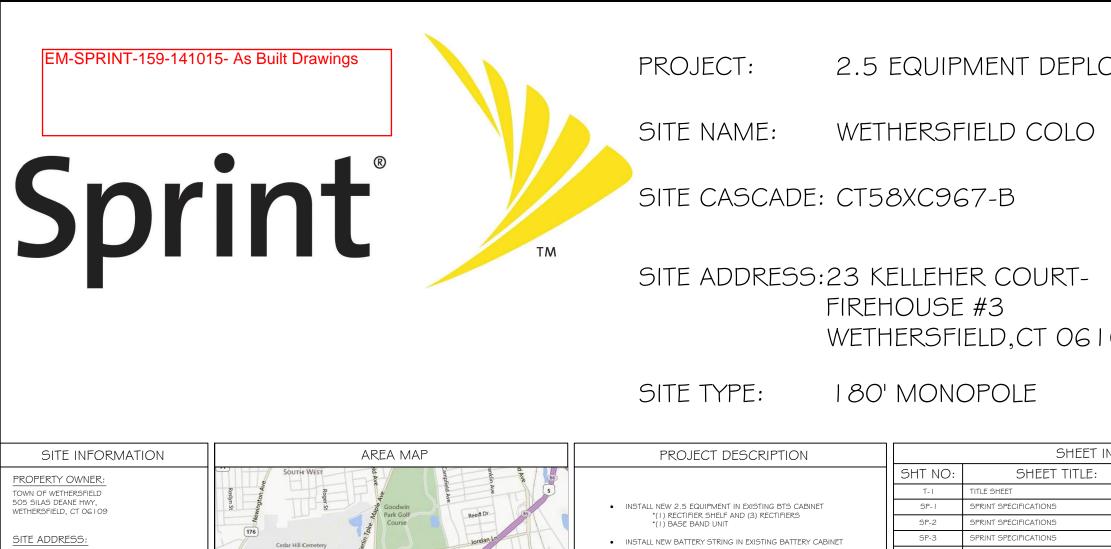
James R. Skowronski P.E. (Type or print name)

man & Showsond

Signature



Date



SITE ADDRESS: 23 KELLEHER COURT-FIREHOUSE #3 WETHERSFIELD, CT OG I 09 HARTFORD COUNTY

GEOGRAPHIC COORDINATES: LATITUDE: 41.715444 LONGITUDE: -72.690556

ZONING JURISDICTION: CONNECTICUT SITING COUNCIL

ZONING DISTRICT:

POWER COMPANY: CONN. LIGHT AND POWER PH.: (800) 286-2000

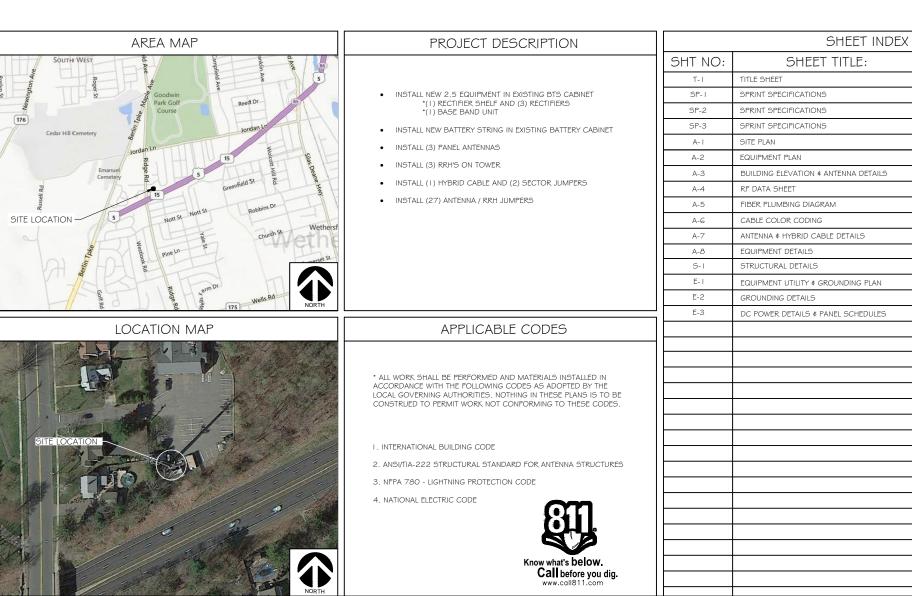
AAV PROVIDER: AT&T PH.: (888) 944-0447

SPRINT CONSTRUCTION MANAGER:

NAME: MIKE DELIA PHONE: (781)316-6348 E-MAIL: michael.delia@sprint.com

EQUIPMENT SUPPLIER: ALCATEL-LUCENT GOO-700 MOUNTAIN AVENUE MURRAY HILL, NJ 07974 PH.: (908) 508-8080

PLANS PREPARED BY: RAMAKER & ASSOCIATES, INC. CONTACT: KEITH BOHNSACK, PROJECT MANAGER PH.: (608) 643-4100 EMAIL: kbohnsack@ramaker.com



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SECTION OI 100 - SCOPE OF WORK

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THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE CONSTRUCTION DRAWINGS AND ASSOCIATED OUTLINE SPECIFICATIONS AND THE SITE SPECIFIC WORK ORDER, DESCRIBE THE WORK TO BE PERFORMED BY THIS CONSTRUCTION CONTRACTOR (SUPPLIER).

- A. THE REQUIREMENTS OF EACH SECTION OF THIS SPECIFICATION APPLY TO ALL SECTIONS, INDIVIDUALLY
- B. RELATED DOCUMENTS: THE CONTRACTOR SHALL COMPLY WITH THE MOST CURRENT VERSION OF THE FOLLOWING SUPPLEMENTAL REQUIREMENTS FOR INSTALLATION AND TESTING I. EN-2012-001: (FIBER OPTIC, DC CABLE, AND DC CIRCUIT BREAKER TAGGING STANDARDS) 2.TS-0200 - (TRANSMISSION ANTENNA LINE ACCEPTANCE STANDARDS)
- 3 EL-0568: (FIBER TESTING POLICY)
- 4.NP-312-201: (EXTERIOR GROUNDING SYSTEM TESTING) 5.NP-760-500: ETHERNET, MICROWAVE, TESTING AND ACCEPTANCE

SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

- NATIONALLY RECOGNIZED CODES AND STANDARDS: THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
- A. GR-G3-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION B. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF
- TELECOMMUNICATIONS EQUIPMENT.
- C. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY -GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT. D. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70
- (NATIONAL ELECTRICAL CODE "NEC") AND NFPA 101 (LIFE SAFETY CODE). E. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
- F. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE) G. AMERICAN CONCRETE INSTITUTE (ACI)
- AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
- CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
- AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
- K. PORTLAND CEMENT ASSOCIATION (PCA)
- NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
- M. BRICK INDUSTRY ASSOCIATION (BIA)
- I. AMERICAN WELDING SOCIETY (AWS)
- O. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
- SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
- Q DOOR AND HARDWARE INSTITUTE (DHI)
- R. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
- S. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

- DEFINITIONS: A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS. B. COMPANY: "SPRINT"; SPRINT NEXTEL CORPORATION AND IT'S OPERATING ENTITIES.
- C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
- D. CONTRACTOR: CONSTRUCTION CONTRACTOR, SUPPLIER, CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
- . THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A≹E OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK
- F. CONSTRUCTION MANAGER ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT.

SITE FAMILIARIT

CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS. FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.

POINT OF CONTACT

COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

DRAWINGS REQUIRED AT JOBSITE

THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

- THE JOBSITE DRAWINGS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS IOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A≰E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS
- B. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED

WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTUITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

CONTRACTOR: CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS: CONTRACTOR WILL UTILIZE ITS BEST EFFORTS TO WORK WITH SPRINT ELECTRONIC PROJECT MANAGEMENT SYSTEMS, CONTRACTOR UNDERSTANDS THAT SUFFICIENT INTERNET ACCESS, EQUIVALENT TO "BROADBAND" OR BETTER, IS REQUIRED TO TIMELY AND EFFECTIVELY UTILIZE SPRINT DATA AND DOCUMENT MANAGEMENT STEMS AND AGREES TO MAINTAIN APPROPRIATE CONNECTIONS FOR CONTRACTOR'S STAFF AND OFFICES THAT ARE COMPATIBLE WITH SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS

TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSOR'S OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

EVISTING CONDITIONS

NOTIFY THE SPRINT CONSTRUCTION MANAGER OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

SECTION OI 200 - COMPANY FURNISHED MATERIAL AND EQUIPMENT

FURNISHED MATERIALS: COMPANY FURNISHED MATERIALS AND EQUIPMENT TO BE INSTALLED BY THE CONTRACTOR (OFIC) IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

RECEIPT OF MATERIAL AND EQUIPMENT: A.THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL

- L ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
- 2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES 3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT
- B.RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.

- C.PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING. D.COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

DELIVERABLES

A.COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE. B.IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

SECTION 01 300 - CELL SITE CONSTRUCTION

A NO WORK SHALL COMMENCE PRIOR TO COMPANYS ISSUANCE OF THE WORK ORDER. B.UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

GENERAL REQUIREMENTS FOR CONSTRUCTION: A.CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

- B.EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS. C.CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION
- I IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY. 2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL
- OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD
- D.CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION

FUNCTIONAL REQUIREMENTS

A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. CONTRACTOR SHALL TAKE ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.

B.SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.

C.MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

5.INSTALL ABOVE GROUND GROUNDING SYSTEMS, CONDUIT AND BOXES 6.PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.

8.INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.

9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.

7.INSTALL "H-FRAMES", CABINETS AND PADS AND PLATFORMS AS INDICATED.

- D.PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: I. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.

 - 2. PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.

 - MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND BACKHAUL (FIBER, COPPER, OR MICROWAVE). 4.INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.

INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.

10 PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS

CONDUCT ALL REQUIRED TESTS AND INSPECTIONS

PROVIDE SLABS AND EQUIPMENT PLATFORMS.

11.

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17.

REQUIRED

AND LANDLORDS.

NOT LIMITED TO THE FOLLOWING

4 ALL REQUIRED TEST REPORTS

. FINAL PAYMENT APPLICATION

h. LISTS OF SUBCONTRACTORS

3. PRE-CONSTRUCTION MEETING NOTES

2. PROJECT PROGRESS REPORTS

F. REQUIRED FINAL CONSTRUCTION PHOTOS

d.LIEN WAIVERS

CLOSEOUT

TESTS AND INSPECTIONS

STANDARDS

3. CONCRETE BREAK TESTS

4. SITE RESISTANCE TO EARTH TEST 5. STRUCTURAL BACKFILL COMPACTION TESTS

CHEMICAL GROUNDING SYSTEM

STRUCTURAL BACKFILL TEST RESULTS

AASJTO, AND OTHER METHODS IS NEEDED. B.REQUIRED THIRD PARTY TESTS:

SITE RESISTANCE TO EARTH TEST PER NP-312-201

COAX SWEEP TESTS PER SPRINT STANDARD TS-0200 2 FIBER TESTS PER SPRINT STANDARD FL-0568

REBAR PLACEMENT VERIFICATION WITH REPORT TESTING TENSION STUDY FOR ROCK ANCHORS

MICROWAVE LINK TESTS PER NP-760-500

INSTALLATION SPECIFICATION HEREIN

8 POST CONSTRUCTION HEIGHT VERIFICATION

ANTENNA AZIMUTH AND DOWN-TILT VERIFICATION

4 REINFORCEMENT CERTIFICATIONS

6. SWEEP AND FIBER TESTS

TESTING BY THIRD PARTY AGENCY

STANDARDS

C.REQUIRED TESTS BY CONTRACTOR

DOCUMENTATION

SPECIFICATIONS

INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS

INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.

19. PERFORM, DOCUMENT, AND CLOSE OUT ALL JURISDICTIONAL PERMITTING REQUIREMENTS AND ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES

20. PERFORM ALL ADDITIONAL WORK AS IDENTIFIED IN SCOPE OF SERVICES ATTACHED TO THE SUPPLIER AGREEMENT FOR THIS PROJECT. THIS WORK MAY INCLUDE COMMISSIONING INTEGRATION, SPECIAL WAREHOUSING, REVERSE LOGISTICS ACTIVITIES, ETC. PERFORM COMMISSIONING AND INTEGRATION ACTIVITIES PER APPLICABLE MOPS

DELIVERABLES: A. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED TEST REPORTS AND DOCUMENTATION INCLUDED BUT

I PRODUCT SPECIFICATIONS FOR MATERIALS OR SPECIAL CONSTRUCTION IF REQUESTED BY SPRINT 2. ACTUALIZE ALL CONSTRUCTION RELATED MILESTONES IN SITERRA AND COMPLETE ALL ON-LINE FORMS AND COMPLETE DOCUMENT UP-LOADS. UPLOAD ALL REQUIRED CLOSEOUT DOCUMENTS AND FINAL

3. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT LEFT ON SITE INSIDE BASE OF MAIN RF CABINET IN A PROTECTIVE POUCH.

5. REQUIRED CLOSEOUT DOCUMENTATION INCLUDING BUT NOT LIMITED TO: a. ALL JURISDICTIONAL PERMITTING AND OCCUPANCY INFORMATION b. PDF SCAN OF REDLINES PRODUCED IN THE FIELD

c. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS

CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS

B.PROVIDE ADDITIONAL DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.

SECTION OI 400 - TESTS, INSPECTIONS, SUBMITTALS, AND PROJECT

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT

B.CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING 1. COAX SWEEPS AND FIBER TESTS PER TS-0200 (CURRENT VERSION) ANTENNA LINE ACCEPTANCE

2. POST CONSTRUCTION HEIGHT VERIFICATION, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.

C. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING. 7. ADDITIONAL TESTING AS REQUIRED ELSEWHERE IN THIS SPECIFICATION.

A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE

B.UPLOAD THE FOLLOWING TO SITERRA AS APPLICABLE INCLUDING BUT NOT LIMITED TO THE FOLLOWING: CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
CONCRETE BREAK TESTS AS SPECIFIED HEREIN.

ADDITIONAL SUBMITTALS MAY BE REQUIRED FOR SPECIAL CONSTRUCTION OR MINOR MATERIALS C.ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

A.EMPLOY AN AGENCY OF ENGINEERS AND SCIENTISTS WHO IS REGULARLY ENGAGED IN FIELD AND LABORATORY TESTING AND ANALYSIS. AGENCY SHALL HAVE BEEN IN BUSINESS A MINIMUM OF FIVE YEARS, AND BE LICENSED AS PROFESSIONAL ENGINEERS IN THE STATE WHERE THE PROJECT IS LOCATED.

AGENCY IS SUBJECT TO APPROVAL BY COMPANY. I. AGENCY MUST HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS. 2. AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE,

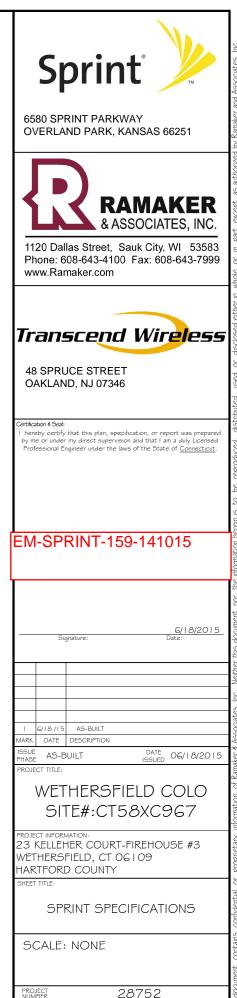
EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES. 3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM,

2. CONCRETE CYLINDER BREAK TESTS FOR TOWER PIER AND ANCHORS PER NATIONALLY RECOGNIZED

3. STRUCTURAL SOILS COMPACTION TESTS PER NATIONALLY RECOGNIZED STANDARDS

ALL THIRD PARTY TESTS AS REQUIRED BY LOCAL JURISDICTION

4. ANTENNA AZIMUTHS AND DOWN TILT USING ELECTRONIC ALIGNMENT TOOL PER ANTENNA



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- POST CONSTRUCTION HEIGHT VERIFICATION AS REQUIRED HEREWITH IN THE TOWER INSTALLATION SPECIFICATIONS
 - ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY
- TESTING AS SPECIFIED HEREWITH IN THE ASPHALT PAVING SPECIFICATIONS FIELD QUALITY CONTROL TESTING AS SPECIFIED HEREWITH IN THE CONCRETE PAVING
- SPECIFICATIONS
- TESTING REQUIRED HEREWITH UNDER SPECIFICATIONS FOR AGGREGATE BASE FOR ROADWAYS
- 9. ALL OTHER TESTS REQUIRED BY LOCAL JURISDICTION D.INSPECTIONS BY COMPANY: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN INSPECTION ACTIVITIES, FINAL ACCEPTANCE / PUNCH WALK REVIEW, AND/OR AS A RESULT OF TESTING
- F SPRINT RESERVES THE RIGHT TO INSPECT THE CONSTRUCTION SITE AT ANY TIME VIA SITE WALKS AND/OR PHOTO REVIEWS. CONTRACTOR SHALL GIVE SPRINT 24 HOURS NOTICE PRIOR TO THE COMMENCEMENT
- OF THE FOLLOWING CONSTRUCTION ACTIVITIES AND PHOTOGRAPHS OF THE IN-PROGRESS WORK. I. GROUNDING SYSTEM AND BURIED UTILITIES INSTALLATION PRIOR TO EARTH CONCEALMENT
- DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A E OR SPRINT REPRESENTATIVE
- FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A4E OR SPRINT REPRESENTATIVE. COMPACTION OF BACKFUL MATERIALS AGGREGATE BASE FOR ROADS PADS AND ANCHORS
- ASPHALT PAVING, AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
- PRE AND POST CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES. PRIOR TO CONSTRUCTION ACTIVITIES AND AFTER CONSTRUCTION IS COMPLETE, PROVIDE PHOTOGRAPHIC DOCUMENTATION OF ROOF, FLASHINGS, AND PARAPETS, BOTH BEFORE AND AFTER. CONSTRUCTION IS COMPLETE
- TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL HOTOGRAPHS BY THIRD PARTY AGENCY.
- 6 TOWER TOP AND INACCESSIBLE EQUIPMENT (RRUS, ANTENNAS, AND CABLING): PROVIDE PHOTOS OF THE BACKS OF ALL ANTENNAS, RRUS, COMBINERS, FILTERS, FIBER AND DC CABLING, CABLE COLOR CODING, EQUIPMENT GROUNDING AND CONNECTOR WATER PROOFING INCLUDING NAME PLATE AND SERIAL NUMBER FOR ALL SERIALIZED EQUIPMENT.

OJECT CLOSEOUT

A.FINAL ACCEPTANCE PUNCH WALK AND INSPECTION: AS IDENTIFIED IN THE SCOPE OF SERVICES, SPRINT WILL CONDUCT A FINAL PUNCH WALK OR FINAL DESK TOP PHOTO REVIEW (SITE MODIFICATIONS). PUNCI WALKS MUST BE SCHEDULED IN ADVANCE AS REQUIRED. AT THE PUNCH WALK / REVIEW. SPRINT MAY IDENTIFY CRITICAL DEFICIENCIES WHICH MUST BE CORRECTED PRIOR TO PUTTING SITE ON AIR. MINOR DEFICIENCIES MUST BE CORRECTED WITHIN 30 DAYS EXCEPT AS OTHERWISE REQUIRED. VERIFICATIONS OF CORRECTIONS MAY BE MADE BY COMPANY DURING A REPEAT SITE WALK OR DESK TOP PHOTO REVIEW AT COMPANYS SOLE DISCRETION. B.CLOSEOUT DOCUMENTATION: ALL CLOSEOUT DOCUMENTATION AND PHOTOGRAPHS SHALL BE UPLOADED

- PRIOR TO FINAL ACCEPTANCE. SPRINT WILL REVIEW CLOSEOUT DOCUMENTATION FOR PRESENCE AND CONTENT. CLOSEOUT DOCUMENTATION SHALL INCLUDE BUT IS NOT LIMITED TO THE FOLLOWING AS
- APPLICABLE:
- COAX SWEEP TESTS:
- FIBER TESTS: JURISDICTION FINAL INSPECTION DOCUMENTATION
- REINFORCEMENT CERTIFICATION (MILL CERTIFICATION) CONCRETE MIX DESIGN AND PRODUCT DATA (TOWER FOUNDATION)
- LIEN WAIVERS AND RELEASES. POST -CONSTRUCTION HEIGHT VERIFICATION
- JURISDICTION CERTIFICATE OF OCCUPANCY ELECTRONIC ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
- STRUCTURAL BACKFILL TEST RESULTS (IF APPLICABLE)
- CELL SITE UTILITY SETUP
- AS-BUILT REDLINE CONSTRUCTION DRAWINGS (PDF SCAN OF FIELD MARKS)
- 13. AS-BUILT CONSTRUCTION DRAWINGS IN DWG AND PDF FORMATS
- 14. LIST OF SUB CONTRACTORS 1.5. APPROVED PERMITTING DOCUMENTS
- I G. FINAL SITE PHOTOS UP-LOADED TO SITERRA. INCLUDE THE FOLLOWING AS APPLICABLE a, TOWER, ANTENNAS, RRUS, AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING PHOTOS OF TOWER COAX/CABLE LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET .; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR, PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA. PHOTOS OF COAN WEATHERPROOFING - TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
- b. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
- c. SITE LAYOUT PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS. A FINISHED FUTURE CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE
- POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.

PROJECT PHOTOGRAPHS

A.PROVIDE PROJECT CLOSEOUT GENERAL ARRANGEMENT PHOTOS OF ALL NEW WORK. THE FOLLOWING LIST REPRESENTS MINIMUM REQUIREMENTS AND MINIMUM QUANTITY. ADDITIONAL PHOTOS MAY BE REQUIRED TO ADEQUATELY DOCUMENT THE WORK.

- ASR AND RF MPE SIGNAGE (IF NOT IN PLACE, SUPPLIER NOTIFIES EMS FIELD REPRESENTATIVE)
- BACK OF ANTENNAS AND RRUS (I EACH SECTOR) BACK OF ANTENNAS AND RRUS (I EACH SECTOR) GROUNDING (AS REQUIRED). CLOSE-UP OF BACK SIDE OF EACH PERMANENT RRU SHOWING SERIAL NUMBER/BAR CODE
- VIEW (I EACH SECTOR) ALONG THE AZIMUTH AND TILT OF THE ANTENNAS
- TOP OF TOWER FROM GROUND, I EACH SECTOR MAINLINE HYBRID CABLE ROUTE DOWN TOWER SHOWING FASTENERS AND SUPPORT
- MAINLINE/HYBRID CABLE ROUTE ALONG ICE BRIDGE OR IN CABLE TRAY SHOWING FASTENERS AND SUPPORT
- GROUND MOUNTED RELL RACKS (FRONT AND BACK)
- FRONT, SIDE AND BACK ELEVATIONS OF ALL GROUND CABINETS
- 1.0 VIEW OF COMPOUND FROM A DISTANCE
- 11. VIEW OF EACH GROUND CABINET (POWER, RF, FIBER SPOOL, PPC POWER, PPC TELCO WITH DOOR OPENI)
- 12. BACKHAUL FIBER MEET-ME-POINT AND CONDUIT ROUTE (MICROWAVE INSTALLATION IF NOT FIBER) 13. AAV NETWORK INTERFACE DEVICE OR MICROWAVE RADIO INSTALLATION

CONTRACTOR IS RESPONSIBLE FOR ALL CORRECTIONS TO DEFICIENCIES IDENTIFIED THROUGH TESTING, REVIEW OF SUBMITTALS, INSPECTIONS AND CLOSEOUT REVIEWS.

SECTION 01 500 - PROJECT REPORTING

A CONTRACTOR SHALL REPORT TO SPRINT AT MINIMUM ON A WEEKLY BASIS VIA SITERRA BY UPDATING ALL APPLICABLE POST END KEEPING MILESTONES WITH ACTUAL AND FORECASTED COMPLETION DATES. B.ADDITIONAL REQUIREMENTS FOR REPORTING MAY BE IDENTIFIED ELSEWHERE OR REQUIRED BY THE SCOPE OF SERVICES OR SPRINTS LOCAL MARKET CONSTRUCTION MANAGER. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

PROJECT CONFERENCE CALL

SPRINT MAY HOLD PERIODIC PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.

FINAL PROJECT ACCEPTANCE: PRIOR TO SPRINTS FINAL PROJECT ACCEPTANCE. ALL REQUIRED MILESTONE ACTUALS MUST BE UPDATED IN SITERRA AND ALL REQUIRED REPORTING TASKS MUST BE COMPLETE.

SECTION 11 700 - ANTENNA ASSEMBLY, REMOTE RADIO UNITS AND CABLE INSTALLATION

THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRU'S, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL FIBER CABLE.

ANTENNAS AND RRUS

THE NUMBER AND TYPE OF ANTENNAS AND RRU'S TO BE INSTALLED IS DETAILED ON THE CONSTRUCTION DRAWINGS.

HYBRID CABLE WILL BE DC/FIBER AND FURNISHED FOR INSTALLATION AT EACH SITE. CABLE SHALL BE INSTALLED PER THE CONSTRUCTION DRAWINGS AND THE APPLICABLE MANUFACTURER'S REQUIREMENTS

JUMPERS AND CONNECTORS: FURNISH AND INSTALL 1/2" COAX JUMPER CABLES BETWEEN THE RRU'S AND ANTENNAS, JUMPERS SHALL BE TYPE LDF 4, FLC 12-50, CR 540, OR FXL 540. SUPER-FLEX CABLES ARE NOT ACCEPTABLE. JUMPERS BETWEEN THE RRU'S AND ANTENNAS OR TOWER TOP AMPLIFIERS SHALL CONSIST OF 1/2 INCH FOAM DIELECTRIC, OUTDOOR RATED COAXIAL CABLE, MIN. LENGTH FOR JUMPER SHALL BE I O"-O".

REMOTE ELECTRICAL TILT (RET) CABLES:

MISCELLANEOUS

INSTALL SPLITTERS, COMBINERS, FILTERS PER RF DATA SHEET, FURNISHED BY SPRINT.

NTENNA INSTALLATION

THE CONTRACTOR SHALL ASSEMBLE ALL ANTENNAS ONSITE IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED BY THE MANUFACTURER. ANTENNA HEIGHT, AZIMUTH, AND FEED ORIENTATION INFORMATION SHALL BE A DESIGNATED ON THE CONSTRUCTION DRAWINGS.

A. THE CONTRACTOR SHALL POSITION THE ANTENNA ON TOWER PIPE MOUNTS SO THAT THE BOTTOM STRUT IS LEVEL. THE PIPE MOUNTS SHALL BE PLUMB TO WITHIN I DEGREE.

B.ANTENNA MOUNTING REQUIREMENTS: PROVIDE ANTENNA MOUNTING HARDWARE AS INDICATED ON THE DRAWINGS

HYBRID CABLE INSTALLATION:

- A. THE CONTRACTOR SHALL ROUTE, TEST, AND INSTALL ALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS
- B THE INSTALLED RADIUS OF THE CABLES SHALL NOT BE LESS THAN THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADII.
- C.EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.
- I. FASTENING MAIN HYBRID CABLES: ALL CABLES SHALL BE INSTALLED INSIDE MONOPOLE WITH CABLE SUPPORT GRIPS AS REQUIRED BY THE MANUFACTURER.
- 2. FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA), WITHIN THE MMBS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES:
 - a. FIBER: SUPPORT FIBER BUNDLES USING 1/2" VELCRO STRAPS OF THE REQUIRED LENGTH AT 18" O.C. STRAPS SHALL BE UV, OIL AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TEXTOL OR APPROVED EQUAL.
 - b. DC: SUPPORT DC BUNDLES WITH ZIP TIES OF THE ADEQUATE LENGTH. ZIP TIES TO BE UV STABILIZED, BLACK NYLON, WITH TENSILE STRENGTH AT 12,000 PSI AS MANUFACTURED BY NELCO PRODUCTS OR EQUAL.
- 3. FASTENING JUMPERS: SECURE JUMPERS TO THE SIDE ARMS OR HEAD FRAMES USING STAINLESS STEEL TIE WRAPS OR STAINLESS STEEL BUTTERFLY CLIPS.
- 4. CABLE INSTALLATION
 - a. INSPECT CABLE PRIOR TO USE FOR SHIPPING DAMAGE, NOTIFY THE CONSTRUCTION MANAGER
 - b. CABLE ROUTING: CABLE INSTALLATION SHALL BE PLANNED TO ENSURE THAT THE LINES MILL BE PROPERLY ROUTED IN THE CABLE ENVELOP AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSOVERS.
 - c. HOIST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM BEND RADIUS
- 5. GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDED AS INDICATED ON DRAWINGS
- 6. HYBRID CABLE COLOR CODING: ALL COLOR CODING SHALL BE AS REQUIRED IN TS 0200 (CURRENT
- 7. HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA-NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1

WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:

- B. WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES
- COLD SHRINK: ENCOMPASS CONNECTOR IN COLD SHRINK TUBING AND PROVIDE A DOUBLE WRAP OF " ELECTRICAL TAPE EXTENDING 2" BEYOND TUBING. PROVIDE 3M COLD SHRINK CXS SERIES OR EQUAL
- 2. SELF-AMALGAMATING TAPE: CLEAN SURFACES, APPLY A DOUBLE WRAP OF SELF-AMALGAMATING TAPE 2" BEYOND CONNECTOR. APPLY A SECOND WRAP OF SELF-AMALGAMATING TAPE IN OPPOSITE DIRECTION. APPLY DOUBLE WRAP OF 2" WIDE ELECTRICAL TAPE EXTENDING 2" BEYOND THE SELE-AMALGAMATING TAPE
- 3. 3M SLIM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
- 4. OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE

SECTION 1 1 800 - INSTALLATION OF MULTIMODAL BASE STATIONS (MMBS) AND RELATED EQUIPMENT

SUMMARY

DC CIRCUIT BREAKER LABELING

SERVICED.

QUALITY ASSURANCE:

AND FREE FROM DEFECTS.

PROVIDE PRODUCTS BY THE FOLLOWING:

3. UNISTRUT DIVERSIFIED PRODUCTS.

3. FASTEN BY MEANS OF WOOD SCREWS ON WOOD

4. TOGGLE BOLTS ON HOLLOW MASONRY UNITS.

I. ALLIED TUBE AND CONDUIT.

SUPPORTING DEVICES

2. B-LINE SYSTEM.

4. THOMAS ∉ BETTS

SERVICE

- A. THIS SECTION SPECIFIES MMBS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI)
- B.CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRED BY THE APPLICABLE INSTALLATION MOPS.

LABELS AND LISTINGS ARE AVAILABLE IN THE INDUSTRY.

A.ALL FIBER & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED

C.COMPLY WITH MANUFACTURER'S INSTALLATION AND START-UP REQUIREMENTS.

A.NEW DC CIRCUIT IS REQUIRED IN MMBS CABINET SHALL BE CLEARLY IDENTIFIED AS TO RRU BEING

SECTION 26 100 - BASIC ELECTRICAL REQUIREMENTS

SUMMARY: THIS SECTION SPECIFIES BASIC ELECTRICAL REQUIREMENTS FOR SYSTEMS AND COMPONENTS

A.ALL EQUIPMENT FURNISHED UNDER DIVISION 26 SHALL CARRY UL LABELS AND LISTINGS WHERE SUCH

B.MANUFACTURERS OF EQUIPMENT SHALL HAVE A MINIMUM OF THREE YEARS EXPERIENCE WITH THEIR EQUIPMENT INSTALLED AND OPERATING IN THE FIELD IN A USE SIMILAR TO THE PROPOSED USE FOR THIS

C.MATERIALS AND EQUIPMENT: ALL MATERIALS AND EQUIPMENT SPECIFIED IN DIVISION 26 OF THE SAME TYPE SHALL BE OF THE SAME MANUFACTURER AND SHALL BE NEW, OF THE BEST QUALITY AND DESIGN,

A.MANUFACTURED STRUCTURAL SUPPORT MATERIALS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS,

B.FASTENERS: TYPES, MATERIALS, AND CONSTRUCTION FEATURES AS FOLLOWS

I. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.

2. POWER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED

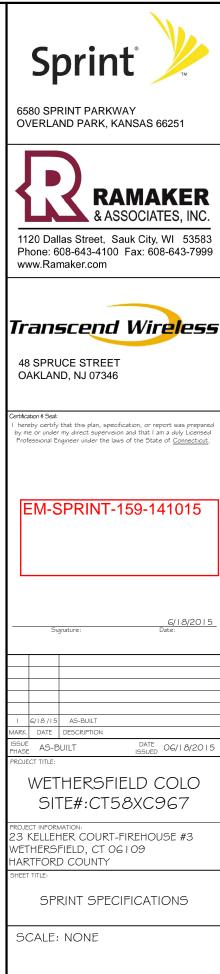
5. CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR SOLID MASONRY.

6. MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING-TENSION CLAMPS ON STEEL

7. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE SHALL NOT BE PERMITTED

8. DO NOT WELD CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED STUDS TO STEEL

9. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS.



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SUPPORTING DEVICES:

- A. INSTALL SUPPORTING DEVICES TO FASTEN ELECTRICAL COMPONENTS SECURELY AND PERMANENTLY IN ACCORDANCE WITH NEC.
- B. COORDINATE WITH THE BUILDING STRUCTURAL SYSTEM AND WITH OTHER TRADES.
- C. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTING HARDWARE SECURELY TO THE STRUCTURE IN ACCORDANCE WITH THE FOLLOWING:
- 1. ENSURE THAT THE LOAD APPLIED BY ANY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD.
- 2. USE VIBRATION AND SHOCK-RESISTANT FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS.

ELECTRICAL IDENTIFICATION:

- A. UPDATE AND PROVIDE TYPED CIRCUIT BREAKER SCHEDULES IN THE MOUNTING BRACKET, INSIDE DOORS OF AC PANEL BOARDS WITH ANY CHANGES MADE TO THE AC SYSTEM.
- B. BRANCH CIRCUITS FEEDING AVIATION OBSTRUCTION LIGHTING EQUIPMENT SHALL BE CLEARLY IDENTIFIED AS SUCH AT THE BRANCH CIRCUIT PANELBOARD.

SECTION 26 200 - ELECTRICAL MATERIALS AND EQUIPMENT

- A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND FOR UNDERGROUND RUNS. RIGID CONDUIT AND FITTINGS SHALL BE STEEL, COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZING PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C&O.1, FEDERAL SPECIFICATION WW-C-581 AND SHALL BE LISTED WITH THE UNDERWRITERS' LABORATORIES. FITTINGS SHALL BE THREADED - SET SCREW OR COMPRESSION FITTINGS WILL NOT BE ACCEPTABLE. RGS CONDUITS SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND.
- B. UNDERGROUND CONDUIT IN CONCRETE SHALL BE POLYVINYLCHLORIDE (PVC) SUITABLE FOR DIRECT BURIAL AS APPLICABLE. JOINTS SHALL BE BELLED, AND FLUSH SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE CARLON ELECTRICAL PRODUCTS OR APPROVED EQUAL.
- C. TRANSITIONS BETWEEN PVC AND RIGID (RGS) SHALL BE MADE WITH PVC COATED METALLIC LONG SWEEP RADIUS ELBOWS.
- D. EMT OR RIGID GALVANIZED STEEL CONDUIT MAY BE USED IN FINISHED SPACES CONCEALED IN WALLS AND CEILINGS. EMT SHALL BE MILD STEEL, ELECTRICALLY WELDED, ELECTRO-GALVANIZED OR HOT-DIPPED GALVANIZED AND PRODUCED TO ANSI SPECIFICATION C&O.3, FEDERAL SPECIFICATION WW-C-563, AND SHALL BE UL LISTED. EMT SHALL BE MANUFACTURED BY ALLED, REPUBLIC OR WHEATLAND, OR APPROVED EQUAL. FITTINGS SHALL BE METALLIC COMPRESSION. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE.
- E. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR FINAL CONNECTION TO EQUIPMENT. FITTINGS SHALL BE METALLIC GLAND TYPE COMPRESSION FITTINGS, MAINTAINING THE INTEGRITY OF CONDUIT SYSTEM. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED G-FEET. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRED BY NEC. MANUFACTURERS OF FLEXIBLE CONDUITS SHALL BE CAROL, ANACONDA METAL HOSE OR UNIVERSAL METAL HOSE, OR APPROVED EQUAL.
- F. MINIMUM SIZE CONDUIT SHALL BE 3/4 INCH (2 I MM).

HUBS AND BOXES:

- A. AT ENTRANCES TO CABINETS OR OTHER EQUIPMENT NOT HAVING INTEGRAL THREADED HUBS PROVIDE METALLIC THREADED HUBS OF THE SIZE AND CONFIGURATION REQUIRED. HUB SHALL INCLUDE LOCKNUT AND NEOPRENE O-RING SEAL. PROVIDE IMPACT RESISTANT 105 DEGREE C PLASTIC BUSHINGS TO PROTECT CABLE INSULATION.
- B. CABLE TERMINATION FITTINGS FOR CONDUIT
- 1. CABLE TERMINATORS FOR RGS CONDUITS SHALL BE TYPE CRC BY O-Z/GEDNEY OR EQUAL BY ROXTEC.
- 2. CABLE TERMINATORS FOR LFMC SHALL BE ETCO CL2075; OR MADE FOR THE PURPOSE PRODUCTS BY ROXTEC.
- C. EXTERIOR PULL BOXES AND PULL BOXES IN INTERIOR INDUSTRIAL AREAS SHALL BE PLATED CAST ALLOY, HEAVY DUTY, WEATHERPROOF, DUST PROOF, WITH GASKET, PLATED IRON ALLOY COVER AND STAINLESS STEEL COVER SCREWS, CROUSE-HINDS WAB SERIES OR EQUAL.
- D. CONDUIT OUTLET BODIES SHALL BE PLATED CAST ALLOY WITH SIMILAR GASKET COVERS, OUTLET BODIES SHALL BE OF THE CONFIGURATION AND SIZE SUITABLE FOR THE APPLICATION. PROVIDE CROUSE-HINDS FORM 8 OR EQUAL.
- E. MANUFACTURER FOR BOXES AND COVERS SHALL BE HOFFMAN, SQUARE "D", CROUSE-HINDS, COOPER, ADALET, APPLETON, O-Z GEDNEY, RACO, OR APPROVED EQUAL.

SUPPLEMENTAL GROUNDING SYSTEM:

- A. FURNISH AND INSTALL A SUPPLEMENTAL GROUNDING SYSTEM TO THE EXTENT INDICATED ON THE DRAWINGS. SUPPORT SYSTEM WITH NON-MAGNETIC STAINLESS STEEL CUPS WITH RUBBER GROMMETS. GROUNDING CONNECTORS SHALL BE TINNED COPPER WIRE, SIZES AS INDICATED ON THE DRAWINGS. PROVIDE STRANDED OR SOLID BARE OR INSULATED CONDUCTORS EXCEPT AS OTHERWISE NOTED.
- B. SUPPLEMENTAL GROUNDING SYSTEM: ALL CONNECTIONS TO BE MADE WITH CAD WELDS, EXCEPT AT EQUIPMENT USE LUGS OR OTHER AVAILABLE GROUNDING MEANS AS REQUIRED BY MANUFACTURER; AT GROUND BARS USE TWO HOLE SPADES WITH NO-OX.
- C. STOLEN GROUND-BARS: IN THE EVENT OF STOLEN GROUND BARS, CONTACT SPRINT CM FOR REPLACEMENT INSTRUCTION USING THREADED ROD KITS.

EXISTING STRUCTURE:

A. EXISTING EXPOSED WIRING AND ALL EXPOSED OUTLETS, RECEPTACLES, SWITCHES, DEVICES, BOXES, AND OTHER EQUIPMENT THAT ARE NOT TO BE UTILIZED IN THE COMPLETED PROJECT SHALL BE REMOVED OR DE-ENRERGIZED AND CAPPED IN THE WALL, CEILING, OR FLOOR SO THAT THEY ARE CONCEALED AND SAFE. WALL, CEILING, OR FLOOR SHALL BE PATCHED TO MATCH THE ADJACENT CONSTRUCTION.

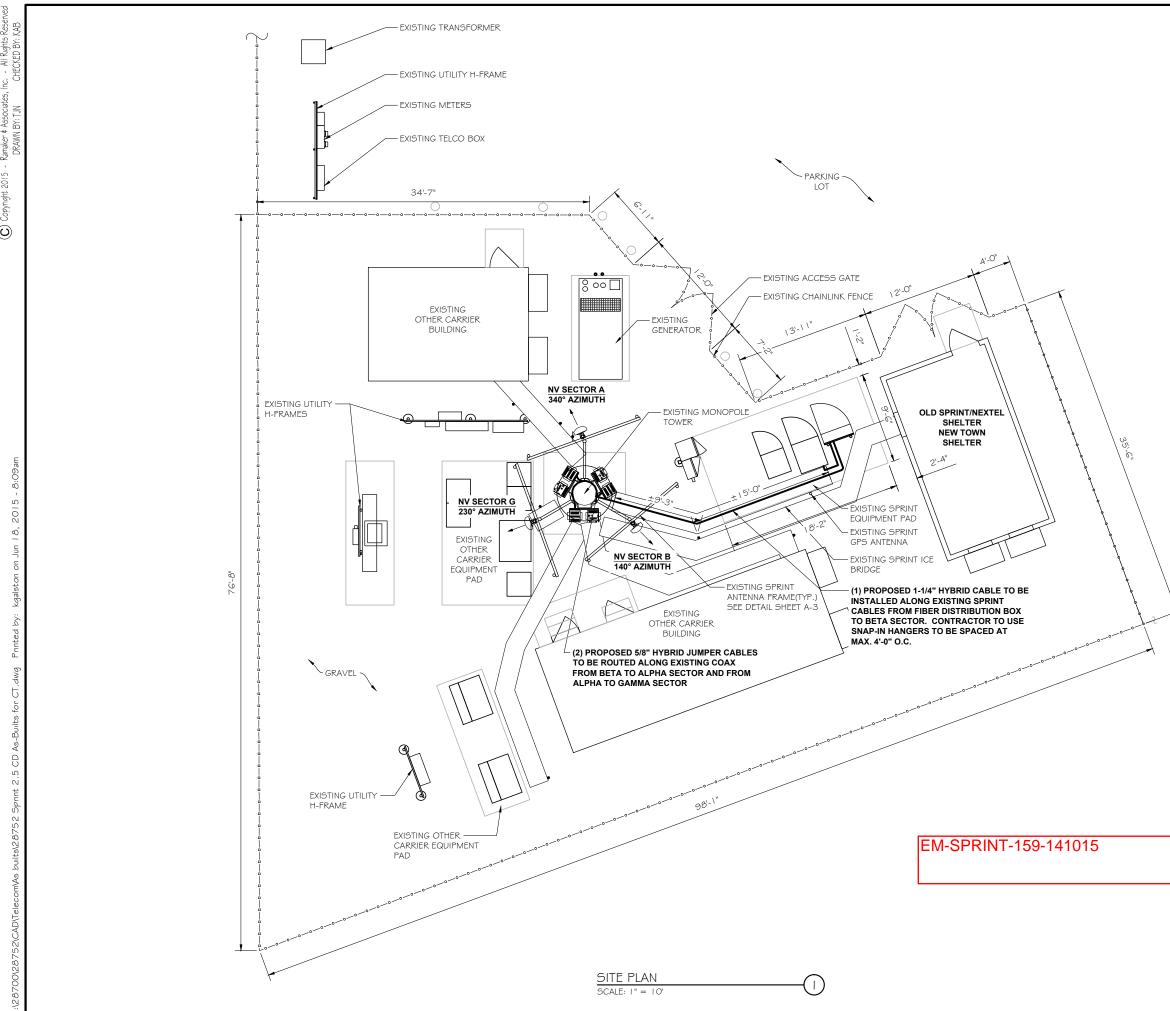
CONDUIT AND CONDUCTOR INSTALLATION:

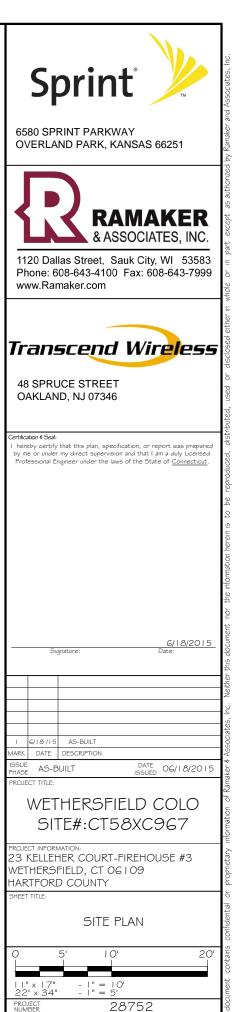
A. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CELLING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

B.CONDUCTORS SHALL BE PULLED IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE.

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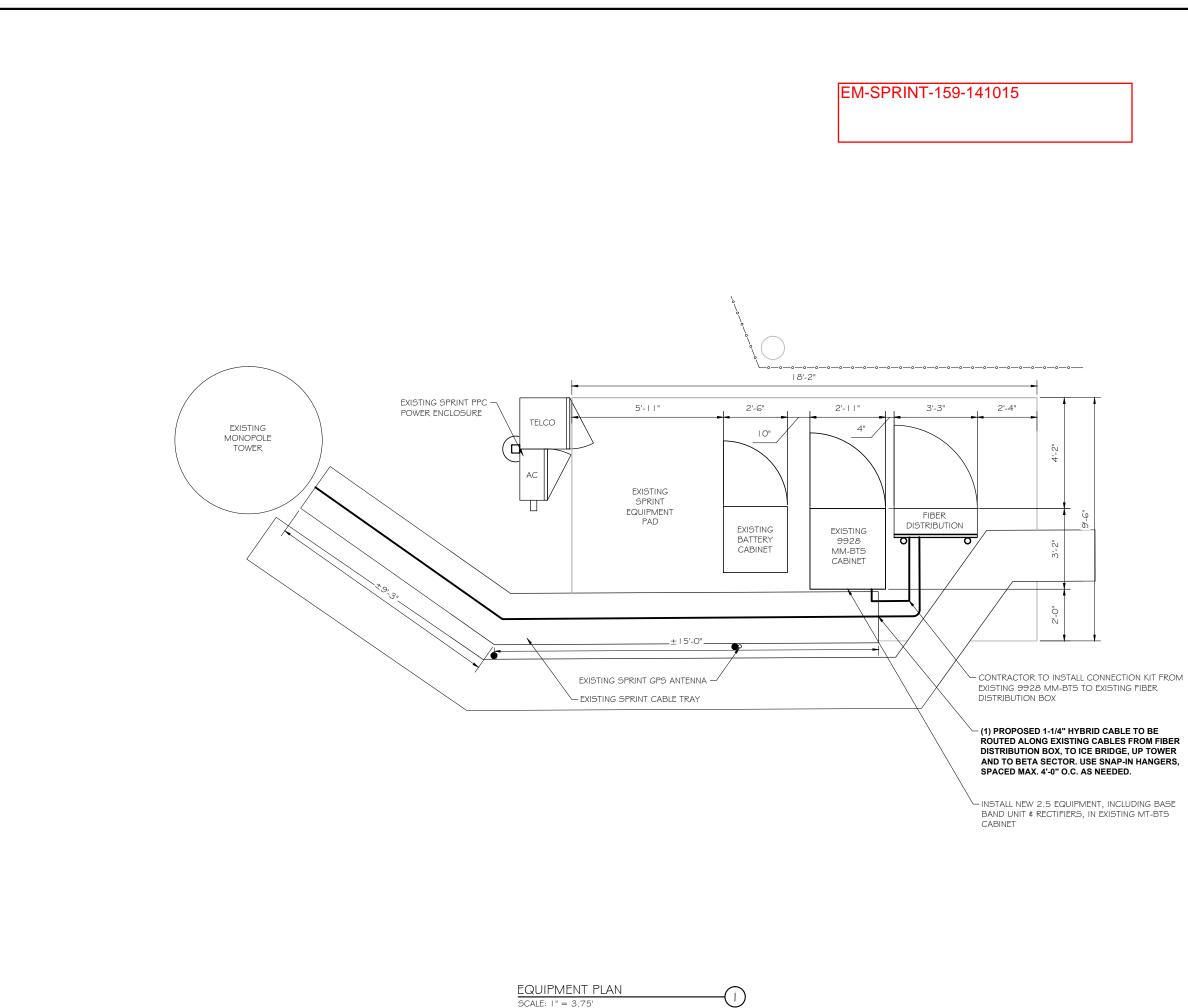
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48 SPRUCE STREET OAKLAND, NJ 07346	
Professional Engineer under the laws of the State of <u>Connecticut</u> .	
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JHL#:0130X0367	_
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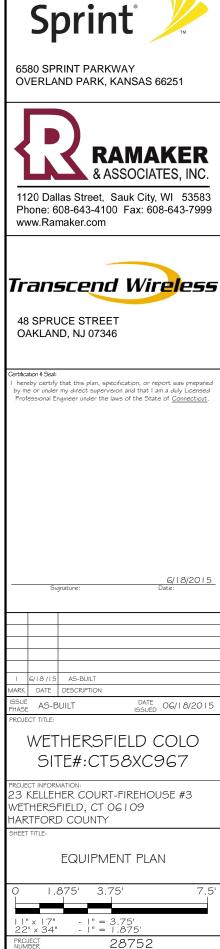
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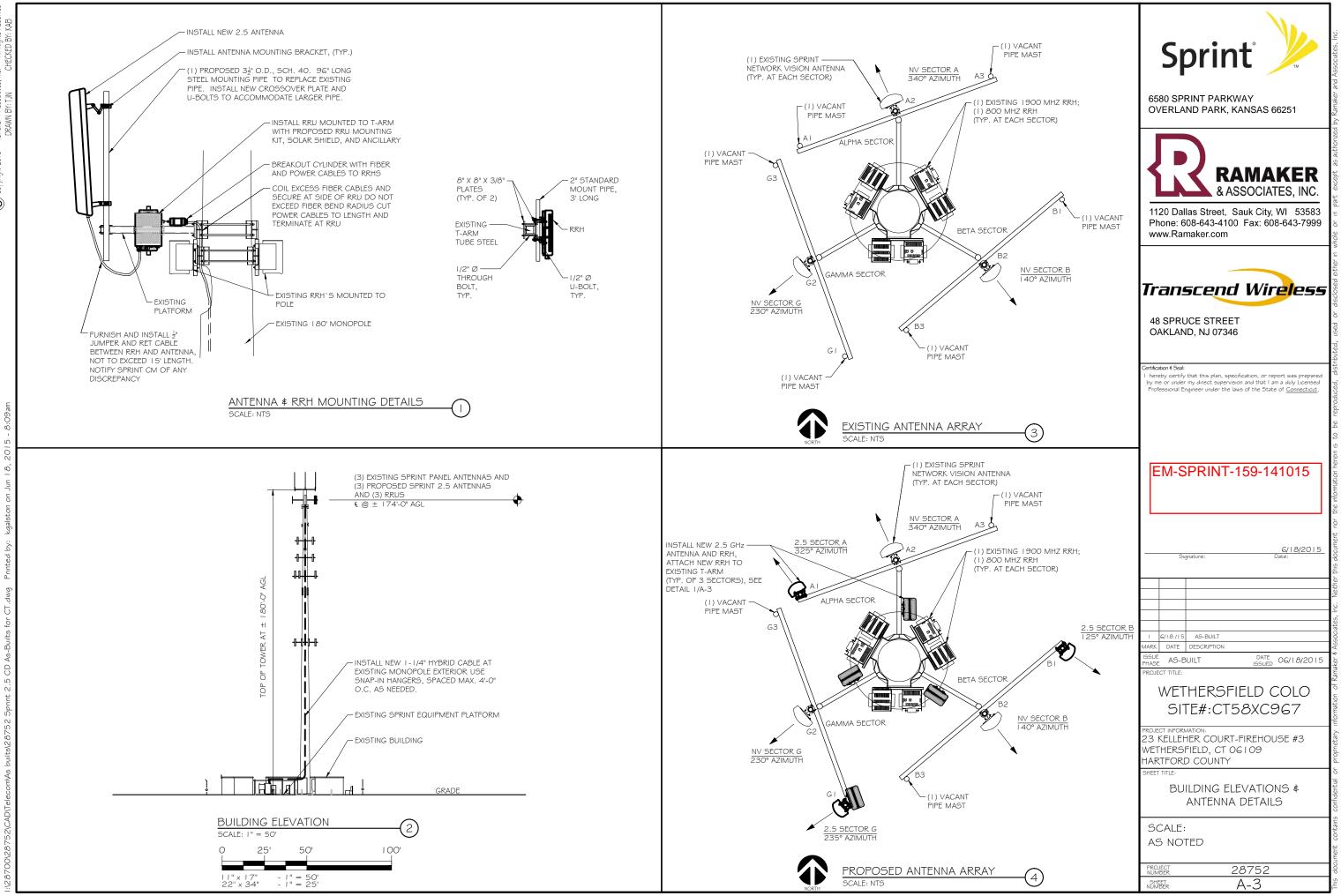
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RFDS Sheet

General Site Information

Site ID CT58XC967	Equipment Vendor	Alcatel-Lucent	
Market Northern Conne	cticut Lattitude	41.715444	
Region Northeast	Longitude	-72.690556	
MLA N/A	LL SITE ID	N/A	
Structure Type monopole			
BTS Type			
			Incremental Power Draw
Solution ID	Siterra SR Equipment type		needed by added Equipment
	Equipment Vendor	Alcatel-Lucent	N/A
Base Equipment			
BBU Kit	ALU BBU Kit	Top Hat	None
BBU Kit Qty	1	Top Hat Qty	N/A
•		Top Hat Dimenstions	N/A
Growth Cabinet		Top Hat Weight (lbs)	N/A
	None		
Growth Cabinet Qty	N/A	1	
Growth Cabinet Dimensions	N/A	1	
Growth Cabinet Weight	N/A	1	
RF Path Information RRH	TD-RRH8x20-25]	
RRH Qty	3		
RRH Dimensions	26.1"x18.6"x6.7"		
RRH Weight. lbs.	70		
RRH Mount Weight. Lbs.	10		
Power and Fiber Cable	ALU HYBRID CABLE		
Cable Qty	1		
Weight per foot. Lbs.	1.05		
Diameter. Inches.	1.24		
Length Ft.	210	(calculated as antenna height	plus 20%)
Coax Jumper	0.625		
Coax Jumper Qty	27		
Coax Jumper Length. Feet.	8		
Coax Jumper Weight	1.7		
Coax Jumper Diameter. Inches	0.5		
AISG Cable	COMMSCOPE ATCB-B01-006		
AISG Cable Qty	3		
AISG Diameter. Inches.	0.315		
A REAL PROPERTY AND A REAL	8'	1	
AISG Cable length. Weight of entire AISG cable. Lbs.	0		

Antenna Sector Information

Antenna make/model
· · · · · · · · · · · · · · · · · · ·
Antenna qty
Antenna Dimensions. Inches
Antenna Weight. Lbs
Antenna Mounting Kit Weight. Lbs.
CL Height
Antenna Azimuth
Antenna Mechanical Downtilt
Antenna etilt

* PER ACTUAL FIELD CONDITIONS

RFDS SHEET WAS GENERATED BY RAMAKER & ASSOCIATES FROM PLAN OF RECORD (POR) PROVIDED BY SPRINT. CONTRACTOR SHALL VERIFY AND OBTAIN FINAL RFDS FROM SPRINT CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.

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NOTES:

- ENGINEER.
- SWEEP TEST SPREADSHEET.
- SPRINT AND NON-SPRINT ANTENNAS.

Sector 1	Sector 2	Sector 3
RFS APXV9TM14-ALU-I20	RFS APXV9TM14-ALU-I20	RFS APXV9TM14-ALU-I20
1	1	1
56.3"x12.6"x6.3"	56.3"x12.6"x6.3"	56.3"x12.6"x6.3"
55.12	55.12	55.12
11.5	11.5	11.5
*174	*174	*174
325	125	235
0	0	0
-2	-2	-2



I. GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND C/L HEIGHT AND MECHANICAL DOWNTILT. IF DIFFERENT THAN CALLED OUT BELOW, HALT ANTENNA WORK FOR THAN CALLED OUT BELOW, HALT ANTENNA WORK FOR ONE HOUR, CALL SPRINT RF ENGINEER (OR MANAGER IF RF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO RF ENGINEER) USING CONTACT INFORMATION ABOVE FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT RESPOND WITHIN ONE HOUR, PLACE 2.5GHZ ANTENNA AT SAME C/L HEIGHT AS I.9GHZ ANTENNA AND EMAIL CORRECT C/L HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS-BUILD DRAWING WITH CORRECT C/L HEIGHT. ALSO EMAIL CORRECT I.9GHZ AND 800MHZ ANTENNA C/L HEIGHT, AZIMUTH AND MECHANICAL DOWNTILT TO RF ENGINEER.

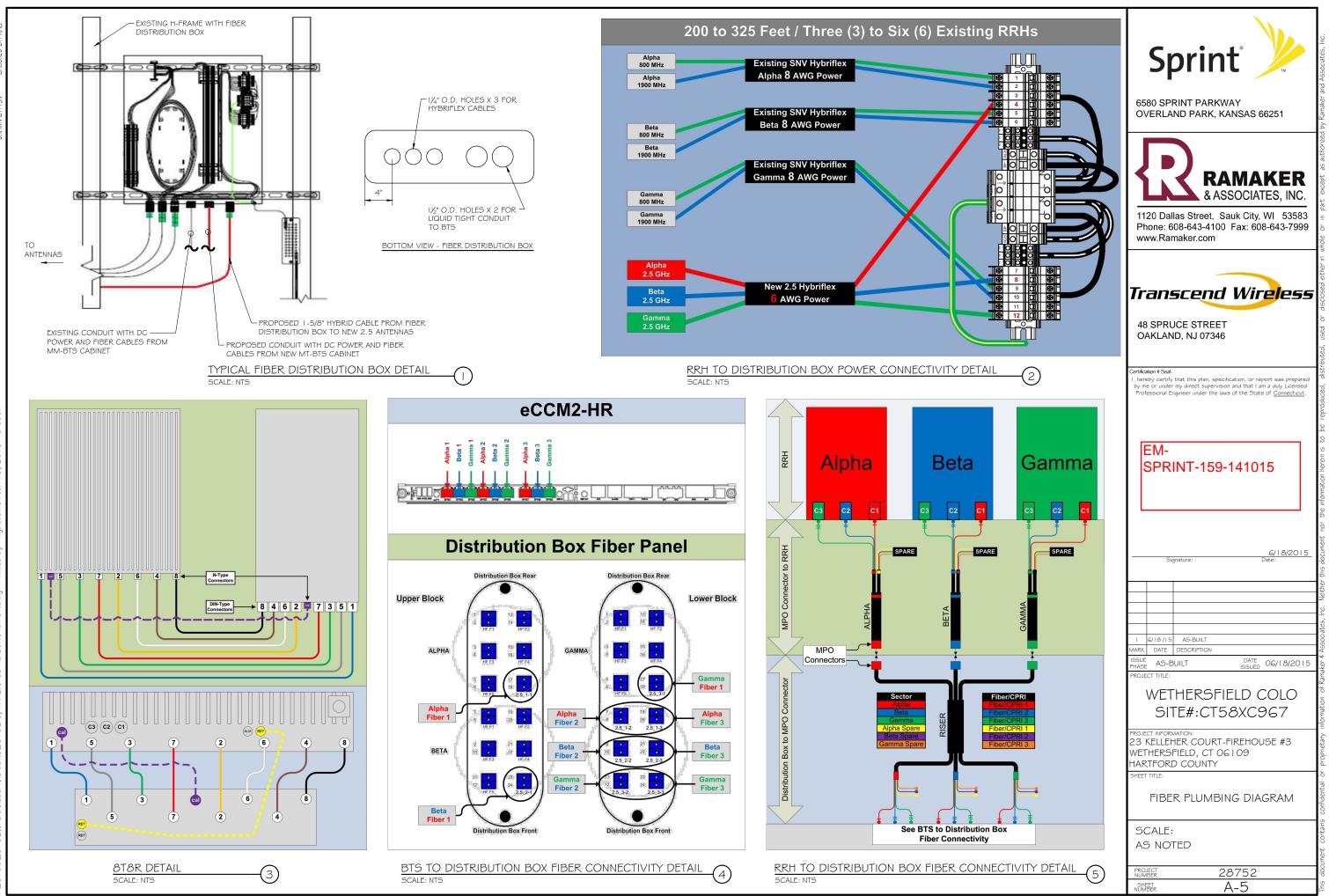
2. AISG TESTS TO VERIPY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND AISG CABLES HAVE BEEN CONNECTED. VERIPY OPERATION OF ALL EXISTING SPRINT AISG EQUIPMENT INCLUDING 800MHZ, I.9GHZ AND 2.5GHZ. TEST TO INCLUDE COMPLETE DOWNTILT, AZIMUTH (IF APPLICABLE) AND BEAMWIDTH SWINGS (IF APPLICABLE). DOCUMENT AISG TEST RESULTS IN COAX SWFET TEST SPERADSHEFT

 GENERAL CONTRACTOR MUST ENSURE THAT NO OBJECT IS LOCATED WITHIN 45 DEGREES OF LEFT AND RIGHT OF FRONT OF ANTENNA OR 7 DEGREES UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT DOWN FROM CENTER OF ANTENNA, IF THIS IS NOT POSSIBLE, CONTACT RF ENGINEER FOR FURTHER INSTRUCTION. IN ADDITION, 2.5GHZ ANTENNA IS NOT TO BE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES

4. 2.5GHZ ANTENNA MUST BE AT LEAST 6" FROM 1.9GHZ ANTENNA, 30" FROM 800MHZ ANTENNA AND 30" FROM DUAL BAND 1.9GHZ AND 800MHZ ANTENNA.

5. GENERAL CONTRACT IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET AZIMUTH, ROLL AND DOWNTILT. AZIMUTH ACCURACY IS TO BE WITHIN I DEGREE, DOWNTILT AND ROLL (LEFT TO RIGHT TILT) IS TO BE WITHIN 0.1 DEGREES, IF FOR SOME REASON THIS ACCURACY CANNOT BE ACHIEVED, UPDATE AS-BUILT DRAWINGS AND EMAIL SPRINT RF ENGINEER WITH AS-BUILT SETTINGS. USE 32 RF ALIGNMENT TOOL OR EQUIVALENT TOOL.

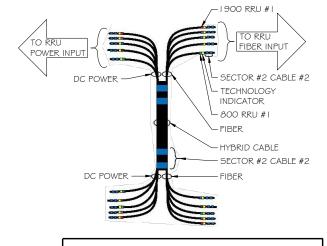
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RAMAKER & ASSOCIATES, INC. 1120 Dallas Street, Sauk City, WI 53583 Phone: 608-643-4100 Fax: 608-643-7999	or II
www.Ramaker.com	in whole
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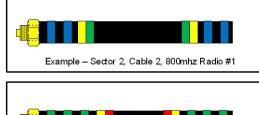


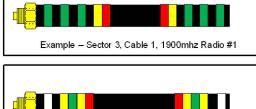
	2.5			
I	FREQUENCY	INDICAT	OR	ID
1	2500 -1	YEL	WHT	GRN
1	2500 -2	YEL	WHT	RED
	2500 -3	YEL	WHT	BRN
1	2500 -4	YEL	WHT	BLU
1	2500 -5	YEL	WHT	SLT
i	2500 -6	YEL	WHT	ORG
i	2500 -7	YEL	WHT	WHT
	2500 -8	YEL	WHT	PPL

NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Таре	No Tape
1	2	Blue	No Таре	No Таре
1	3	Brown	No Таре	No Tape
1	4	White	No Таре	No Таре
1	5	Red	No Таре	No Таре
1	6	Grey	No Таре	No Таре
1	7	Purple	No Таре	No Tape
1	8	Orange	No Таре	No Tape
2 Beta	1	Green	Green	No Таре
2	2	Blue		No Таре
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Таре
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Таре
2	8	Orange	Orange	No Таре
3 Gamma	1	Green	Green	Green
3	2	Blue		
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange









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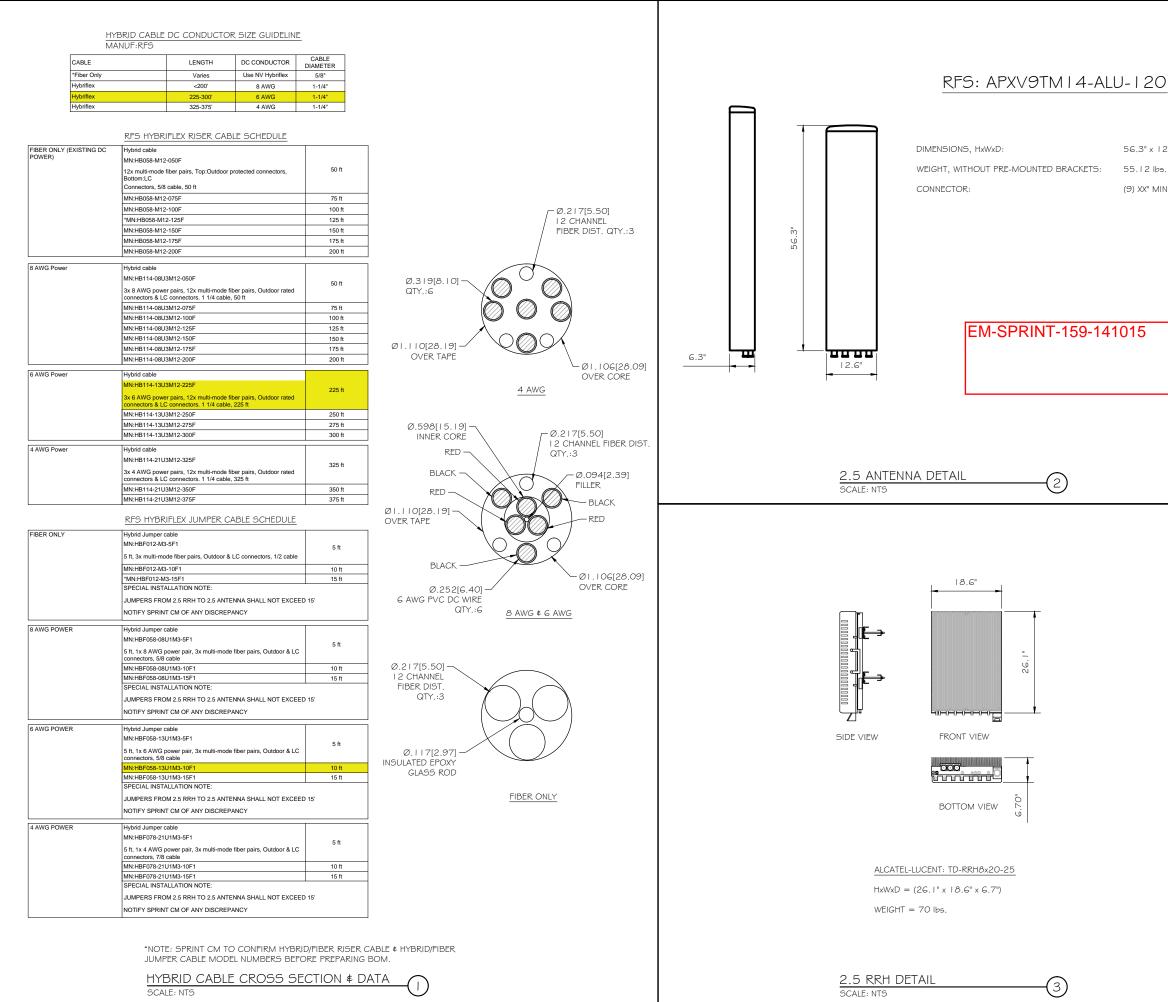
CABLE MARKING

- ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.
- THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAKOUT UNIT. THERE SHALL BE 1" SPACE BETWEEN EACH RING.
- A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.
- THE 2" COLORED TAPE(S) SHALL BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.
- SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE SECOND CABLE IDENTIFIED BY BLUE BANDS OF TAPE
- 6. HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED HYDRID FIDER CADLE STALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.
- HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.
- 8. INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABELED WITH BOTH THE CABLE AND FREQUENCY.

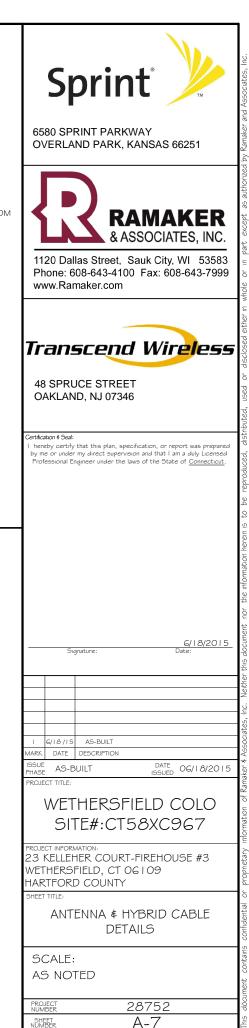


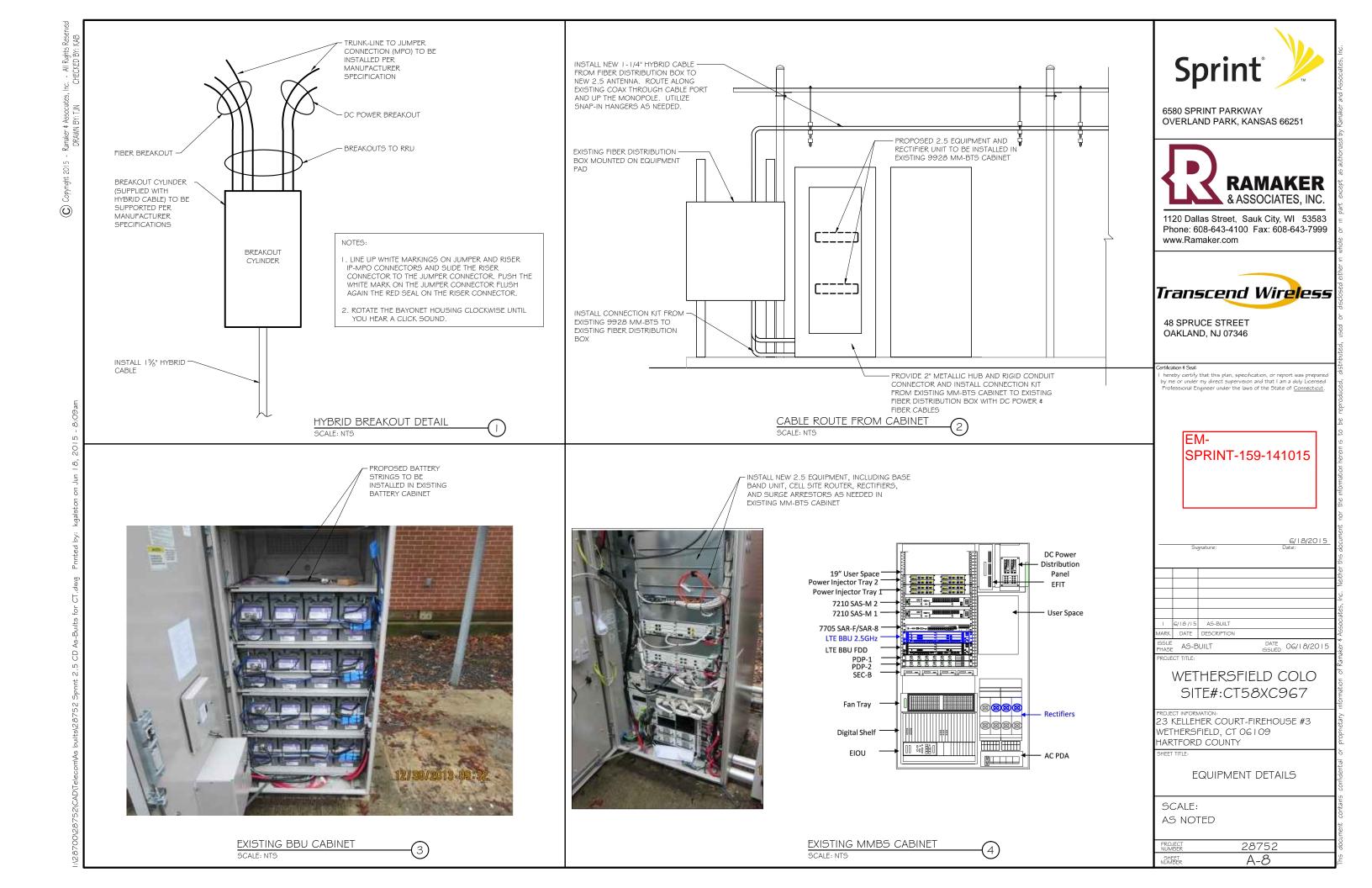
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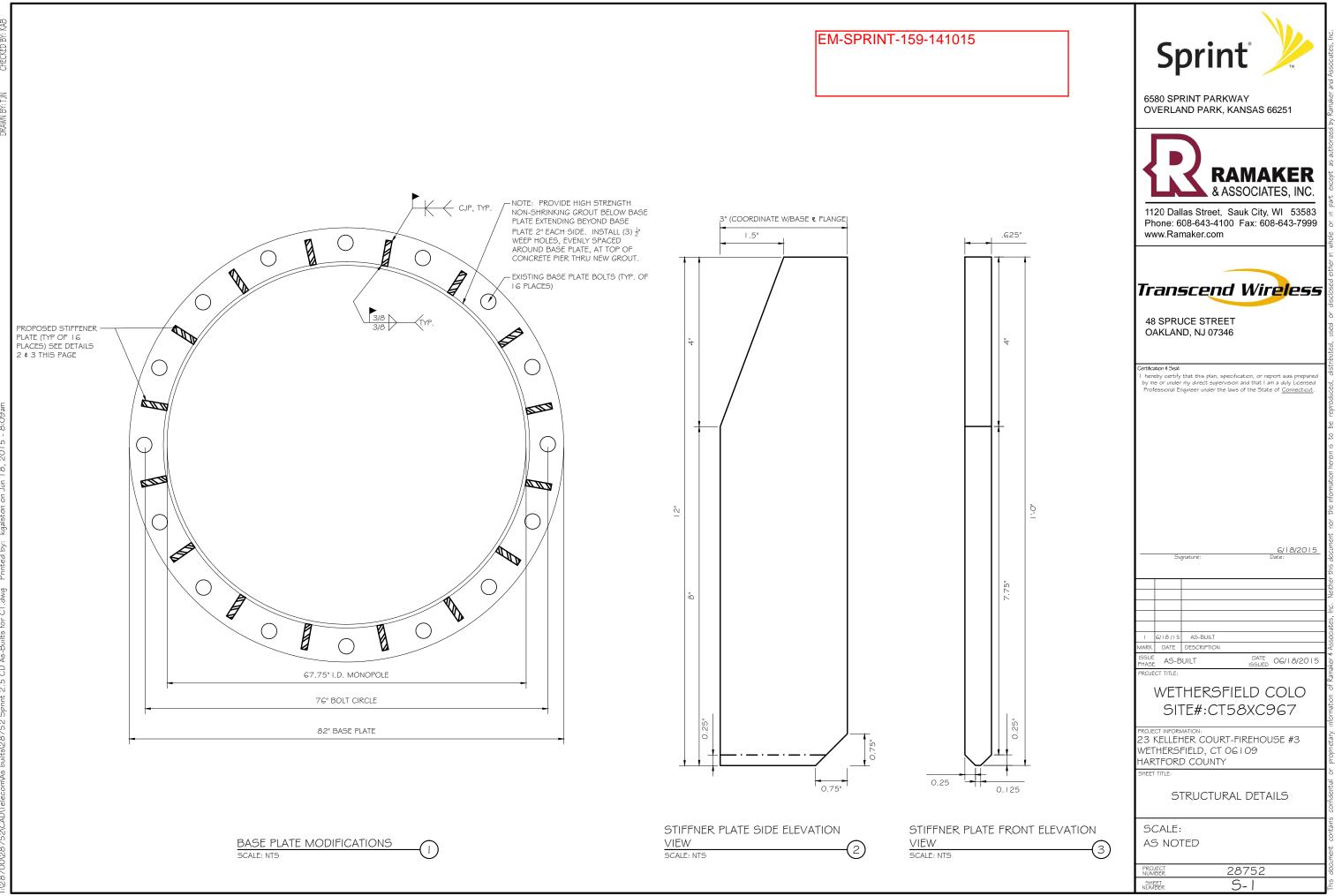
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Transcend Wireless
48 SPRUCE STREET OAKLAND, NJ 07346
Certification # Seal: I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of <u>Connecticut</u> .
I 6/18/15 AS-BUILT
MARK DATE DESCRIPTION
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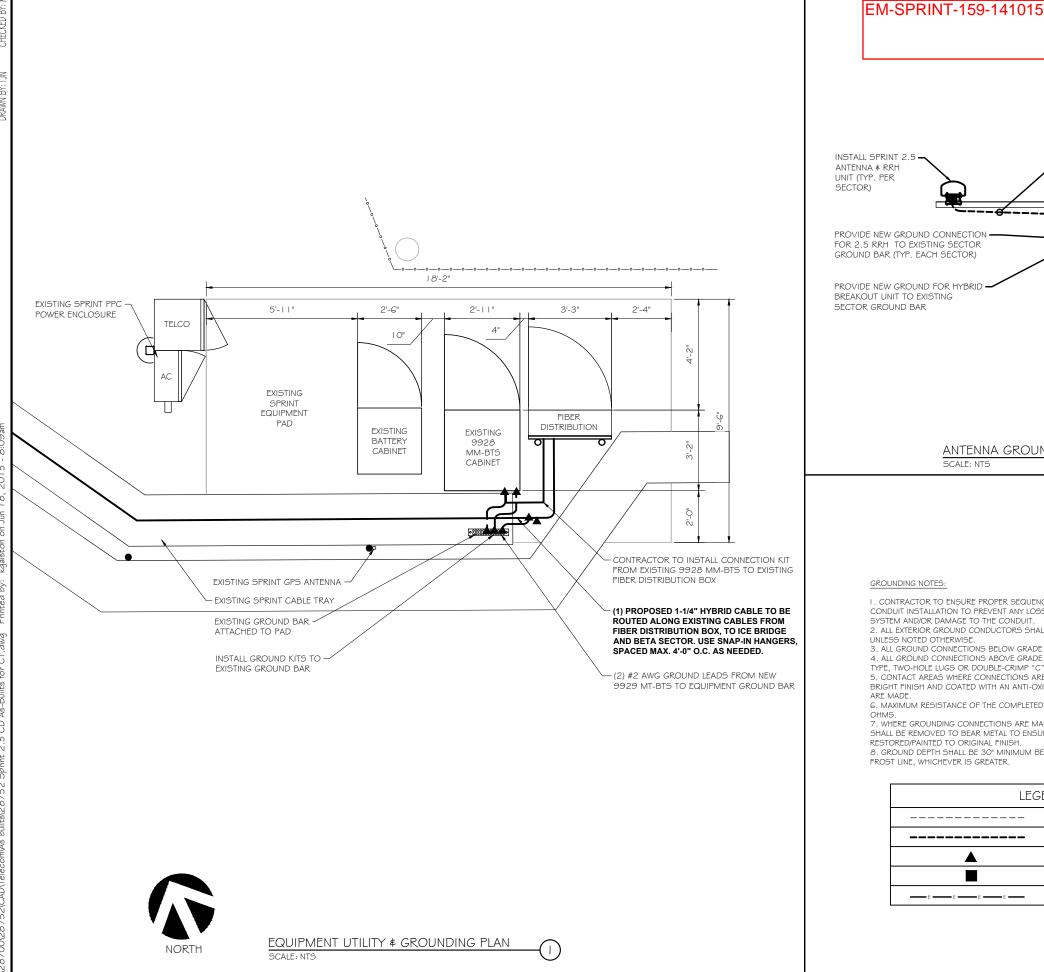
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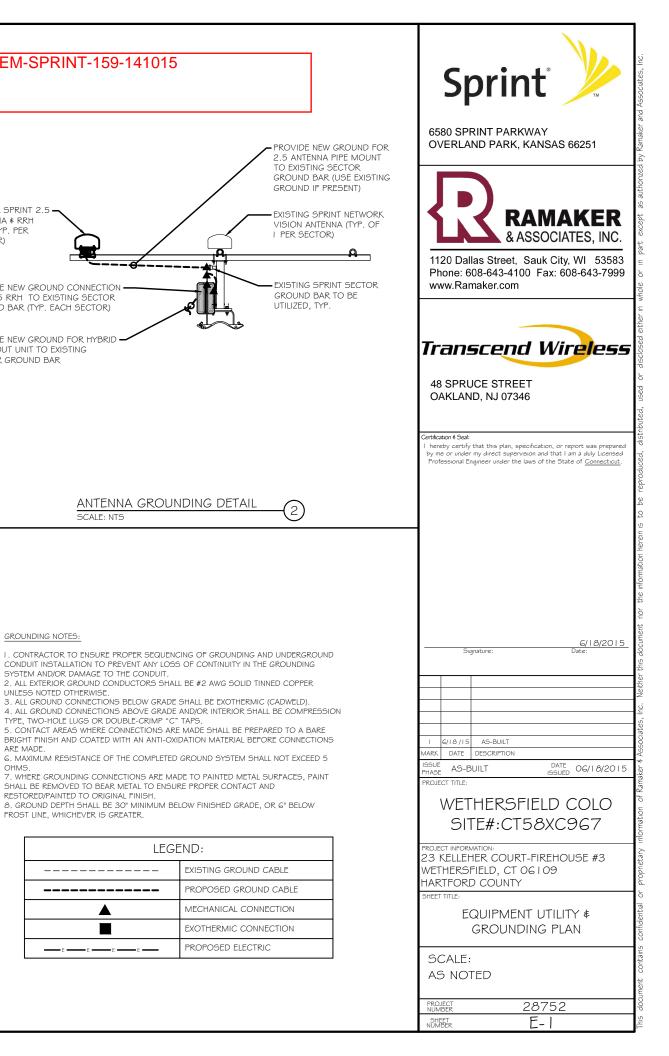






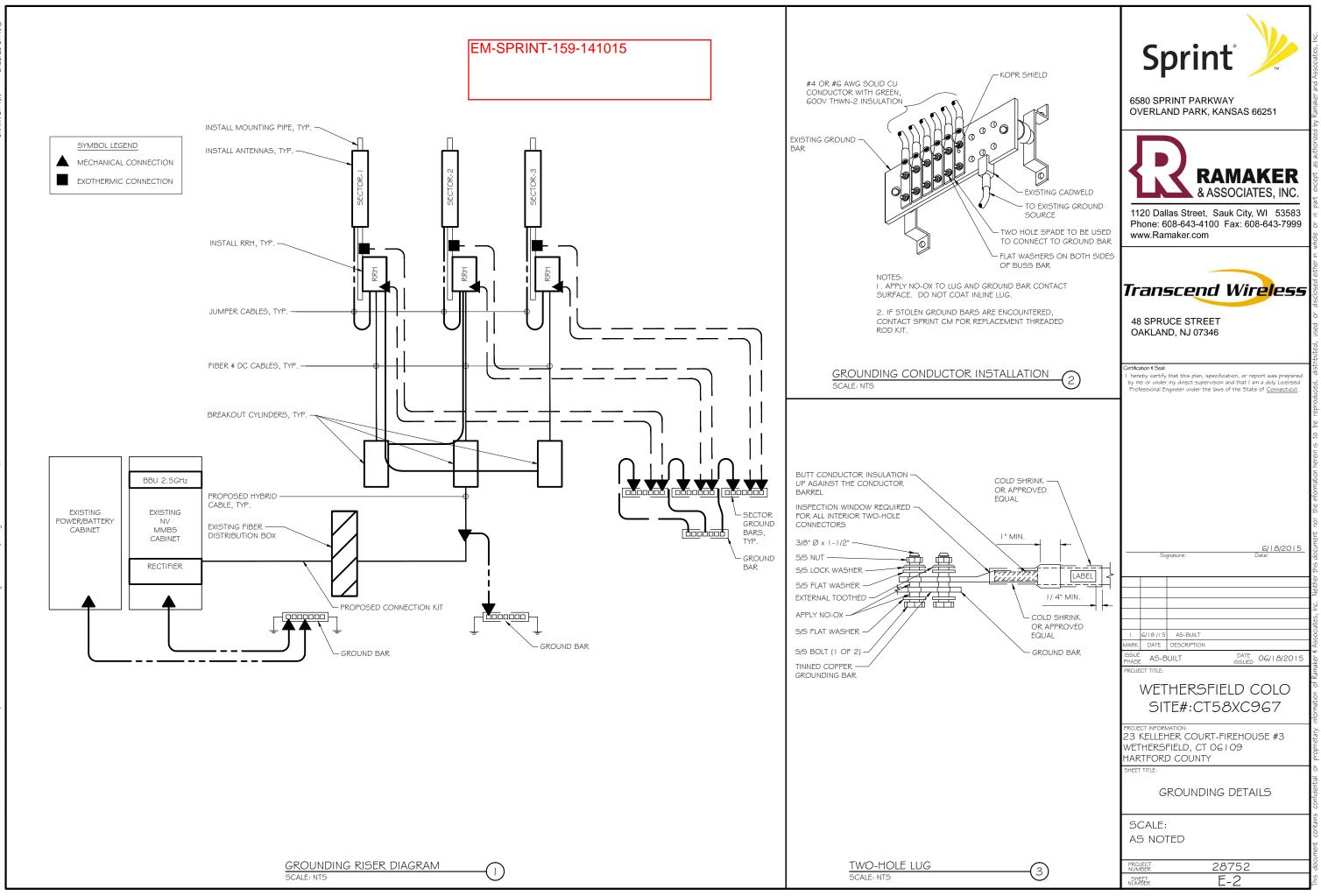


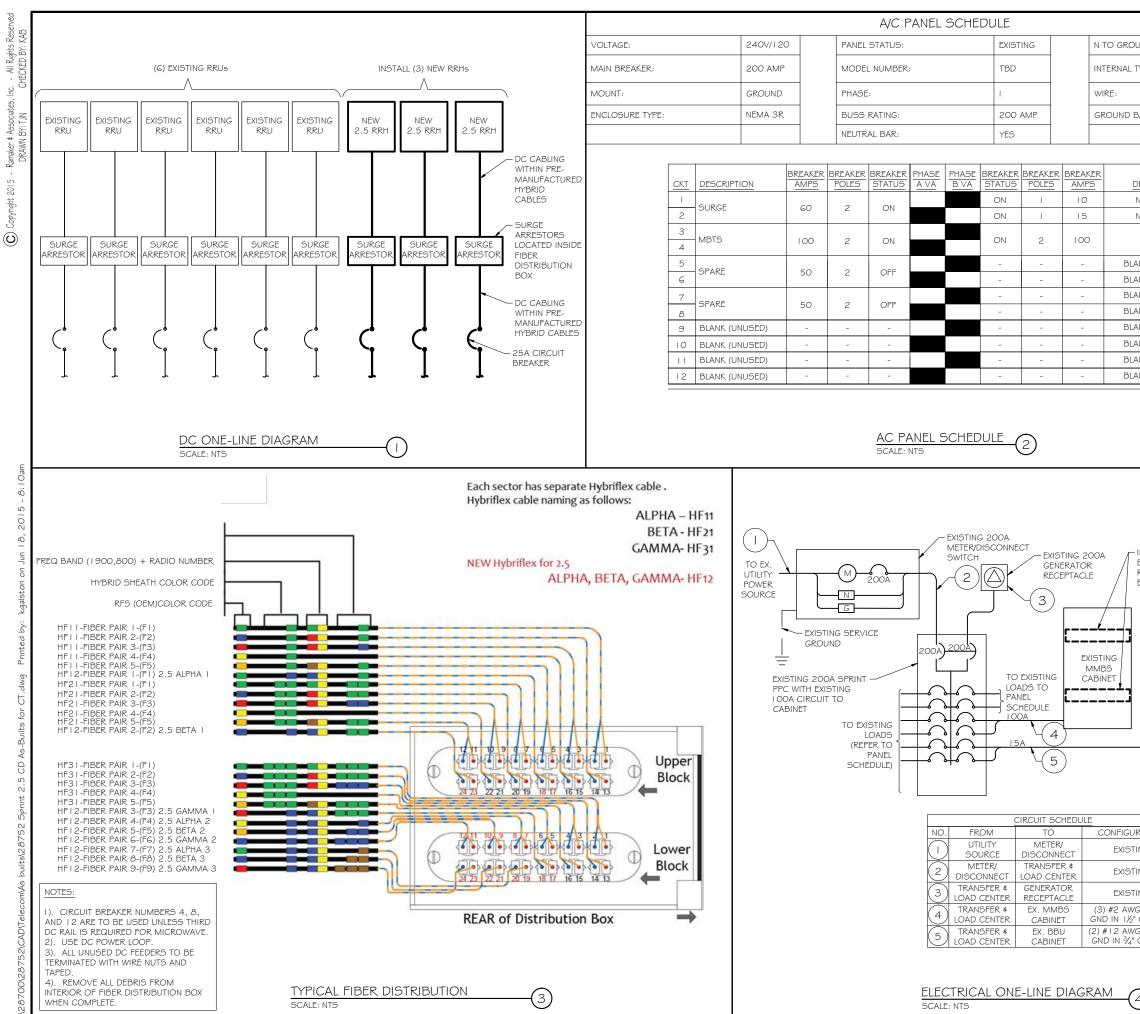




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