T-Mobile®

APPLICANT SITE NAME:
LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:
A5C0028A

DRAWING DESCRIPTION:
FINAL CD

APPROVAL SIGNATURE BLOCK

The following parties have reviewed these documents:

Site Acquisition Specialist:	Approved: ☐ Rejected: ☐	**Date:**
RF Engineer:	Approved: ☐ Rejected: ☐	**Date:**
Construction Manager:	Approved: ☐ Rejected: ☐	**Date:**
Operations:	Approved: ☐ Rejected: ☐	**Date:**
Project Manager:	Approved: ☐ Rejected: ☐	**Date:**

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri
03/23/2022

T - Mobile®

APPLICANT SITE NAME:
LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:
A5C0028A

T-MOBILE PROJECT TYPE:
FOA FOR C-BAND DOD

DRAWING DESCRIPTION:
FINAL CD

3/3/2022
STATE OF MISSOURI ★ SHELTON KEISLING NUMBER PE-27323 ★ PROFESSIONAL ENGINEER
DocuSigned by:
EF94D8A5B80B407...

STAMP:
3/3/2022
STATE OF MISSOURI ★ KEVIN VANMAELE NUMBER PE-021561 ★ PROFESSIONAL ENGINEER
DocuSigned by:
01DD822916EA469...

ENGINEERING LICENSE:
STATE OF MISSOURI
STATE CERTIFICATE OF AUTHORIZATION # EF-2791

ENGINEER:		PE#:	DISCIPLINE:	
KMV	KEVIN M. VANMAELE	PE-021561	CIVIL	C
REJ	ROBERT E. JENSEN	PE-028974	CIVIL	C
CG	CHRISTOPHER GIANNOTTI	PE-2020038653	CIVIL	C
SDK	SHELTON D. KEISLING	PE-27323	ELECTRICAL	E
TMS	TERRANCE M. SUPER	PE-18521	ELECTRICAL	E

AERIAL MAP

SITE INFORMATION

SITE ADDRESS: 209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO
64063

COUNTY: JACKSON

PROPERTY OWNER: CITY OF LEE'S SUMMIT
220 GREEN ST
LEE'S SUMMIT, MO
64063

TOWER INFORMATION:

LATITUDE:	38.913922° N (NAD 83)
LONGITUDE:	94.376416° W (NAD 83)
GROUND ELEV:	1,029' AMSL
TOWER HEIGHT:	180'-0" AGL
TOWER TYPE:	MONOPOLE
APPLICANT CL:	159'-0" AGL

APPLICANT: T-MOBILE
12980 S. FOSTER ST, STE 200
OVERLAND PARK, KS 66213

PROJECT INFORMATION

PROJECT:
FOA FOR C-BAND DOD

RFDS CONFIGURATION:
56791EZ_SR_DOD

RFDS DATE:
11/23/21

STRUCTURAL COMPANY:
SSC INC

STRUCTURAL REPORT #:
MO-0552-E

STRUCTURAL DATE:
02/09/22

MOUNT ANALYSIS COMPANY:
SSC INC

MOUNT ANALYSIS REPORT #:
MO-0552-E

MOUNT ANALYSIS DATE:
02/09/22

DRAWING INDEX

SITE LOCATION QR CODE

CONSULTING TEAM

ENGINEERING:
SSC, INC.
7171 WEST 95TH STREET, SUITE 600
OVERLAND PARK, KANSAS 66212
PHONE: (913) 438-7700
FAX: (913) 438-7777
SSC SITE ID: SSC-1226
PROJECT ID: P-017259

CLIENT MANAGER:
MARK SUPER

A&E PROJECT MANAGER:
JEREMY BRISCOE

LEAD ENGINEER:
KEVIN VANMAELE

LEAD ELECTRICAL:
SHELTON KEISLING

JURISDICTION COMPLIANCE

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

1. INTERNATIONAL BUILDING CODE
2. INTERNATIONAL MECHANICAL CODE
3. ANSI/TIA-222 STRUCTURAL STANDARD
4. NFPA 780 – LIGHTNING PROTECTION CODE
5. INTERNATIONAL PLUMBING CODE
6. NATIONAL ELECTRICAL CODE

811
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www.call811.com

THE UTILITIES AS SHOWN ON THIS SET OF DRAWINGS WERE DEVELOPED FROM THE INFORMATION AVAILABLE. THE INFORMATION PROVIDED IS NOT IMPLIED NOR INTENDED TO BE THE COMPLETE INVENTORY OF UTILITIES IN THIS AREA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES (WHETHER SHOWN OR NOT) AND PROTECT SAID UTILITIES FROM ANY DAMAGE CAUSED BY CONTRACTOR'S ACTIVITIES.

PLANS PREPARED FOR:
T - Mobile

PLANS PREPARED BY:
SSC

DRAWING NOTICE:

SUBMITTALS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	02/03/22	FAC	A
ISSUED FOR CONSTRUCTION	03/03/22	FAC	0

APPLICANT SITE NAME:
LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:
A5C0028A

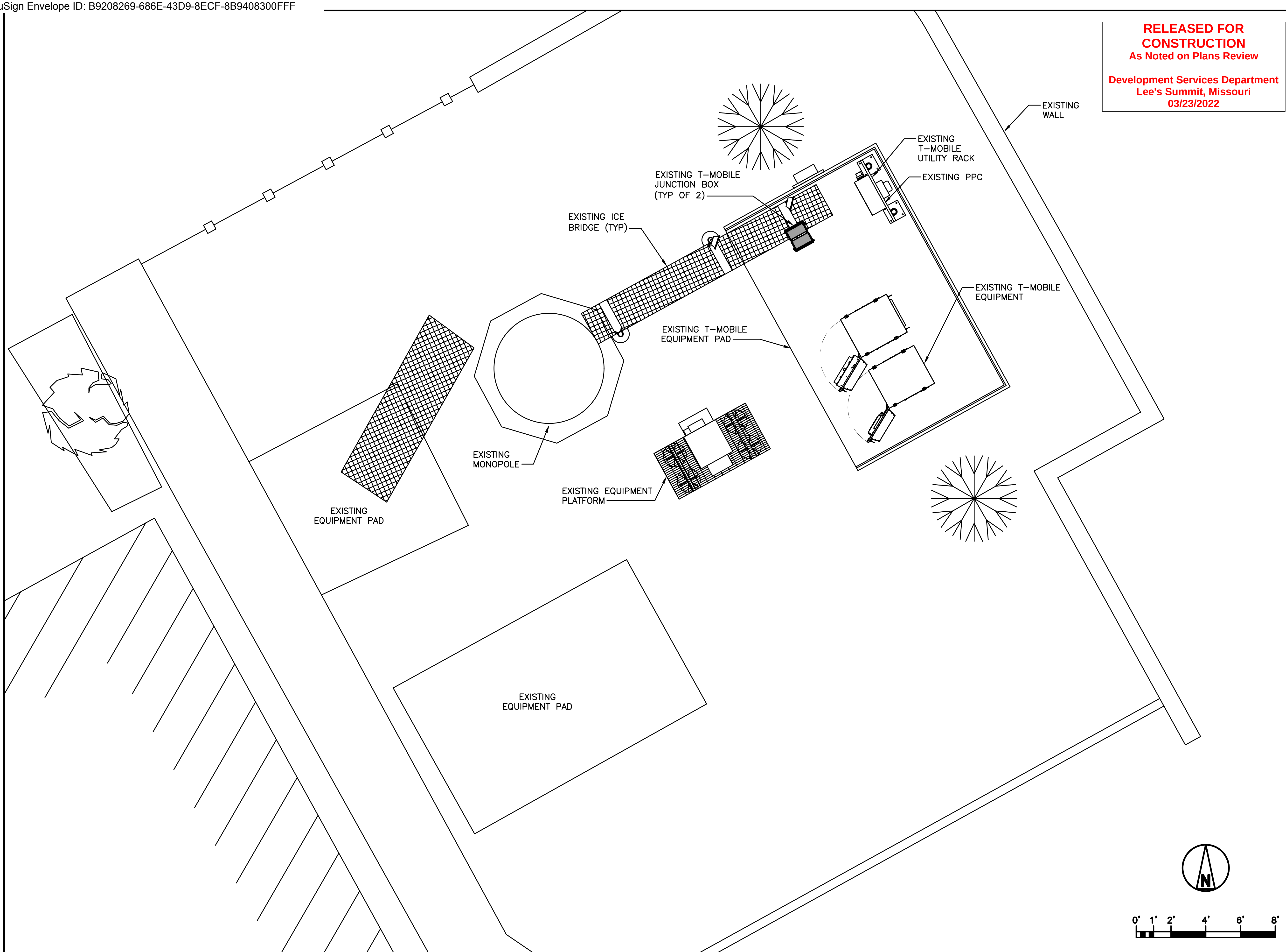
SITE ADDRESS:
209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION: TITLE SHEET

SHEET #: T-1.0

RELEASED FOR CONSTRUCTION
As Noted on Plans Review

Development Services Department
Lee's Summit, Missouri
03/23/2022



OVERALL SITE PLAN | 1

STAMP:

3/3/2022

STATE OF MISSOURI
KEVIN VANMAELE
NUMBER PE-021561
PROFESSIONAL ENGINEER

DocuSigned by:
Kevin VanMaele
01DD822916EA469...

ENGINEERING LICENSE:

STATE OF MISSOURI

STATE CERTIFICATE OF AUTHORIZATION # EF-2791

ENGINEER:		PE#:	DISCIPLINE:	
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REJ	ROBERT E. JENSEN	PE-028974	CIVIL	C
CG	CHRISTOPHER GIANNOTTI	PE-2020038653	CIVIL	C
SDK	SHELTON D. KEISLING	PE-27323	ELECTRICAL	E
TMS	TERRANCE M. SUPER	PE-18521	ELECTRICAL	E

PLANS PREPARED FOR:

T-Mobile

PLANS PREPARED BY:

SSC

DRAWING NOTICE:

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ISSUED FOR CONSTRUCTION	03/03/22	FAC	0

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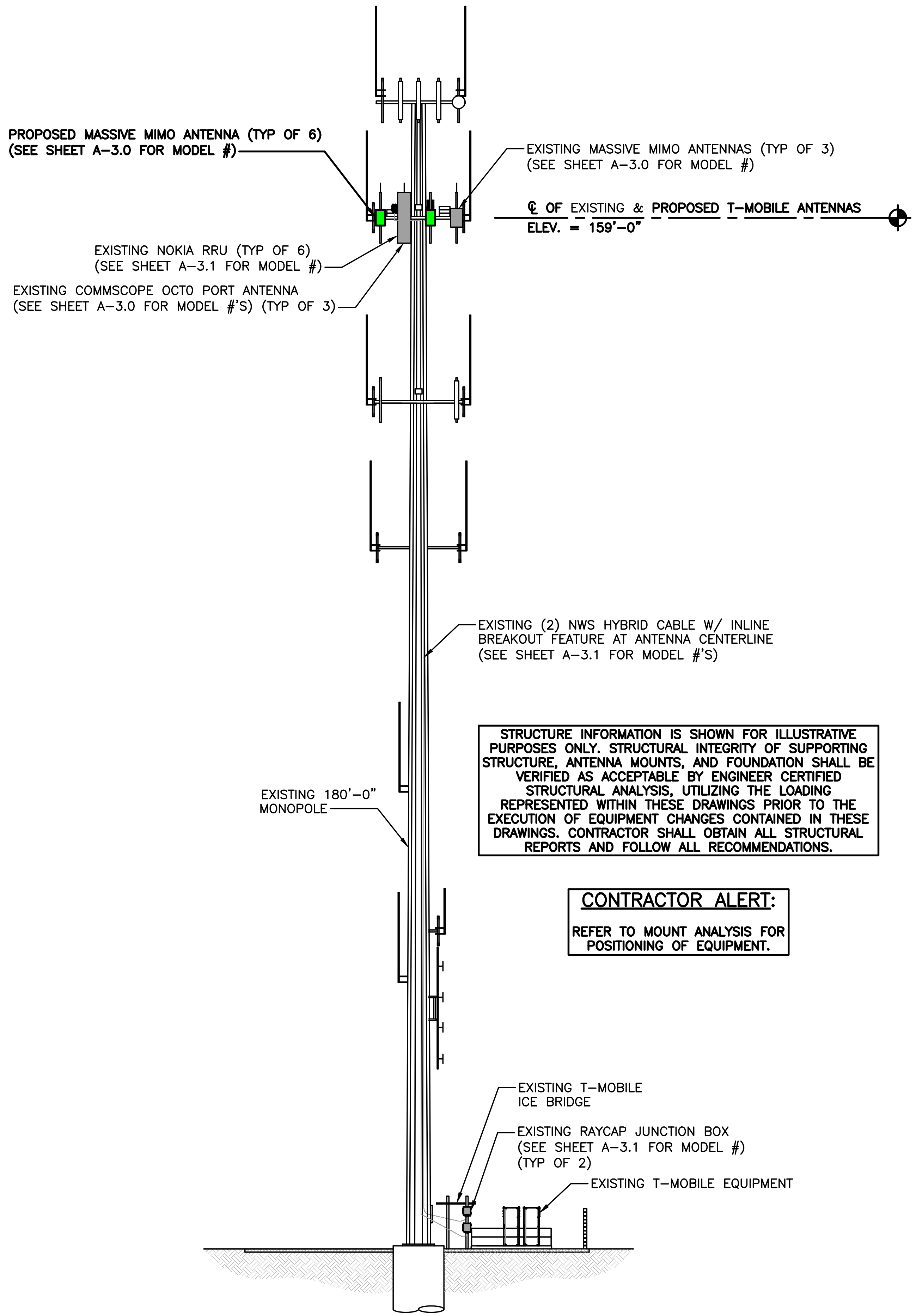
SHEET DESCRIPTION:

OVERALL SITE PLAN

SHEET #:

A-1.0



STRUCTURE INFORMATION IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. STRUCTURAL INTEGRITY OF SUPPORTING STRUCTURE, ANTENNA MOUNTS, AND FOUNDATION SHALL BE VERIFIED AS ACCEPTABLE BY ENGINEER CERTIFIED STRUCTURAL ANALYSIS, UTILIZING THE LOADING REPRESENTED WITHIN THESE DRAWINGS PRIOR TO THE EXECUTION OF EQUIPMENT CHANGES CONTAINED IN THESE DRAWINGS. CONTRACTOR SHALL OBTAIN ALL STRUCTURAL REPORTS AND FOLLOW ALL RECOMMENDATIONS.

CONTRACTOR ALERT:

REFER TO MOUNT ANALYSIS FOR POSITIONING OF EQUIPMENT.

TOWER ELEVATION | 3

EQUIPMENT LEGEND:

- EXISTING TO REMAIN
- EXISTING TO BE REMOVED/REPLACED
- EXISTING TO BE RELOCATED

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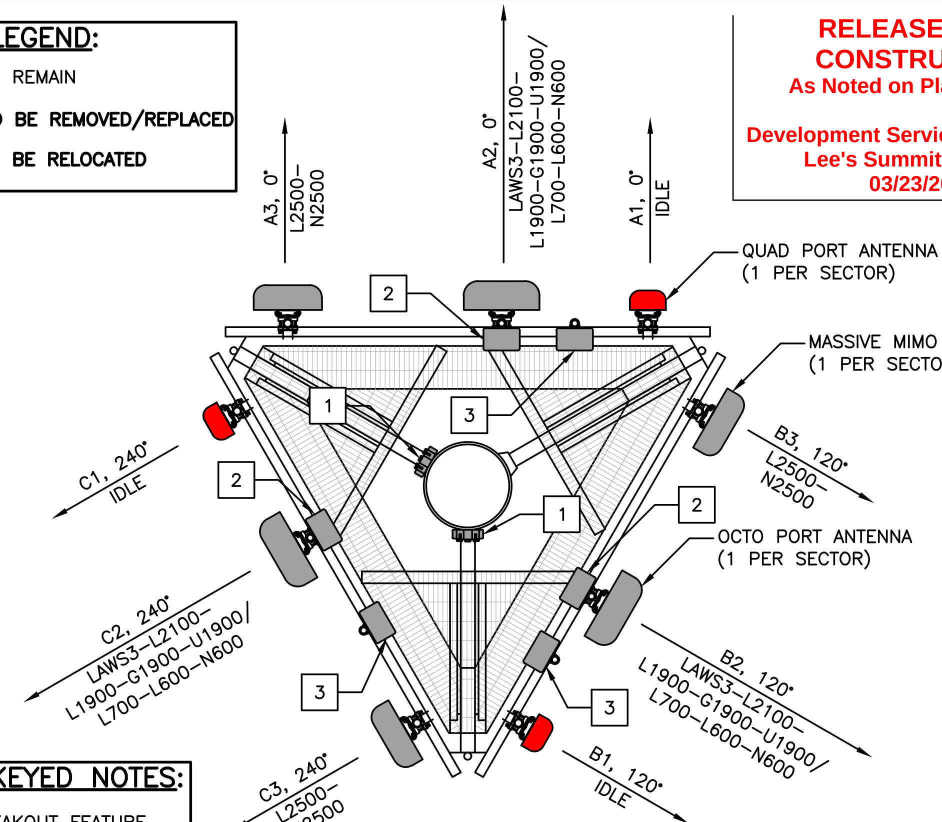
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri
03/23/2022



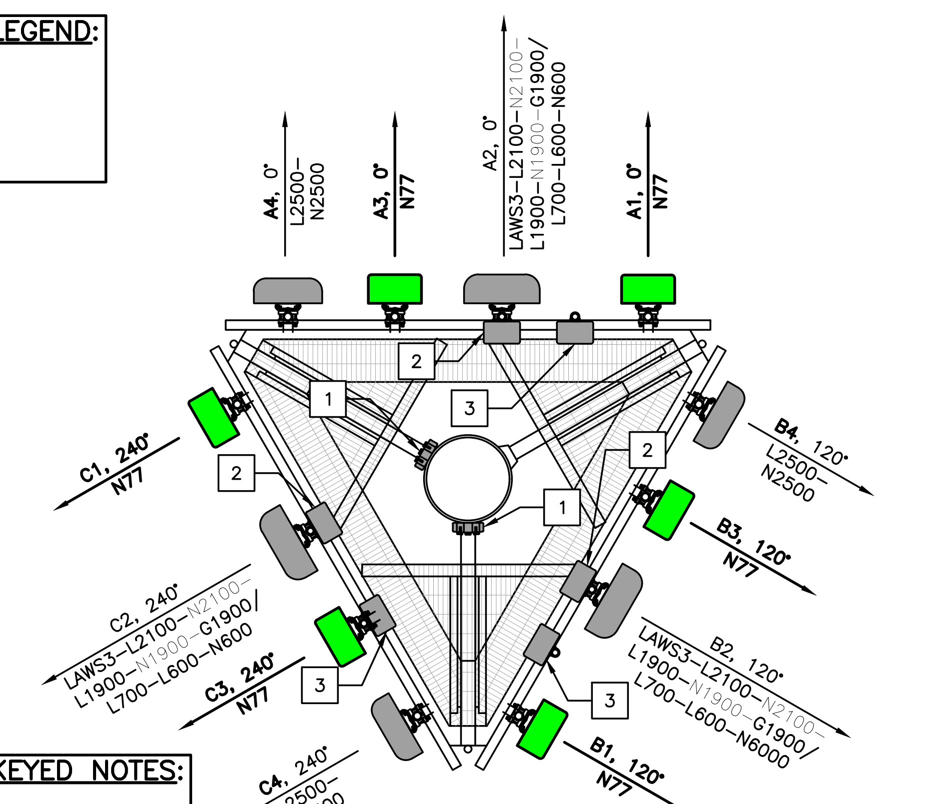
EQUIPMENT KEYED NOTES:

1	HCS 2.0 BREAKOUT FEATURE
2	AHFIG RRU
3	AHLOA RRU

EXISTING ANTENNA PLAN | 1

EQUIPMENT LEGEND:

- EXISTING
- PROPOSED
- RELOCATED



EQUIPMENT KEYED NOTES:

1	HCS 2.0 BREAKOUT FEATURE
2	AHFIG RRU
3	AHLOA RRU

PROPOSED ANTENNA PLAN | 2

STAMP:
3/3/2022
STATE OF MISSOURI
KEVIN VANMAELE
NUMBER
PE-021561
PROFESSIONAL ENGINEER
DocuSigned by:
Kevin VanMaele
81DD92281CEA409...

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PLANS PREPARED FOR:
T-Mobile

PLANS PREPARED BY:
SSC

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SUBMITTALS:

DESCRIPTION	DATE	BY	REV
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ISSUED FOR CONSTRUCTION	03/03/22	FAC	0

APPLICANT SITE NAME:
LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:
A5C0028A

SITE ADDRESS:
209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:
TOWER ELEVATION & ANTENNA PLANS

SHEET #:
A-2.0

ANTENNA KEY

STATUS	ANTENNA NUMBER	BEAM WIDTH	ANTENNA VENDOR	MODEL #	AZIMUTH	ELECTRICAL DOWNTILT	MECHANICAL DOWNTILT	ANTENNA ℄ AGL	TECH	COAXIAL FEEDER (QTY) SIZE	HYBRID FEEDER QUANTITY
EXISTING	A4 L2500–N2500	65°	NOKIA	AEHC	0°	REFER TO RFDS	0°	159'–0"	L2500 N2500	–	(1) HCS 2.0 HYBRID CABLE
PROPOSED	**A3 N77**	**65°**	**NOKIA**	**AEQU**	**0°**	**REFER TO RFDS**	**0°**	**159'–0"**	**N77**	–	
EXISTING	A2 LAWS3–L2100–N2100–L1900–N1900–G1900–U1900/L700–L600–N600	65°	COMMSCOPE	FFVV–65C–R3–V1	0°	REFER TO RFDS	0°	159'–0"	LAWS3 L2100 N2100 L1900 N1900 G1900 U1900 L700 L600 N600	– – – –	(1) HCS 2.0 HYBRID CABLE
PROPOSED	**A1 N77**	**65°**	**NOKIA**	**AEQK**	**0°**	**REFER TO RFDS**	**0°**	**159'–0"**	**N77**	–	SHARED WITH A2
EXISTING	B4 L2500–N2500	65°	NOKIA	AEHC	120°	REFER TO RFDS	0°	159'–0"	L2500 N2500	–	SHARED WITH A2
PROPOSED	**B3 N77**	**65°**	**NOKIA**	**AEQK**	**120°**	**REFER TO RFDS**	**0°**	**159'–0"**	**N77**	–	
EXISTING	B2 LAWS3–L2100–N2100–L1900–N1900–G1900–U1900/L700–L600–N600	65°	COMMSCOPE	FFVV–65C–R3–V1	120°	REFER TO RFDS	0°	159'–0"	LAWS3 L2100 N2100 L1900 N1900 G1900 U1900 L700 L600 N600	– – – –	SHARED WITH A1
PROPOSED	**B1 N77**	**65°**	**NOKIA**	**AEQU**	**120°**	**REFER TO RFDS**	**0°**	**159'–0"**	**N77**	–	SHARED WITH A2
EXISTING	C4 L2500–N2500	65°	NOKIA	AEHC	240°	REFER TO RFDS	0°	159'–0"	L2500 N2500	–	SHARED WITH A2
PROPOSED	**C3 N77**	**65°**	**NOKIA**	**AEQK**	**240°**	**REFER TO RFDS**	**0°**	**159'–0"**	**N77**	–	
EXISTING	C2 LAWS3–L2100–N2100–L1900–N1900–G1900–U1900/L700–L600–N600	65°	COMMSCOPE	FFVV–65C–R3–V1	240°	REFER TO RFDS	0°	159'–0"	LAWS3 L2100 N2100 L1900 N1900 G1900 U1900 L700 L600 N600	– – – –	SHARED WITH A1
PROPOSED	**C1 N77**	**65°**	**NOKIA**	**AEQU**	**240°**	**REFER TO RFDS**	**0°**	**159'–0"**	**N77**	–	SHARED WITH A2

ANTENNA NOTES:

1. ANTENNA CONTRACTOR SHALL INSURE THAT ALL ANTENNA MOUNTING PIPES ARE PLUMB.
2. FEEDLINE LENGTHS INDICATED ARE APPROXIMATE.
3. REFER TO NATIONAL AND REGIONAL PUBLICATIONS FOR COLOR CODE STANDARDS.
4. MULTI PORT ANTENNAS: TERMINATE UNUSED ANTENNA PORTS WITH CONNECTOR CAP & WEATHERPROOF THOROUGHLY.
5. CONTRACTOR MUST FOLLOW ALL MANUFACTURERS' RECOMMENDATIONS REGARDING THE INSTALLATION OF FEEDLINES, CONNECTORS, AND ANTENNAS.
6. MINIMUM BEND RADIUS PER MANUFACTURER'S RECOMMENDATIONS.
7. CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO T–MOBILE.
8. WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE.
9. ANTENNA CONTRACTOR SHALL PERFORM A "TAPE DROP" MEASUREMENT TO CONFIRM/ VALIDATE ANTENNA CENTERLINE (ACL) HEIGHT. CONTRACTOR SHALL SUBMIT A COMPLETED HEIGHT VERIFICATION FORM TO THE CONSTRUCTION MANAGER.

EQUIPMENT KEY – EQUIPMENT PAD

LOCATION	VENDOR	EQUIPMENT	MODEL NO.	TECH	QTY.	STATUS
HPL3 CABINET	NOKIA	SYSTEM MODULE	AMIA	L2500 LAWS3 L2100 L1900 L700 L600	1	EXISTING
		COMMON MODULE	ASIB	L2500	1	EXISTING
		COMMON MODULE	ASIB	LAWS3 L2100 L1900 L700 L600	1	EXISTING
		CAPACITY MODULE	ABIC	L2500	3	EXISTING
		CAPACITY MODULE	ABIA	LAWS3 L2100 L1900	2	EXISTING
		CAPACITY MODULE	ABIA	L700 L600	1	EXISTING
HPL3 CABINET	NOKIA	SYSTEM MODULE	AMIA	N2500 N2100 N1900 N600	1	EXISTING
		COMMON MODULE	**ASIL**	**N2500** N2100 N1900 **N600 N77**	**1**	**PROPOSED**
		CAPACITY MODULE	**ABIO**	**N2500**	**1**	**PROPOSED**
		CAPACITY MODULE	**ABIO**	**N600** N2100 N1900	**1**	**PROPOSED**
		CAPACITY MODULE	**ABIO**	**N77**	**1**	**PROPOSED**
HPL3 CABINET	NOKIA	SYSTEM MODULE	FSMF	G1900 U1900	1	EXISTING
MOUNTED TO ICE BRIDGE POST	RAYCAP	JUNCTION BOX	RTMDC–5634–PF–48	L2500 N2500 **N77**	1	EXISTING
MOUNTED TO ICE BRIDGE POST	RAYCAP	JUNCTION BOX	RTMDC–5634–PF–48	LAWS3 L2100 N2100 L1900 N1900 G1900 U1900 L700 L600 N600	1	EXISTING

EQUIPMENT KEY – SECTOR

LOCATION	VENDOR	EQUIPMENT	MODEL NO.	TECH	QTY.	STATUS
1 PER SECTOR	NOKIA	RRU	AHFIG	LAWS3 L2100 N2100 L1900 N1900 G1900 U1900	3	EXISTING
1 PER SECTOR	NOKIA	RRU	AHLOA	L700 L600 N600	3	EXISTING

EQUIPMENT KEY – FEEDLINES

LOCATION	VENDOR	EQUIPMENT	MODEL NO.	QTY.	LENGTH	STATUS
MULTI SECTOR	NWS	HCS 2.0 HYBRID CABLE	HT–HCS2–HC6–200	2	200'–0"	EXISTING

CONTRACTOR ALERT:

REFER TO MOUNT ANALYSIS FOR POSITIONING OF EQUIPMENT.

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri
03/23/2022

STAMP:
3/3/2022
STATE OF MISSOURI
KEVIN VANMAELE
NUMBER PE-021561
PROFESSIONAL ENGINEER

DocuSigned by:
Kevin VanMaele
01DD822916EA409...

ENGINEERING LICENSE:
STATE OF MISSOURI
STATE CERTIFICATE OF AUTHORIZATION # EF-2791

ENGINEER:		PE#:	DISCIPLINE:	
KMV	KEVIN M. VANMAELE	PE-021561	CIVIL	C
REJ	ROBERT E. JENSEN	PE-028974	CIVIL	C
CG	CHRISTOPHER GIANNOTTI	PE-2020038653	CIVIL	C
SDK	SHELTON D. KEISLING	PE-27323	ELECTRICAL	E
TMS	TERRANCE M. SUPER	PE-18521	ELECTRICAL	E

PLANS PREPARED FOR:
T-Mobile

PLANS PREPARED BY:
SSC

DRAWING NOTICE:

SUBMITTALS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	02/03/22	FAC	A
ISSUED FOR CONSTRUCTION	03/03/22	FAC	0

APPLICANT SITE NAME:
LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:
A5C0028A

SITE ADDRESS:
209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:
ANTENNA CONFIGURATION KEY

SHEET #:
A-3.0

RELEASED FOR CONSTRUCTION
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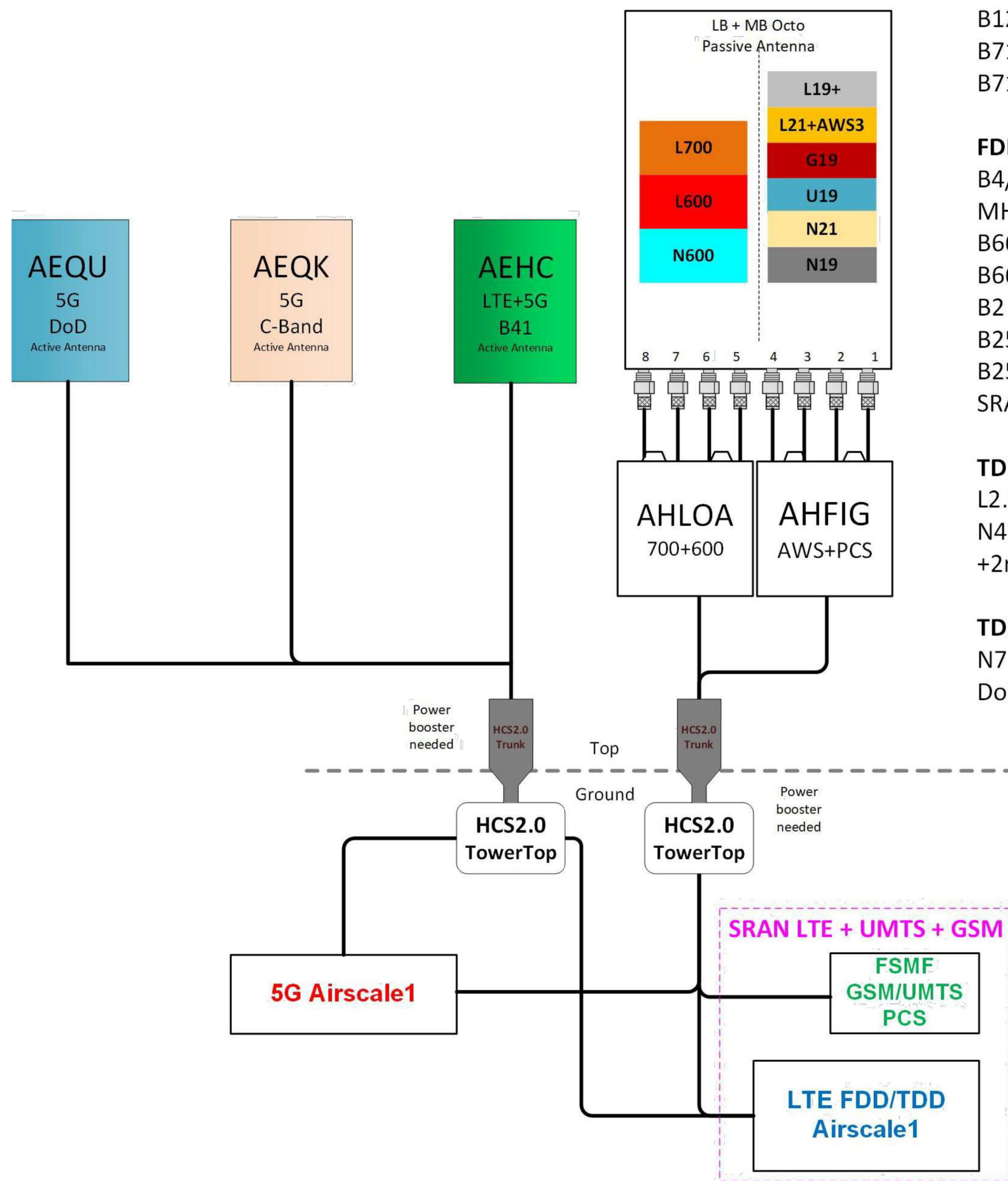
Development Services Department
Lee's Summit, Missouri
03/23/2022

Configuration 56791EZ_SR_DoD

* For 5G and LTE Airscale BB dimensioning refer to Fiber Port matrices.

(Alpha, Beta & Gamma)



FDD - Lowband
B12 (L700) – 5 MHz
B71 (L600) –10 MHz
B71 (N600) – 15 MHz

FDD - Midband
B4/B66 (L2100) – 20 MHz
B66 (AWS3) – 5MHz
B66 (N2100) – 20MHz
B2 (L1900) – 20 MHz
B25 (L1900) – 20 MHz
B25 (N1900) – 20MHz
SRAN – GSM/UMTS PCS

TDD - Band 41
L2.5 – 60 MHz
N41(2.5GHz) – 100MHz
+2nd carrier (<=80MHz)

TDD - Band 77 & DoD
N77 – 40MHz
DoD – 100MHz

NOTE:
DETAIL PROVIDED BY APPLICANT & REPRODUCED ON THIS SHEET AS REQUESTED BY APPLICANT.

NSN CONFIGURATION DIAGRAM | 1

STAMP:
3/3/2022
STATE OF MISSOURI
KEVIN VANMAELE
NUMBER PE-021561
PROFESSIONAL ENGINEER

DocuSigned by:
Kevin VanMaele
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LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:
NSN CONFIGURATION DIAGRAM

SHEET #:
A-4.0

LINETYPE LEGEND:

———	COAX (C)
— — —	HYBRID CABLE (H)
— · · —	FIBER & POWER JUMPER
━ ━ ━	ANTENNA JUMPER
— - —	AISG ACTUATOR JUMPER

SEE PROVIDED MANUFACTURER'S DOCUMENTS FOR PROPOSED EQUIPMENT INSTALLATION & GROUNDING REQUIREMENTS

TYPICAL SECTOR:
(VIEW FROM BACK OF ANTENNA)

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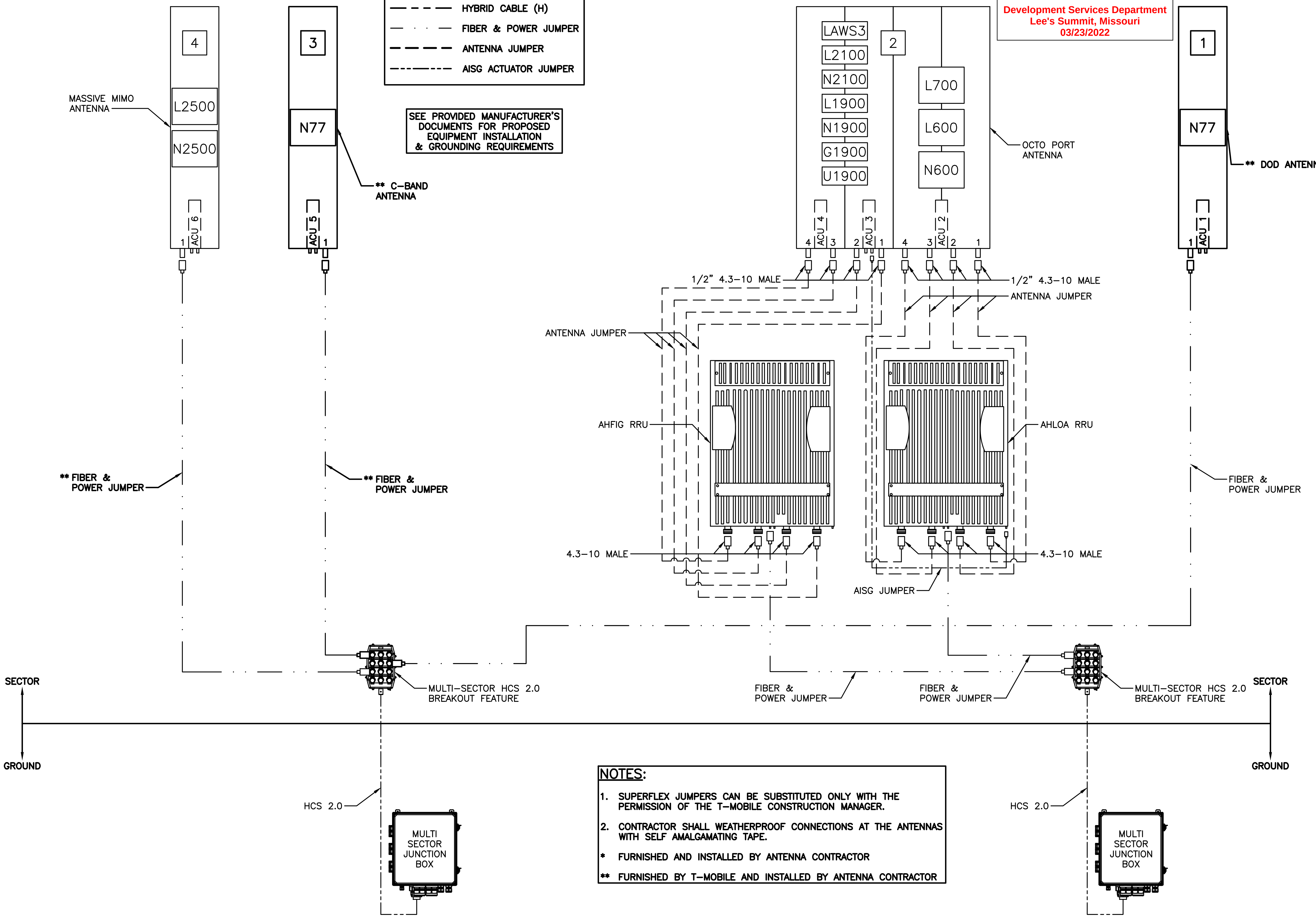
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri
03/23/2022



NOTES:

1. SUPERFLEX JUMPERS CAN BE SUBSTITUTED ONLY WITH THE PERMISSION OF THE T–MOBILE CONSTRUCTION MANAGER.
2. CONTRACTOR SHALL WEATHERPROOF CONNECTIONS AT THE ANTENNAS WITH SELF AMALGAMATING TAPE.

* FURNISHED AND INSTALLED BY ANTENNA CONTRACTOR

** FURNISHED BY T–MOBILE AND INSTALLED BY ANTENNA CONTRACTOR

ANTENNA ONE–LINE DIAGRAM 1

STAMP:
3/3/2022
STATE OF MISSOURI — KEVIN VANMAELE — NUMBER PE-021561 — PROFESSIONAL ENGINEER
DocuSigned by: Kevin VanMaele

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PLANS PREPARED FOR: T-Mobile

PLANS PREPARED BY: SSC

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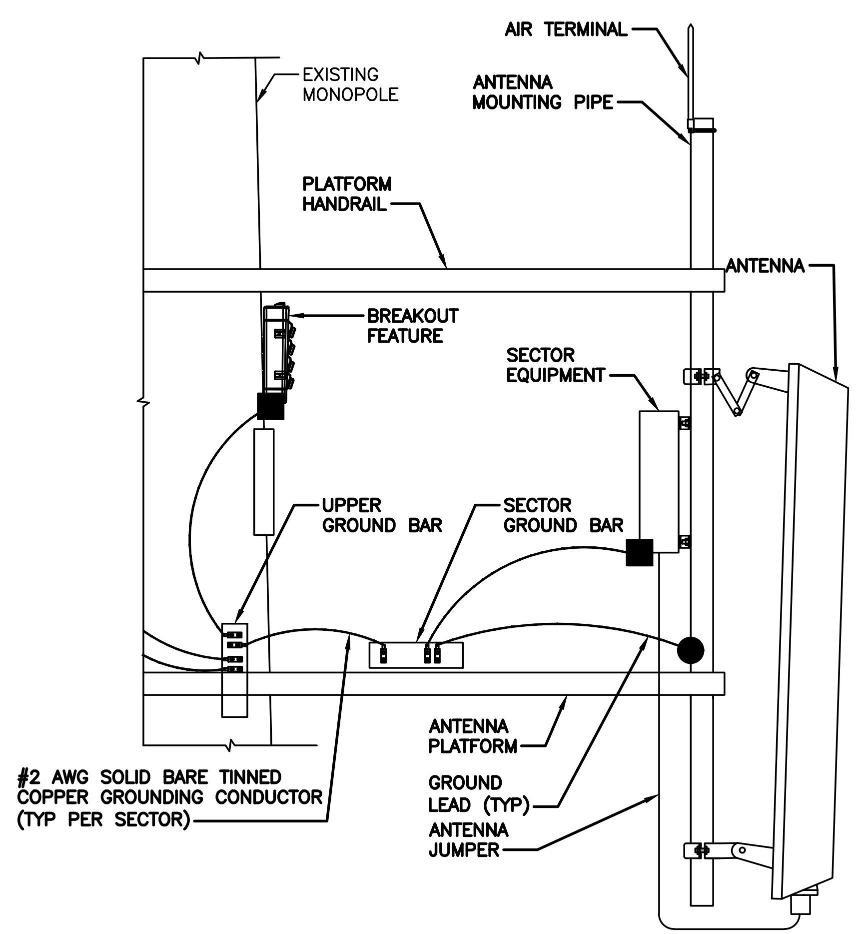
APPLICANT SITE NUMBER: A5C0028A

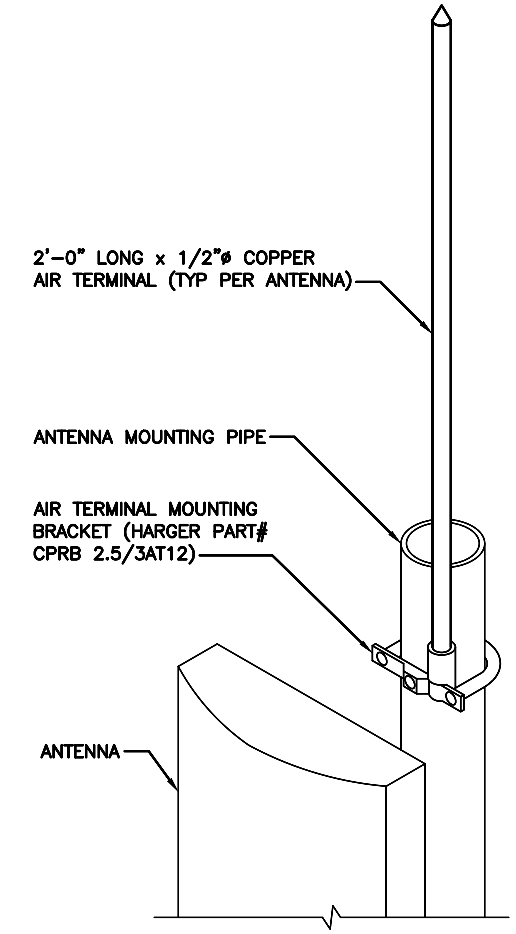
SITE ADDRESS: 209 S.E. DOUGLAS ST, LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION: ANTENNA ONE-LINE DIAGRAM

SHEET #: A-5.0



SECTOR GROUNDING DETAIL | 1



AIR TERMINAL MOUNTING | 2

3/3/2022

STATE OF MISSOURI
SHELTON KEISLING
NUMBER PE-27323
PROFESSIONAL ENGINEER

DocuSigned by:
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RELEASED FOR CONSTRUCTION
As Noted on Plans Review

Development Services Department
Lee's Summit, Missouri
03/23/2022

SPECIFICATIONS:

VENDOR:	NOKIA
MODEL #:	AEQU
DIMENSIONS (HxWxD):	29.53" x 17.72" x 9.45"
WEIGHT:	99.2 lbs
CONNECTORS:	LMI / HDMI

MASSIVE MIMO ANTENNA DETAIL | 4

SPECIFICATIONS:

VENDOR:	NOKIA
MODEL #:	AEQK
DIMENSIONS (HxWxD):	29.53" x 17.72" x 9.53"
WEIGHT:	99.2 lbs
CONNECTORS:	LMI / HDMI

MASSIVE MIMO ANTENNA DETAIL | 3

STAMP:

3/3/2022

STATE OF MISSOURI
KEVIN VANMAELE
NUMBER PE-021561
PROFESSIONAL ENGINEER

DocuSigned by:
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ENGINEERING LICENSE:

STATE OF MISSOURI

STATE CERTIFICATE OF AUTHORIZATION # EF-2791

ENGINEER:		PE#:	DISCIPLINE:	
KMV	KEVIN M. VANMAELE	PE-021561	CIVIL	C
REJ	ROBERT E. JENSEN	PE-028974	CIVIL	C
CG	CHRISTOPHER GIANNOTTI	PE-2020038653	CIVIL	C
SDK	SHELTON D. KEISLING	PE-27323	ELECTRICAL	E
TMS	TERRANCE M. SUPER	PE-18521	ELECTRICAL	E

PLANS PREPARED FOR:

T-Mobile

PLANS PREPARED BY:

SSC

DRAWING NOTICE:

SUBMITTALS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	02/03/22	FAC	A
ISSUED FOR CONSTRUCTION	03/03/22	FAC	0

APPLICANT SITE NAME:

LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:

A5C0028A

SITE ADDRESS:

209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:

EQUIPMENT DETAILS

SHEET #:

A-6.0

GENERAL REQUIREMENTS

PART 1: GENERAL

1.1 INTENT:

A. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION. PLANS ARE NOT TO BE SCALED.
B. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY, HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH.
C. THE INTENTION OF DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.
D. CONFLICTS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING MATERIALS OR DOING ANY WORK. NO COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCES BETWEEN ACTUAL DIMENSIONS AND THOSE ON THE DOCUMENTS. ANY DISCREPANCY SHALL BE REPORTED TO THE OWNER OR THEIR AGENT FOR CONSIDERATION.

1.2 LICENSING REQUIREMENTS:

A. THE CONTRACTOR IS RESPONSIBLE FOR PROCUREMENT AND MAINTAINING ALL APPLICABLE LICENSES AND BONDS.

1.3 STORAGE:

A. ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION THAT DOES NOT OBSTRUCT THE FLOW OF OTHER WORK. ANY STORAGE METHOD MUST MEET ALL RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.

1.4 CLEAN UP:

A. THE CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH AT ALL TIMES.

1.5 QUALITY ASSURANCE:

A. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.

PART 2: PRODUCTS – NOT APPLICABLE TO THIS SECTION

PART 3: EXECUTION – NOT APPLICABLE TO THIS SECTION

END OF SECTION

COMMUNICATIONS/ANTENNA'S

PART 1: GENERAL

1.1 WORK INCLUDED:

A. ANTENNA AND FEEDLINE CABLES ARE FURNISHED BY OWNER UNDER SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND PROPERTY FROM HAZARDOUS EXPOSURE TO OVERHEAD DANGER.

B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND OWNER SPECIFICATIONS.

C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.

D. INSTALL FURNISHED GALVANIZED STEEL WAVEGUIDE LADDER AS INDICATED ON DRAWINGS.

E. THE CONTRACTOR SHALL PROVIDE FREQUENCY DOMAIN REFLECTOMETER (FDR) TEST RESULTS TO THE CONSTRUCTION MANAGER AND OWNER WITHIN ONE WEEK OF COMPLETION.

F. INSTALL FEEDLINE CABLES AND TERMINATORS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL FEEDLINE CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.

G. ANTENNA AND FEEDLINE CABLE GROUNDING:

1. ALL FEEDLINE CABLE GROUNDING CONNECTIONS ARE TO BE WEATHER SEALED WITH ANDREW CONNECTOR/SPLICE WEATHERPROOFING KITS OR APPROVED EQUAL.

2. ALL FEEDLINE CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF FEEDLINE CABLE (NOT WITHIN BENDS)

1.2 RELATED WORK:

A. FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH OTHER TRADES PRIOR TO BID:

1. FLASHING OF OPENING INTO OUTSIDE WALLS.
2. SEAL AND CAULK ALL OPENINGS.
3. PAINTING.
4. CUTTING AND PATCHING.

1.3 REQUIREMENTS OF REGULATOR AGENCIES:

A. FURNISH UL LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE, INSTALL IN CONFORMANCE WITH UL STANDARDS WHERE APPLICABLE.

B. INSTALL ANTENNA, ANTENNA CABLES, AND GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES, AND ANY SPECIAL CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

1. TIA–222 (TELECOMMUNICATIONS INDUSTRY ASSOCIATION) – STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. FAA (FEDERAL AVIATION ADMINISTRATION ADVISORY) – CIRCULAR AC 70/7460–1K, OBSTRUCTION MARKING AND LIGHTING.
3. FCC (FEDERAL COMMUNICATIONS COMMISSION) – RULES AND REGULATIONS OBSTRUCTION MARKING AND LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES AND HIGH INTENSITY OBSTRUCTION LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES.
4. AISC (AMERICAN INSTITUTE OF STEEL CONSTRUCTION) – SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
5. NEC (NATIONAL ELECTRICAL CODE) – FOR TOWER LIGHTING KITS.
6. UL (UNDERWRITERS LABORATORIES) – APPROVED ELECTRICAL PRODUCTS.
7. IN ALL CASES, THE FAA RULES AND THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.
8. LIFE SAFETY CODE NFPA, LATEST EDITION.

PART 2: PRODUCTS – NOT APPLICABLE TO THIS SECTION

PART 3: EXECUTION – NOT APPLICABLE TO THIS SECTION

END OF SECTION

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KEVIN VANMAELE
NUMBER PE-021561
PROFESSIONAL ENGINEER
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Kevin VanMaele
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ENGINEERING LICENSE:
STATE OF MISSOURI
STATE CERTIFICATE OF AUTHORIZATION # EF-2791

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APPLICANT SITE NUMBER:
A5C0028A

SITE ADDRESS:
209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:
SPECIFICATIONS (1 OF 3)

SHEET #:
SP-1.0

ELECTRICAL

PART 1: GENERAL

1.1 GENERAL CONDITIONS:

A. THE CONTRACTOR SHALL INSPECT THE SITE WHERE THIS WORK IS TO BE PERFORMED AND FULLY FAMILIARIZE HIMSELF WITH ALL CONDITIONS RELATED TO THIS PROJECT.

B. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND LICENSES AND SHALL MAKE ALL DEPOSITS AND PAY ALL FEES REQUIRED FOR THE PERFORMANCE OF WORK UNDER THIS SECTION.

C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWINGS SHALL NOT BE SCALED TO DETERMINE DIMENSIONS.

1.2 LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES:

A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES.

1.3 REFERENCES:

A. THE PUBLICATIONS LISTED BELOW FORM PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADDENDUM IN EFFECT ON THE DATE THIS SPECIFICATION IS ISSUED FOR CONSTRUCTION UNLESS NOTED OTHERWISE. EXCEPT AS MODIFIED BY THE REQUIREMENTS SPECIFIED HEREIN OR THE DETAILS OF THE DRAWINGS, WORK INCLUDED IN THIS SPECIFICATION SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THESE PUBLICATIONS.

1. NEC (NATIONAL ELECTRICAL CODE)
2. ANSI/IEEE (AMERICAN NATIONAL STANDARDS INSTITUTE)
3. IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS)
4. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
5. ICEA (INSULATED CABLE ENGINEERS ASSOCIATION)
6. NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION)
7. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
8. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
9. UL (UNDERWRITERS LABORATORIES, INC.)

1.4 SCOPE OF WORK:

A. WORK UNDER THIS SECTION SHALL CONSIST OF FURNISHING ALL LABOR, MATERIAL AND ASSOCIATED SERVICES REQUIRED TO COMPLETELY CONSTRUCT AND LEAVE READY FOR OPERATION SYSTEMS AS SHOWN ON THE DRAWINGS AND HEREIN DESCRIBED.

B. ALL ELECTRICAL EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY TESTED, ADJUSTED, AND ALIGNED BY THE CONTRACTOR.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATING, DRAINING, TRENCHES, BACKFILLING, AND REMOVAL OF EXCESS DIRT.

D. THE CONTRACTOR SHALL FURNISH TO THE OWNER, CERTIFICATES OF FINAL INSPECTION AND APPROVAL FROM THE INSPECTION AUTHORITIES HAVING JURISDICTION.

PART 2: PRODUCTS

2.1 GENERAL:

A. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE NEW, FREE FROM DEFECTS AND OF THE BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE.

B. ALL MATERIALS AND EQUIPMENT SHALL BE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AS SUITABLE FOR THE USE INTENDED.

C. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

D. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING RATING EQUAL TO OR GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 10,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT.

2.2 MATERIALS AND EQUIPMENT:

A. CONDUIT:

1. RIGID GALVANIZED STEEL CONDUIT (RGS) SHALL BE HOT-DIP GALVANIZED INSIDE AND OUTSIDE INCLUDING ENDS AND THREADS AND ENAMELED OR LACQUERED INSIDE IN ADDITION TO GALVANIZING.
2. FLEXIBLE METAL CONDUIT SHALL BE GALVANIZED, ZINC-COATED STEEL, PVC COATED FOR OUTDOOR APPLICATIONS.
3. CONDUIT CLAMPS, STRAPS AND SUPPORTS SHALL BE STEEL OR MALLEABLE IRON. ALL FITTINGS SHALL BE COMPRESSION TYPE AND WATERTIGHT.
4. NON-METALLIC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40 PVC, HEAVY-WALL RIGID WITH SOLVENT-CEMENT-TYPE JOINTS AS RECOMMENDED BY THE MANUFACTURER.

B. WIRE AND CABLE:

1. WIRE AND CABLE SHALL BE FLAME-RETARDANT, MOISTURE AND HEAT RESISTANT THERMOPLASTIC, SINGLE CONDUCTOR, COPPER, TYPE THHN/THWN-2, 600 VOLT, SIZES AS INDICATED, #12 AWG MINIMUM.
2. #10 AWG AND SMALLER CONDUCTORS SHALL BE SOLID AND #8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
3. SOLDERLESS, PRESSURE-TYPE CONNECTORS CONSTRUCTED OF HIGH-STRENGTH, NON-CORRODIBLE, TIN-PLATED COPPER DESIGNED TO FURNISH HIGH-PULLOUT STRENGTH AND HIGH CONDUCTIVITY JOINTS SHALL BE USED.
4. SUPPORT GRIPS SHALL BE SINGLE WEAVE, CLOSED MESH, HIGH-GRADE, NON-MAGNETIC, TIN-COATED BRONZE CAPABLE OF SUPPORTING TEN TIMES THE CABLE DEAD WEIGHT, HUBBELL KELLEMS OR APPROVED EQUAL.

C. DISCONNECT SWITCHES:

1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, DEAD-FRONT, QUICK-MAKE, QUICK-BREAK, EXTERNALLY OPERABLE, HANDLE LOCKABLE AND INTERLOCKED WITH COVER IN CLOSED POSITION, RATING AS INDICATED, UL LABELED FURNISHED IN NEMA 3R ENCLOSURE, SQUARE D CLASS 3110 OR APPROVED EQUAL.

D. SYSTEM GROUNDING:

1. GROUNDING CONDUCTOR SHALL BE SOLID TINNED BARE COPPER, SIZE AS INDICATED, EXCEPT ABOVE GROUND GROUNDING CONDUCTORS SHALL BE STRANDED INSULATED.
2. GROUND BUSSES SHALL BE GALVANIZED STEEL BARS OF RECTANGULAR CROSS SECTION.
3. CONNECTORS SHALL BE HIGH-CONDUCTIVITY, HEAVY DUTY, LISTED AND LABELED AS GROUNDING CONNECTORS FOR THE MATERIALS USED. USE TWO-HOLE COMPRESSION LUGS WITH HEAT SHRINK FOR MECHANICAL CONNECTIONS.
4. EXOTHERMIC WELDED CONNECTIONS SHALL BE PROVIDED IN KIT FORM AND SELECTED FOR THE SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS TO BE CONNECTED.
5. GROUND RODS SHALL BE COPPER-CLAD STEEL WITH HIGH-STRENGTH STEEL CORE AND ELECTROLYTIC-GRADE COPPER OUTER SHEATH, MOLTEN WELDED TO CORE, 3/4" x 10'-0".

E. OTHER MATERIALS:

1. THE CONTRACTOR SHALL PROVIDE OTHER MATERIALS, THOUGH NOT SPECIFICALLY DESCRIBED, WHICH ARE REQUIRED FOR A COMPLETELY OPERATIONAL SYSTEM AND PROPER INSTALLATION OF THE WORK.

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Development Services Department
Lee's Summit, Missouri
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3/3/2022

STATE OF MISSOURI
SHELTON KEISLING
NUMBER PE-27323
PROFESSIONAL ENGINEER

DocuSigned by:
EF94D8A5B80B407...

ENGINEERING LICENSE:
STATE OF MISSOURI
STATE CERTIFICATE OF AUTHORIZATION # EF-2791

ENGINEER:		PE#:	DISCIPLINE:	
KMV	KEVIN M. VANMAELE	PE-021561	CIVIL	C
REJ	ROBERT E. JENSEN	PE-028974	CIVIL	C
CG	CHRISTOPHER GIANNOTTI	PE-2020038653	CIVIL	C
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PLANS PREPARED FOR:
T-Mobile

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LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:
A5C0028A

SITE ADDRESS:
209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:
SPECIFICATIONS (2 OF 3)

SHEET #:
SP-2.0

PART 3: EXECUTION

3.1 GENERAL:

A. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

B. EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT OR WATER, AND AGAINST CHEMICAL OR MECHANICAL INJURY DURING INSTALLATION AND CONSTRUCTION PERIODS.

3.2 LABOR AND WORKMANSHIP:

A. ALL LABOR FOR THE INSTALLATION OF MATERIALS AND EQUIPMENT FURNISHED FOR THE ELECTRICAL SYSTEM SHALL BE DONE BY EXPERIENCED MECHANICS OF THE PROPER TRADES.

B. ALL ELECTRICAL EQUIPMENT FURNISHED SHALL BE ADJUSTED, ALIGNED AND TESTED BY THE CONTRACTOR AS REQUIRED TO PRODUCE THE INTENDED PERFORMANCE.

C. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, REMOVE ALL LABELS AND ANY DEBRIS, CRATING OR CARTONS AND LEAVE THE INSTALLATION FINISHED AND READY FOR OPERATION.

3.3 COORDINATION:

A. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRICAL ITEMS WITH THE OWNER-FURNISHED EQUIPMENT DELIVERY SCHEDULE TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

3.4 INSTALLATION:

A. CONDUIT:

1. ALL ELECTRICAL WIRING SHALL BE INSTALLED IN CONDUIT AS HEREIN SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 3/4" NOMINAL SIZE SHALL BE USED.
2. PROVIDE RGS CONDUIT FOR ALL EXPOSED, EXTERIOR CONDUIT.
3. PROVIDE SCHEDULE 40 PVC OR RGS CONDUIT BELOW GRADE, 1" MINIMUM, UNLESS NOTED OTHERWISE. ALL 90 DEGREE BENDS TO ABOVE GRADE SHALL BE RGS. MINIMUM BURIAL DEPTH SHALL BE 24" CLEAR TO TOP OF CONDUIT, UNLESS NOTED OTHERWISE.
4. USE GALVANIZED FLEXIBLE STEEL CONDUIT WHERE DIRECT CONNECTION IS NOT DESIRABLE FOR REASONS OF EQUIPMENT MOVEMENT, VIBRATION, OR FOR EASE OF MAINTENANCE. USE LIQUIDTIGHT, PVC COATED FLEXIBLE METAL CONDUIT FOR OUTDOOR APPLICATIONS.
5. INSTALL GALVANIZED FLEXIBLE STEEL CONDUIT AT ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORTS TO ALLOW FOR EXPANSION AND CONTRACTION.
6. A RUN OF CONDUIT BETWEEN BOXES OR FITTINGS SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF FOUR QUARTER-BENDS INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE BOX OR FITTING. THE RADIUS OF BENDS SHALL NEVER BE SHORTER THAN THAT OF THE CORRESPONDING TRADE ELBOW.
7. WHERE CONDUIT HAS TO BE CUT IN THE FIELD, IT SHALL BE CUT SQUARE WITH A PIPE CUTTER USING CUTTING KNIVES.
8. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATE SIZE MANDREL THROUGH THE CONDUIT BEFORE INSTALLATION OF WIRE OR CABLE. CLEAR ALL BLOCKAGES AND REMOVE BURRS, DIRT, AND DEBRIS.
9. INSTALL PULL STRINGS IN ALL EMPTY CONDUITS. IDENTIFY PULL STRINGS AT EACH END WITH ITS DESTINATION.
10. PROVIDE INSULATED GROUNDING BUSHINGS FOR ALL CONDUITS STUBBED INTO EQUIPMENT ENCLOSURES OR STUBBED OUT FOR FUTURE USE BY OTHERS.
11. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION. TEMPORARY OPENINGS IN THE CONDUIT SYSTEM SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATTER. CONTRACTOR SHALL REPLACE ANY CONDUITS CONTAINING FOREIGN MATERIALS THAT CANNOT BE REMOVED.
12. INSTALL 2" ORANGE DETECTABLE TAPE 12" ABOVE ALL UNDERGROUND CONDUIT AND WIRE.
13. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.

B. WIRE AND CABLE:

1. ALL POWER WIRING SHALL BE COLOR CODED AS FOLLOWS:

DESCRIPTION	120/240V	208Y/120V	480Y/277V
PHASE A	BLACK	BLACK	BROWN
PHASE B	RED	RED	ORANGE
PHASE C		BLUE	YELLOW
NEUTRAL	WHITE	WHITE	GRAY
GROUND	GREEN	GREEN	GREEN

2. SPLICES SHALL BE MADE ONLY AT OUTLETS, JUNCTION BOXES, OR ACCESSIBLE RACEWAYS WITH PRESSURE-TYPE CONNECTORS.
3. PULLING LUBRICANTS SHALL BE SOAPSTONE POWDER, POWDERED TALC, OR A COMMERCIAL PULLING COMPOUND. NO SOAP SUDS, SOAP FLAKES, OIL, OR GREASE SHALL BE USED, AS THESE MAY BE HARMFUL TO CABLE INSULATION. CONTRACTOR SHALL USE NYLON OR HEMP ROPE FOR PULLING CABLE TO AVOID SCORING THE CONDUIT.
4. CABLES SHALL BE NEATLY TRAINED, WITHOUT INTERLACING, AND BE OF SUFFICIENT LENGTH IN ALL BOXES, EQUIPMENT, ETC. TO PERMIT MAKING A NEAT ARRANGEMENT. CABLES SHALL BE SECURED IN A MANNER TO AVOID TENSION ON CONDUCTORS OR TERMINALS, AND SHALL BE PROTECTED FROM MECHANICAL INJURY AND FROM MOISTURE. SHARP BENDS OVER CONDUIT BUSHINGS ARE PROHIBITED. DAMAGED CABLES SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

C. DISCONNECT SWITCHES:

1. INSTALL DISCONNECT SWITCHES LEVEL AND PLUMB. CONNECT TO WIRING SYSTEM AND GROUND AS INDICATED.

D. GROUNDING:

1. ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
2. PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEMS INDICATED WITH ASSEMBLY OF MATERIALS, INCLUDING GROUNDING ELECTRODES, BONDING JUMPERS AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.
3. ROUTE GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES.
4. TIGHTEN GROUNDING AND BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTORS AND BOLTS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT AVAILABLE, TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
5. ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
6. ALL GROUND CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS. EXOTHERMIC-WELDED CONNECTIONS SHALL BE APPROVED BY THE CONSTRUCTION INSPECTOR BEFORE BEING PERMANENTLY CONCEALED.
7. APPLY CORROSION-RESISTANT FINISH TO FIELD CONNECTIONS, AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATINGS HAVE BEEN DESTROYED. USE COPPER-BASED "NO-OX" OR APPROVED EQUAL.
8. A SEPARATE, CONTINUOUS, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL FEEDER AND BRANCH CIRCUITS
9. BOND ALL INSULATED GROUNDING BUSHINGS WITH A BARE #6 AWG GROUNDING CONDUCTOR TO A GROUND BUS OR GROUNDING LUG IN ENCLOSURE.
10. DIRECT BURIED GROUND CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 30" BELOW GRADE, UNLESS NOTED OTHERWISE.
11. ALL GROUNDING CONDUCTORS EMBEDDED IN OR PENETRATING CONCRETE SHALL BE INSULATED OR INSTALLED IN PVC CONDUIT.
12. INSTALL ELECTROLYTIC GROUNDING SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. REMOVE SEALING TAPE FROM LEACHING AND BREATHER HOLES. INSTALL PROTECTIVE BOX FLUSH WITH GRADE.
13. DRIVE GROUND RODS UNTIL TOPS ARE 30" BELOW FINAL GRADE.
14. GROUNDING CONDUCTOR TO EQUIPMENT GROUND LUGS:
    a. BOLTED TO EQUIPMENT HOUSING WITH STAINLESS STEEL BOLTS AND LOCK WASHERS.
    b. ALL EQUIPMENT TO BE GROUNDED SHALL BE FREE OF PAINT OR ANY OTHER MATERIAL COVERING BARE METAL AT THE POINT OF CONNECTION.

3.5 ACCEPTANCE TESTING:

A. PROVIDE PERSONNEL AND EQUIPMENT, MAKE REQUIRED TESTS, AND SUBMIT TEST REPORTS UPON COMPLETION OF TESTS.

B. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, THE NONCOMPLYING ITEMS SHALL BE REMOVED FROM THE JOBSITE AND REPLACED WITH ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS PROMPTLY AFTER RECEIPT OF NOTICE OF SUCH NON-COMPLIANCE.

C. TEST PROCEDURES:

1. ALL FEEDERS SHALL HAVE THEIR INSULATION TESTED AFTER INSTALLATION, BUT BEFORE CONNECTION TO DEVICES. THE CONDUCTORS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS. TESTING SHALL BE FOR ONE MINUTE USING 1000V DC. INVESTIGATE ANY VALUES LESS THAN 50 MEGAOHMS.
2. PRIOR TO ENERGIZING CIRCUITRY, TEST WIRING DEVICES FOR ELECTRICAL CONTINUITY AND PROPER POLARITY CONNECTIONS.
3. MEASURE AND RECORD VOLTAGES BETWEEN PHASES AND BETWEEN PHASE WIRES AND NEUTRALS. SUBMIT A REPORT OF MAXIMUM AND MINIMUM VOLTAGES.
4. PERFORM GROUND TEST TO MEASURE GROUND RESISTANCE OF GROUNDING SYSTEM USING THE IEEE STANDARD 3-POINT "FALL-OF-POTENTIAL" METHOD. PROVIDE PLOTTED TEST VALUES & LOCATION SKETCH. NOTIFY THE ENGINEER IMMEDIATELY IF MEASURED VALUE IS OVER 5 OHMS.

END OF SECTION

END OF SPECIFICATION

RELEASED FOR CONSTRUCTION
As Noted on Plans Review

Development Services Department
Lee's Summit, Missouri
03/23/2022

STAMP:

3/3/2022

STATE OF MISSOURI
SHELTON KEISLING
NUMBER PE-27323
PROFESSIONAL ENGINEER

DocuSigned by:
EF94D8A5B80B407...

ENGINEERING LICENSE:

STATE OF MISSOURI

STATE CERTIFICATE OF AUTHORIZATION # EF-2791

ENGINEER:		PE#:	DISCIPLINE:	
KMV	KEVIN M. VANMAELE	PE-021561	CIVIL	C
REJ	ROBERT E. JENSEN	PE-028974	CIVIL	C
CG	CHRISTOPHER GIANNOTTI	PE-2020038653	CIVIL	C
SDK	SHELTON D. KEISLING	PE-27323	ELECTRICAL	E
TMS	TERRANCE M. SUPER	PE-18521	ELECTRICAL	E

PLANS PREPARED FOR:

T-Mobile

PLANS PREPARED BY:

SSC

DRAWING NOTICE:

SUBMITTALS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	02/03/22	FAC	A
ISSUED FOR CONSTRUCTION	03/03/22	FAC	0

APPLICANT SITE NAME:

LEE'S SUMMIT FIRE STATION

APPLICANT SITE NUMBER:

A5C0028A

SITE ADDRESS:

209 S.E. DOUGLAS ST
LEE'S SUMMIT, MO 64063

SHEET DESCRIPTION:

SPECIFICATIONS
(3 OF 3)

SHEET #:

SP-2.1