



LAKEWOOD LAKES

KS5772

FA#: 13293733

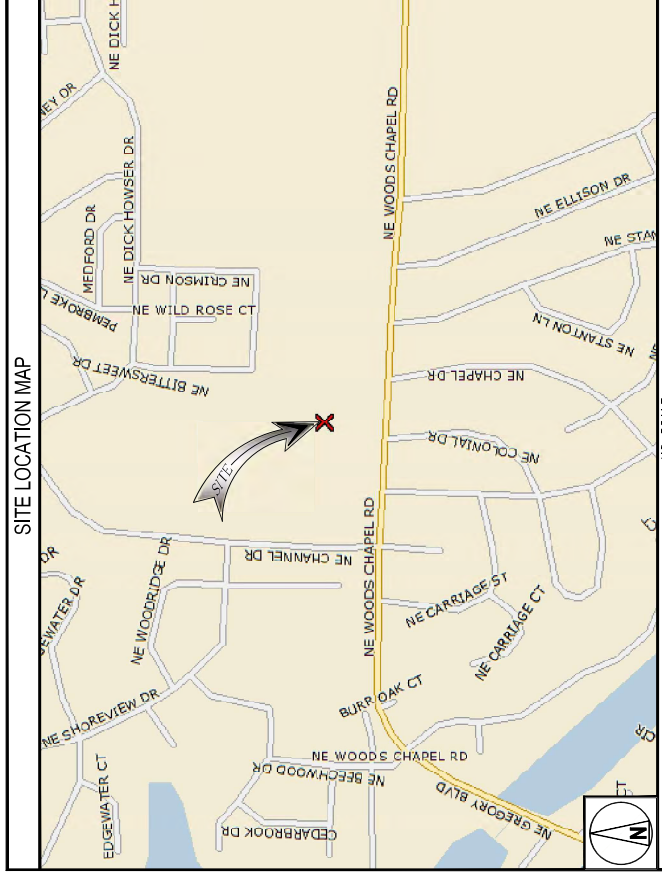
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LTE 6C/5G NR C-BAND

120'-MONOPOLE

SITE INFORMATION	
PROPERTY OWNER:	CITY OF LEES SUMMIT 10 NE TUDOR ROAD LEES SUMMIT, MO 64086
TOWER OWNER:	CITY OF LEES SUMMIT
SITE CONTACT:	CITY OF LEES SUMMIT (816) 969-7547
COUNTY:	JACKSON
LATITUDE (NAD 83):	38° 59' 1.97" N 38.9839
LONGITUDE (NAD 83):	94° 22' 13.11" W -94.3704
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	V-B
POWER COMPANY:	KOPAL
TELEPHONE COMPANY:	AT&T

CONTACT INFORMATION	
ENGINEER:	BLACK & VEATCH CORPORATION 6800 W. 151 ST ST. SUITE 2232 OVERLAND PARK, KS 66211
CONTACT:	TYLER DAWSON (913) 458-9654
CONSTRUCTION MANAGER:	KELLY MORRISON (800) 472-6559
SITE ACQUISITION MANAGER:	MONICA BEAUTI (913) 458-8349
RF ENGINEER:	AMOR SIMON (636) 479-0138



GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

ENGINEERING
2012 INTERNATIONAL BUILDING CODE OR ADOPTED CODE
2011 NATIONAL ELECTRIC CODE OR ADOPTED CODE
TI/IEA-222-G OR ADOPTED CODE

DRAWING INDEX	
SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
C-1	EQUIPMENT LAYOUT
C-2	ELEVATION
C-3	ANTENNA LAYOUT AND SCHEDULE
C-4	EQUIPMENT DETAILS
RF-1	CABLE COLOR CODING
C-1	GROUNDING ONE-LINE ANTENNA EQUIPMENT
ON-1	LEGEND & ABBREVIATIONS
ON-2	GENERAL CONSTRUCTION NOTES
ON-3	GENERAL ELECTRICAL NOTES
S-1	ANTENNA MOUNT REINFORCEMENT
-	R/F PLUMBING DIAGRAMS ATTACHED

[illegible]

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

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



UNDERGROUND
SERVICE ALERT
UTILITIES PROTECTION CENTER, INC.

48 HOURS BEFORE YOU DIE



7801 FARLEY
OVERLAND PARK, KS 66204



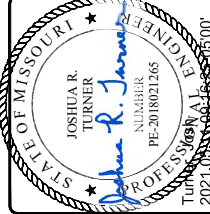
BLACK & VEATCH

6800 W. 115TH ST, SUITE 2292
OVERLAND PARK, KS 66211
(913) 458-2000

PROJECT/PHASE NO: 129331.1276

DRAWN BY:

CHECKED BY _____

[illegible]

IT IS A VIOLATION OF LAW FOR ANY PERSON
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,

LAKESWOOD LAKES
KS5772
404 NE WOODS CHAPEL F
LEES SUMMIT, MO 6406
LTE 6C/5G NR C-BAND

SHEET TITLE

T-1
SHEET NUMBER



7851 GARLEY
OVERLAND PARK, KS 66204



BLACK & VEATCH

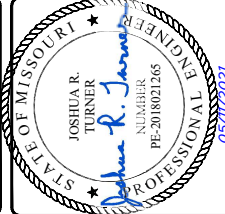
6800 W. 115TH ST., SUITE 2292
OVERLAND PARK, KS 66211
(913) 458-2000

PROJECT/PHASE NO: 129331.1276

DRAWN BY: VDP

CHECKED BY: TD

REV	DATE	DESCRIPTION
0	06/07/21	ISSUED FOR CONSTRUCTION



THIS DOCUMENT IS NOT VALID FOR ANY PROJECT
UNLESS AUTHORIZED BY THE PROFESSIONAL ENGINEER
OR A LICENSED PROFESSIONAL ENGINEER
IN THE STATE OF MISSOURI

LAKEWOOD LAKES
KS5772

404 NE WOODS CHAPEL RD
LEES SUMMIT, MO 64064
LTE 6C/5G NR C-BAND

SHEET TITLE

EQUIPMENT LAYOUT

SHEET NUMBER

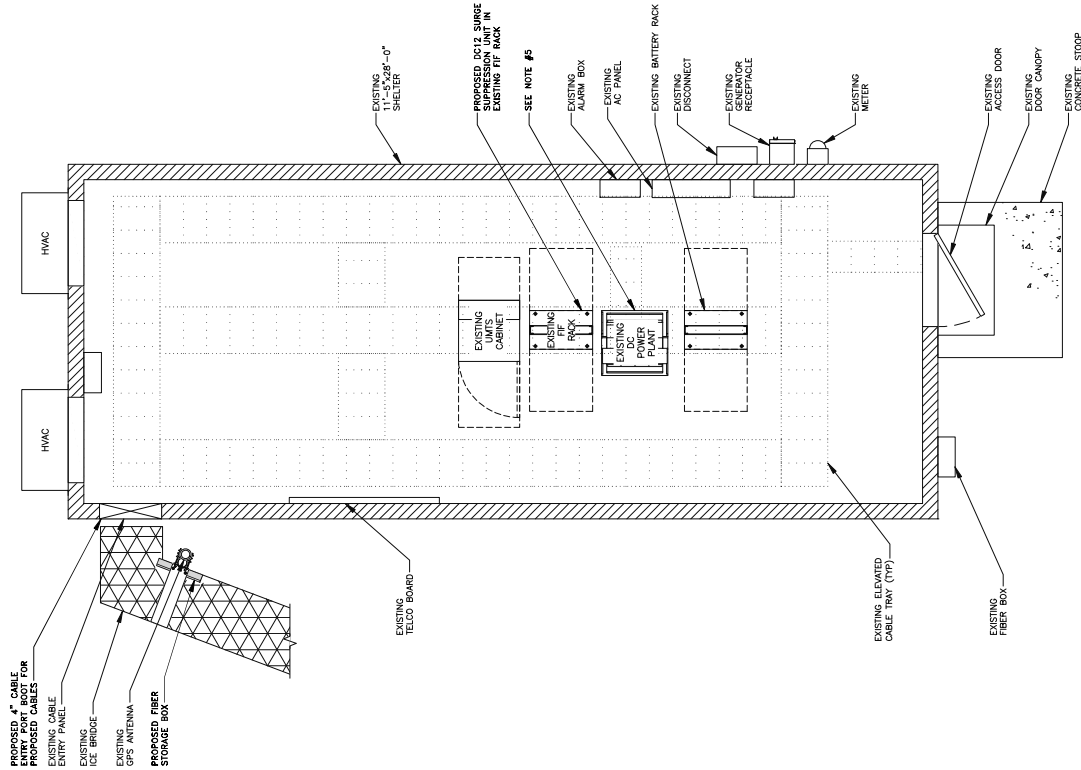
C-1

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL FIELD VERIFY EXISTING HVAC UNITS. IF LESS THAN 3 TON RATING, CONTRACTOR SHALL REMOVE EXISTING UNITS AND REPLACE WITH 3 TON RATING UNITS, MATCHING EXISTING MANUFACTURER.
3. IF APPLICABLE, FSMA BRU TO BE INSTALLED/UPGRADED AND GROUNDED BY OTHERS, PER AT&T INSTALLATION STANDARDS.
4. EXISTING RACK MOUNTED DCB SURGE SUPPRESSION UNIT SHALL BE REMOVED AND REPLACED WITH DC12 SURGE SUPPRESSION UNIT. WHEN REQUIRED FOR UPGRADE.
5. CONTRACTOR TO INSTALL POWER CONVERTERS IN DC CONVERTER FOR PROPOSED RITE.

NOTES

- INSTALL:
- (1) PROPOSED FIBER STORAGE BOX
 - (1) PROPOSED DC12 SURGE SUPPRESSION UNIT

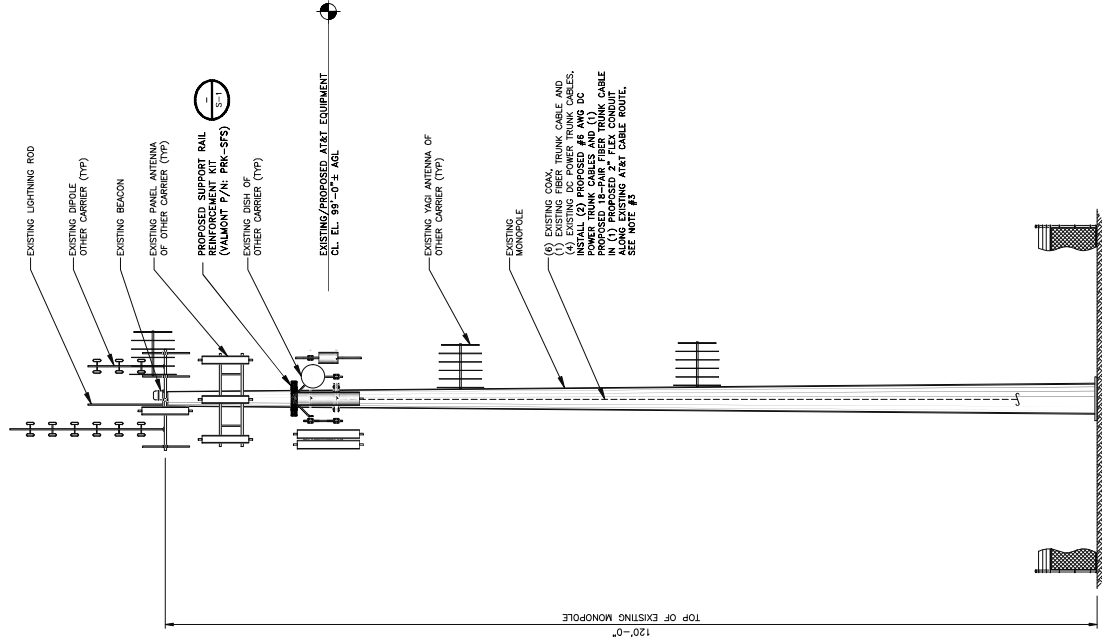
GROUND SCOPE OF WORK



12' 6" 0' 1' 2' 3' 4' 5'
1/2" = 1'-0"

FINAL EQUIPMENT LAYOUT

THIS DOCUMENT WAS PREPARED BASED ON THE INFORMATION PROVIDED TO BLACK & VEATCH. IF EXISTING CONDITIONS DO NOT REFLECT THOSE REPRESENTED, THESE CONSTRUCTION DRAWINGS ARE NO LONGER VALID.

FINAL ELEVATION

A

GENERAL NOTES

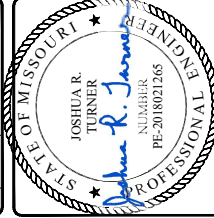
C-2

SHEET NUMBER

SHEET TITLE	ELEVATION

LAKEWOOD LAKES
KS5772
404 NE WOODS CHAPEL RD
LEES SUMMIT, MO 64064
LTE 6C/5G NR C-BAND

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

[illegible]

CHECKED BY:	TD
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DRAWN BY:	VDP
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BLACK & VEATCH

6800 W. 115TH ST, SUITE 2292
OVERLAND PARK, KS 66211
(913) 458-2000



7801 FARLEY
OVERLAND PARK, KS 66204

INSTALL:

- (6) PROPOSED ANTENNAS
- (3) PROPOSED RRHs
- (1) PROPOSED DC6 SURGE SUPPRESSION UNIT
- (1) PROPOSED FIBER TRUNK CABLE
- (2) PROPOSED DC POWER TRUNK CABLES
- (1) PROPOSED 2" FLEX CONDUIT
- PROPOSED MOUNT MODIFICATIONS

TOWER SCOPE OF WORK

THE PASSING STRUCTURAL ANALYSIS FOR THE EXISTING STRUCTURE WAS COMPLETED BY BLACK & VEATCH ON 04/15/2021.

STRUCTURAL ANALYSIS NOTE

THE EXISTING ANTENNA MOUNTS ARE OVERSTRESSED PER THE 04/16/2021 ANTENNA MOUNT ANALYSIS BY BLACK & VEATCH AND STRUCTURAL MODIFICATIONS AS PER ANTENNA MOUNT MODIFICATION DESIGN BY BLACK & VEATCH ON 04/28/2021 MUST BE INSTALLED PRIOR TO INSTALLATION OF ANY A1&T EQUIPMENT, AS SHOWN ON DRAWING SHEET S-1.

MOUNT ANALYSIS NOTE

1. GROUND EQUIPMENT NOT SHOWN FOR CLARITY.
2. ANY ADDITIONAL EQUIPMENT NOTED ON THE STRUCTURAL ANALYSIS SHOULD BE CONSIDERED AS RESERVED LOADING, WHICH COULD BE INSTALLED AT A FUTURE DATE.
3. CONTRACTOR SHALL REFER TO THE STRUCTURAL ANALYSIS FOR THE FINAL CABLE ROUTING, PLACEMENT AND QUANTITY OF ALL ASXBT CABLES.



7851 FAIRLEY
OVERLAND PARK, KS 66204



BLACK & VEATCH

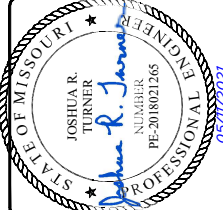
6800 W. 15TH ST. SUITE 2202
OVERLAND PARK, KS 66211
(913) 438-2000

PROJECT/PHASE NO: 129331.1276

DRAWN BY: VDP

CHECKED BY: TD

REV	DATE	DESCRIPTION
0	06/07/21	ISSUED FOR CONSTRUCTION



THIS IS A SEAL AND NOT A SIGNATURE. IT IS THE PROPERTY OF A LICENSED PROFESSIONAL ENGINEER. IT MUST BE USED IN ACCORDANCE WITH THE RULES OF THE BOARD OF ENGINEERING.

LAKEWOOD LAKES
KS5772
404 NE WOODS CHAPEL RD
LEES SUMMIT, MO 64064
LTE 6C/5G NR C-BAND

SHEET TITLE
**ANTENNA LAYOUT
AND SCHEDULE**

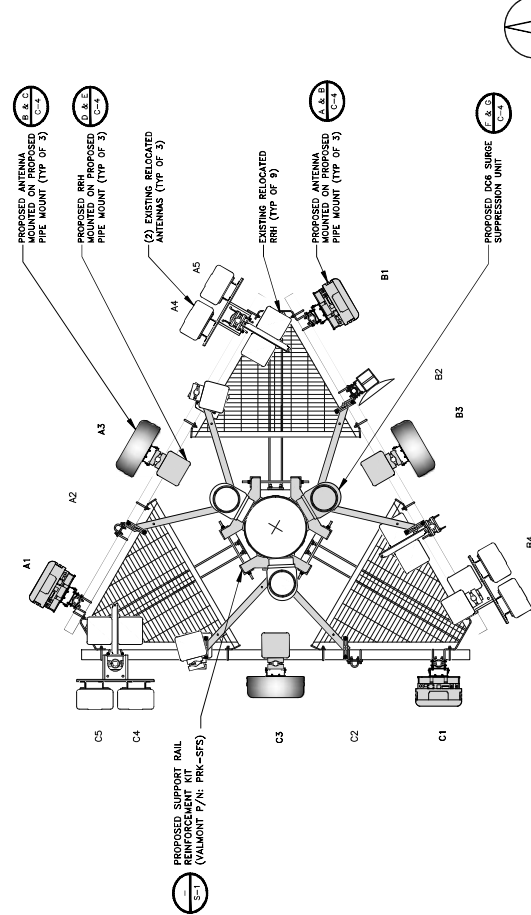
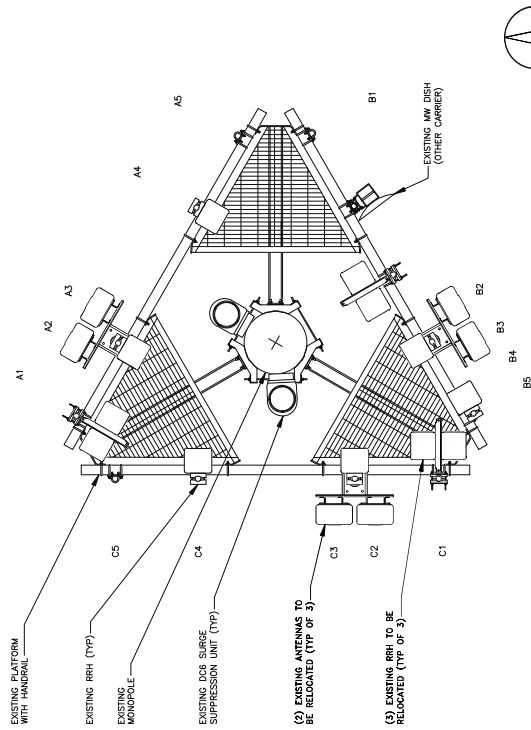
SHEET NUMBER
C-3

1. SEE ANTENNA CONFIGURATION FOR MODEL NUMBERS AND AZIMUTHS.
2. EXACT PLACEMENT OF RRHs TO BE FIELD VERIFIED AND NOT EXCEED ANTENNA DIMENSIONS ON TOWER.
3. PROPOSED EQUIPMENT MOUNTED TO THE TOWER LEG TO BE FIELD VERIFIED. EQUIPMENT THAT DOES NOT INTERFERE WITH CLIMBING APPARATUS.
4. ANTENNAS SHALL BE LOCATED SPECIFICALLY AS SHOWN, PER THE ANTENNA MOUNT ANALYSIS, FOR LOAD DISTRIBUTION.
5. WHEN STACKING COAX 3 OR MORE DEEP, USE STACKABLE SMA-INS, TALLEY PART NUMBER SSH-158-3 OR BROWER-APPROVED EQUAL.
6. COAXIAL CABLES SHALL BE FIELD VERIFIED. THE MOUNT ANALYSIS LETTER AND INSTALL PROPOSED MOUNT IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS IF APPLICABLE.
7. WHEN REMOVING COAX, CONTRACTOR TO FIELD VERIFY EXACT COAX TO BE REMOVED AND RE-STACK TO MATCH STRUCTURAL ANALYSIS.

SECTOR	EXISTING					FINAL				
	ANTENNA MODEL NUMBER	TECHNOLOGY	AZIMUTH	TMA QUANTITY	RRH MODEL NUMBER	RRH MODEL NUMBER	RRH MODEL NUMBER	RRH MODEL NUMBER	SURGE SUPPRESSION UNIT	
A1	—	—	—	—	—	—	(INTEGRATED)	—	—	—
A2	ANDREW JAH4-65C-R4	LTE 1C/2C/3C/5C FDD	30	—	ARRISCALE DUAL RRH 4T4R B12/14 320W AHB4	ARRISCALE DUAL RRH 4T4R B12/14 320W AHB4	ARRISCALE DUAL RRH 4T4R B12/14 320W AHB4	ALCATEL-LUCENT RRH425-W3S-4R	—	—
A3	ANDREW JAH4-65C-R4	LTE 4C/UMTS	30	1	ALCATEL-LUCENT B52S RRH430-4R	ALCATEL-LUCENT B52S RRH430-4R	ALCATEL-LUCENT B52S RRH430-4R	ALCATEL-LUCENT RRH425-W3S-4R	—	—
A4	—	—	—	—	—	—	—	—	—	—
A5	—	—	—	—	—	—	—	—	—	—
B1	—	—	—	—	—	—	—	—	—	—
B2	ANDREW JAH4-65C-R4	LTE 1C/2C/3C/5C FDD	150	—	ARRISCALE DUAL RRH 4T4R B12/14 320W AHB4	ARRISCALE DUAL RRH 4T4R B12/14 320W AHB4	ARRISCALE DUAL RRH 4T4R B12/14 320W AHB4	ALCATEL-LUCENT RRH425-W3S-4R	(1) RAYCAP D08 (DC/FIBER)	—
B3	ANDREW JAH4-65C-R4	LTE 4C/UMTS	150	1	ALCATEL-LUCENT B52S RRH430-4R	ALCATEL-LUCENT B52S RRH430-4R	ALCATEL-LUCENT B52S RRH430-4R	ALCATEL-LUCENT RRH425-W3S-4R	(1) RAYCAP D08 (DC ONLY)	—
B4	—	—	—	—	—	—	—	—	—	—
B5	—	—	—	—	—	—	—	—	—	—
C1	—	—	—	—	—	—	—	—	—	—
C2	ANDREW JAH4-65C-R4	LTE 1C/2C/3C/5C FDD	270	—	ARRISCALE DUAL RRH 4T4R B12/14 320W AHB4	ARRISCALE DUAL RRH 4T4R B12/14 320W AHB4	ARRISCALE DUAL RRH 4T4R B12/14 320W AHB4	ALCATEL-LUCENT RRH425-W3S-4R	(1) RAYCAP D08 (DC/FIBER)	—
C3	ANDREW JAH4-65C-R4	LTE 4C/UMTS	270	1	ALCATEL-LUCENT B52S RRH430-4R	ALCATEL-LUCENT B52S RRH430-4R	ALCATEL-LUCENT B52S RRH430-4R	ALCATEL-LUCENT RRH425-W3S-4R	(1) RAYCAP D08 (DC ONLY)	—
C4	—	—	—	—	—	—	—	—	—	—
C5	—	—	—	—	—	—	—	—	—	—

RTDS VERSION: CONTRACTOR IS TO REFER TO AT&T'S MOST CURRENT RADIO FREQUENCY DATA SHEET (RTDS) PRIOR TO CONSTRUCTION.

ANTENNA CONFIGURATION



EXISTING ANTENNA LAYOUT

NO SCALE

PROPOSED ANTENNA LAYOUT

NO SCALE

D

NOTES

CABLE MARKING LOCATIONS TABLE	
NO	LOCATIONS
1	EACH TOP-JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
2	EACH CABLE SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS. THE FIRST SET OF 3" WIDE BANDS SHALL BE INSTALLED PRIOR TO ENTERING THE SHELTER/OUTDOOR EQUIPMENT.
3	EACH CABLE SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS. THE SECOND SET OF 3" WIDE BANDS SHALL BE INSTALLED NEAR THE SHELTER/OUTDOOR EQUIPMENT.
4	EACH CABLE SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS. THE THIRD SET OF 3" WIDE BANDS SHALL BE INSTALLED AT THE ENTRANCE OF THE EQUIPMENT.

1. COLORED TAPES MUST BE INSTALLED IN ACCORDANCE WITH ELECTRICAL COLOR CODING TAPES AND SHOULD BE INSTALLED BY THE CONTRACTOR OR CONTRACTOR ON SITE.
2. ALL COLOR CODE TAPE SHALL BE 3" WIDE AND SHALL BE INSTALLED IN ACCORDANCE WITH ELECTRICAL COLOR CODING TAPES AND SHOULD BE INSTALLED BY THE CONTRACTOR OR CONTRACTOR ON SITE.
3. ALL COLOR BANDS INSTALLED AT THE TOP OF THE TOWER SHALL BE A MINIMUM OF 3" WIDE AND SHALL BE INSTALLED IN ACCORDANCE WITH ELECTRICAL COLOR CODING TAPES AND SHOULD BE INSTALLED BY THE CONTRACTOR OR CONTRACTOR ON SITE.



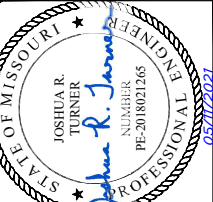
7851 EASLEY
OVERLAND PARK, KS 66204



BLACK & VEATCH
6800 W. 15TH ST. SUITE 2202
OVERLAND PARK, KS 66204
(913) 438-2621

PROJECT/PHASE NO:	129331.1276
DRAWN BY:	TD
CHECKED BY:	YD

REV	DATE	DESCRIPTION
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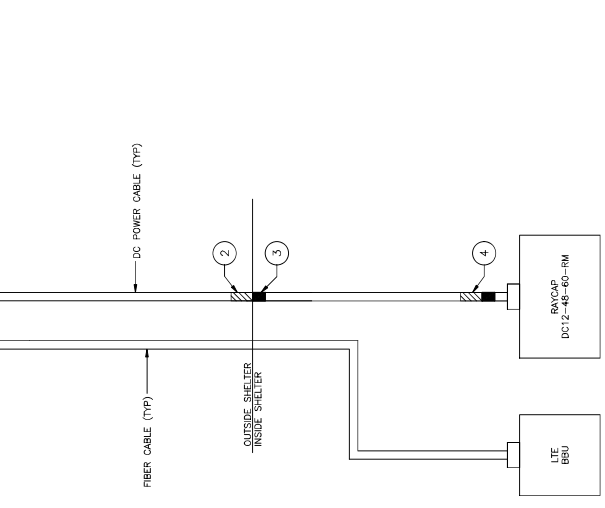
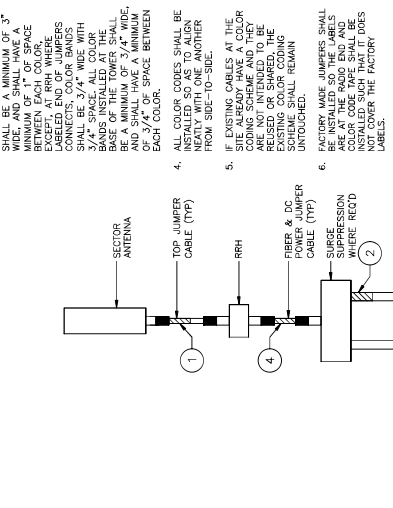
JOSHUA R. TURNER
PE-2018021245
05/17/2021
PROFESSIONAL ENGINEER
STATE OF MISSOURI

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IT IS NOT VALID FOR ANY OTHER PURPOSE.

LAKEWOOD LAKES
KS5772
404 NE WOODS CHAPEL RD
LEES SUMMIT, MO 64064
LTE 6C/5G NR C-BAND

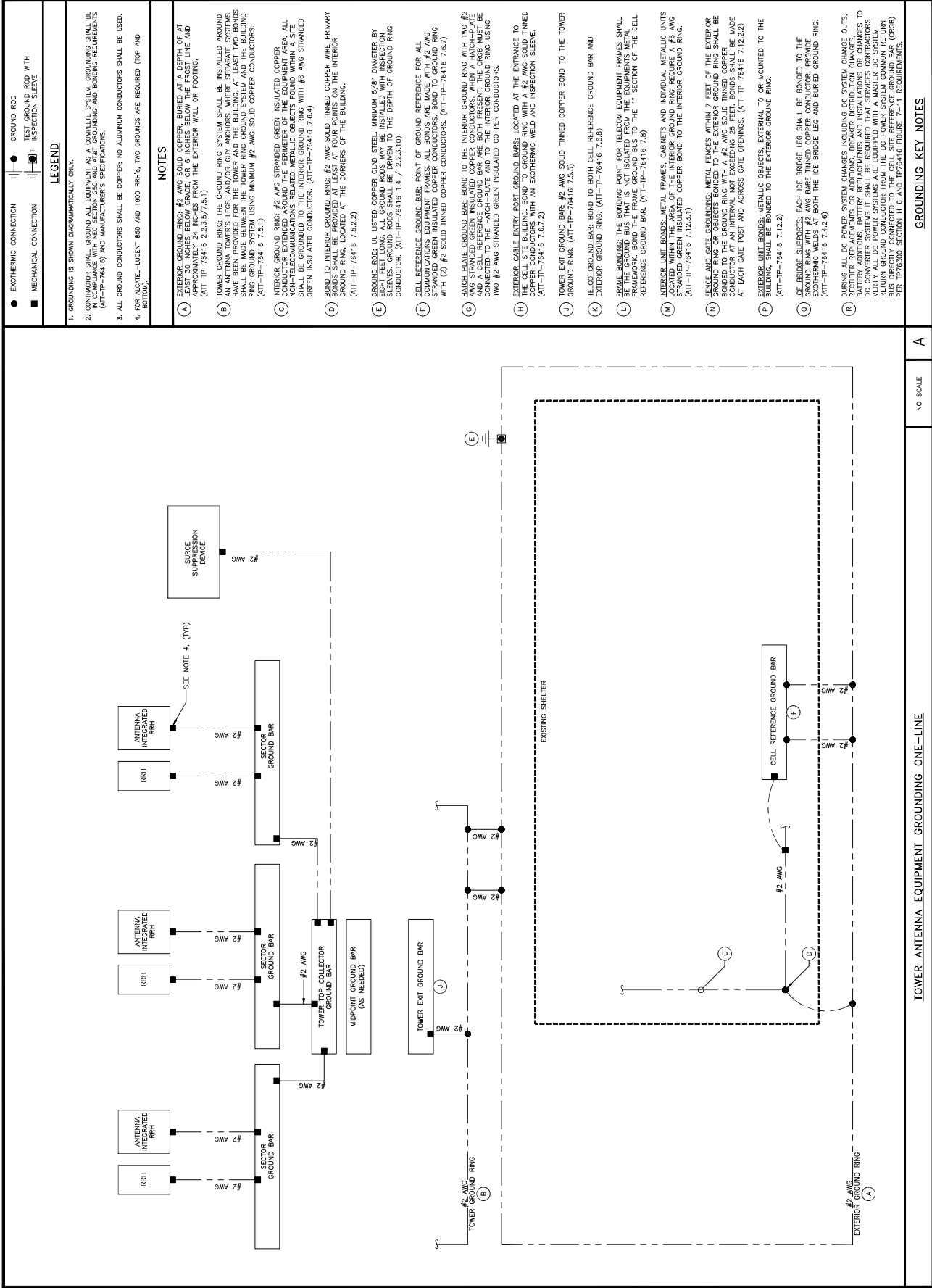
SHEET TITLE
CABLE COLOR CODING

SHEET NUMBER
RF-1



LTE DIAGRAM

ANTENNA COLOR CODE TABLES			
COLOR CODE TABLES			
Sector A			
Cable #	SECTOR	FREQ	PORT
700 MHz TX1/RX1	RED	RED	RED
700 MHz TX2/RX2	RED	RED	ORANGE
700 MHz TX3/RX3	RED	RED	RED
850 MHz TX1/RX1	RED	ORANGE	ORANGE
850 MHz TX2/RX2	RED	ORANGE	ORANGE
850 MHz TX3/RX3	RED	ORANGE	ORANGE
1900 MHz TX1/RX1	RED	YELLOW	ORANGE
1900 MHz TX2/RX2	RED	YELLOW	ORANGE
1900 MHz TX3/RX3	RED	YELLOW	ORANGE
1900 MHz TX4/RX4	RED	WHITE	WHITE
2100 MHz TX1/RX1	RED	WHITE	RED
2100 MHz TX2/RX2	RED	WHITE	ORANGE
2100 MHz TX3/RX3	RED	WHITE	YELLOW
2100 MHz TX4/RX4	RED	WHITE	WHITE
2300 MHz TX1/RX1	RED	BROWN	ORANGE
2300 MHz TX2/RX2	RED	BROWN	ORANGE
2300 MHz TX3/RX3	RED	BROWN	YELLOW
2300 MHz TX4/RX4	RED	BROWN	WHITE
Sector B			
Cable #	SECTOR	FREQ	PORT
700 MHz TX1/RX1	BLUE	RED	RED
700 MHz TX2/RX2	BLUE	RED	ORANGE
700 MHz TX3/RX3	BLUE	RED	RED
850 MHz TX1/RX1	BLUE	ORANGE	ORANGE
850 MHz TX2/RX2	BLUE	ORANGE	ORANGE
850 MHz TX3/RX3	BLUE	ORANGE	ORANGE
1900 MHz TX1/RX1	BLUE	YELLOW	ORANGE
1900 MHz TX2/RX2	BLUE	YELLOW	ORANGE
1900 MHz TX3/RX3	BLUE	YELLOW	ORANGE
1900 MHz TX4/RX4	BLUE	WHITE	WHITE
2100 MHz TX1/RX1	BLUE	WHITE	RED
2100 MHz TX2/RX2	BLUE	WHITE	ORANGE
2100 MHz TX3/RX3	BLUE	WHITE	YELLOW
2100 MHz TX4/RX4	BLUE	WHITE	WHITE
2300 MHz TX1/RX1	BLUE	BROWN	ORANGE
2300 MHz TX2/RX2	BLUE	BROWN	ORANGE
2300 MHz TX3/RX3	BLUE	BROWN	YELLOW
2300 MHz TX4/RX4	BLUE	BROWN	WHITE
Sector C			
Cable #	SECTOR	FREQ	PORT
700 MHz TX1/RX1	GREEN	RED	RED
700 MHz TX2/RX2	GREEN	RED	ORANGE
700 MHz TX3/RX3	GREEN	RED	RED
850 MHz TX1/RX1	GREEN	ORANGE	ORANGE
850 MHz TX2/RX2	GREEN	ORANGE	ORANGE
850 MHz TX3/RX3	GREEN	ORANGE	ORANGE
1900 MHz TX1/RX1	GREEN	YELLOW	ORANGE
1900 MHz TX2/RX2	GREEN	YELLOW	ORANGE
1900 MHz TX3/RX3	GREEN	YELLOW	ORANGE
1900 MHz TX4/RX4	GREEN	WHITE	WHITE
2100 MHz TX1/RX1	GREEN	WHITE	RED
2100 MHz TX2/RX2	GREEN	WHITE	ORANGE
2100 MHz TX3/RX3	GREEN	WHITE	YELLOW
2100 MHz TX4/RX4	GREEN	WHITE	WHITE
2300 MHz TX1/RX1	GREEN	BROWN	ORANGE
2300 MHz TX2/RX2	GREEN	BROWN	ORANGE
2300 MHz TX3/RX3	GREEN	BROWN	YELLOW
2300 MHz TX4/RX4	GREEN	BROWN	WHITE
Sector D			
Cable #	SECTOR	FREQ	PORT
700 MHz TX1/RX1	ORANGE	RED	RED
700 MHz TX2/RX2	ORANGE	RED	ORANGE
700 MHz TX3/RX3	ORANGE	RED	RED
850 MHz TX1/RX1	ORANGE	ORANGE	ORANGE
850 MHz TX2/RX2	ORANGE	ORANGE	ORANGE
850 MHz TX3/RX3	ORANGE	ORANGE	ORANGE
1900 MHz TX1/RX1	ORANGE	YELLOW	ORANGE
1900 MHz TX2/RX2	ORANGE	YELLOW	ORANGE
1900 MHz TX3/RX3	ORANGE	YELLOW	ORANGE
1900 MHz TX4/RX4	ORANGE	WHITE	WHITE
2100 MHz TX1/RX1	ORANGE	WHITE	RED
2100 MHz TX2/RX2	ORANGE	WHITE	ORANGE
2100 MHz TX3/RX3	ORANGE	WHITE	YELLOW
2100 MHz TX4/RX4	ORANGE	WHITE	WHITE
2300 MHz TX1/RX1	ORANGE	BROWN	ORANGE
2300 MHz TX2/RX2	ORANGE	BROWN	ORANGE
2300 MHz TX3/RX3	ORANGE	BROWN	YELLOW
2300 MHz TX4/RX4	ORANGE	BROWN	WHITE
Sector E			
Cable #	SECTOR	FREQ	PORT
700 MHz TX1/RX1	YELLOW	RED	RED
700 MHz TX2/RX2	YELLOW	RED	ORANGE
700 MHz TX3/RX3	YELLOW	RED	RED
850 MHz TX1/RX1	YELLOW	ORANGE	ORANGE
850 MHz TX2/RX2	YELLOW	ORANGE	ORANGE
850 MHz TX3/RX3	YELLOW	ORANGE	ORANGE
1900 MHz TX1/RX1	YELLOW	YELLOW	ORANGE
1900 MHz TX2/RX2	YELLOW	YELLOW	ORANGE
1900 MHz TX3/RX3	YELLOW	YELLOW	ORANGE
1900 MHz TX4/RX4	YELLOW	WHITE	WHITE
2100 MHz TX1/RX1	YELLOW	WHITE	RED
2100 MHz TX2/RX2	YELLOW	WHITE	ORANGE
2100 MHz TX3/RX3	YELLOW	WHITE	YELLOW
2100 MHz TX4/RX4	YELLOW	WHITE	WHITE
2300 MHz TX1/RX1	YELLOW	BROWN	ORANGE
2300 MHz TX2/RX2	YELLOW	BROWN	ORANGE
2300 MHz TX3/RX3	YELLOW	BROWN	YELLOW
2300 MHz TX4/RX4	YELLOW	BROWN	WHITE
Sector F			
Cable #	SECTOR	FREQ	PORT
700 MHz TX1/RX1	WHITE	RED	RED
700 MHz TX2/RX2	WHITE	RED	ORANGE
700 MHz TX3/RX3	WHITE	RED	RED
850 MHz TX1/RX1	WHITE	ORANGE	ORANGE
850 MHz TX2/RX2	WHITE	ORANGE	ORANGE
850 MHz TX3/RX3	WHITE	ORANGE	ORANGE
1900 MHz TX1/RX1	WHITE	YELLOW	ORANGE
1900 MHz TX2/RX2	WHITE	YELLOW	ORANGE
1900 MHz TX3/RX3	WHITE	YELLOW	ORANGE
1900 MHz TX4/RX4	WHITE	WHITE	WHITE
2100 MHz TX1/RX1	WHITE	WHITE	RED
2100 MHz TX2/RX2	WHITE	WHITE	ORANGE
2100 MHz TX3/RX3	WHITE	WHITE	YELLOW
2100 MHz TX4/RX4	WHITE	WHITE	WHITE
2300 MHz TX1/RX1	WHITE	BROWN	ORANGE
2300 MHz TX2/RX2	WHITE	BROWN	ORANGE
2300 MHz TX3/RX3	WHITE	BROWN	YELLOW
2300 MHz TX4/RX4	WHITE	BROWN	WHITE



7801 FAIRLEY
OVERLAND PARK, KS 66204

6800 W. 15TH ST. SUITE 2202
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(913) 438-2000

PROJECT/PHASE NO: 129331.1276
VOP
DRAWN BY:
CHECKED BY: TD

REV	DATE	DESCRIPTION
0	06/07/21	ISSUED FOR CONSTRUCTION

STATE OF MISSOURI
JOSHUA R. TURNER
LICENSE NO. PE-2018021265
05/21/2021
I AM A LICENSED PROFESSIONAL ENGINEER
IN THE STATE OF MISSOURI
IN THE FIELD OF ELECTRICAL ENGINEERING

LAKEWOOD LAKES
KS5772
404 NE WOODS CHAPEL RD
LEES SUMMIT, MO 64064
LTE 6C/5G NR C-BAND

SHEET TITLE
GROUNDING ONE-LINE
ANTENNA EQUIPMENT

SHEET NUMBER
G-1

GROUNDING KEY NOTES

NO SCALE

TOWER ANTENNA EQUIPMENT_GROUNDING_ONE-LINE

at&t 7801 FARLEY OVERLAND PARK, KS 66204	BLACK & VEATCH 6800 W. 119TH ST, SUITE 2292 OVERLAND PARK, KS 66211 (913) 459-2000	PROJECT/PHASE NO: 1293331.1216 DRAWN BY: VDP CHECKED BY: TD <table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td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GENERAL CONSTRUCTION NOTES

- GENERAL CONSTRUCTION OF CONSTRUCTION DRAWINGS, THE FOLLOWING CONDITIONS SHALL APPLY:
1. FOR THE GENERAL CONTRACTOR (CONSTRUCTION) OVERLAND CONTRACTING INC. (BAY OWNER - AT&T)
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AGENCIES, AGENCIES, AND CONFIRMING THAT THE WORK MAY BE COMPLETED AS SHOWN PRIOR TO THE BEGINNING OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER WITH THE COMPLETION OF WORK.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTION CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. PLANS ARE NOT TO BE SOILED. THESE PLANS ARE INTENDED TO BE A DIAGRAMATIC OUTLINE ONLY. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IF IT IS CRITICAL, FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AGENCIES, AGENCIES, AND CONFIRMING THAT THE WORK MAY BE COMPLETED AS SHOWN PRIOR TO THE BEGINNING OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER WITH THE COMPLETION OF WORK.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROVIDE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL NORMS SHALL BE LAD PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
13. SILL PENETRATIONS THROUGH THE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTED THE SCOPE OF WORK. GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, FURNISHMENTS, CURBS, LANDSCAPING AND TREES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDUM, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
21. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 10 B. ONE EXTINGUISHER SHALL BE PROVIDED FOR EACH 10,000 SQUARE FEET OF FLOOR AREA. WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS NECESSARY. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AGENCIES, AGENCIES, AND CONFIRMING THAT THE WORK MAY BE COMPLETED AS SHOWN PRIOR TO THE BEGINNING OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER WITH THE COMPLETION OF WORK.
23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE PROPOSED WORK, SHALL BE REMOVED PRIOR TO THE BEGINNING OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AGENCIES, AGENCIES, AND CONFIRMING THAT THE WORK MAY BE COMPLETED AS SHOWN PRIOR TO THE BEGINNING OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER WITH THE COMPLETION OF WORK.
24. THE EQUIPMENT OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRAINAGE SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
25. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SLOPE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH, UNIFORM GRADE AND COMPACTED TO 95 PERCENT DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR, INCLUDING DRAWINGS, AND OTHER DOCUMENTS PRIOR TO PROJECT COMPLETION.
30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.

COAXIAL CABLE NOTES

63. THE END SECTORS OF THE ANTENNA CABLE ARE BASED ON EXISTING LENGTHS. PRIORS TO OBSERVING CABLE CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
64. CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
65. CONTRACTOR SHALL COVERUP DOWN COLOR COATING PRIOR TO CONSTRUCTION. REFER TO ANTENNA SYSTEM LABELING STANDARD NO-00027 LATEST VERSION.
66. ALL JUMPEES TO THE ANTENNAS FROM THE MAIN TRANSMISSION LINE SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 4'-0".
67. ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" OC.
68. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ATTENNAS, AND ALL OTHER EQUIPMENT.
69. CONTRACTOR SHALL WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF-ADHESING TAPE. WEATHERPROOFING SHALL BE COMPLETED IN STRICT ACCORDANCE WITH AT&T STANDARDS.

GENERAL CABLE AND EQUIPMENT NOTES

70. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TWA'S, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
71. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
72. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
73. ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS. USING AN O-RING AFTER INSTALLATION AND FINAL CONNECTIONS OF THE MAKE, BUT THE SHALL HAVE A THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
74. IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:
- A. TEMPERATURE SHALL BE ABOVE 50°F BY BUILDING OWNER/LANDLORD.
 - B. COAX SHALL BE PAINTED WITH AN APPROVED COATING.
 - C. FOR REGULATED TOWERS, FAN/CO APPROVED PAINT IS REQUIRED.
 - D. DO NOT PAINT OVER COLOR COATING OR ON EQUIPMENT MODEL NUMBERS.
75. ALL CABLES SHALL BE GROUNDING WITH COAXIAL CABLE GROUND KITS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.
- A. GROUNDING AT MID LEVEL. TOWERS WHICH ARE OVER 200'-0", ADDITIONAL CABLE GROUNDING REQUIRED.
 - B. GROUNDING OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
 - C. GROUNDING INSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
 - D. GROUNDING INSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
 - E. GROUNDING INSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
76. ALL PROPOSED GROUND BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTERIC OR COMPRESSION.
77. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE ANTENNA AND THE COAX CONFIGURATION IS THE CONTRACTOR'S AND REMAINS SUBJECT TO INSTALLATION.
78. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
79. ANTENNA CONTRACTOR SHALL FURNISH AND INSTALL A 12'-0" T-BOOM SECTOR ANTENNA MOUNT, IF APPLICABLE, INCLUDING ALL HARDWARE.
80. WITHOUT DELIVERABLES SHALL INCLUDE PHOTOS OF ALL MOUNTING HARDWARE INSTALLED TIGHT AND GAPPED.
81. INSTALLATION MANUALS FOR RVSAP REQUIRED TO COMPLY WITH AT&T SPECIFICATIONS CAN BE ACCESSSED IN THE BLACK & VEATCH TURF BOX LIBRARY VIA THE FOLLOWING URL:
- https://toolsandweatchsharpoint.com/Items/ESS/Release/Projects/PublicNetworks/AT/ATTurf/ATTurfdocumentsdocumentary_Library/ByYear.aspx?Year=2020&document=FormalAntenna.asp



7801 EASLEY
OVERLAND PARK, KS 66204

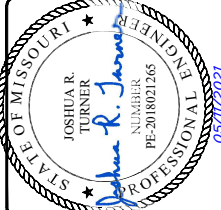


BLACK & VEATCH

6800 W. 15TH ST., SUITE 2202
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(913) 438-2000

PROJECT/PHASE NO: 129331.1276
DRAWN BY: VDP
CHECKED BY: TOR

REV	DATE	DESCRIPTION
0	06/07/21	ISSUED FOR CONSTRUCTION



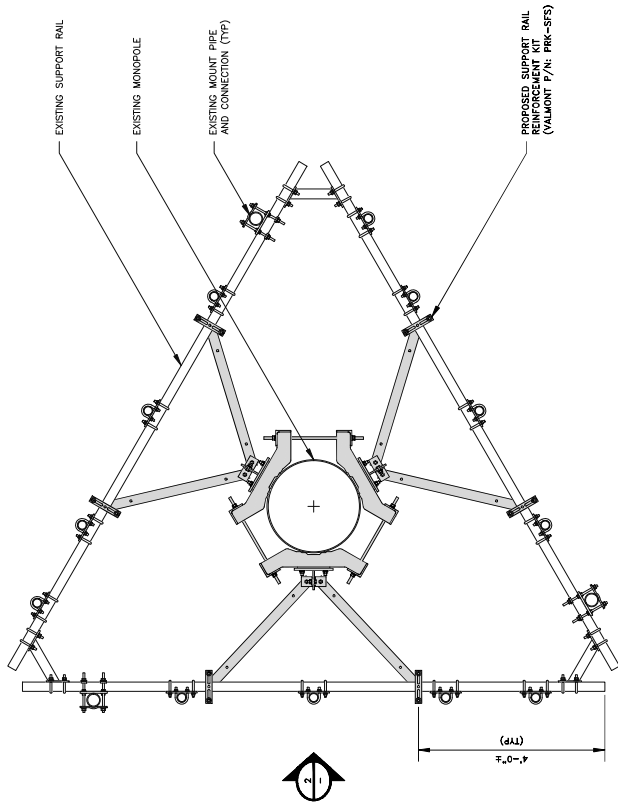
THIS IS A SIGNATURE OF A PROFESSIONAL ENGINEER
OF A LICENSED PROFESSIONAL ENGINEER
OF A LICENSED PROFESSIONAL ENGINEER
OF A LICENSED PROFESSIONAL ENGINEER

LAKEWOOD LAKES
KS5772
404 NE WOODS CHAPEL RD
LEES SUMMIT, MO 64064
LTE 6C/5G NR C-BAND

SHEET TITLE
GENERAL CONSTRUCTION
NOTES

SHEET NUMBER
GN-2

NOTE:
1. AZIMUTHS ARE APPROXIMATE.

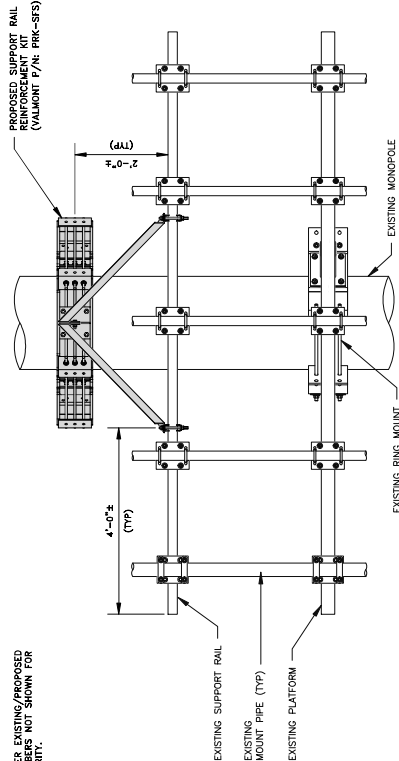


SUPPORT RAIL MODIFICATION PLAN

NO SCALE

1

NOTE:
1. OTHER EXISTING/PROPOSED MEMBERS NOT SHOWN FOR CLARITY.



MODIFICATION ELEVATION

NO SCALE

2

CONTRACTOR SHALL FIELD VERIFY AND MEASURE DIMENSIONS OF THE SITE STRUCTURE BEFORE FABRICATION OF MATERIALS FOR ALL MODIFICATIONS.

GENERAL NOTES

- ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST BE EXPERIENCED IN THE PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT THEY DO HAVE SUFFICIENT EXPERIENCE, ABILITY, AND IS PROPERLY REGISTERED/LICENSED TO DO THIS WORK IN THE STATE, CITY OR COUNTY IN WHICH IT IS TO BE PERFORMED.
- CONTRACTOR SHALL FIELD VERIFY EXISTING MOUNTING SYSTEM SIZES AND REPORT TO THE ENGINEER IF DIFFERENT THAN NOTED ON PLAN.
- IN THE EVENT OF AN EMERGENCY, CONTRACTOR SHALL CONTACT BLACK & VEATCH PERSONNEL TO REPORT ANY EVENT OR EMERGENCY INCIDENT AT ANY A&T SITE PER ATTACHED CONTACT INFORMATION TABLE.
- CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY SUPPORT AS REQUIRED TO COMPLETE WORK.
- THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
- EXISTING STRUCTURAL COMPONENTS OF THIS PROJECT SITE/FACILITY ARE NOT TO BE ALTERED BY THIS CONSTRUCTION PROJECT UNLESS OTHERWISE NOTED. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO DAMAGE IS DONE TO THE TOWER DURING THE CONSTRUCTION PROCESS. THE TOWER SHOULD BE ADEQUATELY SUPPORTED AND BRACED AT ALL TIMES.
- MOUNTING PIPES AND CONNECTION HARDWARE TO PLATFORM OR SECTOR FRAMES SHALL BE PROVIDED BY CONTRACTOR, UNLESS NOTED OTHERWISE. A MINIMUM OF TWO (2) CONNECTIONS ARE REQUIRED FOR EACH MOUNTING PIPE, UNLESS NOTED OTHERWISE.
- CONSTRUCTION SHALL BE IN ACCORDANCE WITH APPLICABLE OSHA REGULATIONS AND SHALL BE PERFORMED ONLY IN "GOOD WEATHER". GOOD WEATHER MEANS VISIBILITY OF AT LEAST THREE MILES, WIND SPEEDS OF NO MORE THAN 15 MPH, AND TEMPERATURES OF AT LEAST 40°F. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS PRIOR TO PROCEEDING WITH ANY WORK THAT DEVIATES FROM THE ORIGINAL DESIGN, SCOPE, PRICE AND/OR SCHEDULE.

STRUCTURAL NOTES

- ALL STEEL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC MANUAL OF STEEL CONSTRUCTION. STEEL SECTIONS SHALL BE IN ACCORDANCE WITH ASTM AS INDICATED BELOW, UNLESS NOTED OTHERWISE.
ANGLES, BARS, CHANNELS: ASTM A36, 36 KSI
PIPE SECTIONS: ASTM A53, 60 KSI
PIPE SECTIONS: ASTM A53, 60 KSI
U-BOLTS: ASTM A307
W-SHAPES: ASTM A992, 50 KSI
- ALL NEW CONNECTIONS SHALL USE ASTM A153 GALVANIZED A325-N BOLTS, NUTS AND LOCKING DEVICES UNLESS NOTED OTHERWISE.
- ALL NEW CONNECTIONS THAT REQUIRE "TURN OF THE NUT" METHOD SHALL USE:
FOR BOLTS: ASTM A325-N TYPE 1, GALVANIZED HIGH STRENGTH BOLTS
FOR NUTS: ASTM A325-N TYPE 1, GALVANIZED HIGH STRENGTH NUTS
FOR WASHERS: ASTM F436 HARDENED STEEL WASHERS WITH PROPER LOCKING DEVICE
- ALL WELDING, IF CALLED OUT ON PLAN, SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC/AWS. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". UNLESS SURFACES SHALL BE TOUCHED UP FOLLOWING ANY WELDING.
- STRUCTURAL BOLTS SPACING AND EDGE DISTANCE SHALL MEET 2005 AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDING REQUIREMENTS, UNLESS NOTED OTHERWISE.
- MAINTAIN A MINIMUM 1-1/8" EDGE DISTANCE FROM CENTER OF ANY HOLE TO NEAREST EDGE OF ANY PLATE OR ANGLE, UNLESS NOTED OTHERWISE.
- ALL STRUCTURAL STEEL ROLLED SHAPES AND PLATES SHALL CONFORM TO ASTM A123 GALVANIZED, UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL TOUCH UP ANY DAMAGED PAINT AREAS WITH ZINC RICH PAINT. ALL AREAS THAT WHERE FIELD DRILLED, WELDING, OR CUT SHALL BE TOUCHED UP WITH ZINC RICH PAINT. PAINT SHALL BE APPLIED BY BRUSH ONLY (SPRAY APPLICATION PROHIBITED).
- ALL CUT EDGES OF STEEL SHALL BE CUT WITH A GRINDER OR DRILLED. HOLES SHALL NOT BE FLAME CUT THRU STEEL UNLESS APPROVED BY THE ENGINEER OF RECORD.

BOLT-TIGHTENING PROCEDURE NOTES

- ALL BOLTED CONNECTIONS SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN AISC SECTION 8.6(1) OF THE SPECIFICATION, UNLESS NOTED OTHERWISE.
- ONLY WHERE SPECIFIED, TIGHTEN CONNECTION BOLTS BY AISC - "TURN OF THE NUT" METHOD FOR ASTM A325 BOLTS AND/OR ENGINEER APPROVED EQUIPMENT USING THE CHART BELOW.
BOLT TIGHTENING CHART
BOLT LENGTHS UP TO AND INCLUDING 1/2" LENGTH + 1/3 TURN BEYOND SNUG TIGHT
5/8" BOLTS UP TO AND INCLUDING 4" LENGTH + 1/3 TURN BEYOND SNUG TIGHT
BOLT LENGTHS OVER FOUR DIAMETER BUT NOT EXCEEDING EIGHT DIAMETER:
1/2" BOLTS 3-3/4" TO 7" LENGTH + 1/2 TURN BEYOND SNUG TIGHT
5/8" BOLTS 4-1/4" TO 8" LENGTH + 1/2 TURN BEYOND SNUG TIGHT
- CONNECTION BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8.6(1) OF THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS. LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:
8.6(1) TURN-OF-THE-NUT TIGHTENING METHOD:
THE CONNECTION SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.6(1) OF THE AISC SPECIFICATION. THE CONNECTION SHALL BE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPLETED FOLLOWING THIS INITIAL OPERATION. ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE DURING THE TIGHTENING OPERATION. THE TIGHTENING OPERATION SHALL BE SYSTEMATICALLY.

Name	Title	Block & Veatch Contacts and Phone Numbers	Office Phone	E-Mail
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NOTES



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PROJECT NO: 129331
DRAWN BY: SSN
CHECKED BY: JW

REV	DATE	DESCRIPTION
0	04/28/21	ISSUED FOR CONSTRUCTION

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KSN772
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LEES SUMMIT, MO 64064

SHEET TITLE
ANTENNA MOUNT
REINFORCEMENT

SHEET NUMBER
S-1

