

VICINITY MAP



**AMERICAN TOWER®**

ATC SITE NAME: CALHAN CO  
 ATC SITE NUMBER: 88795  
 T-MOBILE SITE NAME: ATC\_CALHAN\_LMU  
 T-MOBILE SITE NUMBER: DN04231A  
 SITE ADDRESS: 11610 HAHN RD  
 CALHAN, CO 80808-9242



LOCATION MAP

**T-MOBILE ANCHOR AMENDMENT PLAN  
 56791EZ\_SR\_U21 CONFIGURATION**



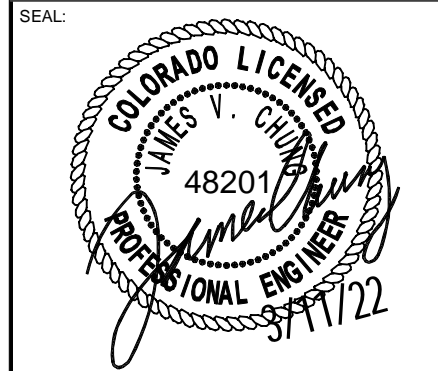
REV.	DESCRIPTION	BY	DATE
△	FOR CONSTRUCTION	MLDV	03/11/22
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ATC SITE NUMBER:  
88795

ATC SITE NAME:  
CALHAN CO

T-MOBILE SITE NAME:  
ATC\_CALHAN\_LMU

SITE ADDRESS:  
11610 HAHN RD  
CALHAN, CO 80808-9242



DATE DRAWN:	03/11/22
ATC JOB NO:	13743077_G3
CUSTOMER ID:	ATC_CALHAN_LMU
CUSTOMER #:	DN04231A

**TITLE SHEET**

SHEET NUMBER:  
**G-001**

REVISION:  
**0**

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.  1. 2021 INTERNATIONAL BUILDING CODE 2. 2021 INTERNATIONAL MECHANICAL CODE 3. 2021 INTERNATIONAL ENERGY CONSERVATION CODE 4. 2021 INTERNATIONAL EXISTING BUILDING CODE 5. 2021 INTERNATIONAL FIRE CODE 6. 2021 INTERNATIONAL WILDLAND-URBAN INTERFACE CODE 7. 2012 NFPA 101 LIFE SAFETY CODE 8. 2019 NFPA 13 9. 2019 NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE	<p><b>SITE ADDRESS:</b> 11610 HAHN RD CALHAN, CO 80808-9242 COUNTY: EL PASO</p> <p><b>GEOGRAPHIC COORDINATES:</b> LATITUDE: 38.99910833 LONGITUDE: -104.3135667 GROUND ELEVATION: 6994' AMSL</p> <p><b>ZONING INFORMATION:</b> JURISDICTION: JURISDICTION COUNTY/CITY APN: 171703100074</p>	<p>THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW: TOWER WORK: REMOVE (3) FFHH-65C-R3 ANTENNA(S), (3) AHFIB RRH(S), (1) MICROWAVE, (1) GENERIC RADIO/ODU, (1) 1-5/8" COAX CABLE AND EXISTING ANTENNA MOUNT INSTALL (3) AEHC ANTENNA(S), (3) FFVV-65C-R3-V1 ANTENNA(S), (3) AHFIB RRH(S), (2) HELIAX FIBERFEED 12 RRU PENDANT CONNECT, (1) HCS 2.0 TRUNK CABLE(S) AND PV-SFA12-3-3-96-9-278X126 ANTENNA MOUNT EXISTING (3) AHL0A RRH(S), (11) 1-5/8" COAX CABLES AND (1) HCS 2.0 TRUNK CABLE(S) TO REMAIN</p> <p>GROUND WORK: EXISTING EQUIPMENT CABINETS TO BE REMOVED INSTALL DELTA HPL3 600A DC CABINET, DELTA LB3 BATTERY CABINET, GPS, ICE BRIDGE AND (1) JUNCTION BOX EXISTING BASEBAND (1) FSMF TO REMAIN ADD (2) ASIB, (1) ASIL, (1) ABIA, (3) ABIC, (2) ABIO, (2) AMIA, (1) VOLTAGE BOOSTER, (1) EXTRA BOOSTER AMPLIFIER AND CSR-IXRE (GEN2) REMOVE (1) ASIA, (1) ASIK, (1) ABIL AND (2) AMOB</p> <p>RFDS VERSION: 5</p>	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<p><b>PROJECT TEAM</b></p> <p><b>TOWER OWNER:</b> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801</p> <p><b>ENGINEER:</b> J5 INFRASTRUCTURE PARTNERS 23 MAUCHLY #110 IRVINE, CA 92618</p> <p><b>PROPERTY OWNER:</b> 11820 HAHN RD CALHAN, CO 80808-9242</p> <p><b>APPLICANT:</b> T-MOBILE</p> <p><b>PLANNING / APPLICANT'S REPRESENTATIVE:</b> THE DERNA GROUP 22431 ANTONIO PARKWAY SUITE B160-234 RANCHO SANTA MARGARITA, CA 92688 CONTACT: RACHEL BRUIN PHONE: (805) 215-9444 EMAIL: RBRUIN@DERNAGRP.COM</p>	<p><b>PROJECT NOTES</b></p> <ol style="list-style-type: none"> <li>THE FACILITY IS UNMANNED.</li> <li>A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.</li> <li>THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.</li> <li>NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.</li> <li>HANDICAP ACCESS IS NOT REQUIRED.</li> <li>THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).</li> </ol>	<p><b>PROJECT LOCATION DIRECTIONS</b></p> <p>I-25 EXIT 149 WOODMEN RD. GO EAST FOR 11.6 MILES TO HWY 24. GO EAST ON HWY 24 FOR 17 MILES TO WEST SIDE OF CALHAN. GO SOUTH ON HAHN RD. FOR 2.5 MILES TO SITE.</p>	R-001	TITLE SHEET	0	03/11/22
<p><b>UTILITY COMPANIES</b></p> <p>POWER COMPANY: MOUNTAIN VIEW ELECTRIC ASSOCIATION INC. PHONE: 719.775.2861</p> <p>TELEPHONE COMPANY: ---- PHONE: ----</p>			G-002	GENERAL NOTES	0	03/11/22	MLDV
			C-101	DETAILED SITE PLAN	0	03/11/22	MLDV
			C-102	DETAILED GROUND PLAN	0	03/11/22	MLDV
			C-201	TOWER ELEVATION	0	03/11/22	MLDV
			C-401	ANTENNA INFORMATION & SCHEDULE	0	03/11/22	MLDV
			C-501	CONSTRUCTION DETAILS	0	03/11/22	MLDV
			C-502	CONSTRUCTION DETAILS	0	03/11/22	MLDV
			E-501	GROUNDING DETAILS	0	03/11/22	MLDV
			E-601	PANEL SCHEDULE & ELECTRICAL SCHEMATIC	0	03/11/22	MLDV
			R-601	SUPPLEMENTAL	0	03/11/22	MLDV
			R-602	SUPPLEMENTAL	0	03/11/22	MLDV
			R-603	SUPPLEMENTAL	0	03/11/22	MLDV
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			R-611	SUPPLEMENTAL	0	03/11/22	MLDV
			R-612	SUPPLEMENTAL	0	03/11/22	MLDV
			R-613-619	SUPPLEMENTAL	0	03/11/22	MLDV



**GENERAL CONSTRUCTION NOTES:**

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
  - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
  - B. AC/TELCO INTERFACE BOX (PPC)
  - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
  - D. TOWERS, MONOPOLES
  - E. TOWER LIGHTING
  - F. GENERATORS & LIQUID PROPANE TANK
  - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
  - H. ANTENNAS (INSTALLED BY OTHERS)
  - I. TRANSMISSION LINE
  - J. TRANSMISSION LINE JUMPERS
  - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
  - L. TRANSMISSION LINE GROUND KITS
  - M. HANGERS
  - N. HOISTING GRIPS
  - O. BTS EQUIPMENT
2. 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.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSIEIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH T-MOBILE AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.

22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
27. CONTRACTOR SHALL NOTIFY T-MOBILE REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
28. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
30. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE REP. ANY WORK FOUND BY THE T-MOBILE REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
31. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.
32. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, 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 IT UP.
33. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN 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 T-MOBILE OR THEIR ARCHITECT/ENGINEER.

**SPECIAL CONSTRUCTION**

**ANTENNA INSTALLATION NOTES:**

1. WORK INCLUDED:
  - A. ANTENNA 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 SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL.
  - B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
  - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
  - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE.
  - E. 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.
  - F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS 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.
  - G. ANTENNA AND COAXIAL CABLE GROUNDING:
    2. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL
    3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF

COAXIAL CABLE (NOT WITHIN BENDS)

ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.



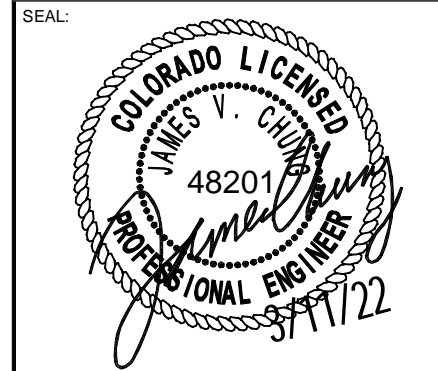
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GENERAL NOTES	
SHEET NUMBER: <b>G-002</b>	REVISION: <b>0</b>

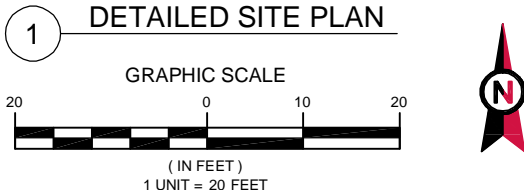
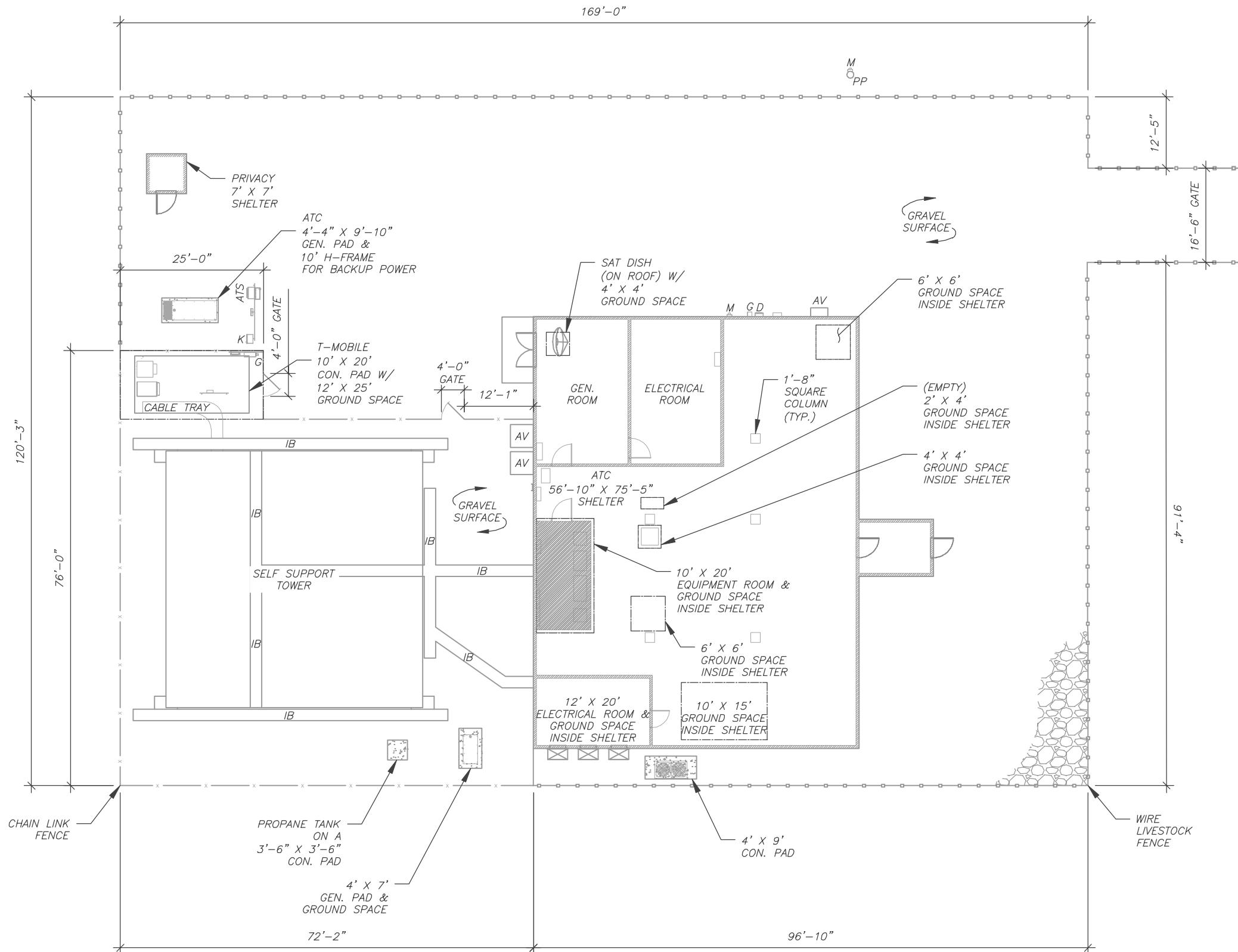
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**SITE PLAN NOTES:**

- THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
- ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
- THIS PROJECT INCLUDES NO INSTALL OR MODIFICATION AT GRADE.

LEGEND	
⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
— x —	CHAINLINK FENCE

- PROPOSED CABLE LENGTH:**
- ESTIMATED LENGTH OF PROPOSED CABLE IS **235'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES). CDS DEFER TO GREATEST CABLE LENGTH.
  - ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. WHERE POSSIBLE UTILIZE EXISTING CABLE SUPPORT STRUCTURES AS PROVIDED FOR CARRIER TO ADEQUATELY SECURE CABLES, USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER. OTHERWISE, ATTACH CABLES TO HORIZONTAL OR DIAGONAL TOWER MEMBERS USING PROPOSED STAINLESS STEEL ADAPTERS (DO NOT ATTACH TO TOWER LEG).



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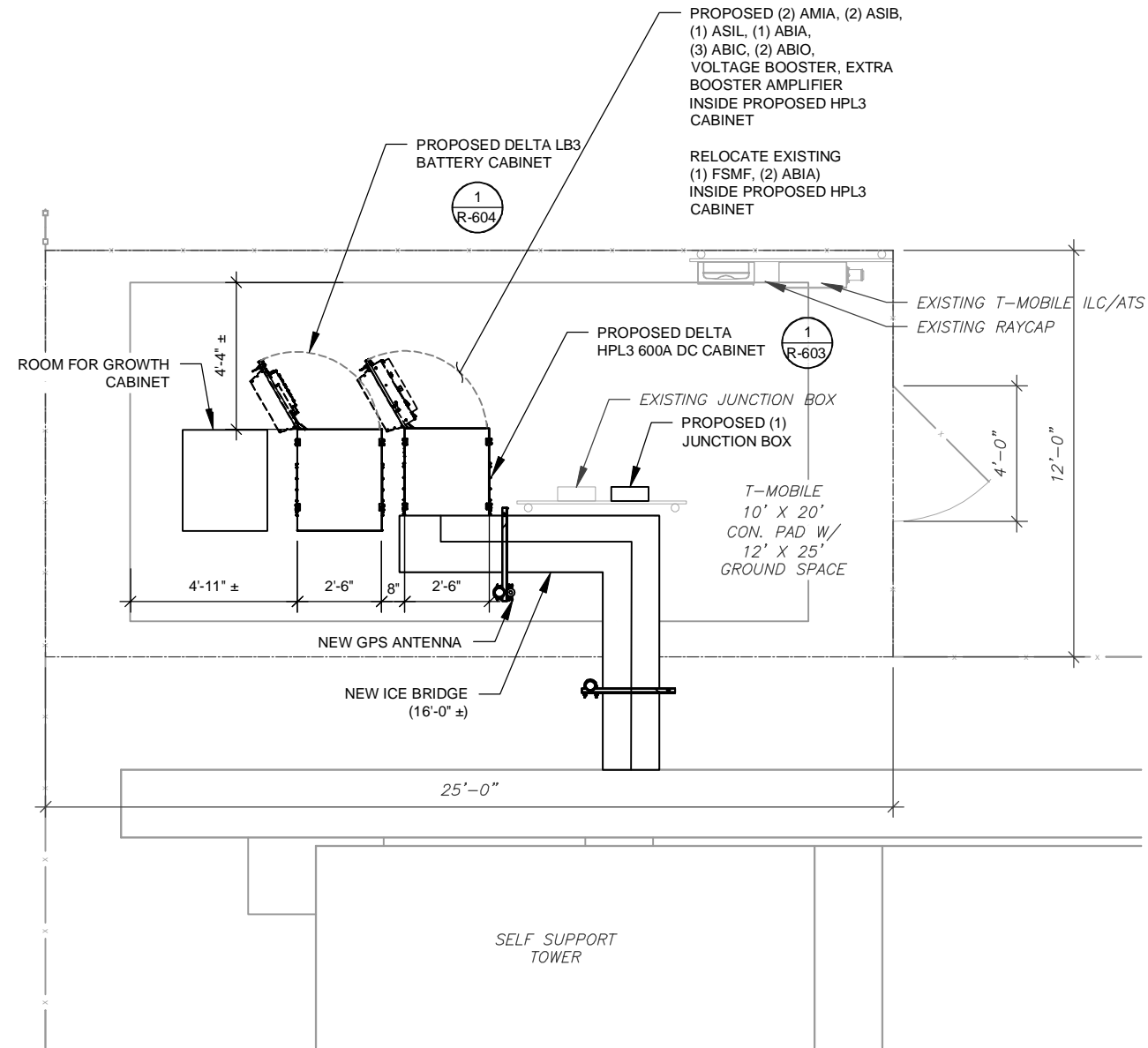
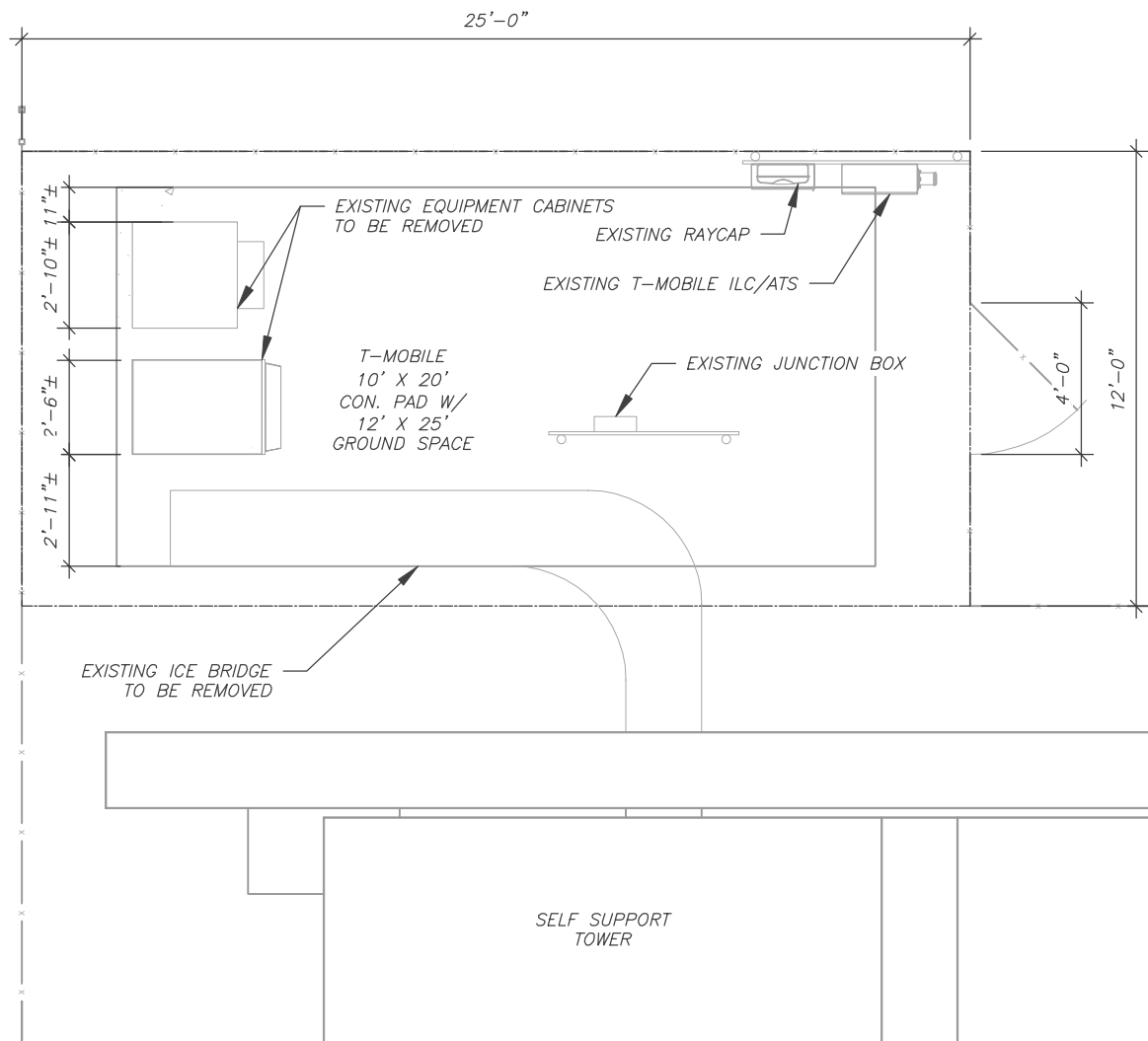
<b>DETAILED SITE PLAN</b>	
SHEET NUMBER: <b>C-101</b>	REVISION: <b>0</b>

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**SITE PLAN NOTES:**

1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
2. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
3. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO BE REMOVED FROM EQUIPMENT AREA. DISPOSE OF MATERIALS PROPERLY OFF SITE.

T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS.  
 ALL ABOVE GROUND CONDUIT LESS THAN 6" CAN BE LFMC.  
 ALL ABOVE GROUND CONDUIT OVER 6" MUST BE RGS.  
 ALL PVC CONDUIT MUST BE BURIED.



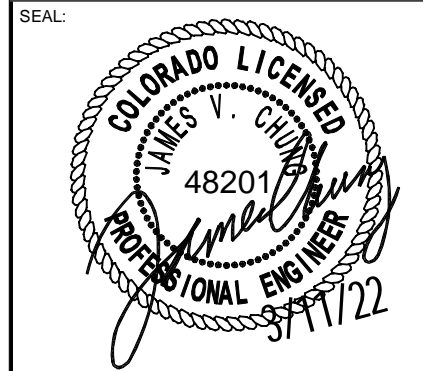
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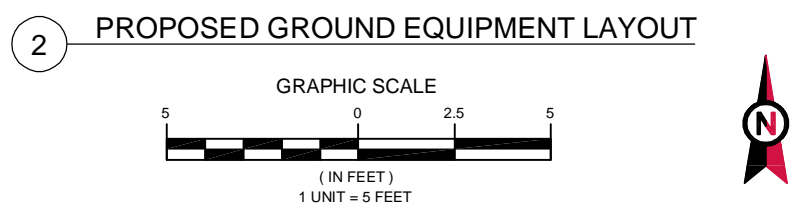
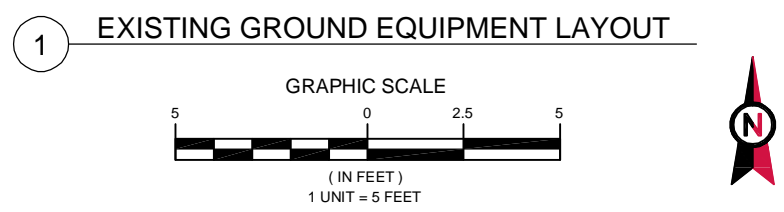
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 11610 HAHN RD  
 CALHAN, CO 80808-9242



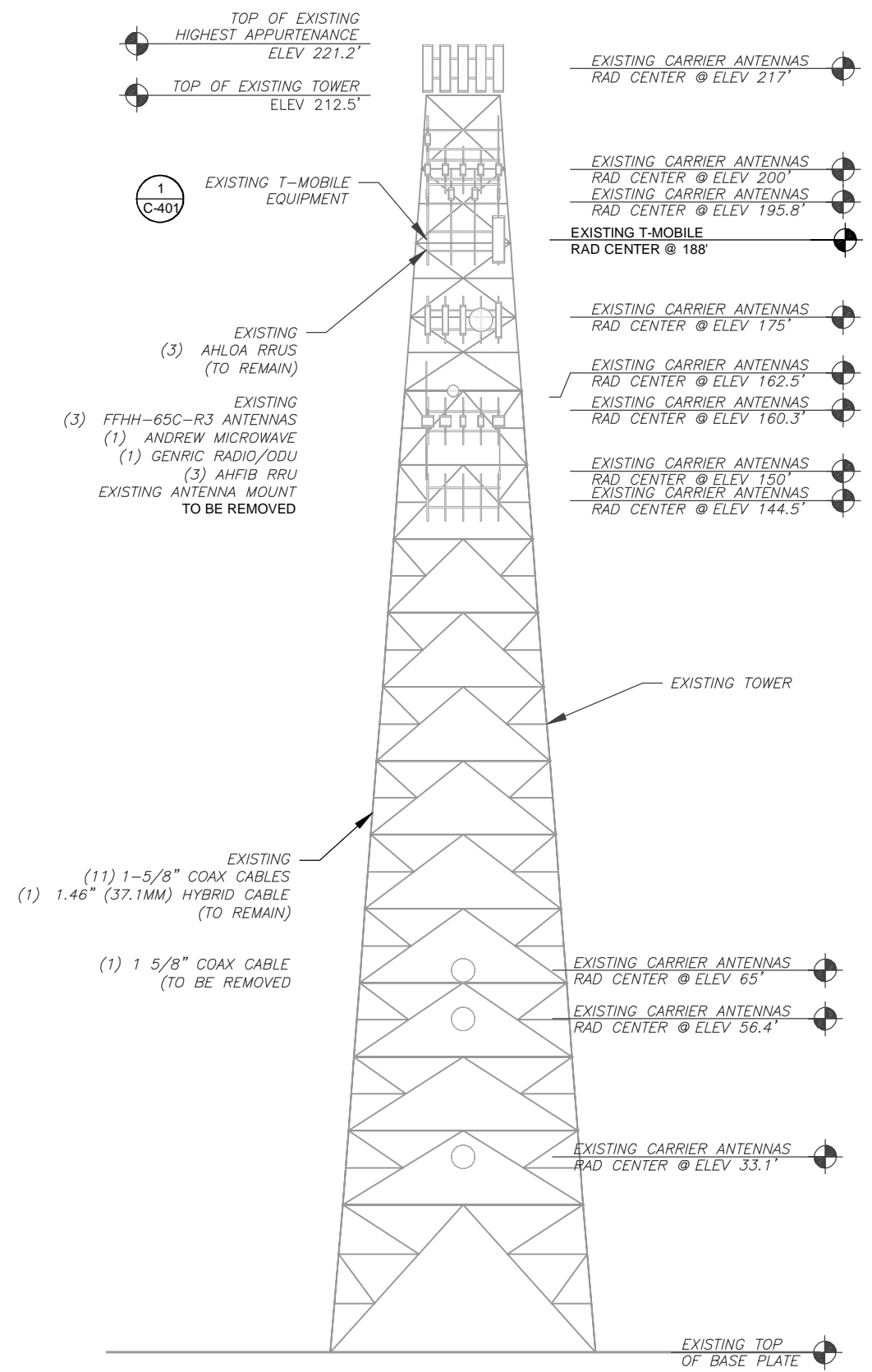
DATE DRAWN:	03/11/22
ATC JOB NO:	13743077_G3
CUSTOMER ID:	ATC_CALHAN_LMU
CUSTOMER #:	DN04231A

**DETAILED GROUND PLAN**

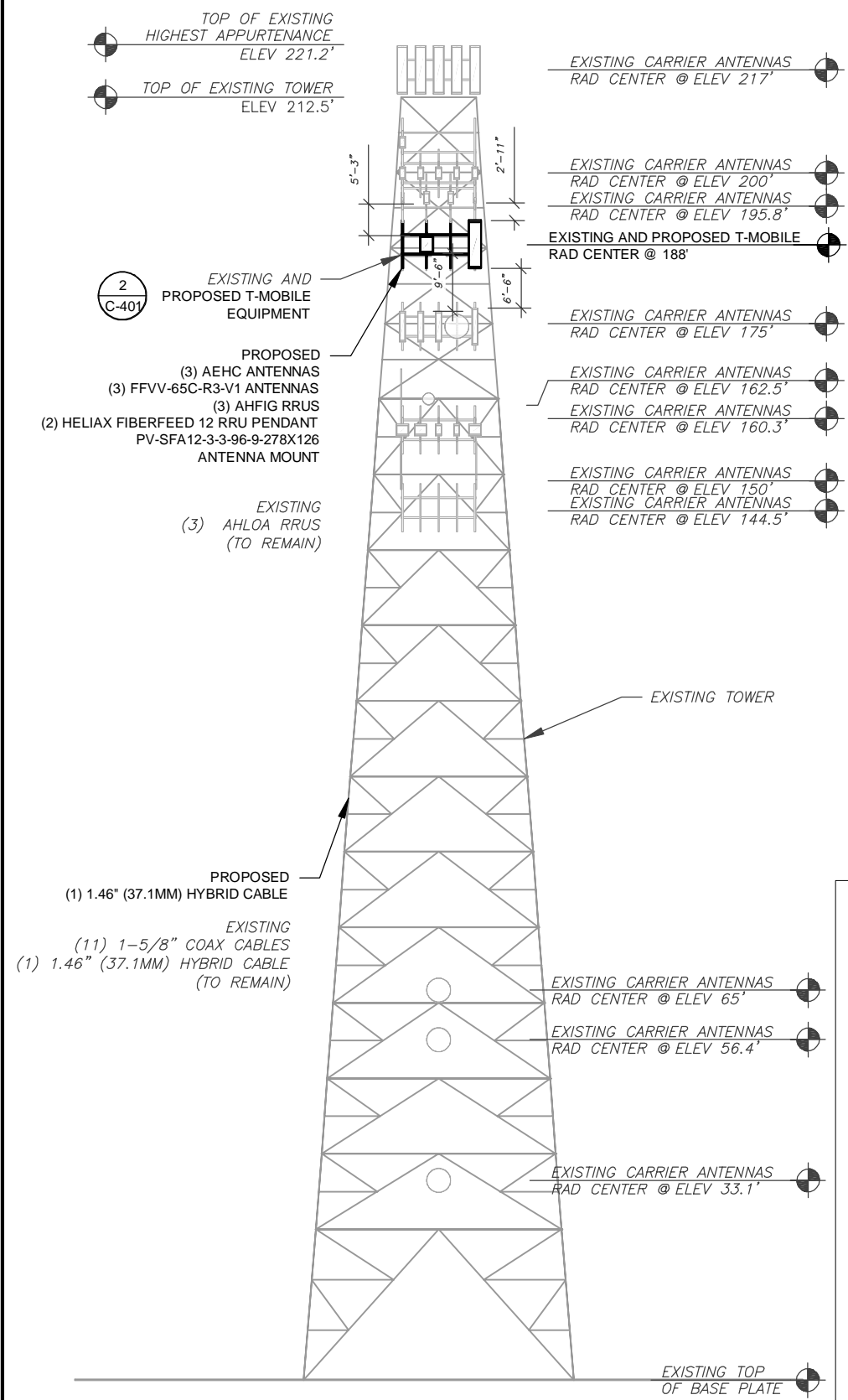
SHEET NUMBER:	REVISION:
<b>C-102</b>	<b>0</b>



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**1** EXISTING TOWER ELEVATION  
SCALE: N.T.S.



**2** PROPOSED TOWER ELEVATION  
SCALE: N.T.S.

**TOWER NOTE:**

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
- WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
- ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. WHERE POSSIBLE UTILIZE EXISTING CABLE SUPPORT STRUCTURES AS PROVIDED FOR CARRIER TO ADEQUATELY SECURE CABLES, USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER. OTHERWISE, ATTACH CABLES TO HORIZONTAL OR DIAGONAL TOWER MEMBERS USING PROPOSED STAINLESS STEEL ADAPTERS (DO NOT ATTACH TO TOWER LEG).
- TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)
- TOWER ELEVATION DEPICTION MAY NOT REFLECT ALL EQUIPMENT INCLUDED IN STRUCTURAL ANALYSIS. REFER TO STRUCTURAL ANALYSIS FOR FULL TOWER LOADING.

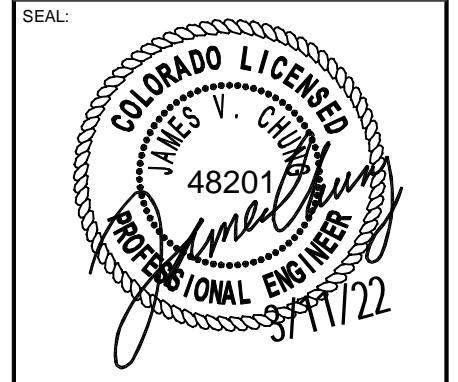
REV.	DESCRIPTION	BY	DATE
△	FOR CONSTRUCTION	MLDV	03/11/22
△			
△			
△			

ATC SITE NUMBER:  
**88795**

ATC SITE NAME:  
**CALHAN CO**

T-MOBILE SITE NAME:  
**ATC\_CALHAN\_LMU**

SITE ADDRESS:  
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CALHAN, CO 80808-9242



DATE DRAWN:	03/11/22
ATC JOB NO:	13743077_G3
CUSTOMER ID:	ATC_CALHAN_LMU
CUSTOMER #:	DN04231A

**TOWER ELEVATION**

SHEET NUMBER: **C-201**      REVISION: **0**



REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MLDV	03/11/22

ATC SITE NUMBER:  
88795

ATC SITE NAME:  
CALHAN CO

T-MOBILE SITE NAME:  
ATC\_CALHAN\_LMU

SITE ADDRESS:  
11610 HAHN RD  
CALHAN, CO 80808-9242

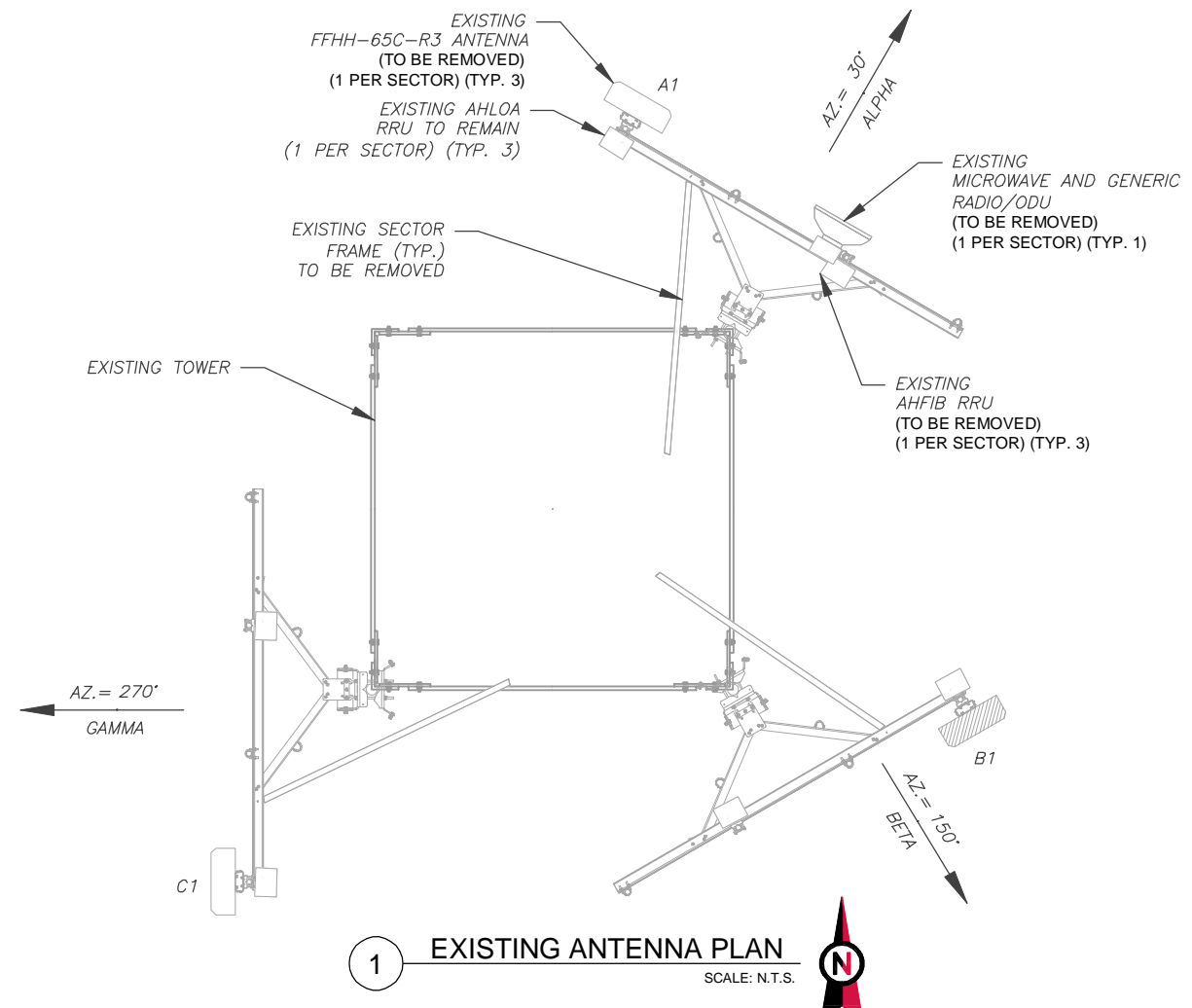
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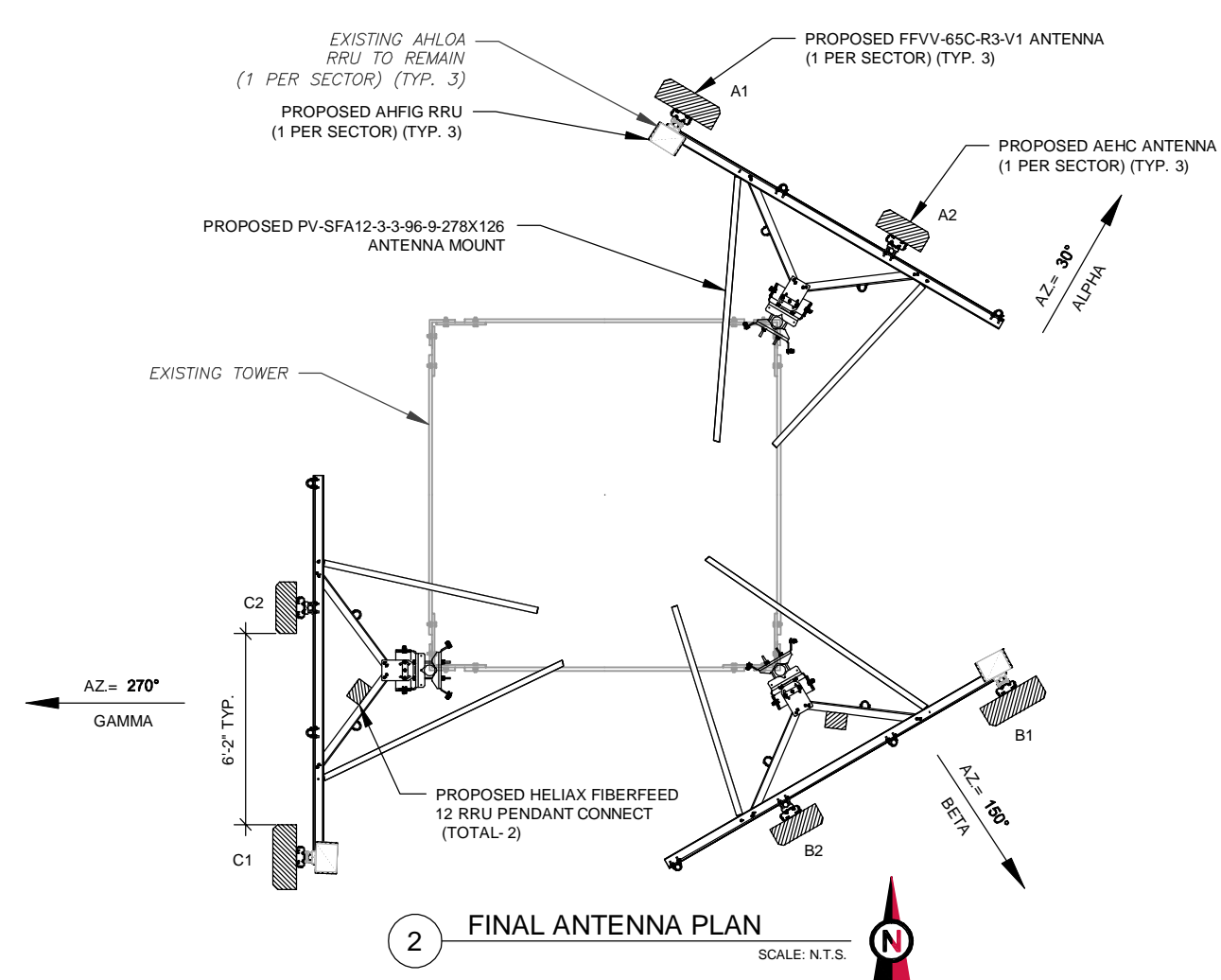
DATE DRAWN:	03/11/22
ATC JOB NO:	13743077_G3
CUSTOMER ID:	ATC_CALHAN_LMU
CUSTOMER #:	DN04231A

**ANTENNA INFORMATION & SCHEDULE**

SHEET NUMBER: **C-401** REVISION: **0**



**1 EXISTING ANTENNA PLAN**  
SCALE: N.T.S.



**2 FINAL ANTENNA PLAN**  
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE									
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	188'	30°	A1	FFHH-65C-R3 (OCTO)	L700,L600,N600, L1900, G1900	0/6,0/4	RMV	AHLOA, AHFIB	RMN, RMV
BETA	188'	150°	B1	FFHH-65C-R3 (OCTO)	L700,L600,N600, L1900, G1900	0/2,0/4	RMV	AHLOA, AHFIB	RMN, RMV
GAMMA	188'	270°	C1	FFHH-65C-R3 (OCTO)	L700,L600,N600, L1900, G1900	0/6,0/4	RMV	AHLOA, AHFIB	RMN, RMV

**NOTES**

- CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
- CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.

**STATUS ABBREVIATIONS**

RMV: TO BE REMOVED  
RMN: TO REMAIN  
REL: TO BE RELOCATED  
ADD: TO BE ADDED

**CABLE LENGTHS FOR JUMPERS**

JUNCTION BOX TO RRU: 15'  
RRU TO ANTENNA: 10'

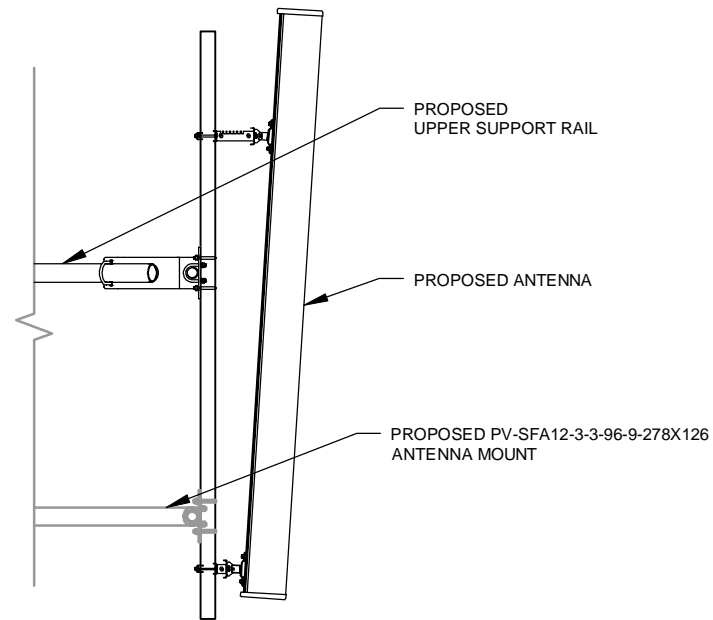
FINAL ANTENNA SCHEDULE									
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	188'	30°	A1	FFVV-65C-R3-V1 (OCTO)	L700,L600,N600,L2100, L1900,G1900, N1900,N2100	0/2	ADD	AHLOA, AHFIG	RMN, ADD
			A2	AEHC	L2500,N2500	0/2	ADD		
BETA	188'	150°	B1	FFVV-65C-R3-V1 (OCTO)	L700,L600,N600,L2100, L1900,G1900, N1900,N2100	0/2	ADD	AHLOA, AHFIG	RMN, ADD
			B2	AEHC	L2500,N2500	0/2	ADD		
GAMMA	188'	270°	C1	FFVV-65C-R3-V1 (OCTO)	L700,L600,N600,L2100, L1900,G1900, N1900,N2100	0/2	ADD	AHLOA, AHFIG	RMN, ADD
			C2	AEHC	L2500,N2500	0/2	ADD		

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(1) 1-5/8"	-	RMV

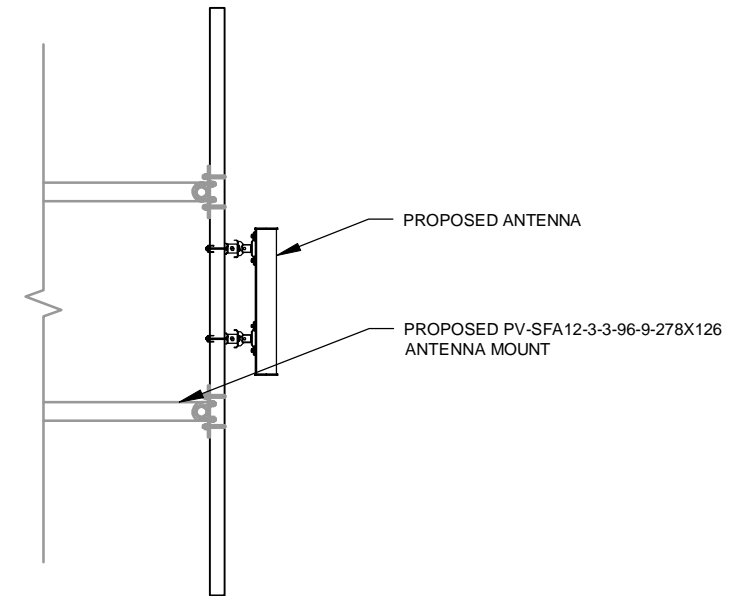
**3 EQUIPMENT SCHEDULES**

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
HELIAX FIBERFEED 12 RRU PENDANT CONNECT (X2)	ADD	(11) 1-5/8"	1.46"(37.1MM)	RMN
			1.46"(37.1MM)	ADD

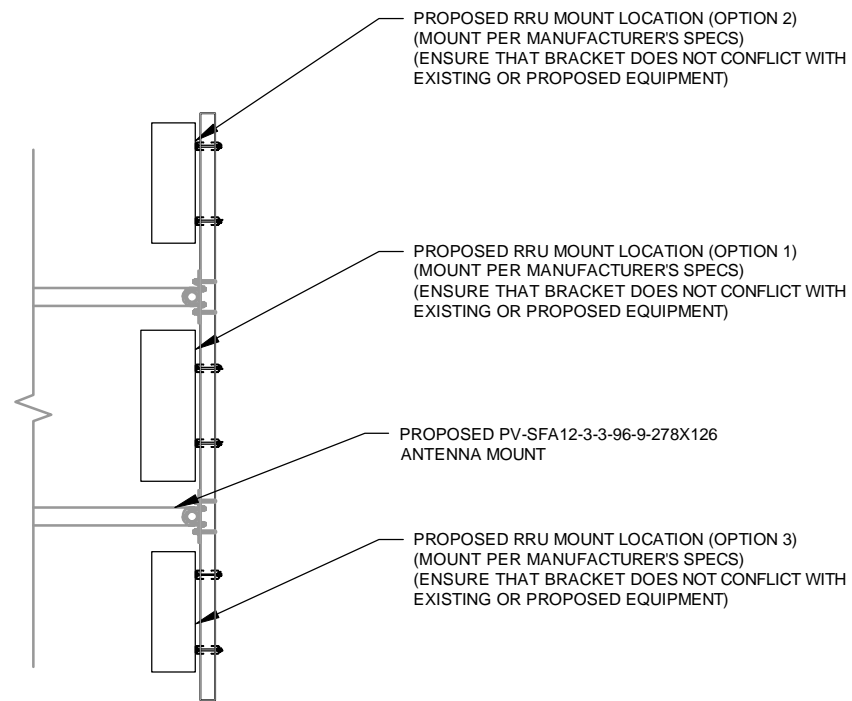
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1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL  
SCALE: N.T.S.



2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL  
SCALE: N.T.S.



3 PROPOSED RRU MOUNTING DETAIL - TYPICAL  
SCALE: N.T.S.



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REV.	DESCRIPTION	BY	DATE
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△			
△			
△			

ATC SITE NUMBER:  
88795

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CALHAN CO

T-MOBILE SITE NAME:  
ATC\_CALHAN\_LMU

SITE ADDRESS:  
11610 HAHN RD  
CALHAN, CO 80808-9242

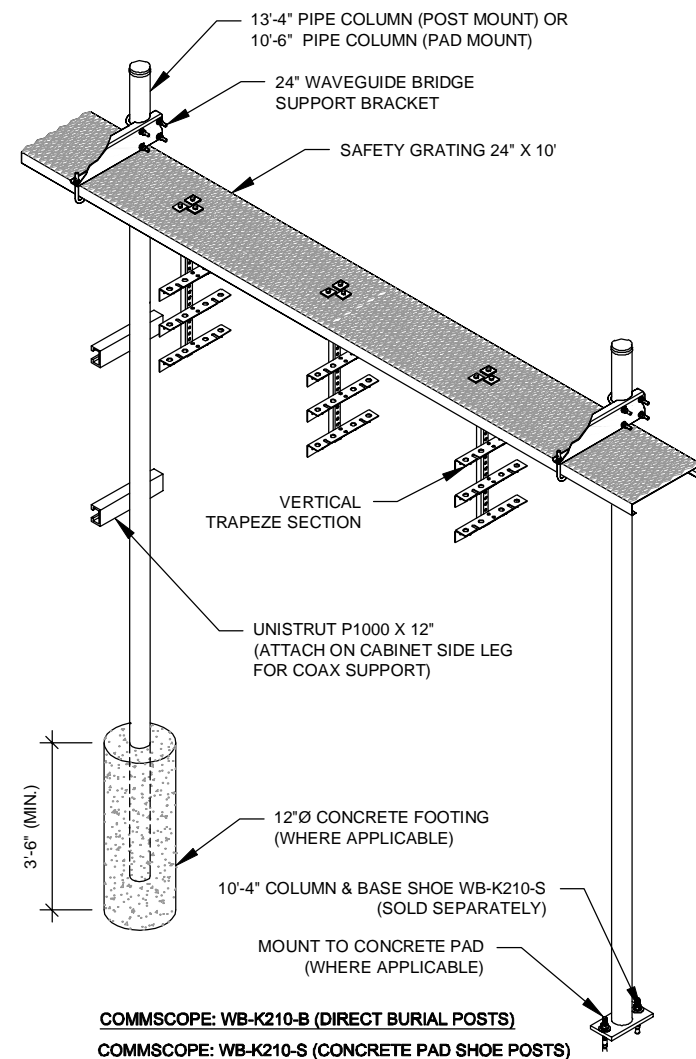
SEAL:



DATE DRAWN:	03/11/22
ATC JOB NO:	13743077_G3
CUSTOMER ID:	ATC_CALHAN_LMU
CUSTOMER #:	DN04231A

CONSTRUCTION  
DETAILS

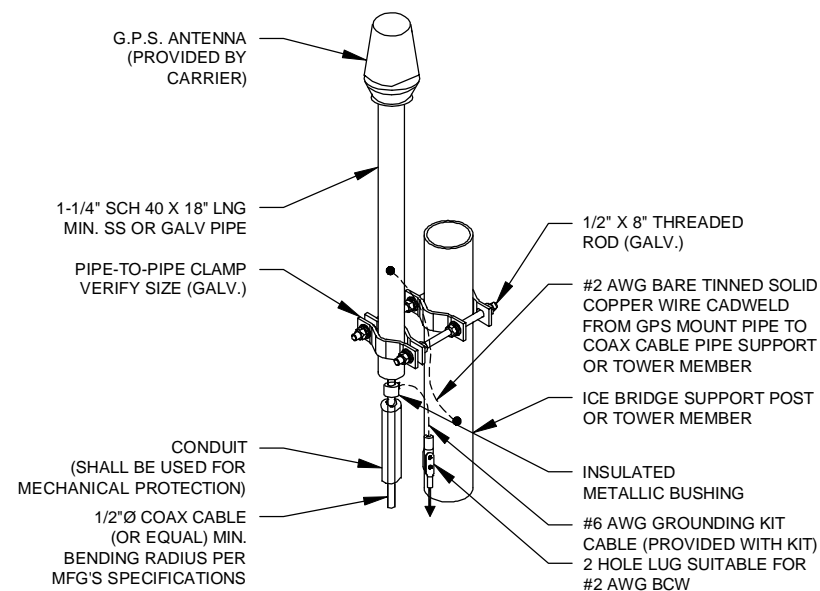
SHEET NUMBER:	REVISION:
C-501	0



**CONSTRUCTION NOTE:**

1. INSTALL ICE BRIDGE TO ALLOW 7 FEET CLEARANCE ABOVE GRADE TO LOWEST APPURTENANCE.
2. INSTALL PER MANUFACTURES SPECIFICATION.

**1** WAVEGUIDE BRIDGE KIT  
SCALE: N.T.S.



**NOTE:**

1. GPS SHALL BE PLACED WITH CLEAR SIGHT LINE TO THE SOUTHERN SKY.
2. CONTRACTOR TO SUPPLY COAX FOR GPS UNIT.

**2** GPS ANTENNA ATTACHMENT DETAIL  
SCALE: N.T.S.

REV.	DESCRIPTION	BY	DATE
△	FOR CONSTRUCTION	MLDV	03/11/22
△			
△			
△			

ATC SITE NUMBER:  
88795

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T-MOBILE SITE NAME:  
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11610 HAHN RD  
CALHAN, CO 80808-9242

SEAL:

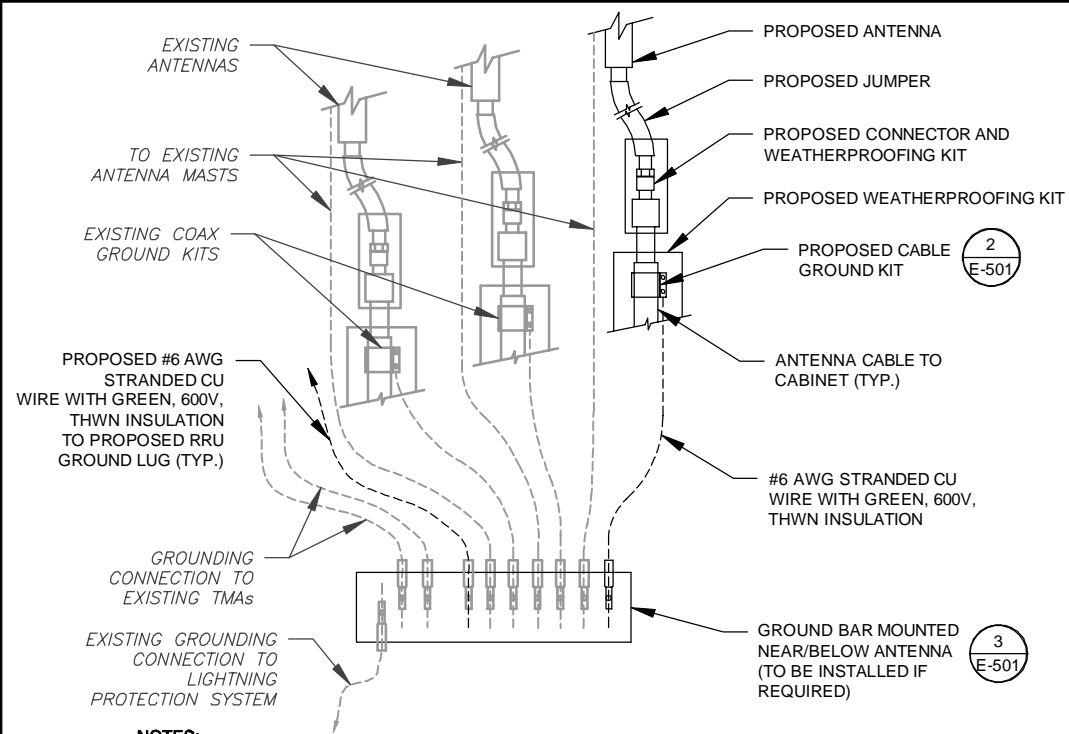


DATE DRAWN:	03/11/22
ATC JOB NO:	13743077_G3
CUSTOMER ID:	ATC_CALHAN_LMU
CUSTOMER #:	DN04231A

**CONSTRUCTION DETAILS**

SHEET NUMBER:	REVISION:
<b>C-502</b>	<b>0</b>

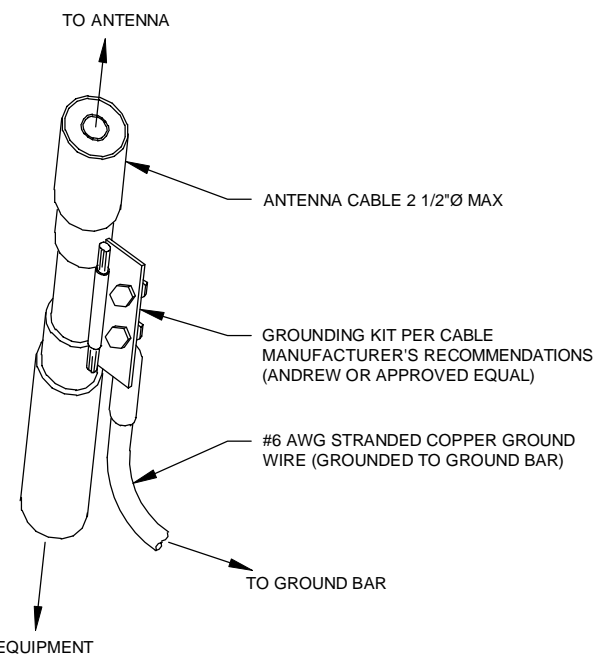




**NOTES:**

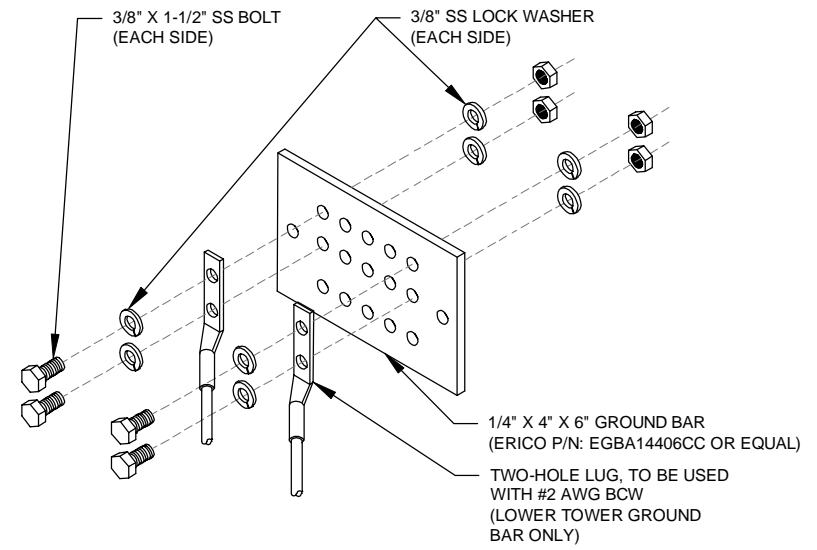
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

**1** TYPICAL ANTENNA GROUNDING DIAGRAM  
SCALE: N.T.S.



- GROUND KIT NOTES:**
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
  2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

**2** CABLE GROUND KIT CONNECTION DETAIL  
SCALE: N.T.S.



- GROUND BAR NOTES:**
1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
  2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

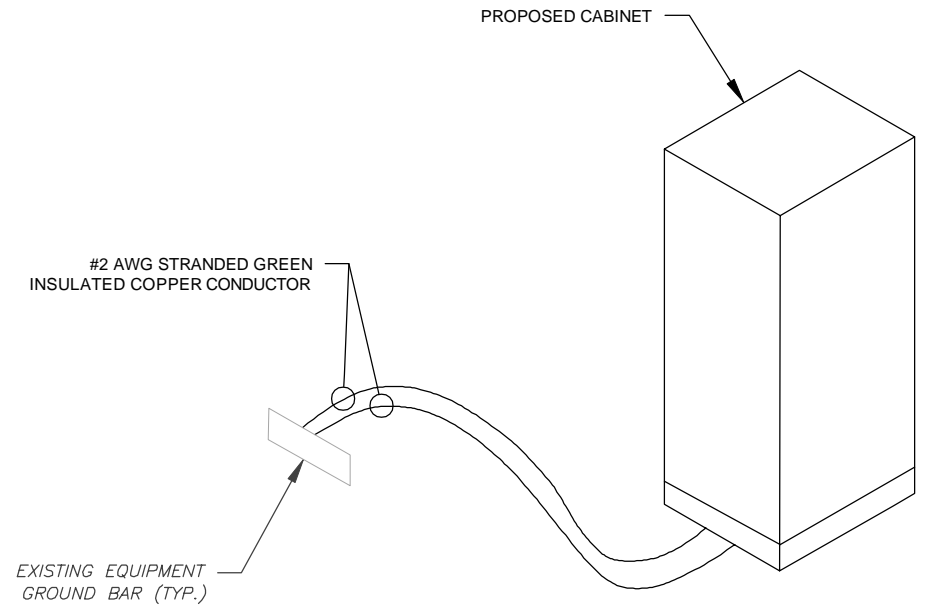
**3** TOWER GROUND BAR DETAIL  
SCALE: N.T.S.

**ELECTRICAL NOTES:**

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
2. ATC HAS NOT VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER. PROPOSED CABLE AND CONDUIT SHALL BE MINIMUM SIZE PER BELOW IN CHART.
3. FOR SPECIFIC CABINET / ANCILLARY EQUIPMENT WIRING REQUIREMENTS, THE T-MOBILE CONTRACTOR SHOULD REFERENCE DESIGN DOCUMENTS PROVIDED BY T-MOBILE FOR THIS CURRENT PROJECT CONFIGURATION, IN ACCORDANCE WITH LOCAL JURISDICTION REQUIREMENTS & NEC STANDARDS & PRACTICES.

OCPD SIZE	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
80A/2P	2#3 AWG	#8 AWG	1-1/4"
100/2P	2#2 AWG	#8 AWG	1-1/4"
125A/2P	2#1 AWG	#8 AWG	1-1/2"
150A/2P	2#1/0 AWG	#8 AWG	1-1/2"

**4** ELECTRICAL NOTES



**5** CABINET GROUNDING DETAIL  
SCALE: N.T.S.



REV.	DESCRIPTION	BY	DATE
△	FOR CONSTRUCTION	MLDV	03/11/22
△			
△			
△			
△			

ATC SITE NUMBER:  
**88795**

ATC SITE NAME:  
**CALHAN CO**

T-MOBILE SITE NAME:  
**ATC\_CALHAN\_LMU**

SITE ADDRESS:  
11610 HAHN RD  
CALHAN, CO 80808-9242



DATE DRAWN:	03/11/22
ATC JOB NO:	13743077_G3
CUSTOMER ID:	ATC_CALHAN_LMU
CUSTOMER #:	DN04231A

**GROUNDING DETAILS**

SHEET NUMBER:	REVISION:
<b>E-501</b>	<b>0</b>

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PANEL DESIGNATION: <b>TMO</b>		TYPE: LIGHTING & APPLIANCE	SYSTEM: 120/240V, 1Ø, 3W, 24 CKT	LOCATION: TMO LEASE EQUIPMENT AREA
		MOUNTING: SURFACE	MAIN BREAKER (MB): 200A	PANEL NOTES: PROPOSED
		ENCLOSURE: NEMA 3R	MAIN BUS RATING: 200A	
			MIN. A.I.C. RATING: N/A	

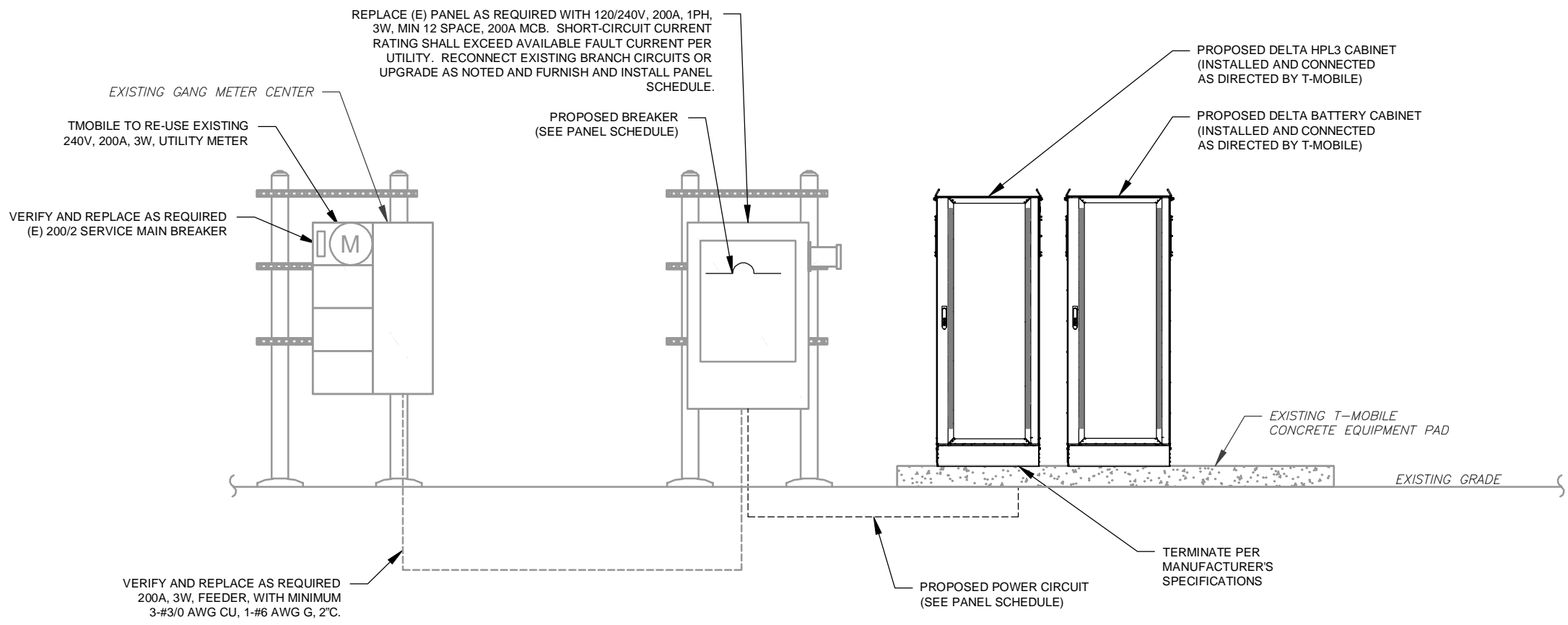
  

CONNECTED LOAD (KVA)		BRIEF DESCRIPTION	FEEDER OR BRANCH CIRCUIT						CIRC. NO.	CIRC. NOTES	FEEDER OR BRANCH CIRCUIT						CIRC. NO.	CIRC. NOTES	CONNECTED LOAD (KVA)	
A	B		BREAKER	CIRCUIT	POLE	CIR. NO.	CIR. NOTES	POLE			CIR. NO.	CIR. NOTES	COND.	GND	WIRE	POLES			AMPS	A
0.01	0.01	SURGE	60	2	3-#6	#10	1"	1		2	1/2"	#12	2-#12	1	20	GR	0.18			
								3		4	1/2"	#12	2-#12	1	20	LIGHT		0.50		
12.75		DELTA HPL3	200	2	3-#3/0	#6	2"	5		6	1/2"	#12	2-#12	1	20	AAV GR	0.15			
	12.75							7		8								0.00		
0.18		HPL3 GFI	20	1	2-#12	#12		9		10								0.00		
	5.25							11		12								0.00		
5.25		HPL3 EXPANSION	100	2	3-#1	#8	2"	13		14								0.00		
	0.00							15		16								0.00		
0.00								17		18								0.00		
	0.00							19		20								0.00		
0.00								21		22								0.00		
	0.00							23		24								0.00		
18.2	18.0																	0.3	0.5	
								A	B	TOTAL										
								18.5	18.5	37.0	CONNECTED LOAD (KVA)									
								18.5	18.5	37.0	DEMAND LOAD (KVA)									

DERATING FACTOR (80%)  
DEMAND LOAD SIZING: 193 AMPS

**1** PANEL SCHEDULE

- ELECTRICAL NOTES:**
- THIS DIAGRAM REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
  - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
  - ATC HAS NOT YET VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER.



**2** ELECTRICAL SCHEMATIC  
SCALE: N.T.S.

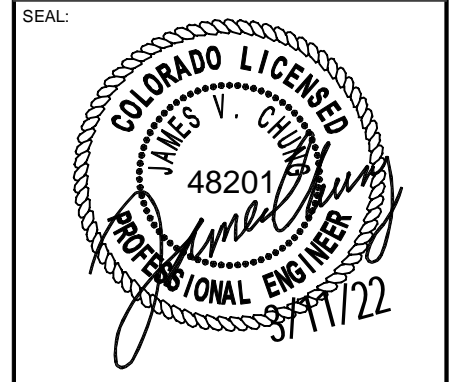
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MLDV	03/11/22

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ATC SITE NAME:  
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DATE DRAWN:	03/11/22
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CUSTOMER ID:	ATC_CALHAN_LMU
CUSTOMER #:	DN04231A

**PANEL SCHEDULE & ELECTRICAL SCHEMATIC**

SHEET NUMBER: <b>E-601</b>	REVISION: <b>0</b>
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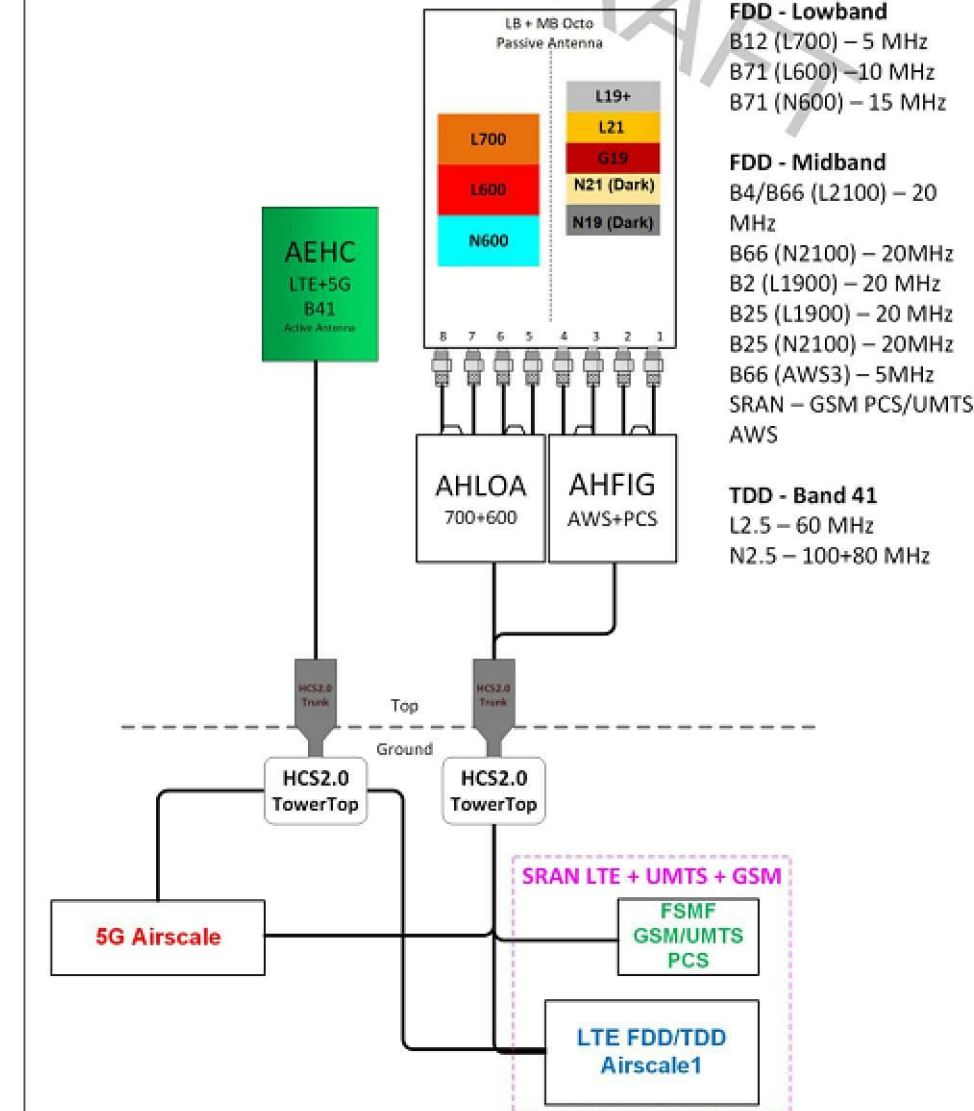
Proposed RAN Equipment				
Template: 56791EZ_SR_U21				
Enclosure	1	2	3	4
Enclosure Type	Generic 600A Site Support Cabinet	Tower Top Mount (Nokia)	Ancillary Equipment (Nokia)	Generic Battery Cabinet for 600A SSC
Baseband	ASIB (L700, L500, L2100, L1900) ASIB (L2500) FSMF (G1900) ASIL (N600, N2500, N1900 (DARK), N2100 (DARK))			
Baseband Submodule	ABIA (x 2) (L2100, L1900) ABIA (L700, L600) ABIC (x 3) (L2500) ABIO (N600, N1900 (DARK), N2100 (DARK)) ABIO (N2500)			
Baseband Subrack	AMIA (x 2)			
Hybrid Cable System	Voltage Booster needed if hybrid under 250' Extra Booster Amplifier needed if hybrid under 250'		Nokia HCS 2.0 Trunk *Select Length* (x 2)	
Junction Box			Nokia HCS 2.0 Tower Junction Box (x 2)	
Power subsystem	Rectifier Shelf *Select size* Breakers *Select size*			Batteries *Select size*
Radio		AHLOA (x 3) (L700, L600, N600) AHFIG (x 3) (L2100, L1900, G1900, N1900 (DARK), N2100 (DARK))		
Transport System	CSR IXRe V2 (Gen2)			
RAN Scope of Work: 9/2/21-Felipe-Currently there is not spectrum available for Anchor revertly on on final check				

1 CABINET CONFIGURATION  
SCALE: NOT TO SCALE

Section 3 - Proposed Template Images

Configuration 56791EZ\_SR\_U21

\* For 5G and LTE Airscale BB dimensioning refer to Fiber Port matrices.  
(Alpha, Beta & Gamma)



Notes:

<https://rfd-prod-web-core-secure.geo.cf.t-mobile.com/DataSheet/Printout/97f2b699-82dd-4419-8c24-73a5aa096b7e?layoutId=6bbdf028-3e5f-436d-...>

2 ANTENNA CONFIGURATION  
SCALE: NOT TO SCALE

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER: R-601  
REVISION: 0



This report was prepared for American Tower Corporation by



## Structural Analysis Report

**Structure** : 213 ft Self Support Tower  
**ATC Site Name** : CALHAN CO,CO  
**ATC Site Number** : 88795  
**Engineering Number** : 13743077\_C3\_03  
**Proposed Carrier** : T-MOBILE  
**Carrier Site Name** : ATC\_Calhan\_LMU  
**Carrier Site Number** : DN04231A  
**Site Location** : 11820 Hahn rd  
 CALHAN, CO 80808-9242  
 38.9991, -104.3136  
**County** : El Paso  
**Date** : February 11, 2022  
**Max Usage** : 87%  
**Result** : Pass

Prepared By:  
Nathanael Willard  
POD

Reviewed By:



Jason  
Cheronis

Digitally signed  
by Jason  
Cheronis  
Date: 2022.02.11  
11:28:08 -05'00'

POD GROUP - 1033 E. Turkeyfoot Lake Road, Suite 206 - Akron, OH 44312 - 330-961-7432 - www.podgrp.com



Eng. Number 13743077\_C3\_03  
February 11, 2022  
Page. 3

### Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 213 ft Self Support tower to reflect the change in loading by T-MOBILE.

### Supporting Documents

Tower Drawings	RC&R Job #85128, dated January 23, 1986 CSEI Analysis for ATC Engineering #73115498, dated January 24, 2003
Foundation Drawing	TEP Mapping #111954, dated June 7, 2011
Geotechnical Report	GeoTel Engineering Report #E11-200, dated June 6, 2011
Modifications	ATC Job #50478433, dated September 21, 2012

### Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	89 mph (3-second gust, Vasd)/130 mph (3-second gust, Vult)
Basic Wind Speed w/ Ice:	No Ice Considered
Code:	ANSI/TIA-222-G / 2015 IBC
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Spectral Response:	Ss = 0.15, S <sub>1</sub> = 0.05
Site Class:	D - Stiff Soil - Default

### Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact POD Group via email at bsmith@podgrp.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

POD GROUP - 1033 E. Turkeyfoot Lake Road, Suite 206 - Akron, OH 44312 - 330-961-7432 - www.podgrp.com

SUPPLEMENTAL

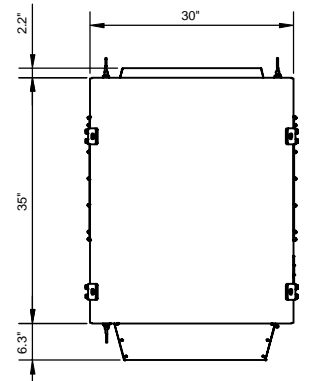
SHEET NUMBER:  
R-602

REVISION:  
0

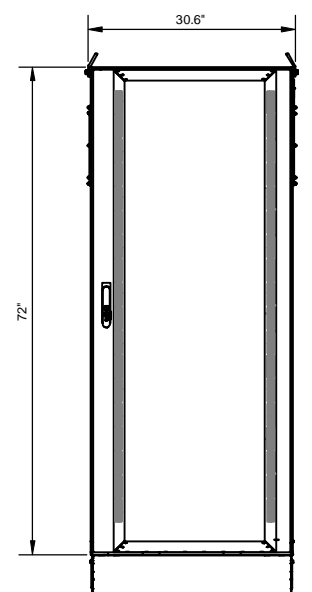
MANUFACTURER:	DELTA
MODEL:	HPL3 SITE SUPPORT CABINET
DIMENSIONS:	72" x 30" x 35" (H x W x D)
WEIGHT:	373 LBS

NOTE:

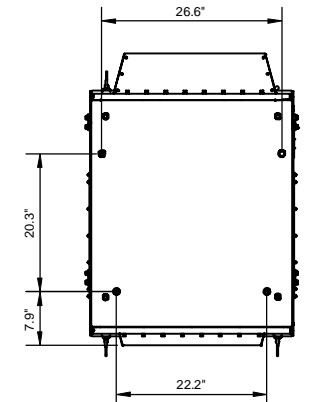
- CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL THROUGH KNOCKOUTS
- CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING



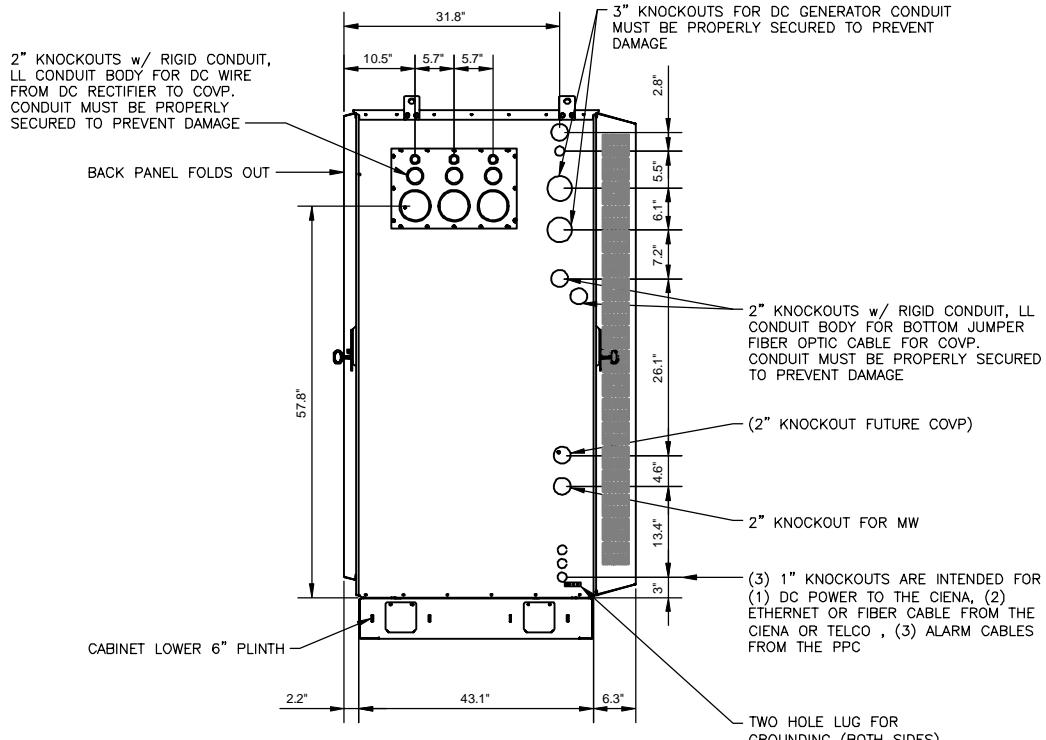
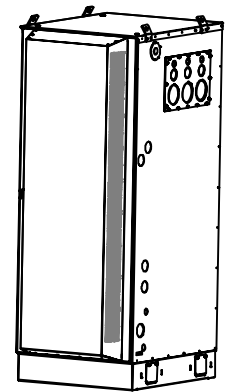
PLAN VIEW



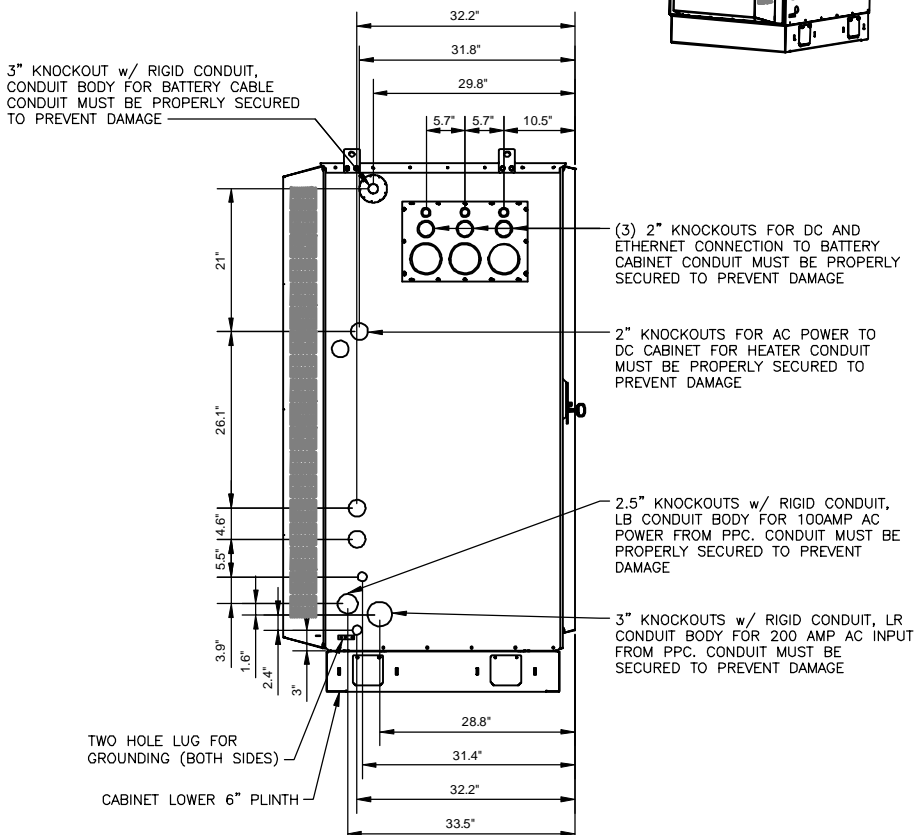
FRONT VIEW



BOLT DOWN PATTERN



LEFT VIEW



RIGHT VIEW

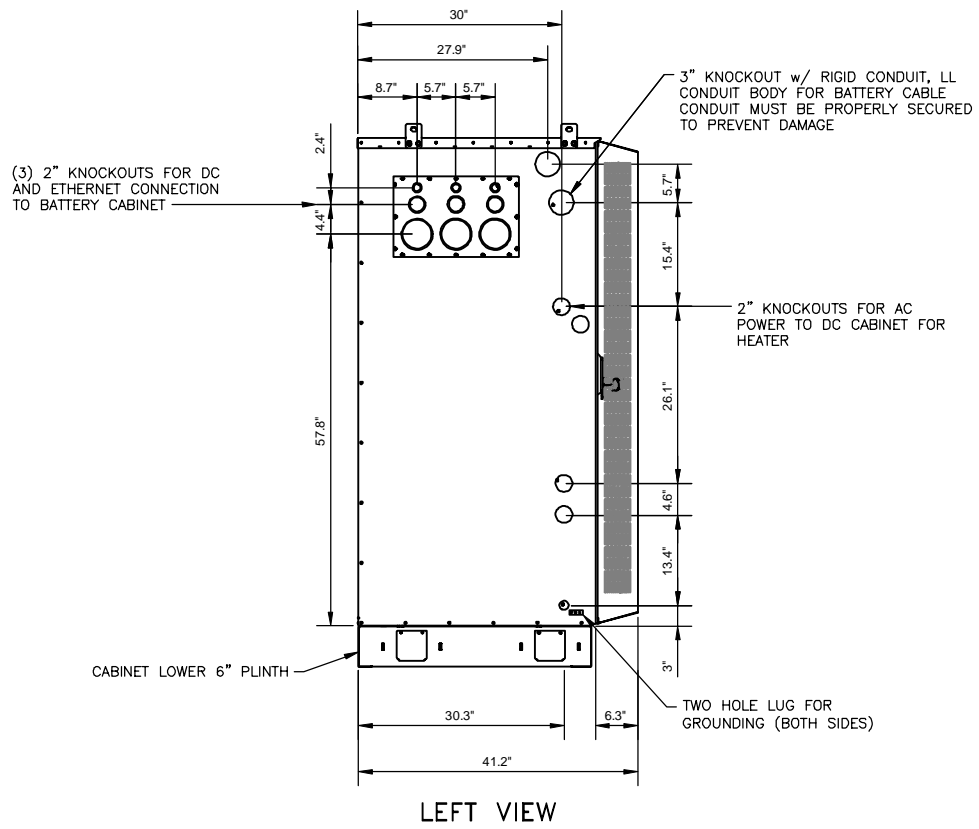
GROUNDING NOTE:

"CABINET GROUNDING TO USE A SINGLE, #2 BTCW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNC TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED."

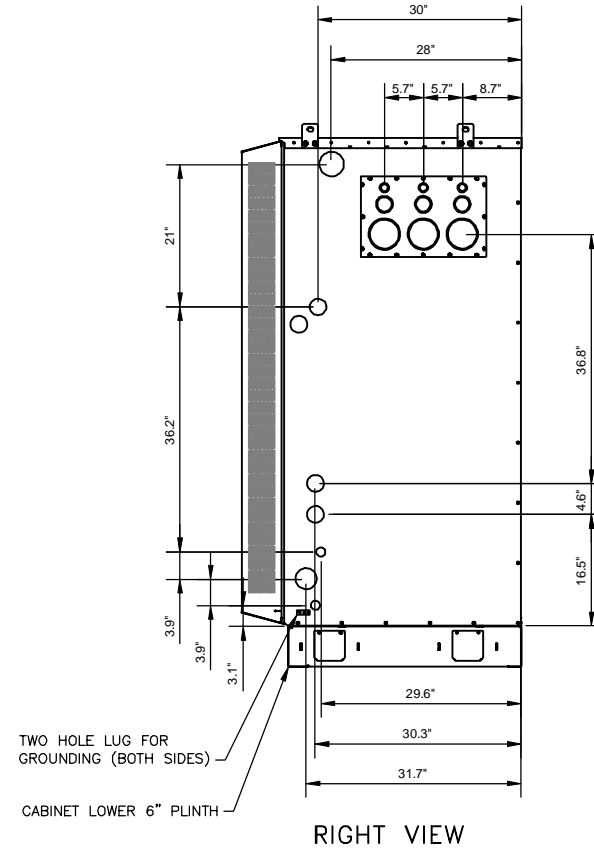
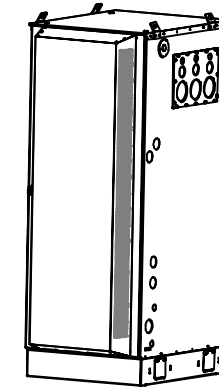
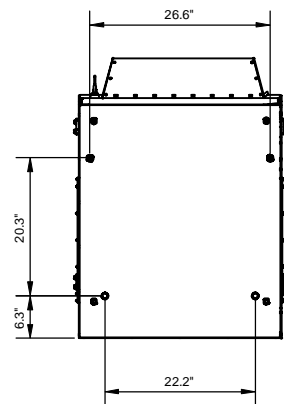
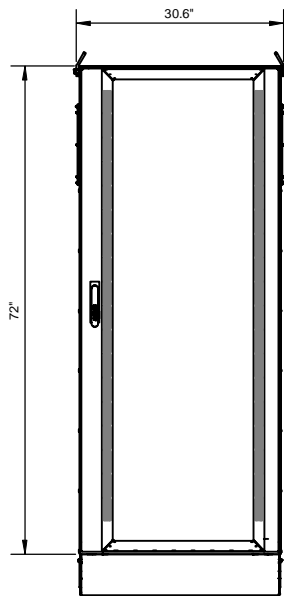
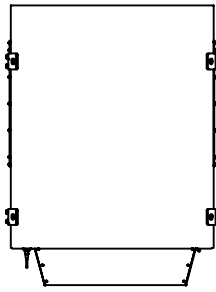
SUPPLEMENTAL	
SHEET NUMBER: <b>R-603</b>	REVISION: <b>0</b>

MANUFACTURER:	DELTA
MODEL:	LB3 BATTERY SUPPORT CABINET
DIMENSIONS:	72" x 30" x 35" (H x W x D)
WEIGHT:	509 LBS (WITHOUT EQUIPMENT)

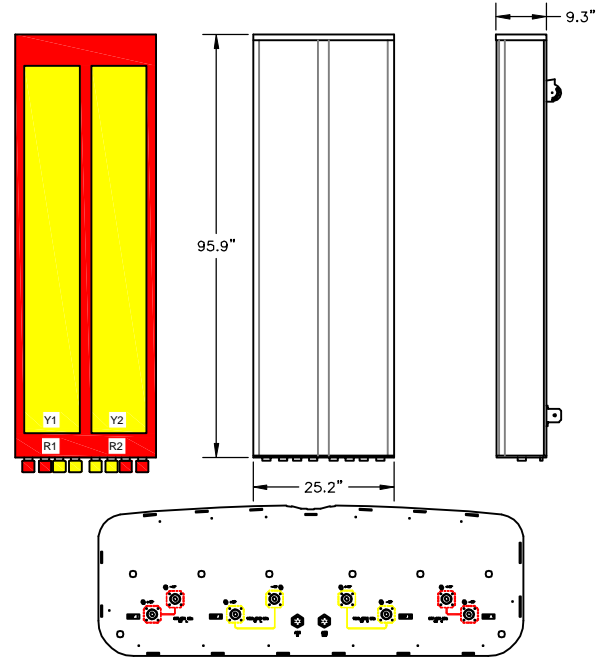
- NOTE:
- CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL THROUGH KNOCKOUTS
  - CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING



GROUNDING NOTE:  
 "CABINET GROUNDING TO USE A SINGLE, #2 BTCW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNC TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED."

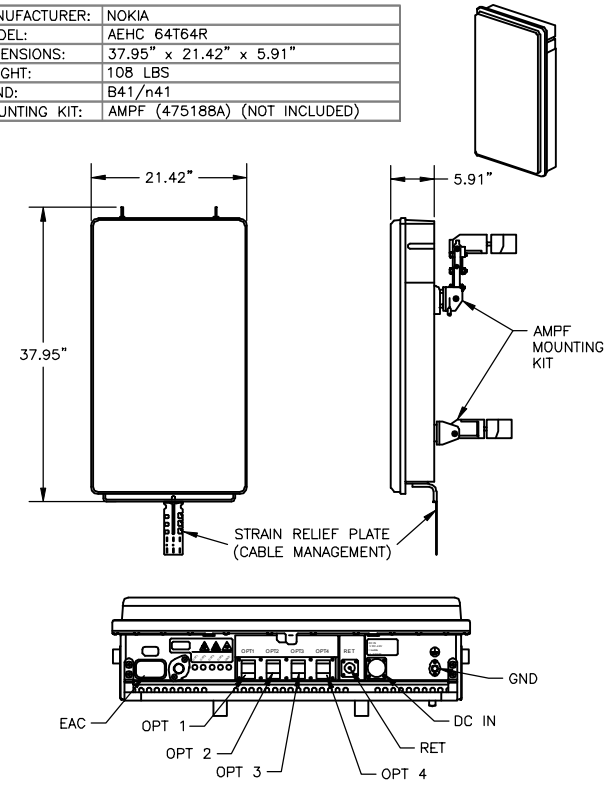


MANUFACTURER:	COMMSCOPE
MODEL:	FFV-65C-R3-V1 ANTENNA
DIMENSIONS:	95.9" x 25.2" x 9.3"
WEIGHT:	124.6 LB
BAND:	MULTIBAND (8 PORT)
MOUNTING KIT:	BSAMNT-4 & BSAMNT-M4 (INCLUDED)



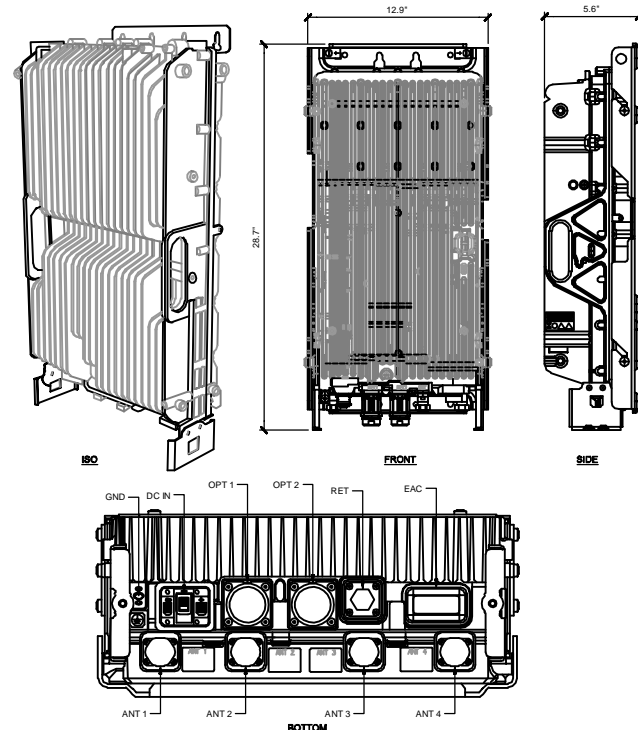
1 34074 - COMMSCOPE FFV-65C-R3-V1  
SCALE: N.T.S.

MANUFACTURER:	NOKIA
MODEL:	AEHC 64T64R
DIMENSIONS:	37.95" x 21.42" x 5.91"
WEIGHT:	108 LBS
BAND:	B41/n41
MOUNTING KIT:	AMPF (475188A) (NOT INCLUDED)



2 34117 - AIRSCALE MAA B41 AEHC  
SCALE: N.T.S.

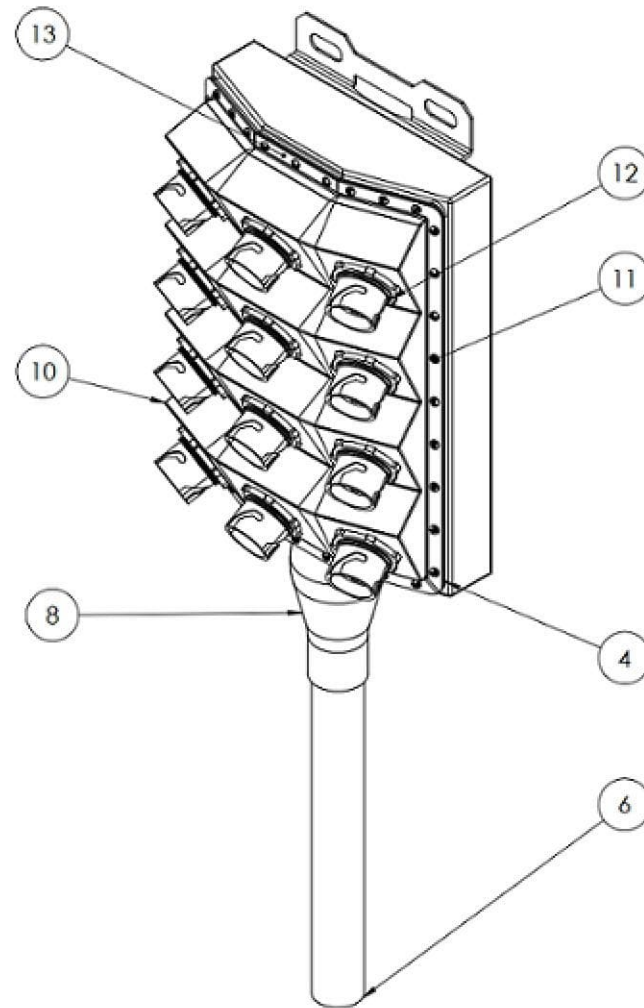
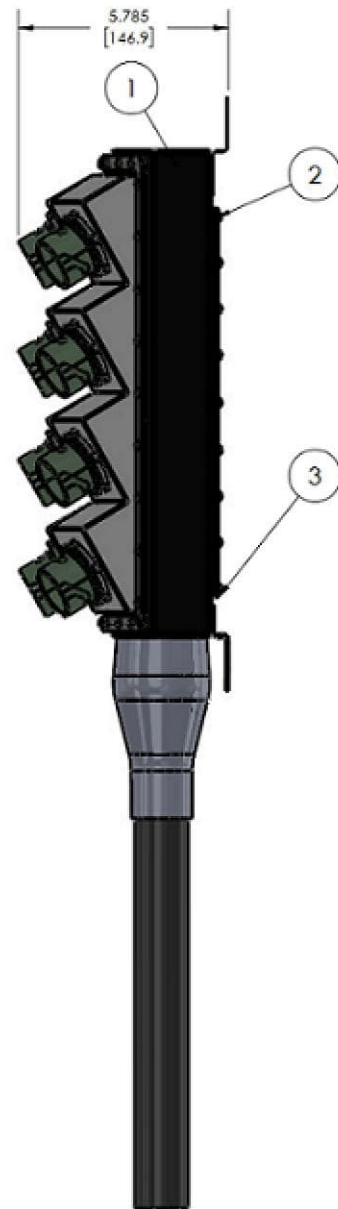
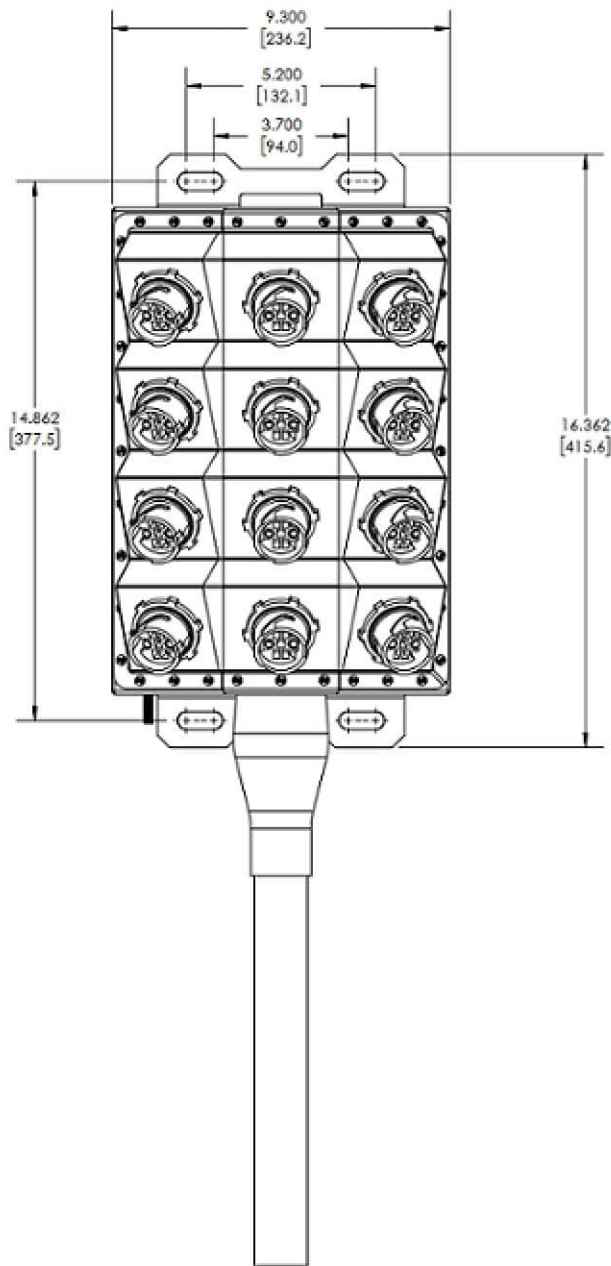
MANUFACTURER:	NOKIA
MODEL:	475125A
DIMENSIONS:	28.7"x12.9"x5.6" (W/MOUNTING BRACKETS AND COVER)
WEIGHT:	70.5 LBS
FREQUENCY:	B25, B66



3 34073 - AHFIG AIRSCALE DUAL RRH B25 B66  
SCALE: N.T.S.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-605	0



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	AC-8MBX05-HICAP-24P-CRS	BASED BOX SUB ASY	1
2	AC-GK05-HICAP-8P	EPDM GASKET FOR BACK PLATE	1
3	AC-1MBX05-HICAP-2HP-EDR-CRS	BACKING PLATE CLOSURE CRS	1
4	AC-GK05-HICAP-HX-SHT REV 1	EPDM GASKET HEX	1
5	230566362u	CABLE GLAND-TRUNK	1
6	Trunk Cable	HYBRID TRUNK CABLE	A/R
7	240_5	LOCK NUT-CABLE GLAND	1
8	HEAT SHRINK/AC-FB05-HICAP-FULLASY-CRS	HEAT SHRINK TUBE	1
10	AC-FB05-HICAP-HEX-SHELL-SENK	POLYCARBONATE HEX SHELL-UV STABILIZED-SENKO CUTOUT	1
11	3G1/RB04058	TAMPERED PROOF #4-32 SCREW	64
12	IF25-LC4-AS-D	U HYBRID 25, 4 X LC & 2 X BA1/G ADAPTER ASSEMBLY	12
13	AC-ST05-HICAP-HX-GALV	GALV O-RING HEX	1
14	WASHER	WASHER	A/R

**CUSTOMER APPROVAL**

NAME: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

REV.	DESCRIPTION	DATE
1	RELEASED FOR PRODUCTION.	20180530

REVISIONS

**ALLIANCE™  
CORPORATION**

*THE POWER OF BEING CONNECTED.*

SIGNATURE	CYCLE	DATE
DRAWN:	MLE	20180525
CHECKED:	DOB	20180529
APPROVED:	DOB	20180530

DIM: ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE SPECIFIED.

DESCRIPTION:  
**HICAP HYBRID BREAKOUT CRS BOX (FULL ASSEMBLY)**

MATERIAL: CR STEEL A1008 CS

WEIGHT: 8.76

FINISH: POWDER COATED

COLOUR: BLACK

SHEET NO: 1 OF 1

DWG NO:  
**AC-FB05-HICAP-FULLASY-CRS**

SCALE:

TOLERANCE: X.X ± 0.020"  
X.XX ± 0.010"  
X.XXX ± 0.005"

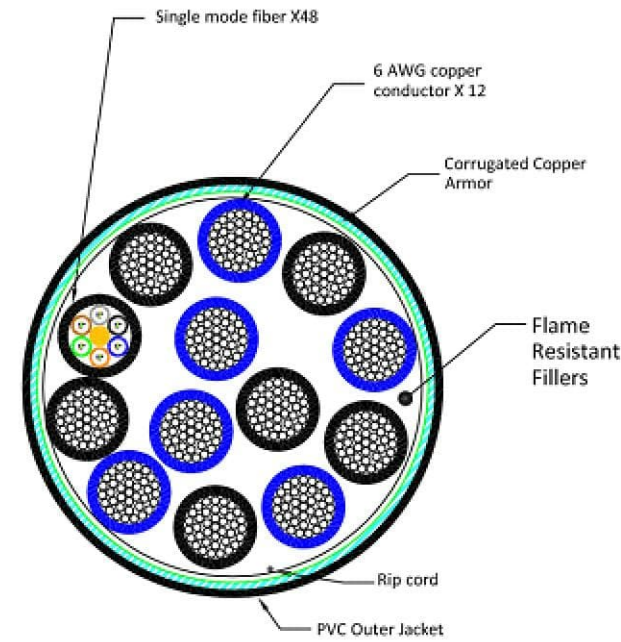
**DISCLAIMER**  
EXCEPT AS MAY BE OTHERWISE PROVIDED BY CONTRACT, THESE DRAWINGS AND SPECIFICATIONS ARE PROPRIETARY AND SHALL REMAIN THE PROPERTY OF ALLIANCE CORPORATION. THIS INFORMATION IS BEING ISSUED IN STRICT CONFIDENCE AND SHALL NOT BE REPRODUCED, COPIED, OR USED FOR ANY PURPOSE WITHOUT WRITTEN PERMISSION OF ALLIANCE CORPORATION.

SUPPLEMENTAL


SHEET NUMBER: **R-606**      REVISION: **0**



MECHANICAL	JACKET COLOR	BLACK
	OUTER DIAMETER (IN)	1.46
	MIN BENDING RADIUS(IN), MULTIPLE BENDS, LOADED	29.2
	MIN BENDING RADIUS(IN), MULTIPLE BENDS, UNLOADED	14.6
	MIN BENDING RADIUS(IN), SINGLE BEND, UNLOADED	10.22
	MIN BENDING RADIUS(IN), FURCATION	1.2
	ARMOR	CORRUGATED COPPER
	WEIGHT(lb/kft)	1610
	COMPRESSION(lb/IN)	250
	TENSILE LOAD, LONG TERM(lbf)	180
ELECTRICAL	TENSILE LOAD, SHORT TERM(lbf)	600
	CONDUCTOR MATERIAL	COPPER
	CONDUCTOR CONSTRUCTION	STRAND
	CONDUCTOR COLOR	BLUE/BLACK
	RESISTIVITY(nΩ @20°C)	16.78 nohm-M
	CONDUCTORS, QTY	12
	CONDUCTOR SIZE(AWG)	6
	EMI SHIELD	YES
	UL RATING	UL TC-OF-ER
	OPTICAL	FIBER TYPE
FIBERS, QTY		48
ATTENUATION(dB/km), MAX, 1550/1285-1330 nm		0.5
DISPERSION, MAX, 1550/1285-1330 nm		18 ps/3.5 ps
RETURN LOSS(dB)		>50
INSERTION LOSS(dB), POST ENVIRONMENTAL		REDUCTION < 0.65
RETURN LOSS(dB), POST ENVIRONMENTAL		REDUCTION < 5
CUTOFF WAVELENGTH(nm)		1260
PIGTAIL TERMINATION		LC PAIR, STRAIGHT
ENVIRON		OPERATING TEMP(°F)
	STORAGE TEMP(°F)	-40 TO +167
	UV	IEC 60068-2-5
	THERMAL CYCLE	IEC 60068-2-14
	VIBRATION	IEC 60068-2-64
	IMPACT(ft lb)	4.4 NM PER ICEA696



NOTE: CABLE CROSS-SECTION NOT DRAWN TO SCALE

PROJ/WORK NO.		
PROJECT NAME:		
PROJECT LOCATION		
REV	DESCRIPTION	DATE
1	INT. DWG	06/09/17
 <b>ALLIANCE CORPORATION</b> <small>THE POWER OF BEING CONNECTED.</small>		
CUSTOMER:		
<b>T-MOBILE</b>		
SIGNATURE CYCLE	DATE	
DRAWN: H. SHIN	20170602	
CHECKED: D. O'BRIEN	20170602	
<b>ARMORED TRUNK HYBRID CABLE HIGH-CAPACITY w/ #6 AWG CONDUCTORS</b>		
SHEET NO:	2	OF 3
DWG NO:	<b>AC-HTC05-24DLC-12C</b>	
HORIZONTAL SCALE:	N.T.S.	
VERTICAL SCALE:	N.T.S.	
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SUPPLEMENTAL

SHEET NUMBER: <b>R-607</b>	REVISION: <b>0</b>
-------------------------------	-----------------------

**DATA SHEET**

**DC Surge Protection for RRH/RFM (High-Capacity Junction Box)**  
**ASU9338TYP01 (RNSNDC-7771-PF-48)**  
 Overvoltage Protection & Fiber Management Junction Box

The deployment of Remote Radio Head (RRH) and Remote Flexi Modules (RFM) architecture poses unique challenges to the mobile telecom industry. Raycap's innovative RRH protection solutions mitigate the risk of damage due to lightning and provide high levels of availability and reliability to radio equipment.

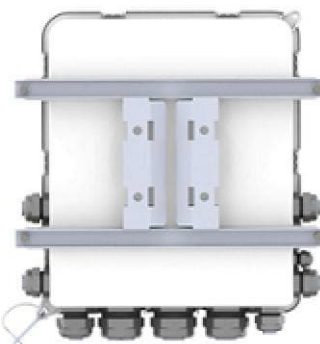


**Features**

- Employs the Strikesorb® 30-V1-HV Surge Protective Device (SPD) specifically designed for the Remote Radio Head (RRH) and Remote Flexi Modules (RFM) installation environment and certified for use in DC applications and at low DC operating voltages (48V).
- The Strikesorb 30-V1-HV is a Class I SPD, certified by VDE per the IEC 61643-1 standard as suitable for installation in areas where direct lightning exposure is expected. Strikesorb 30-V1-HV is able to withstand direct lightning currents of up to 5kA (10/350) and induced surge currents of up to 60kA (8/20).
- Provides very low let through / clamping voltage - unique for a Class I product - as it does not employ spark gaps or other switching elements. Strikesorb offers unique protection levels to the RRH equipment as well as the Base Band Units.
- Stock unit ships with all glands necessary for use with hybrid cable. This includes the top and base of towers, and the central unit on roof top applications.
- Fully recognized to the UL 1449 3rd Edition Safety Standard.
- Patent pending design

**Benefits**

- Offers unique maintenance-free protection against direct lightning currents.
- Protects up to 9 RRHs/RFMs and connects up to 18 fiber pairs.
- Utilizes an IP 67 rated enclosure, allowing for indoor or outdoor installation on a roof or tower top.
- Configurable cable ports are designed to accommodate NSN high-capacity/low-capacity hybrid trunk cables (combined power and fiber optic), Coax Reuse, and NSN hybrid jumper cables.
- Lightweight aerodynamic design provides maximum flexibility for tower top installation.



Mounting Bracket Included



DC1-48-00-18U

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G02-00-167 120504



www.raycapsurgeprotection.com

**SPECIFICATIONS**

**DC Surge Protection for RRH/RFM (High-Capacity Junction Box)**  
**ASU9338TYP01 (RNSNDC-7771-PF-48)**  
 Overvoltage Protection & Fiber Management Junction Box

**Electrical**

Model Numbers	ASU9338TYP01 (RNSNDC-7771-PF-48)
Nominal Operating Voltage	48 VDC
Nominal Discharge Current [I <sub>n</sub> ]	20kA 8/20 μs
Maximum Surge Current [I <sub>max</sub> ]	60kA 8/20 μs
Maximum Impulse (Lightning) Current per IEC 61643-1	5 kA 10/350 μs
Maximum Continuous Operating Voltage [U <sub>c</sub> ]	75 VDC
Voltage Protection Rating (VPR) per UL 1449 3rd Edition	400V
Protection Class as per IEC 61643-1	Class I
Input Power/Fiber	Hybrid, Coax Repurpose (Stinger or Discrete)
Output Power/Fiber	Hybrid Jumper Cables
Strikesorb Module Type	30-V1-HV

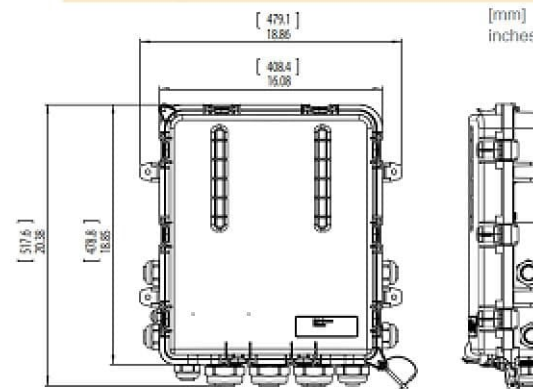
**Mechanical**

Suppression Connection Method	Compression lug, #14 - #2 AWG (2.1 mm <sup>2</sup> - 33.6 mm <sup>2</sup> ) Copper; #12 - #2 AWG (3.3 mm <sup>2</sup> - 33.6 mm <sup>2</sup> ) Aluminum
Fiber Connection Method	LC-LC Single mode
Environmental Rating	IP 67
Operating Temperature	-40° C to +80° C
UV Resistant	Yes
Weight	System: 14.85 lbs (5.82 kg) Mount: 4.15 lbs (1.88 kg) Total: 19 lbs (7.71 kg)
Combined Wind Loading	150mph (sustained): 135.55 lbs (603 N) 195mph (gust): 176.02 lbs (783 N)

**Standards Compliance & Certifications**

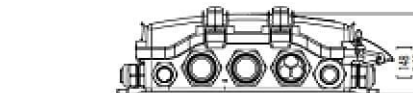
Strikesorb modules are compliant to the following Surge Protective Device (SPD) Standards	
Standards	ANSI/UL 1449 3rd Edition
	IEEE C62.41
	NEMA LS-1, IEC 61643-1:2005 2nd Edition (Class I Protection)
	IEC 61643-12
	EN 61643-11:2002 (including A11:2007)

**Product Diagram**



**To order gland kits for coax reuse :**

NSN Order Number	Raycap Order Number	Gland Kit - Installation Type
ASU9334TYP01	(7771-TWR-CX-STG-KIT)	Tower Coax Reuse (Stinger)
For use with NSN Standard 60 kA COVP-for Tower Coax Stinger sites- Order ONE kit per NSN Standard COVP pair		
ASU9335TYP01	(7771-TWR-CX-DSC-KIT)	Tower Coax Reuse (Discrete)
For use with NSN Standard 60 kA COVP-for Tower Coax Discrete 6AWG sites- Order ONE kit per NSN Standard COVP pair		
ASU9336TYP01	(7771-RFTP-CX-STG-KIT)	Rooftop Coax Reuse (Stinger)
For use with NSN Standard 60 kA COVP- Order ONE kit per NSN Standard COVP and 3 Rooftop Sector COVP pair		



www.raycapsurgeprotection.com



G02-00-167 120504

SUPPLEMENTAL

SHEET NUMBER:

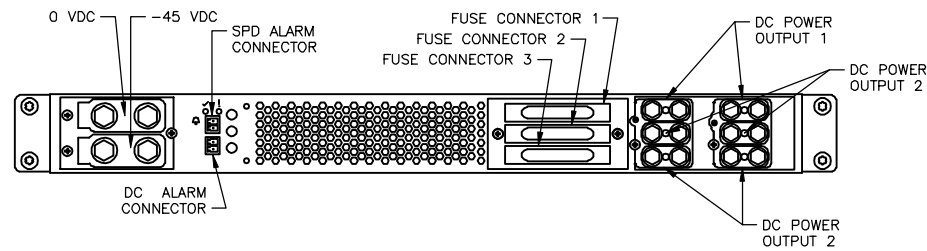
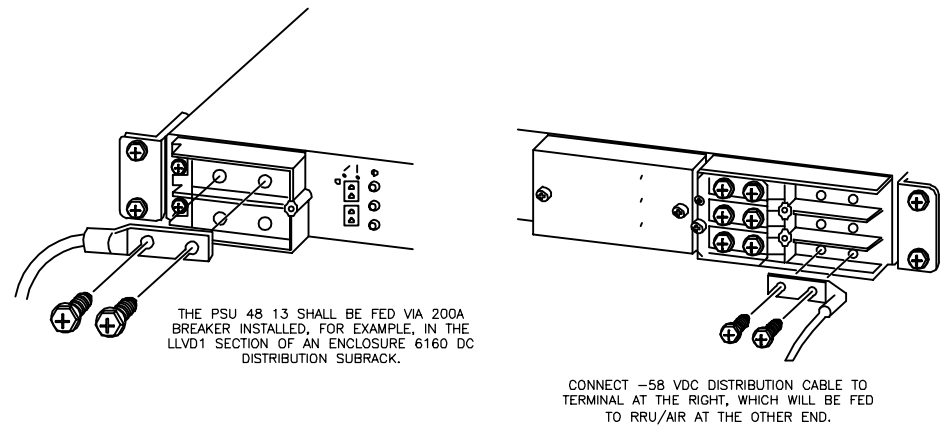
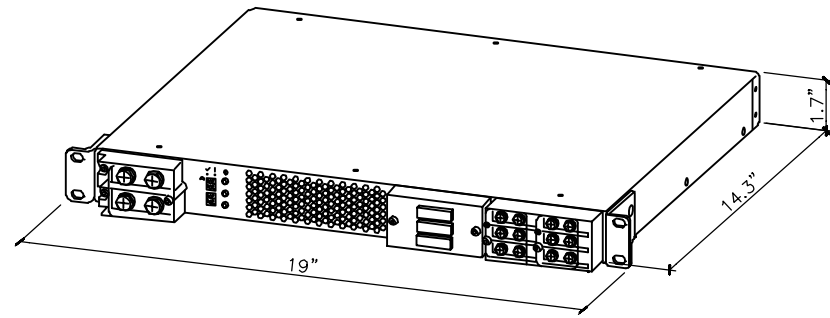
R-608

REVISION:

0

MANUFACTURER: ERICSSON  
 MODEL: PSU 48 13  
 WEIGHT: 17.1 LBS  
 DIMENSIONS: 19"x 1.7"x 14.3"

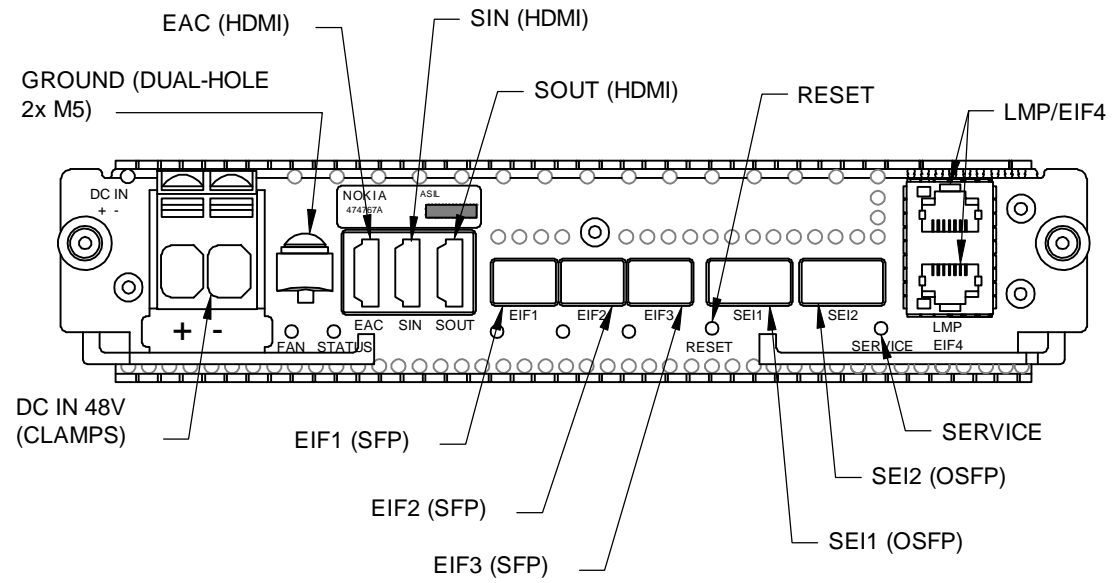
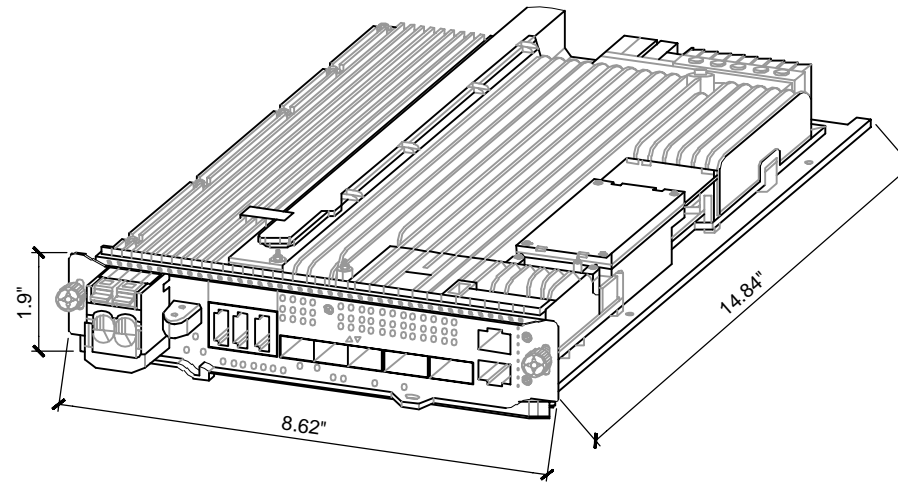
NEEDED INSTALL KIT (PICK 1)  
 34133 PSU4813 INSTALL KIT FOR RBS61XX  
 34134 PSU4813 INSTALL KIT FOR PBC6200  
 34135 PSU4813 INSTALL KIT FOR 6X60/RBS6230



1 SKU# 34132 - PSU 48 13

SCALE: N.T.S.

MANUFACTURER: NOKIA  
 MODEL: ASIL CONTROLLER CARD (474767A)  
 DIMENSIONS: 1.9" X 8.62" X 14.84"  
 WEIGHT: 6.8 LBS



1 ASIL DETAIL

SCALE: N.T.S.

SUPPLEMENTAL

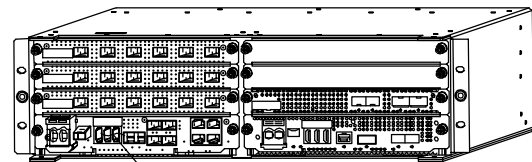
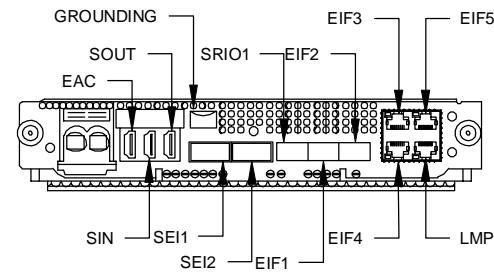
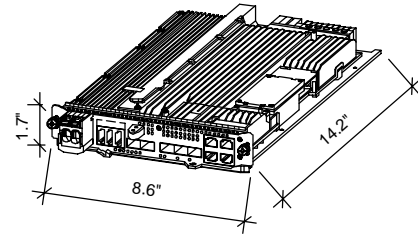
SHEET NUMBER:

R-609

REVISION:

0

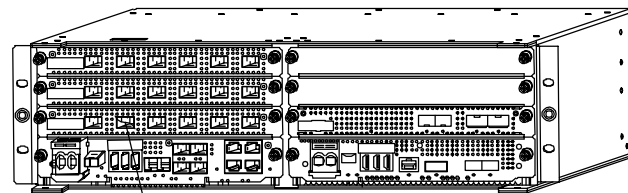
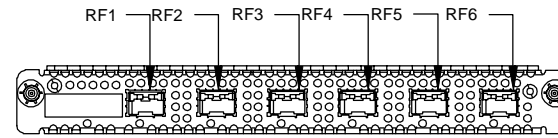
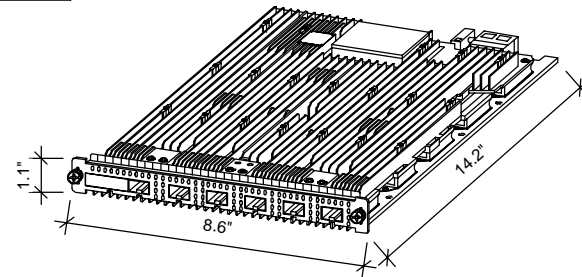
MANUFACTURER:	NOKIA
MODEL:	ASIB
WEIGHT:	6.4 LBS
DIMENSIONS:	8.6"X14.2"X1.7"



PROPOSED ASIB LOCATED WITHIN AMIA RACK

1 ASIB DETAIL  
SCALE: N.T.S.

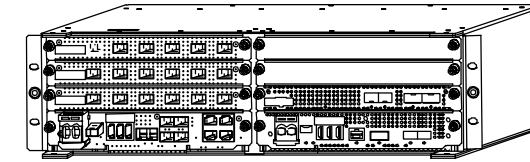
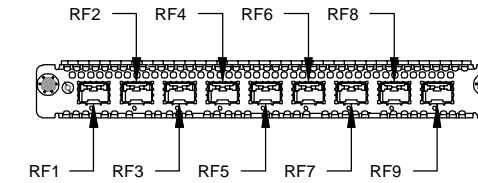
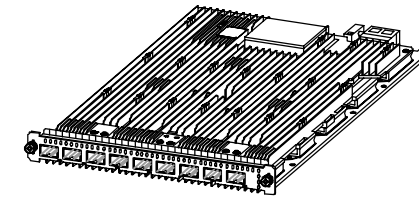
MANUFACTURER:	NOKIA
MODEL:	ABIA
WEIGHT:	4.6 LBS
DIMENSIONS:	8.6"X14.2"X1.1"



PROPOSED ABIA LOCATED WITHIN AMIA RACK

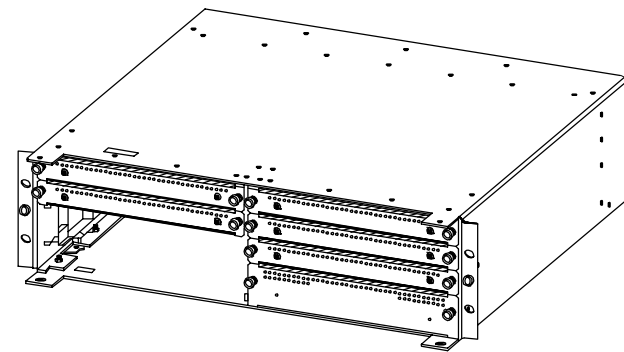
2 ABIA DETAIL  
SCALE: N.T.S.

MANUFACTURER:	NOKIA
MODEL:	ABIC
WEIGHT:	5.8 LBS
DIMENSIONS:	8.6"X14.2"X1.7"



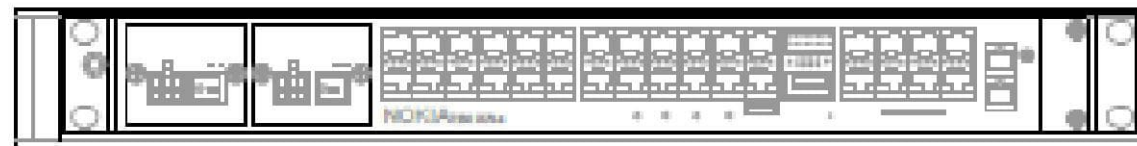
3 ABIC DETAIL  
SCALE: N.T.S.

MANUFACTURER:	NOKIA
MODEL:	AMIA
WEIGHT:	11.2 LBS (UNIT ONLY)
DIMENSIONS:	5.1"X15.7"X17.6"



4 AMIA DETAIL  
SCALE: N.T.S.

MANUFACTURER: NOKIA  
MODEL: IXR-e  
DIMENSIONS: 17.25"x10.0"x1.75"  
WEIGHT: TBD



5 CSR iXRE DETAIL  
SCALE: N.T.S.

SUPPLEMENTAL

SHEET NUMBER: R-610  
REVISION: 0

**NSB 190FT Red Battery®**  
Long float life at elevated temperatures



Red Star Technology® uses pure lead plates to deliver exceptionally long float life even at elevated temperatures.

- Pure lead AGM technology delivers long float life for telecom applications even at elevated temperatures
- 15 year float life at 20°C (68°F)
- EUROBAT design life definition: Long Life (12+ years)
- High energy density
- Operating temperature range: -40°C to +55°C (-40°F to 132°F)
- State-of-the-art automated manufacturing ensures consistency and reliability
- Advanced 3 stage terminal design to ensure lock-free operation - female M2 brass terminals provide maximum performance
- 2 year shelf life at 25°C (77°F)
- High modulus Polyethylene Oxide (PEO) plastic materials designed to withstand extended elevated operating temperatures and maintain high battery compression essential for reliable operation
  - Non-halogenated, thermally sealed plastic casing
  - Flame retardant (UL 94 V0) and LOI of at least 28%
- Integral handles and front access terminals ensure ease of installation and maintenance
- Approved as non-hazardous cargo for ground, sea, and air transport - DOT 49 CFR 173.158(a), (j) and (k)

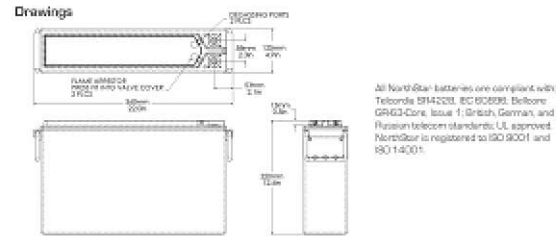
**NSB 190FT Red Battery®**  
Nominal Technical Specifications



Electrical	International Standard 20°C (68°F)	North American Standard 25°C (77°F)
8 hour capacity to 1.75 VFC	188 Ah	191 Ah
10 hour capacity to 1.80 VFC	190 Ah	192 Ah
Float Voltage	2.29 +/- 0.02 VFC	2.27 +/- 0.02 VFC
Nominal Voltage	12 V	
Impedance (1kHz)	2.2 mΩ @ 25°C (77°F)	
Conductance	2.400 S	
Short Circuit Current	6.000 A	

Dimensions		Weight	
Height	320 mm (12.6 in)	60 kg (132 lbs)	
Width	185 mm (7.3 in)	Terminal	Female M2 x 1.25
Depth	580 mm (22.8 in)	Terminal Torque	8.0 Nm (7.1 in-lbs)

Ah Capacity Ratings @ 25°C (77°F)					
Capacity Discharge / hours	1	2	4	8	10
Capacity @ 25°C / Ah	190	187	181	181	192
End of Discharge / VFC	1.70	1.75	1.75	1.75	1.80



- NorthStar Americas**  
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4000 Continental Way  
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United States of America  
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[www.northstarbattery.com](http://www.northstarbattery.com)



BATTERY SCHEDULE					
MODEL	CURRENT CAPACITY	NOMINAL VOLTAGE	WEIGHT (LBS)	QUANTITY	ELECTROLYTE (H2SO4/H2O)
NORTHSTAR NSB 190FT	190A	12V	132	12	269.28

**NorthStar® Industrial Lead Acid Battery Safety Data Sheet**

**3. \*COMPOSITION / INFORMATION ON INGREDIENTS**

INGREDIENTS (Chemical/Common Names)	CAS No.	% by Wt.
Lead and Lead Compounds (inorganic)	7439-92-1	50
Electrolyte (H2SO4/H2O)	7664-93-9	17
Lead Oxide	1309-66-0	20
Tin	7440-31-5	0.2

**4. FIRST AID MEASURES**  
**INHALATION:**  
Sulfuric Acid: Remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult a physician.  
Lead: Remove from exposure, gargle, wash nose and lips; consult physician.

**INGESTION:**  
Sulfuric Acid: Give large quantities of water. Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death. Consult a physician.  
Lead: Consult a physician immediately.

**SKIN:**  
Sulfuric Acid: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes.  
Lead: Wash immediately with soap and water.

**EYES:**  
Sulfuric Acid and Lead: Flush immediately with large amounts of water for at least 15 minutes while tilting lids. Seek immediate medical attention: if eyes have been exposed directly to acid.

**5. FIRE FIGHTING MEASURES**  
**Flash Point:** Not Applicable  
**Flammable Limits:** LEL = 4.1% (Hydrogen Gas in air), UEL = 74.2%  
**Extinguishing media:** CO2, foam, dry chemical. Do not use carbon dioxide directly on cells. Avoid breathing vapors. Use appropriate media for surrounding fire.

**Fire Fighting Procedures:**  
Use positive pressure, self-contained breathing apparatus. Beware of acid splatter during water application and wear acid-resistant clothing, gloves, face and eye protection. If batteries are on charge, shut off power to the charging equipment, but note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

**NorthStar® Industrial Lead Acid Battery Safety Data Sheet**

**1. IDENTIFICATION** REVISION DATE: 01-31-18  
**Product Name:** Lead Acid Battery, Non-Spillable Wet  
**Product Use:** Electric Storage Battery  
**Manufacturer/Supplier:** NorthStar Battery, Co., LLC  
**Synonyms:** Industrial Battery, Traction Battery, Stationary Battery, Deep Cycle Battery  
**Address:** 4000 E. Continental Way, Springfield, MO 65803  
**General Information Number:** 417.575.8200  
**CAS Number:** Not Applicable  
**CHEMTREC:** 800-424-9300

**2. GHS HAZARDS IDENTIFICATION**

Health	Environmental	Physical
Acute Toxicity (Oral/Dermal/Inhalation) - Category 4 Skin Corrosion/Irritation - Category 1A Eye Damage - Category 1 Reproductive - Category 1A Carcinogenicity (lead) - Category 1B Carcinogenicity (arsenic) - Category 1A Carcinogenicity (acid mist) - Category 1A Specific Target Organ - Category 2 Toxicity (repeated exposure)	Aquatic Chronic - 1 Aquatic Acute - 1	Explosive Chemical, Division 1.3

**GHS Label:**

Health	Environmental	Physical

**Hazard Statements**  
**DANGER!**  
Causes severe skin burns and eye damage.  
Causes serious eye damage.  
May damage fertility or the unborn child if ingested or inhaled.  
May cause cancer if ingested or inhaled.  
Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure.  
May form explosive air/gas mixture during charging.  
Extremely flammable gas (hydrogen).  
Explosive, fire, blast or projection hazard.

**Precautionary Statements**  
Wash thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Wear protective gloves/protective clothing, eye protection/face protection.  
Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area.  
Causes skin irritation, serious eye damage.  
Contact with internal components may cause irritation or severe burns. Avoid contact with internal acid.  
Irritating to eyes, respiratory system, and skin.

SUPPLEMENTAL

SHEET NUMBER:  
**R-611**

REVISION:  
**0**

**PV-SFA-B  
L.I.F.E. MOUNT ASSEMBLED SECTOR FRAME**

Table 1: PV-SFA Configurations

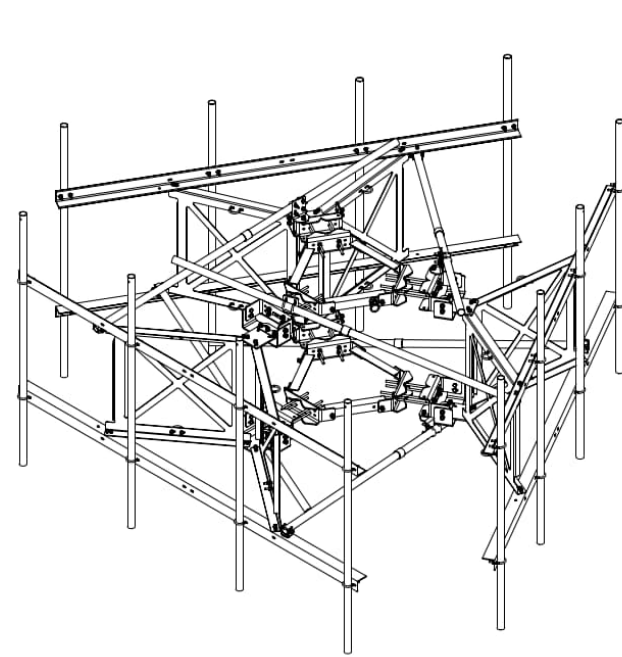
Part Number	Included Frame	Frame qty	Total Antenna Pipes	Pipe Length	HSK Included
PV-SFA7-3-96	PV-SFA7-B	1	3	96"	No
PV-SFA7-4-96	PV-SFA7-B	1	4	96"	No
PV-SFA7-3-126	PV-SFA7-B	1	3	126"	No
PV-SFA7-4-126	PV-SFA7-B	1	4	126"	No
PV-SFA10-3-96	PV-SFA10-B	1	3	96"	No
PV-SFA10-4-96	PV-SFA10-B	1	4	96"	No
PV-SFA10-3-126	PV-SFA10-B	1	3	126"	No
PV-SFA10-4-126	PV-SFA10-B	1	4	126"	No
PV-SFA12-3-96	PV-SFA12-B	1	3	96"	No
PV-SFA12-4-96	PV-SFA12-B	1	4	96"	No
PV-SFA12-3-126	PV-SFA12-B	1	3	126"	No
PV-SFA12-4-126	PV-SFA12-B	1	4	126"	No
PV-SFA14-4-96	PV-SFA14-B	1	4	96"	No
PV-SFA14-5-96	PV-SFA14-B	1	5	96"	No
PV-SFA14-4-126	PV-SFA14-B	1	4	126"	No
PV-SFA14-5-126	PV-SFA14-B	1	5	126"	No
PV-SFA7-3-9-96	PV-SFA7-B	3	9	96"	Yes
PV-SFA7-3-12-96	PV-SFA7-B	3	12	96"	Yes
PV-SFA7-3-9-126	PV-SFA7-B	3	9	126"	Yes
PV-SFA7-3-12-126	PV-SFA7-B	3	12	126"	Yes
PV-SFA10-3-9-96	PV-SFA10-B	3	9	96"	Yes
PV-SFA10-3-12-96	PV-SFA10-B	3	12	96"	Yes
PV-SFA10-3-9-126	PV-SFA10-B	3	9	126"	Yes
PV-SFA10-3-12-126	PV-SFA10-B	3	12	126"	Yes
PV-SFA12-3-9-96	PV-SFA12-B	3	9	96"	Yes
PV-SFA12-3-12-96	PV-SFA12-B	3	12	96"	Yes
PV-SFA12-3-9-126	PV-SFA12-B	3	9	126"	Yes
PV-SFA12-3-12-126	PV-SFA12-B	3	12	126"	Yes
PV-SFA14-3-12-96	PV-SFA14-B	3	12	96"	Yes
PV-SFA14-3-15-96	PV-SFA14-B	3	15	96"	Yes
PV-SFA14-3-12-126	PV-SFA14-B	3	12	126"	Yes
PV-SFA14-3-15-126	PV-SFA14-B	3	15	126"	Yes

Table 2: PV-SFA-B Configurations

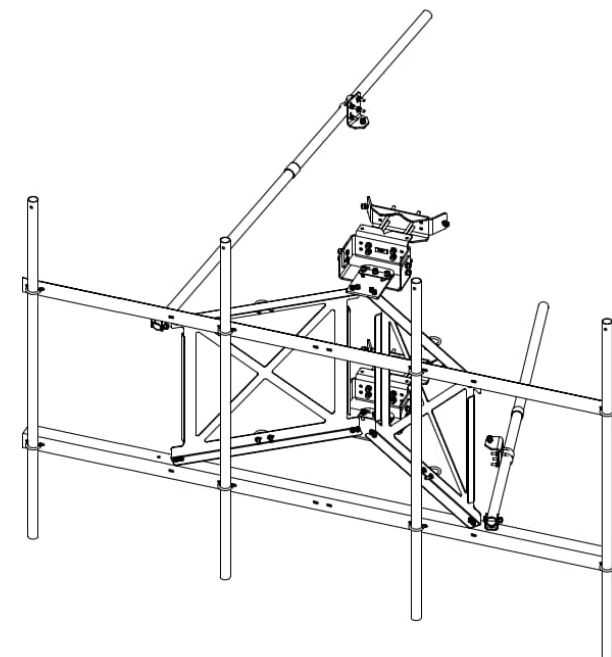
Part Number	Mount Width	Face Angle	Total Weight
PV-SFA7-B	7' 6"	PV-SFA-ANGLE7-HD	510 lbs
PV-SFA10-B	10' 6"	PV-SFA-ANGLE10-HD	560 lbs
PV-SFA12-B	12' 6"	PV-SFA-ANGLE12-HD	592 lbs
PV-SFA14-B	14' 6"	PV-SFA-ANGLE14-HD	624 lbs

Table 3: Optional Accessories

Part Number	Description	Sheet
PV-HSK	Horizontal Support Kit	5
PV-SFA-8016	Large Leg Adapter Kit	6
PV-SAM-U	Stiff Arm Leg Bracket	6
PV-SCRB-SFA	Safety Climb Cable Guide Attachment	4

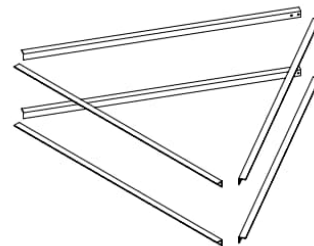


3 SECTOR WITH HSK AND PIPE

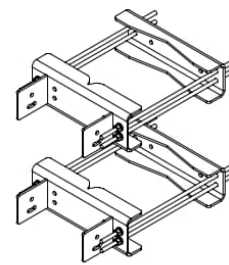


SINGLE SECTOR WITH PIPE

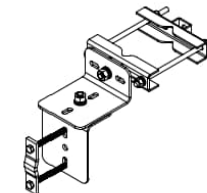
OPTIONAL ACCESSORIES



PV-HSK



PV-SFA-8016



PV-SAM-U



PV-SCRB-SFA



SHEET 1 OF 8	THIRD ANGLE PROJECTION 	CATEGORY 01_Self Support	7	UPDATED CLASSIFICATIONS, ADDED ADDITIONAL NOTES	3/20/18
5/1/2018	SCALE NTS	SERIES 02_V-Frames - Assembled	6	UPDATED CLASSIFICATIONS / TEMPLATE	8/30/17
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4", BEND ±2" ALL OTHERS: ±1/16"		TYPE PV-SFA	5	MOUNT CLASSIFICATIONS	1/19/17
		BY DJN	4	ADDED TIE BACK PIPE RANGE	6/9/16
		CHECKED SJS	3	L.I.F.E. MOUNT™ UPDATE	2/24/16
		STATUS APPROVED	REV	DESCRIPTION	DATE
PERFECT VISION MANUFACTURING L.I.F.E. MOUNT™ SECTOR FRAME DOCUMENT NUMBER <b>SFA-ENG-01-R7</b>					REV <b>7</b>

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SUPPLEMENTAL

SHEET NUMBER:  
**R-612**

REVISION:  
**0**

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**FRAME DETAILS:**

Part Number	Front (ft <sup>2</sup> ) (EPA) <sub>MN</sub>		Side (ft <sup>2</sup> ) (EPA) <sub>MT</sub>	
	No Ice	0.5" Radial Ice	No Ice	0.5" Radial Ice
PV-SFA7-B	9.9	11.3	5.2	7.4
PV-SFA10-B	11.7	13.5	5.2	7.4
PV-SFA12-B	13.0	15.1	5.2	7.4
PV-SFA14-B	14.3	16.7	5.2	7.4

**NOTE: FRAME EPA DOES NOT INCLUDE ANTENNA PIPES**

Leg Type	Max Standard Bracket Size	Max Large Leg Bracket Size
Round	Ø8.625	Ø16
Angle 60°	6" x 6"	12" x 12"
Angle 90°	8" x 8"	16" x 16"

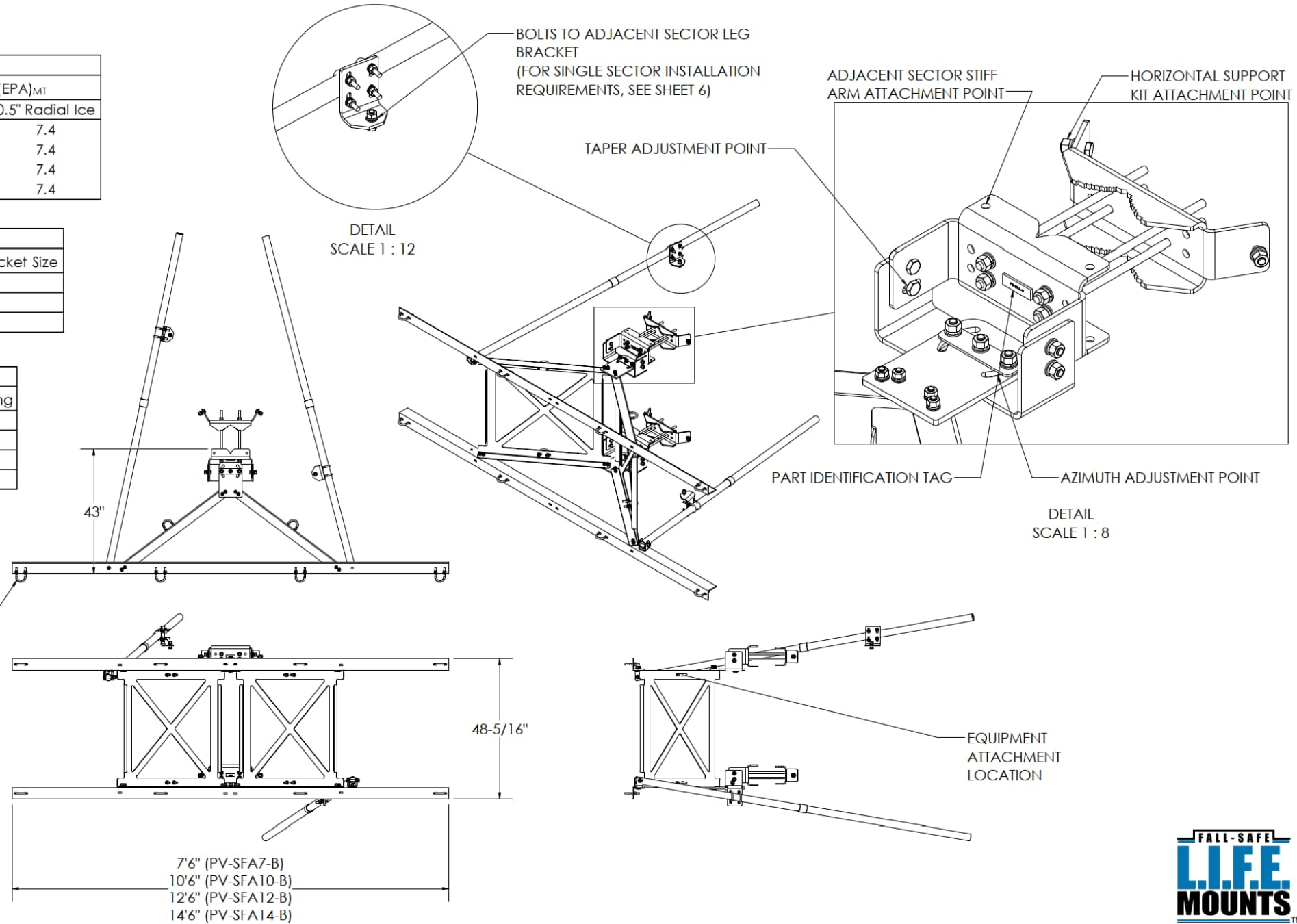
**NOTE: SEE SHEET 6 FOR LARGE LEG BRACKET DETAILS**

Part Number	3 Pipe Spacing	4 Pipe Spacing	5 Pipe Spacing
PV-SFA7-B	3'6"	2'4"	N/A
PV-SFA10-B	5'	3'4"	N/A
PV-SFA12-B	6'	4'	N/A
PV-SFA14-B	7'	4'8"	3'6"

COMPATIBLE ANTENNA PIPE:

- Ø2-3/8"
- Ø2-7/8"
- Ø3-1/2"

U-BOLTS SUPPLIED FOR Ø2-3/8"



SHEET	THIRD ANGLE PROJECTION	CATEGORY	REV	DESCRIPTION	DATE
2 OF 8		01_Self Support	7	UPDATED CLASSIFICATIONS. ADDED ADDITIONAL NOTES	3/20/18
5/1/2018	SCALE 1:36	SERIES 02_V-Frames - Assembled	6	UPDATED CLASSIFICATIONS / TEMPLATE	8/30/17
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4", BEND ±2" ALL OTHERS: ±1/16"		TYPE PV-SFA	5	MOUNT CLASSIFICATIONS	1/19/17
		BY DJN	4	ADDED TIE BACK PIPE RANGE	6/9/16
		CHECKED SJS	3	L.I.F.E. MOUNT™ UPDATE	2/24/16
		STATUS APPROVED	REV	DESCRIPTION	DATE



L.I.F.E. MOUNT™ SECTOR FRAME	
DOCUMENT NUMBER	REV
SFA-ENG-01-R7	7

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SUPPLEMENTAL

SHEET NUMBER:  
**R-613**

REVISION:  
**0**

**MOUNT CLASSIFICATIONS:**

**REFERENCE STRUCTURAL LETTER (SFA-STL-01-R1) FOR ADDITIONAL LOADING REQUIREMENTS**

**MOUNT CLASSIFICATION INFORMATION**

- MAX STRUCTURE HEIGHT: 400ft
- STRUCTURE CLASS: I OR II
- EXPOSURE CATEGORY: B OR C
- TOPOGRAPHIC CATEGORY: 1
- DESIGN WIND PRESSURE (NO ICE): 135psf
- DESIGN WIND PRESSURE (ICED): 15psf
- DESIGN ICE THICKNESS: 2.75in Radial

**APPROVED MOUNT CLASSIFICATIONS\***

- M700R-4[6]
- M800R-4[6]
- M900R-4[6]
- M950R-4[6]
- M1000R-4[6]
- M1400R-4[6]
- M1600R-4[6]
- HEAVY-5
- HEAVY-10
- HEAVY-WLL (PV-SFA14-B ONLY)

**APPROVED MOUNT CLASSIFICATIONS (ICED)\***

- M1000R(i)-4[6]
- M1150R(i)-4[6]
- HEAVY-5
- HEAVY-10
- HEAVY-WLL (PV-SFA14-B ONLY)

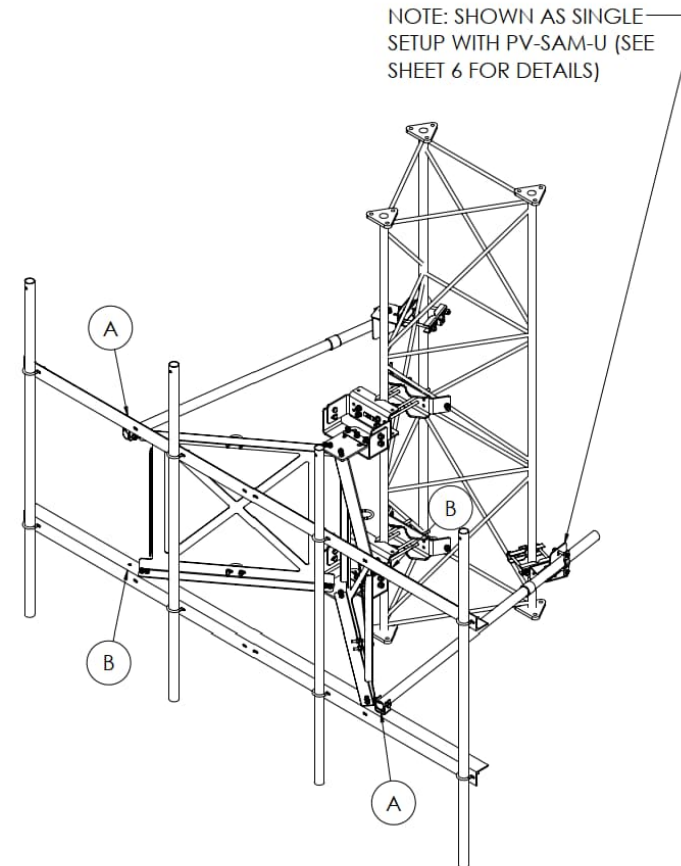
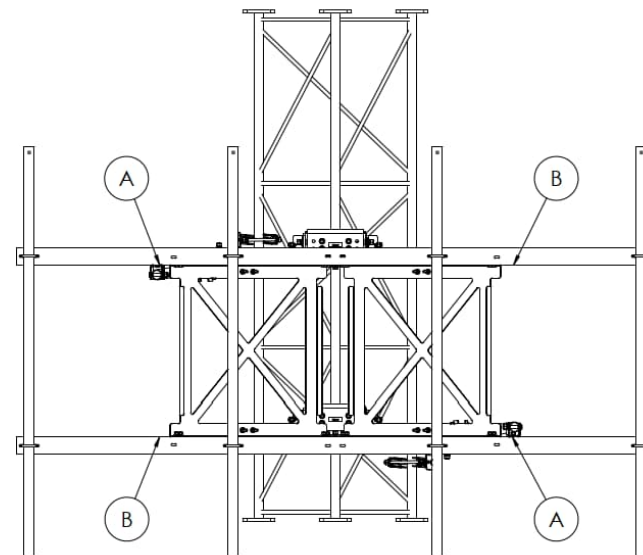
**NOTES:**

\*UNLESS NOTES, APPLIES TO PV-SFA7-B, PV-SFA10-B, PV-SFA12-B, AND PV-SFA14-B MOUNTS

**PERFECTVISION MANUFACTURING HIGHLY RECOMMENDS SPECIFYING THE PV-HSK (SEE SHEET 5) HORIZONTAL SUPPORT KIT TO INTERCONNECT SECTORS ON TOWERS WITH FACE WIDTHS LESS THAN 10FT AND LEG DIAMETERS LESS THAN 4IN OD.**

**STIFF ARM INSTALLATION:**

- (2) STIFF ARMS ARE REQUIRED TO MEET APPROVED MOUNT CLASSIFICATIONS
- STIFF ARMS MUST BE INSTALLED ON OPPOSITE CORNERS OF FRAME (LOCATIONS A-A OR B-B)
- DO NOT INSTALL STIFF ARMS IN AN A-B CONFIGURATION



SHEET	THIRD ANGLE PROJECTION	CATEGORY	7	UPDATED CLASSIFICATIONS. ADDED ADDITIONAL NOTES	3/20/18
3 OF 8		SERIES	01_Self Support		
		TYPE	02_V-Frames - Assembled	6	UPDATED CLASSIFICATIONS / TEMPLATE
5/1/2018	SCALE 1:36	BY	PV-SFA	5	MOUNT CLASSIFICATIONS
		CHECKED	DJN	4	ADDED TIE BACK PIPE RANGE
		STATUS	SJS	3	L.I.F.E. MOUNT™ UPDATE
			APPROVED	REV	DESCRIPTION
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4", BEND ±2" ALL OTHERS: ±1/16"				DATE	
					PERFECTVISION MANUFACTURING
					L.I.F.E. MOUNT™ SECTOR FRAME
					DOCUMENT NUMBER
					SFA-ENG-01-R7
					REV 7

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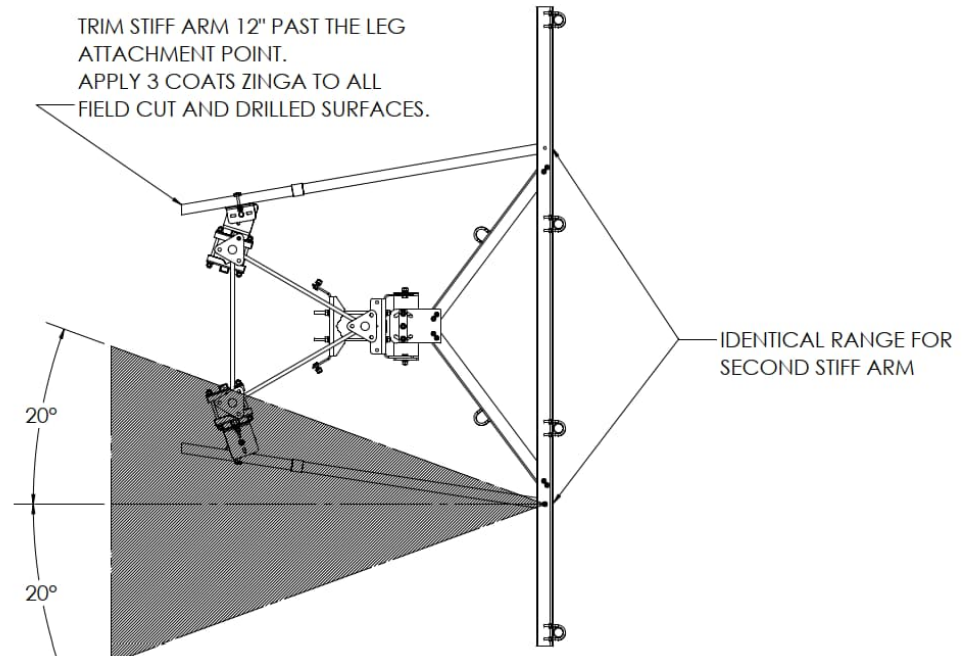
SUPPLEMENTAL

SHEET NUMBER: <b>R-614</b>	REVISION: <b>0</b>
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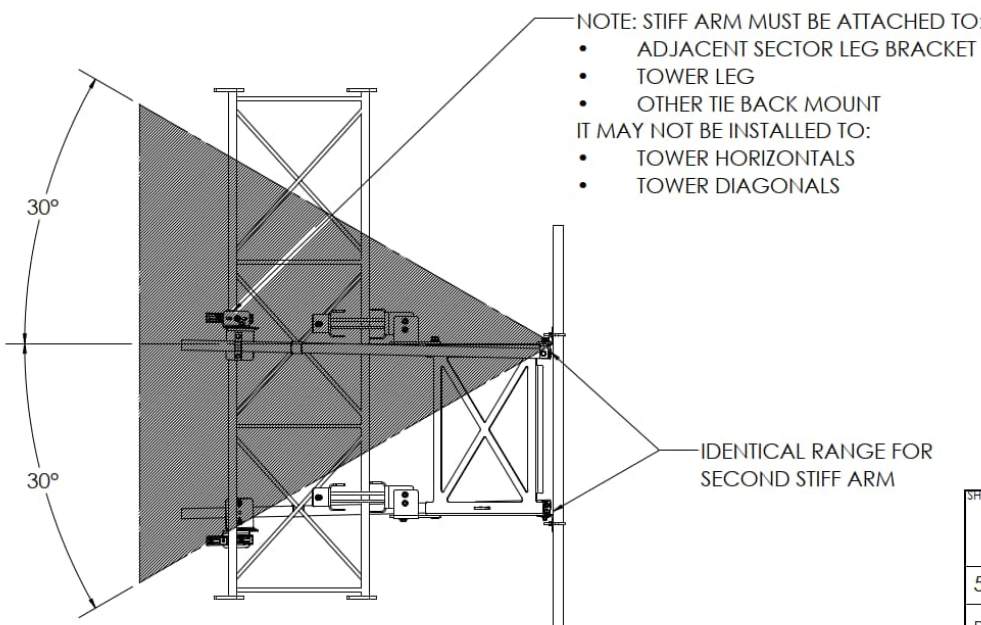


**STIFF ARM INSTALLATION RANGE:**

(SHOWN AS SINGLE SECTOR WITH PV-SAM-U)

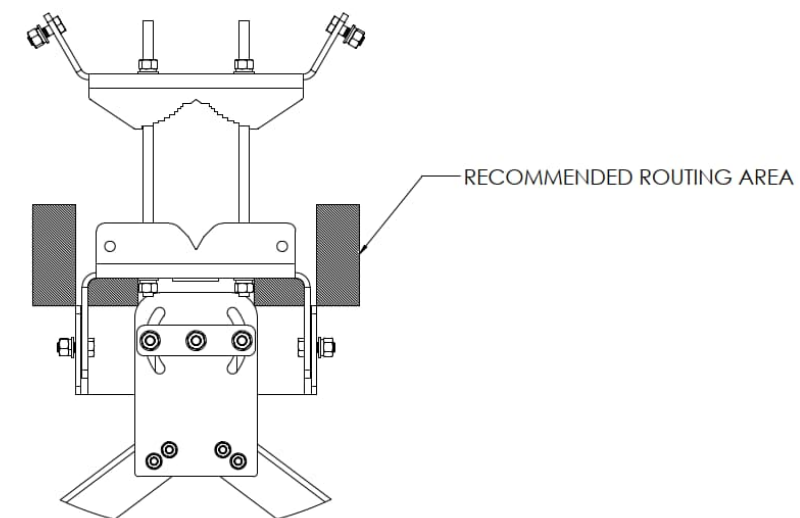


INSTALL PIPE  $\pm 20^\circ$  FROM FACE NORMAL

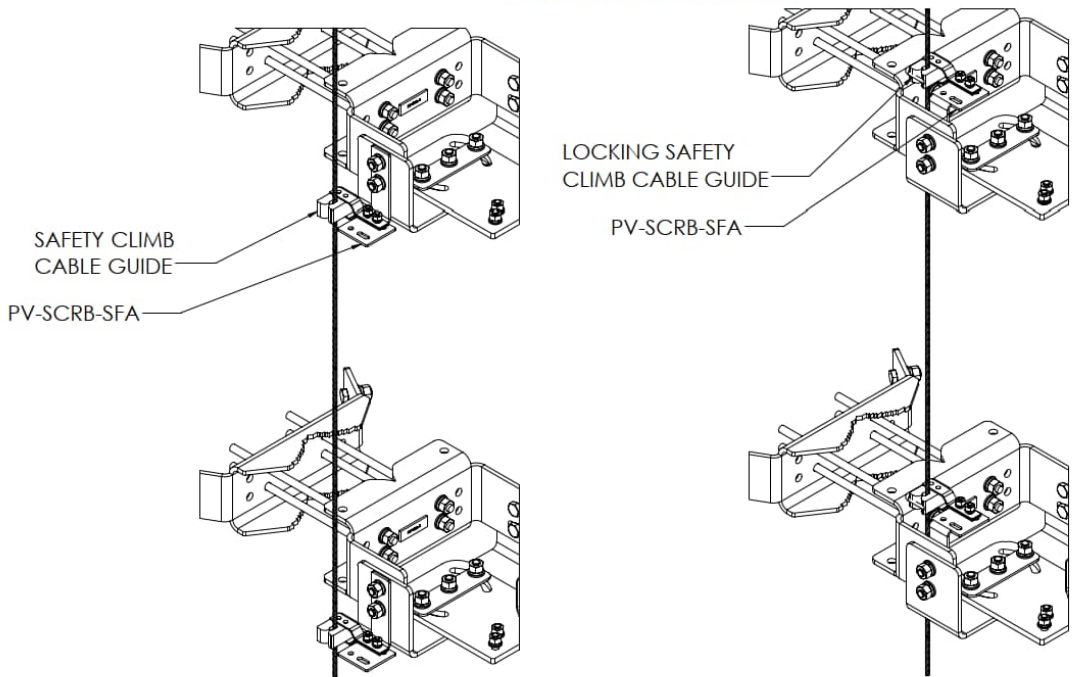


INSTALL PIPE  $\pm 30^\circ$  FROM HORIZONTAL

**SAFETY CLIMB ROUTING:**



**SAFETY CLIMB CABLE RECOMMENDED ROUTING**



**SAFETY CLIMB EXTERIOR ROUTING**

**SAFETY CLIMB INTERIOR ROUTING**



SHEET	THIRD ANGLE PROJECTION	CATEGORY	7	UPDATED CLASSIFICATIONS, ADDED ADDITIONAL NOTES	3/20/18
4 OF 8		SERIES	01_Self Support	6	UPDATED CLASSIFICATIONS / TEMPLATE
5/1/2018	SCALE NTS	TYPE	02_V-Frames - Assembled	5	MOUNT CLASSIFICATIONS
		BY	PV-SFA	4	ADDED TIE BACK PIPE RANGE
		CHECKED	DJN	3	L.I.F.E. MOUNT™ UPDATE
		STATUS	SJS	REV	DATE
			APPROVED		
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: $\pm 1/16"$ , $-1/32"$ ANGULAR: PROFILE $\pm 1/4"$ , BEND $\pm 2^\circ$ ALL OTHERS: $\pm 1/16"$		DOCUMENT NUMBER		REV	
		SFA-ENG-01-R7		7	

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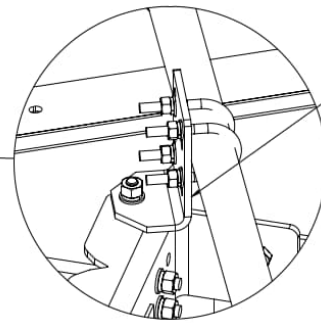
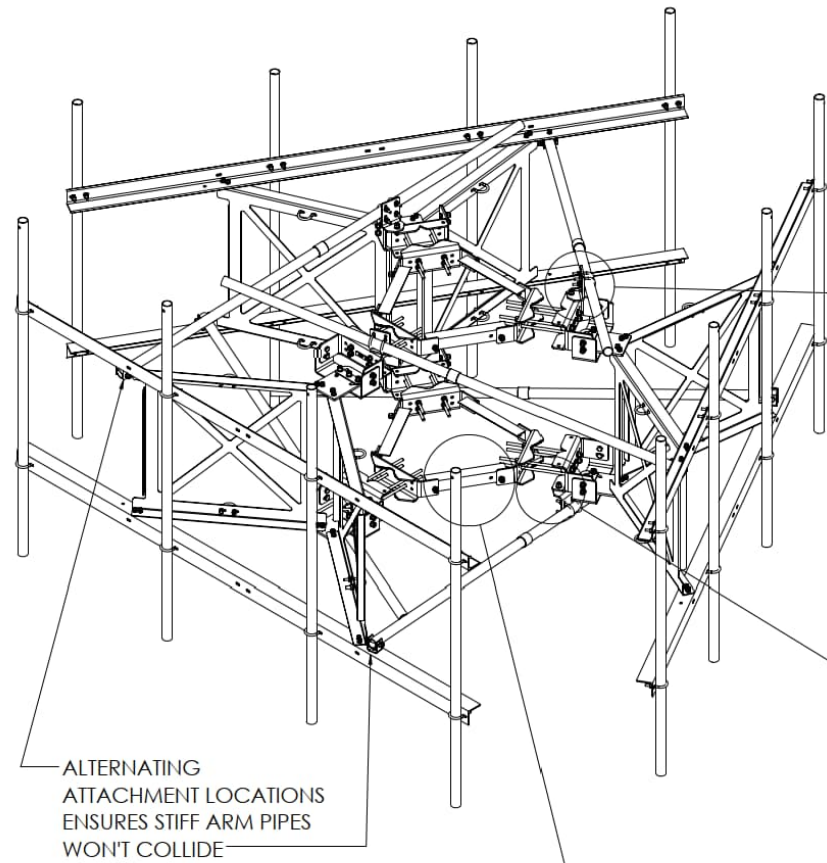
SUPPLEMENTAL

SHEET NUMBER: R-615  
REVISION: 0

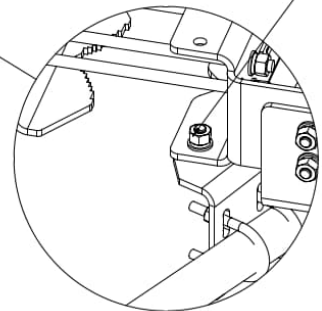
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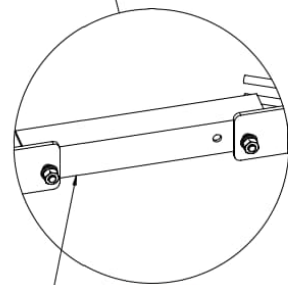
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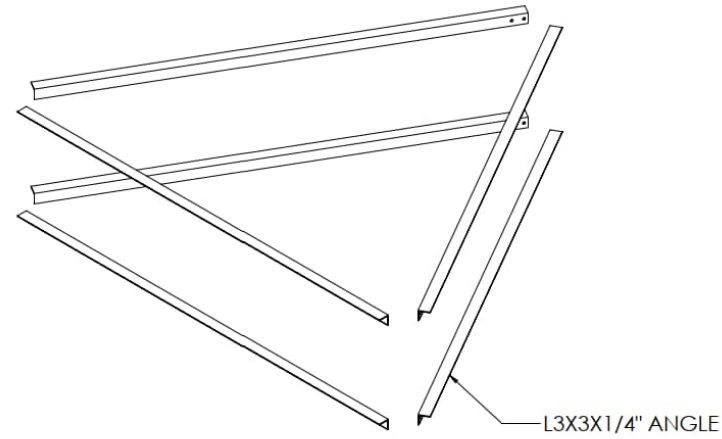
DETAIL  
SCALE 1 : 8



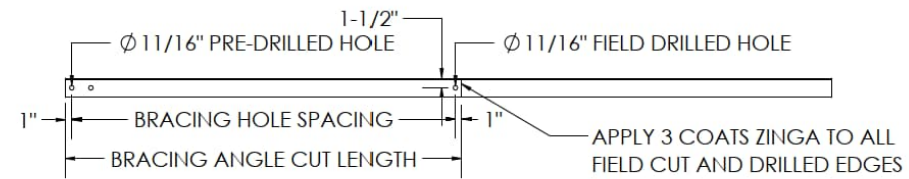
DETAIL  
SCALE 1 : 8



HORIZONTAL SUPPORT ANGLE  
DETAIL  
SCALE 1 : 12



PV-HSK  
HORIZONTAL SUPPORT KIT  
WEIGHT: 300LBS



BRACE ANGLE FIELD CUT DETAIL  
SCALE 1:24



SHEET	THIRD ANGLE PROJECTION	CATEGORY	7	UPDATED CLASSIFICATIONS, ADDED ADDITIONAL NOTES	3/20/18
5 OF 8		01_Self Support	6	UPDATED CLASSIFICATIONS / TEMPLATE	8/30/17
5/1/2018	SCALE 1:36	02_V-Frames - Assembled	5	MOUNT CLASSIFICATIONS	1/19/17
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4", BEND ±2" ALL OTHERS: ±1/16"		TYPE PV-SFA	4	ADDED TIE BACK PIPE RANGE	6/9/16
		BY DJN	3	L.I.F.E. MOUNT™ UPDATE	2/24/16
		CHECKED SJS	REV	DESCRIPTION	DATE
		STATUS APPROVED			
					L.I.F.E. MOUNT™ SECTOR FRAME DOCUMENT NUMBER <b>SFA-ENG-01-R7</b>
					REV <b>7</b>

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SUPPLEMENTAL

SHEET NUMBER:  
**R-616**

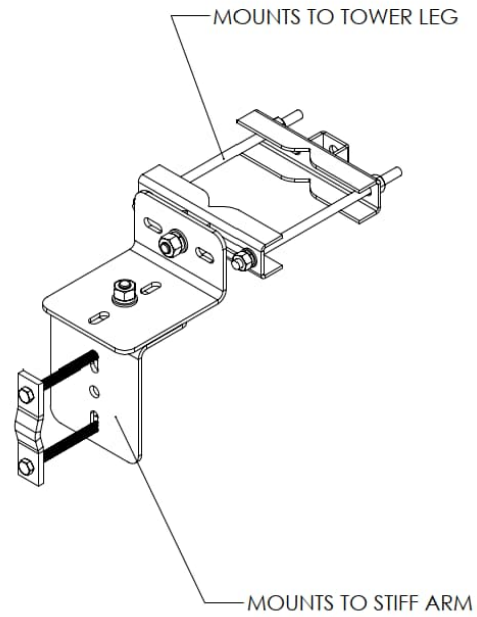
REVISION:  
**0**

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**PV-SAM-U:**

FOR SINGLE SECTOR INSTALLATIONS, (2) PV-SAM-U WILL BE REQUIRED PER FRAME TO ALLOW STIFF ARM PIPES TO ATTACH TO TOWER LEGS.

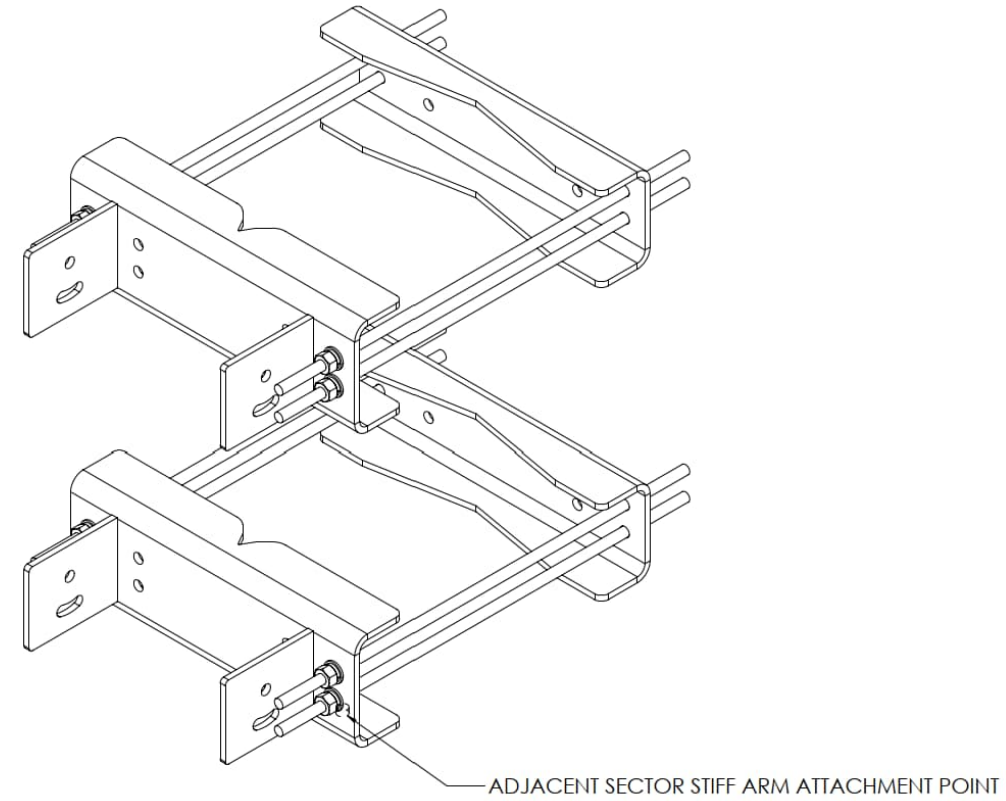
FOR 3 SECTOR INSTALLATIONS, THE PV-SAM-U IS NOT REQUIRED.



**PV-SFA-8016**

FOR LARGE LEG TOWERS, INSTALL THE PV-SFA-8016 LARGE LEG BRACKETS IN PLACE OF THE STANDARD SUPPLIED BRACKETS.

FOR LARGE LEG APPLICATIONS, THE PV-HSK IS NOT REQUIRED.



SHEET	THIRD ANGLE PROJECTION	CATEGORY	7	UPDATED CLASSIFICATIONS. ADDED ADDITIONAL NOTES	3/20/18		
6 OF 8		SERIES	01_Self Support	6	UPDATED CLASSIFICATIONS / TEMPLATE		8/30/17
5/1/2018	SCALE 1:8	TYPE	02_V-Frames - Assembled	5	MOUNT CLASSIFICATIONS	1/19/17	
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4", BEND ±2" ALL OTHERS: ±1/16"		BY	PV-SFA	4	ADDED TIE BACK PIPE RANGE	6/9/16	
		CHECKED	DJN	3	L.I.F.E. MOUNT™ UPDATE	2/24/16	
		STATUS	SJS	3	L.I.F.E. MOUNT™ UPDATE	2/24/16	
		STATUS	APPROVED	REV	DESCRIPTION	DATE	L.I.F.E. MOUNT™ SECTOR FRAME DOCUMENT NUMBER <b>SFA-ENG-01-R7</b>
							REV <b>7</b>

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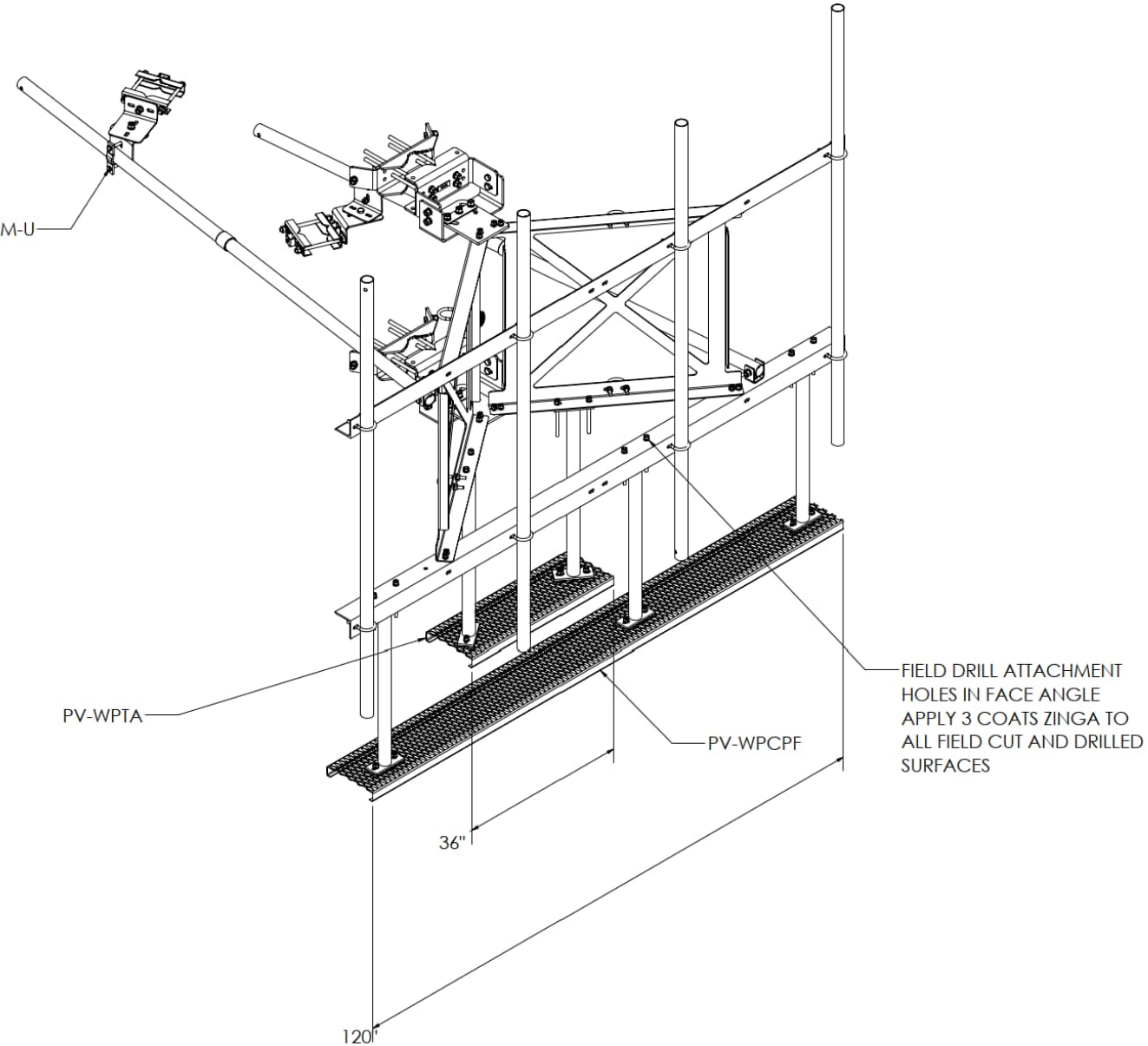
SUPPLEMENTAL

SHEET NUMBER: <b>R-617</b>	REVISION: <b>0</b>
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**WORK PLATFORM ATTACHMENT**

NOTE: SHOWN AS SINGLE SECTOR WITH PV-SAM-U



SHEET 7 OF 8	THIRD ANGLE PROJECTION 	CATEGORY 01_Self Support	7	UPDATED CLASSIFICATIONS. ADDED ADDITIONAL NOTES	3/20/18
5/1/2018	SCALE 1:24	SERIES 02_V-Frames - Assembled	6	UPDATED CLASSIFICATIONS / TEMPLATE	8/30/17
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: $\pm 1/16"$ , $-1/32"$ ANGULAR: PROFILE $\pm 1/4"$ , BEND $\pm 2"$ ALL OTHERS: $\pm 1/16"$		TYPE PV-SFA	5	MOUNT CLASSIFICATIONS	1/19/17
		BY DJN	4	ADDED TIE BACK PIPE RANGE	6/9/16
		CHECKED SJS	3	L.I.F.E. MOUNT™ UPDATE	2/24/16
		STATUS APPROVED	REV	DESCRIPTION	DATE
					 L.I.F.E. MOUNT™ SECTOR FRAME DOCUMENT NUMBER <b>SFA-ENG-01-R7</b>
					REV <b>7</b>

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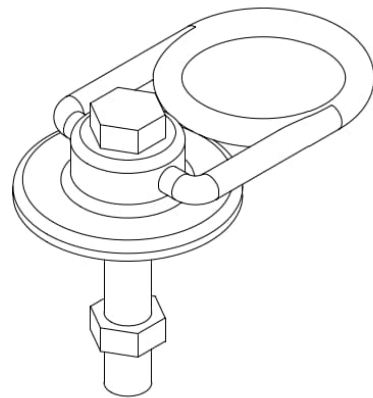
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SHEET NUMBER: <b>R-618</b>	REVISION: <b>0</b>
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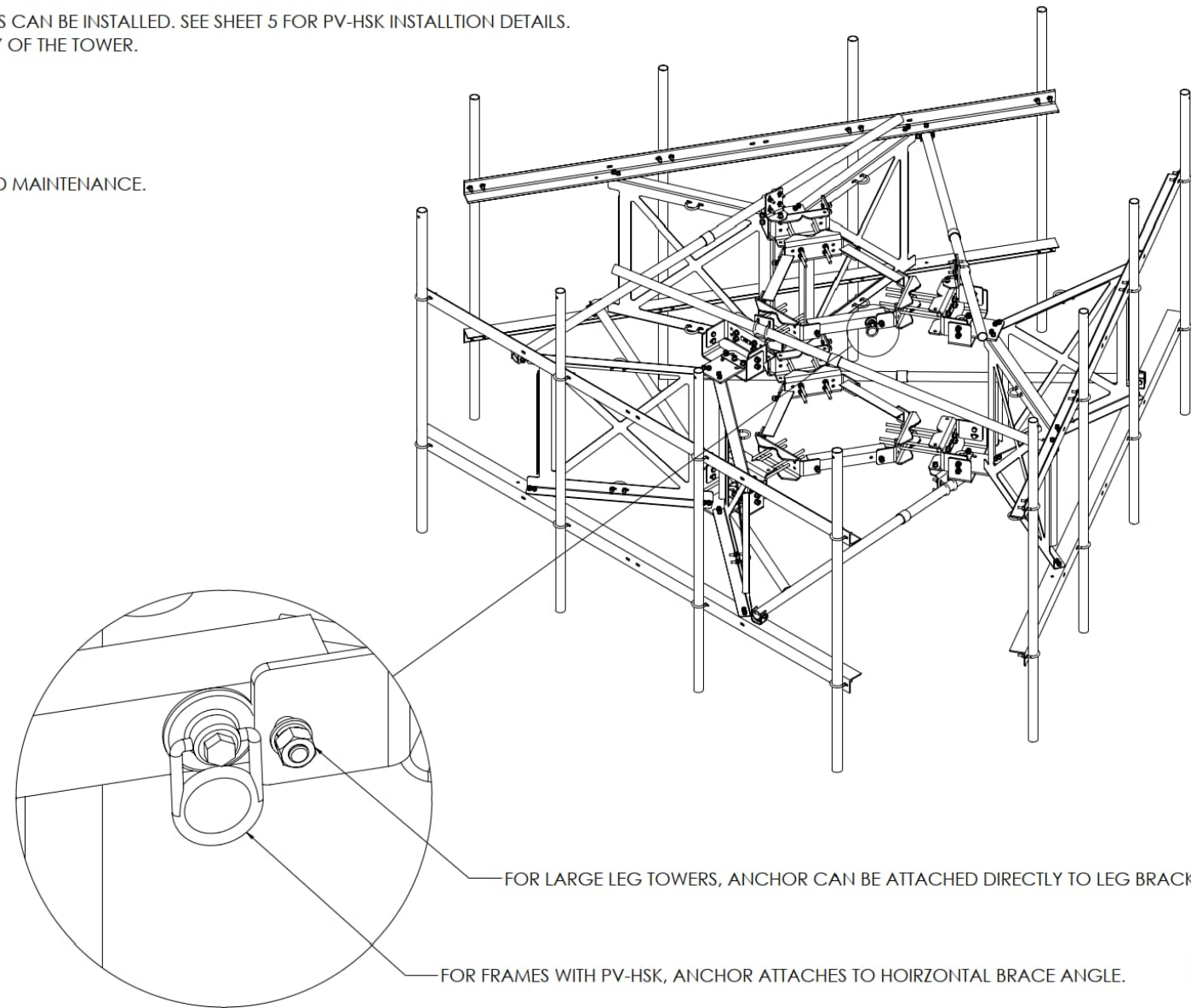
# 10K SWIVEL ANCHOR

## SWIVEL ANCHOR ATTACHMENT NOTES:

- **4" OD AND SMALLER LEGS REQUIRE ADDITIONAL BRACING** BEFORE SWIVEL ANCHORS CAN BE INSTALLED. SEE SHEET 5 FOR PV-HSK INSTALLTION DETAILS.
- LARGE LEG TOWERS DO NOT REQUIRE BRACING DUE TO THE STRUCTURAL CAPACITY OF THE TOWER.
- MAX (1) SWIVEL ANCHORS MAY BE INSTALLED PER LEG ATTACHMENT BRACKET
- SWIVEL ANCHOR SPECS:
  - UTS: 10,000 LBF
  - MAX USER WEIGHT: 310 LBS
  - WORKING LOAD: 2,000 LBS
- FOLLOW MANUFACTURER SPECIFICATIONS FOR SWIVEL ANCHOR INSTALLATION AND MAINTENANCE.



**HD26226**  
**10K SWIVEL ANCHOR**



SHEET	THIRD ANGLE PROJECTION	CATEGORY	7	UPDATED CLASSIFICATIONS. ADDED ADDITIONAL NOTES	3/20/18
8 OF 8		SERIES	01_Self Support	6	UPDATED CLASSIFICATIONS / TEMPLATE
5/1/2018	SCALE NTS	TYPE	02_V-Frames - Assembled	5	MOUNT CLASSIFICATIONS
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4", BEND ±2" ALL OTHERS: ±1/16"		BY	PV-SFA	4	1/19/17
		CHECKED	DJN	4	ADDED TIE BACK PIPE RANGE
		STATUS	SJS	3	L.I.F.E. MOUNT™ UPDATE
		APPROVED	REV	2/24/16	DATE
		L.I.F.E. MOUNT™ SECTOR FRAME		DOCUMENT NUMBER	
		SFA-ENG-01-R7		7	

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SUPPLEMENTAL

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