



**T-MOBILE SITE #:**  
**DN04166E**  
**T-MOBILE SITE NAME:**  
**WIDEFIELD - ATC**

**L600 PROJECT**

**SITE ADDRESS:**  
**509 WIDEFIELD DRIVE**  
**COLORADO SPRINGS, CO 80911**

PLANS PREPARED FOR:  
**T-Mobile**  
 T-MOBILE WEST LLC  
 18400 EAST 22ND AVENUE  
 AURORA, CO 80011

PLANS PREPARED BY:  
**INFINIGY**  
**ENGINEERING, PLLC**  
 1490 W. 121ST AVE., SUITE 101  
 WESTMINSTER, COLORADO 80234  
 JOB NUMBER 317-701

MLA PARTNER:  
**AMERICAN TOWER CORPORATION**

ENGINEERING LICENSE:

DRAWING NOTICE:  
 THESE DOCUMENTS ARE CONFIDENTIAL AND ARE THE SOLE PROPERTY OF T-MOBILE AND MAY NOT BE REPRODUCED, DISSEMINATED OR REDISTRIBUTED WITHOUT THE EXPRESS WRITTEN CONSENT OF T-MOBILE.

REVISIONS:			
DESCRIPTION	DATE	BY	REV
REVISED PCC/ISSUED FOR CONSTRUCTION	10/04/19	CAM	3
REVISED/ISSUED FOR CONSTRUCTION	09/17/19	CAP	2
REVISED/ISSUED FOR CONSTRUCTION	08/20/19	ESQ	1
ISSUED FOR CONSTRUCTION	04/25/19	CTL	0

SITE NAME:  
**WIDEFIELD - ATC**

T-MOBILE SITE #:  
**DN04166E**

ATC SITE #:  
**370609**

SITE ADDRESS:  
**509 WIDEFIELD DRIVE**  
**COLORADO SPRINGS, CO 80911**

SHEET DESCRIPTION:  
**TITLE SHEET & PROJECT DATA**

SHEET NUMBER:  
**T-1**

**SCOPE OF WORK**

THE SCOPE OF WORK WORK CONSISTS OF:

1. REMOVE (3) EXISTING PANEL ANTENNAS
2. REMOVE (3) EXISTING FRBG & (3) EXISTING FHFB
3. INSTALL (6) NEW PANEL ANTENNAS
4. REUSE (2) EXISTING COVPS; (1) AT GROUND LEVEL & (1) AT MOUNT LEVEL
5. REUSE (3) EXISTING FRIJ
6. REMOVE EXISTING (2) FSMF & (3) FBBC FROM EQUIPMENT AT GRADE
7. INSTALL (2) NEW AMOB, (2) ASIA, (4) ABIA, (1) ASIK & (1) ABIL
8. INSTALL (3) NEW AHLOA

**DRIVING DIRECTIONS**

DRIVING DIRECTIONS FROM T-MOBILE OFFICE  
 AT: 18400 E. 22ND AVENUE, AURORA, CO 80011:

1. LEAVE E 22ND AVE TOWARDS TOWER RD 243 FT
2. TURN RIGHT ON TO TOWER RD 0.6 MI
3. TURN LEFT ON TO CO-83 N / S ACADEMY BLVD 0.8 MI
4. TURN RIGHT ON TO US-85 S / S US-85-87 1.4 MI
5. TURN LEFT ON TO MAIN ST 0.4 MI
6. TURN RIGHT ON TO NORMAN DR 0.1 MI
7. TURN LEFT ON TO WIDEFIELD DR 453 FT

ARRIVED @ 509 WIDEFIELD DRIVE, COLORADO SPRINGS, CO 80911.

DESTINATION WILL BE ON THE LEFT  
 TOTAL TRAVEL ESTIMATE: 82 MI, 1 HR 55 MINUTES

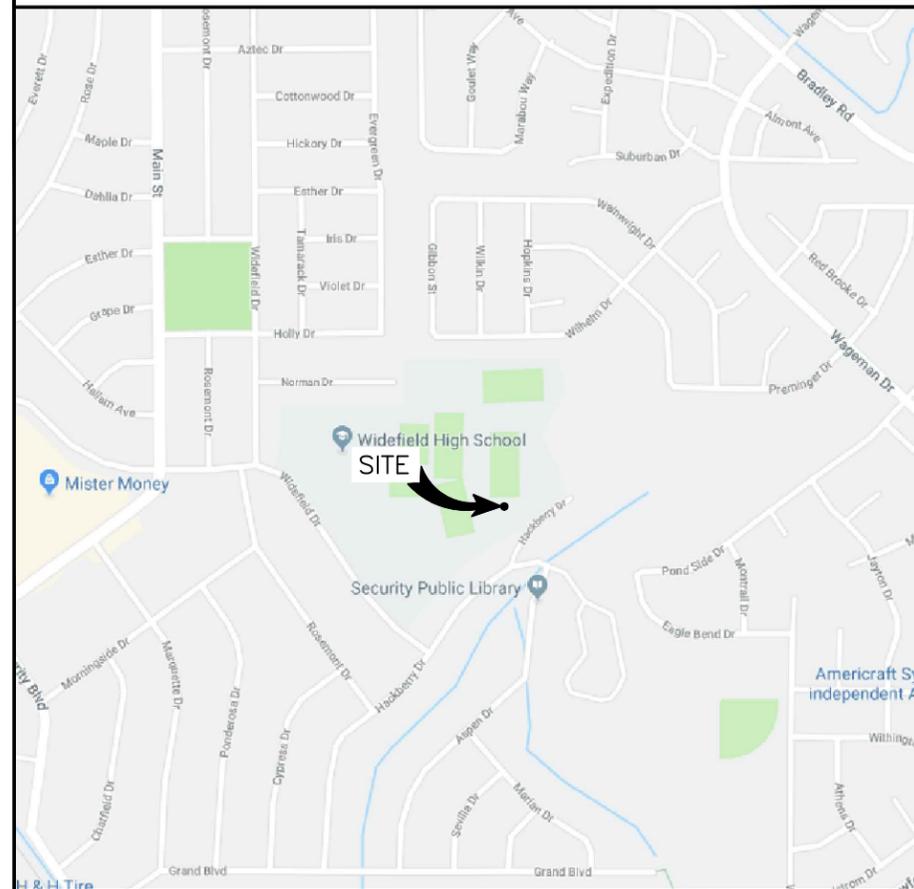
**PROFESSIONAL LICENSURE**

I CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF THE GOVERNING LOCAL BUILDING CODE.

LICENSED PROFESSIONAL

EXPIRES: SIGNED:

**AERIAL MAP**



**SITE**



**GENERAL NOTES:**

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

THE SEAL CERTIFIES ONLY THE CIVIL ENGINEERING DESIGN AND RELATED DETAILS SHOWN ON THESE PLANS. THIS SEAL DOES NOT CERTIFY ANY ARCHITECTURAL, ELECTRICAL, MECHANICAL, STRUCTURAL DESIGN, AND RELATED DETAILS INCLUDED IN THESE PLANS.

FOR SITES WHERE A CRANE IS NECESSARY, THE CONTRACTOR SHALL CONFIRM AN UNOBSTRUCTED ROUTE FOR THE CRANE FROM PUBLIC ROAD TO TOWER SITE PRIOR TO CONSTRUCTION. NO AERIAL OBSTRUCTIONS UNDER FIFTEEN FEET ABOVE GRADE, INCLUDING AERIAL UTILITY LINES, ARE ALLOWED ALONG SAID CRANE ROUTE.

GC SHALL CONTACT THE A&E FIRM PRIOR TO BIDWALK AND CONSTRUCTION START TO CONFIRM THAT DRAWINGS ARE THE MOST RECENT SET.

**PROJECT INFORMATION**

**SITE INFORMATION:**

LATITUDE: N 38° 45' 17.4" (NAD 83)

LONGITUDE: W 104° 43' 50.0" (NAD 83)

SITE TYPE: MONOPOLE TOWER

ATC PROJECT MANAGER: HERBERT HAMLIN  
 Herbert.Hamlin@americantower.com  
 PHONE: (303) 618-3202

ENGINEERING CONTACT: INFINIGY ENGINEERING, PLLC.  
 PAUL BUONO  
 1490 W. 121ST AVENUE, SUITE 101  
 WESTMINSTER, CO 80234  
 PHONE: (303) 219-1178

TOWER OWNER: AMERICAN TOWER CORPORATION  
 1658 COLE BLVD., SUITE 205  
 LAKEWOOD, CO 80401

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

**CODES:**

1. INTERNATIONAL BUILDING CODE 2012
2. NATIONAL ELECTRIC CODE (NEC)
3. AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
4. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION
5. TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL TOWER AND ANTENNA SUPPORTING STRUCTURES
6. TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

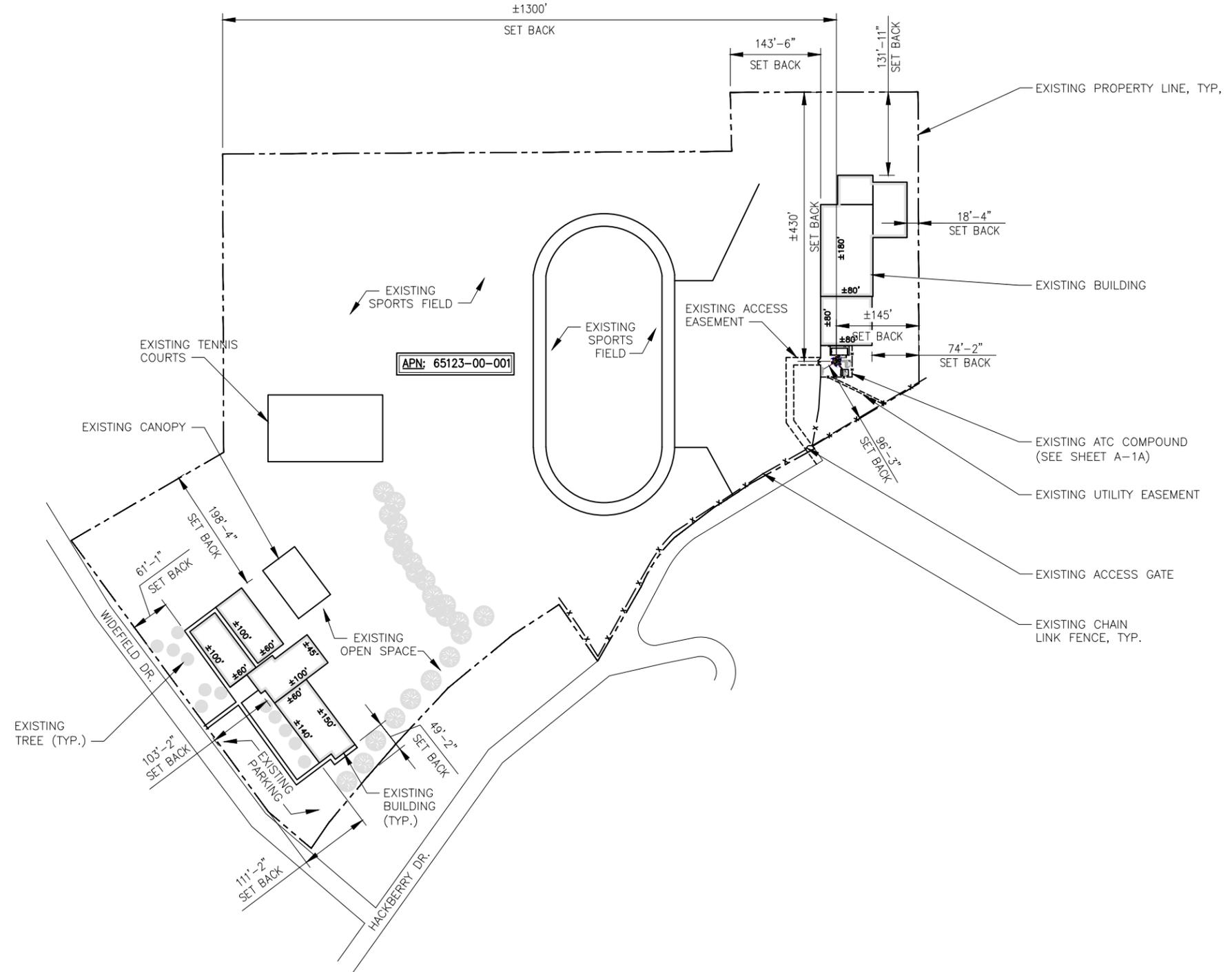


Know what's below.  
 Call before you dig.

TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN COLORADO, CALL COLORADO 811  
 TOLL FREE: 1-800-922-1987 OR www.co811.org  
 COLORADO STATUTE REQUIRES MIN OF 2 WORKING DAYS NOTICE BEFORE YOU EXCAVATE

PPR 1928  
 WIDEFIELD HS TOWER - T-MOBILE UPGRADE  
 509 WIDEFIELD DR  
 65123-00-001  
 A-5 CAD-0

TRACTS DES BY WD 207773, 206551, 441281, ADJ  
 TR BOUNDED BY AFSD TRACTS ON THE NE, SECURITY  
 AND 5 ON THE SE, SECURITY ADD 9 ON THE SW,  
 SECURITY ADD 10 ON THE NW IN SW4 SEC 12-15-66



APN: 65123-00-001

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 18400 EAST 22ND AVENUE  
 AURORA, CO 80011

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 JOB NUMBER 317-701

MLA PARTNER:

AMERICAN  
 TOWER  
 CORPORATION

ENGINEERING LICENSE:

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ISSUED FOR CONSTRUCTION	04/25/19	CTL	0

SITE NAME:  
**WIDEFIELD - ATC**

T-MOBILE SITE #:  
**DN04166E**

ATC SITE #:  
**370609**

SITE ADDRESS:  
**509 WIDEFIELD DRIVE  
 COLORADO SPRINGS, CO 80911**

SHEET DESCRIPTION:  
**SITE PLAN**

SHEET NUMBER:  
**A-1**

INFORMATION CONTAINED WITHIN DRAWINGS IS BASED ON PROVIDED INFORMATION AND IS NOT THE RESULT OF A FIELD SURVEY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.

SITE PLAN

22"x34" SCALE: 1" = 200'-0"  
 11"x17" SCALE: 1" = 400'-0"



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18400 EAST 22ND AVENUE  
AURORA, CO 80011

PLANS PREPARED BY:



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COLORADO SPRINGS, CO 80911

SHEET DESCRIPTION:

COMPOUND PLAN

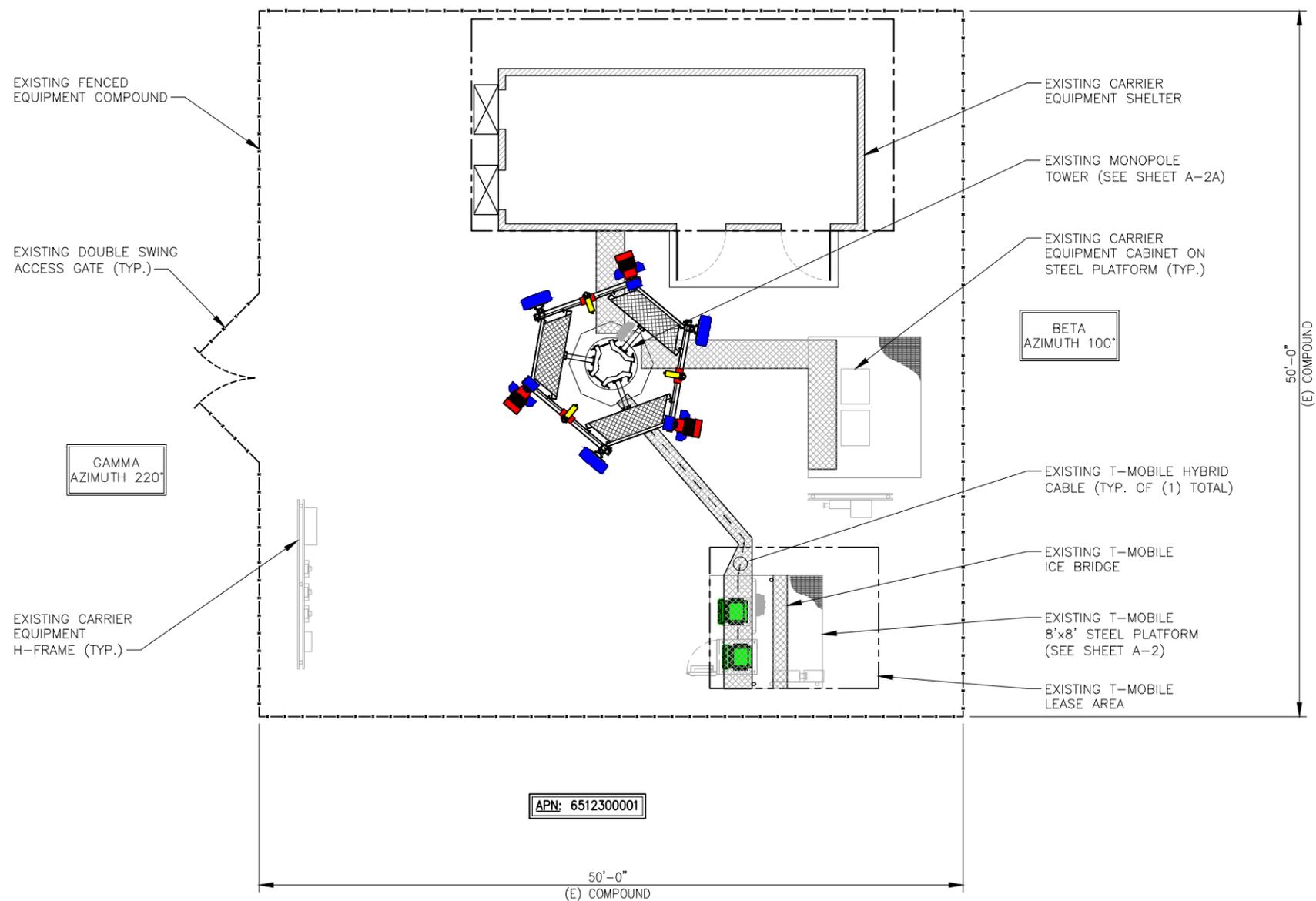
SHEET NUMBER:

A-1A

LEGEND & SYMBOLS

- UTILITY POLE
- SIGN
- TELCO PEDESTAL
- FIRE HYDRANT
- LIGHT STANDARD
- INLET
- CATCH BASIN
- MANHOLE
- TRAFFIC SIGNAL
- ROW MARKER
- IRON PIPE SET
- IRON PIPE FOUND
- BUFFALO BOX
- VALVE BOX
- HORIZONTAL CONTROL POINT
- HANDICAPPED PARKING SPACE
- DT 10" DECIDUOUS TREE W/SIZE
- CT 10" CONIFEROUS TREE W/SIZE
- BRUSH
- TREE LINE
- CONTOUR W/ELEVATION
- EXISTING GUARDRAIL
- CHAIN LINK FENCE
- IRON FENCE
- WOOD FENCE
- OVERHEAD WIRES
- LOT LINE
- PROPERTY LINE
- LEASE AREA LINE
- UTILITY EASEMENT LINE
- CENTER LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND GAS LINE
- UNDERGROUND FIBER LINE
- UNDERGROUND TELCO LINE
- UNDERGROUND FIBER LINE
- UNDERGROUND STORM/SANITARY SEWER LINE
- UNDERGROUND WATER LINE
- UNDERGROUND COMMUNICATION/MONITORING LINE
- CONCRETE
- ASPHALT
- GRAVEL
- CULTIVATED FIELD
- GRASS AREA
- ICE BRIDGE
- STEEL PLATFORM

ALPHA  
AZIMUTH 340°



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COMPOUND PLAN

22"x34" SCALE: 1" = 5'-0"  
11"x17" SCALE: 1" = 10'-0"



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WIDEFIELD - ATC

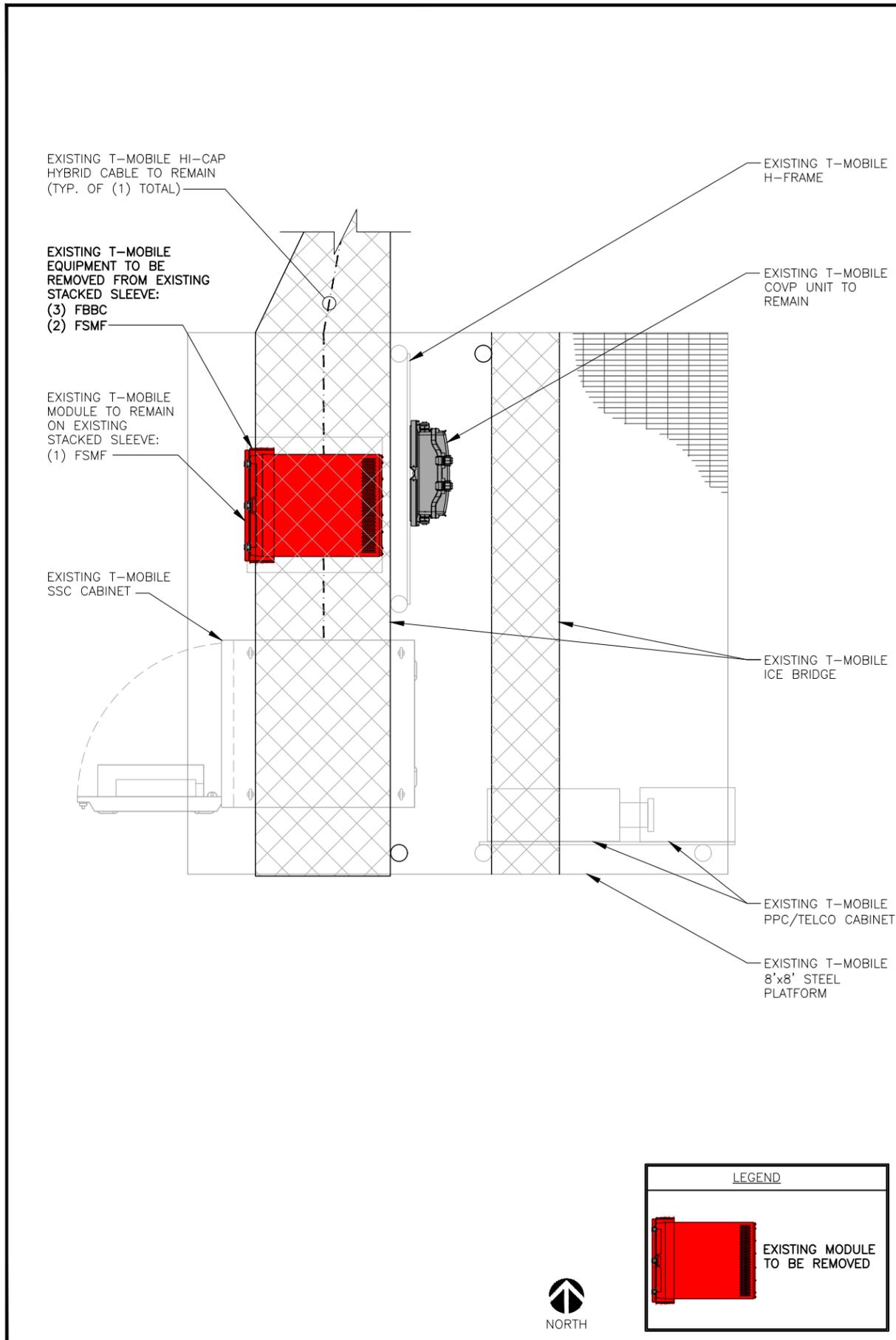
DN04166E

370609

509 WIDEFIELD DRIVE  
COLORADO SPRINGS, CO 80911

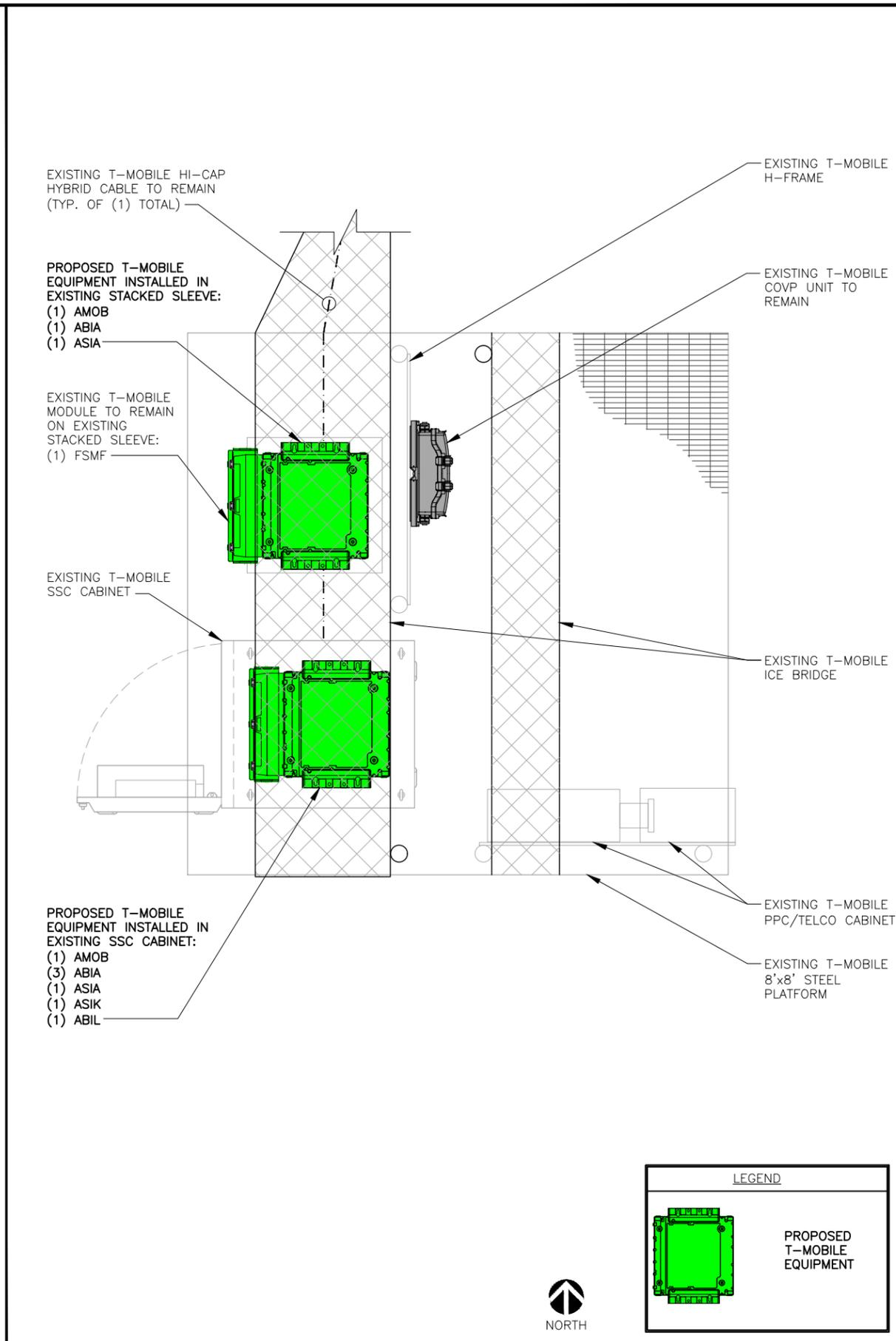
EXISTING & PROPOSED  
ENLARGED  
EQUIPMENT LAYOUT

A-2



EXISTING EQUIPMENT LAYOUT

1



PROPOSED EQUIPMENT LAYOUT

2

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WIDEFIELD - ATC

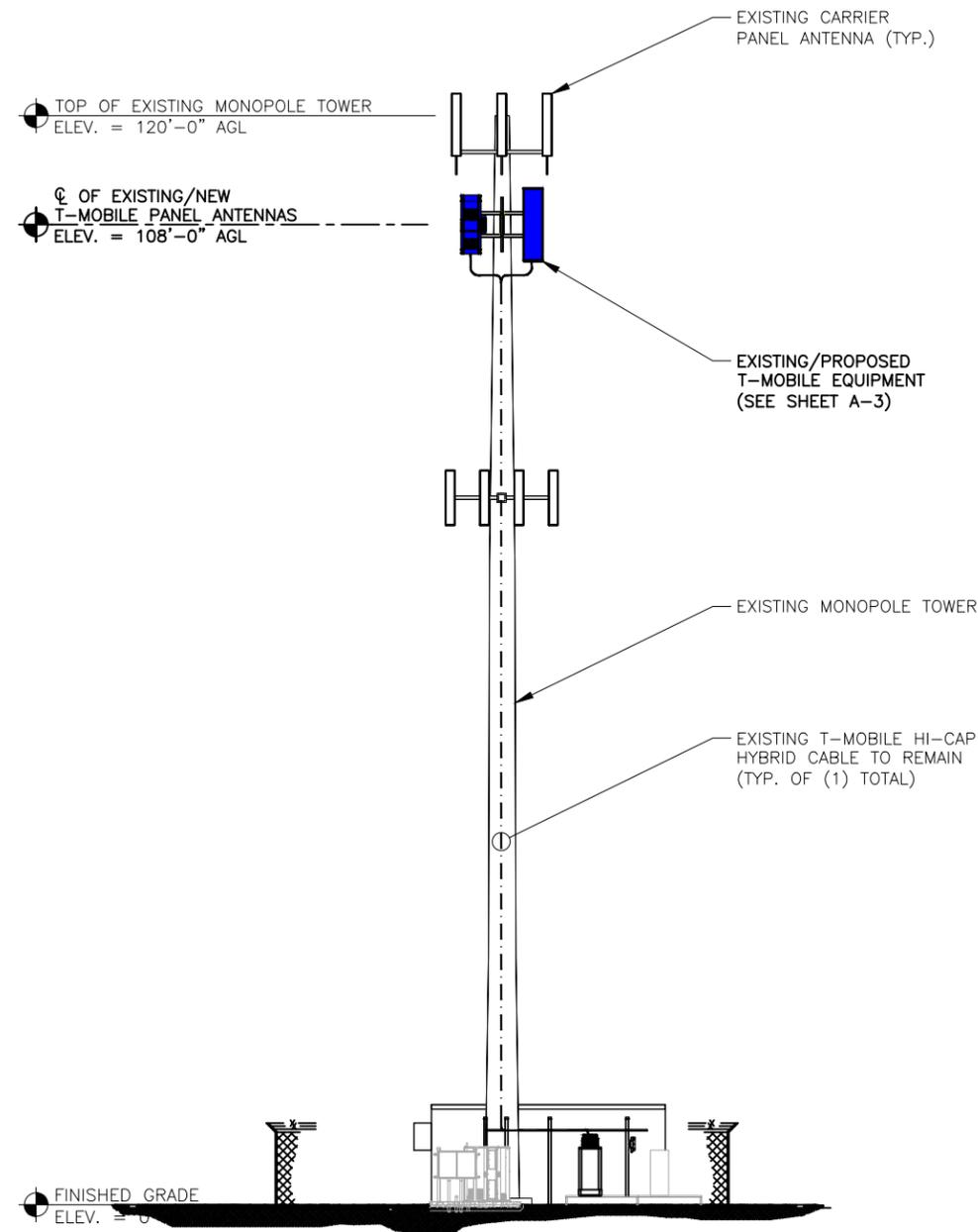
DN04166E

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ELEVATION & DETAILS

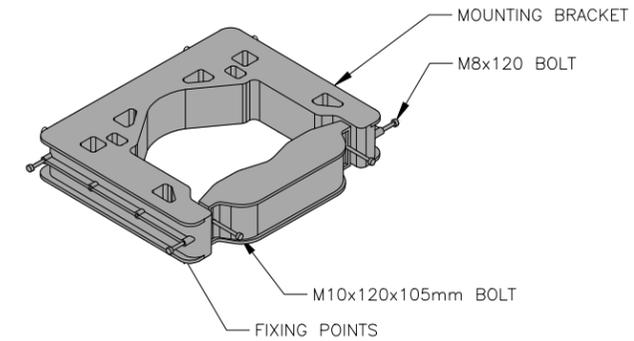
A-2A



SPECIAL NOTES:

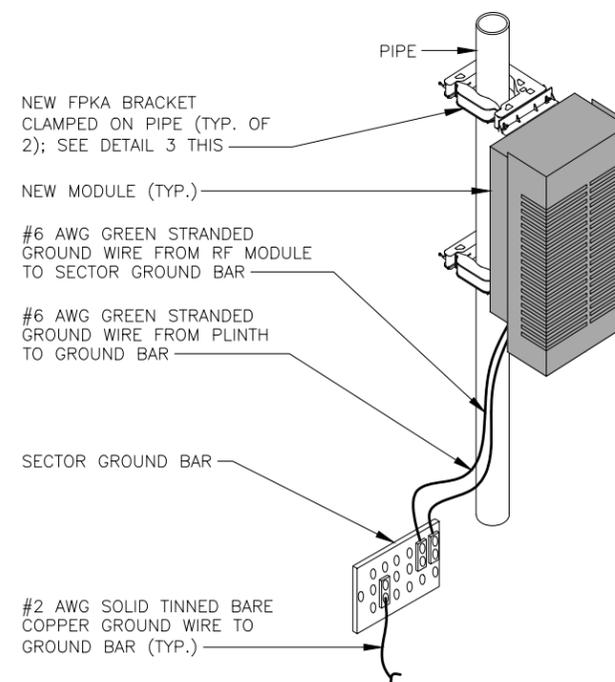
- GC TO VERIFY ALL HEIGHTS AND AZIMUTHS IN FIELD PRIOR TO CONSTRUCTION. GC SHALL NOTIFY T-MOBILE AND ENGINEER OF DISCREPANCIES IMMEDIATELY.
- STRUCTURAL/ DESIGN & ANALYSIS SHALL BE PERFORMED & APPROVED BY TOWER OWNER AND MANUFACTURER (STRUCTURAL ANALYSIS BY OTHERS)
- STRUCTURAL ANALYSIS PERFORMED BY OTHERS. CONTRACTOR TO THOROUGHLY REVIEW THE TOWER STRUCTURAL ANALYSIS FOR INFORMATION PERTAINING TO TOWER UPGRADES, MOUNTING TYPES, ANTENNA HEIGHTS, AND CABLE ROUTING, ANY OTHER DISCREPANCIES BETWEEN THE DRAWINGS, STRUCTURAL ANALYSIS, AND TOWER PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING AND INSTALLATION.

NOTE:  
EXISTING/PROPOSED GROUND LEVEL EQUIPMENT NOT SHOWN FOR CLARITY



FPKA BRACKET DETAIL

NOT TO SCALE 2



TYPICAL AHLOA UNIT MOUNTING DETAIL

NOT TO SCALE 3

TOWER ELEVATION

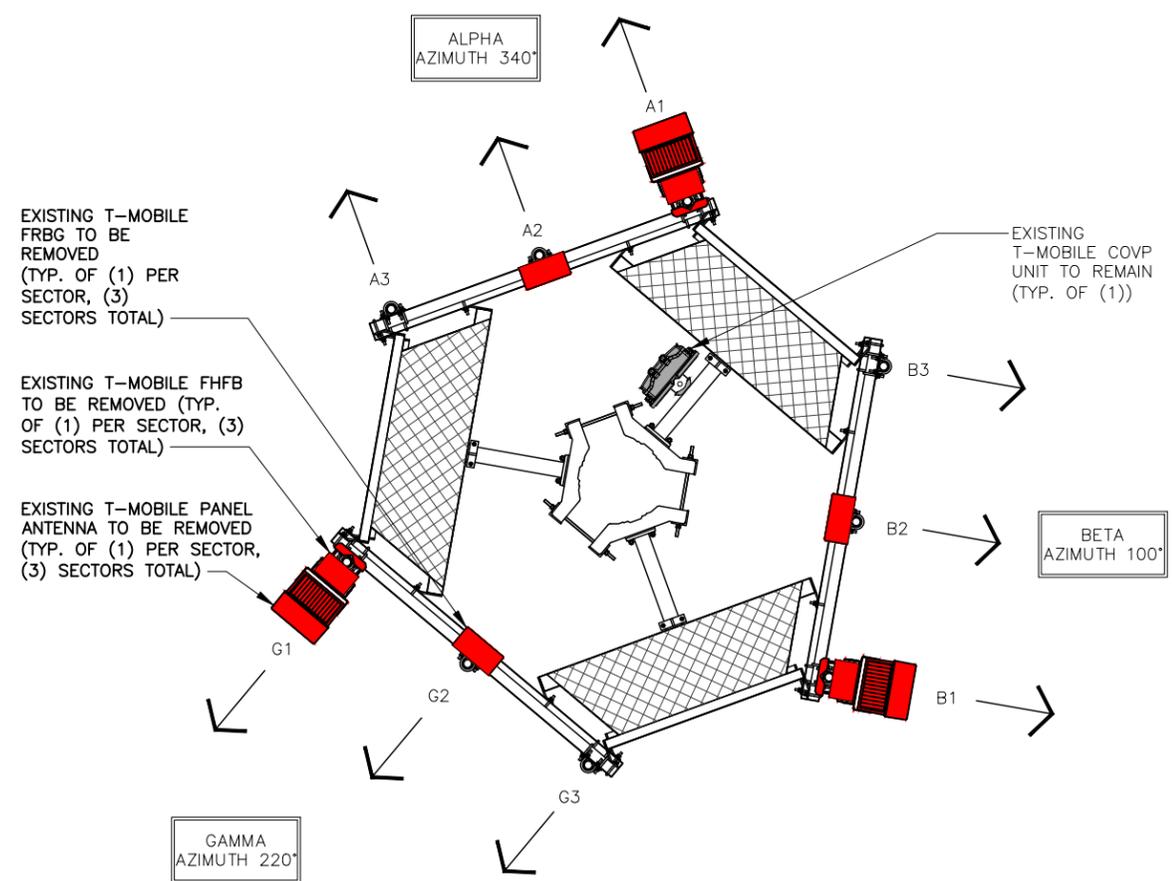
22"x34" SCALE: 1" = 10'-0"  
11"x17" SCALE: 1" = 20'-0"  
20'-0" 10'-0" 0" 20'-0"

TYPICAL AHLOA UNIT MOUNTING DETAIL

NOT TO SCALE 3

**LEGEND**

-  EXISTING FRBG TO BE REMOVED
-  EXISTING FHFB TO BE REMOVED
-  EXISTING COVP
-  EXISTING ANTENNA TO BE REMOVED



**EXISTING T-MOBILE ANTENNA CONFIGURATION**

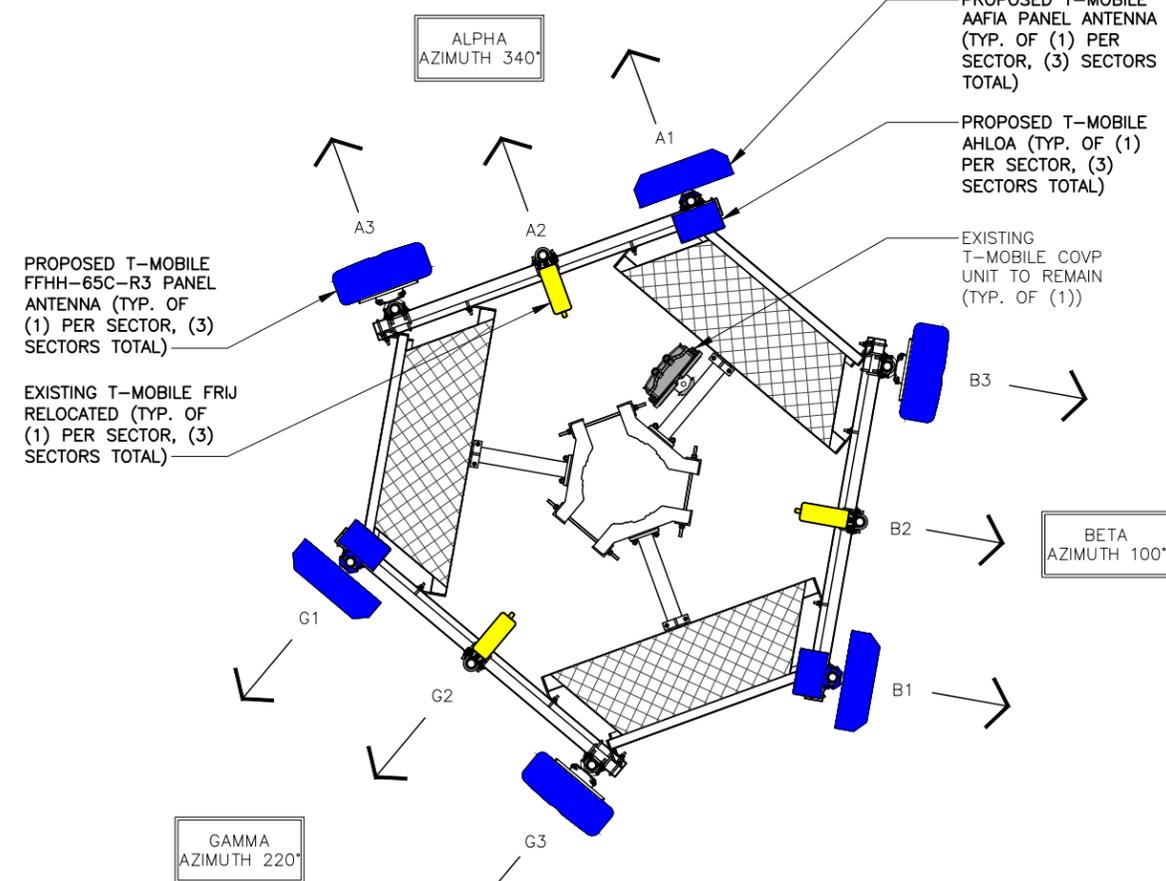
22"x34" SCALE: 1" = 2'-0"  
11"x17" SCALE: 1" = 4'-0"



1

**LEGEND**

-  NEW ANTENNA
-  RELOCATED FRU
-  EXISTING COVP
-  NEW AHLOA



**PROPOSED T-MOBILE ANTENNA CONFIGURATION**

22"x34" SCALE: 1" = 2'-0"  
11"x17" SCALE: 1" = 4'-0"



2

**SPECIAL NOTES:**  
STRUCTURAL ANALYSIS PERFORMED BY OTHERS. CONTRACTOR TO THOROUGHLY REVIEW THE TOWER & MOUNT STRUCTURAL ANALYSIS FOR INFORMATION PERTAINING TO MOUNT UPGRADES, MOUNTING TYPES, ANTENNA HEIGHTS, AND CABLE ROUTING, ANY OTHER DISCREPANCIES BETWEEN THE DRAWINGS, STRUCTURAL ANALYSIS, AND TOWER PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING AND INSTALLATION.

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**DN04166E**

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**370609**

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**509 WIDFIELD DRIVE  
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SHEET DESCRIPTION:

**EXISTING & PROPOSED ANTENNA PLANS**

SHEET NUMBER:

**A-3**

NEW AND EXISTING ANTENNA AND CABLE SCHEDULE

SECTOR	POS.	AZIMUTH	RAD CENTER	TECHNOLOGY	ANTENNA	STATUS	RRU TYPE	DIPLEXERS (TOWER LEVEL)	COVP	CABLE STATUS	COAX CABLE LENGTH	HCS FACTORY LENGTH	JUMPER LENGTH
ALPHA	A1	340°	108'	LTE 1900/2100	(1) AAFIA – MASSIVE MIMO)	NEW	(1) FRIJ (1) AHLOA	–	(1) COVP (*)	(1) EXISTING HI-CAP HYBRID CABLE	EXISTING	EXISTING	< 15'-0"
	A2	–	–	–	–	–	–	< 15'-0"					
	A3	340°	108'	LTE 600/700 N600	(1) COMMSCOPE FFHH-65C-R3	NEW	–	–					< 15'-0"
BETA	B1	100°	108'	LTE 1900/2100	(1) AAFIA – MASSIVE MIMO)	NEW	(1) FRIJ (1) AHLOA	–					< 15'-0"
	B2	–	108'	–	–	–	–	–					< 15'-0"
	B3	100°	108'	LTE 600/700 N600	(1) COMMSCOPE FFHH-65C-R3	NEW	–	–					< 15'-0"
GAMMA	G1	220°	108'	LTE 1900/2100	(1) AAFIA – MASSIVE MIMO)	NEW	(1) FRIJ (1) AHLOA	–					< 15'-0"
	G2	–	108'	–	–	–	–	–					< 15'-0"
	G3	220°	108'	LTE 600/700 N600	(1) COMMSCOPE FFHH-65C-R3	NEW	–	–					< 15'-0"

(\*) SHARED WITH ALL SECTORS

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

PLANS PREPARED FOR:



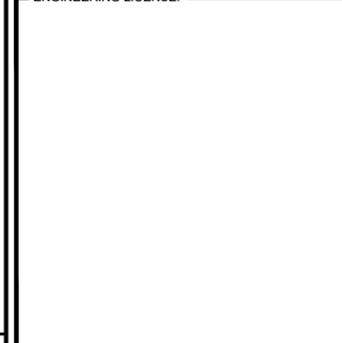
PLANS PREPARED BY:



MLA PARTNER:



ENGINEERING LICENSE:



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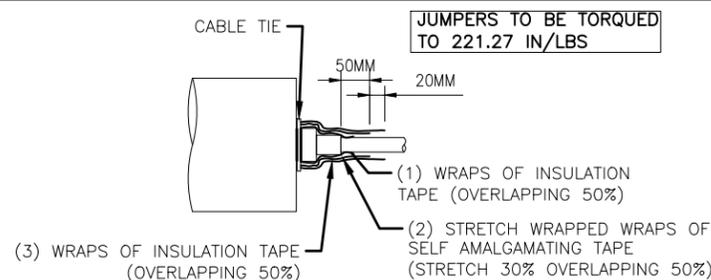
509 WIDEFIELD DRIVE  
COLORADO SPRINGS, CO 80911

SHEET DESCRIPTION:

ANTENNA & CABLE SCHEDULE

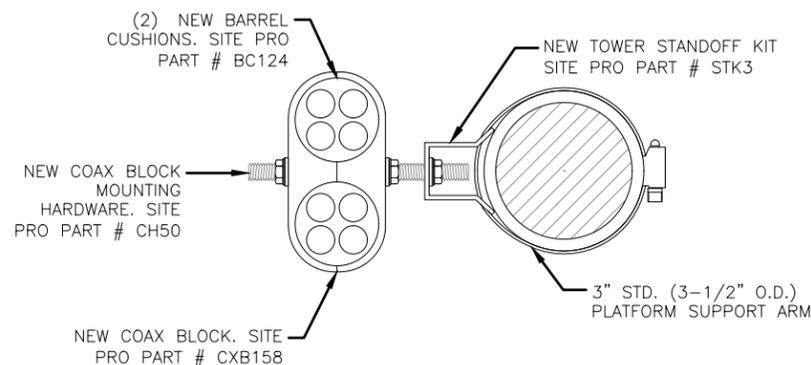
SHEET NUMBER:

A-3A



RF JUMPER CONNECTION DETAIL

NOT TO SCALE 1



RF JUMPER MOUNTING DETAIL

NOT TO SCALE 2

COAX COLOR CODING

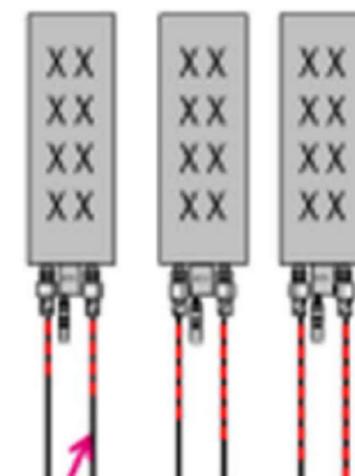
- ANTENNAS WILL BE LABELED (BACK OF ANTENNA VIEW) RIGHT TO LEFT 1-X PORTS
- COAX/JUMPER LINES WILL BE IDENTIFIED BY SECTOR COLOR AND BY NUMBER OF BANDS AROUND THE COAX/JUMPER

SECTOR A	RED
SECTOR B	GREEN
SECTOR C	BLUE
SECTOR D	YELLOW
SECTOR E	WHITE
SECTOR F	PURPLE
LMU	BROWN + SECTOR COLOR BANDS (1 & 2)
FIBER ID	GRAY
UNUSED COAX	PINK
MICROWAVE	ORANGE
DWE T-1'S + GPS DOWNLINK CABLE	ID W/LABEL MAKER

ANTENNA AND COAXIAL CABLE SCHEDULE

1. ALL ANTENNAS SHALL BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR SHALL COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH RF ENGINEER. ANTENNA DOWNTILT SHALL BE SET AND VERIFIED BY A SMART LEVEL.
2. CONTRACTOR SHALL INSTALL COLOR CODE RINGS ON EACH OF THE HYBRID CABLES AND JUMPER CABLES WITH UV RESISTANT TAPE. ALL CABLE SHALL BE MARKED AT TOP AND BOTTOM WITH 2" COLOR TAPE OR STENCIL TAG. COLOR TAPE MAY BE OBTAINED FROM GRAYBAR ELECTRONICS

FRONT OF THE ANTENNA  
ANTENNA#1 ANTENNA#2 ANTENNA#3

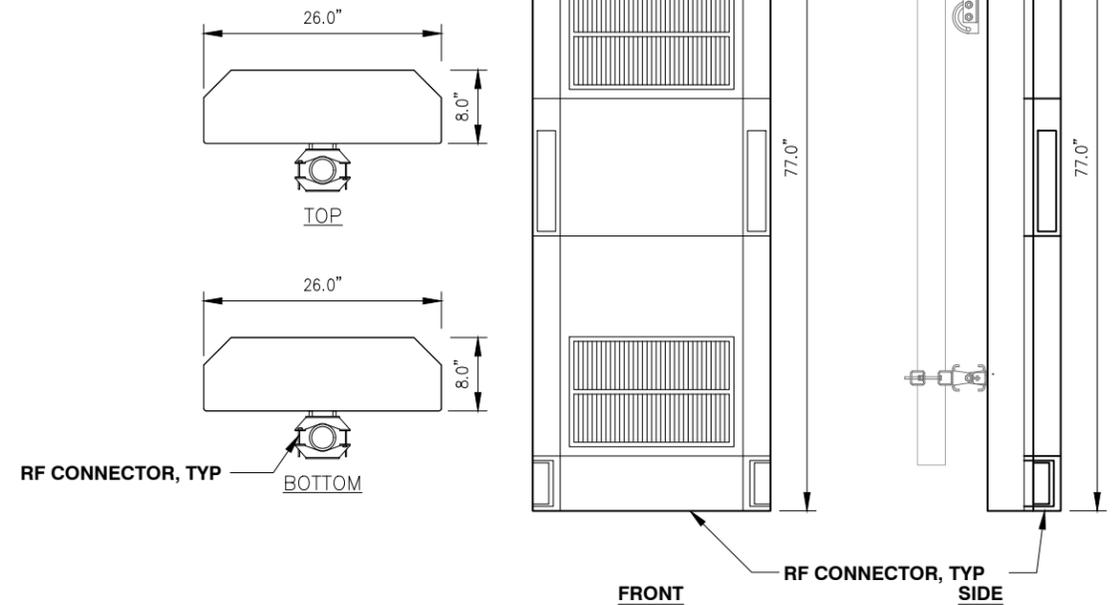


EXAMPLE: COAX WITH FOUR BANDS OF RED TAPE WILL REPRESENT ALPHA SECTOR AND THE 4TH PORT OF ANTENNA

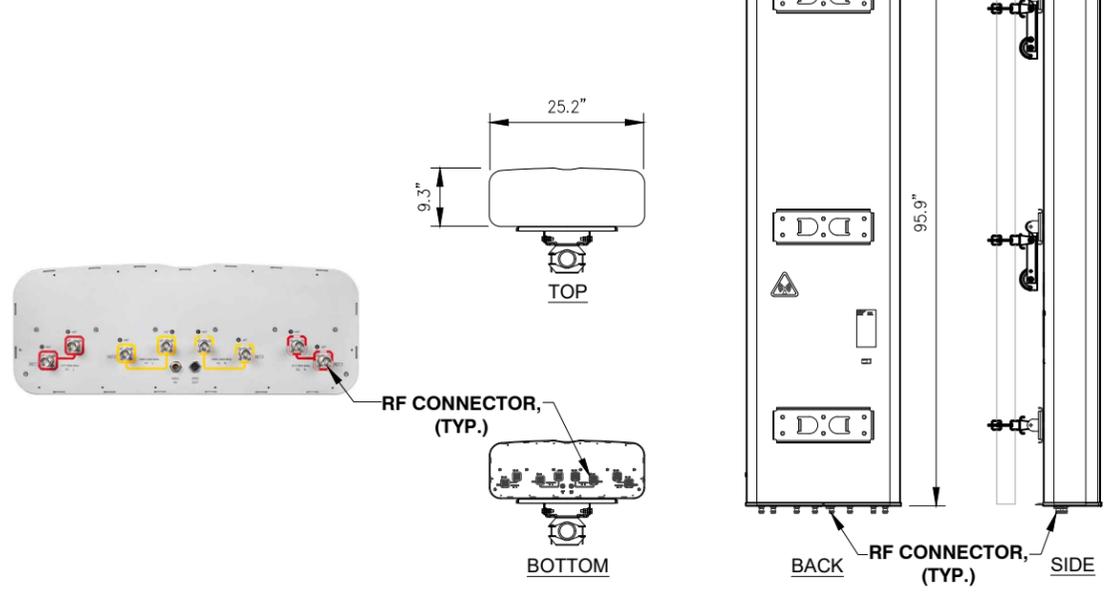
TAGGING COLOR AND NOTES

NOT TO SCALE 3

MANUFACTURER: NOKIA  
 MODEL: AAFA (MASSIVE MIMO)  
 WEIGHT: 253 LBS  
 DIMENSIONS: 77.0" X 26.0" X 8.0"  
 FREQUENCY: REFER TO RF DATA SHEET



MANUFACTURER: COMMSCOPE  
 MODEL: FFHH-65C-R3  
 WEIGHT: 127.6 LBS  
 DIMENSIONS: 95.9" X 25.2" X 9.3"  
 FREQUENCY: REFER TO RF DATA SHEET



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 WESTMINSTER, COLORADO 80234  
 JOB NUMBER 317-701

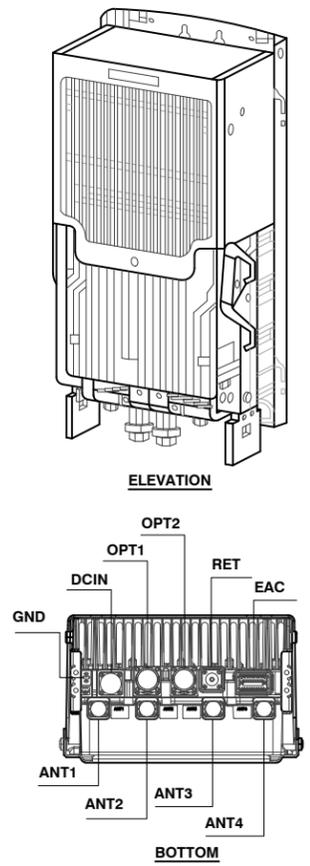
MLA PARTNER:  
**AMERICAN TOWER CORPORATION**

ENGINEERING LICENSE:  
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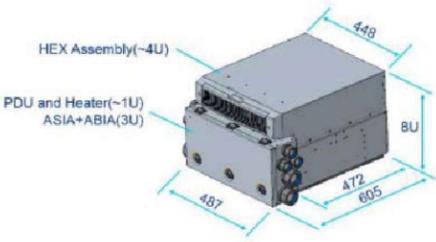
**ANTENNA (NOKIA AAFA)** NOT TO SCALE 1

**ANTENNA (COMMSCOPE - FFHH-65C-R3)** NOT TO SCALE 2

AIRSCALE DUAL RRH 4T4R B12/71 240W AHLOA	
SUPPORTED FREQUENCY BANDS	3GPP BAND 12/71
FREQUENCIES	BAND 12 ADJUSTED: RX 698 – 715 MHZ, TX 728 – 745 MHZ BAND 71: RX 663 MHZ – 698 MHZ, TX 617 MHZ – 652 MHZ
NUMBER OF TX/RX PATHS/PIPES	4 PIPES; 2T2R, 2T4R, 4T4R FOR BOTH BANDS
INSTANTANEOUS BANDWIDTH IBW	16 MHZ FOR B12 AND 35MHZ FOR B71 1 MHZ BELOW B12 NB IOT FUTURE USE
OCCUPIED BANDWIDTH OBW	52 MHZ TOTAL ACROSS BANDS
OUTPUT POWER	60W PER TX SHARED BETWEEN BANDS
SUPPLY VOLTAGE/RANGE	DC-48 V / -36 V TO -60 V
TYPICAL POWER CONSUMPTION	664W [ETSI BUSY HOUR LOAD AT 4TX@60W (BOTH BANDS ACTIVE)] 395W [ETSI BUSY HOUR LOAD AT 4TX@30W (ONE BAND ACTIVE)]
ANTENNA PORTS	4 PORTS; 4.3-10+
OPTICAL PORTS	2x CPRI 9.8 Gbps
ALD CONTROL INTERFACES	AISG3.0 FROM ANT1,2,3,4 & RET (DC ON ANT1 & ANT3)
OTHER INTERFACES	EXTERNAL ALARM MDR-26 SERIAL CONNECTOR (4 INPUTS, 1 OUTPUT) DC CIRCULAR POWER CONNECTOR
PHYSICAL	560MM/22.04INCHESx308MM/12.126INCHESx189MM/7.44INCHES, 38KG/ 83.7 LBS WITHOUT COVER AND BRACKETS
OPERATING TEMPERATURE RANGE	-40°C TO 55°C (WITH NO SOLAR LOAD)
SURGE PROTECTION	CLASS II 5A
INSTALLATION OPTIONS	VERTICAL & HORIZONTAL BOOK MOUNT, POLE & WALL MOUNT



HEIGHT	8U (354 MM/ 13.94 INCH)
WIDTH (FRONT COVER)	487MM/ 19.17 INCH
WIDTH (CABINET)	448MM/ 17.64 INCH (FITS INTO 19 INCH RACK) 487MM/ 19.17 INCH (WITHOUT CONDUIT PLUGS OR FITTINGS)
DEPTH	TOTAL 605MM / 23.81 INCH (472MM/ 18.58 INCH FROM RACK MOUNTING SURFACE)
WEIGHTS	23 KG/ 50.71 LBS AMOB ENCLOSURE 3 KG/ 6.61 LBS ASIA (CORE MODULE) 2 KG/ 4.41 LBS ABIA (EXPANSION MODULE) 32 KG/ 70.55 LBS 1/2 CAPACITY (1 CORE + 3 EXPANSION) 41 KG/ 90.39 LBS FULL CAPACITY (2 CORE + 6 EXPANSION)
INGRESS PROTECTION	IP55
OPERATING TEMPERATURE	-40°C UP TO +55°C (WITHOUT SOLAR RADIATION)
INSTALLATION TEMPERATURE	-20°C - +55°C
AIRFLOW DIRECTION	BACK TO FRONT AIRFLOW DIRECTION SUPPORTED FOR HORIZONTAL (FCOA, 19" RACK, FLEXI STACK) FRONT TO BACK AIRFLOW DIRECTION SUPPORTED FOR VERTICAL (WALL AND POLE MOUNTING CASE)
CLEARANCES FOR COOLING	40 MM MINIMUM ON THE BACK AND FRONT SIDE
COLD START	-2H FROM -40°C TO -5°C *OPTIONAL 2ND HEATER CAN BE ADDED TO MEET NAM REQUIREMENT, COLD START FROM -40°C TO -5°C IN 1 HOUR INSTEAD OF 2 HOURS
NOMINAL SUPPLY VOLTAGE	-40.5 ... -57 V DC
INPUT VOLTAGE RANGE	EXTENDED SERVICE VOLTAGE RANGE SUPPORTED -36VDC .. -60VDC FLOATING
VOLUME	104.5L
MASS CAPACITY	SUPPORT MAX 18KG INSIDE
POWER CONSUMPTION	TYPICAL MAX ~265W (ALL FANS AT HIGHEST SPEED) COLD START ~600W (HEATER ON 55W + FANS AT LOW SPEED)
CONDUIT CABLE ENTRY	2X1.5" + 1" ON EACH LEFT AND RIGHT SIDE



DRAWING NOTICE:  
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REVISIONS:	DESCRIPTION	DATE	BY	REV
REVISED PCC/ISSUED FOR CONSTRUCTION		10/04/19	CAM	3
REVISED/ISSUED FOR CONSTRUCTION		09/17/19	CAP	2
REVISED/ISSUED FOR CONSTRUCTION		08/20/19	ESQ	1
ISSUED FOR CONSTRUCTION		04/25/19	CTL	0

SITE NAME:  
**WIDEFIELD - ATC**

T-MOBILE SITE #:  
**DN04166E**

ATC SITE #:  
**370609**

SITE ADDRESS:  
**509 WIDEFIELD DRIVE  
 COLORADO SPRINGS, CO 80911**

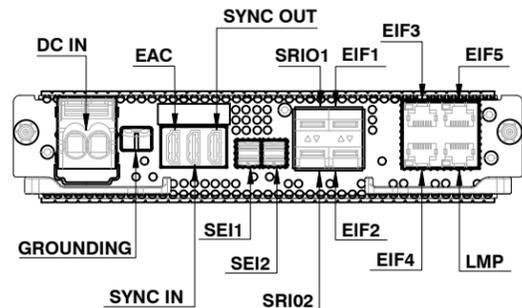
SHEET DESCRIPTION:  
**NEW EQUIPMENT SPECIFICATION**

SHEET NUMBER:  
**A-4**

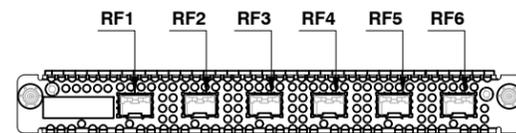
**RRH (AIRSCALE - AHLOA)** NOT TO SCALE 3

**AIRSCALE SUBRACK OUTDOOR AMOB** NOT TO SCALE 4

MANUFACTURER: NOKIA  
 MODEL: ASIA UNIT  
 DIMENSIONS: 8.6"x14.2"x1.7" (UNIT ONLY)  
 WEIGHT: 6.6 LBS (UNIT ONLY)



MANUFACTURER: NOKIA  
 MODEL: ABIA UNIT  
 DIMENSIONS: 8.6"x14.2"x1.1" (UNIT ONLY)  
 WEIGHT: 4.4 LBS (UNIT ONLY)



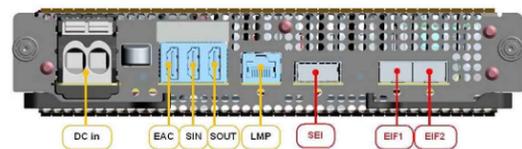
ASIA DETAIL

NOT TO SCALE 1

ABIA DETAIL

NOT TO SCALE 2

MANUFACTURER: NOKIA  
 MODEL: ASIK UNIT  
 DIMENSIONS: 1.9"x8.6"x14.8" (UNIT ONLY)  
 WEIGHT: 7.05 LBS (UNIT ONLY)



MANUFACTURER: NOKIA  
 MODEL: ABIL UNIT  
 DIMENSIONS: 0.9"x8.6"x14.3" (UNIT ONLY)  
 WEIGHT: 4.7 LBS (UNIT ONLY)



ASIK DETAIL

NOT TO SCALE 3

ABIL DETAIL

NOT TO SCALE 4

PLANS PREPARED FOR:

T-MOBILE WEST LLC  
 18400 EAST 22ND AVENUE  
 AURORA, CO 80011

PLANS PREPARED BY:

1490 W. 121st AVE., SUITE 101  
 WESTMINSTER, COLORADO 80234  
 JOB NUMBER 317-701

MLA PARTNER:

ENGINEERING LICENSE:

DRAWING NOTICE:  
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REVISIONS:	DESCRIPTION	DATE	BY	REV
REVISED	PCC/ISSUED FOR CONSTRUCTION	10/04/19	CAM	3
REVISED	ISSUED FOR CONSTRUCTION	09/17/19	CAP	2
REVISED	ISSUED FOR CONSTRUCTION	08/20/19	ESQ	1
ISSUED	FOR CONSTRUCTION	04/25/19	CTL	0

SITE NAME:  
**WIDEFIELD - ATC**

T-MOBILE SITE #:  
**DN04166E**

ATC SITE #:  
**370609**

SITE ADDRESS:  
**509 WIDEFIELD DRIVE  
 COLORADO SPRINGS, CO 80911**

SHEET DESCRIPTION:  
**NEW EQUIPMENT  
 SPECIFICATION**

SHEET NUMBER:  
**A-5**



PLANS PREPARED BY:  
**INFINIGY ENGINEERING, PLLC**  
1490 W. 121st AVE., SUITE 101  
WESTMINSTER, COLORADO 80234  
JOB NUMBER 317-701



ENGINEERING LICENSE:

DRAWING NOTICE:  
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REVISIONS:	DESCRIPTION	DATE	BY	REV
	REVISED PCC/ISSUED FOR CONSTRUCTION	10/04/19	CAM	3
	REVISED/ISSUED FOR CONSTRUCTION	09/17/19	CAP	2
	REVISED/ISSUED FOR CONSTRUCTION	08/20/19	ESQ	1
	ISSUED FOR CONSTRUCTION	04/25/19	CTL	0

SITE NAME:  
**WIDFIELD - ATC**

T-MOBILE SITE #:  
**DN04166E**

ATC SITE #:  
**370609**

SITE ADDRESS:  
**509 WIDFIELD DRIVE  
COLORADO SPRINGS, CO 80911**

SHEET DESCRIPTION:  
**PROPOSED SITE  
GROUNDING DIAGRAM**

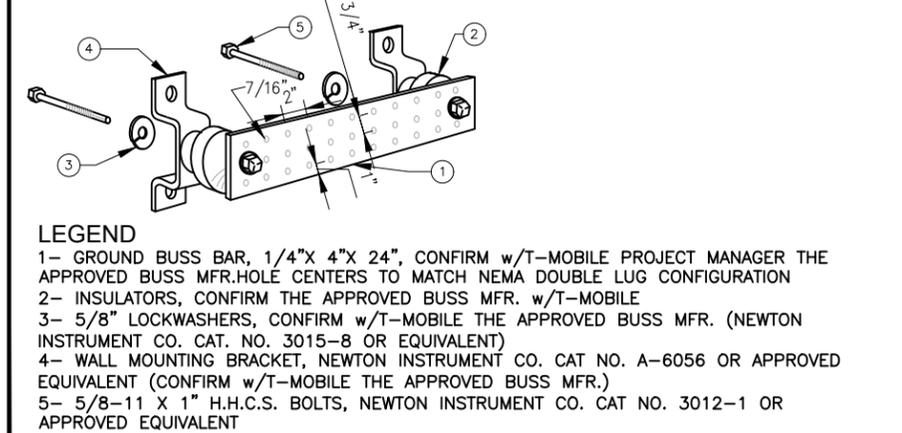
SHEET NUMBER:  
**EG-1**

CADWELD CONNECTIONS OR APPROVED EQUAL		BURNDY CONNECTIONS OR APPROVED EQUAL	
PARALLEL HORIZONTAL CONDUCTORS PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLE TYPE PT	HORIZONTAL STEEL SURFACE TO FLAT STEEL SURFACE OR HORIZONTAL PIPE TYPE HS	"C" CONNECTOR HYPRESS TYPE YGHC	
THROUGH CABLE TO GROUND ROD THROUGH CABLE TO TOP OF GROUND ROD TYPE GT	VERTICAL STEEL SURFACE CABLE DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE TYPE VS	BOND JUMPER FIELD FABRICATED GREEN STRANDED INSULATED TYPE 2-YA-2	
HORIZONTAL SPLICE SPLICE OF HORIZONTAL CABLES	VERTICAL PIPE CABLE DOWN AT 45° TO RANGE OF VERTICAL PIPES TYPE VS	COPPER LUGS TWO HOLE - LONG BARREL LENGTH TYPE YA-2	

**CADWELD DETAILS**

**GROUNDING DETAILS:**

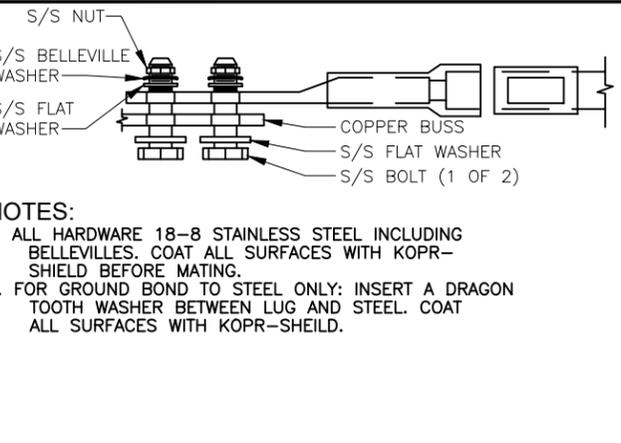
- UNDERGROUND AND OVERHEAD UTILITY LENGTHS TO BE DETERMINED FROM SITE PLAN.
- SEE ELECTRICAL SPECIFICATIONS SECTION 16000 FOR ALL ELECTRICAL AND GROUNDING INSTALLATION REQUIREMENTS.
- FOR ORIENTATION OF SITE LAYOUT SEE SITE PLAN, DRAWING.
- UDA CABINET FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.
- GROUND KITS PROVIDED BY OWNER SHALL BE RETROFITTED TO ACCOMMODATE 2 HOLE LUG CONNECTION AND APPROPRIATE LENGTH.
- CONTRACTOR RESPONSIBLE TO PROVIDE OWNER CERTIFICATION OF RESISTIVITY TESTING.
- GROUND RODS TO BE INSTALLED AT 10' CENTERS.
- ALL GROUND LEADS TO BE SLEEVED IN 3/4" SCHEDULE 40 PVC CONDUIT AND SEALED W/ SILICON.
- GROUND BARS SUPPLIED BY OWNER AND INSTALLED BY CONTRACTOR.
- ALL BENDS IN GROUNDING SYSTEM MUST BE SMOOTH AND WELL ROUNDED AND MAINTAIN BENDING RADIUS.
- SEE SITE PLAN FOR COAXIAL ROUTING THIS SHEET IS INTENDED FOR GROUNDING CLARITY ONLY AND IS SCHEMATIC IN DETAIL.
- GROUND KITS SHALL BE INSTALLED BETWEEN 8"-18" OF ALL CONNECTORS.
- TOWER FOUNDATION DESIGN BY OWNER, INSTALLED BY CONTRACTOR.
- ADDITIONAL GROUND KITS TO BE PLACED AT 100' WHEN ANTENNA CENTERLINE IS 200' OR ABOVE.
- ALL CONDUITS TO BE SEALED W/ SILICONE TO PROVIDE A WATER TIGHT SEAL.



**GROUND BAR CONNECTIONS DETAIL (TYP.)** NOT TO SCALE 2

- KEY NOTES:**
- #2 SOLID, TINNED BARE COPPER GROUND WIRE FROM ICE BRIDGE TO ICE BRIDGE POST.
  - #2 SOLID, TINNED BARE COPPER GROUND WIRE, BOND ICE BRIDGE POST W/ VS TYPE CADWELD. (1 PER POST REQUIRED).
  - #2 SOLID, TINNED BARE COPPER GROUND WIRE FROM GROUND BAR TO EXISTING GROUND RING (2 REQUIRED).
  - #2 SOLID, TINNED BARE COPPER GROUND WIRE FROM NEW H-FRAME POST TO EXISTING GROUND RING
  - NEW GROUND BAR
  - EXISTING GROUND BAR
  - #6 AWG GREEN STRANDED GROUND CU WIRE FROM NEW MODULES TO PLINTH
  - #2 AWG GREEN STRANDED GROUND WIRE FROM STEEL CUBE/PLINTH W/MODULES TO EXISTING GROUND
  - #2 AWG BAR GROUND WIRE FROM MODULES PLINTH TO EXISTING GROUND BAR
  - #6 AWG GREEN STRANDED GROUND CU WIRE FROM MODULES TO PLINTH ON CABINET
  - #2 AWG GREEN STRANDED CU GROUND WIRE FROM MODULE'S PLINTH ON CABINET TO EXISTING GROUND RING
  - #6 AWG GREEN STRANDED GROUND CU WIRE FROM SSC TO SSC PLINTH
  - #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM SSC TO EXISTING GROUND RING
  - #2 AWG GREEN STRANDED CU GROUND WIRE FROM COVP TO GROUND BAR
  - #2 AWG GREEN STRANDED CU GROUND WIRE FROM NEW ALARM BOX TO NEW GROUND BAR
  - #6 AWG GREEN STRANDED CU GROUND WIRE FROM NEW HYBRID CABLE TO NEW GROUND BAR
  - #2 AWG GREEN STRANDED GROUND WIRE FROM NEW RF MODULE TO NEW GROUND BAR
  - #2 AWG GREEN STRANDED CU GROUND WIRE FROM NEW GROUND BAR TO EXISTING GROUND RING/ROD
  - #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM FCOA CABINET TO GROUND RING
  - #6 AWG SOLID TINNED BARE GROUND CU WIRE FROM NEW DIPLEXER/ TRIPLEXER TO EXISTING GROUND BAR
  - #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM BATTERY CABINET TO GROUND RING

**GROUNDING DIAGRAM (TYP.)**



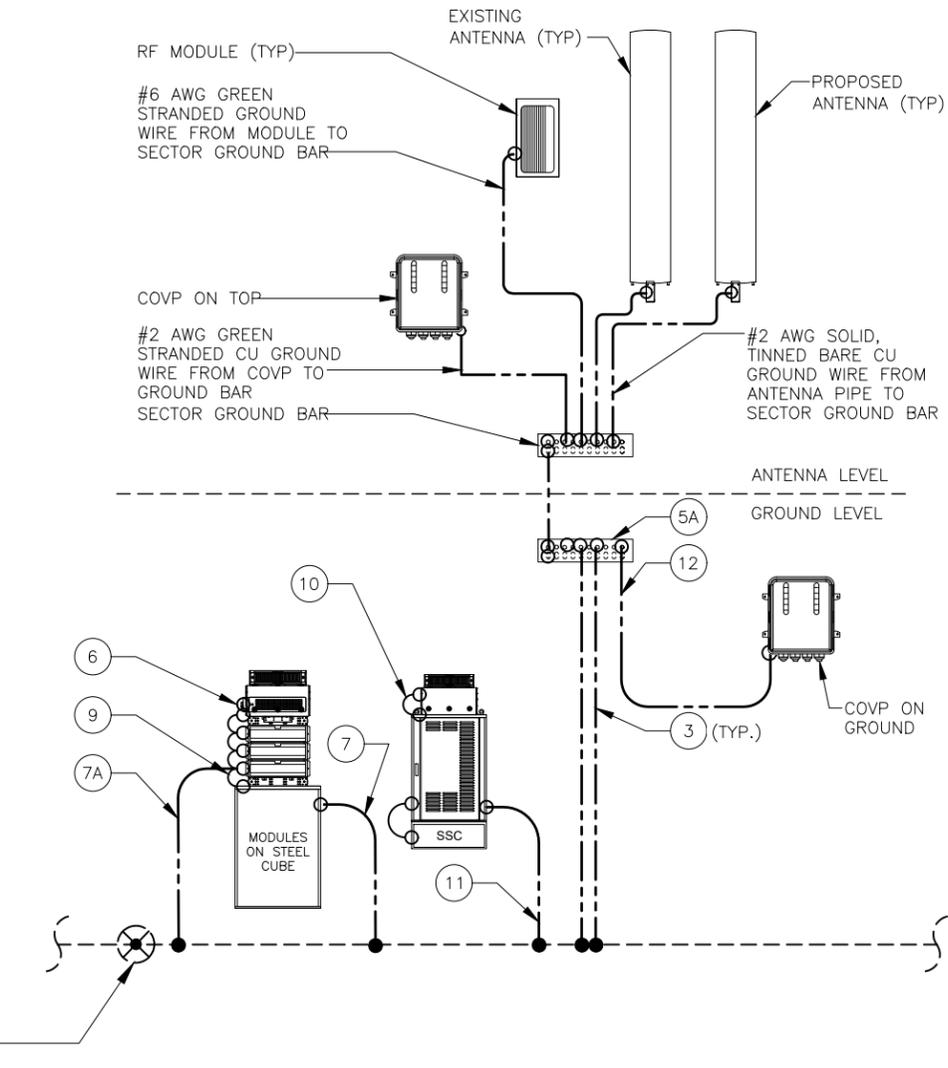
**GROUND BAR DETAIL (TYP.)** NOT TO SCALE 3

**SYMBOLS LEGEND:**

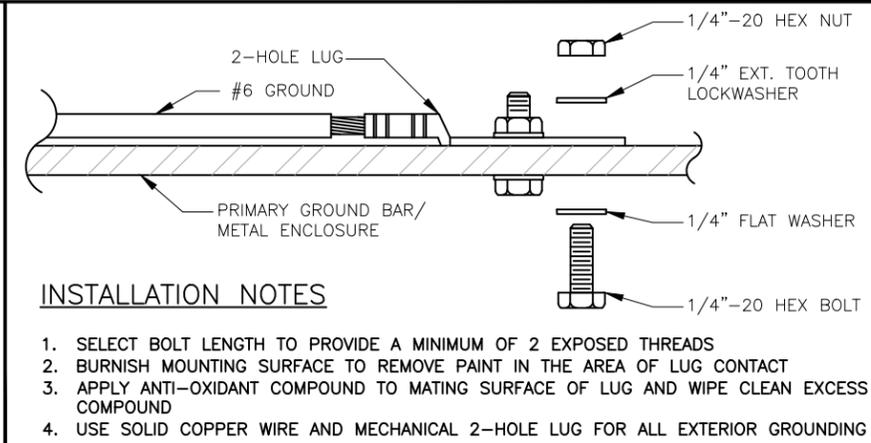
GROUND BAR	
EXOTHERMIC WELD CONNECTION	
MECHANICAL CONNECTION	
BOND DIRECTLY TO TOWER	

**NOTE:**

- EXISTING GROUNDING NOT SHOWN IN THIS DIAGRAM. GC TO VERIFY EXISTING EQUIPMENT GROUNDING IN FIELD
- GC TO V.I.F. AND INSTALL ANY MISSING T-MOBILE GROUND BAR ON SITE



**MECH. GROUND CONNECTION (TYP.)** NOT TO SCALE 4



**GENERAL NOTES:**

- OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL:
  - BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
  - AC/TELCO INTERFACE BOX(PPC)
  - ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
  - TOWERS, MONOPOLE
  - TOWER LIGHTING
  - GENERATORS & LIQUID PROPANE TANK
  - ANTENNA STANDARD BRACKETS, FRAMES, AND PIPES FOR MOUNTING.
  - ANTENNAS (INSTALLED BY OTHERS)
  - TRANSMISSION LINE
  - TRANSMISSION LINE JUMPERS
  - TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
  - TRANSMISSION LINE GROUND KITS
  - HANGERS
  - HOISTING GRIPS
  - BTS EQUIPMENT
- CONTRACTOR TO FURNISH AND INSTALL THE FOLLOWING: THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
- T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNGRATED, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING UP.
- ALL EQUIPMENT FURNISHED AND WORK PERFORMED UNDER THE CONTRACT DOCUMENTS SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIALS OR WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE, UNLESS NOTED OTHERWISE. ANY FAILURE OF EQUIPMENT OR WORK DUE TO DEFECTS IN MATERIALS OR WORKMANSHIP SHALL BE CORRECTED BY THE CONTRACTOR AT NO COST TO THE OWNER.
- ALL WORK, MATERIAL, AND EQUIPMENT SHALL COMPLY WITH ALL REQUIREMENTS OF THE LATEST EDITIONS AND INTERIM AMENDMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), NATIONAL ELECTRICAL SAFETY CODE, OSHA, AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES. ALL ELECTRICAL EQUIPMENT PROVIDED UNDER THIS CONTRACT SHALL BE NEW (EXCEPT WHERE OTHERWISE NOTED) AND SHALL COMPLY WITH THE REQUIREMENTS OF THE UNDERWRITERS' LABORATORIES (U.L.) AND BEAR THE U.L. LABEL.
- T-MOBILE OR THEIR ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN THEIR OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO THE OWNER OR THEIR ARCHITECT/ENGINEER.
- THE CONTRACTOR SHALL SUPPORT, BRACE AND SECURE EXISTING STRUCTURE AS REQUIRED. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING STRUCTURES DURING CONSTRUCTION. FIELD VERIFY ALL EXISTING DIMENSIONS WHICH AFFECT THE NEW CONSTRUCTION.
- THE CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY OF THE WORK TO BE COVERED UP OR ENCLOSED UNTIL IT HAS BEEN INSPECTED BY THE GOVERNING AUTHORITIES. ANY WORK THAT IS ENCLOSED OR COVERED UP BEFORE SUCH INSPECTION AND TEST SHALL BE UNCOVERED AT THE CONTRACTOR'S EXPENSE; AFTER IT HAS BEEN INSPECTED, THE CONTRACTOR SHALL RESTORE THE WORK TO ITS ORIGINAL CONDITION AT THEIR OWN EXPENSE.
- ALL EXISTING UTILITIES, FACILITIES, CONDITIONS, AND THEIR DIMENSIONS SHOWN ON PLANS HAVE BEEN PLOTTED FROM AVAILABLE RECORDS. THE ARCHITECT/ENGINEER AND OWNER (T-MOBILE) ASSUME NO RESPONSIBILITY WHATEVER AS TO THE SFOCIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL SAID UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING AFFECTED UTILITIES.

**GENERAL NOTES (CONT'D):**

- CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHOULD BE IMMEDIATELY REPORTED TO THE PROJECT MANAGER FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT THEIR OWN RISK AND EXPENSE.
- CONTRACTORS SHALL CLEAN ENTIRE SITE AFTER EACH DAY OF CONSTRUCTION SUCH THAT NO PAPERS, TRASH, DEBRIS, WEEDS, BRUSH, OR ANY OTHER DEPOSITS REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE PROPERLY DISPOSED OF OFF-SITE BY THE CONTRACTOR.
- ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY THE CONTRACTOR WITH LOCAL GAS, ELECTRIC, TELEPHONE, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.
- DURING CONSTRUCTION, THE CONTRACTOR SHALL AT ALL TIMES MAINTAIN THE UTILITIES OF THE BUILDING/SITE WITHOUT INTERRUPTION. SHOULD IT BE NECESSARY TO INTERRUPT ANY SERVICE OR UTILITY, THE CONTRACTOR SHALL SECURE PERMISSION IN WRITING FROM THE BUILDING/PROPERTY OWNER FOR SUCH INTERRUPTION, AT LEAST 72 HOURS IN ADVANCE. ANY INTERRUPTION SHALL BE MADE WITH A MINIMUM AMOUNT OF INCONVENIENCE TO THE BUILDING/PROPERTY OWNER AND ANY SUCH SHUTDOWN TIME SHALL BE COORDINATED WITH THE BUILDING/PROPERTY OWNER.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION.
- CONTRACTOR SHALL SUBMIT AT THE END OF THE PROJECT A COMPLETE SET OF AS BUILT DRAWINGS TO T-MOBILE'S PROJECT ENGINEER.
- GC WILL NOT START THE CONSTRUCTION UNTIL AFTER THEY RECEIVE THE PRE CON PACKAGE AND HAVE A PRE CON WALK WITH THE PROJECT MANAGER.

**DIVISION 2 - SITE WORK:**

- THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE PROJECT MANAGER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT LIMITED TO:
  - FALL PROTECTION
  - CONFINED SPACE
  - ELECTRICAL SAFETY
  - TRENCHING AND EXCAVATION
- REMOVE FROM SITE/OWNER'S PROPERTY ALL WASTE MATERIALS, UNUSED EXCAVATED MATERIAL INCLUDING MATERIAL CLASSIFIED UNSATISFACTORY, CONTAMINATED OR DANGEROUS TRASH AND DEBRIS, AND DISPOSE OF IN A LEGAL MANNER.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING.
- THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE BUILDING OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDDED, AND COVERED WITH MULCH
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, AS REQUIRED DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR LAYOUT AND CONSTRUCTION STAKING. CONTRACTOR SHALL ESTABLISH GRADE AND LINE STAKES PRIOR TO CONSTRUCTION.

INFINIGY DOES NOT GUARANTEE OR WARRANT THAT THE AFOREMENTIONED EASEMENTS ARE SUFFICIENT FOR CONSTRUCTION TRAFFIC. GC SHALL CONSULT WITH A T-MOBILE REPRESENTATIVE AND LANDLORD WITH EXACT LOGISTICS TO FACILITATE CONTRACTIBILITY OF THE SITE AND DELIVERY OF CRITICAL MATERIALS SUCH AS THE TOWER, STEEL, CONCRETE AND CRANES TO THE PROPOSED LEASE AREA. GC SHALL RESTORE SITE TO ORIGINAL CONDITIONS AND REPLACE ANY AND ALL DISTURBED TREES OR LANDSCAPING.

INFINIGY IS NOT RESPONSIBLE FOR THE MAINTENANCE AND/OR OPERATIONAL FEASIBILITY. SCOPE OF WORK FOR THESE PLANS DOES NOT INVOLVE VALUE ENGINEERING AS WELL AS MAINTAINABILITY OPERATIONS OF THE SITE, ACCESS OR UTILITIES.

**DIVISION 3 - CONCRETE:**

- MINIMUM ALLOWABLE CONCRETE COMPRESSIVE STRENGTH SHALL BE 4000 PSI AT 28 DAYS WHEN TESTED IN ACCORDANCE WITH THE AMERICAN SOCIETY FOR TESTING AND MATERIALS METHODS STANDARDS ASTM C172, ASTM C31 AND ASTM C39 UNLESS OTHERWISE NOTED.

**DIVISION 3 - CONCRETE CONTINUED:**

- CONCRETE FOR ALL FOUNDATIONS: 540 LBS PER CUBIC YARD OF CONCRETE MINIMUM CEMENT CONTENT FOR 1-INCH MAXIMUM SIZE AGGREGATE, SLUMP RANGE 3 INCHES TO 5 INCHES, TOTAL AIR CONTENT 4 PERCENT TO 7 PERCENT BY VOLUME. AIR ENTRAINING ADMIXTURE REQUIRED TO CONTROL TOTAL AIR CONTENT, WATER REDUCING ADMIXTURE PERMITTED TO OBTAIN SLUMP OVER 3-INCHES.
- ALL CONCRETE CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE AMERICAN CONCRETE INSTITUTE (ACI 318) BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND (ACI 301) STANDARD SPECIFICATION FOR STRUCTURAL CONCRETE.
- REBARS SHALL BE ASTM A-615 DEFORMED TYPE WITH MINIMUM YIELD STRENGTH OF 60,000 PSI (40,000 PSI GRADE MAY BE USED FOR TIES & STIRRUPS).  
WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185.
- DETAILING SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE OF DETAILING REINFORCED CONCRETE STRUCTURES (ACI STD-315 LATEST EDITION).
- CHAMFER ALL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.
- REINFORCING STEEL SHALL BE ACCURATELY PLACED AND ADEQUATELY SECURED IN POSITION. LOCATION OF REINFORCEMENT SHALL BE INDICATED ON THE DRAWINGS. THE FOLLOWING MINIMUM COVER (INCHES) FOR REINFORCEMENT SHALL BE PROVIDED, EXCEPT AS NOTED ON DRAWINGS.  
MINIMUM COVER (INCHES)  
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ... 3"  
EXPOSED TO EARTH OR WEATHER:  
#6 THROUGH #18 ... 2"  
#5 BAR AND SMALLER ... 1-1/2"
- TESTS  
CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS THE WORK PROGRESSES. FAILURE TO DETECT ANY DEFECTIVE WORK OR MATERIAL SHALL NOT IN ANY WAY PREVENT LATER REJECTION WHEN SUCH DEFECT IS DISCOVERED NOR SHALL IT OBLIGATE THE ENGINEER FOR FINAL ACCEPTANCE.
  - FIVE CONCRETE TEST CYLINDERS SHALL BE TAKEN OF THE TOWER PIER FOUNDATION. TWO SHALL BE TESTED @ THREE DAYS, TWO @ TWENTY-EIGHT DAYS. THE FIFTH CYLINDER SHALL BE KEPT SEPARATELY, IF REQUIRED TO BE USED IN THE FUTURE.
  - ONE ADDITIONAL TEST CYLINDER SHALL BE TAKEN DURING COLD WEATHER AND CURED ON SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
  - ONE SLUMP TEST SHALL BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.
- PLACING CONCRETE
  - THE ENGINEER SHALL BE NOTIFIED NOT LESS THAN 24 HOURS IN ADVANCE OF CONCRETE PLACEMENT, UNLESS INSPECTION IS WAIVED IN EACH CASE, PLACING OF CONCRETE SHALL BE PERFORMED ONLY IN THE PRESENCE OF THE ENGINEER. CONCRETE SHALL NOT BE PLACED UNTIL ALL FORMWORK, EMBEDDED PARTS, STEEL REINFORCEMENT, FOUNDATION SURFACES AND JOINTS INVOLVED IN THE PLACING HAVE BEEN APPROVED, AND UNTIL FACILITIES ACCEPTABLE TO THE T-MOBILE REPRESENTATIVE HAVE BEEN PROVIDED AND MADE READY FOR ACCOMPLISHMENT OF THE WORK AS SPECIFIED. CONCRETE MAY NOT BE ORDERED FOR PLACEMENT UNTIL ALL ITEMS HAVE BEEN APPROVED AND T-MOBILE HAS PERFORMED A FINAL INSPECTION AND GIVEN APPROVAL TO START PLACEMENT IN WRITING.
  - PLACEMENT OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301.
- PROTECTION
  - IMMEDIATELY AFTER PLACEMENT, THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY. FINISHED WORK SHALL BE PROTECTED.
  - CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
  - ALL CONCRETE SHALL BE WATER CURED BY CONTINUOUS (NOT PERIODIC) FINE MIST SPRAYING OR SPRINKLING ALL EXPOSED SURFACES. WATER SHALL BE CLEAN AND FREE FROM ACID, ALKALI, SALTS, OIL SEDIMENT, AND ORGANIC MATTER. SUCCESSFUL CURING SHALL BE OBTAINED BY USE OF AN AMPLE WATER SUPPLY UNDER PRESSURE IN PIPES, WITH ALL NECESSARY APPLIANCES OF SPRINKLERS, AND SPRAYING DEVICES.

**ELECTRICAL NOTES:**

- ELECTRICAL DESIGN SHALL BE PERFORMED BY ELECTRICAL CONTRACTOR. STRUCTURAL DESIGN SHALL BE PERFORMED BY GENERAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL ENSURE THAT ALL WORK COMPLIES WITH ALL APPLICABLE LOCAL AND STATE CODES AND NATIONAL ELECTRICAL CODE.
- ALL SUGGESTED ELECTRICAL ELEMENTS (SUCH AS BREAKER SIZES, WIRE SIZES, CONDUITS SIZES ARE FOR ZONING PURPOSES ONLY. IT IS THE RESPONSIBILITY TO OF THE ELECTRICAL CONTRACTOR TO CONFIRM COMPLIANCE WITH LOCAL ELECTRICAL CODES AND PASS ALL APPLICABLE AND NECESSARY INSPECTIONS. IN SOME EVENTS, IT MAY BE NECESSARY TO PERFORM AN ELECTRICAL LOAD STUDY TO VERIFY THE CAPACITY OF THE EXISTING SERVICE. THIS IS NOT THE RESPONSIBILITY OF INFINIGY. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
- CONTRACTOR SHALL FIELD LOCATE ALL BELOW GRADE GROUND LINES AND UTILITY LINES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR RELOCATION OF ALL UTILITIES AND GROUND LINES THAT MAY BECOME DISTURBED OR CONFLICTING IN THE COURSE OF CONSTRUCTION.

**DIVISION 5 - STRUCTURAL STEEL:**

- DETAIL, FABRICATE AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH THE LATEST AISC MANUAL OF STEEL CONSTRUCTION (ASD), AWS D1.1, AND THE BASIC BUILDING CODE. STRUCTURAL STEEL SHALL BE AS FOLLOWS:
  - ASTM A36, GRADE 36; ROLLED STEEL, RODS, PLATES, U-BOLTS AND ANCHOR BOLTS.
  - ASTM A325 BOLTS, BEARING TYPE
  - ALL STEEL SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123.
- THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.
- ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND T-MOBILE PROJECT MANAGER IN WRITING
- TIGHTEN HIGH STRENGTH BOLTS TO A SNUG TIGHT CONDITION WHERE ALL PLIES IN A JOINT ARE IN FIRM CONTACT BY EITHER
  - A FEW IMPACTS OF A IMPACT WRENCH
  - THE FULL EFFORT OF A PERSON USING A SPUD WRENCH.
- WELDING
  - ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS. CERTIFICATION DOCUMENTS SHALL BE MADE AVAILABLE FOR ENGINEER'S AND/OR OWNER'S REVIEW IF REQUESTED.
  - WELDING ELECTRODES FOR MANUAL SHIELDED METAL ARC WELDING SHALL CONFORM TO ASTM A-233, E70 SERIES. BARE ELECTRODES AND GRANULAR FLUX USED IN THE SUBMERGED ARC PROCESS SHALL CONFORM TO AISC SPECIFICATIONS.
  - FIELD WELDING SHALL BE DONE AS PER AWS D1.1 REQUIREMENTS VISUAL INSPECTION IS ACCEPTABLE.
- PROTECTION
  - UPON COMPLETION OF ERECTION INSPECT ALL GALVANIZED STEEL AND PAINT ANY FIELD CUTS, WELDS, OR GALVANIZED BREAKS WITH ZINC BASED PAINT. COLOR TO MATCH THE GALVANIZING PROCESS.

**DIVISION 13 - SPECIAL CONSTRUCTION ANTENNA INSTALLATION**

- WORK INCLUDED:
  - ANTENNAS AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUB-CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND
  - INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
  - INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
  - INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT TEST. PROPERTY.
  - CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU -PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
  - INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
  - ANTENNA AND COAXIAL CABLE GROUNDING:
    - ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTOR/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.
    - ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

PLANS PREPARED FOR:



PLANS PREPARED BY:



MLA PARTNER:



ENGINEERING LICENSE:

DRAWING NOTICE:

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REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PCC/ISSUED FOR CONSTRUCTION	10/04/19	CAM	3
REVISED/ISSUED FOR CONSTRUCTION	09/17/19	CAP	2
REVISED/ISSUED FOR CONSTRUCTION	08/20/19	ESQ	1
ISSUED FOR CONSTRUCTION	04/25/19	CTL	0

SITE NAME:

WIDEFIELD - ATC

T-MOBILE SITE #:

DN04166E

ATC SITE #:

370609

SITE ADDRESS:

509 WIDEFIELD DRIVE  
COLORADO SPRINGS, CO 80911

SHEET DESCRIPTION:

GENERAL NOTES & SPECIFICATIONS

SHEET NUMBER:

SP-1