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WALGREENS

DN63XC021

15301 E. ILIFF AVENUE
AURORA, CO. 80013
ARAPAHOE COUNTY

LONGITUDE: -104.8093900°
LATITUDE: 39.6751900°

ROOFTOP 35'-0"
COLORADO MARKET

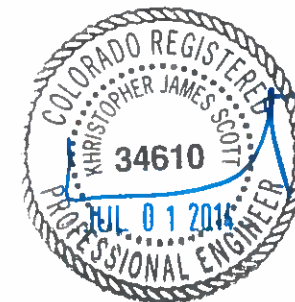
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REV	DATE	REVISION DESCRIPTION	BY

ISSUED FOR
CONSTRUCTION

PLANS PREPARED BY:
CENTERLINE SOLUTIONS
Advancing Wireless Networks
16360 TABLE MOUNTAIN PARKWAY
Golden, CO 80403
303-993-3293
WWW.CENTERLINESOLUTIONS.COM



ALL SCALES ARE SET FOR A SIZE "D" 24"X36" SHEET
PROJECT INFORMATION

WALGREENS
DN63XC021
15301 E. ILIFF AVE.
AURORA, CO 80013
ARAPAHOE COUNTY

DRAWN BY:	CHECKED BY:	APPROVED BY:
ML	JN	KS

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T1

CODE ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES. BUILDING/DWELLING CODE IBC 2009 STRUCTURAL CODE IBC 2009 MECHANICAL CODE IMC 2009 ELECTRICAL CODE NEC 2011 FIRE/LIFE SAFETY CODE IFC 2009 ACCESSIBILITY REQUIREMENTS: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS REQUIREMENTS ARE NOT REQUIRED IN ACCORDANCE WITH THE 2009 IBC BUILDING CODE.	AREA MAP 	PROJECT SUMMARY <u>SITE INFORMATION:</u> SITE NAME: WALGREENS SITE #: DN63XC021 SITE ADDRESS: 15301 E. ILIFF AVE CITY, STATE & ZIP: AURORA, CO 80013 COUNTY: ARAPAHOE COUNTY <u>PROPERTY/TOWER OWNER:</u> COMPANY: CKT-AURORA LLC CONTACT: NICK STUDEN JR. ADDRESS: 8900 GROOMSMT BLVD #3 LA MESA, CA 91941 PHONE: (303) 466-6794 <u>SPRINT CONSTRUCTION MANAGER (CM):</u> COMPANY: SPRINT CONTACT: BRANDON WHINERY EMAIL: BRANDON.WHINERY@SPRINT.COM PHONE: (303) 505-5750 <u>SPRINT PROJECT MANAGER:</u> COMPANY: SPRINT CONTACT: DANIELE L. HUXTABLE EMAIL: DANIELE.HUXTABLE@SPRINT.COM PHONE: (720) 420-6915 <u>SITE ACQ. PROJECT MANAGER:</u> COMPANY: CENTERLINE SOLUTIONS, LLC CONTACT: AMANDA BERNARD EMAIL: ABERNARD@CENTERLINESOLUTIONS.COM PHONE: (404) 304-3066 <u>A&E FIRM:</u> COMPANY: CENTERLINE SOLUTIONS, LLC CONTACT: JEFF NOSEWORTHY EMAIL: JEFFN@CENTERLINESOLUTIONS.COM PHONE: (303) 993-3293 X 414	SHEET INDEX <table><thead><tr><th>SHEET</th><th>DESCRIPTION</th></tr></thead><tbody><tr><td>T1</td><td>TITLE SHEET</td></tr><tr><td>SP1</td><td>SPRINT SPECIFICATIONS</td></tr><tr><td>SP2</td><td>SPRINT SPECIFICATIONS</td></tr><tr><td>A1</td><td>OVERALL SITE PLAN</td></tr><tr><td>A2</td><td>SITE PLAN</td></tr><tr><td>A3</td><td>EX. & NEW EQUIPMENT PLANS</td></tr><tr><td>A4</td><td>EX. & NEW ANTENNA PLANS, ANTENNA & RRU SPECS</td></tr><tr><td>A5</td><td>ELEVATIONS</td></tr><tr><td>A6</td><td>EQUIPMENT DETAILS</td></tr><tr><td>A7</td><td>RFDS</td></tr><tr><td>A8</td><td>COLOR CODING</td></tr><tr><td>A9</td><td>EQUIPMENT DETAILS</td></tr><tr><td>E1</td><td>EXISTING AC & DC POWER DISTRIBUTION</td></tr><tr><td>E2</td><td>GROUNDING DETAILS</td></tr></tbody></table>	SHEET	DESCRIPTION	T1	TITLE SHEET	SP1	SPRINT SPECIFICATIONS	SP2	SPRINT SPECIFICATIONS	A1	OVERALL SITE PLAN	A2	SITE PLAN	A3	EX. & NEW EQUIPMENT PLANS	A4	EX. & NEW ANTENNA PLANS, ANTENNA & RRU SPECS	A5	ELEVATIONS	A6	EQUIPMENT DETAILS	A7	RFDS	A8	COLOR CODING	A9	EQUIPMENT DETAILS	E1	EXISTING AC & DC POWER DISTRIBUTION	E2	GROUNDING DETAILS
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PROJECT DESCRIPTION SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY • INSTALL (3) NEW PANEL ANTENNAS (1 PER SECTOR) • INSTALL (3) NEW RRU'S (1 PER SECTOR) • INSTALL (3) NEW FIBER JUNCTION CYLINDERS (1 PER SECTOR) • INSTALL (3) NEW POWER JUNCTION CYLINDERS (1 PER SECTOR) • INSTALL (1) NEW BBU KIT IN EXISTING MMBS CABINET	VICINITY MAP 	PROJECT TEAM <div><p>6100 SPRINT PARKWAY OVERLAND PARK, KS 66251 TEL. (913) 624 6000</p></div> <div><p>16360 TABLE MOUNTAIN PARKWAY Golden, CO 80403 303 993 3293 WWW.CENTERLINESOLUTIONS.COM</p></div>																															
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- 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 RADI.
- C. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.
1. FASTENING MAIN HYBRID CABLES: ALL CABLES SHALL BE PERMANENTLY FASTENED TO THE COAX LADDER AT 4'-0" OC USING NON-MAGNETIC STAINLESS STEEL CLIPS.
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 ½" VELCRO STRAPS OF THE REQUIRED LENGTH @ 18" OC. 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 WILL BE PROPERLY ROUTED IN THE CABLE ENVELOP AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSEOVERS.
- 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 REV 4.
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:

- A. ALL FIBER & 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. COLD SHRINK: ENCOMPASS CONNECTOR IN COLD SHRINK TUBING AND PROVIDE A DOUBLE WRAP OF 2" 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 SELF-AMALGAMATING TAPE.
3. 3M SLIM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
4. 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 REQUIRE 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.

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

PLANS PREPARED FOR:



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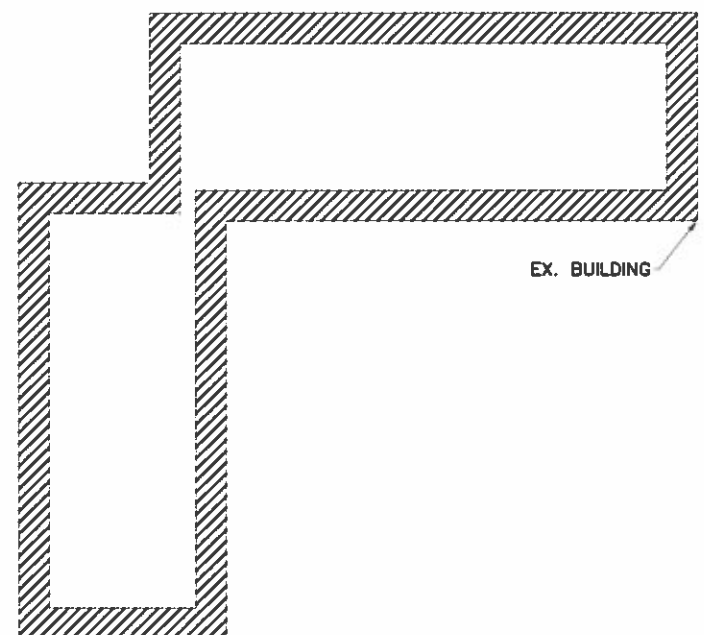
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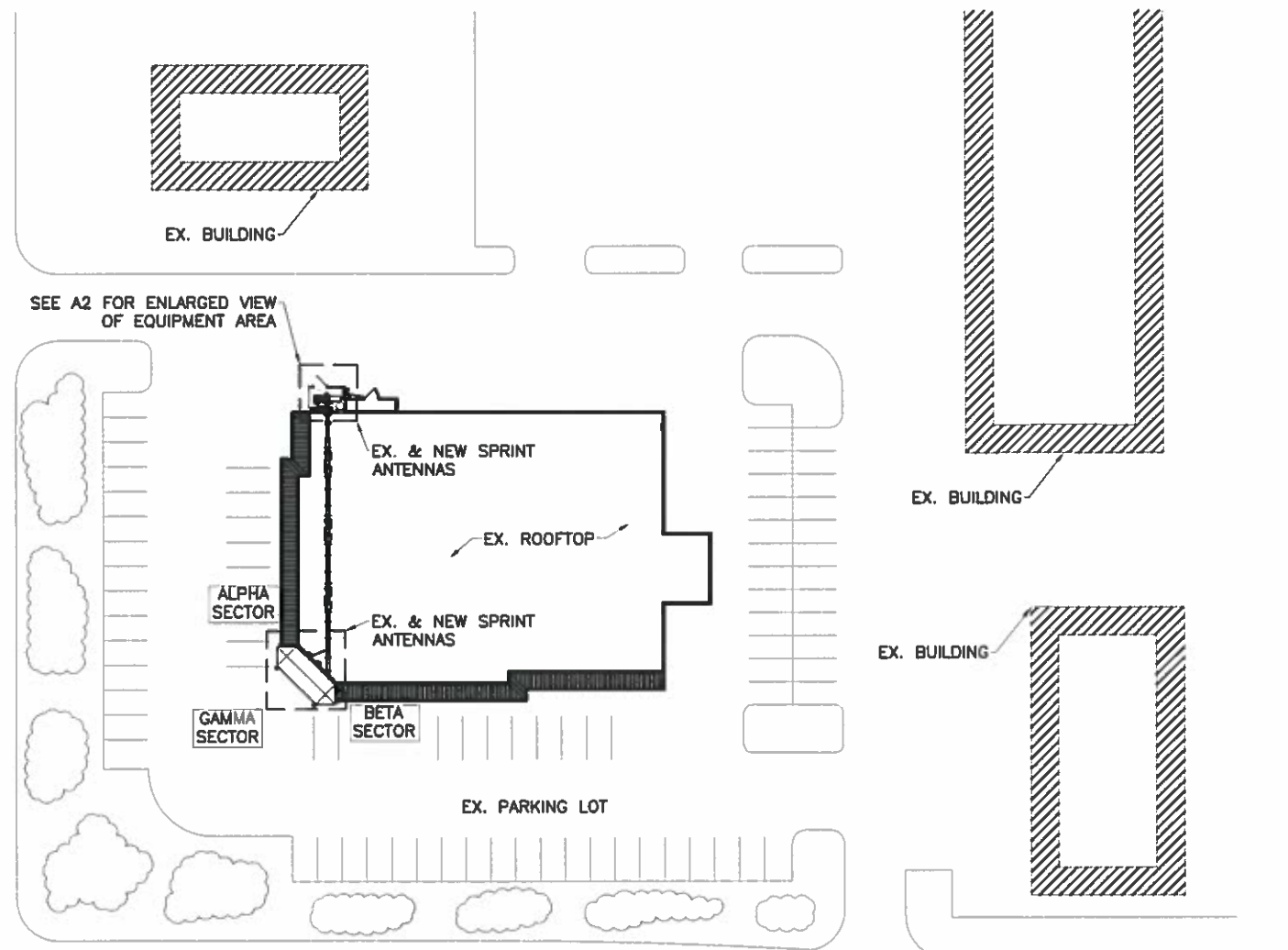
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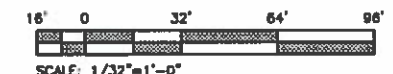
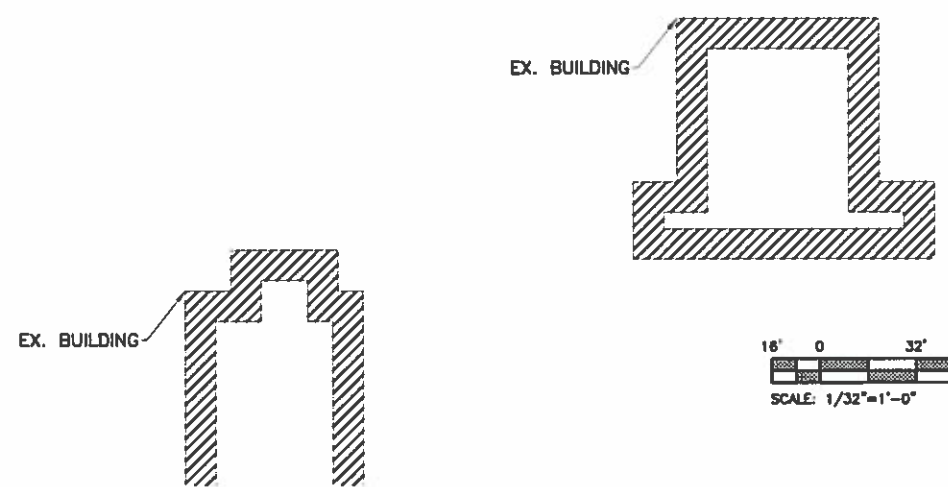
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S. CHAMBERS RD



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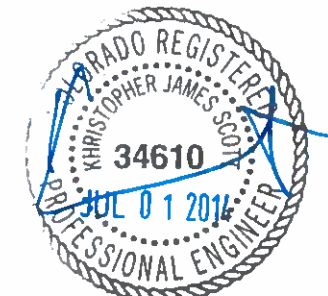


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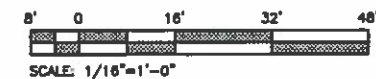
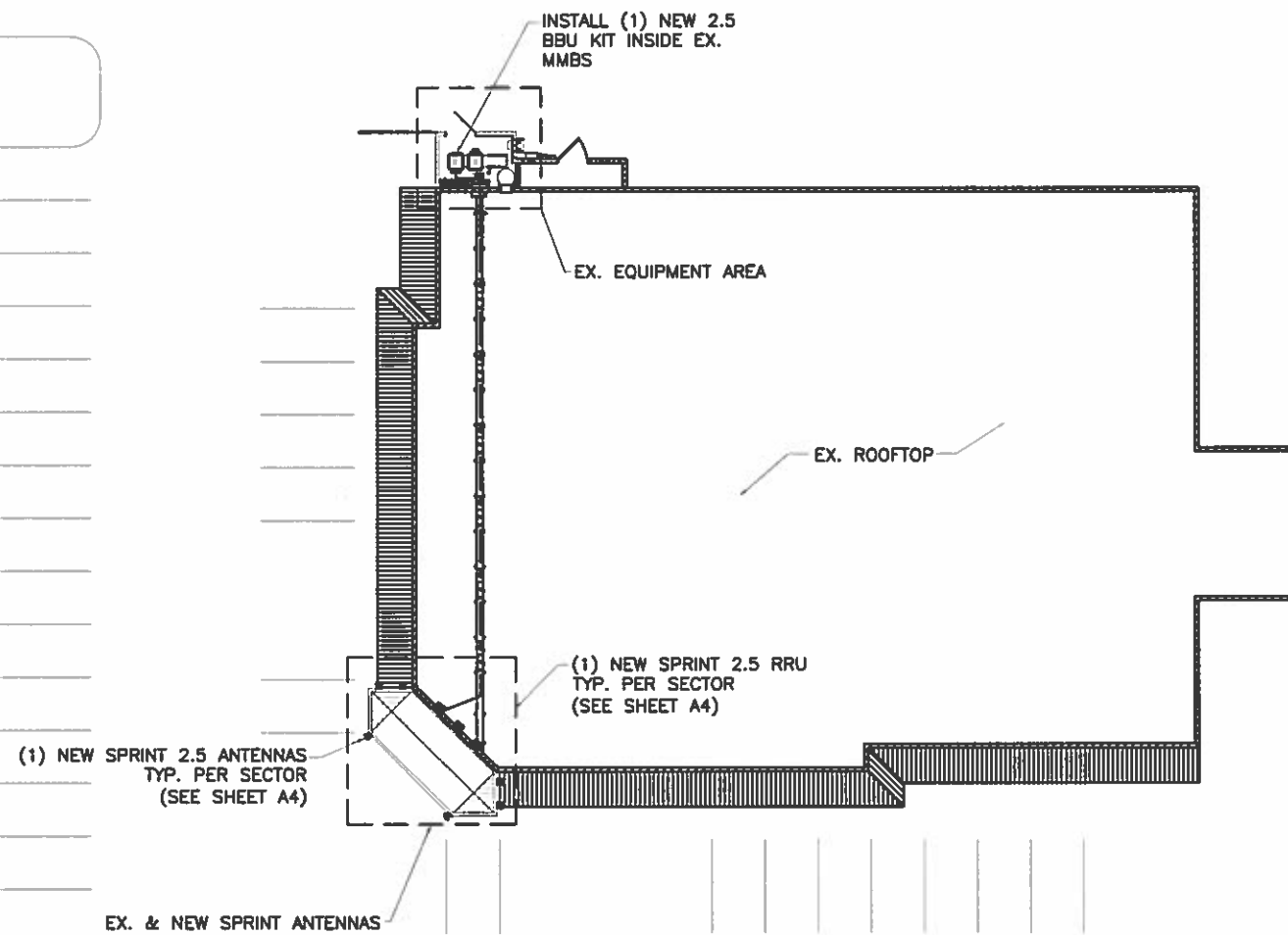
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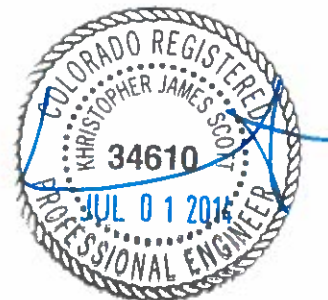
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2	7/1/14	FINAL CONST	ML
1	6/26/14	100% CONST	JN
0	4/16/14	90% CONST	ML
REV	DATE	REVISION DESCRIPTION	BY

ISSUED FOR
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PLANS PREPARED BY

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Advancing Wireless Networks

16360 TABLE MOUNTAIN PARKWAY
Golden, CO 80403
303 993 3293
WWW.CENTERLINESOLUTIONS.COM



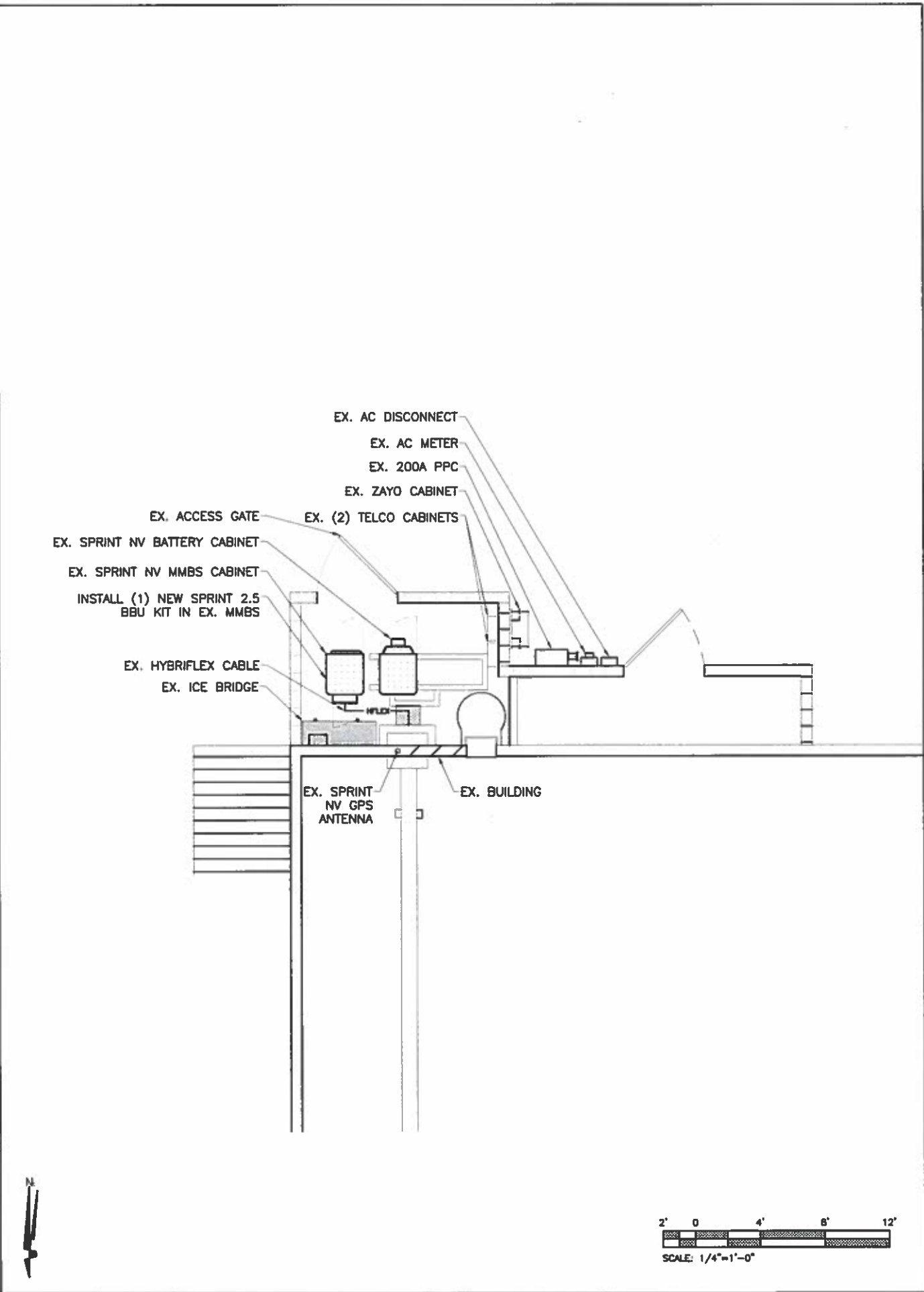
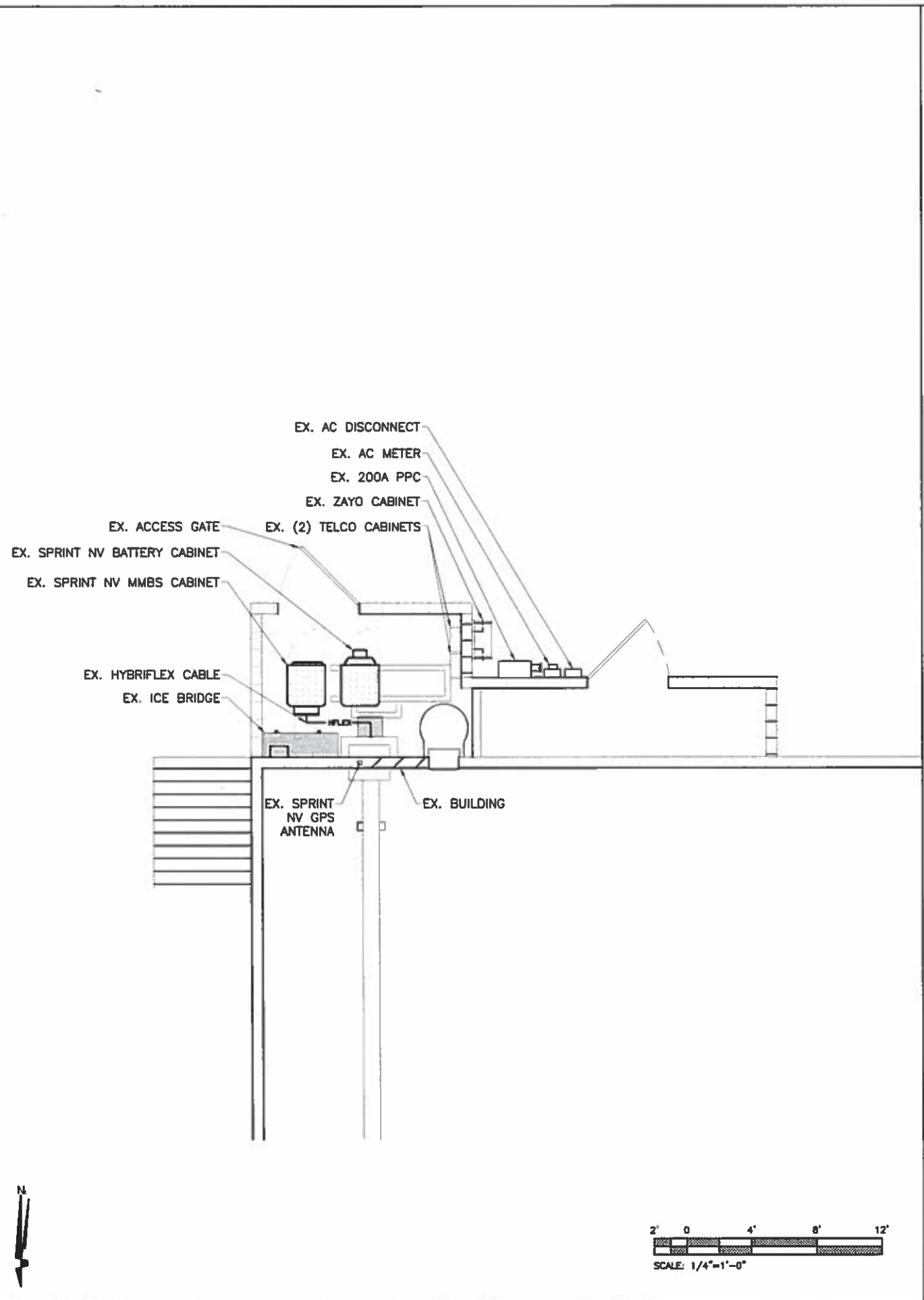
ALL SCALES ARE SET FOR A SIZE "D" 24"X36" SHEET
PROJECT INFORMATION

WALGREENS
DN63XC021
15301 E. ILIFF AVE.
AURORA, CO 80013
ARAPAHOE COUNTY

DRAWN BY ML	CHECKED BY JN	APPROVED BY KS
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SHEET TITLE
SITE PLAN

SHEET NUMBER
A2



6100 SPRINT PARKWAY
OVERLAND PARK, KS 66251

△			
△			
△			
△	7/1/14	FINAL CONST	ML
△	6/26/14	100% CONST	JN
△	4/16/14	90% CONST	ML
REV	DATE	REVISION DESCRIPTION	BY

ISSUED FOR
CONSTRUCTION

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Golden, CO 80403
303 993 3293
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ALL SCALES ARE SET FOR A SIZE "11" 24"X36" SHEET

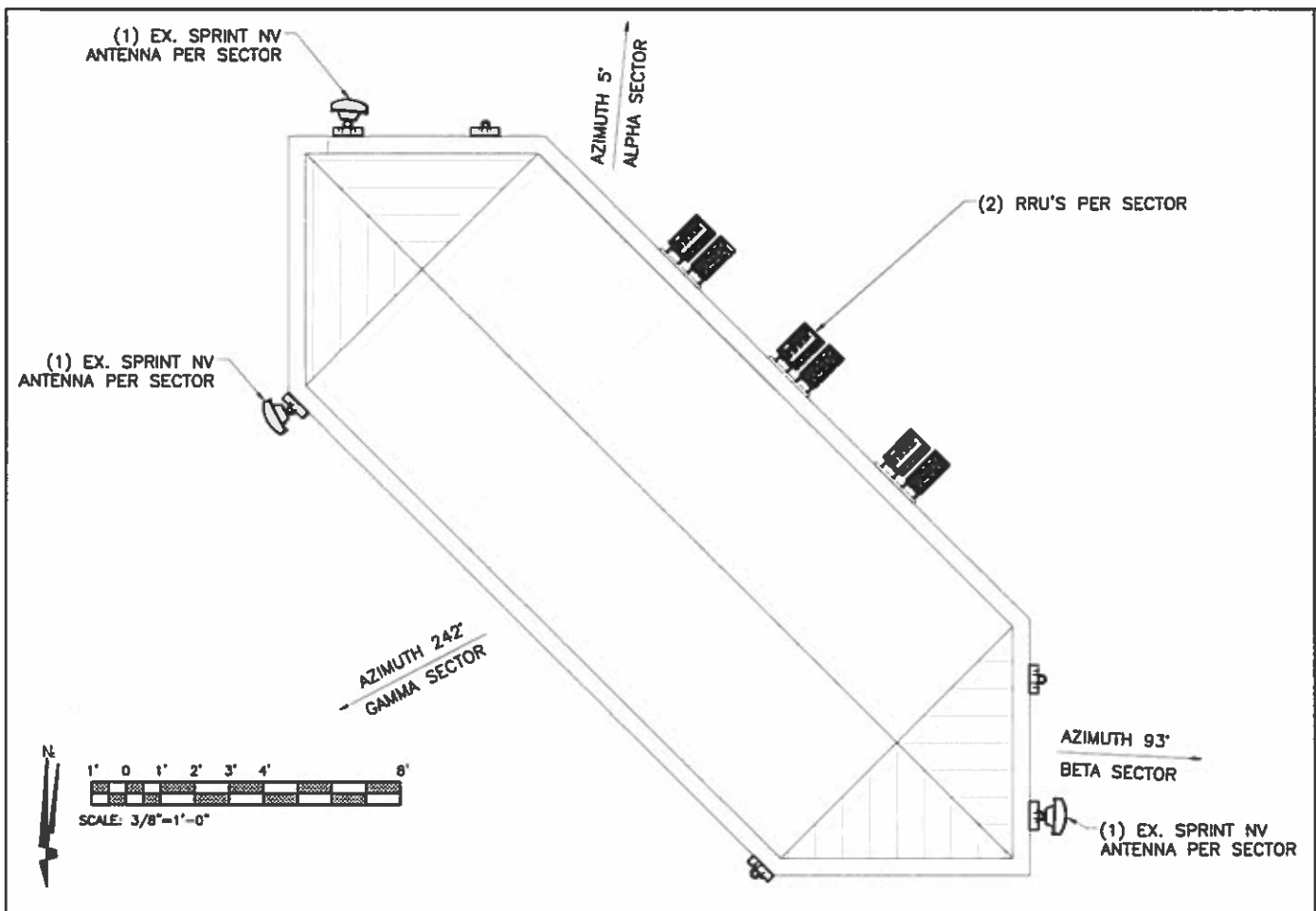
PROJECT INFORMATION

WALGREENS
DN63XC021
15301 E. IUFF AVE.
AURORA, CO 80013
ARAPAHOE COUNTY

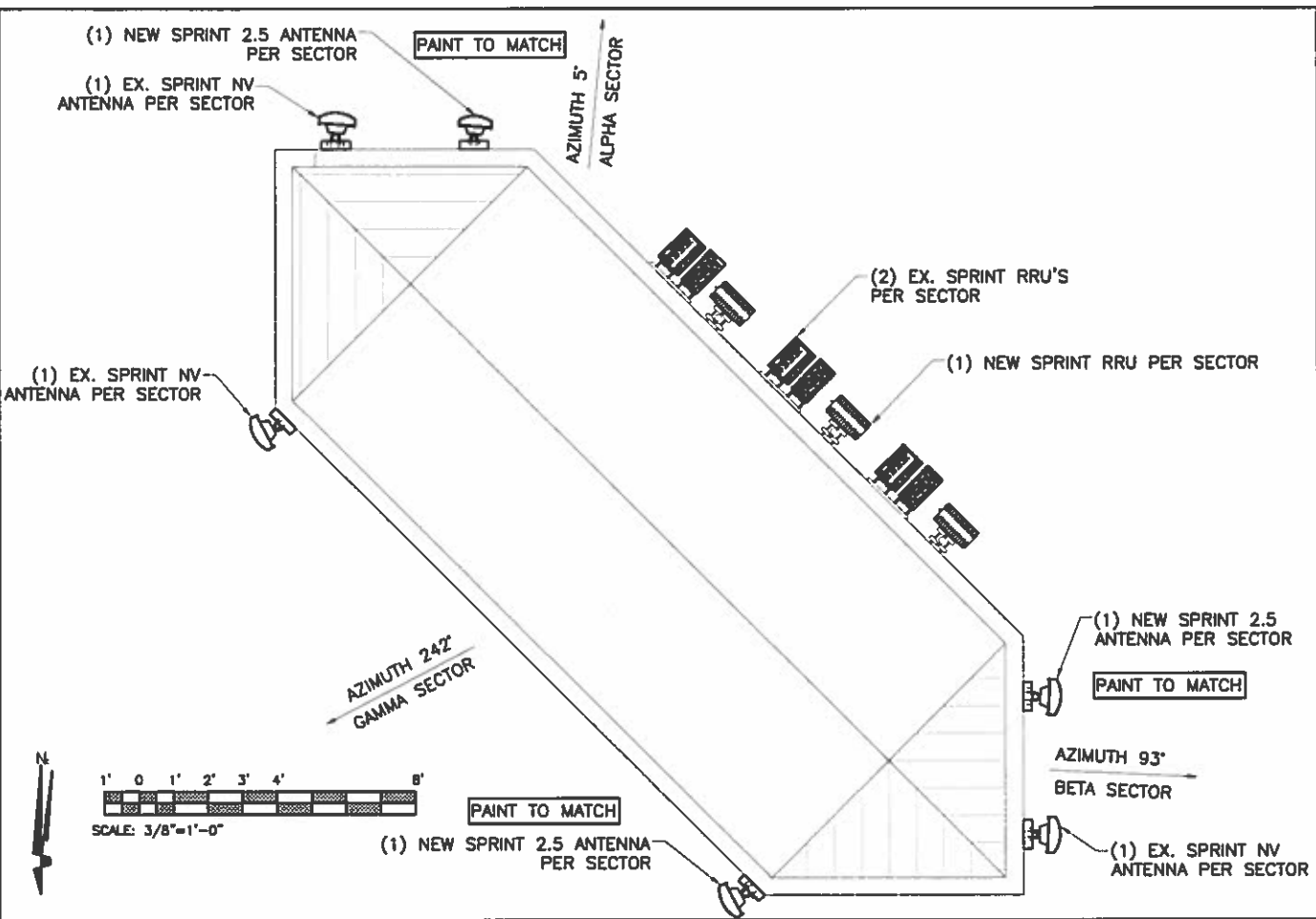
DRAWN BY ML	CHECKED BY JN	APPROVED BY KS
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SHEET TITLE
EXISTING & NEW EQUIPMENT PLANS

SHEET NUMBER
A3

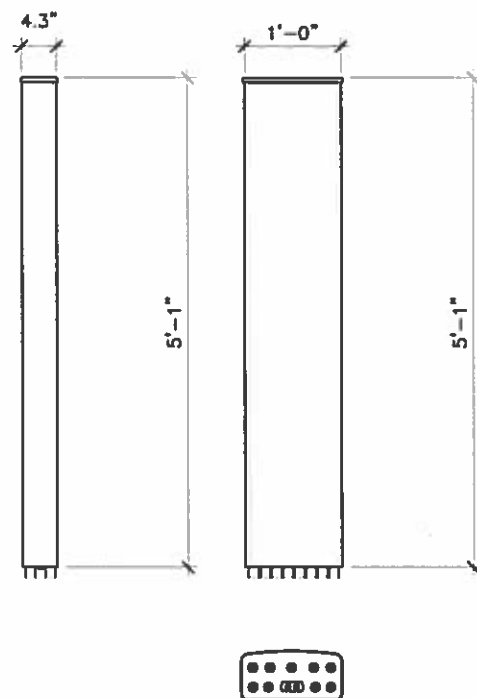


1 EXISTING ANTENNA PLAN SCALE: 3/8"=1'-0"



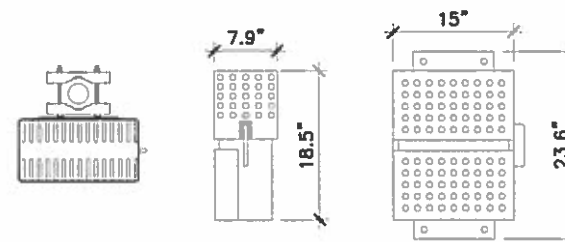
2 NEW ANTENNA PLAN SCALE: 3/8"=1'-0"

KMW-ET-X-WM-18-65-8P
ANTENNA WEIGHT: 36.4 LBS
BRACKET WEIGHT: 11.6 LBS
FREQUENCY RANGE: 2496-2690 MHZ



3 2.5 ANTENNA SPEC SCALE: 1"=1'-0"

SAMSUNG - RRH-V3
RRH WEIGHT: 59.5 LBS
RRH BRACKET WEIGHT: 12.32 LBS
FREQUENCY RANGE: 2500 MHZ



4 RRU SPEC & PORT LAYOUT SCALE: 1"=1'-0"

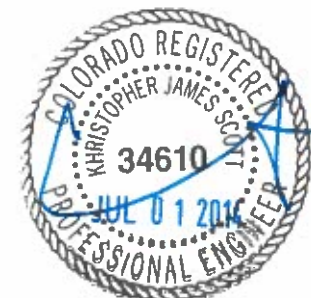
△			
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△	7/1/14	FINAL CONST	ML
△	6/26/14	100% CONST	JN
△	4/16/14	90% CONST	ML
REV	DATE	REVISION DESCRIPTION	BY

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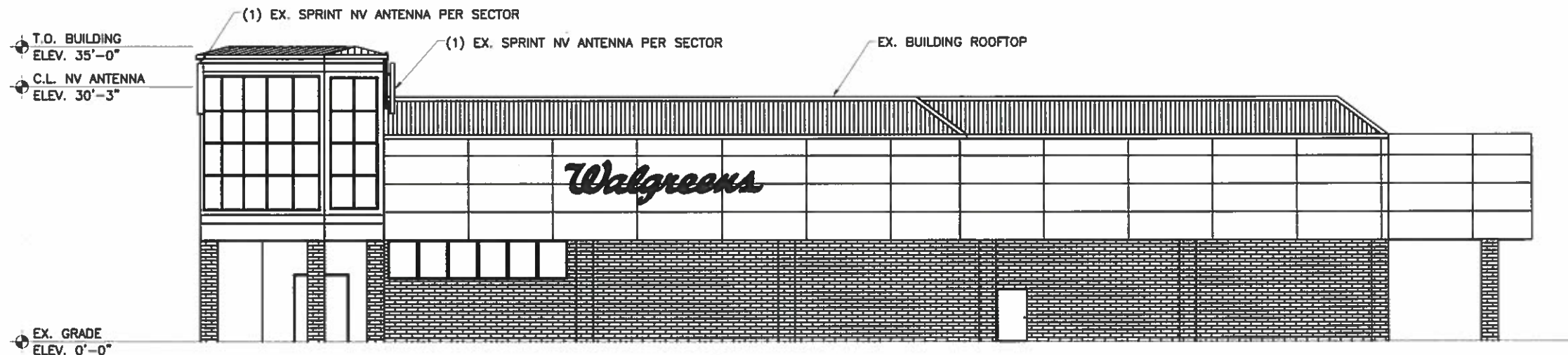
ALL SCALES ARE SET FOR A SIZE "D" 24"X36" SHEET
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WALGREENS
DN63XC021
15301 E. ILIFF AVE.
AURORA, CO 80013
ARAPAHOE COUNTY

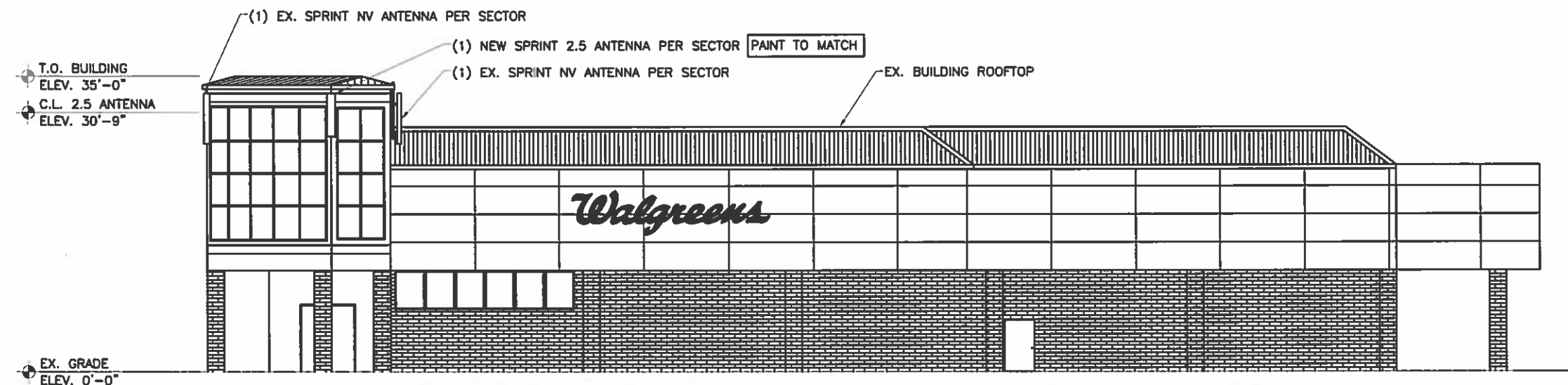
DRAWN BY:	CHECKED BY:	APPROVED BY:
ML	JN	KS

SHEET TITLE
**EX. & NEW ANTENNA
PLANS, ANTENNA
& RRU SPECS**

SHEET NUMBER
A4



1 EXISTING ELEVATION SCALE: 1/8"=1'-0"



2 NEW ELEVATION SCALE: 1/8"=1'-0"

**STRUCTURAL NOTES/SPRINT
STRUCTURAL SERVICES COMPLIANCE
NOTE:**

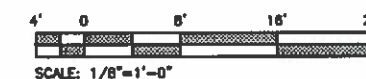
NO WORK SHALL COMMENCE WITHOUT THE APPROVED STRUCTURAL TOWER/ANTENNA/MOUNT ANALYSIS REPORT (SIGNED AND SEALED) TO BE PROVIDED UNDER SEPARATE COVER. CONTRACTOR PRIOR TO CONSTRUCTION SHALL REVIEW THE APPROVED TOWER/ANTENNA/MOUNT ANALYSIS REPORT SUPPLIED BY SPRINT AND MODIFY IF REQUIRED ALL APPLICABLE MEMBERS AS INDICATED IN CERTIFIED STRUCTURAL REPORT PRIOR TO INSTALLATION ON STRUCTURE.

ANTENNA NOTES:

1. THE SIZE, HEIGHT AND DIRECTION OF THE ANTENNA SHALL BE ADJUSTED TO MEET SYSTEM REQUIREMENTS.
2. CONTRACTOR SHALL VERIFY HEIGHT OF ANTENNA WITH SPRINT REPRESENTATIVE.
3. ALL ANTENNA AZIMUTHS ARE TO BE TAKEN FROM TRUE NORTH.

**RF WARNING SIGNAGE &
EMERGENCY SIGNAGE NOTES:**

CONTRACTOR TO CONFIRM THAT THE SITE IS COMPLIANT WITH RF WARNING SIGNAGE & EMERGENCY SIGNAGE AS REQUIRED BY THE FEDERAL GUIDELINES & AS PER SPRINT GUIDELINES.



PLANS PREPARED FOR



△			
△			
△			
△	7/1/14	FINAL CONST	ML
△	6/26/14	100% CONST	JN
△	4/16/14	90% CONST	ML
REV	DATE	REVISION DESCRIPTION	BY

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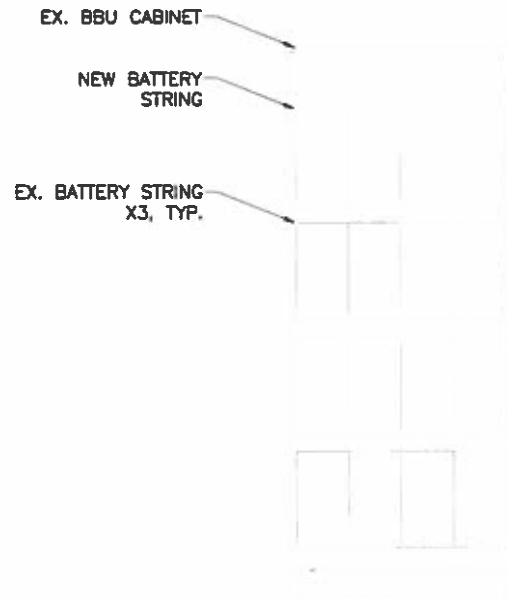
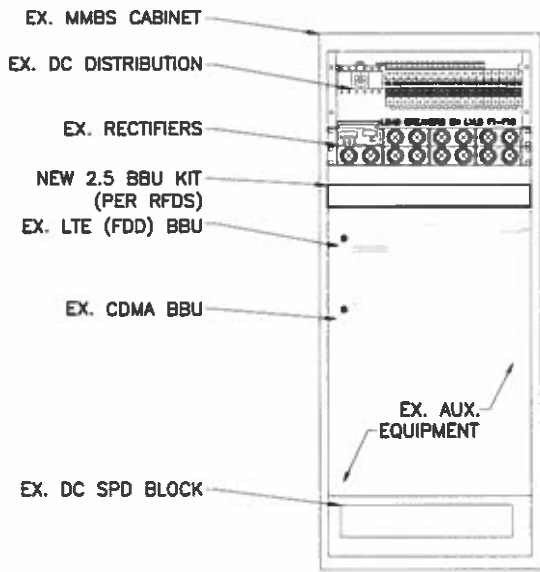
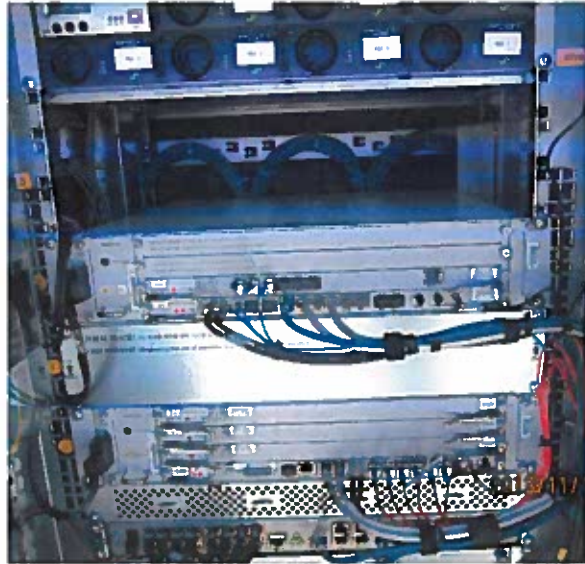
ALL SCALES ARE SET FOR A SIZE "D" 24"X36" SHEET
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WALGREENS
DN63XC021
15301 E. ILIFF AVE.
AURORA, CO 80013
ARAPAHOE COUNTY

DRAWN BY ML	CHECKED BY JN	APPROVED BY KS
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SHEET TITLE
ELEVATIONS

SHEET NUMBER
A5



1 EX. MMBS CABINET

SCALE: N.T.S.

2 EX. MMBS CABINET W/ 2.5 EQUIPMENT

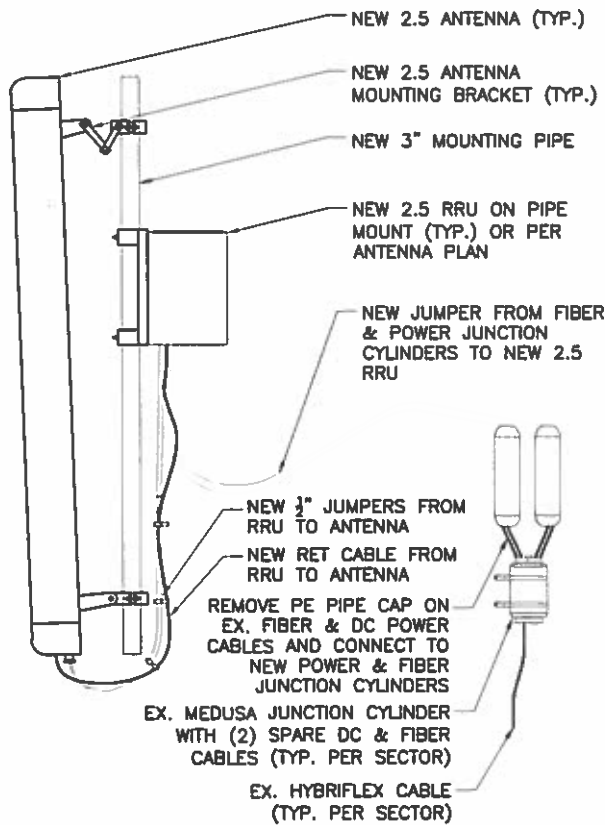
SCALE: N.T.S.

3 EX. BBU CABINET

SCALE: N.T.S.

4 EX. BBU CABINET W/ 2.5 EQUIPMENT

SCALE: N.T.S.



5 NOT USED

SCALE: N.T.S.

6 TYP. 2.5 ANTENNA & RRU DETAIL

SCALE: N.T.S.

6 NOT USED

SCALE: N.T.S.

△			
△			
△			
△	7/1/14	FINAL CONST	ML
△	6/26/14	100% CONST	JN
△	4/16/14	90% CONST	ML
REV	DATE	REVISION DESCRIPTION	BY

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CONSTRUCTION

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Advancing Wireless Networks

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Golden, CO 80403
303.993.3293
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ALL SCALES ARE SET FOR A SIZE "D" 24"X36" SHEET
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15301 E. ILIFF AVE.
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ARAPAHOE COUNTY

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SHEET TITLE
**EQUIPMENT
DETAILS**

SHEET NUMBER
A6

RF Design Sheet Version 3.1

***NOTE: Build site assuming future growth (ie 13.3 forecast).

Basic Information

Note: Italic text are RFDS instructions for RF Engineer. Please remove these comments prior to issuing RFDS form and remove italic formatting.

Cascade Number	DN53XC021
Site Name	52/FILL TN/AURORA/DEN357/WALGREEN'S
Site Number 1 or 2 (for more than 2 sector site)	1 0
GO Market Name	Colorado
OEM	Samsung
Cluster ID	Colorado11
Issue Date	02/24/2014
Revision Date	
Solution ID	
PID	
RFDS Engineer (OEM RF Engineer)	Inna Hyslop / Sprint Issa
Sprint RF Engineer	Kraig Clark
Sprint RF Engineer (phone/e-mail)	(O) 720-439-3197 (M) 720-350-3279 / Kraig K. Clark @sprint.com
Sprint RF Manager	Mike Waterman
Sprint RF Manager (phone/email)	(O) 720-439-3198 (M) 949-278-9702 / Michael J. Waterman@sprint.com
RF Need By Date	
Project Description	New 2 5G TDD LTE service at existing site. Add new antennas, PRH and RAN equipment.

Location Information

Latitude (decimal only)	39.67519
Longitude (decimal only)	-104.89375
Address	15301 E. IUFF Ave.
City, State, Zip Code	Aurora Colorado 80013
County, F011 Phase	Arapahoe Phase 2

Site Level Design Information 2500Mhz

	Number of Sectors	Carrier Count when 2.5G is on air	Tx and Rx start and stop frequencies Band41
LTE 2500	3	3	
3C 1900 Mhz			
LTE PCS G Block			
LTE PCS Block A-F			
3G 800Mhz			
LTE 800Mhz			
Microwave Backhaul			
Existing BTS Location			
Existing BTS Type			
New Growth Cabinet Make/Model	NA		
New Growth Cabinet Quantity	NA		
New Growth Cabinet Dimensions (L x W x H in inches)	NA		
New Growth Cabinet Loaded weight (lbs)	NA		
New Top Hat Make/Model			
New Top Hat Cabinet Quantity			
New Top Hat Dimensions (L x W x H in inches)			
New Top Hat Loaded weight (lbs)			
Incremental Power Draw needed by new Growth Cabinet or Top Hat	75 Amps (3750 Watt)		
Site Structure Type	ROOFTOP		
Current Ethernet Speed			
Required Ethernet Speed			
Radio Configuration	4T4R		
Split Mode			
Radio Scenario	1		
Plumbing Diagram Number	SPRINT PD STRIPR41XX		
RRH / RRU Model	RRU 2.5LTEV3 10KM		
RRH / RRU Qty	3		
RRH/RRU Weight (lbs including mount)	71.62 lbs each		
RRH/RRU Dimensions (L x W x H in inches)	21.1" x 15.03" x 9.45" each with Fingure guard		
Power Junction Cylinder Make/Model	Amphenol Fiber Optic		
Power Junction Cylinder Qty	3		
Power Junction Cylinder Dimensions (L x W x H in inches)	15.5" x 3.9" (Cylindrical)		
Power Junction Cylinder Weight (lbs)	6 lb including Bracket and clamps		
Optical Junction Cylinder Make/Model	Amphenol Fiber Optic		
Optical Junction Cylinder Qty	3		
Optical Junction Cylinder Dimensions (L x W x H in inches)	15.5" x 3.9" (Cylindrical)		
Optical Junction Cylinder Weight (lbs)	3.7 lb including Bracket and clamps		
Hybrid/Fiber Cable Make/Model	NA		
Hybrid/Fiber Qty	NA		
Hybrid/Fiber Length	NA		
Hybrid/Fiber Diameter (inches)	NA		
Hybrid/Fiber weight per foot (lbs)	NA		
HomeRun Coax Cable Make/Model	NA		
HomeRun Coax Cable Qty	NA		
HomeRun Coax Cable Length	NA		
HomeRun Coax Cable Diameter (inches)	NA		
HomeRun Coax Cable weight per foot (lbs)	NA		

1) Does Home Run AISG (RET) Cable Exist? 2) If so, How many? 3) If new ones will be run, incremental additional number of cables.
Additional GPS antenna required?

RF Design Sheet Version 3.1

***NOTE: Build site assuming future growth (ie 13.3 forecast).

Final/New Configuration	Sector 1	Sector 2	Sector 3
Azimuth	345	120	225
Antenna Center Line (ft)	36	36	36
Antenna Manufacturer	KMW	KMW	KMW
Antenna Model	ET-X-WM-18-65-8P	ET-X-WM-18-65-8P	ET-X-WM-18-65-8P
Antenna Weight (lbs including mount)	50	50	50
Antenna Dimensions (L x W x H in inches)	61.0" x 12.0" x 4.3"	61.0" x 12.0" x 4.3"	61.0" x 12.0" x 4.3"
Antenna Qty	1	1	1
Antenna Mechanical Downtilt	0	0	0
Antenna Electrical Downtilt Combined with "	2	2	2
Upper Splitter Make/Model			
Upper Splitter Qty			
Upper Splitter Dimensions (L x W x H in inches)			
Upper Splitter Weight (lbs)			
Top Jumper Make/Model	JMA or Other equivalent	JMA or Other equivalent	JMA or Other equivalent
Top Jumper Quantity	8x8' RF + 1x8' Calib	8x8' RF + 1x8' Calib	8x8' RF + 1x8' Calib
Top Jumper length in feet	8'	8'	8'
Bottom Jumper Make/Model	NA	NA	NA
Bottom Jumper Quantity	NA	NA	NA
Bottom Jumper length in feet	NA	NA	NA
Surge Arrestor			
Upper Diplexer/Triplexor/Duplexor Model			
Upper Diplexer/Triplexor/Duplexor Qty			
Upper Diplexer/Triplexor/Duplexor Dimensions (L x W x H in inches)			
Upper Diplexer/Triplexor/Duplexor Weight (lbs)			
Upper Diplexer/Triplexor/Duplexor Model			
Upper Diplexer/Triplexor/Duplexor Qty			
DC Block (specify port)			
RF Filter Make/Model			
RF Filter Quantity	0	0	0
RF Filter Dimensions (L x W x H in inches)			
RF Filter Weight (lbs)			

CONTRACTOR TO OBTAIN MOST RECENT RFDS FROM SPRINT PRIOR TO CONSTRUCTION

PLANS PREPARED FOR

Sprint

6100 SPRINT PARKWAY
OVERLAND PARK, KS 66251

△			
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△			
△	7/1/14	FINAL CONST	ML
△	6/26/14	100% CONST	JN
△	4/16/14	90% CONST	ML
REV	DATE	REVISION DESCRIPTION	BY

ISSUED FOR

CONSTRUCTION

PLANS PREPARED BY

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Advancing Wireless Networks

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Golden, CO 80403
303.993.3293
WWW.CENTERLINESOLUTIONS.COM



ALL SCALES ARE SET FOR A SIZE "D" 24"x36" SHEET

PROJECT INFORMATION

WALGREENS
DN63XC021
15301 E. IUFF AVE.
AURORA, CO 80013
ARAPAHOE COUNTY

DRAWN BY	CHECKED BY	APPROVED BY
ML	JN	KS

SHEET TITLE

RFDS

SHEET NUMBER

A7

Frequency / Radio	Indicator	ID
800 #1	Yellow	Green
1900 #1	Yellow	Red
1900 #2	Yellow	Brown
1900 #3	Yellow	Blue
1900 #4	Yellow	Grey
800 #2	Yellow	Orange
2500 #1	Yellow	White
2500 #2	Yellow	Purple

1 TECHNOLOGY COLOR CODING

SCALE: N.T.S.

2500MHz #1 Cal Cable - Sector	Cable	First Ring	Second Ring	Third Ring	Forth Ring	Fifth Ring	Sixth Ring
1 Alpha	1	Yellow		Yellow	White		
2 Beta	2	Yellow	Yellow		Yellow	White	
3 Gamma	3	Yellow	Yellow	Yellow		Yellow	White
2500MHz #2 Cal Cable - Sector	Cable	First Ring	Second Ring	Third Ring	Forth Ring	Fifth Ring	Sixth Ring
1 Alpha	1	Yellow		Yellow	Purple		
2 Beta	2	Yellow	Yellow		Yellow	Purple	
3 Gamma	3	Yellow	Yellow	Yellow		Yellow	Purple

2 2500 MHz RADIO CALIBRATION CABLE COLOR CODING

SCALE: N.T.S.

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

3 HYBRID CABLE COLOR CODING

SCALE: N.T.S.

Sprint

6100 SPRINT PARKWAY
OVERLAND PARK, KS 66251

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△			
△			
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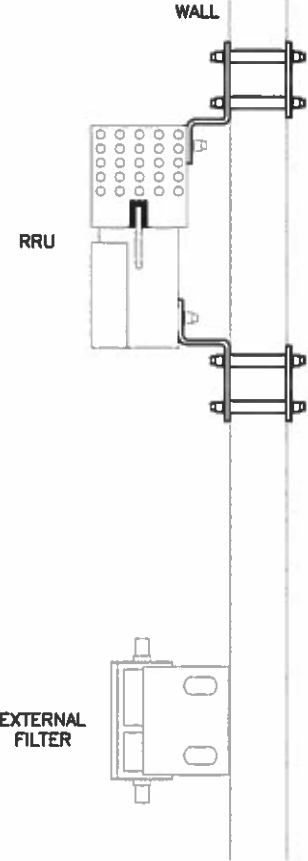
SHEET TITLE

COLOR CODING

SHEET NUMBER

A8

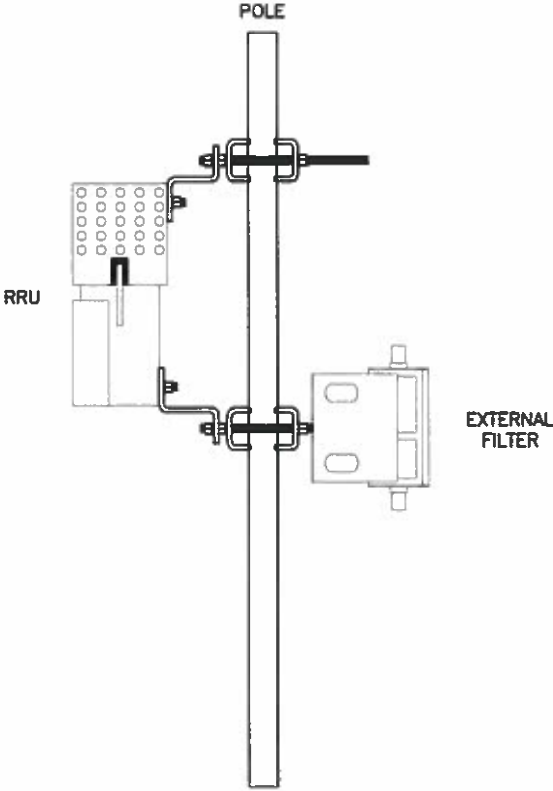
NOTES:
RRUS & FILTERS TO BE
INSTALLED PER MFG.'S
SPECIFICATIONS TO BE
PROVIDED PRIOR TO
INSTALLATION OF THE
APPROVED EQUIPMENT PER
LATEST RFDS PROVIDED BY
SPRINT.



1 TYPICAL RRU & RF FILTER ONE SECTOR WALL MOUNT

SCALE: N.T.S.

NOTES:
RRUS & FILTERS TO BE
INSTALLED PER MFG.'S
SPECIFICATIONS TO BE
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INSTALLATION OF THE
APPROVED EQUIPMENT PER
LATEST RFDS PROVIDED BY
SPRINT.

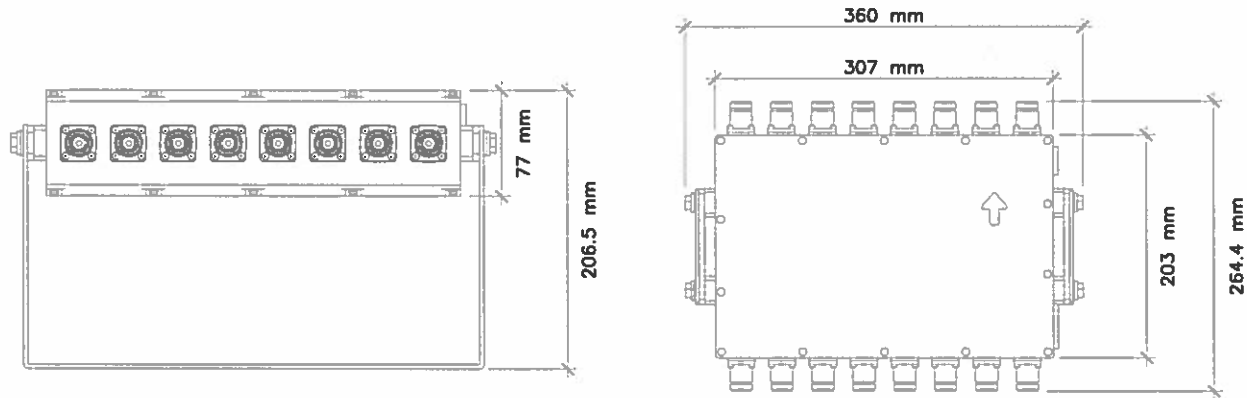


2 TYPICAL RRU & RF FILTER ONE SECTOR POLE MOUNT

SCALE: N.T.S.

SPRINT 8T8R 2.5G 8T8R RADAR FILTER

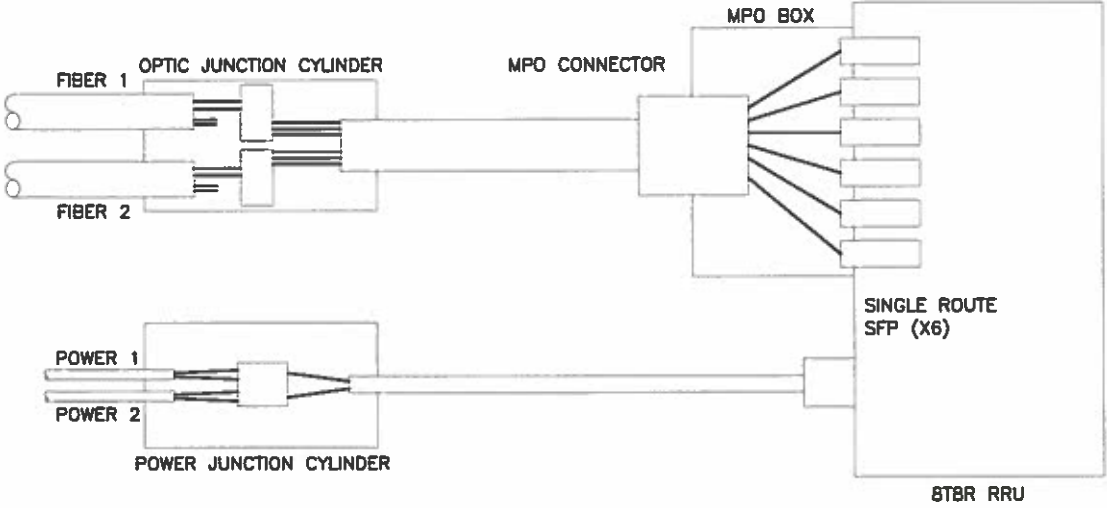
FILTER & BRACKET WEIGHT:
<10KG
FREQUENCY RANGE: 2500
MHZ



NOTES:
CONTRACTOR TO INSTALL APPROVED RF FILTER AT SITES
REQUIRING RADAR FILTER PER LATEST RFDS PROVIDED BY SPRINT.

3 SPRINT 8T8R 2.5G 8T8R RADAR FILTER

SCALE: N.T.S.



4 CYLINDER SCHEMATIC DETAIL

SCALE: N.T.S.

Sprint

6100 SPRINT PARKWAY
OVERLAND PARK, KS 66251

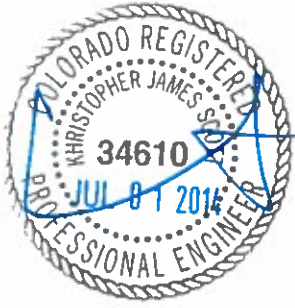
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△	7/1/14	FINAL CONST	ML
△	6/26/14	100% CONST	JN
△	4/16/14	90% CONST	ML
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ARAPAHOE COUNTY

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SHEET TITLE

DETAILS

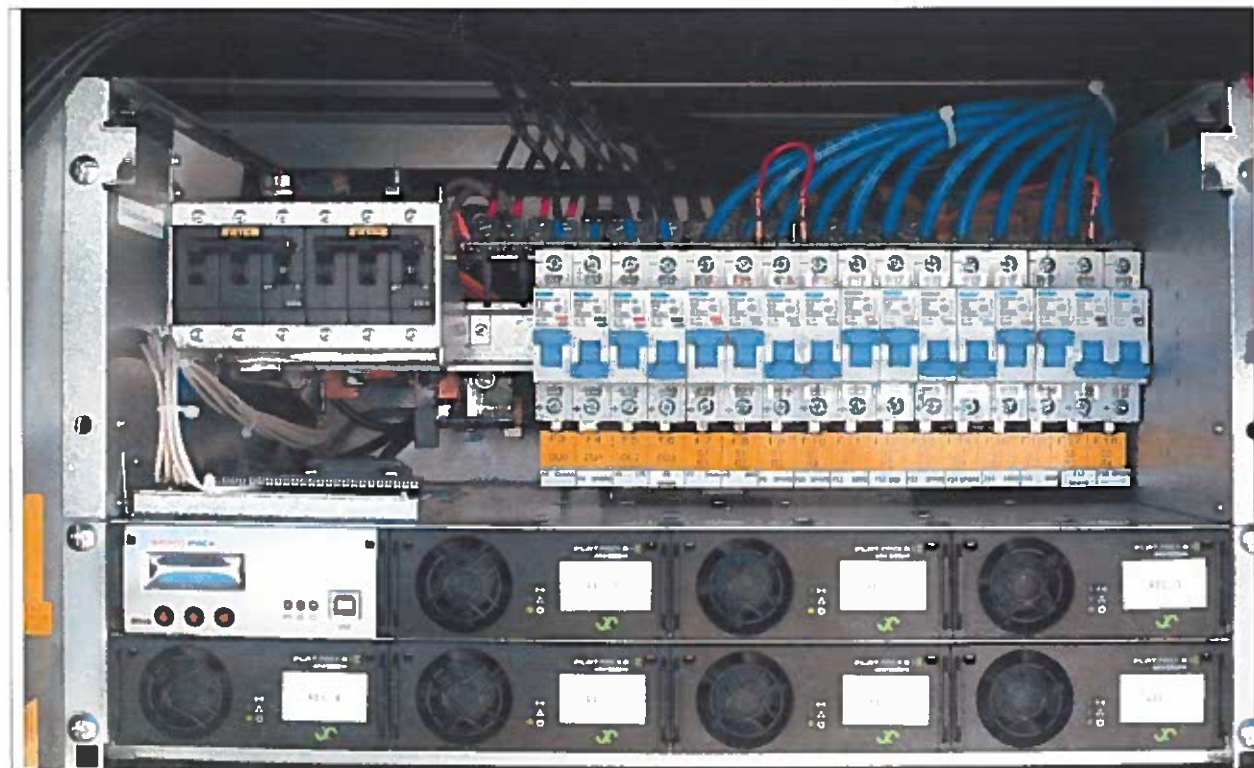
SHEET NUMBER

A9



1 EXISTING AC POWER DISTRIBUTION

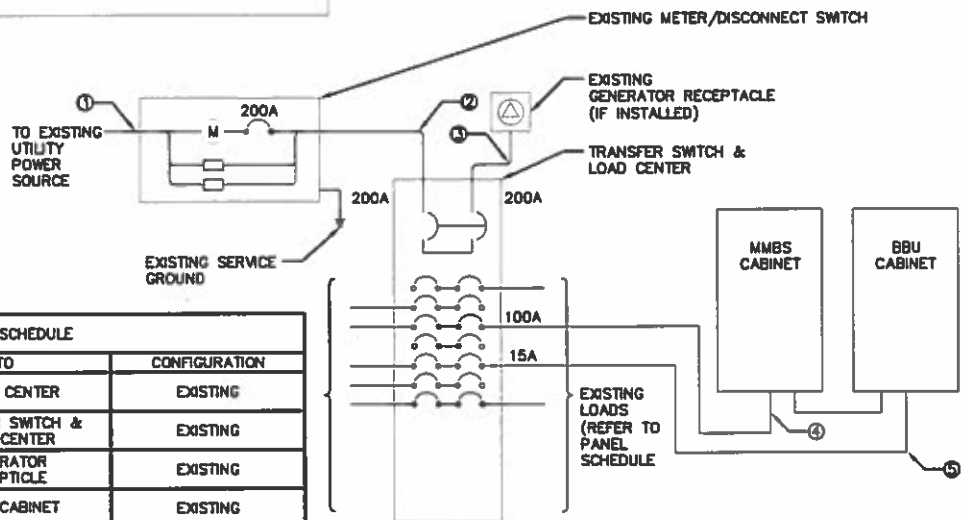
SCALE: N.T.S.



2 EXISTING DC POWER DISTRIBUTION

SCALE: N.T.S.

NOTES:
1. ONE-LINE SHOWN PER FINAL SPRINT NETWORK VISION CONSTRUCTION DRAWINGS BY KDC DATED 08/08/2013.
2. NO WORK TO BE PERFORMED WITHIN THE EXISTING AC PANEL

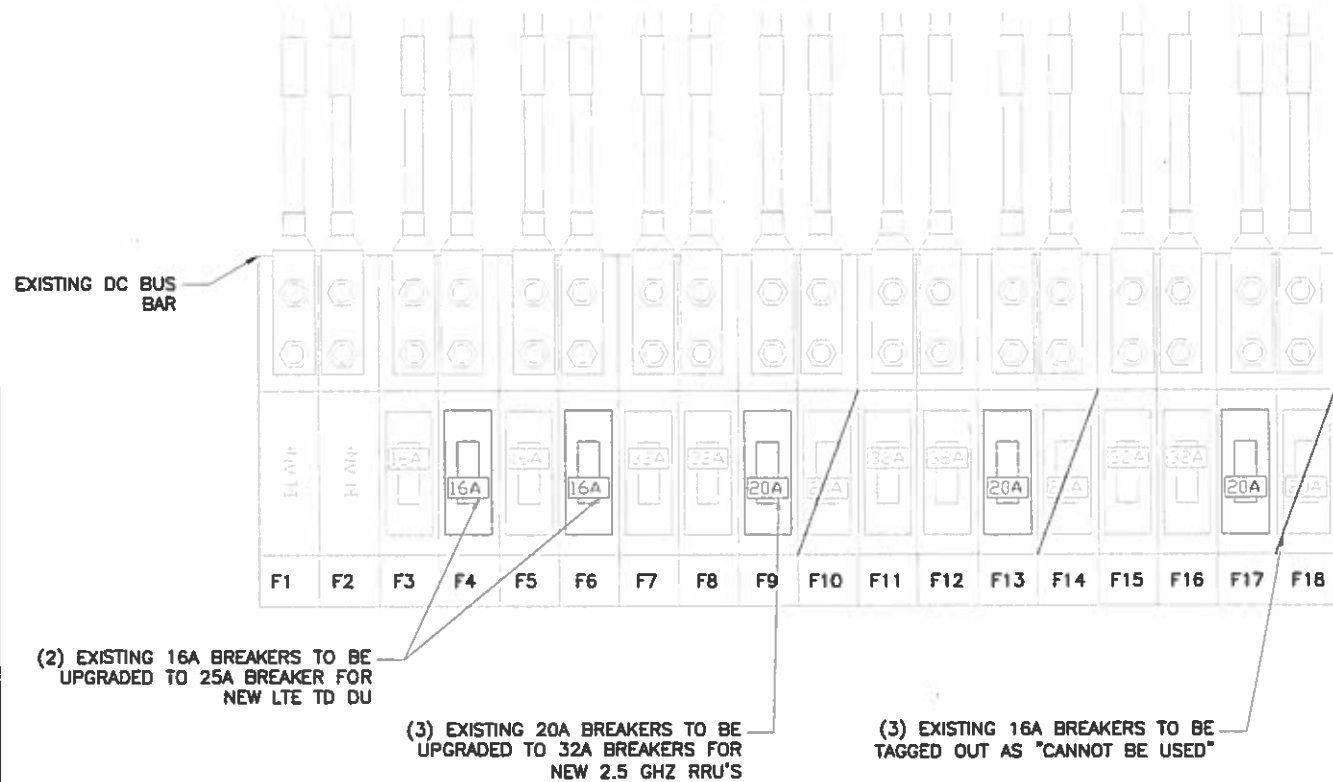


CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
1	SOURCE	METER CENTER	EXISTING
2	METER/DSC	TRANSFER SWITCH & LOAD CENTER	EXISTING
3	TRANSFER SWITCH & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER SUB-PANEL	MMBS CABINET	EXISTING
5	TRANSFER & LOAD CENTER SUB-PANEL	BBU CABINET	EXISTING

3 EXISTING ONE LINE DIAGRAM

SCALE: N.T.S.

NOTES:
1. (2) DU BREAKERS TO BE UPGRADED FROM 16A TO 25A.
2. (3) RRU BREAKERS TO BE UPGRADED FROM 20A TO 32A.
3. REMAINING/UNUSED RRU BREAKERS TO BE TAGGED OUT AS "CANNOT BE USED"



4 TYPICAL DC POWER DISTRIBUTION

SCALE: N.T.S.

Sprint

6100 SPRINT PARKWAY
OVERLAND PARK, KS 66251

△			
△			
△			
△	7/1/14	FINAL CONST	ML
△	6/26/14	100% CONST	JN
△	4/16/14	90% CONST	ML
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303.993.3293
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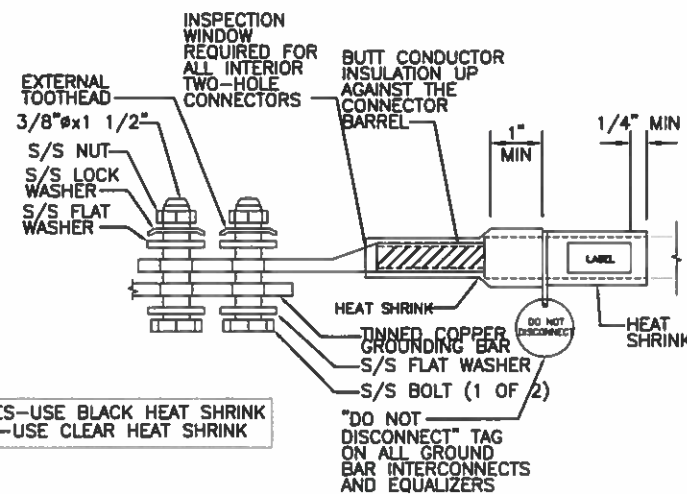
ALL SCALES ARE SET FOR A SIZE "D" 24"X36" SHEET
PROJECT INFORMATION

WALGREENS
DN63XC021
15301 E. ILIFF AVE.
AURORA, CO 80013
ARAPAHOE COUNTY

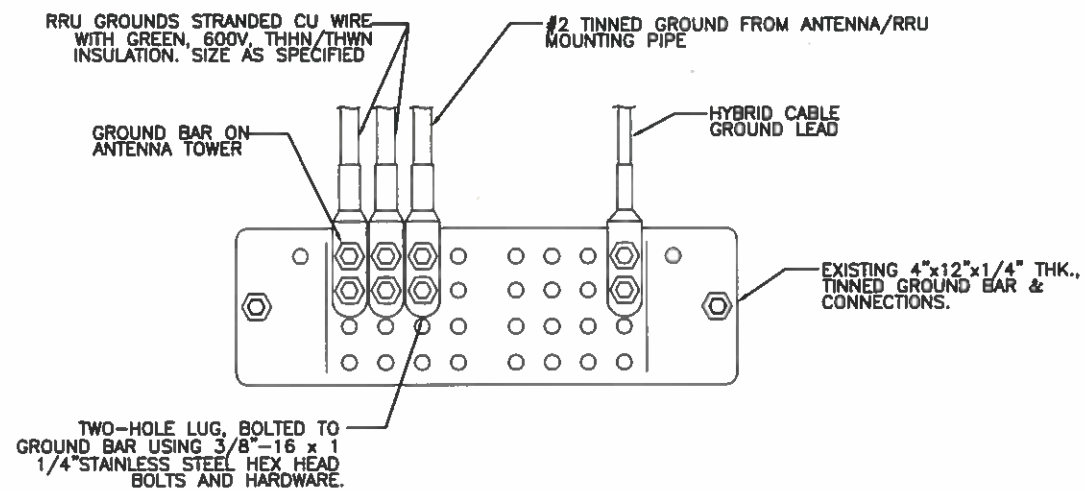
DRAWN BY: ML
CHECKED BY: JN
APPROVED BY: KS

SHEET TITLE
EXISTING AC & DC POWER

SHEET NUMBER
E1



1. OUTDOOR SITES--USE BLACK HEAT SHRINK
2. INDOOR SITES--USE CLEAR HEAT SHRINK



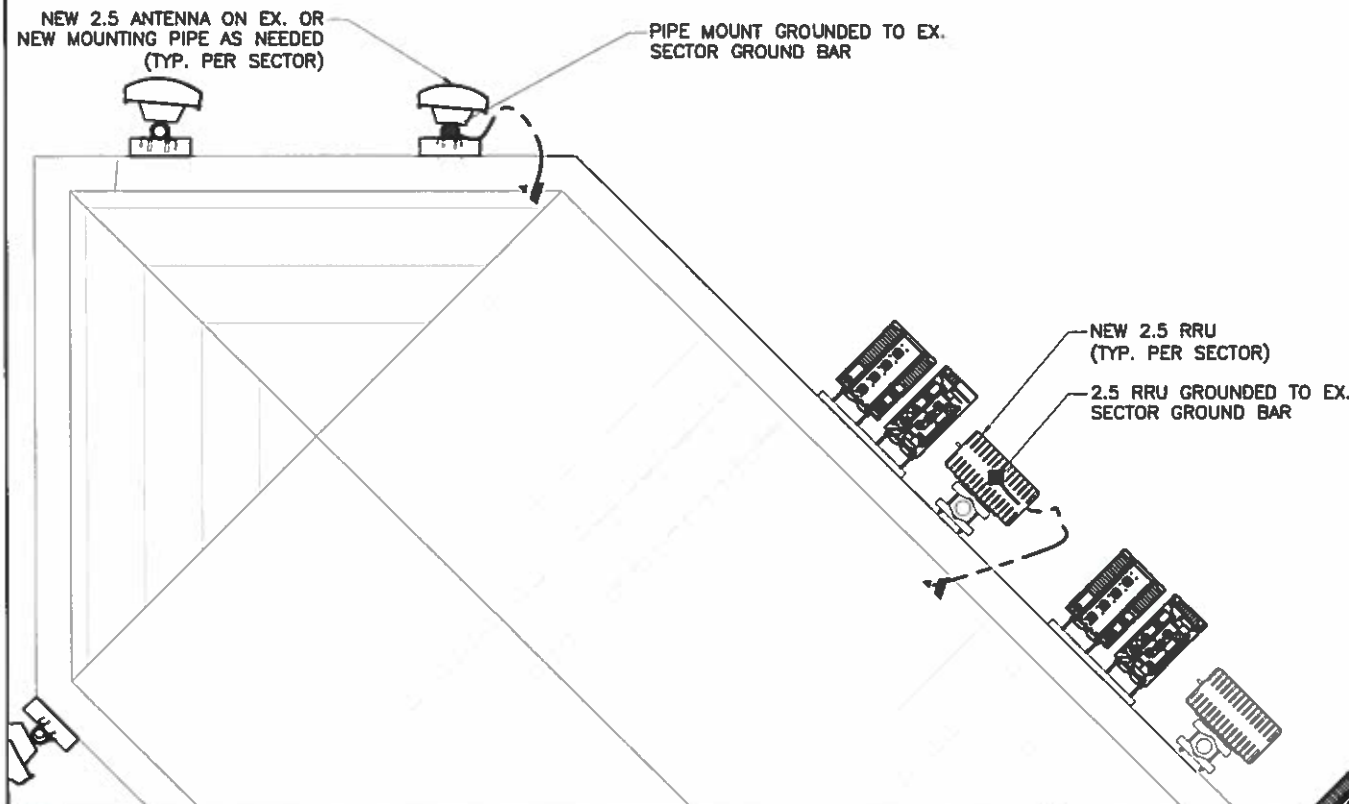
NOTE:
*PROVIDE NO-OX GREASE AT CONTACT SURFACE BETWEEN LUG AND GROUND BAR
*CONTRACTOR WILL VERIFY BUSS BAR GROUNDING TO THE TOWER OR RING.

1 MECHANICAL CONNECTION LUG

SCALE: N.T.S.

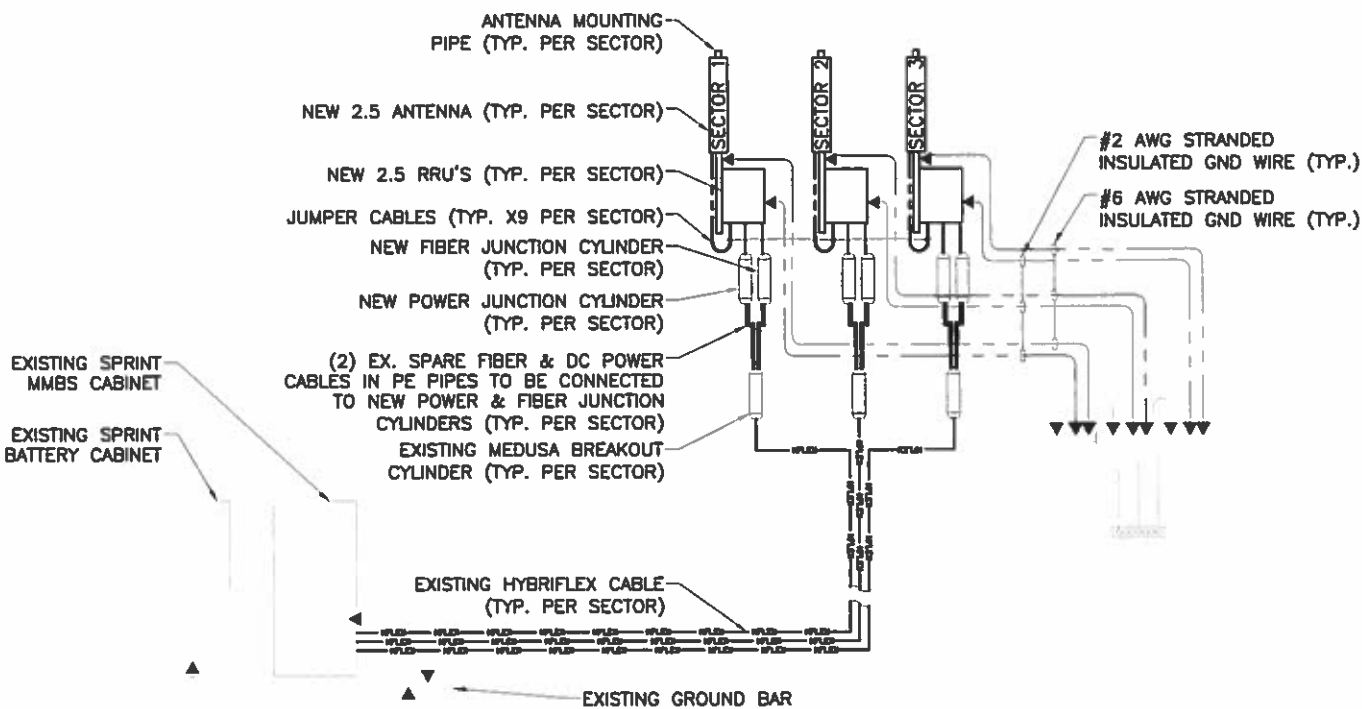
2 SECTOR GROUND BAR CONNECTIONS

SCALE: N.T.S.



3 TYP. ANTENNA GROUNDING

SCALE: N.T.S.



4 GROUNDING RISER DIAGRAM

SCALE: N.T.S.

6100 SPRINT PARKWAY
OVERLAND PARK, KS 66251

△			
△			
△			
△	7/1/14	FINAL CONST	ML
△	6/26/14	100% CONST	JN
△	4/16/14	90% CONST	ML
REV	DATE	REVISION DESCRIPTION	BY

ISSUED FOR
CONSTRUCTION

PLANS PREPARED BY
CENTERLINE SOLUTIONS
Advancing Wireless Networks

16360 TABLE MOUNTAIN PARKWAY
Golden, CO 80403
303 993 3293
WWW.CENTERLINESOLUTIONS.COM

ALL SCALES ARE SET FOR A SIZE "D" 24"x36" SHEET

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AURORA, CO 80013
ARAPAHOE COUNTY

DRAWN BY ML	CHECKED BY JN	APPROVED BY KS
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SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
E2