

Sprint



PROJECT: 65 MHz EQUIPMENT DEPLOYMENT

SITE NAME: TIGER HILL

SITE CASCADE: TU25XC414

SITE ADDRESS: 593 E KENOSHA STREET
BROKEN ARROW, OK 74012

SITE TYPE: EXISTING 175' SELF SUPPORT TOWER

65 MHz 175' SELF SUPPORT TOWER

PLANS PREPARED FOR:

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

BRANCH COMMUNICATIONS, LLC
1516 S BOSTON AVE STE 215
TULSA, OKLAHOMA 74119
(918) 949-4551

PLANS PREPARED BY:

MICHAEL T. DE BOER
965 WYNSTONE DRIVE
JEFFERSON, SD 57038
605-422-1548

ENGINEERING LICENSE:

REGISTERED PROFESSIONAL ENGINEER
MICHAEL T. DE BOER
18647
OKLAHOMA
4/29/15
PE # 18647 EXP. 11/30/2015

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REVISIONS:	DESCRIPTION	DATE	BY	REV
	PRELIMINARY ISSUE	4/21/15	JPR	A
	PRELIMINARY ISSUE	4/22/15	JWM	B

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BROKEN ARROW, OK
74012

SHEET DESCRIPTION: TITLE SHEET

SHEET NUMBER: T-1

SITE INFORMATION

LATITUDE (NAD83):
36.0592° N.

LONGITUDE (NAD83):
-95.7809° W.

COUNTY:
TULSA COUNTY

ZONING JURISDICTION:
TULSA COUNTY

ZONING DISTRICT:
RESIDENTIAL

POWER COMPANY:
AEP
888-216-3523

TELCO PROVIDER:
WINDSTREAM
866-298-1514

AAV PROVIDER:
N/A

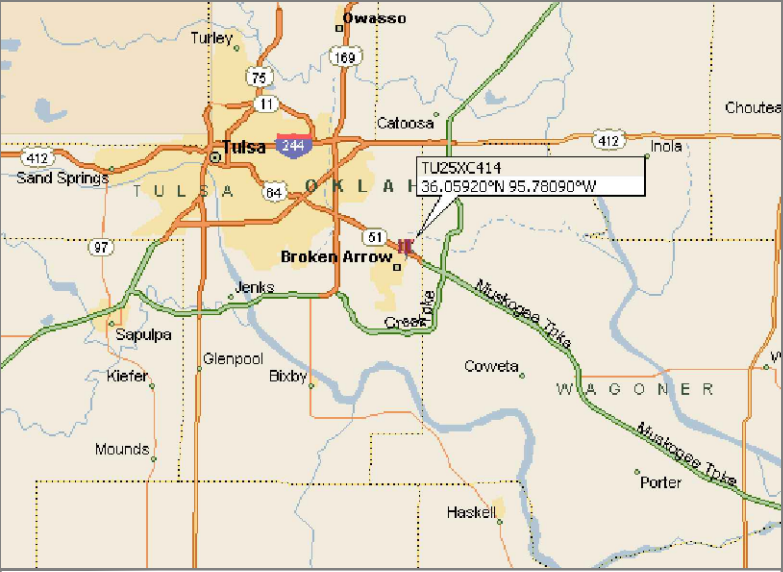
SPRINT CM:
EDDIE SMITH
(501) 909-0724
edward.2.smith@sprint.com

TOWER OWNER:
CITY OF BROKEN ARROW
220 SE 1ST ST
BROKEN ARROW, OK. 74013
918-259-8411

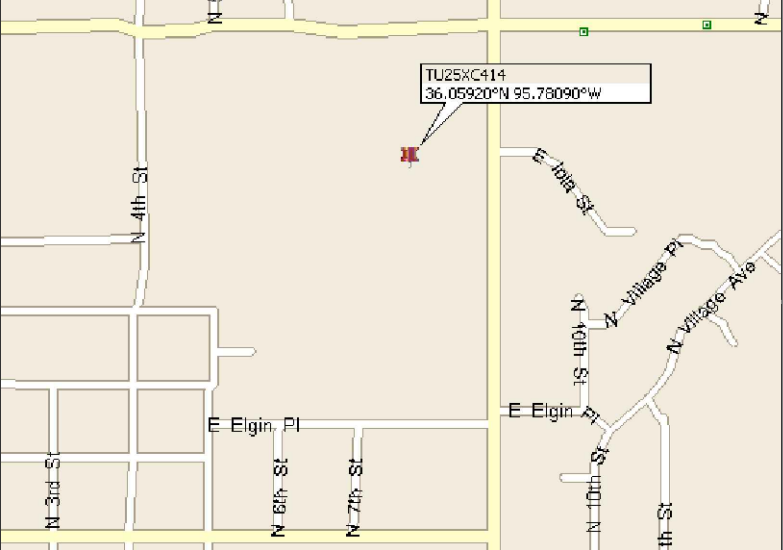
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AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

- INSTALL (6) PANEL ANTENNAS
- INSTALL (6) RRH'S TO TOWER
- INSTALL (6) RFS ACU-A20-A20-N
- REMOVE (6) 1 5/8" COAX CABLES

SITE ACCESS PROCEDURES

SITE ACCESS GATE COMBO: 4283

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR T BE RESPONSIBLE FOR SAME.

APPLICABLE CODES

ALL WORK SHALL BE PERFORMED AND MATERIALS 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 THESE CODES.

BUILDING/DWELLING CODE: (IBC 2012)
STRUCTURAL CODE: (IBC 2012)
PLUMBING CODE: (IPC 2012)
MECHANICAL CODE: (IMC 2012)
ELECTRIC CODE: (NEC 2011)
FIRE/LIFE SAFETY CODE: (IFC 2012)

**CALL OKIE
ONE CALL 811
(800) 522-6543
CALL 3 WORKING DAYS
BEFORE YOU DIG!**

DRAWING INDEX

SHEET NO:	SHEET TITLE	REV	ENGINEER
T-1	TITLE SHEET	B	X
SP-1	OUTLINE SPECIFICATIONS	B	X
SP-2	OUTLINE SPECIFICATIONS	B	X
A-1	SITE PLAN	B	X
A-2	TOWER ELEVATION & EQUIPMENT PLAN	B	X
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	B	X
A-4	EQUIPMENT DETAILS	B	X
E-1	GROUNDING & ELECTRICAL PLAN	B	X
E-2	GROUNDING DETAILS	B	X

THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

SECTION 01 100 – SCOPE OF WORK

THE WORK:
SHALL COMPLY WITH APPLICABLE NATIONAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THERE OF. SPRINT METHOD OF PROCEDURE (MOP) AND SPRINT STANDARDS AT THE TIME OF CONSTRUCTION START.

PRECEDENCE:
SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE, ALONG WITH SPRINT CONSTRUCTION MANAGER APPROVAL

SITE FAMILIARITY:
CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.

ON-SITE SUPERVISION:
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.

DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE:
THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

- A. DETAILS ARE INTENDED TO SHOW DESIGN INTENT, PROVIDE ALL MATERIALS AND LABOR AS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONING SYSTEM. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
- B. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
- C. MARK THE FIELD SET OF DRAWINGS IN RED, DOCUMENTING ANY CHANGES FROM THE CONSTRUCTION DOCUMENTS.

METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION:
CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS. **CONTRACTOR TO VERIFY WITH SPRINT PROJECT MANAGER THAT EXISTING MOP IS THE LATEST VERSION.**

- A. TOP HAT
- B. HOW TO INSTALL A NEW CABINET
- C. BASE BAND UNIT IN EXISTING UNIT
- D. INSTALLATION OF BATTERIES
- E. INSTALLATION OF HYBRID CABLE
- F. INSTALLATION OF RRHS
- G. CABLING
- H. TS-0200 REV 5 - ANTENNA LINE ACCEPTANCE STANDARDS
- I. SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1.
- J. COMMISSIONING MOPS

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DRAWINGS.

CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT TO ENSURE IT IS PROTECTED AND HANDLED PROPERLY THROUGHOUT THE CONSTRUCTION DURATION.

CONTRACTOR RESPONSIBLE FOR RECEIPT OF SPRINT FURNISHED EQUIPMENT AT CELL SITE OR CONTRACTORS LOCATION. CONTRACTOR TO COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

CONTRACTOR MAY BE REQUIRED TO PICK UP MATERIAL AT LOCATION PRESCRIBED BY SPRINT.

SECTION 01 300 – CELL SITE CONSTRUCTION

NOTICE TO PROCEED:
NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF WORK ORDER.

SITE CLEANLINESS:
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.

SECTION 01 400 – SUBMITTALS & TESTS

ALTERNATES:
AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINTS CONSTRUCTION MANAGER FOR APPROVAL. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED.

TESTS AND INSPECTIONS:

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
- B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 - 1. COAX SWEEPS AND HYBRID TESTS PER TS-0200 REV 5 ANTENNA LINE ACCEPTANCE STANDARDS.
 - 2. AZIMUTH AND DOWNTILT PROVIDE AN AUTOMATED REPORT UPLOADED TO SITERRA USING A COMMERCIAL MADE-FOR-THE-PURPOSE ELECTRONIC ANTENNA ALIGNMENT TOOL (AAT). INSTALLED AZIMUTH, CENTERLINE AND DOWNTILT MUST CONFORM WITH RF CONFIGURATION DATA

- 3. 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.
- 4. ALL TESTING REQUIRED BY APPLICABLE INSTALLATION MOPS.
- C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

- 1. AZIMUTH, DOWNTILT, AGL FROM SUNSIGHT INSTRUMENTS - ANTENNA ALIGNMENT TOOL (AAT), FROM SUNSIGHT INSTRUMENTS OR 3Z.
- 2. SWEEP AND HYBRID TESTS
- 3. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
- 4. ALL AVAILABLE JURISDICTIONAL INFORMATION
- 5. PDF SCAN OF REDLINES PRODUCED IN FIELD
- 6. A PDF SCAN OF REDLINE MARK-UPS SUITABLE FOR USE IN ELECTRONIC AS-BUILT DRAWING PRODUCTION
- 7. LIEN WAIVERS
- 8. FINAL PAYMENT APPLICATION
- 9. REQUIRED FINAL CONSTRUCTION PHOTOS
- 10. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
- 11. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINT DOCUMENT REPOSITORY OF RECORD).
- 12. CLOSEOUT PHOTOGRAPHS:

- A. PROVIDE PHOTOGRAPHS OF FINAL PROJECT PER THE FOLLOWING LIST. ADDITIONAL PHOTOGRAPHS MAY BE REQUIRED TO SUPPORT ACCEPTANCE PROCESSES
 - (i) MAIN HYBRID CABLE ROUTE (MINIMUM TWO PHOTOS)
 - (ii) PHOTOS OF EACH ANTENNA AND RRH
 - (iii) MANUFACTURERS NAME TAG FOR ALL SERIALIZED EQUIPMENT
 - (iv) PULL AND DISTRIBUTION BOXES INTERMEDIATE BETWEEN RRHS AND MMBS (DOOR OPEN)
 - (v) MMBS CABINET WITH DOOR OPEN SHOWING MODIFICATIONS
 - (vi) POWER CABINET, DOORS OPEN, BATTERIES INSTALLED
 - (vii) BREAK OUT CYLINDERS
 - (viii) ASR SIGNAGE FOR SPRINT OWNED TOWERS
 - (ix) RADIATION EXPOSURE WARNING SIGNS
 - (x) PHOTOGRAPH FROM EACH SECTOR FROM APPROXIMATELY RAD CENTER OF ANY NEW ANTENNA AT HORIZON.

- B. LOAD PHOTOS TO SITERRA PROJECT LIBRARY IS. IN IS CREATE NEW CATEGORY; 2.5 DEPLOYMENT, AND SECTION; PERMANENT CONSTRUCTION. LABEL PHOTOS WITH SITE CASCADE AND VIEW BEING DEPICTED. CAMERAS USED TO TAKE PHOTOGRAPHS SHALL GPS ENABLED SUCH THAT THE GPS COORDINATES ARE INCLUDED IN THE PHOTO MEDIA-FILE INFORMATION.

COMMISSIONING:
PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPS

INTEGRATION:
PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPS

1.4 SUBMITTALS:

- A. **PRE-CONSTRUCTION ROOF PHOTOS:** COMPLETE A ROOF INSPECTION PRIOR TO THE INSTALLATION OF SPRINT EQUIPMENT ON ANY ROOFTOP BUILD. AT A MINIMUM INSPECT AND PHOTOGRAPH (MINIMUM 3 EA.) ALL AREAS IMPACTED BY THE ADDITION OF THE SPRINT EQUIPMENT.
- B. PROVIDE SIMILAR PHOTOGRAPHS SHOWING ROOF CONDITIONS AFTER CONSTRUCTION (MINIMUM 3 EA.)
- C. ROOF INSPECTION PHOTOGRAPHS SHOULD BE UPLOADED WITH CLOSEOUT PHOTOGRAPHS.

SECTION 09 900 – PAINTING

QUALITY ASSURANCE:

- A. COMPLY WITH GOVERNING CODES AND REGULATIONS, PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. COMPLY WITH ALL ENVIRONMENTAL REGULATIONS FOR VOLATILE ORGANIC COMPOUNDS.

MATERIALS:

- A. MANUFACTURERS: BENJAMIN MOORE, ICI DEVOE COATINGS, PPG, SHERWIN WILLIAMS OR APPROVED EQUAL. PROVIDE PREMIUM GRADE, PROFESSIONAL-QUALITY PRODUCTS FOR COATING SYSTEMS.

PAINT SCHEDULE:

- A. EXTERIOR ANTENNAE AND ANTENNA MOUNTING HARDWARE: ONE COAT OF PRIMER AND TWO FINISH COATS. PAINT FOR ANTENNAE SHALL BE NON-METALLIC BASED AND CONTAIN NO METALLIC PARTICLES. PROVIDE COLORS AND PATTERNS AS REQUIRED TO MASK APPEARANCE OF ANTENNAE ON ADJACENT BUILDING SURFACES AND AS ACCEPTABLE TO THE OWNER. REFER TO ANTENNA MANUFACTURER'S INSTRUCTIONS WHENEVER POSSIBLE.
- B. **ROOF TOP CONSTRUCTION:** TOUCH UP - PREPARE SURFACES TO BE REPAIRED. FOLLOW INDUSTRY STANDARDS AND REQUIREMENTS OF OWNER TO MATCH EXISTING COATING AND FINISH.

PAINTING APPLICATION:

- 1. INSPECT SURFACES, REPORT UNSATISFACTORY CONDITIONS IN WRITING; BEGINNING WORK MEANS ACCEPTANCE OF SUBSTRATE.
- 2. COMPLY WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR PREPARATION, PRIMING AND COATING WORK. COORDINATE WITH WORK OF OTHER SECTIONS.
- 3. MATCH APPROVED MOCK-UPS FOR COLOR, TEXTURE, AND PATTERN. RE-COAT OR REMOVE AND REPLACE WORK WHICH DOES NOT MATCH OR SHOWS LOSS OF ADHESION.
- 4. CLEAN UP, TOUCH UP AND PROTECT WORK.

TOUCHUP PAINTING:

- 1. GALVANIZING DAMAGE AND ALL BOLTS AND NUTS SHALL BE TOUCHED UP AFTER TOWER ERECTION WITH "GALVANOX," "DRY GALV," OR "ZINC-IT."
- 2. FIELD TOUCHUP PAINT SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- 3. ALL METAL COMPONENTS SHALL BE HANDLED WITH CARE TO PREVENT DAMAGE TO THE COMPONENTS, THEIR PRESERVATIVE TREATMENT, OR THEIR PROTECTIVE COATINGS.

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

SUMMARY:
THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRHS, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL HYBRID CABLE.

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

HYBRID CABLE:
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 RRH'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 RRH'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 SO AS TO ALLOW FOR THE PROPER BEND RADIUS PER MANUFACTURER OR SPRINT SPECIFICATIONS.

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

ANTENNA 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.

CONTINUE SHEET SP-2

65 MHZ 175' SELF SUPPORT TOWER

PLANS PREPARED FOR:




6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:



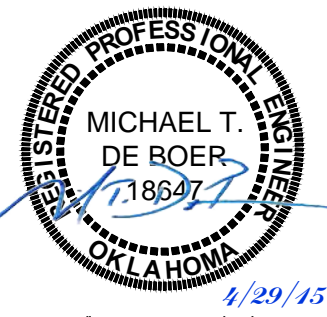
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**593 E KENOSHA STREET
BROKEN ARROW, OK
74012**

SHEET DESCRIPTION:

OUTLINE SPECIFICATIONS

SHEET NUMBER:

SP-1

65 MHz 175' SELF SUPPORT TOWER

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

HYBRID CABLES 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.
1. FASTENING MAIN HYBRID CABLES:
 - a. LATTICE AND GUYED TOWERS:
ALL CABLES SHALL BE PERMANENTLY FASTENED TO THE COAX LADDER AT 4'-0" O.C USING NON-MAGNETIC STAINLESS STEEL CLIPS. HOISTING GRIPS SHOULD BE INSTALLED AT MID-POINT IF CABLE RUN EXCEEDS 200' AS WELL AS TOP SIDE.
 - b. MONOPOLE:
ALL CABLES SHALL BE PERMANENTLY SUPPORTED WITH HOISTING GRIPS AT INTERVALS OF NO MORE THAN 200' (ONE HOISTING GRIP PER COAX.)
 2. FASTENING INDIVIDUAL HYBRID AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA), WITHIN THE MMBS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES
 - a. HYBRID: SUPPORT FIBER BUNDLES USING ½ " VELCRO STRAPS OF THE REQUIRED LENGTH @ 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 OR SECURING JUMPERS SHOULD CONSIST OF STAINLESS STEEL CLIPS, 18" FROM REAR OF CONNECTOR AND 24" THEREAFTER AND AT NO TIME SHALL THEY CONTACT TOWER OR STRUCTURAL STEEL.
 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 WILL 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 MANUFACTURES 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 REV5 .
 7. HYBRID CABLE LABELING: INDIVIDUAL FIBER 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:

- A. ALL HYBRID & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.
- B. WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES.
 1. 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 SELF-AMALGAMATING TAPE.
 2. 3M MINI DIN ENCLOSURE OR AMPHENOL JUMPER WITH A BOOT (CONTACT LOCAL SPRINT CM FOR APPROVED ENCLOSURES)..
 3. JMA-WPA SERIES ENCLOSURE.
 4. BUTYL AND TAPE, 1 COMPLETE WRAP OF 3/4" PRE-TAPE, BUTYL WRAPPED IN HALF INCH LAP LAYERS, ENDED WITH SHINGLED DOWNWARD 3 WRAPS OF 2" TAPE, 3 WRAPS OF 3/4" TAPE SHINGLED DOWNWARD, FREE OF WRINKLES, BUCKLES AND FLAGGING.
 5. OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE.

SECTION 11 800 -- INSTALLATION OF MULTIMODAL BASE STATIONS (MMBS) AND RELATED EQUIPMENT

SUMMARY:

- 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.
- C. COMPLY WITH MANUFACTURERS INSTALLATION AND START-UP REQUIREMENTS

DC CIRCUIT BREAKER LABELING

- A. LABEL CIRCUIT BREAKERS ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1.

SECTION 26 100 -- BASIC ELECTRICAL REQUIREMENTS

SUMMARY:

THIS SECTION SPECIFIES BASIC ELECTRICAL REQUIREMENTS FOR SYSTEMS AND COMPONENTS

QUALITY ASSURANCE:

- A. ALL EQUIPMENT FURNISHED UNDER DIVISION 26 SHALL CARRY UL LABELS AND LISTINGS WHERE SUCH LABELS AND LISTING ARE AVAILABLE IN THE INDUSTRY
- B. MANUFACTURES 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 PRODUCT.
- C. MATERIALS AND EQUIPMENT : ALL MATERIALS AND EQUIPMENT SPECIFIED IN DIVISION 26 OF THE SAME TYPE SHALL BO OF THE SAME MANUFACTURER AND SHALL BE NEW, OF THE BEST QUALITY AND DESIGN, AND FREE FROM DEFECTS.

SUPPORTING DEVICES:

- A. MANUFACTURED STRUCTURAL SUPPORT MATERIALS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY THE FOLLOWING:
 1. ALLIED TUBE AND CONDUIT
 2. B-LINE SYSTEM
 3. SUNISTRUT DIVERSIFIED PRODUCTS
 4. THOMAS & BETTS
- B. FASTENERS: TYPES, MATERIALS, AND CONSTRUCTION FEATURES AS FOLLOWS:
 1. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.
 2. POWER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE.
 3. FASTEN BY MEANS OF WOOD SCREWS ON WOOD.
 4. TOGGLE BOLTS ON HOLLOW MASONRY UNITS.
 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 STRUCTURES.
 9. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS.

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:
- D. ENSURE THAT THE LOAD APPLIED BY ANY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD.
- E. 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

CONDUIT:

- A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND FOR ENCASED RUNS IN CONCRETE. 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 C80.1, 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 C80.3, FEDERAL SPECIFICATION WW-C-563, AND SHALL BE UL LISTED. EMT SHALL BE MANUFACTURED BY ALLIED, 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 6-FEET. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRE 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 (21MM).

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.
 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 GASKETED 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 AS INDICATED ON THE DRAWINGS. SUPPORT SYSTEM WITH NON-MAGNETIC STAINLESS STEEL CLIPS WITH RUBBER GROMMETS. GROUNDING CONNECTORS SHALL BE TINNED COPPER WIRE, SIZES AS INDICATED ON THE DRAWINGS. PROVIDE STRANDED OR SOLID BARE OR INSULATED CONDUCTORS AS INDICATED.
- 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-ENERGIZED 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 CEILING 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.

COLOR CODING

- A. ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE INSTALLED USING A MIN. OF (3) WRAPS OF TAPE.
- B. ALL COLOR BANDS INSTALL AT THE TOWER TOP SHALL BE A MINIMUM OF 2" WIDE AND SHALL HAVE A MINIMUM OF 1" OF SPACING BETWEEN EACH COLOR.
- C. ALL COLOR BANDS INSTALLED AT OR NEAR THE GROUND MAY BE ONLY 1" WIDE. EACH TOP-JUMPER SHALL BE COLOR CODED WITH (1) SET OF 2" WIDE BANDS 1/2" APART.
- D. EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 2" BANDS NEAR THE TOP-JUMPER CONNECTION AND WITH 1" BANDS JUST PRIOR THE ENTERING THE BTS OR TRANSMITTER BUILDING.
- E. ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 1" BANDS 1/2" APART ON EACH END OF THE BOTTOM JUMPER.
- F. ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE-TO-SIDE.
- G. X-POLE ANTENNAS SHOULD USE "XX-1" FOR THE "+45" PORT, "XX-2" FOR THE "-45" PORT.
- H. COLOR BAND #4 REFERS TO THE FREQUENCY BAND: ORANGE = 850, VIOLET = 1900, USED ON JUMPERS ONLY.
- I. RF FEED LINE SHALL BE IDENTIFIED WITH A METAL TAG (STAINLESS OR BRASS) AND STAMPED WITH THE SECTOR, ANTENNA POSITION, AND CABLE NUMBER.
- J. ANTENNAS MUST BE IDENTIFIED, USING THE SECTOR LETTER AND ANTENNA NUMBER, WITH A BLACK MARKER PRIOR TO INSTALLATION.

PLANS PREPARED FOR:




6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:



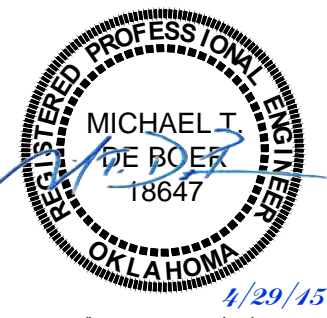
BRANCH COMMUNICATIONS, LLC
1516 S BOSTON AVE STE 215
TULSA, OKLAHOMA 74119
(918) 949-4551

PLANS PREPARED BY:



MICHAEL T. DE BOER
965 WYNSTONE DRIVE
JEFFERSON, SD 57038
605-422-1548

ENGINEERING LICENSE:



PE # 18647 EXP. 11/30/2015

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PRELIMINARY ISSUE	4/22/15	JWM	B

SITE NAME:

TIGER HILL

SITE CASCADE:

TU25XC414

SITE ADDRESS:

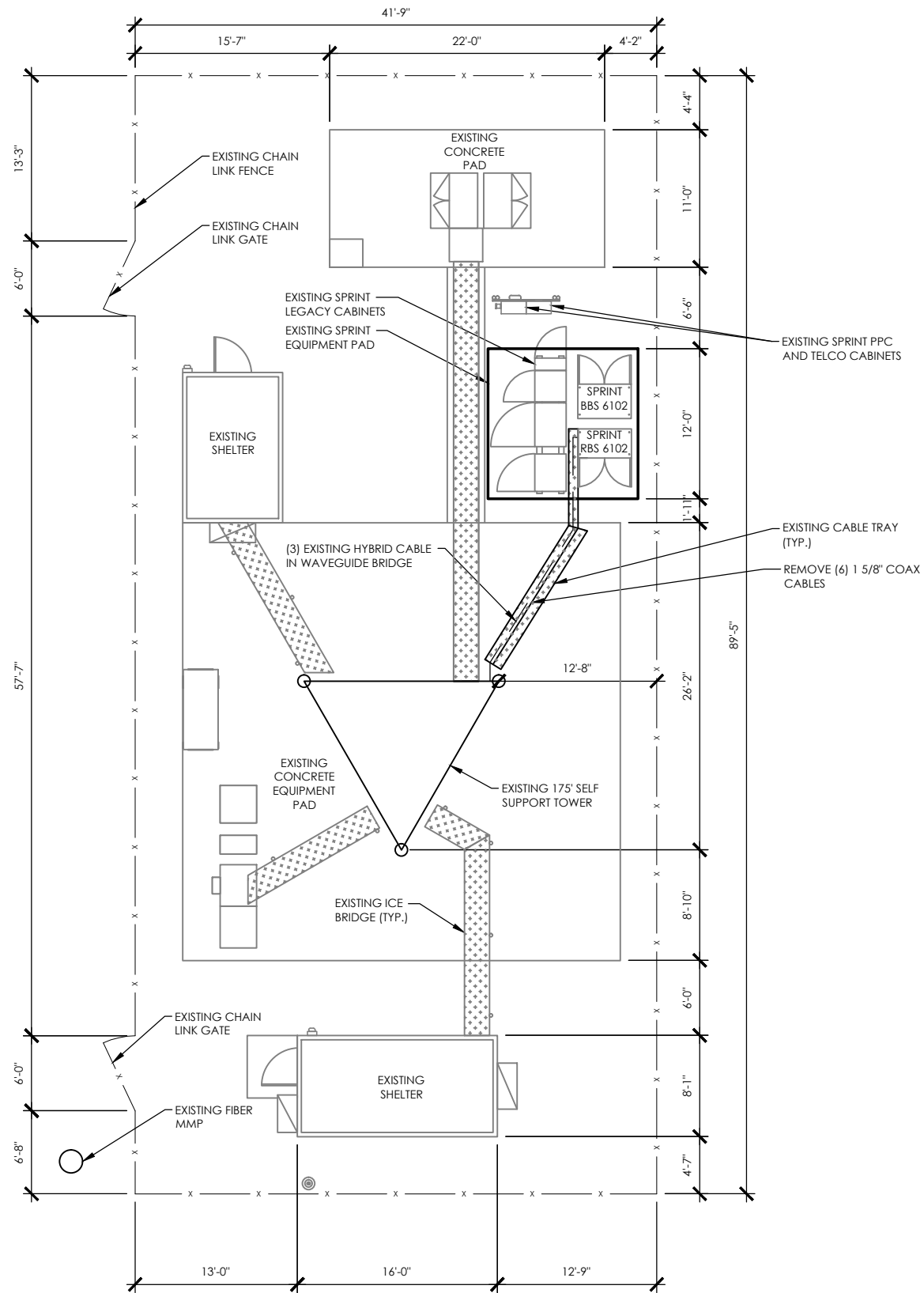
593 E KENOSHA STREET
BROKEN ARROW, OK
74012

SHEET DESCRIPTION:

OUTLINE SPECIFICATIONS

SHEET NUMBER:

SP-2



1 SITE PLAN
 SCALE: 0 5 10 15 25'



65 MHZ 175' SELF SUPPORT TOWER

PLANS PREPARED FOR:

Sprint
 6580 Sprint Parkway
 Overland Park, Kansas 66251

PLANS PREPARED BY:

BRANCH
 COMMUNICATIONS, LLC
 BRANCH COMMUNICATIONS
 1516 S BOSTON AVE STE 215
 TULSA, OKLAHOMA 74119
 (918) 949-4551

PLANS PREPARED BY:

DE BOER
 MICHAEL T. DE BOER
 965 WYNSTONE DRIVE
 JEFFERSON, SD 57038
 605-422-1548

ENGINEERING LICENSE:

4/29/15
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TU25XC414

SITE ADDRESS:

**593 E KENOSHA STREET
 BROKEN ARROW, OK
 74012**

SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1

65 MHZ 175' SELF SUPPORT TOWER

PLANS PREPARED FOR:




Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:



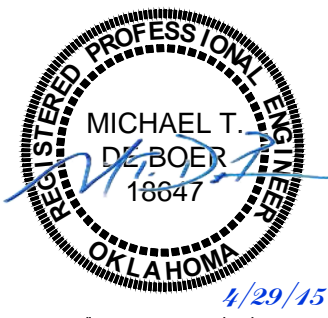
BRANCH
COMMUNICATIONS, LLC
BRANCH COMMUNICATIONS
1516 S BOSTON AVE STE 215
TULSA, OKLAHOMA 74119
(918) 949-4551

PLANS PREPARED BY:



DE BOER
MICHAEL T. DE BOER
965 WYNSTONE DRIVE
JEFFERSON, SD 57038
605-422-1548

ENGINEERING LICENSE:



MICHAEL T. DE BOER
18647
OKLAHOMA
4/29/15
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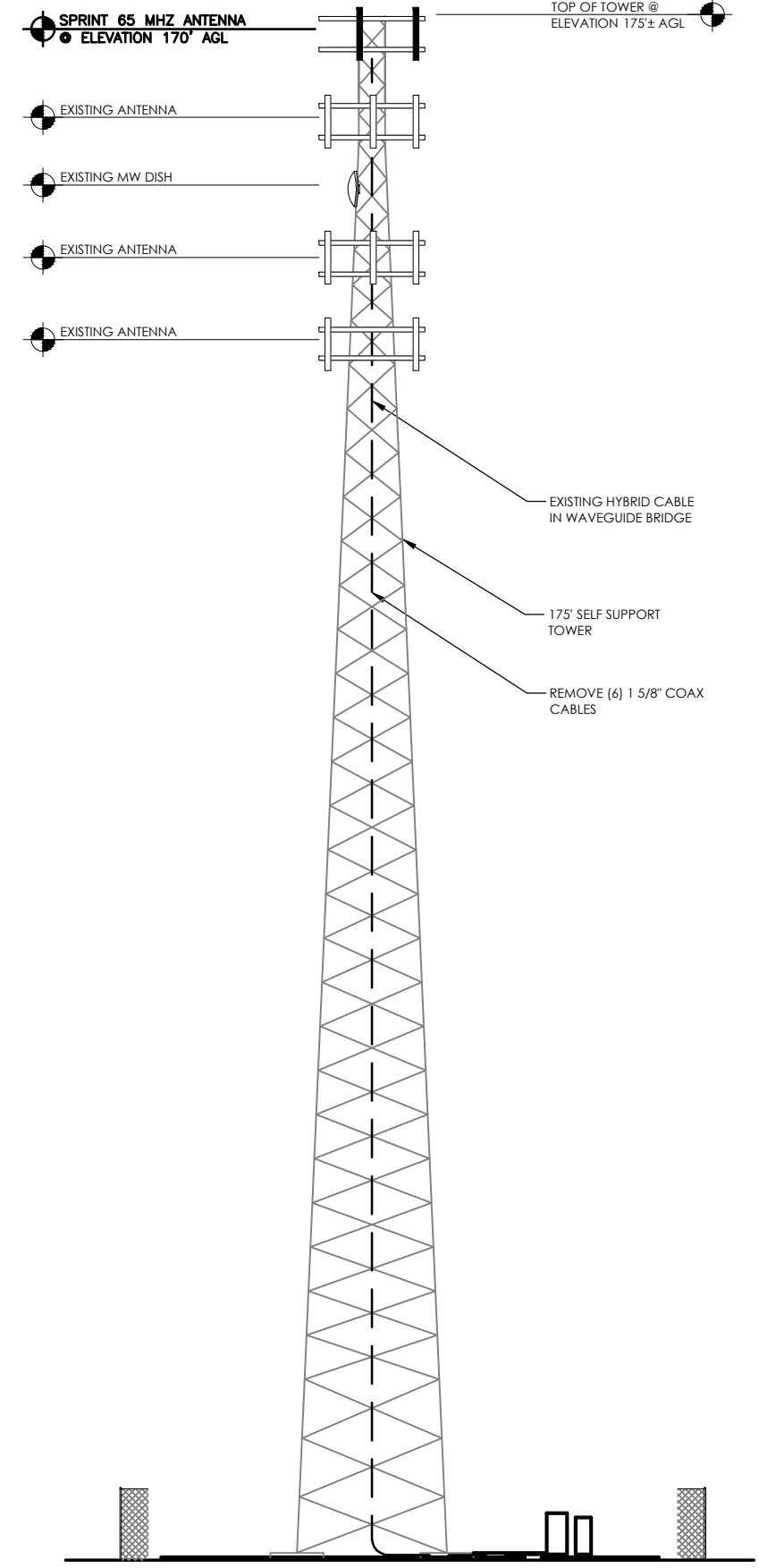
**593 E KENOSHA STREET
BROKEN ARROW, OK
74012**

SHEET DESCRIPTION:

EQUIPMENT PLAN

SHEET NUMBER:

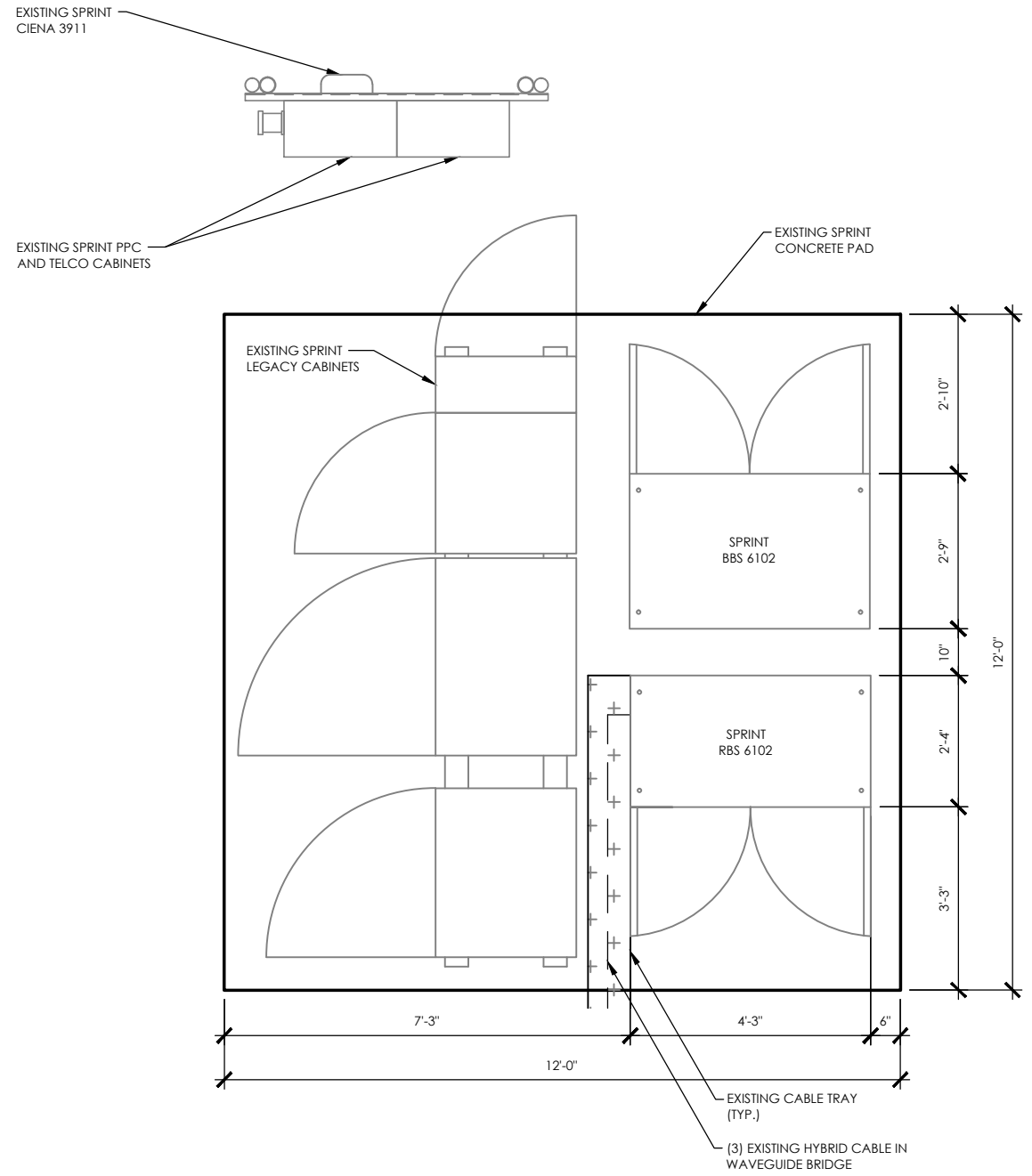
A-2



SITE ELEVATION

NO SCALE

B

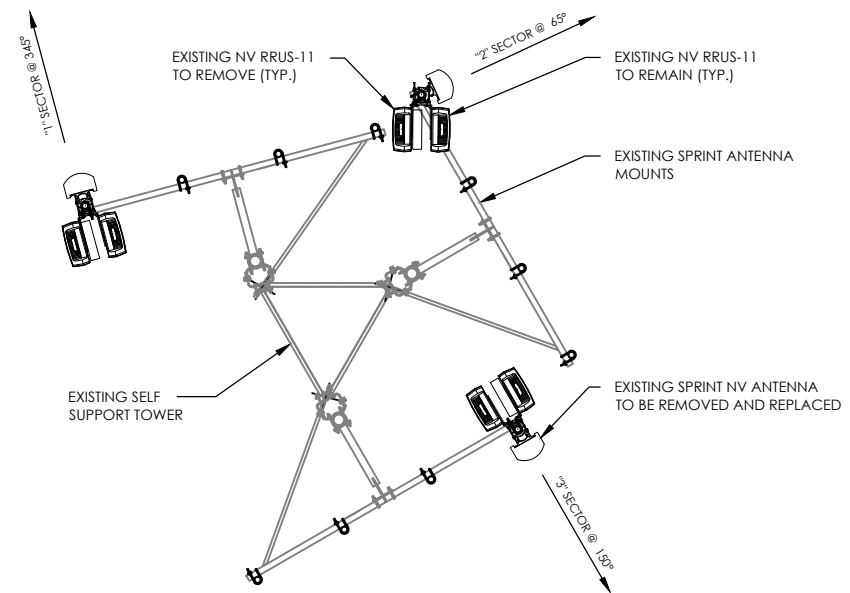


EQUIPMENT PLAN

0' 6" 1' 3' 6" 3/4" = 1'-0"



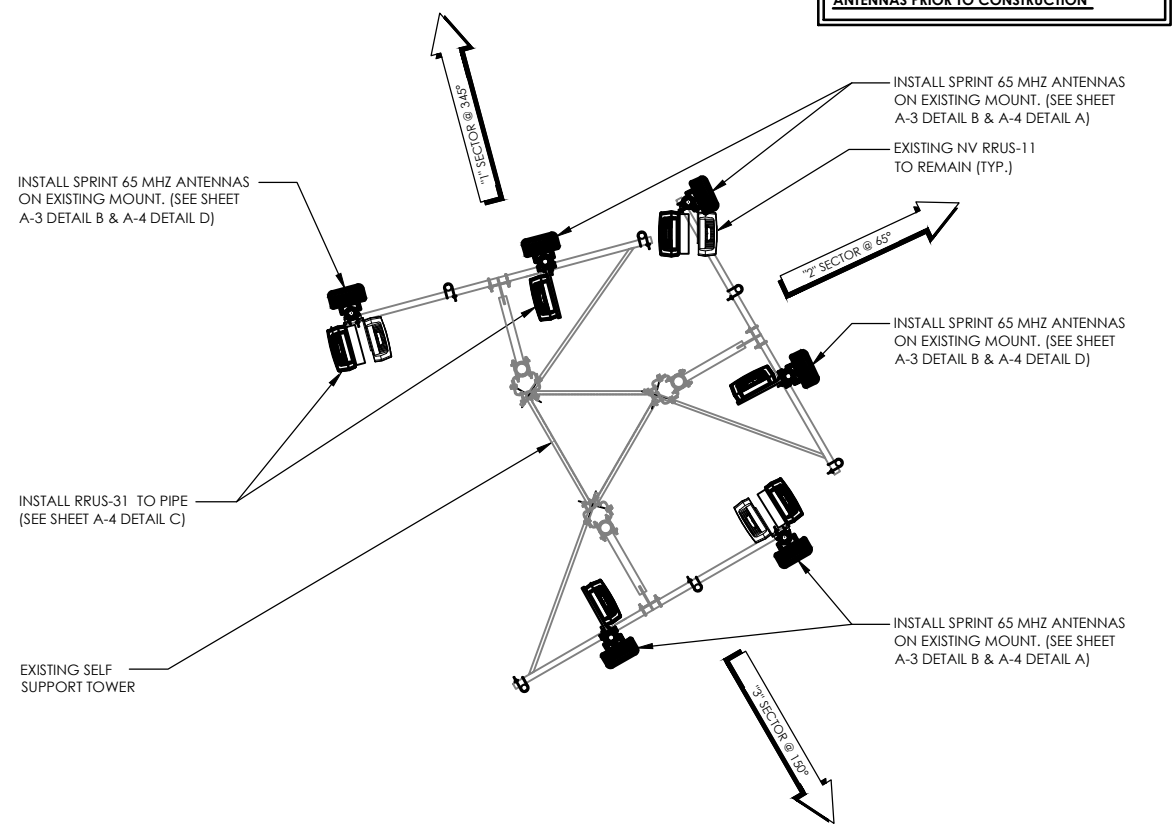
A



EXISTING ANTENNA & RRH LAYOUT @ 170'

NO SCALE

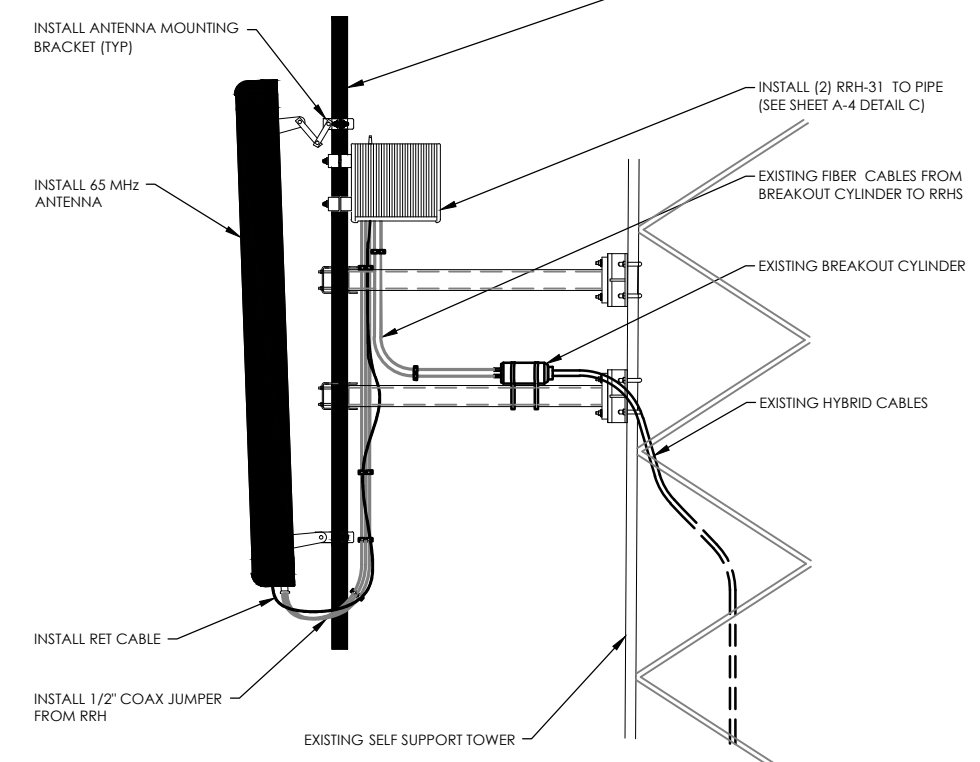
C



FINAL ANTENNA LAYOUT @ 170'

NO SCALE

A



ANTENNA, RRH & RAYCAP MOUNTING DETAILS

NO SCALE

D

NO SCALE

B

NOT USED

65 MHZ 175' SELF SUPPORT TOWER

PLANS PREPARED FOR:

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

BRANCH COMMUNICATIONS, LLC
1516 S BOSTON AVE STE 215
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605-422-1548

ENGINEERING LICENSE:

MICHAEL T. DE BOER
18647
OKLAHOMA
4/29/15
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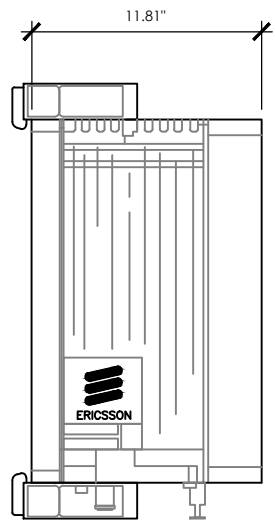
593 E KENOSHA STREET
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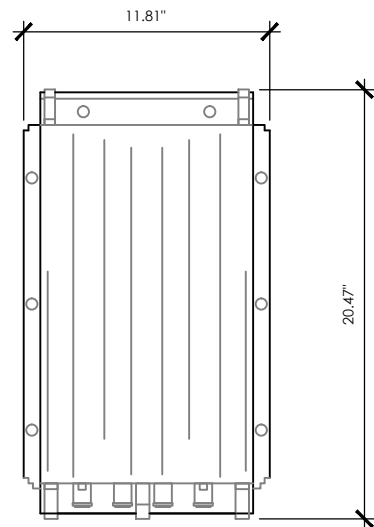
ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:

A-3



SIDE VIEW

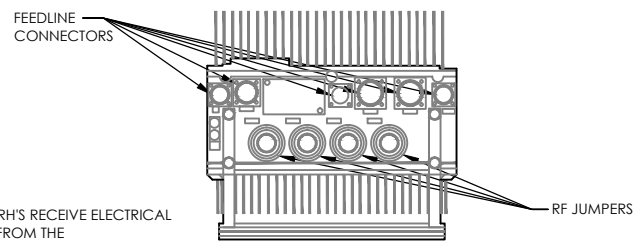


FRONT VIEW

ERICSSON RRU-31

DIMENSIONS HxWxD in (mm):
20.47"x11.81"x11.81" (520x300x300mm)

WEIGHT:
59.8 lbs



PLAN VIEW

NOTES

GENERAL CONTRACTOR TO ENSURE THAT ALL RRU'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRU PACKAGES IN THE RAIN

RRU-31

NO SCALE

C

RFS APXVSPP18-C

RADOME MATERIAL:

PVC UV RESISTANT

RADOME COLOR:

LIGHT GREY (RAL7035)

DIMENSIONS, HxWxD.in(mim):

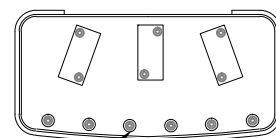
72.0"x11.8"x7.0" (1829x302x178mm)

WEIGHT:

57 lbs

CONNECTORS:

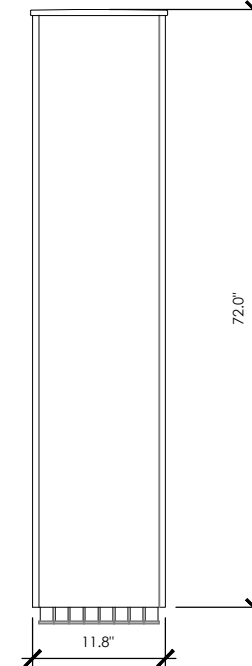
(6) 7-16 DIN FEMALE



CONNECTORS (TYP.)



7.0"



11.8"

72.0"

65 MHZ ANTENNA

NO SCALE

A

ET-X-TU-42-15-37-18-IR-SP

RADOME MATERIAL:

PVC UV RESISTANT

RADOME COLOR:

LIGHT GREY (RAL7035)

DIMENSIONS, HxWxD.in(mim):

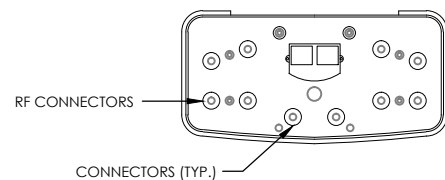
48.0"x18.1"x7.1" (1219x460x180mm)

WEIGHT:

50 lbs

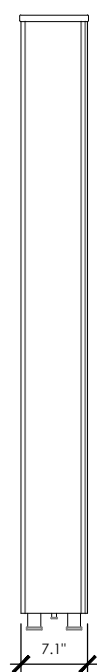
CONNECTORS:

(6) 7-16 DIN FEMALE/BOTTOM

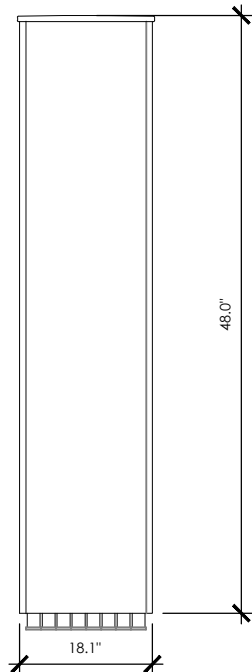


RF CONNECTORS

CONNECTORS (TYP.)



7.1"



18.1"

48.0"

65 MHZ ANTENNA

NO SCALE

D

NOT USED

NO SCALE

B

65 MHZ 175' SELF SUPPORT TOWER

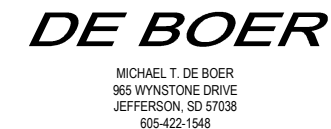
PLANS PREPARED FOR:



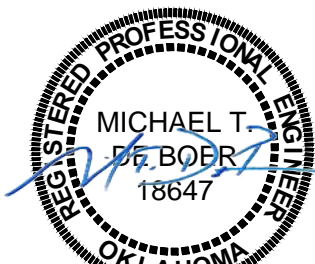
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PLANS PREPARED BY:



ENGINEERING LICENSE:



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SITE CASCADE:

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SITE ADDRESS:

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74012**

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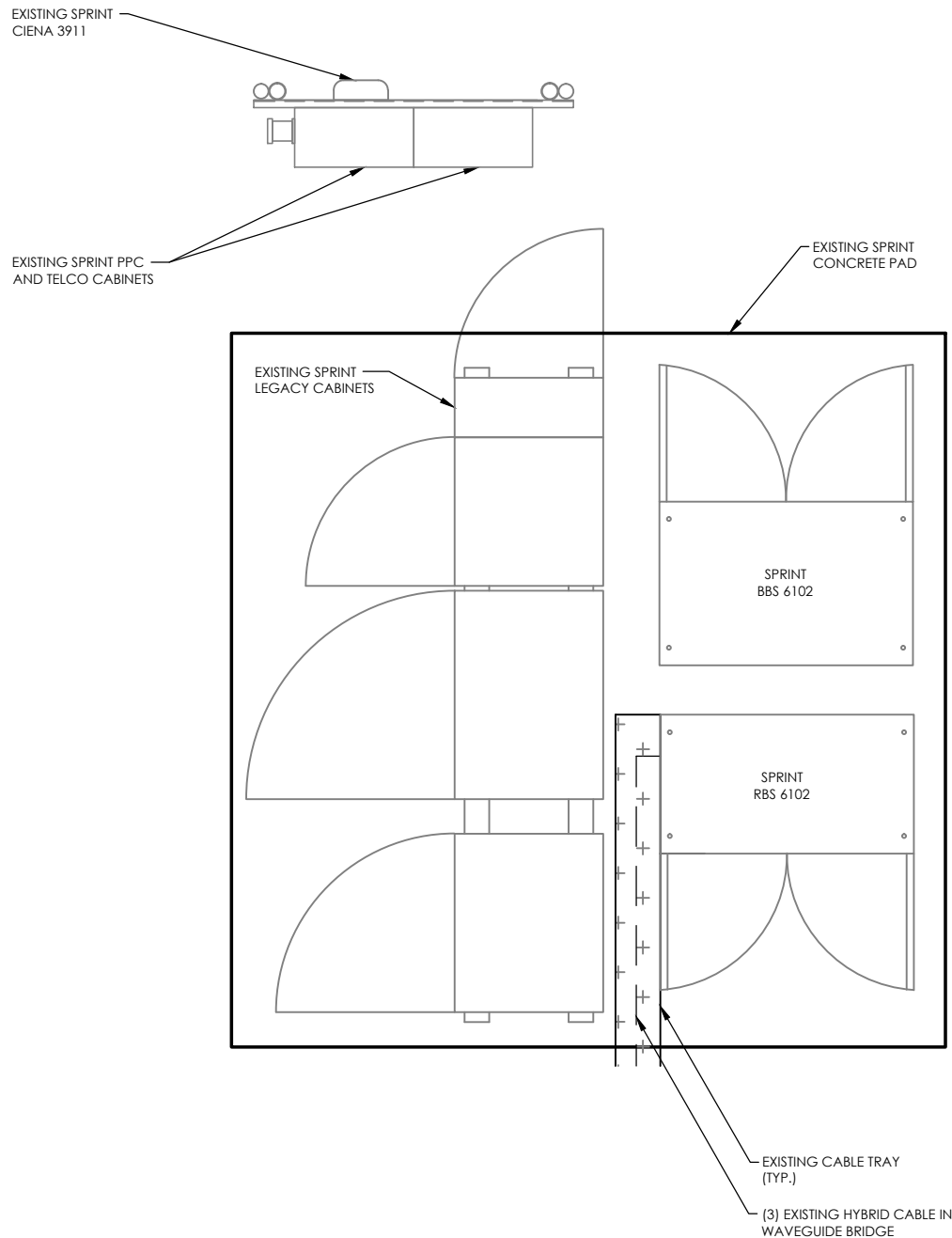
EQUIPMENT DETAILS

SHEET NUMBER:

A-4

LEGEND:

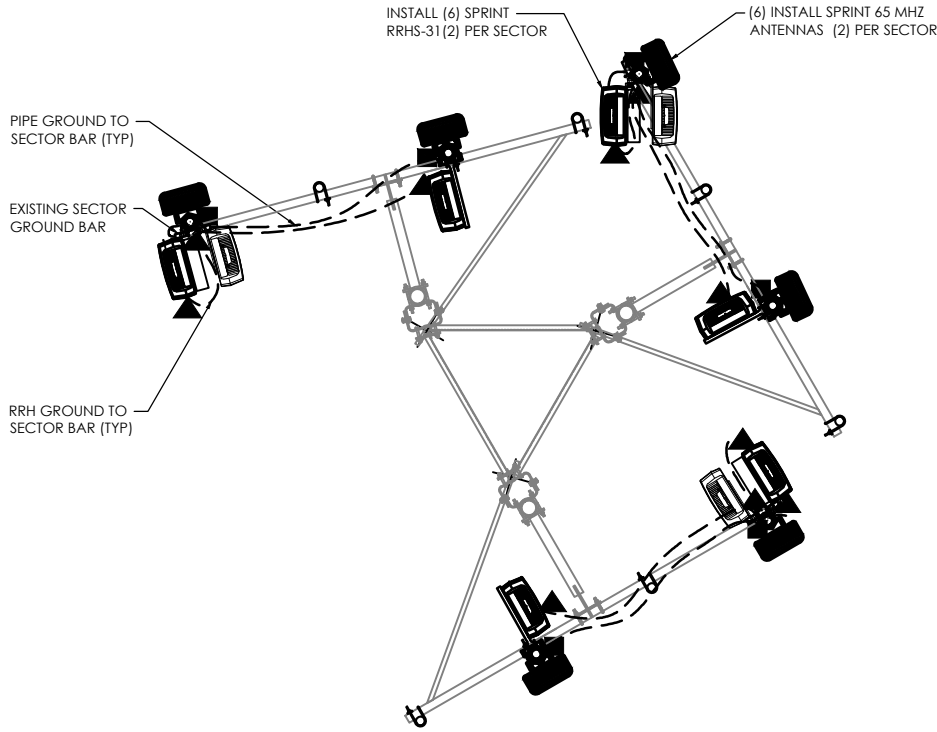
- EXISTING GROUND RING
- CADWELD CONNECTION (EXOTHERMIC WELD)
- ▲ MECHANICAL CONNECTION
- ⊗ GROUND ROD



EQUIPMENT GROUNDING PLAN

NO SCALE

C



ANTENNA GROUNDING PLAN (TYP)

NO SCALE

A

DETAIL NOT USED

NO SCALE

B

65 MHZ 175' SELF SUPPORT TOWER

PLANS PREPARED FOR:

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

BRANCH COMMUNICATIONS, LLC
BRANCH COMMUNICATIONS
1516 S BOSTON AVE STE 215
TULSA, OKLAHOMA 74119
(918) 949-4551

PLANS PREPARED BY:

MICHAEL T. DE BOER
965 WYNSTONE DRIVE
JEFFERSON, SD 57038
605-422-1548

ENGINEERING LICENSE:

MICHAEL T. DE BOER
18647
OKLAHOMA
4/29/15
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BROKEN ARROW, OK
74012

SHEET DESCRIPTION:

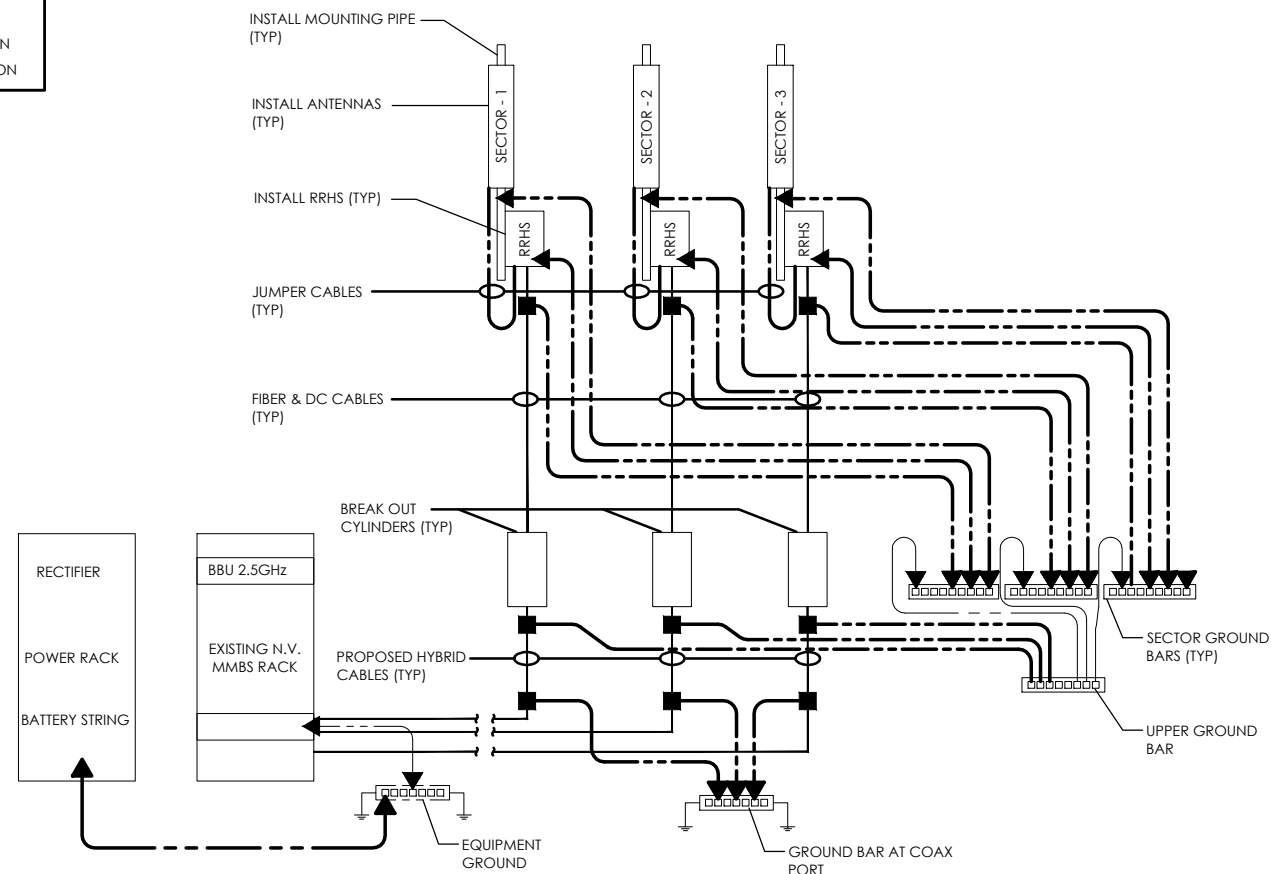
GROUNDING & ELECTRICAL PLAN

SHEET NUMBER:

E-1

SYMBOL LEGEND

EXOTHERMIC CONNECTION
MECHANICAL CONNECTION

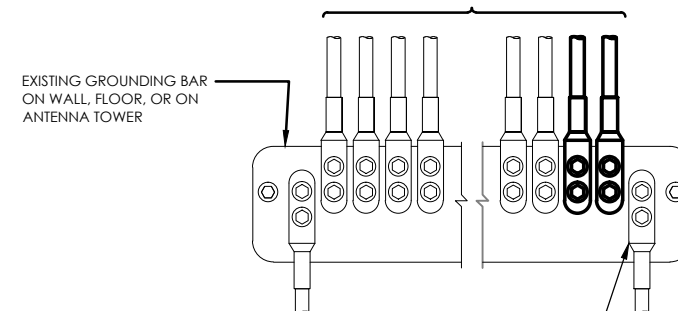


TYPICAL GROUNDING RISER DIAGRAM

NO SCALE

C

#4 OR #6 AWG SOLID CU CONDUCTOR WITH GREEN, 600V, THWN-2 INSULATION



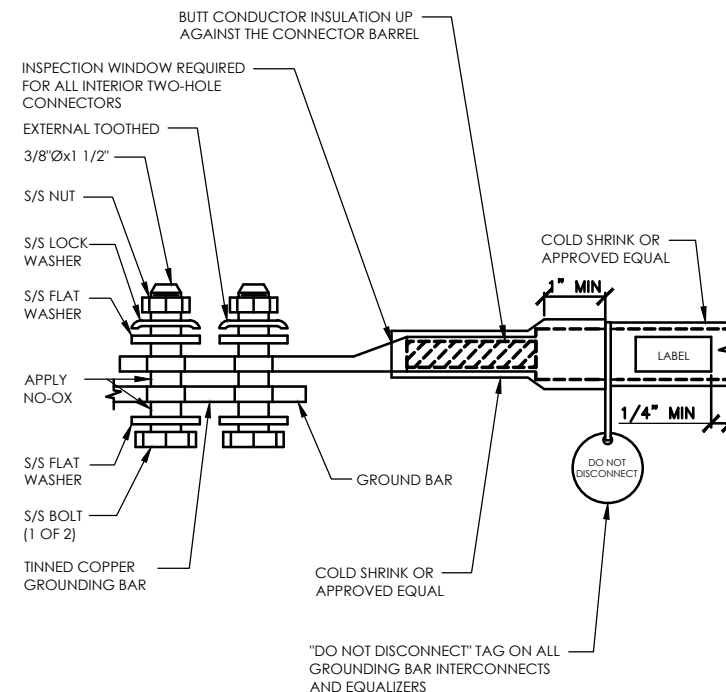
NOTES

1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

NO SCALE

A



TWO HOLE LUG

NO SCALE

B

65 MHz 175' SELF SUPPORT TOWER

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6580 Sprint Parkway
Overland Park, Kansas 66251

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DESCRIPTION	DATE	BY	REV
PRELIMINARY ISSUE	4/21/15	JPR	A
PRELIMINARY ISSUE	4/22/15	JWM	B

SITE NAME:

TIGER HILL

SITE CASCADE:

TU25XC414

SITE ADDRESS:

593 E KENOSHA STREET
BROKEN ARROW, OK
74012

SHEET DESCRIPTION:

GROUNDING DETAILS

SHEET NUMBER:

E-2

DETAIL NOT USED

NO SCALE

E

DETAIL NOT USED

NO SCALE

D