

# T-Mobile

**T-MOBILE SITE NUMBER:** DN06267A  
**T-MOBILE SITE NAME:** CO46086-A  
**T-MOBILE PROJECT:** SPRINT RETAIN

Condition: A driveway permit must be applied for and approved prior to sign off of plan set in PPRBD's system. Tower Removal Agreement was submitted with COM17034.

**SBA SITE ID:** CO46086-A  
**SITE ADDRESS:** 6753 SHOUP ROAD  
 COLORADO SPRINGS, CO 80908  
**JURISDICTION:** EL PASO COUNTY

**Approved**  
 By: **Nina Ruiz**  
 Date: **04/06/2022**  
 El Paso County Planning & Community Development

Approved on behalf of Craig Dossey

T-Mobile

12920 SE 38TH STREET  
 BELLEVUE, WA 98006

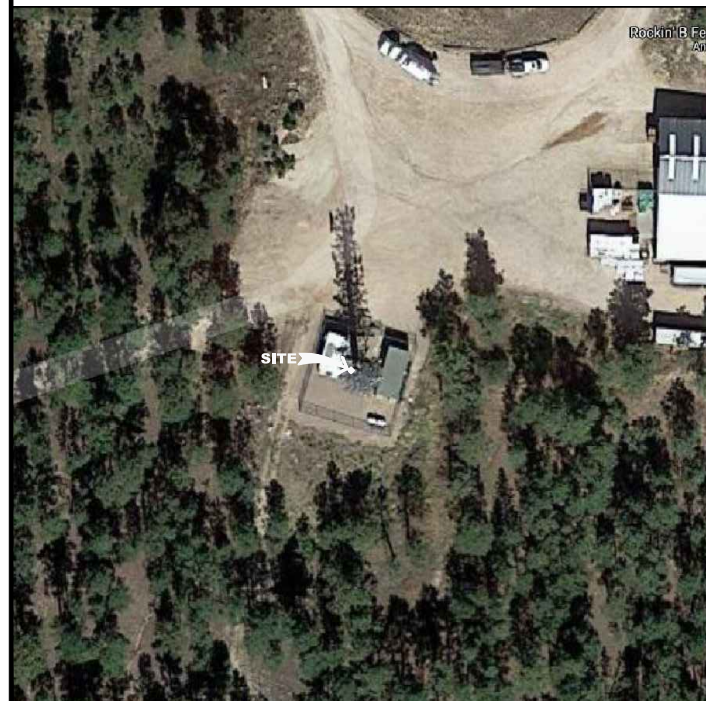


470 DAVIDSON ROAD  
 PITTSBURGH, PA 15239  
 TEL: (740) 260-9710

## SITE INFORMATION

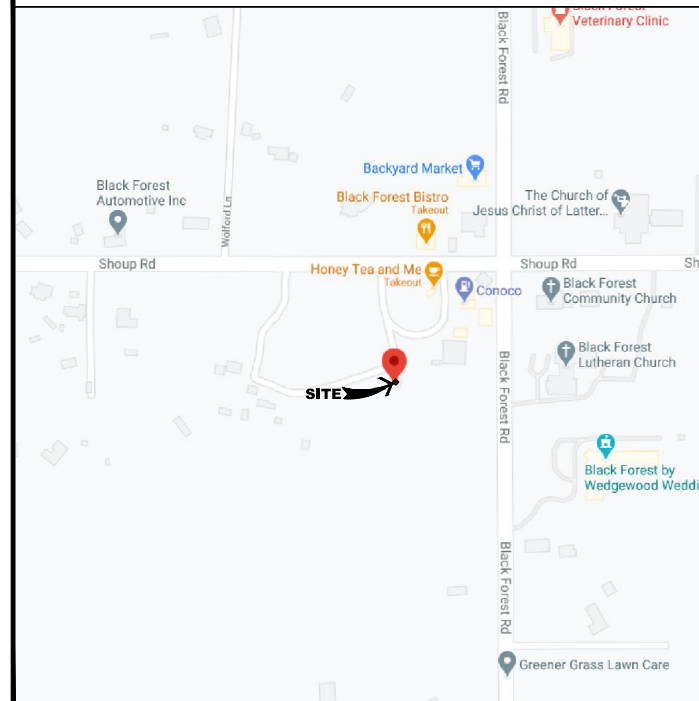
**SBA SITE NAME:** BLACK FOREST SOUTH  
**SITE ADDRESS:** 6753 SHOUP ROAD  
 COLORADO SPRINGS, CO 80908  
**COUNTY:** EL PASO  
**AREA OF CONSTRUCTION:** EXISTING  
**LATTITUDE:** 39.011778° N  
**LONGITUDE:** 104.701750° W  
**LAT/LONG TYPE:** NAD83  
**JURISDICTION:** EL PASO COUNTY  
**OCCUPANCY CLASSIFICATION:** U  
**TYPE OF CONSTRUCTION:** IIB  
**A.D.A. COMPLIANCE:** FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION  
**TOWER OWNER:** SBA COMMUNICATIONS  
 470 DAVIDSON ROAD  
 PITTSBURGH, PA 15239  
**CARRIER/APPLICANT:** T-MOBILE  
 12920 SE 38TH STREET  
 BELLEVUE, WA 98006

## AERIAL MAP



NO SCALE

## AREA MAP



NO SCALE

## DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	EXISTING EQUIPMENT PLAN
C-1.3	FINAL EQUIPMENT PLAN
C-2	TOWER ELEVATION & ANTENNA PLANS
C-3	ANTENNA SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECIFICATIONS
C-6	EQUIPMENT SPECIFICATIONS
C-7	EQUIPMENT SPECIFICATIONS
C-8	MOUNTING DETAIL
E-1	ELECTRICAL ROUTING
E-2	PANEL SCHEDULE & ONE-LINE DIAGRAM
G-1	GROUNDING DIAGRAM
G-2	GROUNDING DETAILS

PLANS PREPARED BY:

**Kimley»Horn**

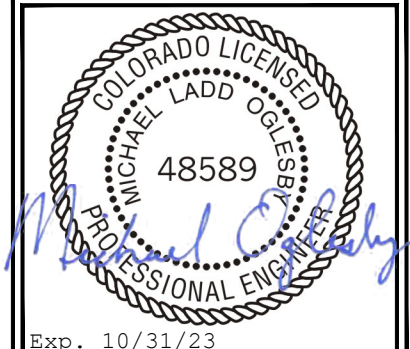
421 FAYETTEVILLE ST, SUITE 600  
 RALEIGH, NC 27601

REV.	DATE	DESCRIPTION	BY
4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JIK

DRAWN BY: JIK CHECKED BY: DLF

KHA PROJECT NUMBER: KHCL-7604

ENGINEER SEAL:



PROJECT INFORMATION:

DN06267A  
 CO46086-A  
 SBA #: CO46086-A  
 6753 SHOUP ROAD  
 COLORADO SPRINGS, CO 80908

SHEET TITLE:

**TITLE SHEET**

SHEET NUMBER:

**T-1**

## GROUND SCOPE OF WORK

1. INSTALL NEW DELTA 600A ELITE POWER RACK
2. INSTALL NEW 19" EQUIPMENT RACK
3. INSTALL (1) FSMF
4. INSTALL (2) ASIB
5. INSTALL (2) ASIK
6. INSTALL (3) ABIA
7. INSTALL (6) ABIL
8. INSTALL (3) ABIC
9. INSTALL (2) AMIA
10. INSTALL (1) CSR 1XRe V2
11. INSTALL (2) JUNCTION BOXES

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

## TOWER SCOPE OF WORK

1. REMOVE EXISTING T-ARM MOUNTS
2. REMOVE (6) ANTENNAS
3. REMOVE (9) RRHS
4. REMOVE (3) POWER JUNCTION CYLINDERS
5. REMOVE (3) FIBER JUNCTION CYLINDERS
6. INSTALL NEW SABRE T-ARM MOUNTS MOUNT
7. INSTALL (6) ANTENNAS
8. INSTALL (6) RRHS
9. INSTALL (2) BREAKOUT PENDANTS
10. INSTALL (2) HYBRID CABLES

## APPLICABLE CODES/REFERENCE DOCS

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:

CODE TYPE	CODE
BUILDING	2015 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2014 NEC

### REFERENCE DOCUMENTS:

- STRUCTURAL ANALYSIS: TOWER ENGINEERING SOLUTIONS (PROJECT #: 102534)  
 DATED: 02/19/21  
 MOUNT ANALYSIS: BY OTHERS  
 DATED:  
 RFDS REVISION: 1  
 DATED: 04/28/21

PCD File #: TWR-21-006

CALL COLORADO ONE CALL  
 (800) 922-1987  
 CALL 3 WORKING DAYS  
 BEFORE YOU DIG!



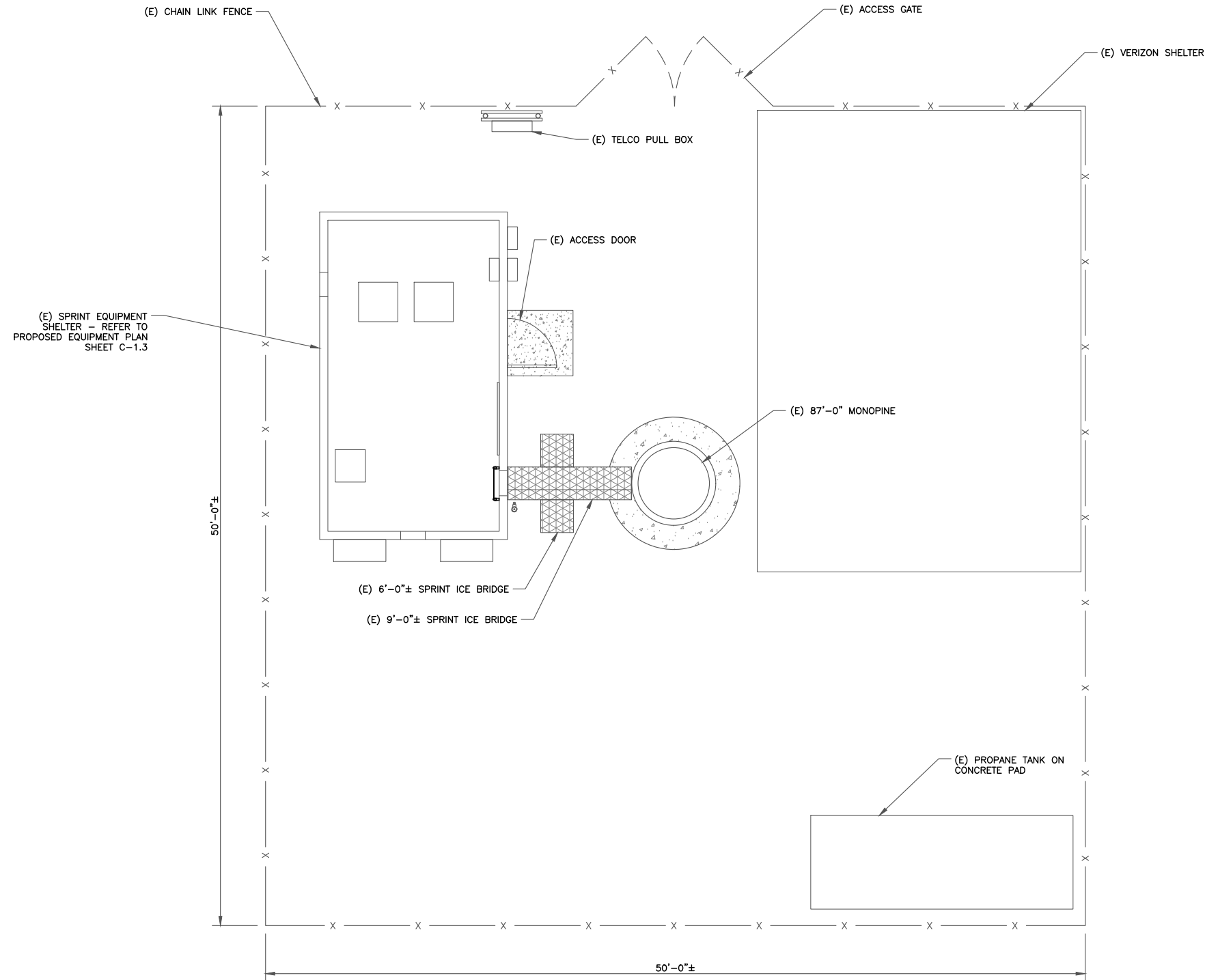
## PROJECT TEAM

**A&E FIRM:** KIMLEY-HORN & ASSOCIATES, INC.  
 3875 EMBASSY PKWY, SUITE 280  
 AKRON, OH 44333  
 KEVIN.CLEMENTS@KIMLEY-HORN.COM  
**SBA CONTACT:** 470 DAVIDSON ROAD  
 PITTSBURGH, PA 15239  
 WILL SPICE - PROJECT MANAGER  
 WSPICE@SBASITE.COM



**SITE PLAN DISCLAIMER:**

PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS. KIMLEY-HORN HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.



12920 SE 38TH STREET  
BELLEVUE, WA 98006



470 DAVIDSON ROAD  
PITTSBURGH, PA 15239  
TEL: (740) 260-9710

PLANS PREPARED BY:



421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, NC 27601

REV: DATE: DESCRIPTION: BY:

REV:	DATE:	DESCRIPTION:	BY:
4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JIK

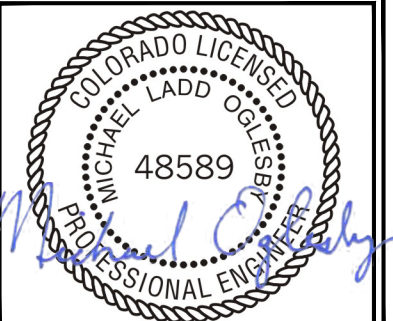
DRAWN BY: CHECKED BY:

JIK DLF

KHA PROJECT NUMBER:

KHCL-7604

ENGINEER SEAL:



Exp. 10/31/23

PROJECT INFORMATION:

DN06267A  
CO46086-A  
SBA #: CO46086-A  
6753 SHOUP ROAD  
COLORADO SPRINGS, CO 80908

SHEET TITLE:

OVERALL SITE PLAN

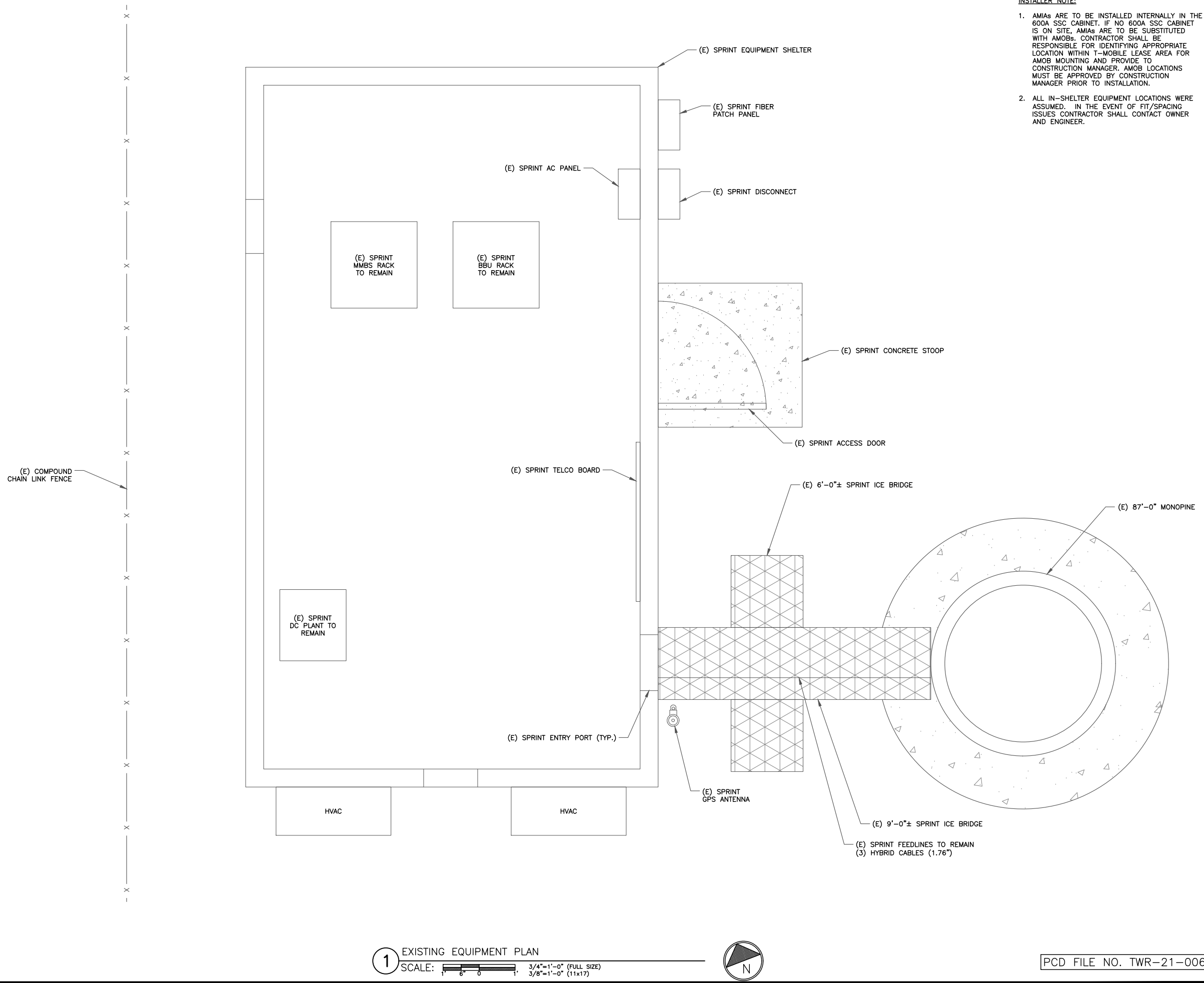
SHEET NUMBER:

C-1.1

1 OVERALL SITE PLAN  
SCALE: 1/4"=1'-0" (FULL SIZE)  
1/8"=1'-0" (11x17)



PCD FILE NO. TWR-21-006



**INSTALLER NOTE:**

1. AMIAs ARE TO BE INSTALLED INTERNALLY IN THE 600A SSC CABINET. IF NO 600A SSC CABINET IS ON SITE, AMIAs ARE TO BE SUBSTITUTED WITH AMOBs. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING APPROPRIATE LOCATION WITHIN T-MOBILE LEASE AREA FOR AMOB MOUNTING AND PROVIDE TO CONSTRUCTION MANAGER. AMOB LOCATIONS MUST BE APPROVED BY CONSTRUCTION MANAGER PRIOR TO INSTALLATION.
2. ALL IN-SHELTER EQUIPMENT LOCATIONS WERE ASSUMED. IN THE EVENT OF FIT/SPACING ISSUES CONTRACTOR SHALL CONTACT OWNER AND ENGINEER.

**T-Mobile**

12920 SE 38TH STREET  
BELLEVUE, WA 98006



470 DAVIDSON ROAD  
PITTSBURGH, PA 15239  
TEL: (740) 260-9710

PLANS PREPARED BY:

**Kimley»Horn**

421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, NC 27601

REV.	DATE	DESCRIPTION	BY
4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JK

DRAWN BY: JIK CHECKED BY: DLF

KHA PROJECT NUMBER: KHCL-7604

ENGINEER SEAL:



PROJECT INFORMATION:

DN06267A  
CO46086-A  
SBA #: CO46086-A  
6753 SHOUP ROAD  
COLORADO SPRINGS, CO 80908

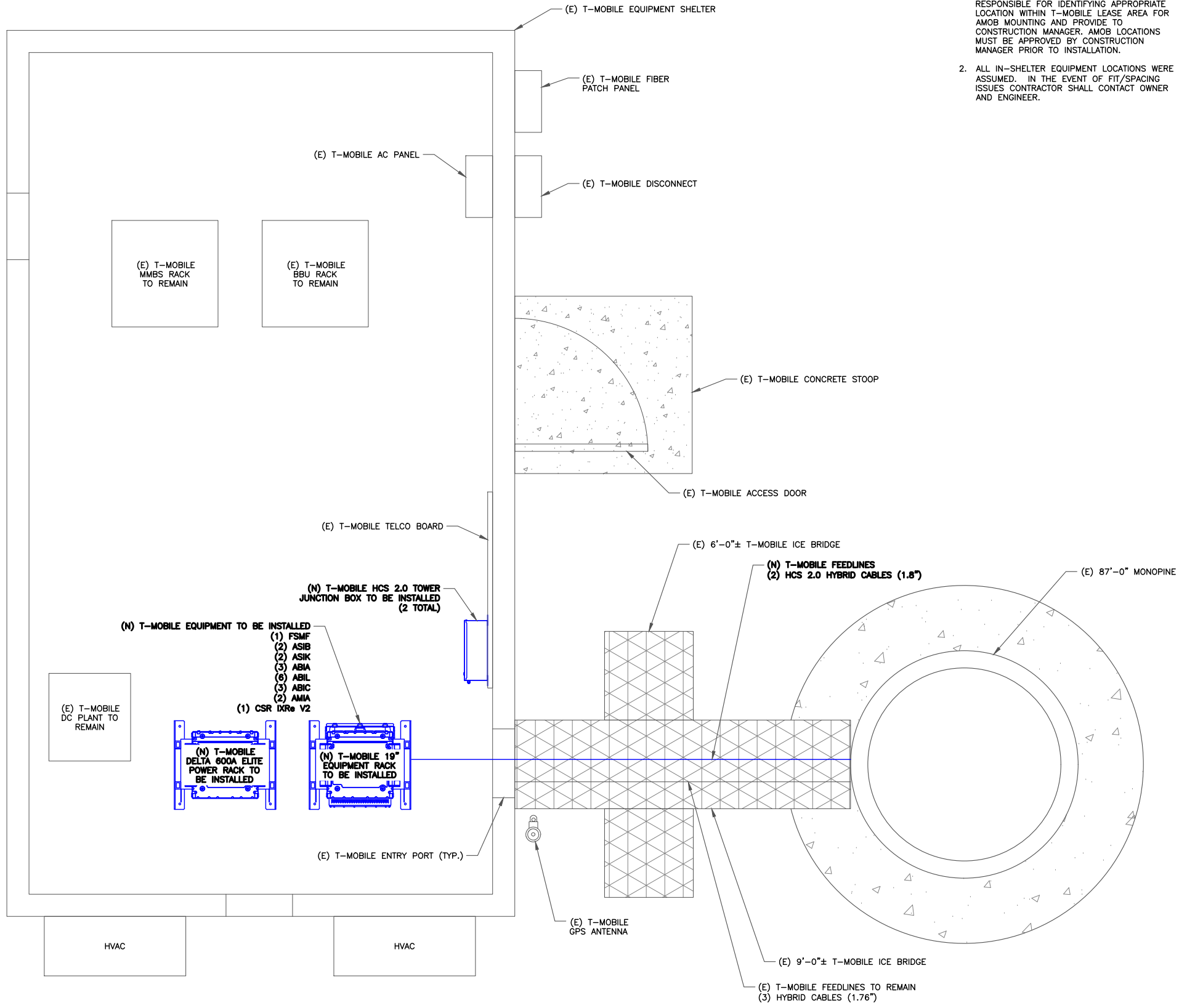
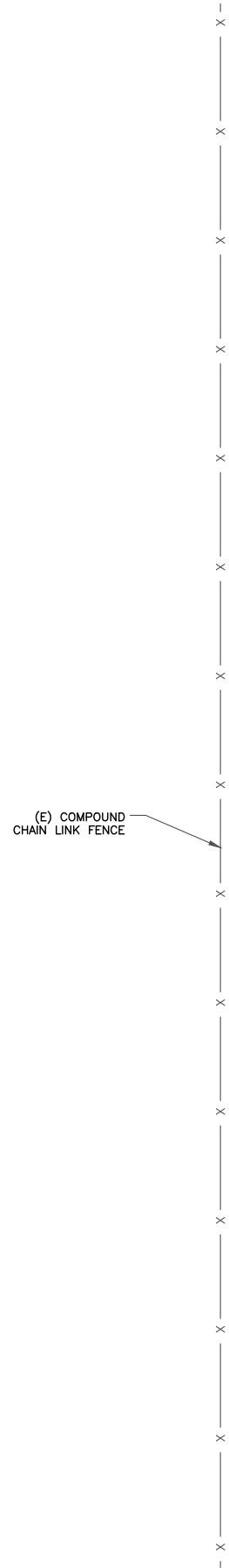
SHEET TITLE:  
**EXISTING EQUIPMENT PLAN**

SHEET NUMBER:  
**C-1.2**

**1** EXISTING EQUIPMENT PLAN  
SCALE: 3/4"=1'-0" (FULL SIZE)  
3/8"=1'-0" (11x17)



PCD FILE NO. TWR-21-006



**INSTALLER NOTE:**

1. AMIAs ARE TO BE INSTALLED INTERNALLY IN THE 600A SSC CABINET. IF NO 600A SSC CABINET IS ON SITE, AMIAs ARE TO BE SUBSTITUTED WITH AMOBs. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING APPROPRIATE LOCATION WITHIN T-MOBILE LEASE AREA FOR AMOB MOUNTING AND PROVIDE TO CONSTRUCTION MANAGER. AMOB LOCATIONS MUST BE APPROVED BY CONSTRUCTION MANAGER PRIOR TO INSTALLATION.
2. ALL IN-SHELTER EQUIPMENT LOCATIONS WERE ASSUMED. IN THE EVENT OF FIT/SPACING ISSUES CONTRACTOR SHALL CONTACT OWNER AND ENGINEER.

**T-Mobile**

12920 SE 38TH STREET  
BELLEVUE, WA 98006



470 DAVIDSON ROAD  
PITTSBURGH, PA 15239  
TEL: (740) 260-9710

PLANS PREPARED BY:



421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, NC 27601

REV.	DATE	DESCRIPTION	BY
4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JKK

DRAWN BY: JIK CHECKED BY: DLF

KHA PROJECT NUMBER: KHCL-7604

ENGINEER SEAL:

Exp. 10/31/23

PROJECT INFORMATION:

DN06267A  
CO46086-A  
SBA #: CO46086-A  
6753 SHOUP ROAD  
COLORADO SPRINGS, CO 80908

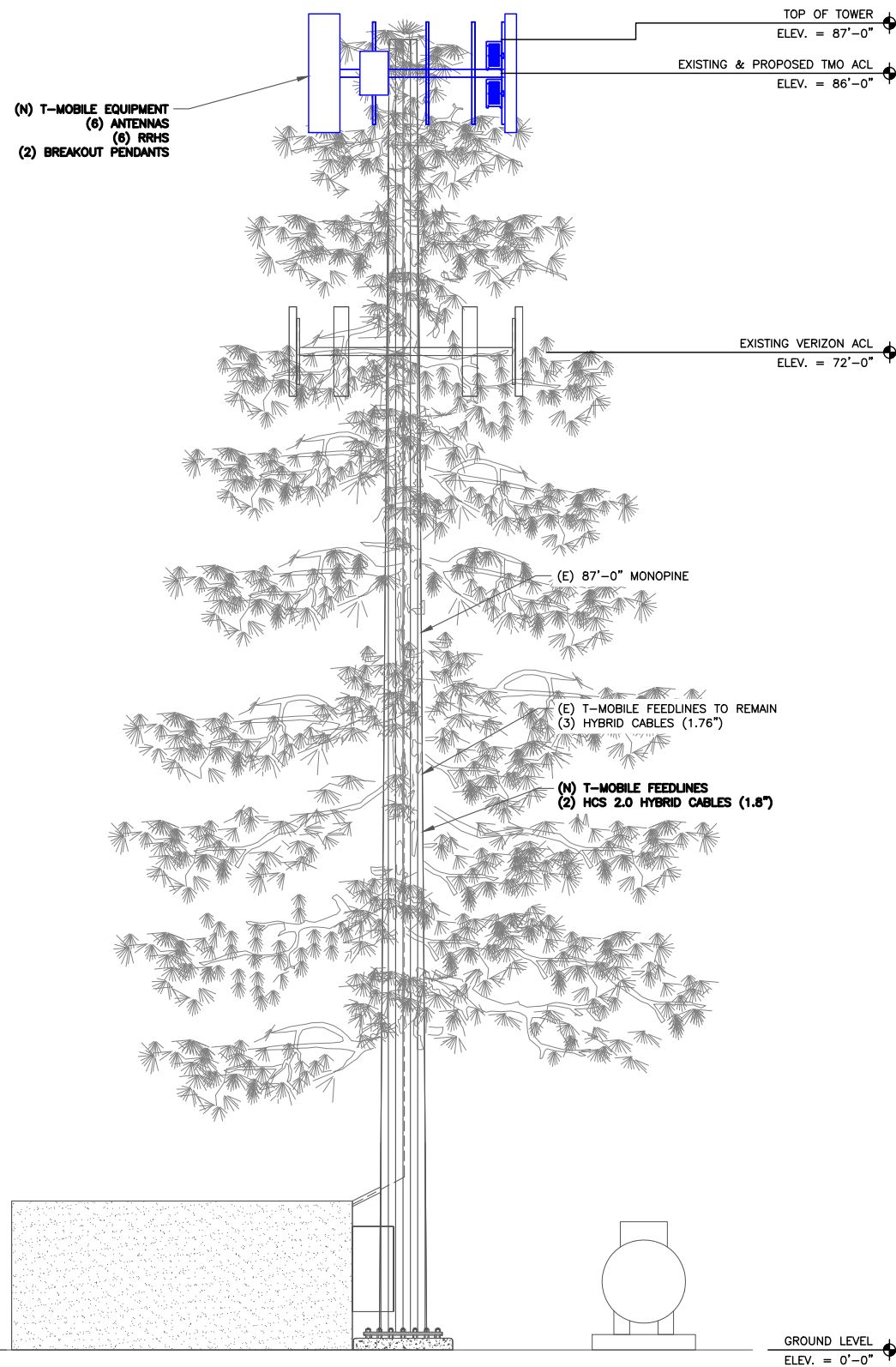
SHEET TITLE: FINAL EQUIPMENT PLAN

SHEET NUMBER: C-1.3

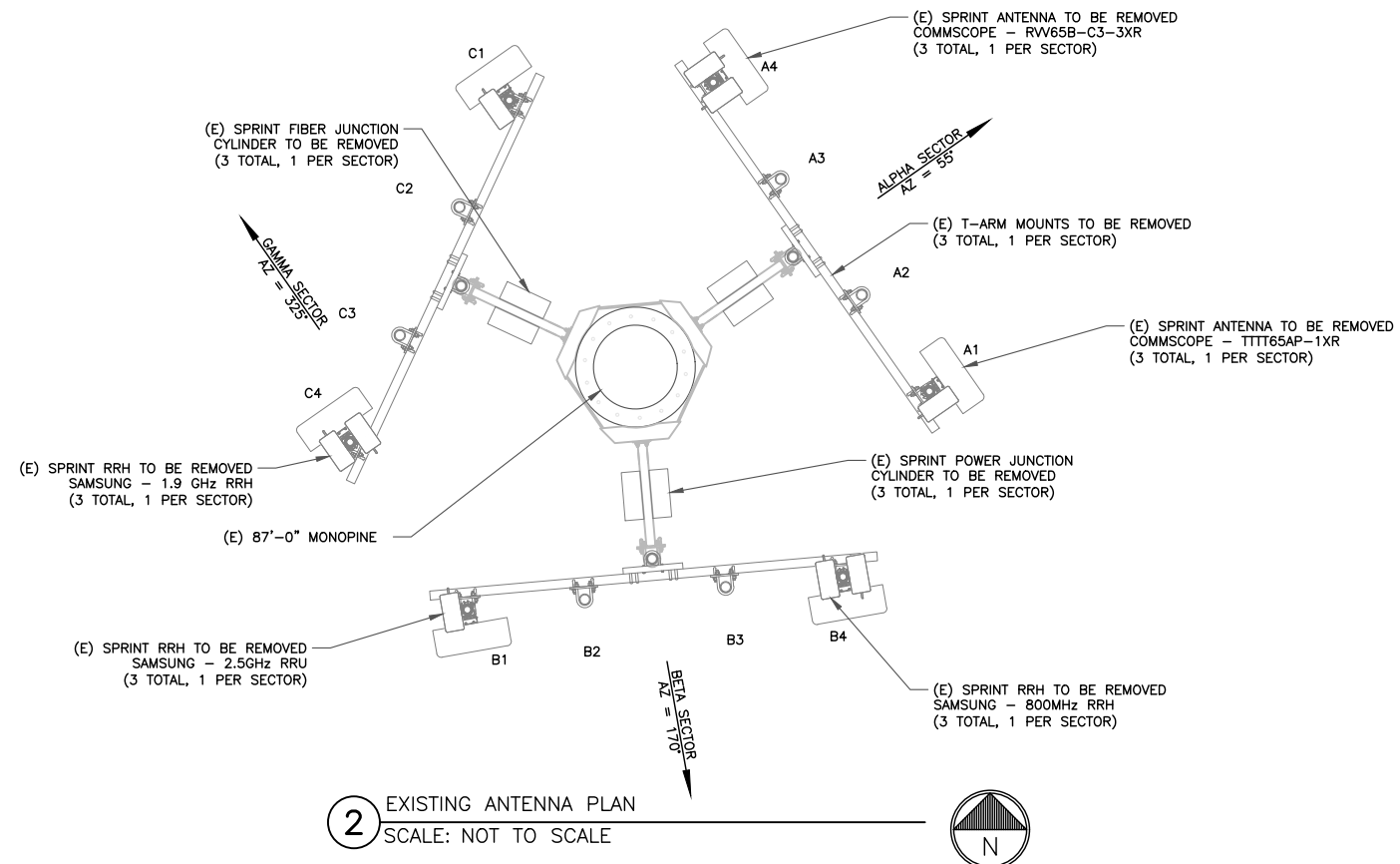
1 FINAL EQUIPMENT PLAN  
SCALE: 3/4"=1'-0" (FULL SIZE)  
3/8"=1'-0" (11x17)



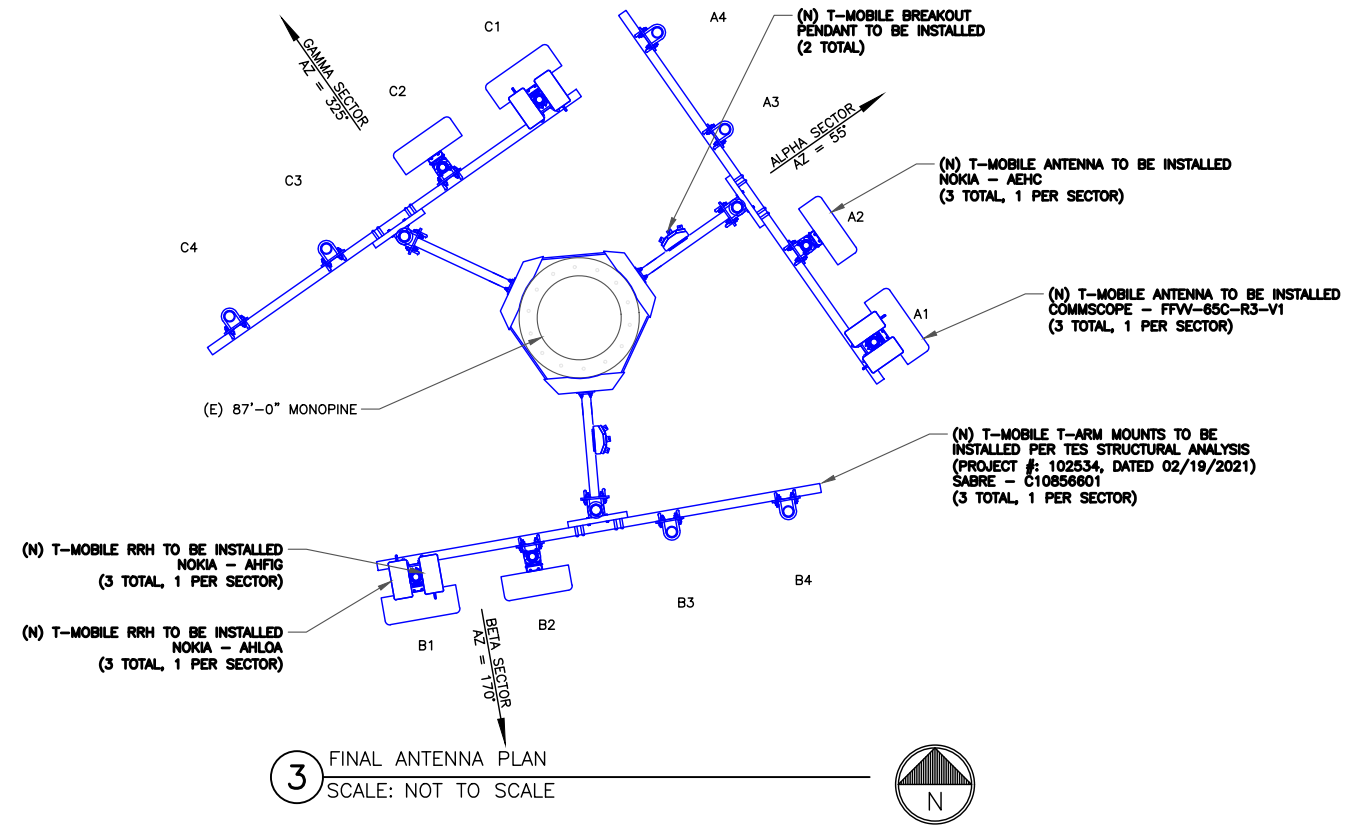
PCD FILE NO. TWR-21-006



**1** FINAL ELEVATION  
SCALE: NOT TO SCALE



**2** EXISTING ANTENNA PLAN  
SCALE: NOT TO SCALE



**3** FINAL ANTENNA PLAN  
SCALE: NOT TO SCALE

**T-Mobile**

12920 SE 38TH STREET  
BELLEVUE, WA 98006



470 DAVIDSON ROAD  
PITTSBURGH, PA 15239  
TEL: (740) 260-9710

PLANS PREPARED BY:

**Kimley Horn**

421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, NC 27601

REV: DATE: DESCRIPTION: BY:

4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JK

DRAWN BY: CHECKED BY:

JK DLF

KHA PROJECT NUMBER:

KHCL-7604

ENGINEER SEAL:



Exp. 10/31/23

PROJECT INFORMATION:

DN06267A  
CO46086-A  
SBA #: CO46086-A  
6753 SHOUP ROAD  
COLORADO SPRINGS, CO 80908

SHEET TITLE:

**TOWER ELEVATION & ANTENNA PLAN**

SHEET NUMBER:

C-2

NEW AND EXISTING ANTENNA AND CABLE SCHEDULE

SECTOR	POS.	AZIMUTH	RAD CENTER	TECHNOLOGY	ANTENNA	STATUS	RRU TYPE	DIPLEXER/TMA	COVP	CABLE STATUS	COAX CABLE LENGTH	HCS FACTORY LENGTH	JUMPER LENGTH				
ALPHA	A4	-	-	-	-	-	-	-	(2) NEW BREAKOUT PENDANTS	(3) EXISTING 1.76" HYBRID CABLES, (2) NEW 1.8" HCS 2.0 HYBRID CABLES	EXISTING	EXISTING	-				
	A3	-	-	-	-	-	-	-					-				
	A2	55°	86'-0"	L2500, N2500	NOKIA - AEHC	NEW	-	-					<15'-0"				
	A1	55°	86'-0"	L700, L600, N600, L2100, G1900, L1900	COMMSCOPE - FFV-65C-R3-V1	NEW	(1) NEW AHLOA, (1) NEW AHFIG	-					<15'-0"				
BETA	B4	-	-	-	-	-	-	-					-	-	-	-	-
	B3	-	-	-	-	-	-	-					-	-	-	-	-
	B2	170°	86'-0"	L2500, N2500	NOKIA - AEHC	NEW	-	-					<15'-0"				
	B1	170°	86'-0"	L700, L600, N600, L2100, G1900, L1900	COMMSCOPE - FFV-65C-R3-V1	NEW	(1) NEW AHLOA, (1) NEW AHFIG	-					<15'-0"				
GAMMA	C4	-	-	-	-	-	-	-					-	-	-	-	-
	C3	-	-	-	-	-	-	-					-	-	-	-	-
	C2	325°	86'-0"	L2500, N2500	NOKIA - AEHC	NEW	-	-					<15'-0"				
	C1	325°	86'-0"	L700, L600, N600, L2100, G1900, L1900	COMMSCOPE - FFV-65C-R3-V1	NEW	(1) NEW AHLOA, (1) NEW AHFIG	-					<15'-0"				

(\* ) SHARED WITH ALL SECTORS

IMPORTANT NOTE: PLEASE REFER TO LATEST RFDS SHEET FOR NSN CONFIGURATION. GC TO CAP ALL UNUSED PORTS



470 DAVIDSON ROAD  
PITTSBURGH, PA 15239  
TEL: (740) 260-9710

PLANS PREPARED BY:



421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, NC 27601

REV: DATE: DESCRIPTION: BY:

4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JIK

DRAWN BY: CHECKED BY:

JIK DLF

KHA PROJECT NUMBER:

KHCL-7604

ENGINEER SEAL:



PROJECT INFORMATION:

DN06267A  
CO46086-A  
SBA #: CO46086-A  
6753 SHOUP ROAD  
COLORADO SPRINGS, CO 80908

SHEET TITLE:

ANTENNA SCHEDULE

SHEET NUMBER:

C-3

### Configuration 56790EZ\_SR\_T

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

#### (Alpha, Beta & Gamma) FDD - Lowband

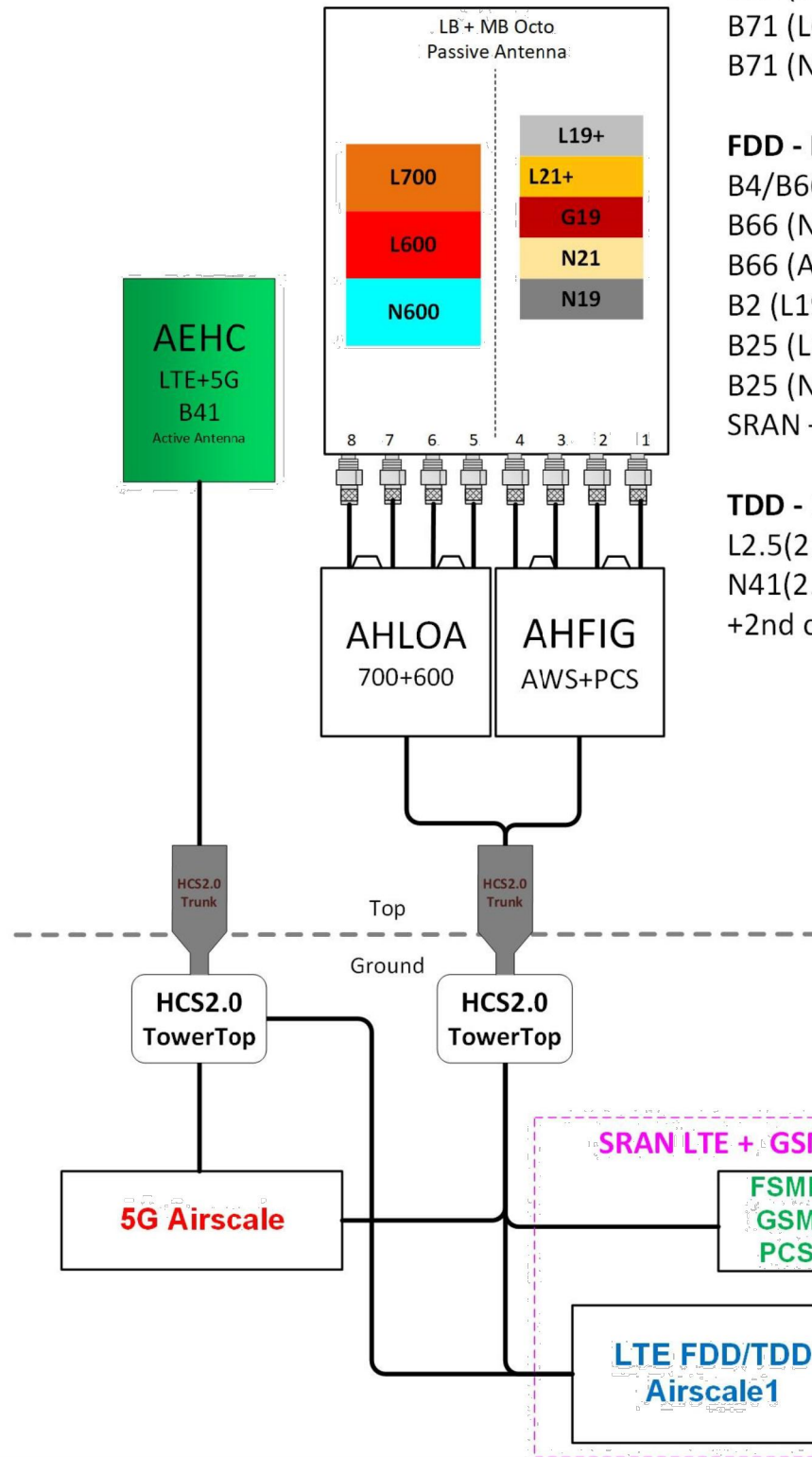
- B12 (L700) – 5 MHz
- B71 (L600) – 10 MHz
- B71 (N600) – 15 MHz

#### FDD - Midband

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

#### TDD - Band 41

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



12920 SE 38TH STREET  
BELLEVUE, WA 98006



470 DAVIDSON ROAD  
PITTSBURGH, PA 15239  
TEL: (740) 260-9710

PLANS PREPARED BY:



421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, NC 27601

REV.	DATE	DESCRIPTION	BY
4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JK

DRAWN BY: JIK CHECKED BY: DLF

KHA PROJECT NUMBER: KHCL-7604

ENGINEER SEAL:

FOR  
REFERENCE  
PURPOSES  
ONLY

PROJECT INFORMATION:

DN06267A  
CO46086-A  
SBA #: CO46086-A  
6753 SHOUP ROAD  
COLORADO SPRINGS, CO 80908

SHEET TITLE:

PLUMBING DIAGRAM

SHEET NUMBER:

C-4



FFVV-65C-R3-V1



General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Performance Note	Outdoor usage
Radome Material	Fiberglass, UV resistant
Radiator Material	Low loss circuit board
Reflector Material	Aluminum
RF Connector Interface	4.3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, low band	4
RF Connector Quantity, total	8

Remote Electrical Tilt (RET) Information

RET Interface	8-pin DIN Female   8-pin DIN Male
RET Interface, quantity	1 female   1 male
Input Voltage	10-30 Vdc
Internal RET	High band (2)   Low band (1)
Power Consumption, idle state, maximum	1 W
Power Consumption, normal conditions, maximum	10 W
Protocol	3GPP/AISG 2.0 (Single RET)

Dimensions

Width	640 mm   25.197 in
Depth	335 mm   13.189 in
Length	2437 mm   96.343 in
Net Weight, without mounting kit	56.5 kg   124.561 lb

1 ANTENNA SPECIFICATIONS  
SCALE: NOT TO SCALE

AEHC AirScale MAA 64T64R 192AE n41 240W  
Preliminary Technical datasheet

Specification	3GPP/FCC compliant, TDD
Frequency range	2496 - 2690 MHz
Max. supported modulation	256 QAM
Number of TX/RX paths	64T / 64R
MIMO streams	16
Instantaneous bandwidth IBW	194 MHz
Occupied bandwidth OBW	194 MHz
Total average EIRP	79.3 dBm
Max. output power per TRX	3.75 W / TRX (240 W total)
Antenna configuration	12 rows, 8 columns, 2 (±45° X-polarized)
Max. Antenna gain	25.5 dBi
Horizontal beamwidth	15° (boresight)
Vertical beamwidth	6° (boresight)
Horizontal coverage angle	±45° (3 dB), ±60° (5 dB)
Vertical steering angle	±6°
Dimensions	TBD: 900 mm (H) x 580 mm (W) x 210 mm (D)
Volume / Windward area	TBD: <110 L / ~0.6m <sup>2</sup>
Weight	~45kg (without mounting brackets)
Supply voltage / Connector type	DC -40.5 V... -57 V / 2 pole connector
Power consumption	900 W typical (75% DL duty cycle, 30% RF load) 1300 W max (75% DL duty cycle, 100% RF load)



Optical ports	4 x SFP28, 10/25GE eCPRI (with R2CT)
Other interfaces / Connector type	Control AISG RF monitor port / SMA Female External Alarms / MDR26 status LED
Operational temperature range	-40 °C ... +55 °C
Cooling	Natural convection cooling
Ingress protection class	IP65
Installation options	Pole / Wall, ± 5° vertical adjustment
Surge protection	Class II 20 kA

Confidential © Nokia 2018

NOKIA

2 ANTENNA SPECIFICATIONS  
SCALE: NOT TO SCALE

T-Mobile

12920 SE 38TH STREET  
BELLEVUE, WA 98006



470 DAVIDSON ROAD  
PITTSBURGH, PA 15239  
TEL: (740) 260-9710

PLANS PREPARED BY:

Kimley»Horn

421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, NC 27601

REV: DATE: DESCRIPTION: BY:

4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JIK

DRAWN BY: CHECKED BY:

JIK	DLF
-----	-----

KHA PROJECT NUMBER:

KHCL-7604

ENGINEER SEAL:

FOR  
REFERENCE  
PURPOSES  
ONLY

PROJECT INFORMATION:

DN06267A  
CO46086-A  
SBA #: CO46086-A  
6753 SHOUP ROAD  
COLORADO SPRINGS, CO 80908

SHEET TITLE:

EQUIPMENT  
SPECIFICATIONS

SHEET NUMBER:

C-5

AirScale Dual RRH 4T4R B12/71 240W AHLOA



1 © Nokia 2017  
Confidential

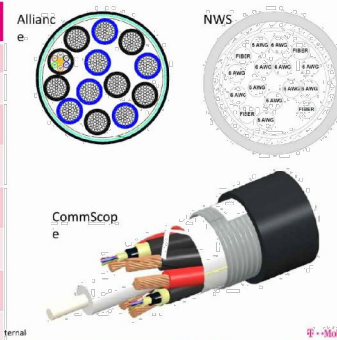
Product Code:	474331A
Supported Frequency bands	3GPP Band 12/71
Frequencies	Band 12 adjusted: UL 698 - 716 MHz, DL 728 - 746 MHz Band 71: UL 663 MHz - 698 MHz, DL 617 MHz - 652 MHz
Number of TX/RX paths/pipes	4 pipes; 2T2R, 2T4R, 4T4R for both bands
Instantaneous Bandwidth IBW	17 MHz for B12 and 35MHz for B71 1 MHz below B12 NB IoT future use
Occupied Bandwidth OBW	UL 53MHz contiguous DL B12 17MHz + 1 MHz NB IoT future use, B71 35MHz
Output Power	60W per TX shared between bands
Supply Voltage / Range	DC-48 V / -36 V to -60 V
Typical Power Consumption	640W [ETSI Busy Hour Load at 4TX@60W] 450W [ETSI Busy Hour Load at 4TX@20W]
Antenna Ports	4 ports, 4.3-10+
Optical Ports	2 x CPRI 9.8 Gbps
ALD Control Interfaces	AISG3.0 and RET (DC on ANT1 & ANT3)
Other Interfaces	External Alarm MDR-26 (4 inputs, 1 Output) DC Circular Power Connector
Physical	560 mm x 308 mm x 189 mm Approximately 38kg with no covers or brackets
Operating Temperature Range	-40°C to 55°C (with no solar load)
Surge Protection	Class II 5A
Installation Options	Pole, Wall, Book Mount

NOKIA

1 NOKIA - AHLOA  
SCALE: NOT TO SCALE

Trunk Cable General Specifications

Characteristics	Alliance	CommScope	NWS
Outer Diam.	1.46"	1.55"	1.48"
Weight	1.61 lb/ft	1.71 lb/ft	1.61 lb/ft
Min. Bend Rad	14.6"	18.6"	21.5"
DC Conductors	12 x 6AWG	12 x 6AWG	12 x 6AWG
Armor	Corrugated Cu	Corrugated Al	Cu tape, PVC
Conductor Termination	None	None	None
Single-Mode Fibers	48	48	48
Fiber Termination	LC pair	LC pair	LC pair



Breakout Feature General Specifications

Characteristics	Alliance	CommScope	NWS
Dimensions, in.	9.3x14.9x5.8	6.7x16.9x4.7	10.2x16.0x3.2
Weight	1.61 lb/ft	0.970 lb/ft	1.61 lb/ft
Port Interface	Senko U	Senko U	Senko U
Hybrid Ports	12	12	12
Conductor Termination	None	None	None
Single Mode Fibers	48	48	48
Fiber Termination	LC pair	LC pair	LC pair
Max RRU	12	12	12



Note: Permanently attached to trunk cable, not field removable/replaceable.  
Note: No internal OVP.

2 HYBRID CABLE & BREAKOUT  
SCALE: NOT TO SCALE

AirScale System Module Installation Guidelines - AMIA

AMIA is primary for indoor sites (environmentally controlled) or site support cabinets

- For a 19" rack installation 3U of space is needed (adapters/support required for 23" rack)
- For Medium/Large HP/ Large Delta SSC - Fan/filter kit required (SKU# 32168) to support medium config
- For Medium Purcell SSC - Nothing required to support minimal config (single LTE layer)
- For Medium Purcell SSC - Door upgrade kit required (SKU# 33401) to support full config

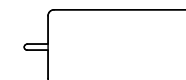
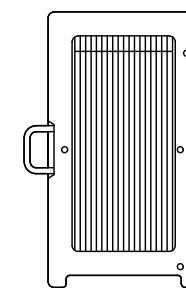
AMIA Mounting Options	3U space*	4U Space
Item Description		
19 to 23 inch adaptor bracket, 3U w/slot	x	
19 to 23 inch adaptor bracket, 4U w/slot		x
ASSY, SHELF		x

\*Bottom support is available



T-Mobile

3 AMIA SPECIFICATIONS  
SCALE: NOT TO SCALE



NOKIA - AHFG  
WEIGHT (FULLY EQUIPPED): 79.4 LBS  
SIZE (HxWxD): 27.6x13.4x5.6 IN.  
CONNECTOR TYPE: 4.3-1 FEMALE

4 NOKIA - AHFG  
SCALE: NOT TO SCALE

T-Mobile

12920 SE 38TH STREET  
BELLEVUE, WA 98006



470 DAVIDSON ROAD  
PITTSBURGH, PA 15239  
TEL: (740) 260-9710

PLANS PREPARED BY:

Kimley»Horn

421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, NC 27601

REV: DATE: DESCRIPTION: BY:

REV	DATE	DESCRIPTION	BY
4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JK

DRAWN BY: CHECKED BY:

JK DLF

KHA PROJECT NUMBER:

KHCL-7604

ENGINEER SEAL:

FOR  
REFERENCE  
PURPOSES  
ONLY

PROJECT INFORMATION:

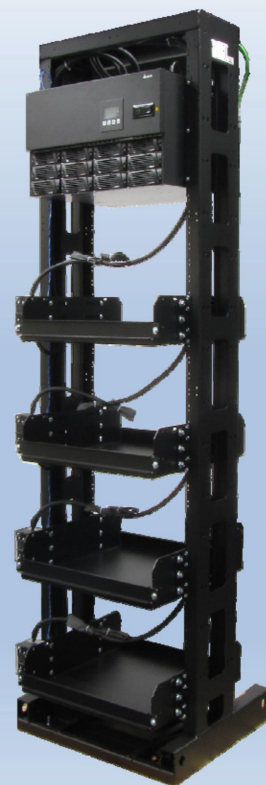
DN06267A  
CO46086-A  
SBA #: CO46086-A  
6753 SHOUP ROAD  
COLORADO SPRINGS, CO 80908

SHEET TITLE:

EQUIPMENT  
SPECIFICATIONS

SHEET NUMBER:

C-6



## Elite Power -48V 600A Indoor Rack Mounted Power system

### Product Features

- 48V/600A Rack (23") Mounted Power System
- Slimline High Power / Efficiency DPR2900 Rectifiers (2900W / up to 96.3%), 12x max
- 7' High 2-post relay rack – zone 2 rated, zone 4 rated with top bracing
- 4 battery (190Ahr) trays
- Prewired battery cabling with 200A battery circuit breaker for each tray
- Battery Landings
  - 6 x 1/4" holes – 5/8" center to center
  - 6 x 3/8" holes – 1" center to center
- Front Access Load Distribution
  - (26) Load Breaker Positions (Bullet) / Up to 100A per position
  - GMT Fuse Adapter block (10-position) optional
- Battery LVD included

www.deltaww.com



### Specifications

Model	Elite Power Rack -48V 600A	
<b>1. Input</b>		
AC Voltage	Single phase; 2W+PE (L1, L2/N, FG) 110 - 240VAC	
AC Current	Single phase, 32A each (6x) / 190A total (max)	
AC frequency	50 - 60HZ	
<b>2. Output</b>		
Output Voltage	42 – 58VDC; 54VDC (default)	
Output Current	600A @ -54V	
Power Limitation	32.4kW @ -54V	
Voltage Regulation	±1% over line, load, and temperature	
Current Sharing	±5% of the full capacity of the rectifier	
<b>3. General</b>		
Rectifier	DPR 2900C-48, up to 96.3% efficiency, 12x	
Controller	Orion Touch	
Battery	4 Trays, 190Ahr	
Dimensions (W x H x D)	24.7" x 84" x 22.6"	
Weight	250 Lbs	
<b>4. Standards</b>		
Safety	IEC / EN 60950, UL1801, UL1950	
EMC	NEBS (GR-1089)	
Operating Temperature	-40°C to +75 °C (-40°F to +167 °F)	
Humidity (relative)	95%, non-condensing (Max.)	
Environment	NEBS Level 3 (earthquake zone 4)	
<b>5. Equipment</b>		
Load Cable Entry	Front access	
Circuit Breakers and Landings	26x -48V, 100A max. per position, 1/4"-20, 3/8" center to center	
Fuse Module (optional)	10 position GMT 15A max/position 110A max. total	
Battery landings	(6) 1/4" holes - 5/8" center to center, (4) 3/8" holes - 1" center to center	
Low Voltage Disconnect	Battery LVD included	
<b>6. Ordering information</b>		
System	ESAA600AHCU03	Elite Power Rack, 7', -48V 600A, (4) Battery Trays including (10) Rectifiers
Rectifier	ESR-48/56C F-A	48V / 56A 2900W, 96.4%, CAN communication
GMT Module (optional)	3799260600-S	10 pos. plug-in module (takes 2 positions)
Load Breaker	0830xxxxxx	Breaker, Bullet, Mid-Trip, 5A - 250A
Load Breaker Adapter	3799235700-S	2 Pole Lug Adapter Kit (125A -200A)
	3799236400-S	3 Pole Lug Adapter Kit (250A)

\*All specifications are subject to change without prior notice.

Delta Group Website:  
[www.deltaww.com](http://www.deltaww.com)

Product Website:  
[www.deltapowersolutions.com](http://www.deltapowersolutions.com)

United States of America & Canada:  
Delta Electronics (USA) Inc.  
2925 E. Plano Parkway  
Plano, TX (Texas) 75074

Sales and Orders:  
[DEUSTPS.Sales@deltaww.com](mailto:DEUSTPS.Sales@deltaww.com)  
[DEUSTPS.Orders@deltaww.com](mailto:DEUSTPS.Orders@deltaww.com)

Field Support:  
1-877-DELTA-08 option 3  
(877-335-8208 option 3)  
[DEUSTPS.Support@deltaww.com](mailto:DEUSTPS.Support@deltaww.com)

Installation Services:  
[DEUSTPS.Services@deltaww.com](mailto:DEUSTPS.Services@deltaww.com)

RMA:  
[RMA.US@deltaww.com](mailto:RMA.US@deltaww.com)

T-Mobile

12920 SE 38TH STREET  
BELLEVUE, WA 98006



470 DAVIDSON ROAD  
PITTSBURGH, PA 15239  
TEL: (740) 260-9710

PLANS PREPARED BY:

Kimley»Horn

421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, NC 27601

REV: DATE: DESCRIPTION: BY:

REV	DATE	DESCRIPTION	BY
4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JIK

DRAWN BY: CHECKED BY:

JIK DLF

KHA PROJECT NUMBER:

KHCLE-7604

ENGINEER SEAL:

FOR  
REFERENCE  
PURPOSES  
ONLY

PROJECT INFORMATION:

DN06267A  
CO46086-A  
SBA #: CO46086-A  
6753 SHOUP ROAD  
COLORADO SPRINGS, CO 80908

SHEET TITLE:

EQUIPMENT  
SPECIFICATIONS

SHEET NUMBER:

C-7

1 CABINET SPECIFICATIONS  
SCALE: NOT TO SCALE

T-Mobile

12920 SE 38TH STREET  
BELLEVUE, WA 98006



470 DAVIDSON ROAD  
PITTSBURGH, PA 15239  
TEL: (740) 260-9710

PLANS PREPARED BY:

Kimley»Horn

421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, NC 27601

REV: DATE: DESCRIPTION: BY:

REV	DATE	DESCRIPTION	BY
4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JK

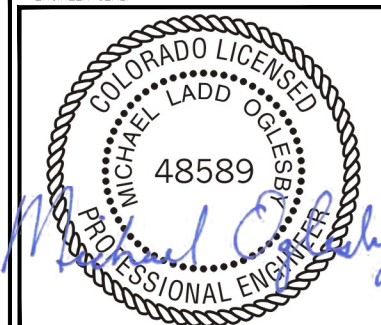
DRAWN BY: CHECKED BY:

JIK DLF

KHA PROJECT NUMBER:

KHCLE-7604

ENGINEER SEAL:



Exp. 10/31/23

PROJECT INFORMATION:

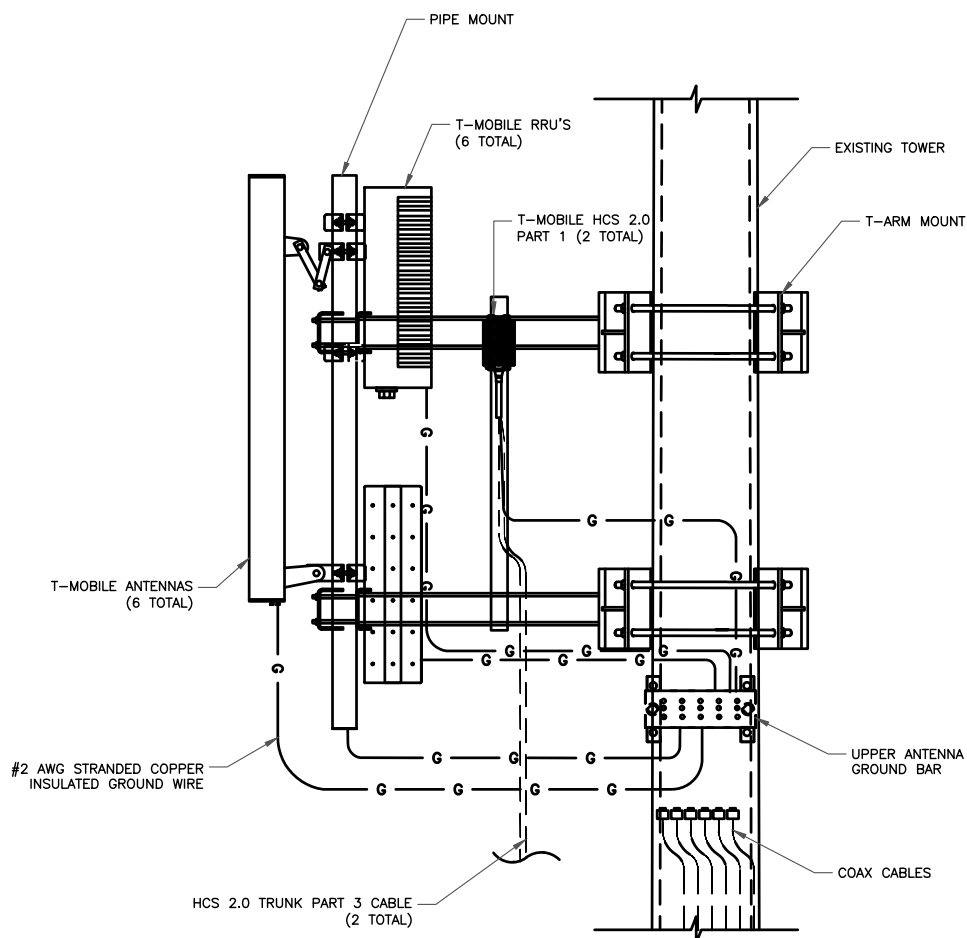
DN06267A  
CO46086-A  
SBA #: CO46086-A  
6753 SHOUP ROAD  
COLORADO SPRINGS, CO 80908

SHEET TITLE:

MOUNTING DETAIL

SHEET NUMBER:

C-8

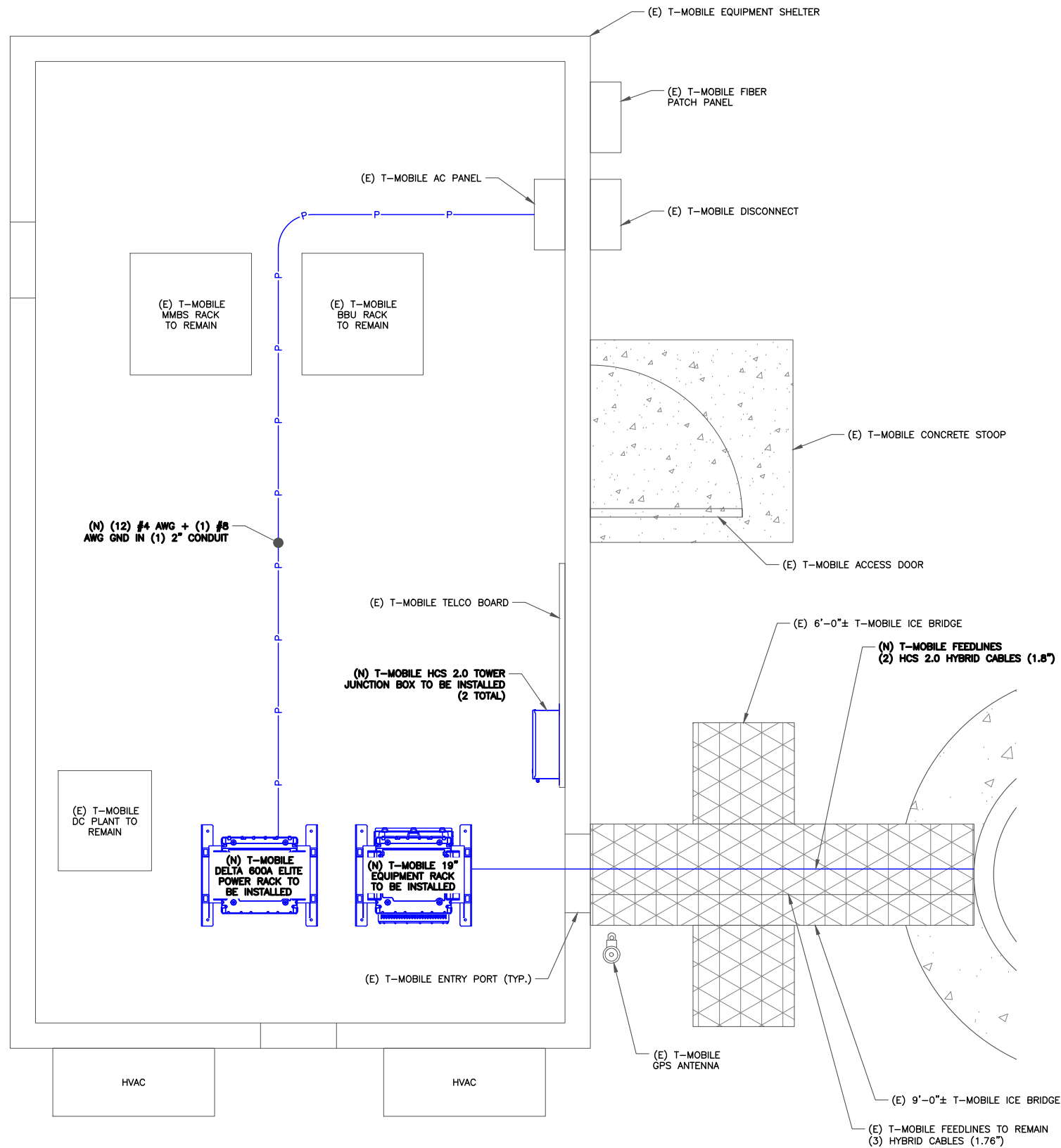


1 NOT USED  
SCALE: NOT TO SCALE

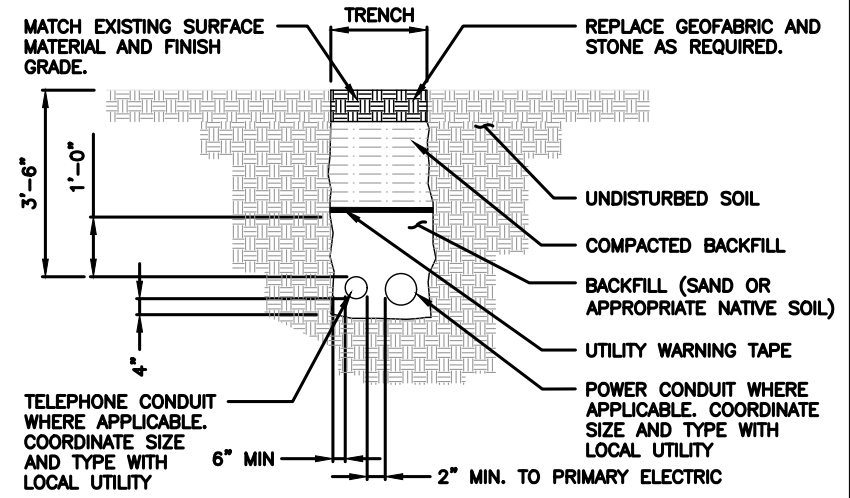
2 ANTENNA/RRU MOUNT DIAGRAM  
SCALE: NOT TO SCALE

**NOTES:**

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER.  
ALL CONDUCTORS SHALL BE XHHW-2.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.



**1** ELECTRICAL ROUTING  
SCALE: 3/4"=1'-0" (FULL SIZE)  
3/8"=1'-0" (11x17)



- NOTES:**
1. CONTRACTOR TO HAND DIG ALL NEW TRENCHES INSIDE COMPOUND.
  2. SEPARATION DIMENSION TO BE VERIFIED WITH LOCAL UTILITY COMPANY REQUIREMENTS.

**2** TRENCH DETAIL  
SCALE: NOT TO SCALE

**T-Mobile**  
12920 SE 38TH STREET  
BELLEVUE, WA 98006



470 DAVIDSON ROAD  
PITTSBURGH, PA 15239  
TEL: (740) 260-9710

PLANS PREPARED BY:

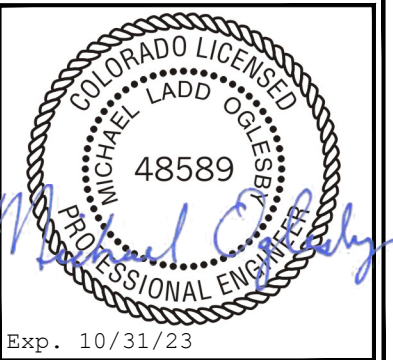
**Kimley»Horn**

421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, NC 27601

REV.	DATE	DESCRIPTION	BY
4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JK

DRAWN BY: JIK CHECKED BY: DLF

KHA PROJECT NUMBER: KHCL-7604



Exp. 10/31/23

PROJECT INFORMATION:  
DN06267A  
CO46086-A  
SBA #: CO46086-A  
6753 SHOUP ROAD  
COLORADO SPRINGS, CO 80908

SHEET TITLE:  
**ELECTRICAL ROUTING**

SHEET NUMBER:  
**E-1**

CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD VA	USAGE FACTOR	PHASE A VA	PHASE B VA	USAGE FACTOR	SERVICE LOAD VA	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
1	NEW POWER RACK	40*	2	ON	1,800	1.25	4500		1.25	1,800	ON	2	40*	NEW POWER RACK	2
3		40*	2	ON	1,800	1.25		4500	1.25	1,800	ON	2	40*		4
5	NEW POWER RACK	40*	2	ON	1,800	1.25	4500		1.25	1,800	ON	2	40*	NEW POWER RACK	6
7		40*	2	ON	1,800	1.25		4500	1.25	1,800	ON	2	40*		8
9	NEW POWER RACK	40*	2	ON	1,800	1.25	4500		1.25	1,800	ON	2	40*	NEW POWER RACK	10
11		40*	2	ON	1,800	1.25		4500	1.25	1,800	ON	2	40*		12
13	SPACE**	-	1	N/A	0	1.25	0		1.25	0	N/A	1	-	SPACE**	14
15	SPACE**	-	1	N/A	0	1.25	0		1.25	0	N/A	1	-	SPACE**	16
17	SPACE**	-	1	N/A	0	1.25	0		1.25	0	N/A	1	-	SPACE**	18
19	SPACE**	-	1	N/A	0	1.25	0		1.25	0	N/A	1	-	SPACE**	20
21	HVAC #1	50	2	ON	4,800	1.25	6000		1.25	0	ON	2	50	HVAC #2	22
23		50	2	ON	4,800	1.25		6000	1.25	0	ON	2	50		24
25	EXIST MMBS	100	2	ON	1,340	1.25	1675		1.25	0	OFF	2	60	UNKNOWN	26
27		100	2	ON	1,340	1.25		1675	1.25	0	OFF	2	60		28
29	CONV. OUTLET	20	1	ON	240	1.25	600		1.25	240	ON	1	20	LIGHTS	30
31	CONV. OUTLET	20	1	ON	240	1.25		925	1.25	500	ON	1	20	SMOKE DETECTOR	32
33	CONV. OUTLET	20	1	ON	240	1.25	300		1.25	0	OFF	2	35	UNKNOWN	34
35	CONV. OUTLET	20	1	ON	240	1.25	300		1.25	0	OFF	2	35		36
37	SURGE SUPPRESSOR	60	2	ON	0	1.25	300		1.25	240	ON	1	20	CONV. OUTLET	38
39		60	2	ON	0	1.25		180	1.00	180	ON	1	20	GFCI RECEPTACLE	40
							22375	22580							

OVERALL LOAD SUMMARY	
TOTAL SERVICE LOAD kVA	44.96
AMPS	187.31

= Loading provided by T-Mobile.
  = Assumed maximum loading per breaker size.
   
 \* = New 40A Breaker      \*\* = Remove existing rectifier breaker and cover space with insert

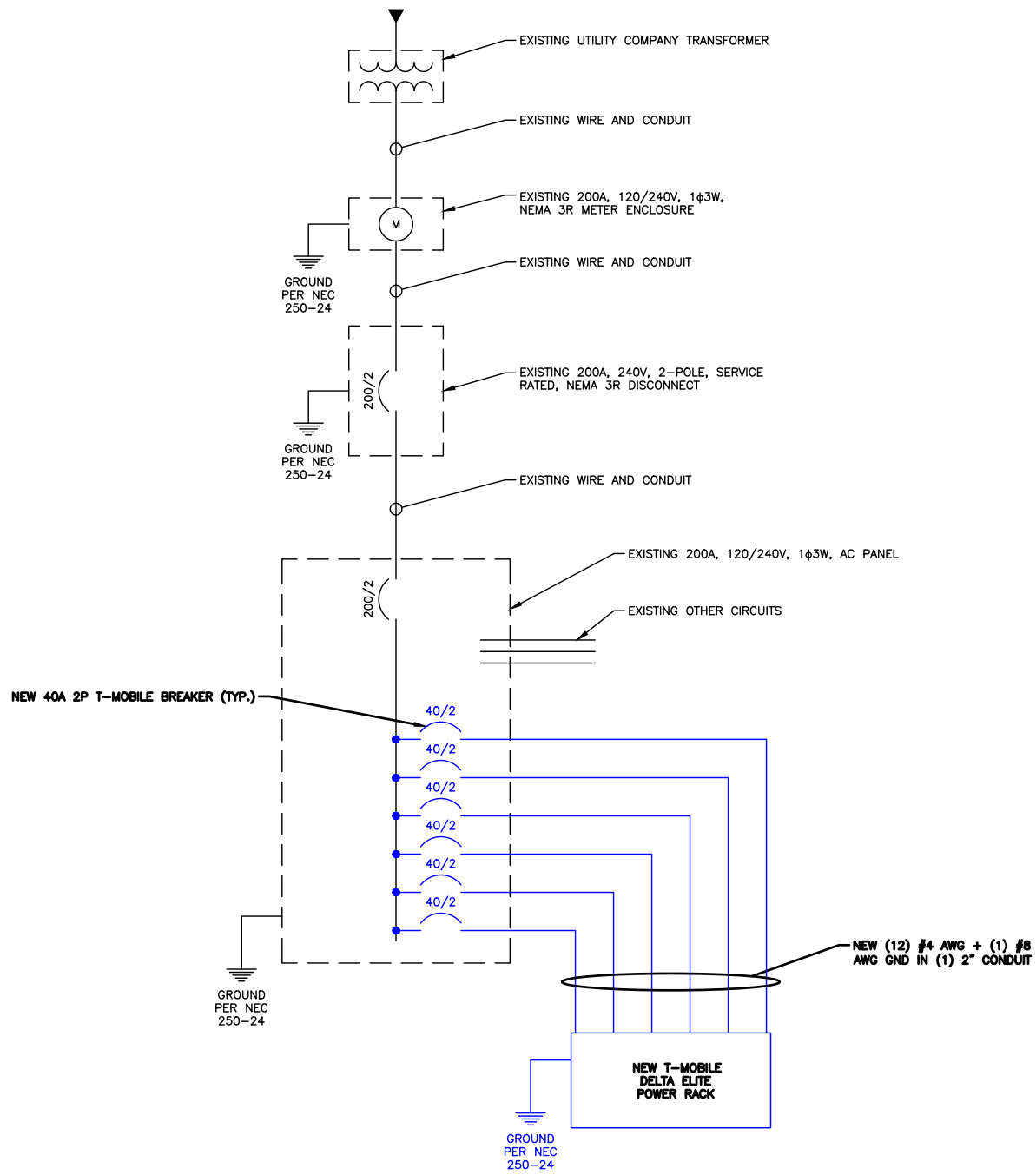
### 1 ELECTRICAL PANEL SCHEDULE

- CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS OF THE CONTRACTORS FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
- LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO ROUGH-IN.
- THE CONDUIT RUNS AS SHOWN ON THE PLANS ARE APPROXIMATE. EXACT LOCATION AND ROUTING SHALL BE PER EXISTING FIELD CONDITIONS.
- PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY NEC.
- ALL CONDUITS SHALL BE MET WITH BENDS MADE IN ACCORDANCE WITH NEC TABLE 346-10. NO RIGHT ANGLE DEVICE OTHER THAN STANDARD CONDUIT ELBOWS WITH 1/2" MINIMUM INSIDE SWEEPS FOR ALL CONDUITS 2" OR LARGER.
- ALL CONDUIT TERMINATION'S SHALL BE PROVIDED WITH PLASTIC THROAT INSULATING GROUNDING BUSHINGS.
- ALL WIRE SHALL BE TYPE THHN/THWN, SOLID ANNEALED COPPER UP TO SIZE #10 (#8 AND LARGER SHALL BE CONCENTRIC STRANDED) 75 DEGREE C (164 DEGREE F), 98% CONDUCTIVITY, MINIMUM #12.
- ALL WIRES SHALL BE TAGGED AT ALL PULL BOXES, J-BOXES, EQUIPMENT BOXES AND CABINETS WITH APPROVED PLASTIC TAGS, ACTION CRAFT, BRADY, OR APPROVED EQUAL.
- ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
- CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION TO CONFLICTS. VERIFY WITH MECHANICAL CONTRACTOR AND COMPLY AS REQUIRED.
- ALL PANEL DIRECTORIES SHALL BE TYPED NOT HAND WRITTEN.
- INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.
- THE CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS, DOCUMENT ANY AND ALL WIRING AND EQUIPMENT CONDITIONS AND CHANGES WHILE COMPLETING THIS CONTRACT. SUBMIT AT SUBSTANTIAL COMPLETION.
- ALL DISCONNECT SWITCHES AND OTHER CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM (NO EXCEPTIONS).
- ALL ELECTRICAL DEVICES AND INSTALLATIONS OF THE DEVICES SHALL COMPLY WITH (ADA) AMERICANS WITH DISABILITIES ACT AS ADOPTED BY THE APPLICABLE STATE.
- PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS OR RISERS THROUGH BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT CONSTRUCTIONS MANAGERS APPROVAL. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE PACKED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FILL FOR FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.
- ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT (NEW AND EXISTING) SHALL BE FIELD VERIFIED WITH THE OWNER'S REPRESENTATIVE AND EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN OF CONDUIT AND WIRE. ALL EQUIPMENT SHALL BE PROPERLY CONNECTED ACCORDING TO THE NAMEPLATE DATA FURNISHED ON THE EQUIPMENT (THE DESIGN OF THESE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN AND SOME EQUIPMENT CHARACTERISTICS MAY VARY FROM DESIGN AS SHOWN ON THESE DRAWINGS. LOCATION OF ALL OUTLET, BOXES, ETC., AND THE TYPE OF CONNECTION (PLUG OR DIRECT) SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
- FOR FLEXIBLE LIQUID TIGHT CONDUIT PROVIDE GLAND TYPE COMPRESSION FITTINGS. SET SCREW OR QUICK-CONNECT FITTINGS SHALL NOT BE ACCEPTABLE.
- FLEXIBLE CONDUITS SHALL BE USED FOR CONNECTION OF EQUIPMENT SUBJECT TO VIBRATION, NOISE TRANSMISSION OR MOVEMENT AND ALL MOTORS, RECESSED AND SEMI-RECESSED LIGHT FIXTURES. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED 6-FEET, SUBJECT TO NEC LIMITATIONS. FLEXIBLE CONDUITS SHALL NOT BE USED WHERE SUBJECT TO MECHANICAL DAMAGE.
- CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
- RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS. RIGID CONDUIT SHALL BE STEEL, COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZED PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1, FEDERAL SPECIFICATION WW-C-581 AND SHALL BE LISTED WITH THE UNDERWRITERS' LABORATORIES. EXTERIOR UNDERGROUND CONDUIT AND CONDUIT IN CONCRETE SHALL BE POLYVINYL CHLORIDE (PVC) SCHEDULE 40. JOINTS SHALL BE BELLED, AND FLUSH SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. UNDERGROUND ELBOW SWEEPS, AND TRANSITIONS TO ABOVE GROUND SHALL BE SCHEDULE 80 PVC OR SCHEDULE 40 GALVANIZED.

### 2 ELECTRICAL NOTES

#### NOTES:

- ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, OR XHHW-2 UNLESS NOTED OTHERWISE.
- CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- ALL GROUNDING AND BONDING PER THE NEC.



### 3 ONE-LINE DIAGRAM

SCALE: NOT TO SCALE

12920 SE 38TH STREET  
 BELLEVUE, WA 98006

470 DAVIDSON ROAD  
 PITTSBURGH, PA 15239  
 TEL: (740) 260-9710

PLANS PREPARED BY:

421 FAYETTEVILLE ST, SUITE 600  
 RALEIGH, NC 27601

REV: DATE: DESCRIPTION: BY:

4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JK

DRAWN BY: JIK CHECKED BY: DLF

KHA PROJECT NUMBER: KHCL-7604

ENGINEER SEAL:

Exp. 10/31/23

PROJECT INFORMATION:

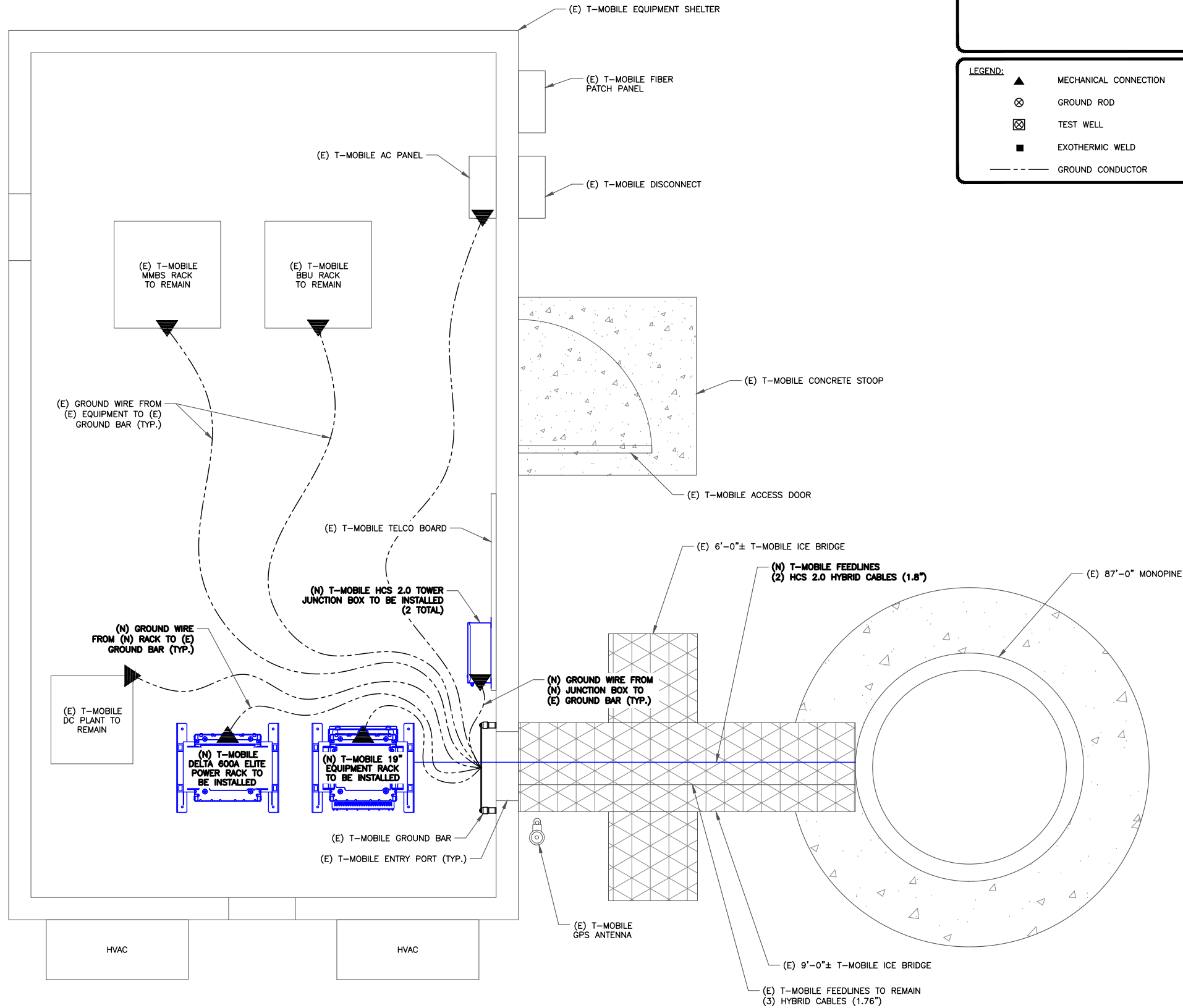
DN06267A  
 CO46086-A  
 SBA #: CO46086-A  
 6753 SHOUP ROAD  
 COLORADO SPRINGS, CO 80908

SHEET TITLE:  
**PANEL SCHEDULE  
 & ONE-LINE DIAGRAM**

SHEET NUMBER:

E-2

(E) COMPOUND CHAIN LINK FENCE



**INSTALLER NOTE:**  
ALL TRENCHING REQUIRED WITHIN COMPOUND SHALL BE PERFORMED BY HAND-DIGGING ONLY.

**LEGEND:**

- ▲ MECHANICAL CONNECTION
- ⊗ GROUND ROD
- ⊠ TEST WELL
- EXOTHERMIC WELD
- GROUND CONDUCTOR

**T-Mobile**  
12920 SE 38TH STREET  
BELLEVUE, WA 98006

**SBA**

470 DAVIDSON ROAD  
PITTSBURGH, PA 15239  
TEL: (740) 260-9710

PLANS PREPARED BY:

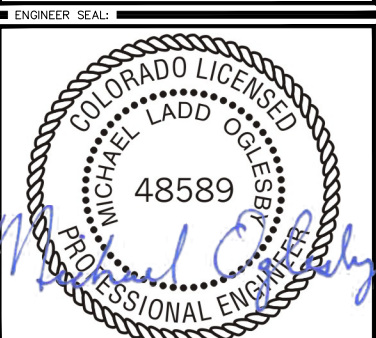
**Kimley»Horn**

421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, NC 27601

REV.	DATE	DESCRIPTION	BY
4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JK

DRAWN BY: JIK CHECKED BY: DLF

KHA PROJECT NUMBER: KHCL-7604



Exp. 10/31/23

PROJECT INFORMATION:

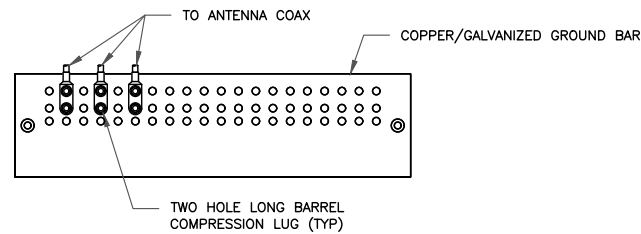
DN06267A  
CO46086-A  
SBA #: CO46086-A  
6753 SHOUP ROAD  
COLORADO SPRINGS, CO 80908

SHEET TITLE:  
**GROUNDING DIAGRAM**

SHEET NUMBER:  
**G-1**

**1** EQUIPMENT GROUNDING PLAN  
SCALE: 3/4"=1'-0" (FULL SIZE)  
3/8"=1'-0" (11x17)

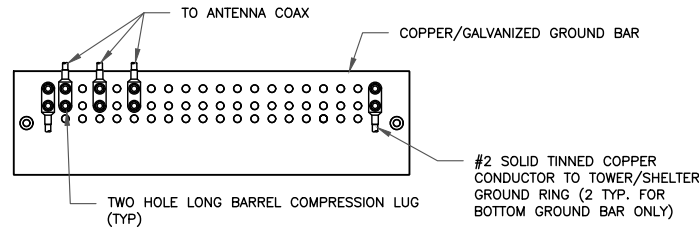




NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL.

1 ANTENNA GROUND BAR DETAIL  
SCALE: NOT TO SCALE

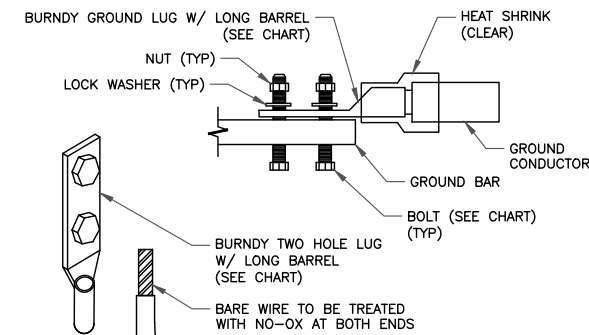


NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL  
SCALE: NOT TO SCALE

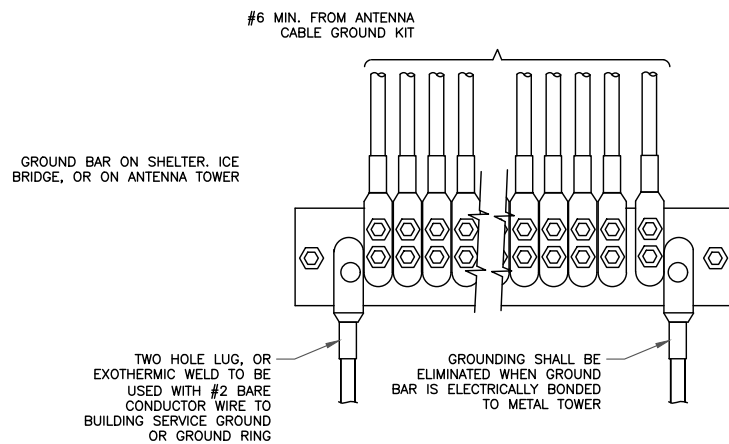
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



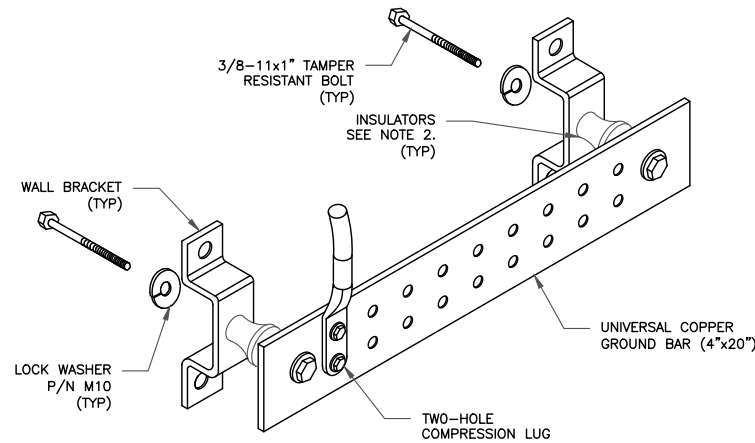
NOTE:

ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

3 MECHANICAL LUG CONNECTION  
SCALE: NOT TO SCALE



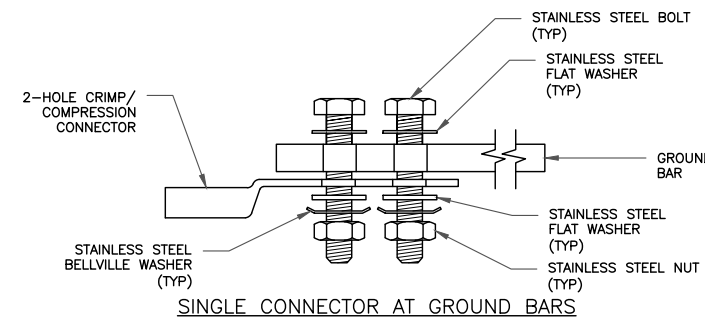
4 GROUNDWIRE INSTALLATION  
SCALE: NOT TO SCALE



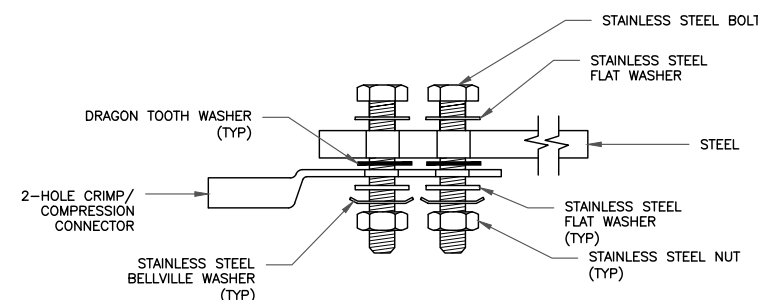
NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL. USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

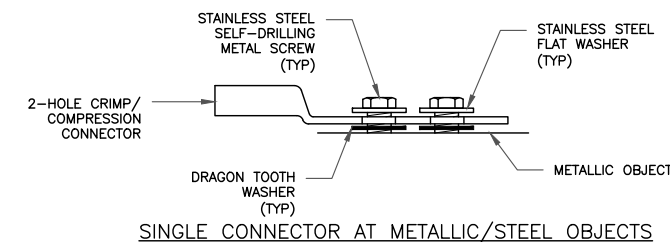
5 GROUND BAR DETAIL  
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

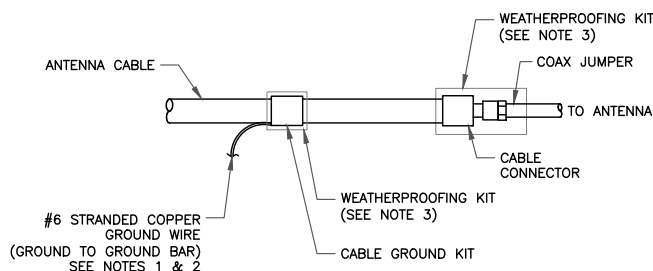


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

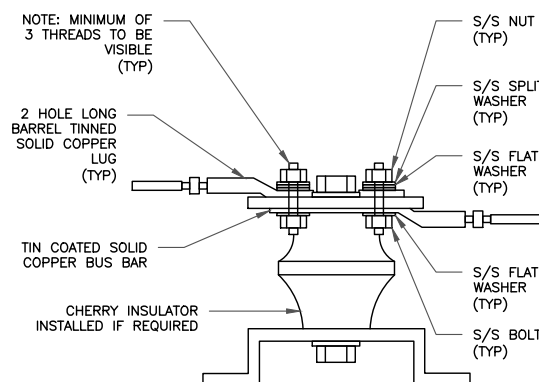
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS  
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

6 CABLE GROUND KIT CONNECTION  
SCALE: NOT TO SCALE



7 LUG DETAIL  
SCALE: NOT TO SCALE

T-Mobile

12920 SE 38TH STREET  
BELLEVUE, WA 98006



470 DAVIDSON ROAD  
PITTSBURGH, PA 15239  
TEL: (740) 260-9710

PLANS PREPARED BY:

Kimley Horn

421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, NC 27601

REV: DATE: DESCRIPTION: BY:

REV	DATE	DESCRIPTION	BY
4	12/15/21	REVISED PER CLIENT	DLF
3	10/28/21	REVISED PER CLIENT	DLF
2	09/15/21	REVISED PER CLIENT	DLF
1	04/28/21	REVISED PER CLIENT	DLF
0	04/22/21	ISSUED FOR CONSTRUCTION	DLF
A	03/16/21	ISSUED FOR REVIEW	JK

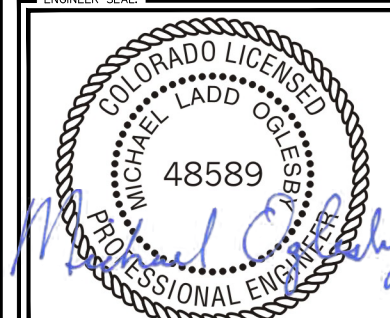
DRAWN BY: CHECKED BY:

JK DLF

KHA PROJECT NUMBER:

KHCL-7604

ENGINEER SEAL:



Exp. 10/31/23

PROJECT INFORMATION:

DN06267A  
CO46086-A  
SBA #: CO46086-A  
6753 SHOUP ROAD  
COLORADO SPRINGS, CO 80908

SHEET TITLE:

GROUNDING  
DETAILS

SHEET NUMBER:

G-2