



SITE PHOTO



LOCATION MAP



LEASE AREA

BEING A TELECOMMUNICATIONS LEASE PARCEL LYING WITHIN A PORTION OF THE NORTHEAST 1/4 OF SECTION 31, TOWNSHIP 5 SOUTH, RANGE 65 WEST OF THE 6TH P.M., COUNTY OF ARAPAHOE, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF THE PUBLIC SERVICE COMPANY OF COLORADO EASEMENT, ALSO BEING THE SOUTHWEST CORNER OF BLOCK 1, TALLYN'S REACH SUBDIVISION PLNG NO. 13, THENCE ALONG THE EAST LINE OF SAID EASEMENT, N00°00'49"E, 271.64 FEET; THENCE N89°59'11"W, 64.10 FEET TO THE POINT OF BEGINNING; THENCE S90°00'00"W, 9.95 FEET TO A POINT HEREINAFTER REFERRED TO AS POINT "A"; THENCE CONTINUING S90°00'00"W, 10.05 FEET; THENCE N00°00'00"W, 6.00 FEET TO A POINT HEREINAFTER REFERRED TO AS POINT "B"; THENCE CONTINUING N00°00'00"W, 6.00 FEET; THENCE N90°00'00"E, 20.00 FEET; THENCE S00°00'00"E, 12.00 FEET TO THE POINT OF BEGINNING.

CONTAINING 240 SQ. FT. OR 0.005 ACRES MORE OR LESS.

UTILITY EASEMENT

BEING A STRIP OF LAND 5.00 FEET IN WIDTH LYING WITHIN A PORTION OF THE NORTHEAST 1/4 OF SECTION 31, TOWNSHIP 5 SOUTH, RANGE 65 WEST OF THE 6TH P.M., COUNTY OF ARAPAHOE, STATE OF COLORADO, LYING 2.50 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT POINT "A" AS DESCRIBED ABOVE; THENCE S32°56'09"W, 31.24 FEET TO THE END OF SAID STRIP OF LAND.

ACCESS/UTILITY EASEMENT

BEING A STRIP OF LAND 20.00 FEET IN WIDTH LYING WITHIN A PORTION OF THE NORTHEAST 1/4 OF SECTION 31, TOWNSHIP 5 SOUTH, RANGE 65 WEST OF THE 6TH P.M., COUNTY OF ARAPAHOE, STATE OF COLORADO, LYING 10.00 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT POINT "B" AS DESCRIBED ABOVE; THENCE S90°00'00"W, 15.06 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE SOUTHEASTERLY HAVING A RADIUS OF 25.00 FEET; THENCE SOUTHWESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 90°09'39", AN ARC LENGTH OF 39.34 FEET; THENCE S00°09'39"E, 211.90 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE NORTHWESTERLY HAVING A RADIUS OF 30.00 FEET; THENCE SOUTHWESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 87°19'33", AN ARC LENGTH OF 45.72 FEET; THENCE S87°09'34"W, 58.06 FEET TO THE RIGHT-OF-WAY OF EAST JAMISON DRIVE AND THE END OF SAID STRIP OF LAND.

EXCEPT ANY PORTION LYING WITHIN THE RIGHT-OF-WAY OF EAST JAMISON DRIVE.

SIDELINES OF SAID STRIPS OF LAND ARE TO BE LENGTHENED AND/OR SHORTENED TO PREVENT GAPS AND/OR OVERLAPS.

LEGAL DESCRIPTION

PROJECT INFORMATION:

PROPOSED TELECOMMUNICATIONS FACILITY
CO-LOCATE ON EXISTING XCEL TOWER

SITE NAME:
JAMISON
STRUCTURE #:
96
LINE #:
5113/5163
SITE NUMBER:
DN90XCD10

SITE ADDRESS:
**24024 E JAMISON DR
AURORA, CO 80016
(ARAPAHOE COUNTY)**
**N 39.577383
W -104.707166**

SCOPE OF WORK:

INSTALL (6) PANEL ANTENNAS
INSTALL (9) RRU
INSTALL (3) ANTENNA MOUNTS
INSTALL (5) CABINETS: ECAB, BCAB, CABLING, FIBER AND PPC
INSTALL 10'-0"x10'-0" CONCRETE PAD
INSTALL 20'-0"x12'-0" FENCED COMPOUND
INSTALL (4) HYBRID CABLES

PROJECT SUMMARY

FROM SPRINT OFFICE:

1. GET ON I-25 SOUTH (0.7 MI)
2. MERGE ONTO E-470N TO S GARTRELL RD (10.5 MI)
3. TAKE EXIT 9, TURN RIGHT ON S GARTRELL RD (0.5 MI)
4. TURN LEFT ON S AURORA PKWY CONTINUE FOR (1.1 MI)
5. TURN RIGHT ON E JAMISON DR (0.7 MI)
6. REFERENCE LOCATION MAP FOR TOWER LOCATION

DRIVING DIRECTIONS

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

1. INTERNATIONAL BUILDING CODE, (2015 EDITION)
2. LOCAL BUILDING CODE
3. CITY/COUNTY ORDINANCES
4. NATIONAL ELECTRIC CODE, (2017 EDITION)
5. ANSI/TIA/EIA-222-G

CODE COMPLIANCE



BEFORE YOU DIG...
CALL 811

IT'S THE LAW!

Know what's below.
Call before you dig.

CIVIL ENGINEER:

NAME: TOWER ENGINEERING PROFESSIONALS
ADDRESS: 500 E. 84TH AVE, SUITE C10
CITY, STATE, ZIP: THORNTON, CO 80229
CONTACT: NICHOLAS M. CONSTANTINE, P.E.
PHONE: (303) 566-9914

UTILITIES:

POWER COMPANY: XCEL ENERGY
CONTACT: GENERAL INQUIRIES
PHONE: (303) 571-7511
POLE/METER #: -

SITE APPLICANT:

NAME: SPRINT
CONTACT: DAWN SMITH
ADDRESS: 333 INVERNESS DR S
CITY, STATE, ZIP: ENGLEWOOD, CO 80112
PHONE: (303) 883-3400

SITE ACQUISITION:

NAME: KAPPA CONSULTING
CONTACT: MARK PAIZ
PHONE: (858) 243-2900

CONSTRUCTION MANAGER:

NAME: MASTEC NETWORK SOLUTIONS
CONTACT: RYAN PRUETTE
PHONE: (720) 585-4994

RF ENGINEER:

NAME: SPRINT
CONTACT: NEERAJ BERI
ADDRESS: 333 INVERNESS DR S
CITY, STATE, ZIP: ENGLEWOOD, CO 80112
PHONE: (440) 222-8729

TOWER OWNER:

NAME: XCEL ENERGY
ADDRESS: 1123 WEST 3RD AVE, 1ST FLOOR
CITY, STATE, ZIP: DENVER, CO 80223
CONTACT: LISA MILLER
PHONE: (303) 571-3549

SURVEYOR:

NAME: ALTURA LAND CONSULTANTS
ADDRESS: 6551 S. REVERE PKWY, SUITE 165
CITY, STATE, ZIP: CENTENNIAL, CO 80111
CONTACT: JESSE LUGO, PLS
PHONE: (720) 488-1303

PROJECT TEAM

PLANS PREPARED FOR:



SPRINT
333 INVERNESS DR. SOUTH
ENGLEWOOD, CO 80112
CUSTOMER SERVICE
(408) 560-1040

APPROVER	SIGNATURE	DATE
SITE ACQ. MANAGER		
CONSTRUCTION MNG		
A&E MANAGER		
PLANNING CONS.		
RF MANAGER		
RF ENGINEER		
PROPERTY OWNER		

SIGNATURE BLOCK

AREA OF CONSTRUCTION: 240 SF
ZONING: A-1
PARCEL ID: 2071-00-0-00-039
JURISDICTION: ARAPAHOE COUNTY
SPECIAL ACCESS ISSUES: -
STRUCTURE HEIGHT: 129'±
ANTENNA CL: 59'-6"±
LEGAL DESCRIPTION OF PROPERTY:

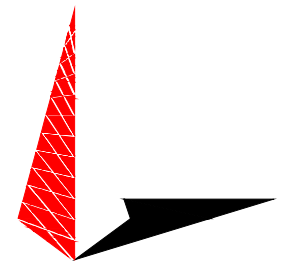
THE WEST 210 FEET OF THE NW1/4 SE1/4 OF SECTION 31, TOWNSHIP 5 SOUTH, RANGE 65 WEST OF THE 6TH P.M., COUNTY OF ARAPAHOE, STATE OF COLORADO.
THE WEST 210 FEET OF SW1/4 NE1/4 OF SECTION 31, TOWNSHIP 5 SOUTH, RANGE 65 WEST OF THE 6TH P.M., COUNTY OF ARAPAHOE, STATE OF COLORADO.
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THE WEST 210 FEET OF NW1/4 NE1/4 OF SECTION 31, TOWNSHIP 5 SOUTH, RANGE 65 WEST OF THE 6TH P.M., COUNTY OF ARAPAHOE, STATE OF COLORADO.

SITE INFORMATION

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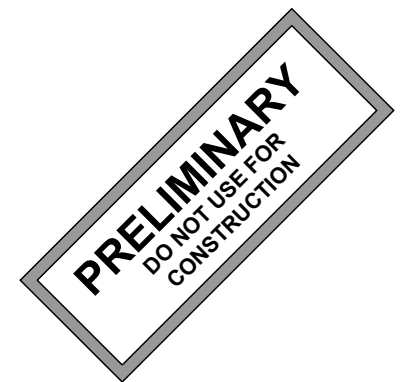
PLANS PREPARED BY:



TOWER ENGINEERING PROFESSIONALS
500 E 84TH AVE, SUITE C10
THORNTON, CO 80229
OFFICE: (303) 566-9914
www.tepgroup.net

2	09-13-18	PRELIMINARY
1	07-06-18	PRELIMINARY
0	06-28-18	PRELIMINARY
REV	DATE	ISSUED FOR:

DRAWN BY: BRC CHECKED BY: ARB



SHEET NUMBER:	REVISION:
T-1	2
	TEP #: 134004.202187

GENERAL NOTES:

1.

ALL REFERENCES TO OWNER IN THESE DOCUMENTS SHALL BE CONSIDERED SPRINT OR ITS DESIGNATED REPRESENTATIVE.
2.

ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE OF COLORADO.
3.

STRUCTURE IS DESIGNED IN ACCORDANCE WITH ANSI/TIA/EIA-222-G, 2005, FOR A 90 MPH 3-SECOND GUST WIND LOAD. THIS CONFORMS TO THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE, 2015 EDITION.
4.

WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, 2015 EDITION.
5.

UNLESS SHOWN OR NOTED OTHERWISE ON THE CONTRACT DRAWINGS, OR IN THE SPECIFICATIONS, THE FOLLOWING NOTES SHALL APPLY TO THE MATERIALS LISTED HEREIN, AND TO THE PROCEDURES TO BE USED ON THIS PROJECT.
6.

ALL HARDWARE ASSEMBLY MANUFACTURER’S INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERCEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.
7.

IT IS THE CONTRACTOR’S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND IT’S COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.
8.

ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO BEGINNING ANY MATERIALS ORDERING, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. CONTRACTOR SHALL NOT SCALE CONTRACT DRAWINGS IN LIEU OF FIELD VERIFICATIONS. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER’S ENGINEER. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR IS TO PROCEED WITH THE WORK. THE CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE PROCEDURES.
9.

ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
10.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.
11.

ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIALS ACCESS, WITH THE RESIDENT LEASING AGENT FOR APPROVAL.
12.

BILL OF MATERIALS AND PART NUMBERS LISTED ON CONSTRUCTION DRAWINGS ARE INTENDED TO AID CONTRACTOR. CONTRACTOR SHALL VERIFY PARTS AND QUANTITIES WITH MANUFACTURER PRIOR TO BIDDING AND/OR ORDERING MATERIALS.
13.

ALL PERMITS THAT MUST BE OBTAINED ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
14.

24 HOURS PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, THE CONTRACTOR MUST NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY OR CITY) ENGINEER.
15.

THE CONTRACTOR SHALL REWORK (DRY, SCARIFY, ETC.) ALL MATERIAL NOT SUITABLE FOR SUBGRADE IN ITS PRESENT STATE. AFTER REWORKING, IF THE MATERIAL REMAINS UNSUITABLE, THE CONTRACTOR SHALL UNDERCUT THIS MATERIAL AND REPLACE WITH APPROVED MATERIAL. ALL SUBGRADES SHALL BE PROOFROLLED WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK PRIOR TO PAVING. ANY SOFTER MATERIAL SHALL BE REWORKED OR REPLACED.
16.

THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL PIPES, DITCHES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL WORK IS ACCEPTED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN DRAINAGE STRUCTURE IN OPERABLE CONDITION.
17.

ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR ONE YEAR FROM ACCEPTANCE DATE.
18.

THE OWNER SHALL HAVE A SET OF APPROVED PLANS AVAILABLE AT THE SITE AT ALL TIMES WHILE WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE EMPLOYEE SHALL BE RESPONSIBLE FOR CONTACT BY GOVERNING AGENCY INSPECTORS.
19.

ALL BUILDING ADDRESS NUMBERS SHALL COMPLY WITH THE AURORA CITY CODE ORDINANCE, CHAPTER 126
- ARTICLE VII - NUMBERING OF BUILDINGS

STRUCTURAL STEEL NOTES:

1.

THE FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS AND MANUAL OF STEEL CONSTRUCTION, 13TH EDITION.
2.

UNLESS OTHERWISE NOTED, ALL STRUCTURAL ELEMENTS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
A. STRUCTURAL STEEL, ASTM DESIGNATION A36 OR A992 GR50.
B. ALL BOLTS, ASTM A325 TYPE I GALVANIZED HIGH STRENGTH BOLTS.
C. ALL NUTS, ASTM A563 CARBON AND ALLOY STEEL NUTS.
D. ALL WASHERS, ASTM F436 HARDENED STEEL WASHERS.
3.

ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH AISC SPECIFICATIONS AND MANUAL OF STEEL CONSTRUCTION, 13TH EDITION.
4.

HOLES SHALL NOT BE FLAME CUT THRU STEEL UNLESS APPROVED BY THE ENGINEER.
5.

HOT-DIP GALVANIZE ALL ITEMS UNLESS OTHERWISE NOTED, AFTER FABRICATION WHERE PRACTICABLE. GALVANIZING: ASTM A123, ASTM A153/A153M OR ASTM A653/A653M, G90, AS APPLICABLE.
6.

REPAIR DAMAGED SURFACES WITH GALVANIZING REPAIR METHOD AND PAINT CONFORMING TO ASTM A780 OR BY APPLICATION OF STICK OR THICK PASTE MATERIAL SPECIFICALLY DESIGNED FOR REPAIR OF GALVANIZING. CLEAN AREAS TO BE REPAIRED AND REMOVE SLAG FROM WELDS. HEAT SURFACES TO WHICH STICK OR PASTE MATERIAL IS APPLIED, WITH A TORCH TO A TEMPERATURE SUFFICIENT TO MELT THE METALLICS IN STICK OR PASTED; SPREAD MOLTEN MATERIAL UNIFORMLY OVER SURFACES TO BE COATED AND WIPE OFF EXCESS MATERIAL.
7.

A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED BOLTS.
8.

ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH TO EXCLUDE THE THREADS FROM THE SHEAR PLANE.
9.

ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
10.

ALL ASSEMBLY BOLTS ARE TO BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED IN SECTION 8.1 OF THE AISC, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", DATED JUNE 30, 2004.
11.

FLAT WASHERS ARE TO BE INSTALLED WITH BOLTS OVER SLOTTED HOLES.
12.

DO NOT OVER TORQUE ASSEMBLY BOLTS. GALVANIZING ON BOLTS, NUTS, AND STEEL PARTS ;MAY ACT AS A LUBRICANT, THUS OVER TIGHTENING MAY OCCUR AND MAY CAUSE BOLTS TO CRACK AND SNAP OFF.
13.

PAL NUTS ARE TO BE INSTALLED AFTER NUTS ARE TIGHT AND WITH EDGE LIP OUT. PAL NUTS ARE NOT REQUIRED WHEN SELF-LOCKING NUTS ARE PROVIDED.
14.

GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
15.

WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.1-2010 STRUCTURAL WELDING CODE - STEEL.

NOXIOUS WEED PLAN:

- THE FOLLOWING ACTIONS WILL BE TAKEN BY THE APPLICANT TO COMPLY WITH THE COLORADO NOXIOUS WEED ACT 935-5.5-101-119 C.R.S.
- ALL HEAVY EQUIPMENT USED DURING CONSTRUCTION WILL BE WASHED BEFORE DEPARTURE FROM THE EQUIPMENT STORAGE FACILITY TO ENSURE THAT WEED SEED FROM DIFFERENT REGIONS ARE NOT TRANSPORTED ONTO THE HOST PROPERTY.
- APPROXIMATELY 6,400 SQUARE FEET OF GROUND WILL BE DISTURBED FOR THE CONSTRUCTION OF THIS PROJECT. WITHIN THE MERCURY FENCED COMPOUND, GEOTEXTILE FABRIC WILL BE LAID UNDER A 4" LAYER OF GRAVEL TO PREVENT WEED GROWTH WITHIN THE COMPOUND. IF WEEDS GROW INSIDE THE COMPOUND, MERCURY WILL NOTIFY THE CONSTRUCTION MANAGER TO GET A CONTRACTOR OUT TO THE AREA TO ASSESS AND CORRECT THE SITUATION. WEEDS OUTSIDE OF THE COMPOUND WILL BE WORKED OUT BETWEEN THE LANDOWNER AND MERCURY.
- IF CONSTRUCTION OF THE SITE RESULTS IN THE PROPOGATION OF NOXIOUS WEEDS, THE APPLICANT WILL TREAT NOXIOUS WEEDS USING METHODS APPROVED BY THE COUNTY WEED COORDINATOR.

DUST SUPPRESSION PLAN DURING CONSTRUCTION:

APPROXIMATELY 1,240 SQUARE FEET OF LAND WILL BE DISTURBED IN ADDITION TO THE ACCESS ROAD LOCATION. GRADING WILL BE MINIMAL AND TOTAL CONSTRUCTION TIME SHOULD BE 3-4 WEEKS. DUE TO THE SHORT CONSTRUCTION TIME AND MINIMAL CONSTRUCTION TRAFFIC, DUST SUPPRESSION IS GENERALLY NOT NEEDED FOR CONSTRUCTION OF TELECOMMUNICATION FACILITIES AND SHOULD NOT BE A FACTOR. IF REQUIRED, SHORT TERM DUST CONTROL WILL BE PROVIDED BY UTILIZING A WATER TRUCK AND WETTING THE AFFECTED SOILS WITH NON-POTABLE WATER.

PLANS PREPARED FOR:



333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
OFFICE: (408) 560-1040

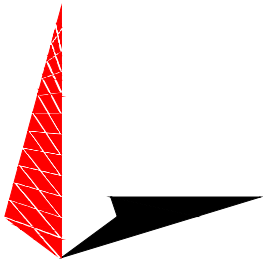
PROJECT INFORMATION:

JAMISON

SITE #: DN90XCD10

24024 E JAMISON DR
AURORA, CO 80016
(ARAPAHOE COUNTY)

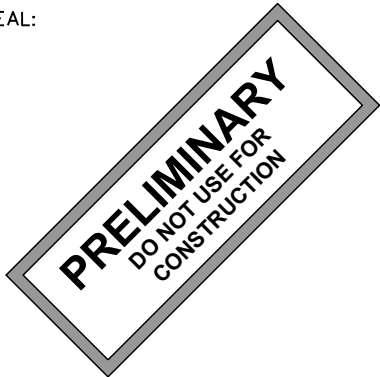
PLANS PREPARED BY:



TOWER ENGINEERING PROFESSIONALS

500 E. 84TH AVE SUITE C10
THORNTON, CO 80229
OFFICE: (303) 566-9914
www.tepgroup.net

SEAL:



2	09-13-18	PRELIMINARY
1	07-06-18	PRELIMINARY
REV	DATE	ISSUED FOR:

DRAWN BY: AJL CHECKED BY: ARB

SHEET TITLE:

GENERAL
NOTES

SHEET NUMBER: N-1	REVISION: 2 TEP #134000.202187
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LEGEND

- EXIST. PROPERTY LINE
- - - - -

ADJ. PROPERTY LINE
- PROPERTY CORNER
- EXIST. UTILITY POLE
- TELCO PEDESTAL
- - - R/W - - -

RIGHT-OF-WAY
- - - OHW - - -

OVERHEAD WIRE
- - - UGW - - -

UNDERGROUND WIRE
- - - UGG - - -

UNDERGROUND GAS
- - - UGF - - -

UNDERGROUND FIBER
- - - UGT - - -

UNDERGROUND TELCO
- - - WP - - -

WATER PIPE
- EDGE OF PAVEMENT
- X -

6'-TALL WOOD FENCE
- LEASE AREA/EASEMENT CORNER
- TRANSFORMER
- LIGHT POLE
- FIRE HYDRANT
- MAN HOLE (FIBER, SANITARY, STORM, TELCO, WATER)
- GAS VALVE
- GAS METER
- WATER VALVE
- WATER METER

1-A COORDINATES

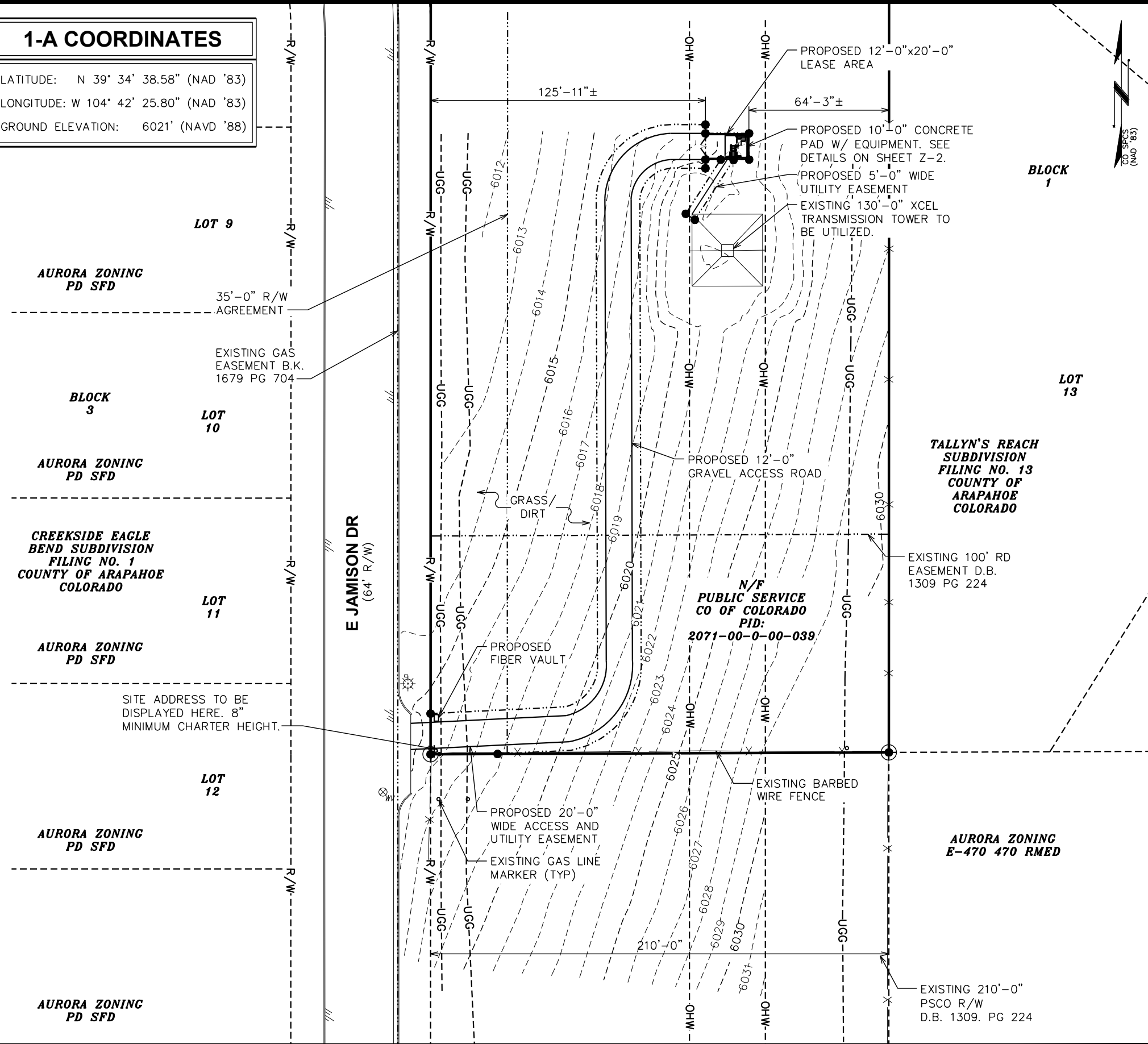
LATITUDE: N 39° 34' 38.58" (NAD '83)
LONGITUDE: W 104° 42' 25.80" (NAD '83)
GROUND ELEVATION: 6021' (NAVD '88)

NOTES:

1. THE BASIS OF THE MERIDIANS AND COORDINATES FOR THIS PLAT IS THE COLORADO STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NAD83).
2. VERTICAL INFORMATION SHOWN, BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. ALL DISTANCES ARE GROUND UNLESS OTHERWISE NOTED.
4. THE TOWER IS LOCATED IN AN AREA DESIGNATED AS ZONE X, AREAS OUTSIDE OF 0.2% ANNUAL FLOOD CHANCE (FEMA MAP # 08005C_2091).

SITE PLAN

SCALE: 1" = 50'



PLANS PREPARED FOR:



333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
OFFICE: (408) 560-1040

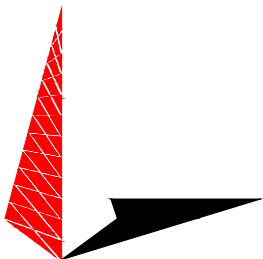
PROJECT INFORMATION:

JAMISON

SITE #: DN90XCD10

24024 E JAMISON DR
AURORA, CO 80016
(ARAPAHOE COUNTY)

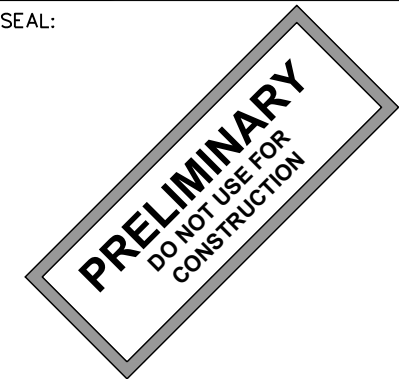
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SEAL:



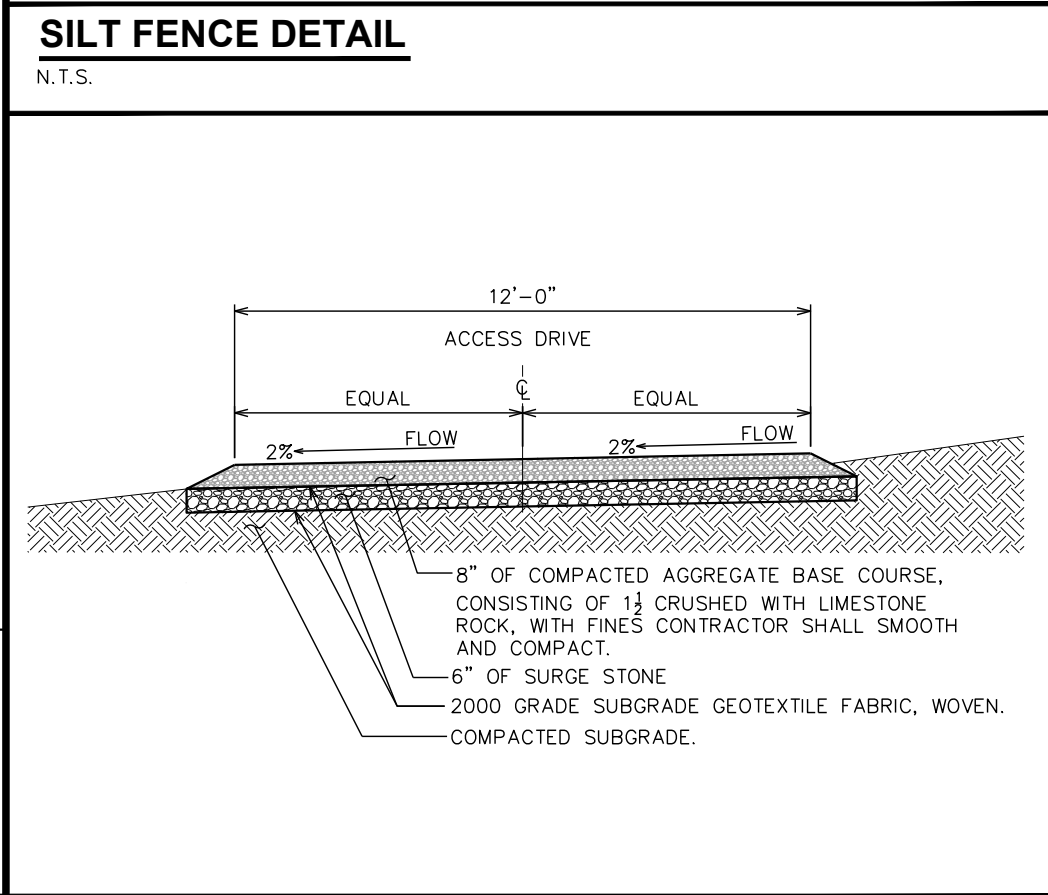
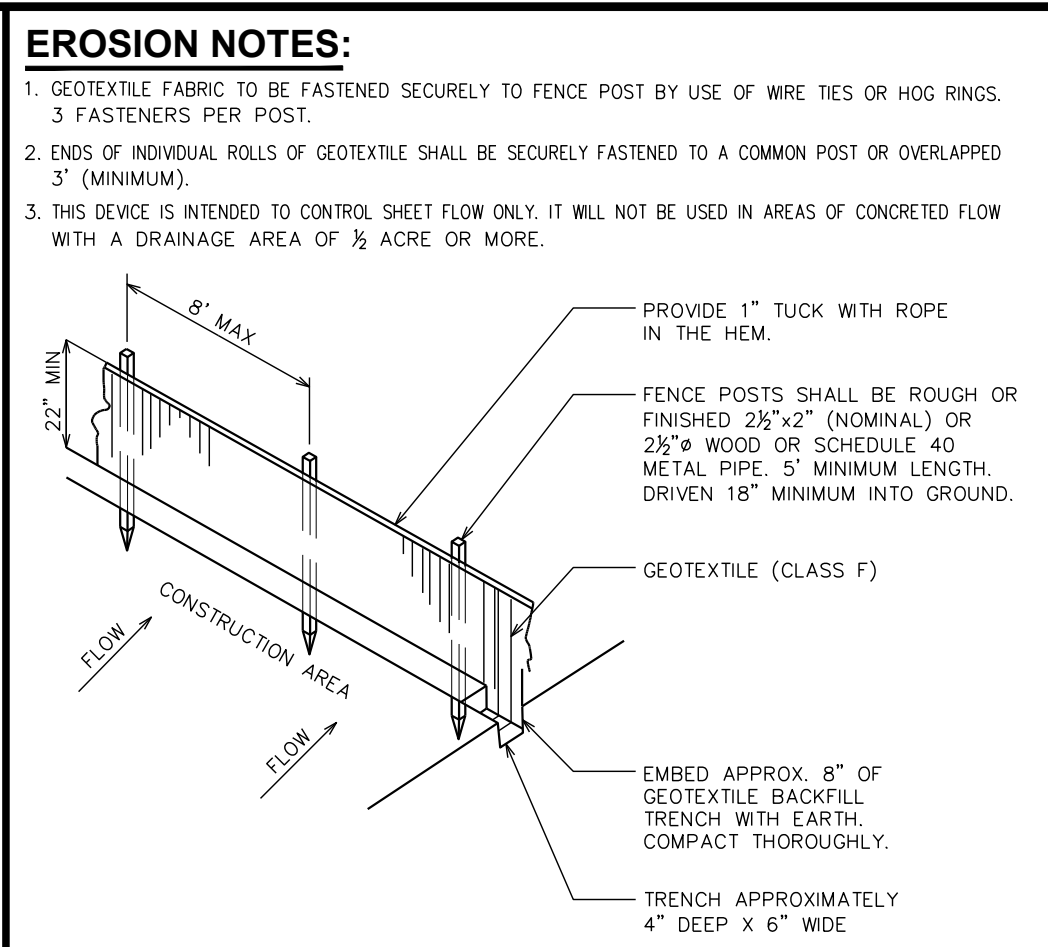
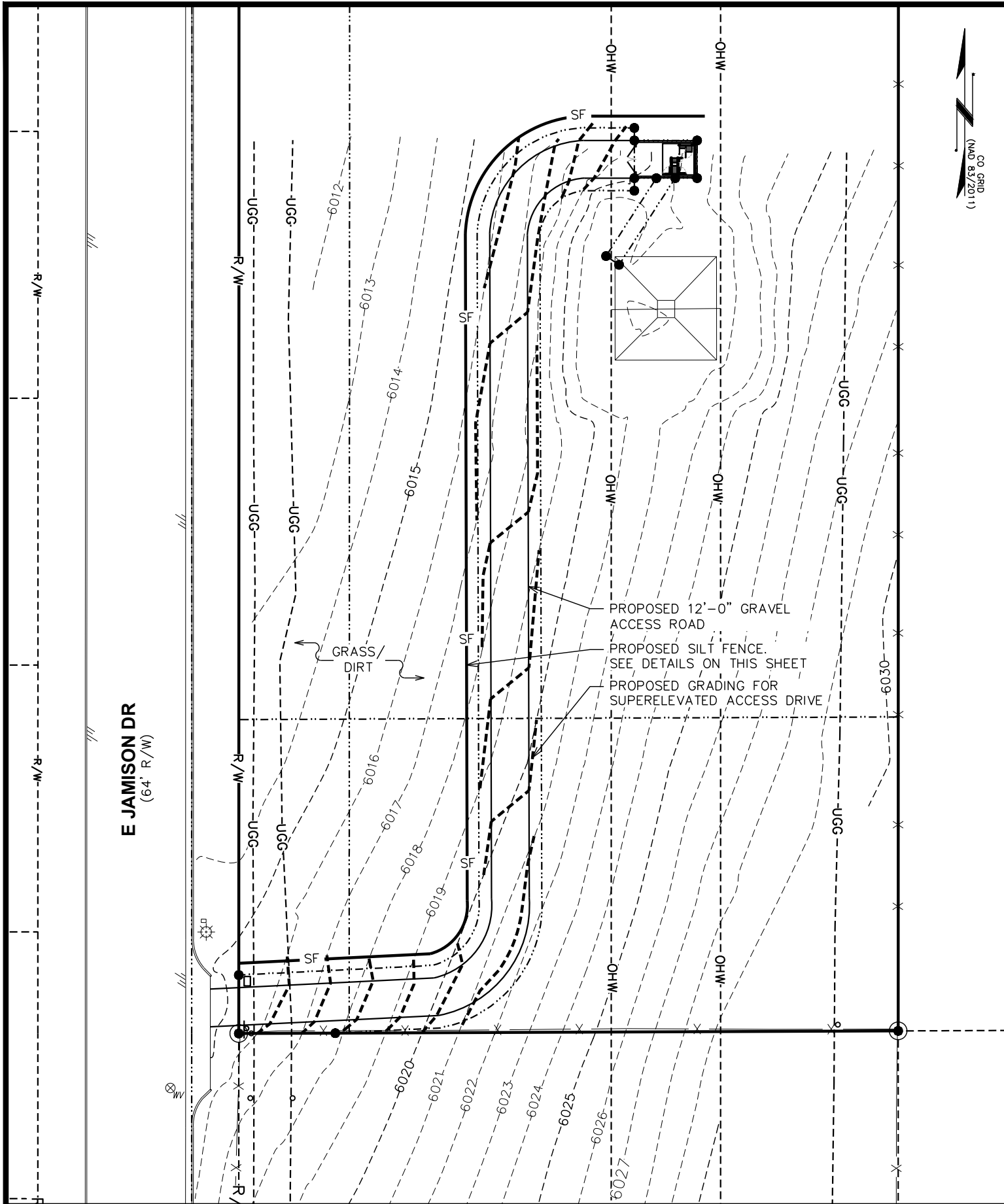
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REV	DATE	ISSUED FOR:

DRAWN BY: BRC CHECKED BY: ARB

SHEET TITLE:

SITE PLAN

SHEET NUMBER:	REVISION:
Z-1A	2
	TPE #134000.2021.87



PLANS PREPARED FOR:

Sprint

333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
OFFICE: (408) 560-1040

PROJECT INFORMATION:

JAMISON

SITE #: DN90XCD10

24024 E JAMISON DR
AURORA, CO 80016
(ARAPAHOE COUNTY)

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500 E. 84TH AVE SUITE C10
THORNTON, CO 80229
OFFICE: (303) 566-9914
www.tepgroup.net

SEAL:

PRELIMINARY
DO NOT USE FOR
CONSTRUCTION

REV	DATE	ISSUED FOR:
2	09-13-18	PRELIMINARY
1	07-06-18	PRELIMINARY

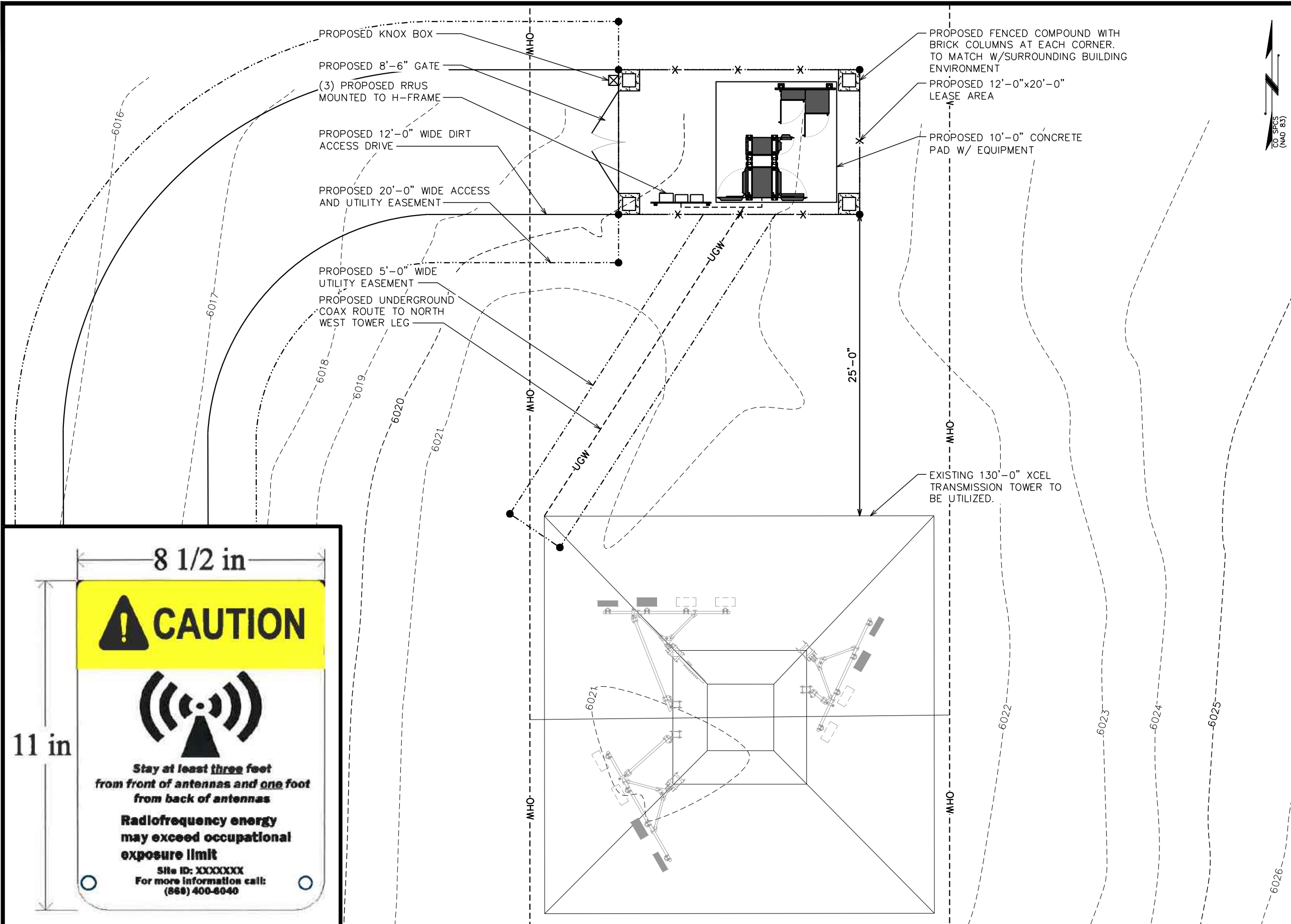
DRAWN BY: BRC CHECKED BY: ARB

SHEET TITLE:

SITE GRADING PLAN

SHEET NUMBER:	REVISION:
Z-1B	2

TEP #134000.202187



PLANS PREPARED FOR:

Sprint

333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
OFFICE: (408) 560-1040

PROJECT INFORMATION:

JAMISON

SITE #: DN90XCD10

24024 E JAMISON DR
AURORA, CO 80016
(ARAPAHOE COUNTY)

PLANS PREPARED BY:



TOWER ENGINEERING PROFESSIONALS
500 E. 84TH AVE SUITE C10
THORNTON, CO 80229
OFFICE: (303) 566-9914
www.tepgroup.net

SEAL:

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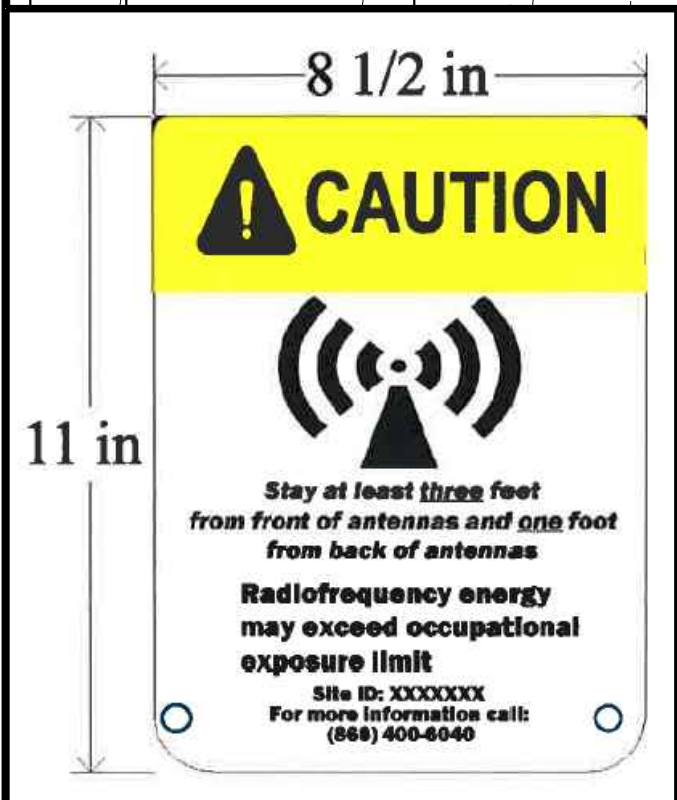
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SHEET TITLE:

COMPOUND PLAN

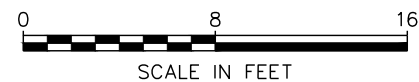
SHEET NUMBER:	REVISION:
Z-2	2
TEP #134000.2021.87	

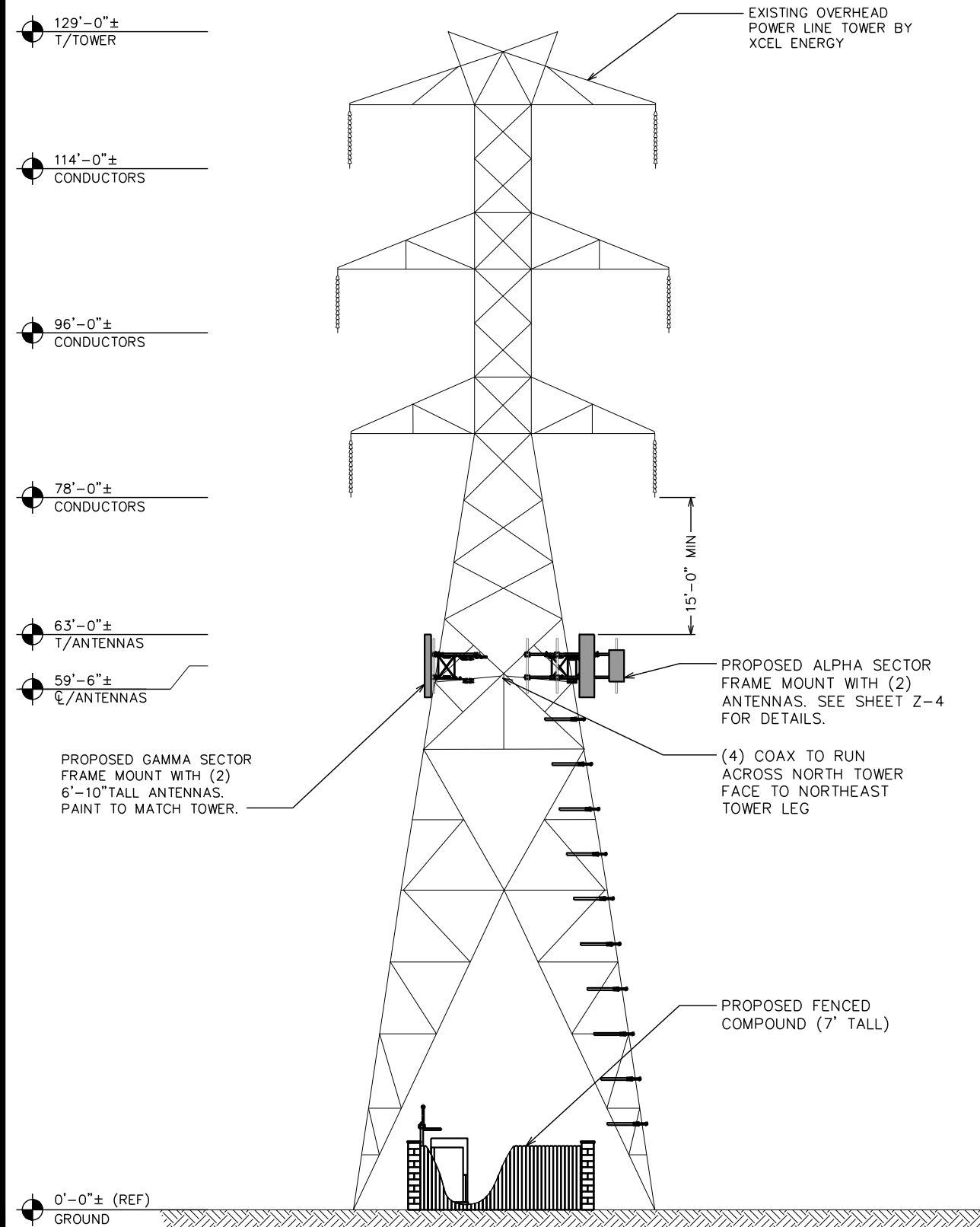


RF SAFETY SIGNAGE

COMPOUND DETAIL

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

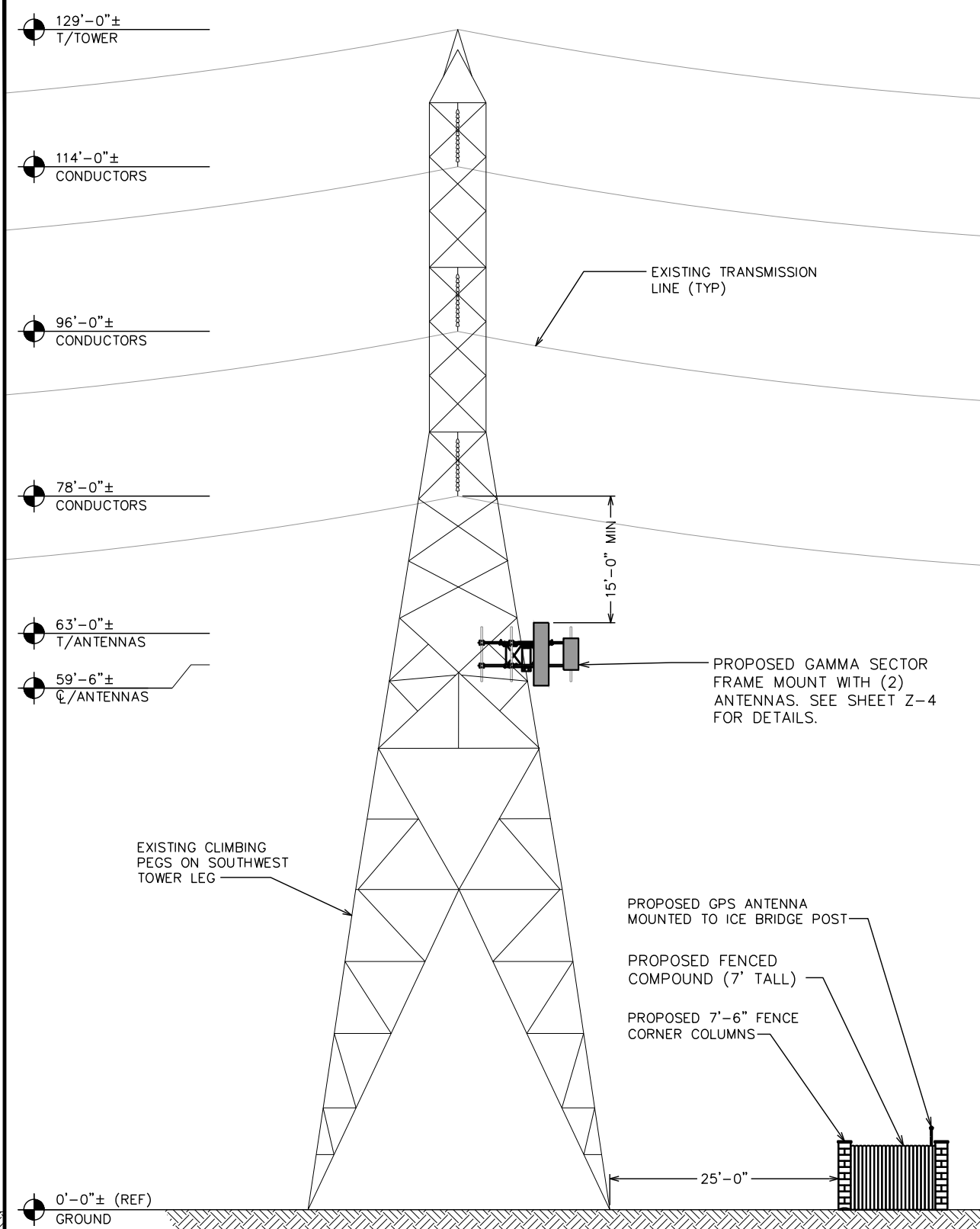




NORTH TOWER ELEVATION (LOOKING SOUTH)

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

SCALE IN FEET



EAST TOWER ELEVATION (LOOKING WEST)

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

SCALE IN FEET

PLANS PREPARED FOR:

Sprint

333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
OFFICE: (408) 560-1040

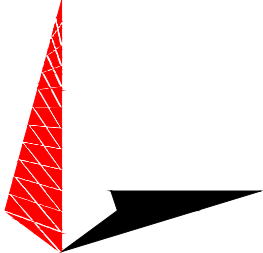
PROJECT INFORMATION:

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SITE #: DN90XCD10

24024 E JAMISON DR
AURORA, CO 80016
(ARAPAHOE COUNTY)

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DRAWN BY: BRC CHECKED BY: NMC

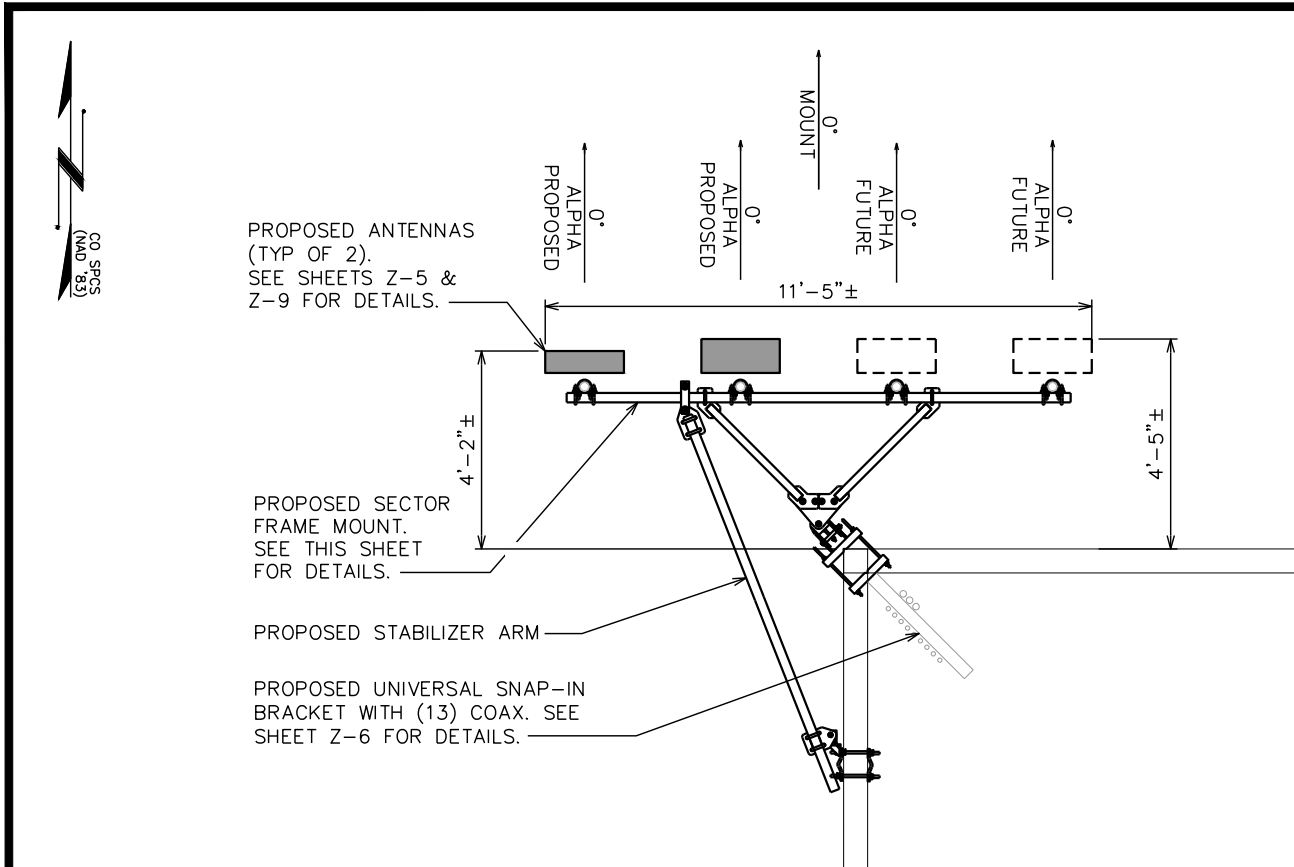
SHEET TITLE:

TOWER ELEVATION

SHEET NUMBER: **Z-3**

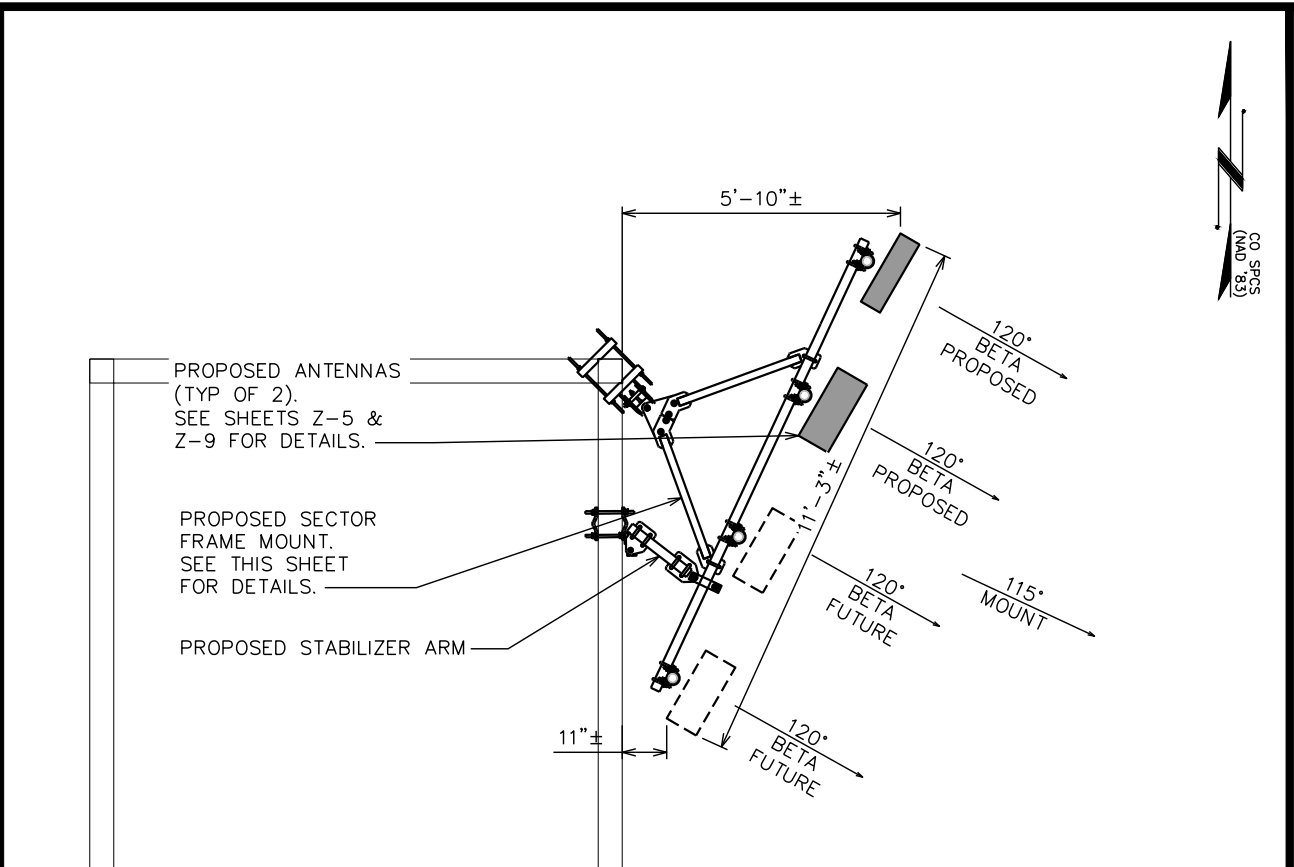
REVISION: **2**

TEP #134000.2021.87



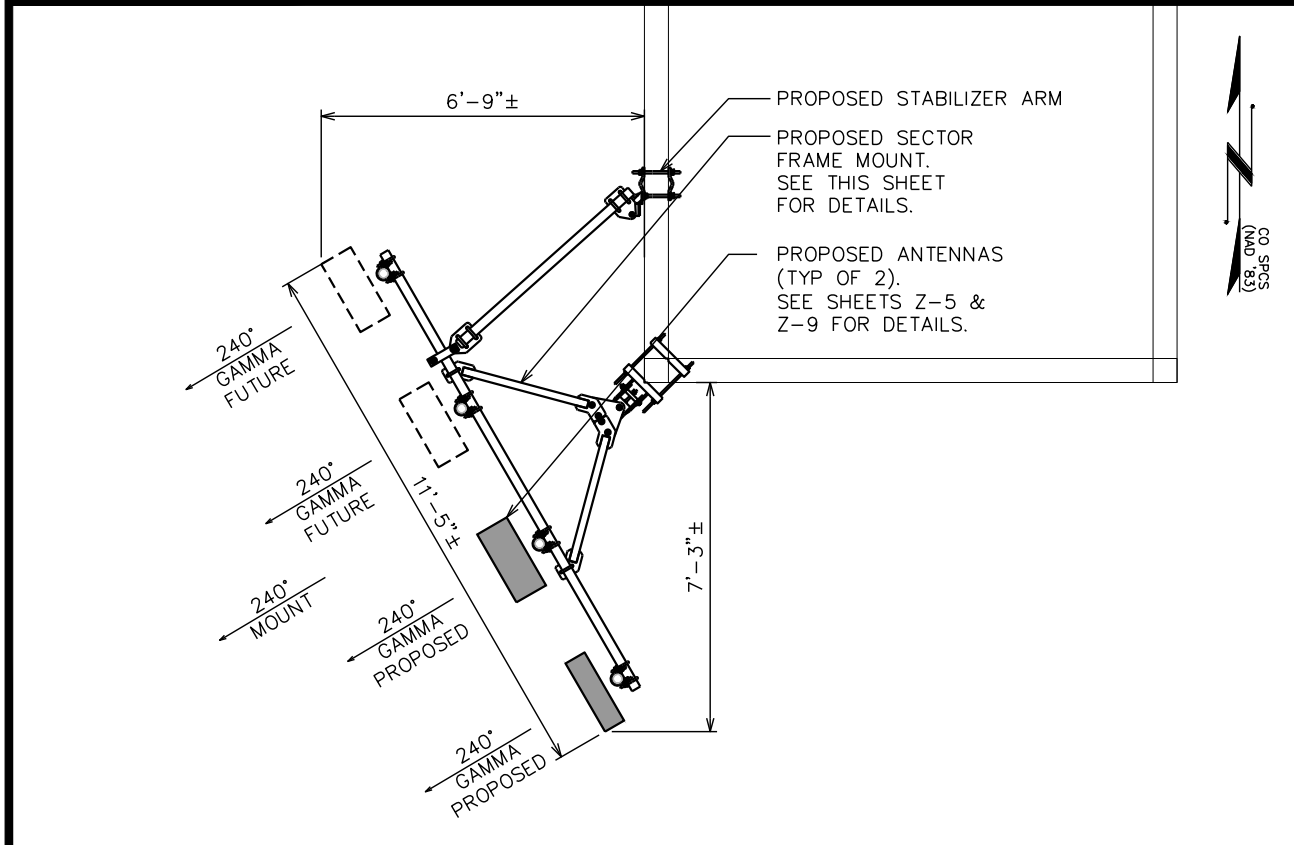
NORTHWEST LEG ANTENNA LAYOUT

SCALE: 1/4" = 1'-0"



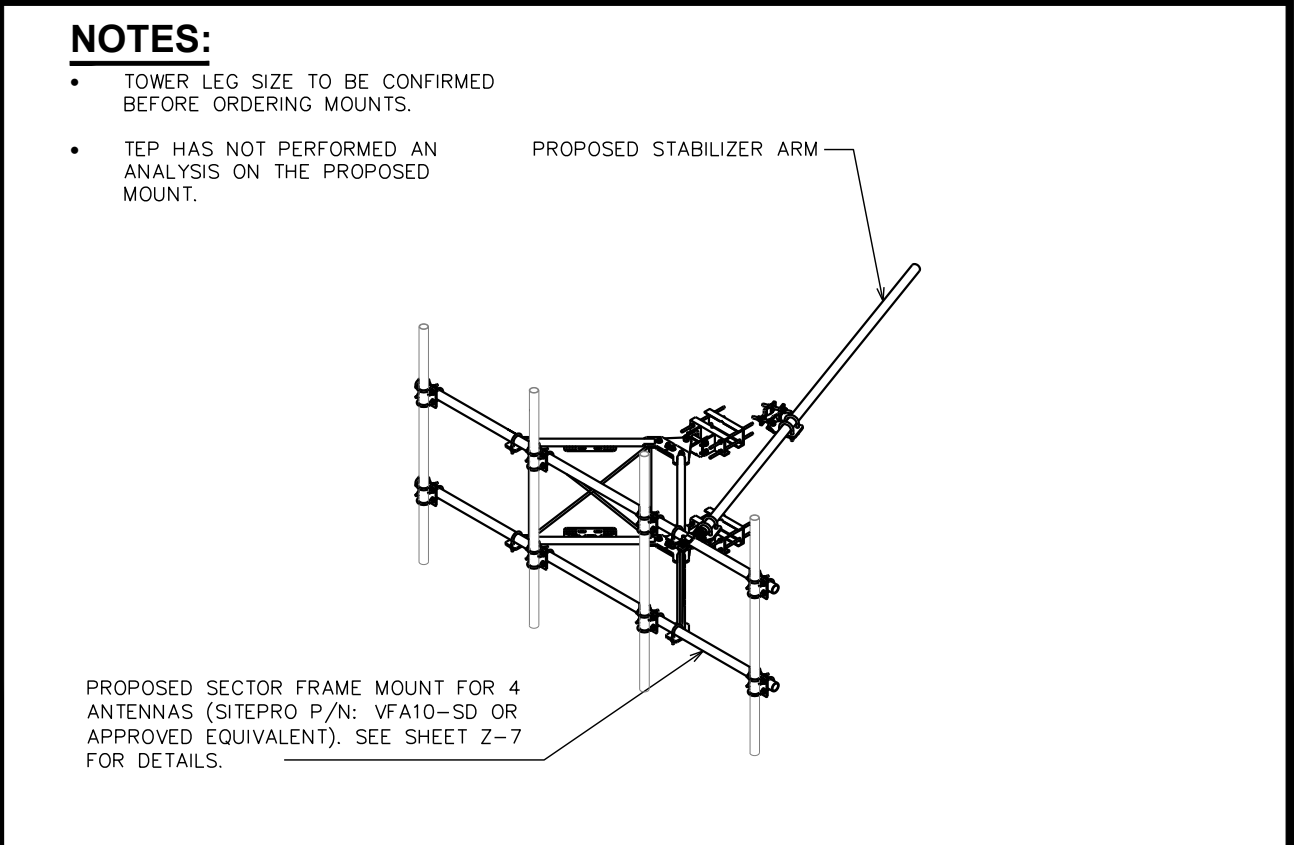
NORTHEAST LEG ANTENNA LAYOUT

SCALE: 1/4" = 1'-0"



SOUTHWEST LEG ANTENNA LAYOUT

SCALE: 1/4" = 1'-0"



NOTES:

- TOWER LEG SIZE TO BE CONFIRMED BEFORE ORDERING MOUNTS.
- TEP HAS NOT PERFORMED AN ANALYSIS ON THE PROPOSED MOUNT.

PROPOSED ANTENNA MOUNT

SCALE: N.T.S.

PLANS PREPARED FOR:



333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
OFFICE: (408) 560-1040

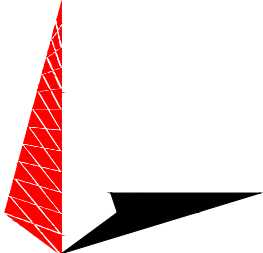
PROJECT INFORMATION:

JAMISON

SITE #: DN90XCD10

24024 E JAMISON DR
AURORA, CO 80016
(ARAPAHOE COUNTY)

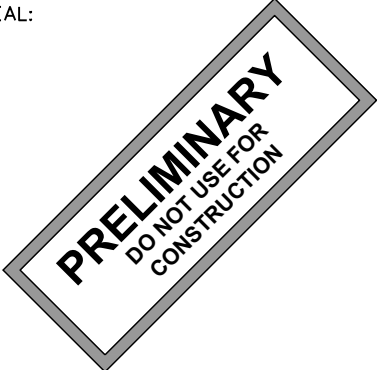
PLANS PREPARED BY:



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SHEET TITLE:

PROPOSED ANTENNA LAYOUTS

SHEET NUMBER:	REVISION:
Z-4	2
	TEP #134000.2021.87

FINAL ANTENNA/FEEDLINE SCHEDULE									
SECTOR	POS.	MANUFACTURER (MODEL #)	MOUNTING HEIGHT	AZIMUTH (TN)	ELEC. TILT	CABLE SIZE	HYBRID CABLE LENGTH	JUMPER CABLE LENGTH	OVP/RRH/TMA/DIPLEXER [MODEL #] *LOCATED IN COMPOUND
ALPHA	1	SAMSUNG M-MIMO AAU	℄ @ 59'-6"±	0°	-	(3) 1½" SAMSUNG TYPE 3	100'±	100'±	(1) SAMSUNG RRH [RRH-P4] (1) SAMSUNG RRH [800MHZ RRH]
ALPHA	2	RFS APXVBLL20X_43-C-I20	℄ @ 59'-6"±	0°	-				
ALPHA	3	-	-	-	-				
ALPHA	4	-	-	-	-				
BETA	5	SAMSUNG M-MIMO AAU	℄ @ 59'-6"±	120°	-		115'±	115'±	(1) SAMSUNG RRH [RRH-P4] (1) SAMSUNG RRH [800MHZ RRH]
BETA	6	RFS APXVBLL20X_43-C-I20	℄ @ 59'-6"±	120°	-				
BETA	7	-	-	-	-				
BETA	8	-	-	-	-				
GAMMA	9	SAMSUNG M-MIMO AAU	℄ @ 59'-6"±	240°	-		115'±	115'±	(1) SAMSUNG RRH [RRH-P4] (1) SAMSUNG RRH [800MHZ RRH]
GAMMA	10	RFS APXVBLL20X_43-C-I20	℄ @ 59'-6"±	240°	-				
GAMMA	11	-	-	-	-				
GAMMA	12	-	-	-	-				

NOTE:

1. PROPOSED ANTENNAS TO BE
PAINTED TO MATCH EXISTING TOWER

ANTENNA SCHEDULE

PLANS PREPARED FOR:



333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
OFFICE: (408) 560-1040

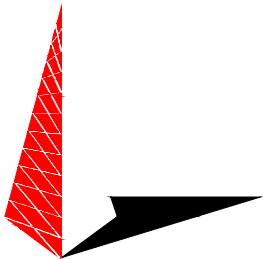
PROJECT INFORMATION:

JAMISON

SITE #: DN90XCD10

24024 E JAMISON DR
AURORA, CO 80016
(ARAPAHOE COUNTY)

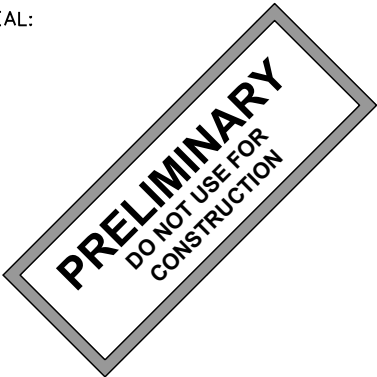
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SHEET TITLE:

PROPOSED ANTENNA
SCHEDULE

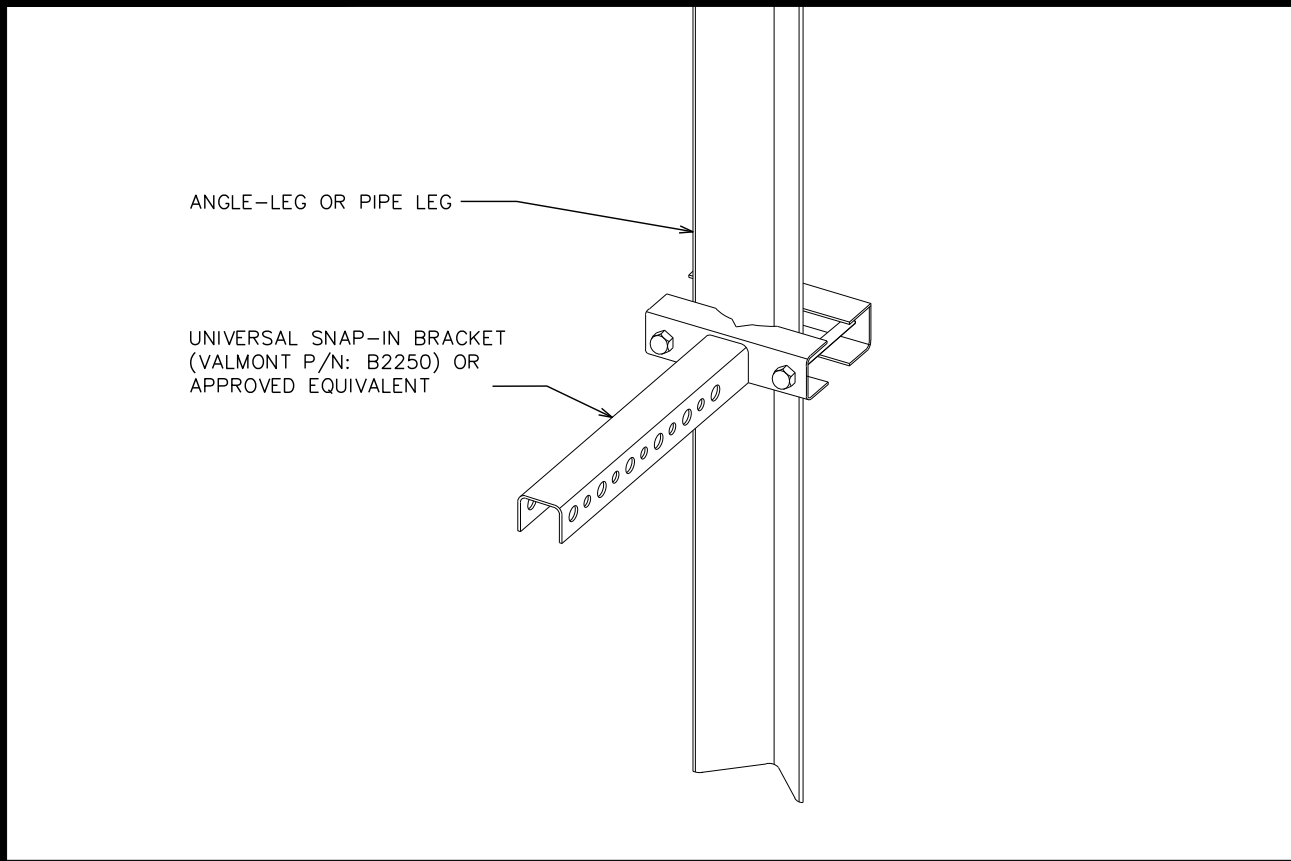
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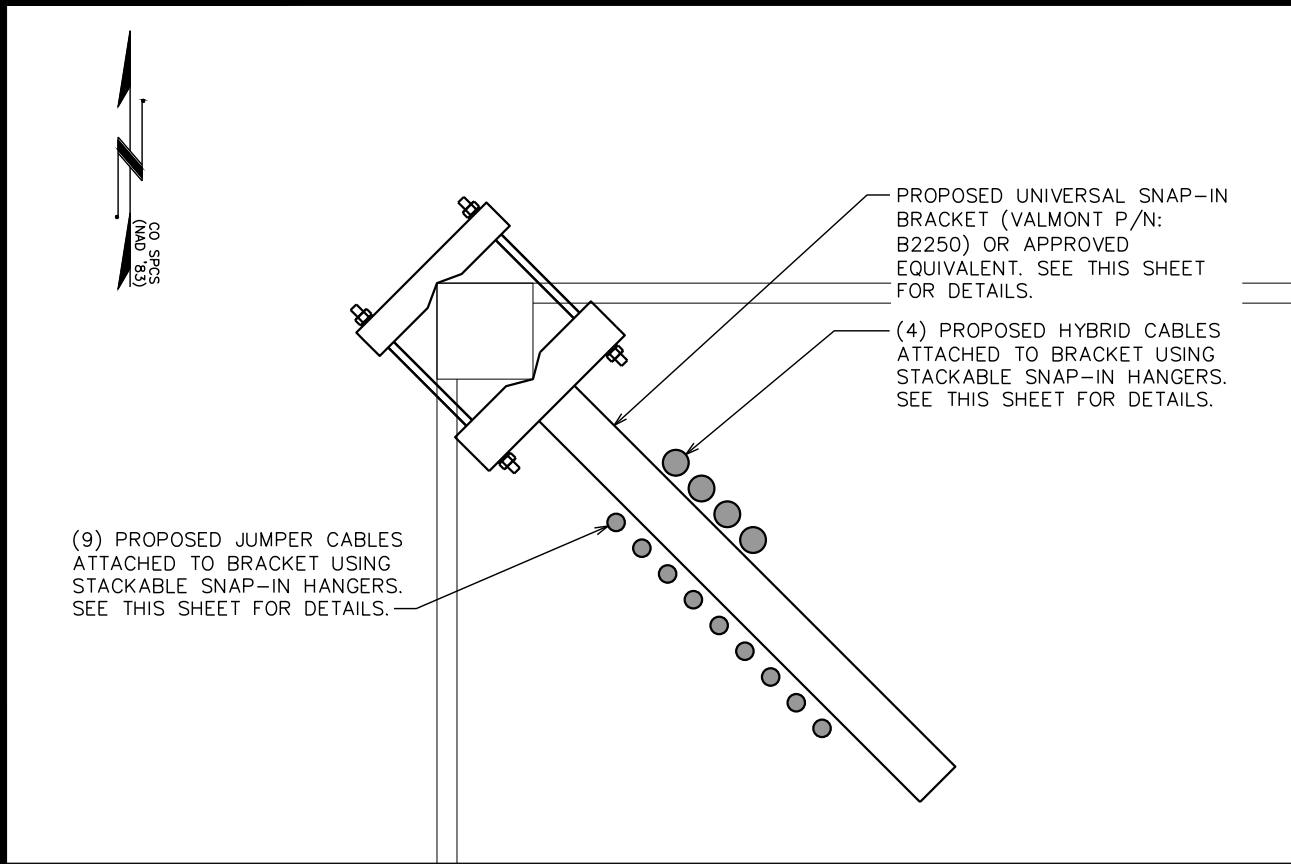
REVISION:

2

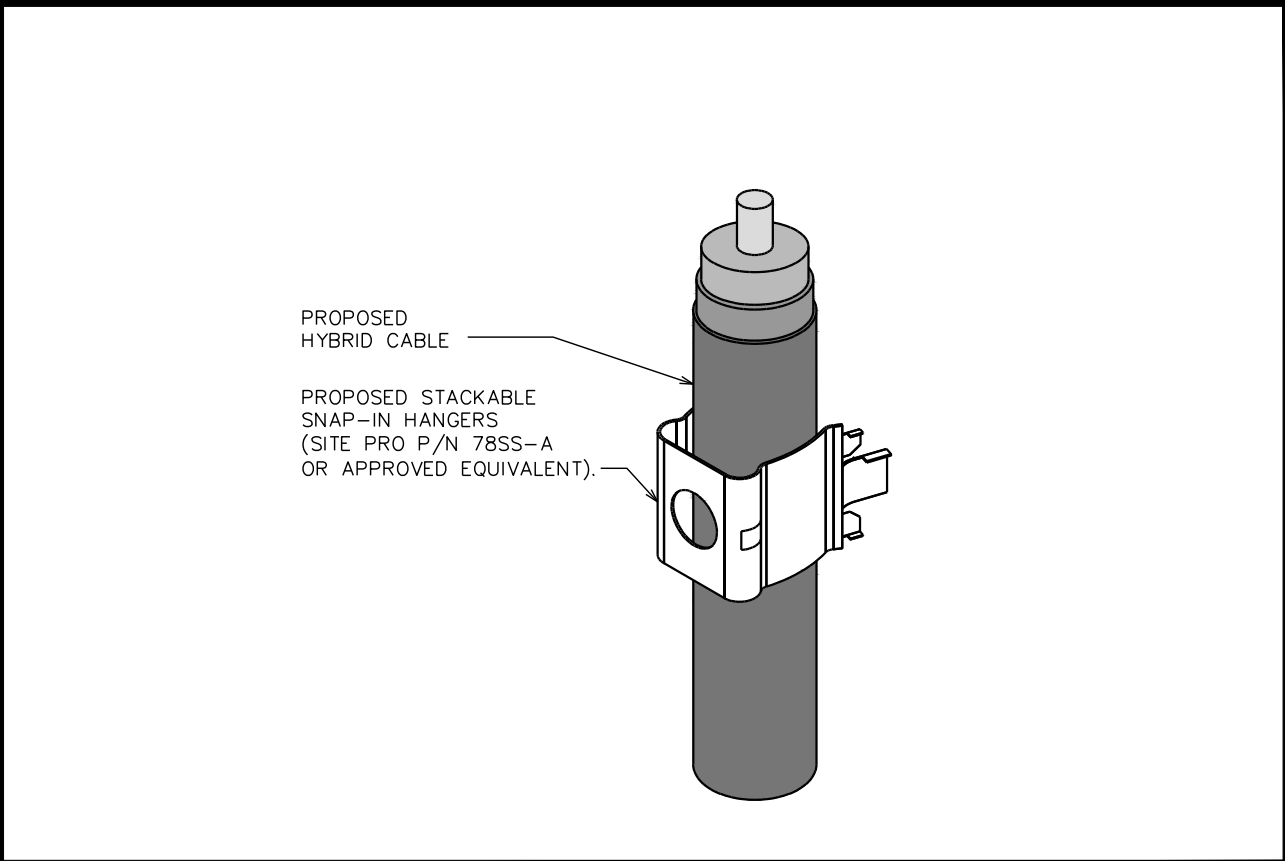
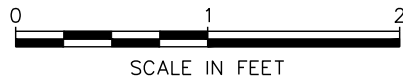
TEP #134000.202187



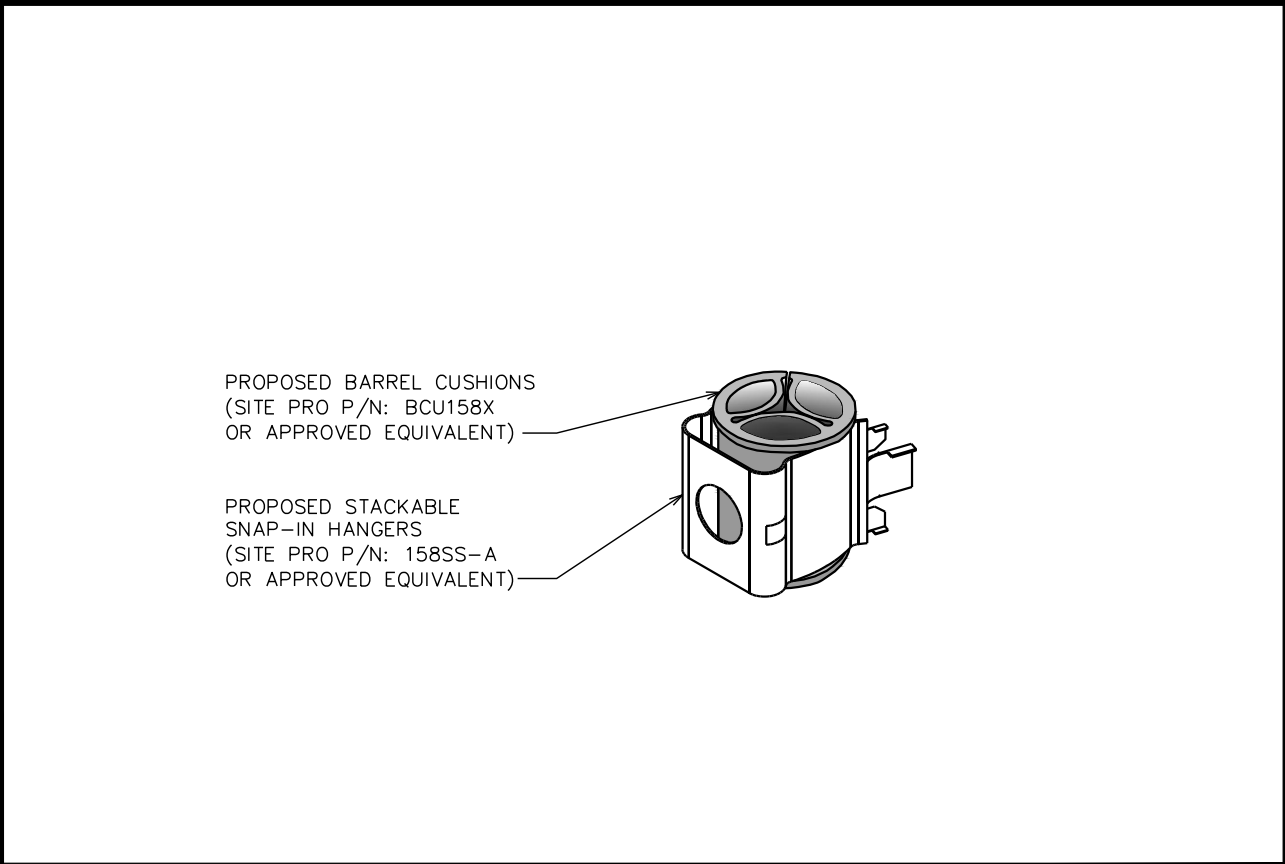
UNIVERSAL SNAP-IN BRACKET
SCALE: N.T.S.



COAX LAYOUT
SCALE: 1" = 1'-0"



STACKABLE SNAP-IN HANGER DETAIL
SCALE: N.T.S.



BARREL CUSHION DETAIL
SCALE: N.T.S.

PLANS PREPARED FOR:

Sprint

333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
OFFICE: (408) 560-1040

PROJECT INFORMATION:

JAMISON

SITE #: DN90XCD10

24024 E JAMISON DR
AURORA, CO 80016
(ARAPAHOE COUNTY)

PLANS PREPARED BY:

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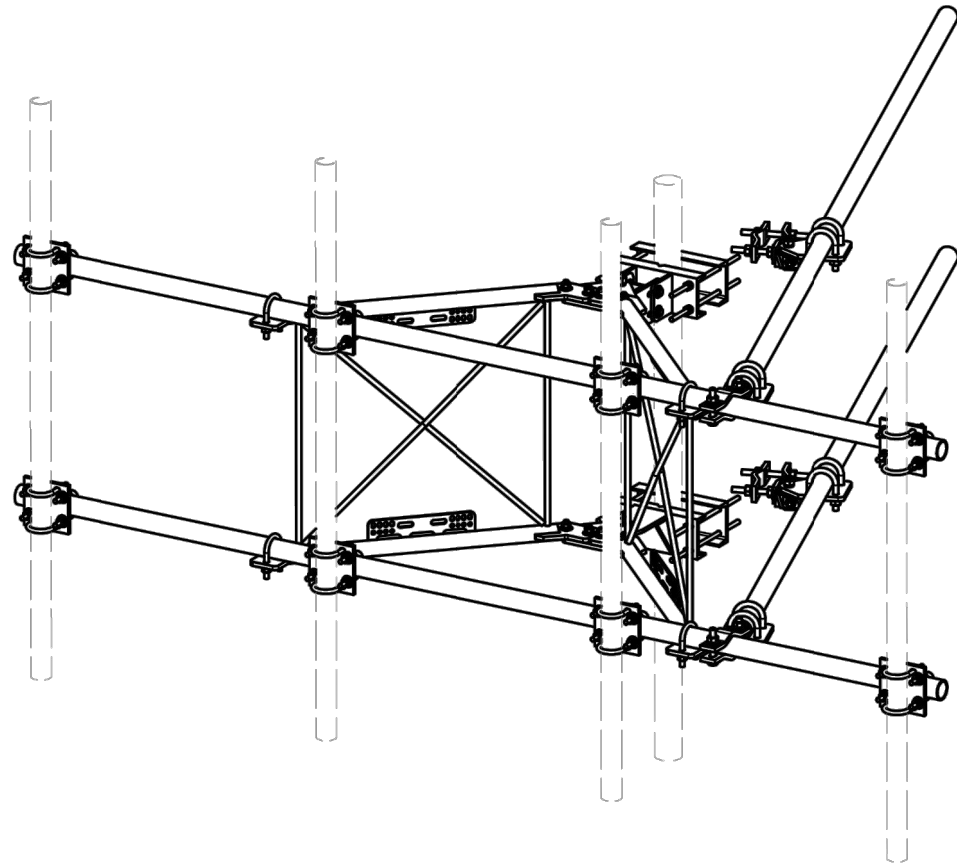
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1	07-06-18	PRELIMINARY
REV	DATE	ISSUED FOR:

DRAWN BY:	BRC	CHECKED BY:	ARB
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SHEET TITLE:

PROPOSED COAX LAYOUT

SHEET NUMBER:	REVISION:
Z-6	2
TEP #134000.202187	



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFASD	SUPPORT ARM FOR STANDARD DUTY V-FRAME ASSEMBLY		45.34	90.69
2	1	X-SDCAMDS	DIAGONAL SLOT WELDMENT FOR BCAM		13.57	13.57
3	1	X-MHTP	MULTI-HOLE TAPER PLATE WELDMENT		13.17	13.17
4	2	X-233792	PIVOT PLATE	11 1/16 in	9.09	18.18
5	2	X-LCBB	LEG CONNECTION BACKING BRACKET	12 in	7.56	15.11
6	1	X-SDCAMSS	STRAIGHT SLOT WELDMENT FOR BCAM		8.48	8.48
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	1	X-SDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM		1.43	1.43
9	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
10	8	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"	6 in	3.71	29.67
11	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
12	8	DCP	1/2" THICK, 5-3/4" CNTER TO CENTER CLAMP HALF	8 1/8 in	2.36	18.90
13	4	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	163.01
14	2	A34214	3/4"-10 X 2-1/4" A325 BOLT	2 1/4 in	0.47	0.95
15	2	G34LW	3/4" HDG LOCKWASHER		0.04	0.09
16	2	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.42
17	8	G58R-12	5/8" x 12" THREADED ROD (HDG.)		1.05	8.36
18	4	G58R-8	5/8" x 8" THREADED ROD (HDG.)		0.70	2.79
19	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
20	8	G5804	5/8" x 4" HDG HEX BOLT GR5		0.44	3.55
21	4	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.08
22	20	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.41
23	32	G58LW	5/8" HDG LOCKWASHER		0.03	0.83
24	36	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	4.68
25	8	G12R-15	1/2" x 15" GALV. THREADED ROD		0.84	6.69
26	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" GALV. U-BOLT		0.66	23.63
27	2	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	0.82
28	1	G12045	1/2" x 4.5" HDG HEX BOLT GR5 FULL THREAD	4 1/2 in	0.30	0.30
29	8	G1202	1/2" x 2" HDG HEX BOLT GR5	2 in	0.18	1.41
30	85	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.90
31	98	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.36
32	99	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	7.09
TOTAL WT. #						498.39

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
BENDS ARE $\pm 1/2$ DEGREE
ALL OTHER MACHINING ($\pm 0.030"$)
ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
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DESCRIPTION

10'-6" STANDARD DUTY
V-FRAME ASSEMBLY
W/ 2 STIFF ARMS

CPD NO.	DRAWN BY	ENG. APPROVAL
	CEK 11/2/2016	
CLASS	SUB	DRAWING USAGE
81	02	CUSTOMER



Engineering
Support Team:
1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

PART NO.	VFA10-SD
DWG. NO.	VFA10-SD

PAGE
1 OF 5

SITEPRO VFA10-SD

PLANS PREPARED FOR:



333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
OFFICE: (408) 560-1040

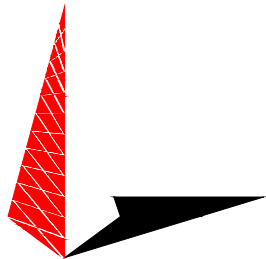
PROJECT INFORMATION:

JAMISON

SITE #: DN90XCD10

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AURORA, CO 80016
(ARAPAHOE COUNTY)

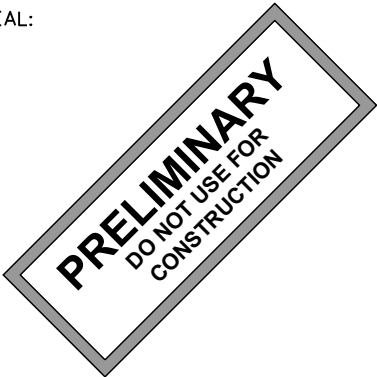
PLANS PREPARED BY:



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SHEET TITLE:

**PROPOSED ANTENNA
MOUNT**

SHEET NUMBER:

Z-7

REVISION:

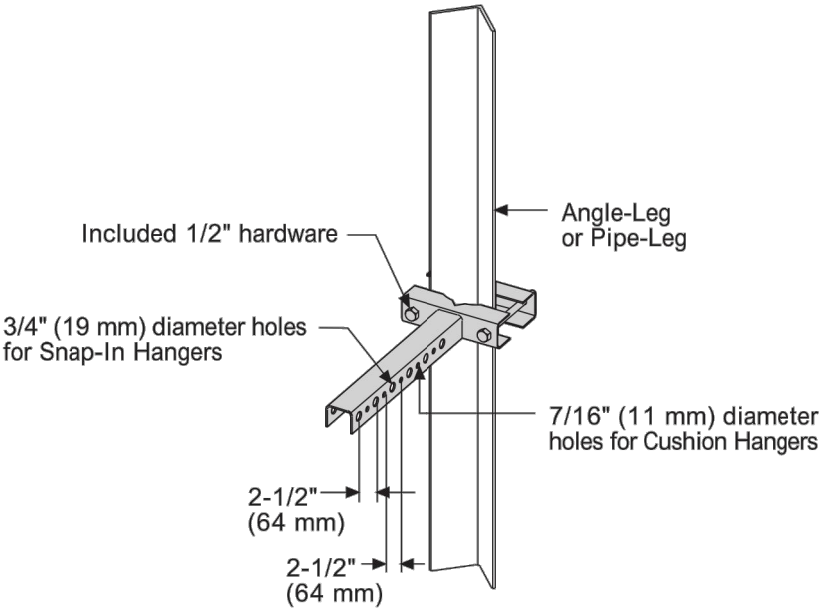
2

TEP #134000.202187



Universal Snap-In Brackets for Angle- or Pipe-Leg

The Universal Snap-In Bracket supports up to 16 Snap-In Hangers for support of coax transmission lines on angle-leg or pipe-leg structures. Also provided are 7/16" (11 mm) diameter holes to support Cushion or Butterfly Hangers. Galvanized.



12 Runs	16 Runs	Angle Leg Size in (mm)	Pipe Leg Size in (mm)
B2249	B2252	2-1/2 (64) x 2-1/2 (64) to 4 (102) x 4 (102)	1-1/2 (38) OD to 5-9/16 (141) OD
B2250	B2253	5 (127) x 5 (127) to 6 (152) x 6 (152)	6 (152) OD to 8-5/8 (219) OD
B2251	B2254	8 (203) x 8 (203)	10-3/4 (273) OD to 12-3/4 (324) OD

PLANS PREPARED FOR:



333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
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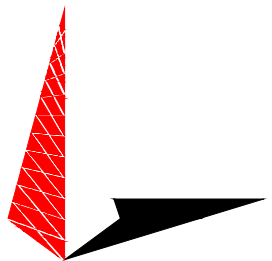
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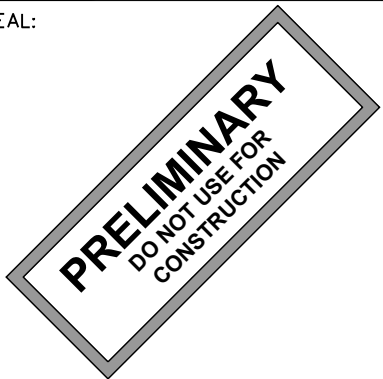
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SHEET TITLE:

EQUIPMENT DETAILS

SHEET NUMBER:

Z-8

REVISION:

2

TEP #134000.202187

ANTENNA MAKE AND MODEL

ANTENNA MAKE: SAMSUNG TELECOMMUNICATIONS
ANTENNA MODEL: M-MIMO AAU
DIMENSIONS, HxWxD: 41.34"x19.70"x5.50"
WEIGHT: 143.3 lbs



SAMSUNG ELECTRONICS AMERICA, INC.
5901 College Boulevard, Suite 300
Overland Park, KS 66213

Date : 11/3/2017

M-MIMO Cut Sheet

Cut sheet details for Samsung 64T64R Massive MIMO AAU (MAU) enclosed.

Radio module	SSLR 7.1.0 (1Q.'18)
Temperature support	Option A: -40 C to 55 C (without solar load)
# of Tx/Rx	64T64R
Frequency band-MHz	2496-2690
IBW (MHz)	60
Split mode support	Yes
Aggregate Tx power- Watts	160
Weight- Kgs (AAU)	< 65Kg (55 degree C)
Weight- Kgs (BBU)	< 15Kg
Dimension- CM (AAU) (H X W X D mm)	1050 x 500 x 140 (55 C)
Dimension- CM (BBU)	43.3x 38.5 x 8.8
Volume – L (AAU)	73.5L
Power consumption (W)	1572 (max)
# of antenna elements	128
# of antenna elements- columns	8
Horizontal antenna element spacing	0.489λ
# of antenna elements- row	8x2 polarization
Vertical antenna element spacing	0.7λ
# of antenna sub-array	2x2 polarization
Antenna element gain- dBi	7
PDCCH Broadcast beam HBW	35-95 (every 5 degree)
PDCCH Broadcast beam gain-dBi	15+/-1dBi
Down link SU-MIMO	2x2, 4x4
Uplink SU-MIMO	2x2
Downlink MU-MIMO- # of layers (# of UE x layers)	16
Uplink MU-MIMO- # of layers (# of UE x layers)	2
Maximum DL modulation scheme	256 QAM
Maximum UL modulation scheme	64 QAM
Transmission modes supported	TM7, TM9
SRS periods	24RBs per 10ms
DMRS design	TM7 Port 5, TM9 Port 7,8,9,and 10
CSI-RS	8 Port CSI-RS
Uplink detection scheme	MMSE
CA support	3CA

CONFIDENTIAL AND PROPRIETARY INFORMATION

Page 1

MASSIVE MIMO ANTENNA

SCALE: N.T.S.

ANTENNA MAKE AND MODEL

ANTENNA MAKE: RFS
ANTENNA MODEL: APXVBBLL20X_43-C-I20
DIMENSIONS, HxWxD: 82.6"x19.6"x8.5"
WEIGHT: 85.3 lbs

PRODUCT DATASHEET

APXVBBLL20X_43-C-I20

FEATURES / BENEFITS

This antenna provides an 8-port multi-band flexible platform for advanced use in both low and high bands

- 4 ports / 2 systems in low band
- 4 ports / 2 systems in high band
- Integrated RET platform
- Slim radome design
- MIMO 4x4 for LTE 700 & 2600

Technical Features

LOW BAND LEFT ARRAY (694-960 MHZ) [R1]

Frequency Band	MHz	694-790	790-894	880-960
Gain	dBi	14.8	15.8	15.8
Horizontal Beamwidth @3dB Deg	Deg	71.5 +/- 9.6	64.2 +/- 4.7	60.1 +/- 3.7
Vertical Beamwidth @3dB	Deg	11.3 +/- 1.2	9.9 +/- 0.5	9.2 +/- 0.4
Front-to-Back, at +/-30°, Total Power	dB	19.1	22.5	25.5
First Upper Side Lobe Suppression	dB	20.3	19.9	20.8
Electrical Downtilt Range	Deg	2 to 12		
3rd Order PIM 2 x 43dBm	dBc	-153		
VSWR	-	1.5		
Return Loss	dB	14		
Cross Polar Isolation	dB	25		
Inter Band Isolation	dB	R1//R2 Typical 26 R1//Y1 Typical 25 R1//Y2 Typical 35		
Maximum Effective Power per Port	Watt	300		

LOW BAND RIGHT ARRAY (694-960 MHZ) [R2]

Frequency Band	MHz	694-790	790-894	880-960
Gain	dBi	14.9	15.8	15.8
Horizontal Beamwidth @3dB Deg	Deg	71.2 +/- 9.5	64.2 +/- 5.4	60.5 +/- 4.6
Vertical Beamwidth @3dB	Deg	11.3 +/- 1.1	9.9 +/- 0.5	9.2 +/- 0.4
Front-to-Back, at +/-30°, Total Power	dB	18.2	21.3	25.4
First Upper Side Lobe Suppression	dB	19	19.1	19.6
Electrical Downtilt Range	Deg	2 to 12		
3rd Order PIM 2 x 43dBm	dBc	-153		
VSWR	-	1.5		
Return Loss	dB	14		
Cross Polar Isolation	dB	25		
Inter Band Isolation	dB	R2//R1 Typical 26 R2//Y1 Typical 35 R2//Y2 Typical 25		
Maximum Effective Power per Port	Watt	300		

APXVBBLL20X_43-C-I20

REV: H

REV DATE: 10.06.2017

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All information contained in the present datasheet is subject to confirmation at time of ordering

Page 1 of 4

PLANS PREPARED FOR:



333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
OFFICE: (408) 560-1040

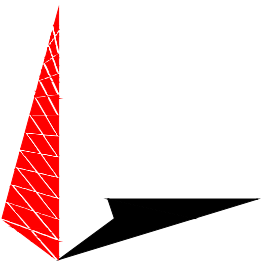
PROJECT INFORMATION:

JAMISON

SITE #: DN90XCD10

24024 E JAMISON DR
AURORA, CO 80016
(ARAPAHOE COUNTY)

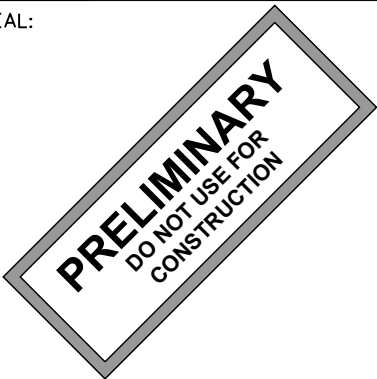
PLANS PREPARED BY:



TOWER ENGINEERING PROFESSIONALS

500 E. 84TH AVE SUITE C10
THORNTON, CO 80229
OFFICE: (303) 566-9914
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SEAL:



2	09-13-18	PRELIMINARY
1	07-06-18	PRELIMINARY
REV	DATE	ISSUED FOR:

DRAWN BY: BRC CHECKED BY: ARB

SHEET TITLE:

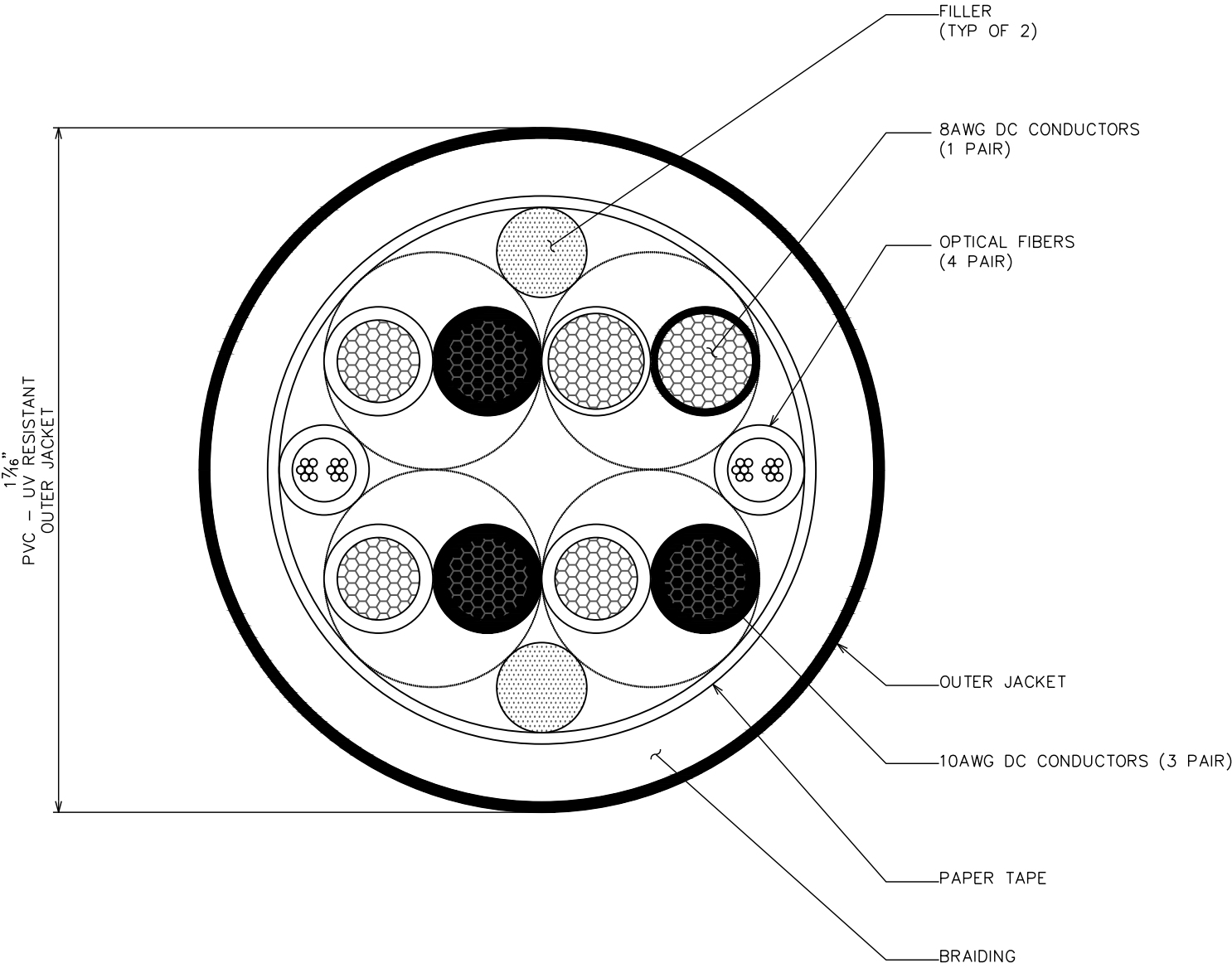
ANTENNA DETAILS

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TEP #134000.202187	

RFS ANTENNA

SCALE: N.T.S.

HYBRID CABLE



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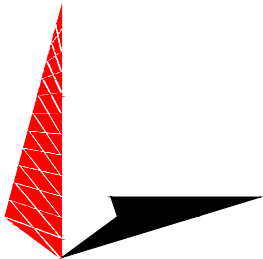
PROJECT INFORMATION:

JAMISON

SITE #: DN90XCD10

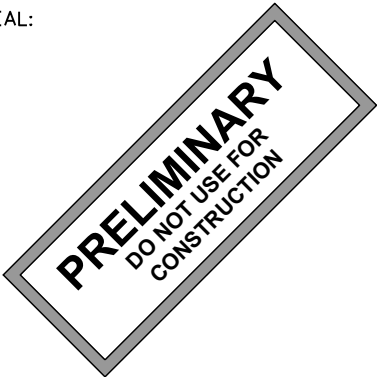
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TEP #134000.202187	