



# FOUNTAIN CELL / S POWERS BLVD CMRS TOWER VARIANCE OF USE DN02728A

S POWERS BLVD  
& FONTAINE BLVD

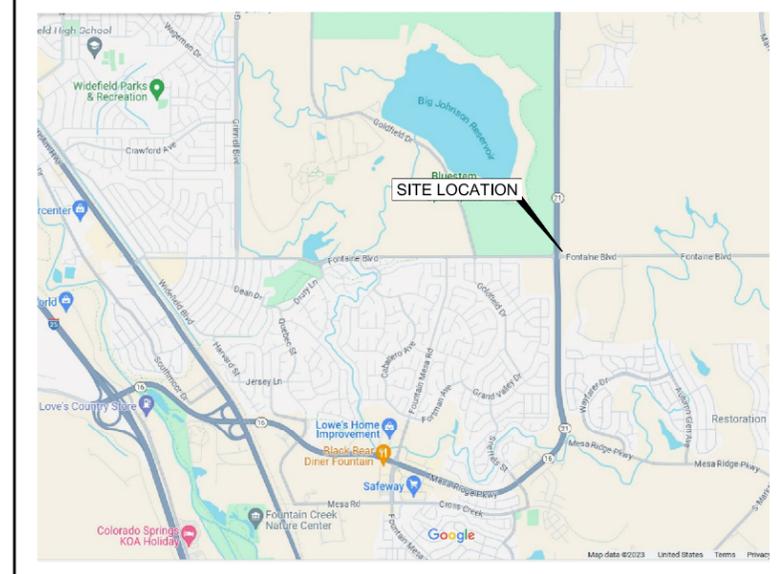
LATITUDE: 38.737873" LONGITUDE: -104.682207"

TEMPORARY  
LIGHT SITE



PROJECT INFORMATION:  
SITE NAME:  
FOUNTAIN CELL  
SITE ID:  
DN02728A  
S POWERS BLVD  
& FONTAINE BLVD  
EL PASO COUNTY

### VICINITY MAP



### SCOPE OF WORK

- CONSTRUCTION OF A NEW "NON-INHABITABLE" T-MOBILE TELECOMMUNICATIONS SITE
- INSTALL (N) T-MOBILE ARE AFS 600 / 60' TALL HYDRAULIC BALLAST POLE
  - INSTALL (N) PORTABLE 70KVA GENERATOR
  - INSTALL (N) PORTABLE CHAIN LINK FENCE
  - INSTALL (N) T-MOBILE (MEP88-4S) 8'X8' STEEL PLATFORM
  - INSTALL (N) T-MOBILE SSC 600A CABINET
  - INSTALL (N) T-MOBILE BATTERY CABINET
  - INSTALL (3) (N) FFV4-65C-R3-V1 ANTENNAS. (1) PER SECTOR
  - INSTALL (3) AHFII, (3) AHL0B, (2) AHZL, (1) ASIA, (1) ASIA, (2) ASIL, (3) ABIA, (3) ABIL, (1) ABIO, (2) ABIA
  - INSTALL (2) TOWER JUNCTION BOXES
  - INSTALL (1) MICROWAVE DISH & (2) ODUS, (1) IDU, (1) (N) FIBER CABLE & (1) (N) DC POWER CABLE

### SITE INFORMATION

**SITE TYPE:** STRUCTURE NON-BUILDING  
**SITE NAME:** FOUNTAIN CELL / S POWERS BLVD CMRS TOWER VARIANCE OF USE  
**SITE NUMBER:** DN02728A  
**SITE ADDRESS:** S POWERS BLVD & FONTAINE BLVD  
**PARCEL NUMBER:** 5500000015  
**LEGAL DESCRIPTION:** THE WEST HALF OF SECTION 16, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO  
**PARCEL/LOT SIZE:** 320 ACRES  
**EXISTING LAND USE & ZONING:** UNDEVELOPED PROPERTY / A-5  
**PROPOSED LAND USE & ZONING:** TEMPORARY CELL TOWER /A-5  
**RFDS DATE:** 11/30/23

### CODE COMPLIANCE

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

**GOVERNING CODES, AS APPLICABLE:**  
 2021 IBC 2020 NEC 2018 IPC  
 2021 IECC 2021 IMC  
 2023 PPRBC

**A.D.A. COMPLIANCE:**  
 NOT REQUIRED PER IBC 1103.2.9.

**OSHA COMPLIANCE:**  
 ANSI A10.48: FALL PROTECTION AND SAFETY STANDARDS

### PROJECT CONTACTS

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### DRAWING INDEX

T1	TITLE SHEET
GN1	GENERAL NOTES
GN2	GENERAL NOTES
A1.0	OVERALL SITE PLAN
A2.0	ENLARGED SITE PLAN
A3.0	ANTENNA AND EQUIPMENT PLAN
A4.0	ELEVATION
A5.1	ANTENNA AND EQUIPMENT SCHEDULES
A5.2	ANTENNA PLAN
A6.0	SAFETY PLAN
A7.0	EQUIPMENT DETAILS
A8.0	EQUIPMENT DETAILS
A9.0	EQUIPMENT DETAILS
A10.0	EQUIPMENT DETAILS
A11.0	EQUIPMENT DETAILS
A12.0	EQUIPMENT DETAILS
A13.0	EQUIPMENT DETAILS
A14.0	EQUIPMENT DETAILS

### SITE PHOTO



### DRIVING DIRECTIONS

FROM 990 SOUTH BROADWAY DENVER, CO: TAKE I-25 SOUTH TO COLORADO SPRINGS. TAKE EXIT 132A TO MERGE ONTO CO-16 E/MESA RIDGE PKWY CONTINUE ONTO CO-21 N. DRIVE 300' PAST FONTAINE BLVD. SITE IS ON THE RIGHT.

PLANNING AND COMMUNITY  
DEVELOPMENT DIRECTOR  
APPROVAL BLOCK



Know what's below  
Call before you dig.  
1-800-922-1987

REV:	DATE:	DESCRIPTION:	BY:
A	01/12/24	PRELIMINARY	MEM
B	04/09/24	CITY COMMENTS	SMV

PLANS PREPARED BY:

4751 FOX STREET, DENVER, CO 80216

LICENSURE NO:

ALL SCALES ARE SET FOR 11"x17" SHEET

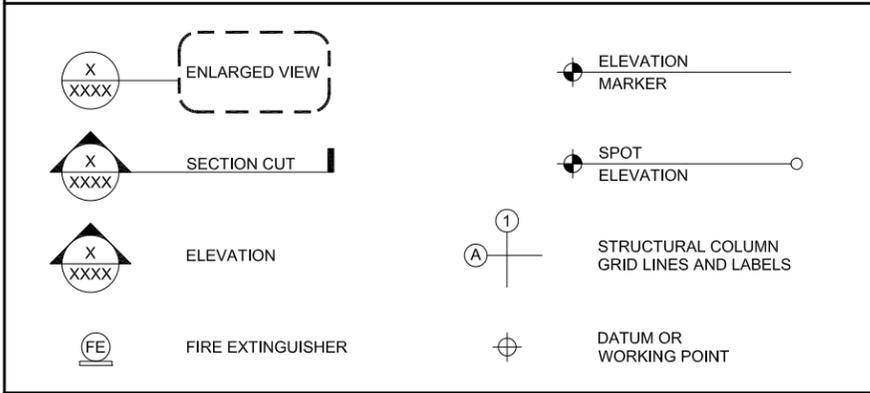
DRAWN BY:	CHK BY:	APV BY:
MEM	ML	TA

SHEET TITLE:  
**TITLE SHEET**

SHEET NUMBER:  
**T1**

@	AT CENTERLINE DEGREES	ILC INT.	INTEGRATED LOAD CENTER INTERIOR
Ø	DIAMETER	L.F.	LINEAR FEET
A/C	AIR CONDITIONER	MAX.	MAXIMUM
APPROX.	APPROXIMATE	MECH.	MECHANICAL
ARCH.	ARCHITECTURAL	MFGR.	MANUFACTURER
A.F.F.	ABOVE FINISH FLOOR	MGB	MAIN GROUND BAR
A.F.G.	ABOVE FINISH GRADE	MIN.	MINIMUM
ATS	AUTOMATIC TRANSFER SWITCH	MSDS	MATERIAL SAFETY DATA SHEET
AWS	ADVANCED WIRELESS SYSTEM	MTL.	METAL
		MTS	MANUAL TRANSFER SWITCH
BBU	BATTERY BACK UP	N.T.S.	NOT TO SCALE
BCEM	BASE CHANNEL ELEMENT MODULE	O.C.	ON CENTER
BLDG.	BUILDING	O.D.	OUTSIDE DIAMETER
B.O.	BOTTOM OF	OVP	OVER VOLTAGE PROTECTION
		PCS	PERSONAL COMMUNICATIONS SERVICE
CLG.	CEILING	RAD.	RADIUS
COL.	COLUMN	R.O.	ROUGH OPENING
CONC.	CONCRETE	RRU	REMOTE RADIO UNIT
		SHTG.	SHEATHING
DBL.	DOUBLE	SIM.	SIMILAR
DIA.	DIAMETER	SPEC.	SPECIFICATION
DIM.	DIMENSION	S.S.	STAINLESS STEEL
DISC.	DISCONNECT	STL.	STEEL
DN.	DOWN	STRUCT.	STRUCTURAL
DWG.	DRAWING	T.C.	TEMPERATURE CONTROL
(E)	EXISTING	TELCO	TELECOMMUNICATIONS
EA.	EACH	T.O.	TOP OF
ELEV.	ELEVATION	TYP.	TYPICAL
ELEC.	ELECTRICAL	U.G.	UNDERGROUND
EQ.	EQUAL	U.N.O.	UNLESS NOTED OTHERWISE
EXT.	EXTERIOR	VERT.	VERTICAL
F.O.	FIRE EXTINGUISHER	V.I.F.	VERIFY IN FIELD
FIN.	FINISH	W/	WITH
FLR.	FLOOR		
FUT.	FUTURE		
GA.	GAUGE		
GALV.	GALVANIZED		
GEN.	GENERATOR		
GPS	GLOBAL POSITIONING SYSTEM		
GWB.	GYPSUM WALLBOARD		
H.M.	HOLLOW METAL		
HORZ.	HORIZONTAL		
HR.	HOUR		
HT.	HEIGHT		

**ABBREVIATIONS**



**SYMBOLS**

---	EASEMENT	FO	(E) FIBER CABLE
---	LEASE LINE	E	(E) ELECTRICAL
---	PROPERTY LINE	COAX	(E) COAX CABLE
□	WOODEN FENCE	---	ITEM TO BE DEMOLISHED
X	CHAIN LINK FENCE		
OH	(E) OVERHEAD UTILITY		
OH-P	(E) OVERHEAD ELEC.		
SS	(E) SANITARY SEWER		
W	(E) WATER LINE		
T	(E) TELCO CABLE		

**LINETYPES**

**GENERAL CONSTRUCTION NOTES**

**CODE COMPLIANCE**

1. THE FACILITY IS AN UNOCCUPIED WIRELESS FACILITY. EQUIPMENT ROOMS ARE NOT MANNED, ARE NOT HABITABLE, AND DO NOT REQUIRE POTABLE WATER, SEWER CONNECTIONS OR A.D.A. ACCESS ACCOMMODATIONS.
2. ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE STANDARDS, CODES, ORDINANCES, RULES, REGULATIONS, ORDINANCES, AND MANUFACTURER'S RECOMMENDATIONS. WHEN TWO OR MORE ARE IN CONFLICT, THE MOST STRINGENT PROVISION SHALL BE FOLLOWED.
3. CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. WHERE LICENSING IS REQUIRED, CONTRACTOR SHALL OBTAIN ALL REQUIRED LICENSES PRIOR TO BEGINNING WORK.
4. MECHANICAL AND ELECTRICAL SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
5. CONTRACTOR TO COORDINATE WITH LOCAL JURISDICTION FOR ANY CODE RELATED QUESTIONS. ALL JURISDICTION REQUIRED CHANGES ARE THE RESPONSIBILITY OF THE CONTRACTOR.

**GENERAL CONDITIONS**

6. DO NOT SCALE DRAWINGS.
7. THESE DESIGN DOCUMENTS ARE DIAGRAMMATIC IN NATURE AND ARE INTENDED TO SHOW FINAL CONDITIONS., UNLESS NOTED OTHERWISE.
8. THE CONTRACTORS SHALL USE DIMENSIONS SHOWN ON THE DRAWINGS AND ACTUAL FIELD MEASUREMENTS. NOTIFY THE AE PROJECT MANAGER IF ANY DISCREPANCIES ARE FOUND PRIOR TO PROCEEDING WITH WORK.
9. EXTERIOR DIMENSIONS ARE TO FACES OF EXTERIOR WALLS.
10. DIMENSIONS ON PLANS ARE TO FINISH FACES OR CENTERLINES OF COLUMNS UNLESS NOTED OTHERWISE.
11. DIMENSIONS TO DOOR OPENINGS ARE TO R.O. IN MASONRY & CONCRETE AND TO JAMB OPENING IN STUDWALLS. VERIFY DOOR SIZE W/ SCHEDULE.
12. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
13. REPRESENTATIONS OF TRUE NORTH, OTHER THAN THOSE FOUND ON THE PLOT OF SURVEY DRAWING, SHALL NOT BE USED TO IDENTIFY OR ESTABLISH THE BEARING OF TRUE NORTH AT THE SITE. THE CONTRACTOR SHALL RELY SOLELY ON THE PLOT OF SURVEY DRAWING AND ANY SURVEYOR'S MARKINGS AT THE SITE FOR THE ESTABLISHMENT OF TRUE NORTH, AND SHALL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING WITH THE WORK IF ANY DISCREPANCY IS FOUND BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND THE TRUE NORTH ORIENTATION AS DEPICTED ON THE PLAT OF SURVEY. THE CONTRACTOR SHALL ASSUME SOLE LIABILITY FOR ANY FAILURE TO NOTIFY THE ARCHITECT/ENGINEER.
14. EVERY EFFORT HAS BEEN MADE BY THE ARCHITECT / ENGINEERS TO PROVIDE ACCURATE AND COMPLETE DESIGN DOCUMENTS THOUGH MINOR ERRORS AND OMISSIONS MAYBE CONTAINED WITHIN THE DOCUMENTS. THESE SHALL NOT EXCUSE THE CONTRACTOR FROM PROVIDING AN ACCURATE PROPOSAL AND COMPLETING THE PROJECT IN ACCORDANCE WITH THE INTENT OF THE DESIGN DOCUMENTS.
15. IT IS THE EXPRESS INTENT OF THE PARTIES INVOLVED IN THIS PROJECT THAT THE CONTRACTOR OR SUBCONTRACTOR OR INDEPENDENT CONTRACTOR OR THEIR RESPECTIVE EMPLOYEES SHALL EXCULPATE THE ARCHITECT, THE ENGINEER, THE CONSTRUCTION MANAGER, THE OWNER, AND THEIR AGENTS, FROM ANY LIABILITY WHATSOEVER AND HOLD THEM HARMLESS AGAINST LOSS, DAMAGES, LIABILITY OR ANY EXPENSE ARISING IN ANY MATTER FROM A WRONGFUL OR NEGLIGENT ACT, OR FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, OR FROM THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FAILURE TO CONFORM TO THE STATE SCAFFOLDING ACT IN CONNECTION WITH THE WORK.

**CONTRACTOR'S RESPONSIBILITIES**

16. PRIOR TO THE SUBMISSION OF A BID, THE CONTRACTOR SHALL VISIT THE JOB SITE, REVIEW ALL DESIGN DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS, CONFIRMING THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING ANY ANY DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND DESIGN DOCUMENTS, NOTIFYING THE CONSTRUCTION MANAGER AND ARCHITECT/ENGINEER OF SUCH, AND SHALL OBTAIN WRITTEN CLARIFICATION PRIOR TO BEGINNING THE WORK.
17. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT EXTENT OF WORK, COORDINATION, DEMOLITION, TEMPORARY CONSTRUCTION, TEMPORARY FACILITIES, UTILITIES, ETC., NECESSARY TO COMPLETE THEIR PROJECT AS INDICATED IN THE CONTRACT DOCUMENTS.
18. WHILE REVIEWING THE DESIGN DOCUMENTS, THE CONTRACTOR SHALL IDENTIFY ANY ITEMS WHERE THE DESIGN INTENT IS UNCLEAR AND OBTAIN WRITTEN CLARIFICATIONS PRIOR TO FURNISHING A BID. THE CONTRACTOR SHALL RECEIVE, IN WRITING, AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS. ANY REQUEST FOR ALTERATIONS TO THE DESIGN INTENT SHALL BE PROVIDED IN WRITING FOR REVIEW AND APPROVAL.
19. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE MOST RECENT DESIGN DOCUMENTS AND ENSURING THEY ARE DISTRIBUTED AND ARE FOLLOWED BY ALL PERSONNEL INVOLVED IN THE PROJECT.
20. CONTRACTOR SHALL OBTAIN WRITTEN AUTHORIZATION FROM THE CARRIER PRIOR TO PURCHASING ANY MATERIALS OR STARTING ANY WORK.
21. CONTRACTOR SHALL, EXCEPT AS SPECIFICALLY AGREED OTHERWISE, PROVIDE ALL NECESSARY MATERIALS, LABOR AND EQUIPMENT TO COMPLETE THE INSTALLATION AS DESCRIBED IN DESIGN DOCUMENTS. CONTRACTOR TO CLARIFY PROVIDED MATERIALS PRIOR TO FURNISHING A BID.
22. ALL FURNISHED MATERIALS SHALL MEET CARRIER SPECIFICATIONS AND MINIMUM REQUIREMENTS FOR THE PROJECT. ANY SUBSTITUTIONS SHALL BE APPROVED IN WRITING BY CARRIER CONSTRUCTION MANAGER PRIOR TO PURCHASE AND INSTALLATION.
23. THE GENERAL CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK, USING THE BEST SKILLS AND ATTENTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES AND MATERIALS; AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT INCLUDING CONTACT AND COORDINATION WITH THE CONSTRUCTION FIELD ENGINEER AND WITH THE LANDLORD'S AUTHORIZED REPRESENTATIVE, COORDINATING ACCESS, AND COMPLIANCE WITH ANY REQUIREMENTS IMPOSED BY THE LANDLORD.
24. CONTRACTOR TO PROVIDE CLOSE OUT PACKAGE WITH ALL TEST RESULTS, SETTING SCREEN SHOTS, RELEVANT CATALOGS / CUT SHEETS, INSTRUCTION SHEETS AND A SET OF RED-LINED AS-BUILT DRAWINGS PRIOR TO FINAL BILLING.

**CONDITION OF SITE**

25. CONTRACTOR SHALL MAKE PROVISIONS TO PROTECT EXISTING SITE FINISHES AS MUCH AS POSSIBLE. ANY IMPACT TO SITE AND SURROUNDINGS SHALL BE MITIGATED AND CONTRACTOR SHALL RETURN SITE TO PRE-CONSTRUCTION CONDITIONS.
26. WORK AREA SHALL BE KEPT FREE OF DEBRIS ACCUMULATION. KEEP WORK AREAS NEAT AND ORDERLY AS MUCH AS POSSIBLE. MEANS OF EGRESS SHALL BE KEPT CLEAR AT ALL TIMES.
27. ALL DEMOLISHED AND UNUSED MATERIALS SHALL BE REMOVED FROM SITE AND TRACKED ASSETS LOGGED AND RETURNED TO CARRIER FOR DISPOSAL OR RE-USE. CONTRACTOR TO KEEP THE SITE CLEAN, FREE OF HAZARDS, PROPERLY DISPOSE OF ALL RUBBISH, AND REMOVE TRASH AND REFUSE DAILY. BURY NOTHING ON SITE. NO SOLID WASTE RECEPTACLE WILL BE SITED.

**SITE WORK**

1. CONTRACTOR TO VERIFY STATE REQUIREMENTS FOR UTILITY LOCATION SERVICES AND EXCAVATION CONTRACTOR SHALL NOTIFY STATE OR LOCAL NOTIFICATION CENTER AS REQUIRED PRIOR TO ANY SITE DISTURBANCES.
2. REASONABLE EFFORTS HAVE BEEN MADE TO IDENTIFY EXISTING UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING ALL UTILITIES, SHOWN OR NOT, AND PROTECTING THEM FROM DAMAGE. EXCAVATION CONTRACTOR TO OBTAIN REQUIRED LOCATES PRIOR TO STARTING WORK.
3. CONTRACTOR SHALL PROTECT ALL SITE FINISHES AND IMPROVEMENTS AND RETURN ALL TO PRE WORK CONDITION. IF EXTERIOR SITE IMPROVEMENTS ARE REQUIRED, CONTRACTOR TO INSTALL AND MAINTAIN DRAINAGE / RUNOFF MITIGATION MEASURES THROUGH OUT THE PROJECT AND REVEGETATE AREA TO RETURN IT TO ORIGINAL CONDITIONS.
4. GRUB AND DISPOSE OF ALL ORGANIC MATERIAL PRIOR NO FILL OR EARTHWORK TO OCCUR WITH ON OR WITH FROZEN MATERIAL

**STRUCTURAL NOTES**

**1.0 GENERAL CONDITIONS**

- 1.1 NO STRUCTURAL ALTERATIONS ARE TO BE MADE TO THE FACILITY UNLESS SPECIFICALLY NOTED.
- 1.2 ALL STRUCTURAL SHOP DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR WRITTEN APPROVAL PRIOR TO FABRICATION.

**2.0 CONCRETE AND MASONRY**

- 2.1 ALL CONCRETE WORK SHALL CONFORM WITH ACI. 318 OR LATEST. DETAIL REINFORCING IN CONFORMANCE WITH ACI. SP66 LATEST.
- 2.2 NO SPLICES OF REINFORCEMENT SHALL BE MADE EXCEPT AS DETAILED OR AUTHORIZED BY THE STRUCTURAL ENGINEER. LAP SPLICES WHERE PERMITTED SHALL BE A MINIMUM OF 30 BAR DIAMETERS.
- 2.3 PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCING AT POSITIONS SHOW ON DRAWINGS.
- 2.4 WIRE FABRIC REINFORCEMENT MUST LAP ONE FULL MESH AT SIDE AND END LAPS SHALL BE TIED TOGETHER.
- 2.5 CURE AFTER FINISHING CONCRETE. KEEP MOIST FOR 7 DAYS AFTER POURING.
- 2.6 COMPACT STRUCTURAL FILL 95% PROCTOR DENSITY PRIOR TO PLACING CONCRETE UNDER SLABS.
- 2.7 1/4" CHAMFER ON ALL CORNERS AND EDGES.
- 2.8 ALL CONCRETE SHALL BE PORTLAND, TYPE 1 CEMENT WITH A MINIMUM OF 28 DAY STRENGTH OF 3000 PSI. 4" SLUMP AND A MINIMUM AIR ENTRAPMENT OF 4%.
- 2.9 ALL REINFORCING STEEL SHALL BE GRADE 60. ALL REINFORCING MESH SHALL CONFORM TO ASTM A 185.
- 2.10 CONTRACTOR TO OBTAIN X-RAY OR GPR (IF APPLICABLE) OF ANY CONCRETE OR MASONRY STRUCTURES, IDENTIFYING ALL EMBEDMENT PRIOR TO CUTTING, DRILLING OR OTHER ACTIVITY WHICH COULD CAUSE DAMAGE. AVOID ALL EMBEDMENT. OBTAIN APPROVAL FROM STRUCTURAL ENGINEER PRIOR TO IMPACTING ANY STRUCTURAL FACILITIES.

**3.0 STRUCTURAL STEEL**

- 3.1 CHANNELS, ANGLES AND PLATES SHALL BE ASTM A36 MATERIAL, UNLESS NOTED OTHERWISE.
- 3.2 SQUARE AND RECTANGULAR TUBE STEEL HSS SECTIONS SHALL BE ASTM A500, GRADE B (Fy = 46 ksi) MATERIAL.
- 3.3 ROUND PIPE SECTIONS SHALL BE ASTM A53, GRADE B (Fy =35 ksi) MATERIAL.
- 3.4 DESIGN, FABRICATION, AND ERECTION SHALL BE IN ACCORDANCE WITH THE "AISC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", WITH COMMENTARY AND THE "CODE OF STANDARD PRACTICE".
- 3.5 ALL STEEL SHALL HAVE ONE COAT OF SHOP PRIMER. DO NOT PAINT AREAS WITHIN 3" OF BOLTS, WELDS OR HEADED STUDS.
- 3.6 ALL OUTDOOR STEEL ITEMS SHALL BE HOT DIPPED GALVANIZED PER ASTM A123.
- 3.7 BOLTS SHALL BE HIGH STRENGTH BOLTS, A325, CONFORMING TO ASTM SPECIFICATIONS. ALL CONNECTIONS SHALL HAVE A MINIMUM OF 2 BOLTS.
- 3.8 WELDING SHALL BE CONDUCTED BY CERTIFIED WELDERS AND SHALL CONFORM TO THE AWS CODES FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION.
- 3.9 WELDS SHALL BE MADE USING E70XX ELECTRODES AND SHALL BE 3/16" MINIMUM UNLESS OTHERWISE NOTED.
- 3.10 WELDING SHALL BE PERFORMED IN ACCORDANCE WITH A WELDED PROCEDURE SPECIFICATION (WPS) AS PER AWS D1.1, D1.3 AND D1.4.
- 3.11 ONLY PRE-QUALIFIED WELDING PROCEDURES SHALL BE USED.
- 3.12 UNLESS SPECIFICALLY ADDRESSED IN THE SPECIFICATIONS OR THE DETAILS, ALL STEEL ITEMS PERMANENTLY EXPOSED TO EARTH OR WEATHER SHALL BE CORROSION-RESISTANT BY GALVANIZING OR BY THE USE OF STAINLESS STEEL.
- 3.13 ALL FIELD WELDS ON GALVANIZED MATERIAL SHALL BE BRUSH-COATED WITH A ZINC-RICH PAINT
- 3.14 ANY DAMAGED GALVANIZING OR PAINT TO BE FIELD REPAIRED WITH 'COLD-GALV' OR APPROPRIATE PAINT UNDER CONDITIONS APPROVED BY PRODUCT MANUFACTURER.

**4.0 FIBER REINFORCED PLASTICS**

- 4.1 ALL FRP MATERIAL SHALL BE EXTREN SERIES 500 OR EQUIVALENT, PRODUCED BY THE PULTRUSION METHOD.
- 4.2 ALL ADHESIVE RESIN SHALL BE PLEXUS METHACRYLATE OR AN EQUIVALENT ADHESIVE RESIN THAT IS COMPATIBLE WITH THE RESIN MATRIX USED IN THE STRUCTURAL SHAPES.
- 4.3 ALL FRP CONNECTIONS SHALL BE FULLY-BONDED AT EACH SIDE WITH A 1/4" PLATE AND A MINIMUM OF (2) 3/8" DIAMETER FLATHEAD FRP SCREWS PER MEMBER.
- 4.4 ISOPLAST NUTS AND BOLTS SHALL BE TIGHTENED TO A SNUG-TIGHT FIT PLUS AN ADDITIONAL 1/2 TURN, PRIOR TO BEING LOCKED WITH EPOXY.
- 4.5 ALL PANELS / SHEATHING SHALL BE FULLY BONDED WITH 3/8" FLATHEAD FRP SCREWS AT 12" O.C.
- 4.6 ALL FIELD CUT AND DRILLED EDGES, HOLES AND ABRASIONS SHALL BE SEALED WITH A CATALYZED EPOXY RESIN COMPATIBLE WITH THE MANUFACTURER'S ORIGINAL RESIN.



990 SOUTH BROADWAY, DENVER, CO 80209

**PROJECT INFORMATION:**

SITE NAME:  
**FOUNTAIN CELL**  
SITE ID:  
**DN02728A**  
  
S POWERS BLVD  
& FONTAINE BLVD  
EL PASO COUNTY

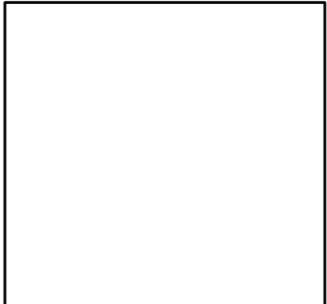
**REV: DATE: DESCRIPTION: BY:**

A	01/12/24	PRELIMINARY	MEM
B	04/09/24	CITY COMMENTS	SMV

**PLANS PREPARED BY:**



**LICENSURE NO:**



ALL SCALES ARE SET FOR 11"x17" SHEET

DRAWN BY:	CHK BY:	APV BY:
MEM	ML	TA

**SHEET TITLE:**

**GENERAL NOTES**

**SHEET NUMBER:**

**GN1**

**WEATHER PROOFING**

1. ALL EXTERIOR WALL OPENINGS, FLASHING, COUNTERFLASHING AND EXPANSION JOINTS SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO MAKE IT WEATHERPROOF.
2. THE JUNCTION OF THE ROOF AND VERTICAL SURFACES SHALL BE FLASHED AND COUNTERFLASHED IN A MANNER TO MAKE THEM WEATHERPROOF.
3. PROVIDE FOR ALL TEMPORARY WEATHERPROOFING DURING THE COURSE OF WORK TO ASSURE PROTECTION AND FULL OPERATION OF THE EXISTING FACILITY.

**DOORS, VENTS, AND WINDOWS**

1. ALL EGRESS DOORS SHALL BE ABLE TO BE OPENED FROM THE INSIDE WITHOUT USE OF KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT. ALL EXIT SIGNS SHALL HAVE LETTERS SIX INCHES HIGH MINIMUM, AND SHALL CONFORM WITH APPLICABLE CODES. REFER TO FLOOR PLANS FOR EXIT SIGN LOCATIONS.
2. INSTALL PER MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS. WHERE DETAILED, PROVIDE ALL ADDITIONAL MATERIALS SHOWN OR NOTED. VERIFY ALL OPENING SIZES, BOTH NEW AND EXISTING PRIOR TO ORDERING. PROVIDE SPACE FOR FLASHING AS DETAILED. PROVIDE GALVANIC ISOLATION BETWEEN DISSIMILAR MATERIALS.

**FINISHES**

1. PAINT ALL PAINTABLE ITEMS ATTACHED TO WALLS, CEILING, OR COLUMNS EXCEPT DUCTWORK AND FLEXIBLE AND/OR MOVABLE PARTS. CONCEAL ALL PIPE AND CONDUIT WHERE WALL FURRING IS PROVIDED. PRIME ALL MATERIALS WITH MATERIAL COMPATIBLE WITH SUBSTRATE. SEE FINISH SCHEDULE AND FINISH NOTES.
2. OFFSET STUDS WHERE NEEDED, SO THE FINISH WALL SURFACES WILL BE FLUSH.
3. PROVIDE GALVANIC ISOLATION BETWEEN DISSIMILAR METALS.
4. CEILING SUSPENSION SYSTEMS SHALL BE STABILIZED AGAINST LATERAL MOVEMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THE IBC, GOVERNING EDITION.
5. CEILING HEIGHTS ARE FROM CONCRETE FLOOR SLAB TO GRID AT ACOUSTICAL TILE CEILING, OR FINISH AT HARD CEILING.
6. ALL INTERIOR WOOD BLOCKING SHALL BE FIRE TREATED.

**EQUIPMENT**

1. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OTHERWISE OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
2. VERIFY ALL EQUIPMENT MOUNTING DIMENSIONS PER MANUFACTURER DRAWINGS.
3. PROVIDE SOLID BLOCKING FOR ALL WALL MOUNTED FIXTURES, DEVICES & EQUIPMENT. COORD. W/ ALL DIVISIONS OF THE SPECIFICATIONS TO VERIFY LOCATION REQUIRED.
4. CONTRACTOR SHALL PROVIDE SEISMIC BRACING AND SUPPORT ALL EQUIPMENT AND MATERIALS PROVIDED.

**FIRESTOPPING**

1. FIRESTOPPING SHALL BE PROVIDED BY A SINGLE CONTRACTOR FOR ALL TRADES USING A SINGLE MANUFACTURER'S PRODUCTS (3M OR HILTI).
2. ALL RECESSED PANELS MOUNTED IN FIRE RATED WALLS SHALL BE OF FIRE RATED CONSTRUCTION TO MATCH RATING OF WALL. (I.E. TRAP PRIMERS, F.E. CABINETS, ETC.)

**ELECTRICAL NOTES**

1. THESE PLANS ARE DIAGRAMMATIC ONLY, AND NOT TO BE SCALED.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC. FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
3. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDER-WRITER'S LABORATORY AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL MATERIALS SHALL MEET WITH APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY AND ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU.
4. ALL CONDUIT INSTALLED SHALL BE SURFACE MOUNTED UNLESS OTHERWISE NOTED.
5. ELECTRICAL CONTRACTOR SHALL CARRY OUT THE WORK WITH ACCORDANCE WITH ALL GOVERNING STATE, COUNTY, LOCAL CODES AND O.S.H.A.
6. ELECTRICAL CONTRACTOR SHALL SECURE ALL NECESSARY ELECTRICAL PERMITS, AND PAY ALL REQUIRED FEES.
7. COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF NO LESS THAN ONE YEAR AFTER THE DATE OF JOB COMPLETION. ANY WORK, MATERIAL, OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR.
8. ALL INSTALLATIONS TO MAINTAIN REQUIRED CLEARANCES
9. CONTRACTOR TO SIZE CONDUCTORS PER NEC AND CARRIER REQUIREMENTS AND UPSIZE AS REQUIRED TO MINIMIZE VOLTAGE DROP.
10. CONTRACTOR TO SIZE CONDUIT PER NEC
11. ALL CONDUIT ONLY (C.O.) SHALL HAVE A PULL WIRE OR ROPE, AND TRUE TAPE.
12. PROVIDE THE OWNER WITH ONE SET OF COMPLETE DIMENSIONS AND CIRCUITS, WITHIN 10 WORKING DAYS OF PROJECT COMPLETION. ELECTRICAL "AS BUILT" DRAWINGS, SHOWING ACTUAL LOCATION OF CONDUITS.
13. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO PROJECT MANAGER AT JOB COMPLETION.
14. USE T-TAP CONNECTIONS ON ALL MULTI-CIRCUITS WITH COMMON NEUTRAL CONDUCTOR FOR LIGHTING FIXTURE. ALL CONDUCTORS SHALL BE COPPER.
15. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
16. PATCH, REPAIR, AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
17. IN DRILLING HOLES INTO CONCRETE (WHETHER FOR FASTENING OR ANCHORING PURPOSES OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC.) IT MUST BE CLEARLY UNDERSTOOD THAT TENDONS AND RE-BARS WILL NOT BE DRILLED INTO, CUT, OR DAMAGED UNDER ANY CIRCUMSTANCES.
18. LOCATION OF TENDONS AND RE-BARS ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT VIA X-RAY, OR OTHER DEVICES THAT CAN ACCURATELY LOCATE THE REINFORCING STEEL TENDONS.
19. PENETRATIONS IN FIRE RATED WALLS SHALL BE FIRE STOPPED IN ACCORDANCE WITH APPLICABLE LOCAL BUILDING CODES, USING U.L. RATED MATERIALS.
20. ELECTRICAL CONTRACTOR IS TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOK-UP COSTS SHALL BE PAID BY THE CONTRACTOR.
21. ELECTRICAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND/OR CATALOG CUT-SHEETS ON ALL NON-SPECIFIED ORIGINAL MATERIALS AND EQUIPMENT, TO PROJECT MANAGER PRIOR TO COMMENCEMENT OF THE WORK.
22. UPON COMPLETION OF WORK, CONDUCT CONTINUITY AND SHORT CIRCUIT, AS WELL AS, GROUNDING TEST, GROUNDING TEST SHALL BE PERFORMED BY INDEPENDENT TESTING AGENCY, WITH WRITTEN REPORT SUBMITTED TO THE PROJECT MANAGER FOR REVIEW AND APPROVAL.
23. CLEAN PREMISES DAILY OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK PREMISES IN A COMPLETE AND UNDAMAGED CONDITION.
24. ALL EXTERIOR WALL PENETRATIONS SHALL BE SEALED WITH POLYSEAM SEALANT.
25. ALL #2 TINNED BARE COPPER DOWNLEADS TO BE PROTECTED BY 1/2" P.V.C. PIPE AND SECURED.
26. COMPRESSION FITTINGS TO BE USED ON ALL CONDUITS (NO SET SCREWS).
27. ALL #6 STRANDED COPPER WITH GREEN INSULATION TO BE ATTACHED WITH CRIMPED DOUBLE LUG, ATTACHED WITH NUTS, BOLTS AND STAR WASHERS TYPICAL AND NO-OX GREASE BETWEEN LUG AND BUS BAR.
28. ALL ABOVE GROUND CONDUIT SHALL BE RIGID GALVANIZED CONDUIT WITH WEATHERPROOF FITTINGS.
29. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.

**GROUNDING**

1. ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING MANUFACTURER, CARRIER'S AND LANDLORD'S GROUNDING AND BONDING STANDARDS, AND THE NATIONAL ELECTRICAL CODE.
2. PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEM INDICATED WITH ASSEMBLY OF MATERIALS, INCLUDING GROUNDING ELECTRODES, BONDING JUMPERS AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.
3. ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND WITH GRADUAL BEND AS REQUIRED. GROUNDING CONDUCTORS SHALL NOT BE LOOPED OR SHARPLY BENT. ROUTE GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES.
4. IN BUILDINGS AND/OR NEW TOWERS GREATER THAN 75 FEET IN HEIGHT AND WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP'S, OR TOWER'S GROUND RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN #2 AWG COPPER. ROOFTOP GROUND RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).
5. TIGHTEN GROUNDING AND BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTORS AND BOLTS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT AVAILABLE, TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL TO ASSURE PERMANENT AND EFFECTIVE GROUNDING. CONTRACTOR SHALL VERIFY THE LOCATIONS OF GROUNDING TIE-IN-POINTS TO THE EXISTING

6. ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE GROUNDING SYSTEM. EXOTHERMIC WELD PROCESS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
7. ALL GROUNDING CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS. EXOTHERMIC WELDED CONNECTIONS SHALL BE APPROVED BY THE INSPECTOR HAVING JURISDICTION BEFORE BEING PERMANENTLY CONCEALED.
8. APPLY CORROSION-RESISTANCE FINISH TO FIELD CONNECTIONS AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATINGS HAVE BEEN DESTROYED.
9. A SEPARATE, CONTINUOUS, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL FEEDER AND BRANCH CIRCUITS.
10. BOND ALL INSULATED GROUNDING BUSHINGS WITH A BARE 6 AWG GROUNDING CONDUCTOR TO A GROUND BUS.
11. DIRECT BURIED GROUNDING CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 36" MINIMUM BELOW GRADE, OR 6" BELOW THE FROST LINE, USE THE GREATER OF THE TWO DISTANCES.
12. ALL GROUNDING CONDUCTORS EMBEDDED IN OR PENETRATING CONCRETE SHALL BE INSTALLED IN SCHEDULE 40 PVC CONDUIT.
13. THE INSTALLATION OF A CHEMICAL ELECTROLYTIC GROUNDING SYSTEM IS NOT PERMITTED UNLESS SPECIFICALLY NOTED.
14. DRIVE GROUND RODS UNTIL TOPS ARE A MINIMUM DISTANCE OF 36" DEPTH OR 6" BELOW FROST LINE, USING THE GREATER OF THE TWO DISTANCES.
15. IF COAX ON THE ICE BRIDGE IS MORE THAN 6 FT. FROM THE GROUND BAR AT THE BASE OF THE TOWER, A SECOND GROUND BAR WILL BE NEEDED AT THE END OF THE ICE BRIDGE, TO GROUND THE COAX CABLE GROUNDING KITS AND IN-LINE ARRESTORS
16. CONTRACTOR SHALL REPAIR, AND/OR REPLACE, EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE CONTRACTORS EXPENSE.
17. EXTERIOR GROUND RINGS SHALL BE TESTED AND SHALL HAVE A RESISTANCE TO EARTH OF 5 OHMS OR LESS. IF NOT NOTIFY ENGINEER.

**COMMUNICATIONS**

**GENERAL CABLING**

1. ALL INSTALLED CABLES SHALL HAVE SHEATHS (RISER / PLENUM / OUTDOOR / UV RESISTANT) APPROPRIATE FOR THE MOST RESTRICTIVE ENVIRONMENT WHICH THEY WILL TRAVERSE.
2. ALL CABLING TO BE SUPPORTED AND LACED PER NEC, LOCAL REQUIREMENTS AND TO MEET CARRIER SPECIFICATIONS.
3. MAINTAIN REQUIRED SEPARATION BETWEEN CONDUCTORS AND OTHER CABLES AS PRESCRIBED BY CARRIER SPECIFICATIONS AND BEST PRACTICES.
4. ALL FIRE, SMOKE OR DRAFT BARRIERS SHALL BE REPAIRED SUCH THAT THEY MAINTAIN THEIR INTENDED / REQUIRED RATINGS.
5. PLANS ARE NOT TO BE SCALED. USE DIMENSION CALL-OUTS FOR ESTIMATES. CABLE LENGTHS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL LENGTHS PRIOR TO ORDERING.

**FIBER OPTICS**

6. VERIFY SINGLE-MODE OR MULTI-MODE AND CONNECTOR TYPE
7. ALL CABLES AND CONNECTORS TO BE PRE-APPROVED, OR AN EXCEPTION OBTAINED PRIOR TO PURCHASE AND INSTALLATION
8. ALL FIBER STRANDS SHALL BE FUSION SPLICED THROUGHOUT OUT THE LENGTH OF THE RUN AND BE TERMINATED AT EACH END OF TRUNK UNLESS SPECIFICALLY NOTED.
9. ALL TERMINATIONS TO BE LANDED IN A BULKHEAD OR COILED AND PROTECTED IN A SPLICE CASE IF BULKHEAD IS SPACE CONSTRAINED.
10. ALL SPLICES TO BE FUSION TYPE AND INDIVIDUAL SPLICES SHALL HAVE A LOSS OF LESS THAN 0.1 dB. ANY SPLICES WITH HIGHER LOSSES TO BE REMADE.
11. ALL FIBERS TO BE TESTED WITH OTDR AND POWER METER. OTDR AND OPTICAL LOSS REPORT PROVIDED IN CLOSEOUT PACKAGE.
12. ALL FIBER CABLING TO BE INSTALLED IN PROTECTIVE CABLE MANAGEMENT SYSTEMS, DUCT OR BE ARMORED CABLE WHERE TRAVERSING SHARED SPACE.

**COAX AND ANTENNAS**

13. ALL ANTENNA MOUNTS SHALL BE INSTALLED IN ACCORDANCE WITH ANSI/TIA-222 AND APPLICABLE LOCAL CODES
14. ALL COAX TO BE INSTALLED PER CARRIER SPECIFICATIONS, SUPPORTED AT A MINIMUM OF EVERY 4'-0" IN PROPERLY SIZED BLOCKS OR OTHER COAX SUPPORTS U.N.O.
15. ALL COAX TRAVERSING EXTERIOR WALLS SHALL BE PROTECTED ON INTERIOR SIDE WITH LIGHTNING SURGE SUPPRESSOR GROUNDED TO BUILDING GROUNDING SYSTEM OR STEEL (NOT LIGHTNING PROTECTION SYSTEM). PROVIDE COAX GROUND KIT AT ANTENNA AND AS REQUIRED BY CARRIER.
16. ALL COAX TERMINATIONS SHALL BE LOW PIM AND APPROVED BY CARRIER.
17. MAINTAIN MINIMUM BEND RADIUS AND SUPPORT CABLE AS NEEDED TO PROTECT CABLES FROM SAGGING, KINKING OR BEING CAUGHT.
18. ALL COAX TO BE SWEEP (DTF & RETURN LOSS) AND PIM TESTED WITH PASSING REPORTS PROVIDED TO CARRIER.
19. PROVIDE 50 OHM LOAD ON ALL UNUSED PORTS.
20. WATERPROOF ALL EXTERIOR CONNECTIONS AND ANY OTHER CONNECTIONS EXPOSED TO MOISTURE OR CONDENSING ENVIRONMENTS WITH SELF-AMALGAMATING BUTYL TAPE WITH MINIMUM 1/2" OVERLAP.
21. TORQUE ALL CONNECTIONS TO MANUFACTURER SPECIFICATIONS WITH APPROPRIATE TORQUE WRENCH.
22. MOUNT GPS ANTENNA ON 1-1/4" SCH. 40 STEEL OR STAINLESS STEEL WITH BURNDY GROUNDING CLAMP THIN 2" OF VERTICAL.



PROJECT INFORMATION:

SITE NAME:  
**FOUNTAIN CELL**

SITE ID:  
**DN02728A**

S POWERS BLVD  
& FONTAINE BLVD  
EL PASO COUNTY

REV:	DATE:	DESCRIPTION:	BY:
A	01/12/24	PRELIMINARY	MEM
B	04/09/24	CITY COMMENTS	SMV



LICENSURE NO:

ALL SCALES ARE SET FOR 11"x17" SHEET

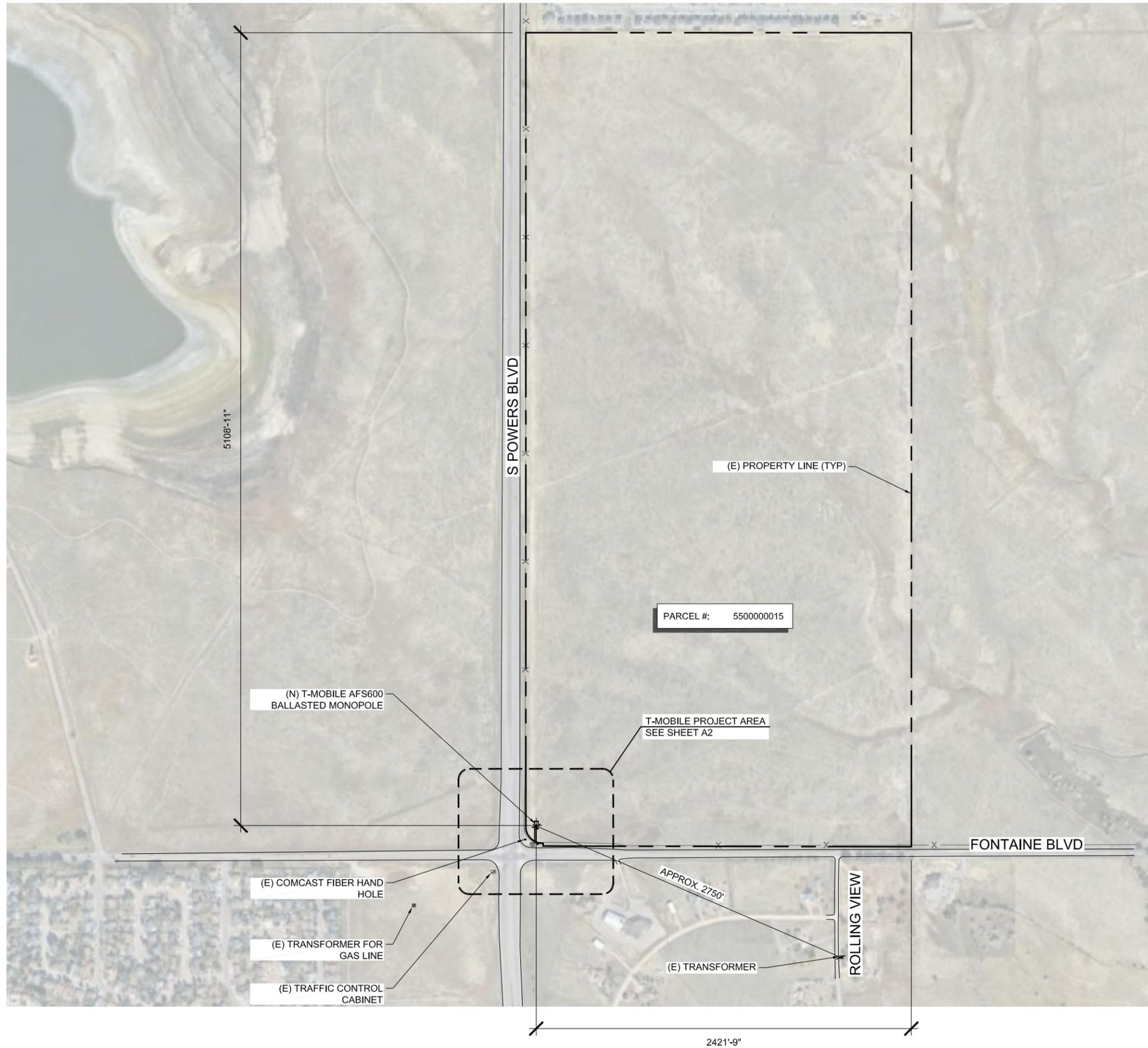
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MEM	ML	TA

SHEET TITLE:

**GENERAL NOTES**

SHEET NUMBER:

**GN2**



990 SOUTH BROADWAY, DENVER, CO 80209

PROJECT INFORMATION:  
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 EL PASO COUNTY

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A	01/12/24	PRELIMINARY	MEM
B	04/09/24	CITY COMMENTS	SMV

PLANS PREPARED BY:



CONSTRUCTION SERVICES, LLC  
 4751 FOX STREET, DENVER, CO 80216

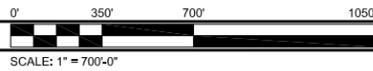
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MEM	ML	TA

SHEET TITLE:  
**OVERALL SITE PLAN**

SHEET NUMBER:  
**A1.0**



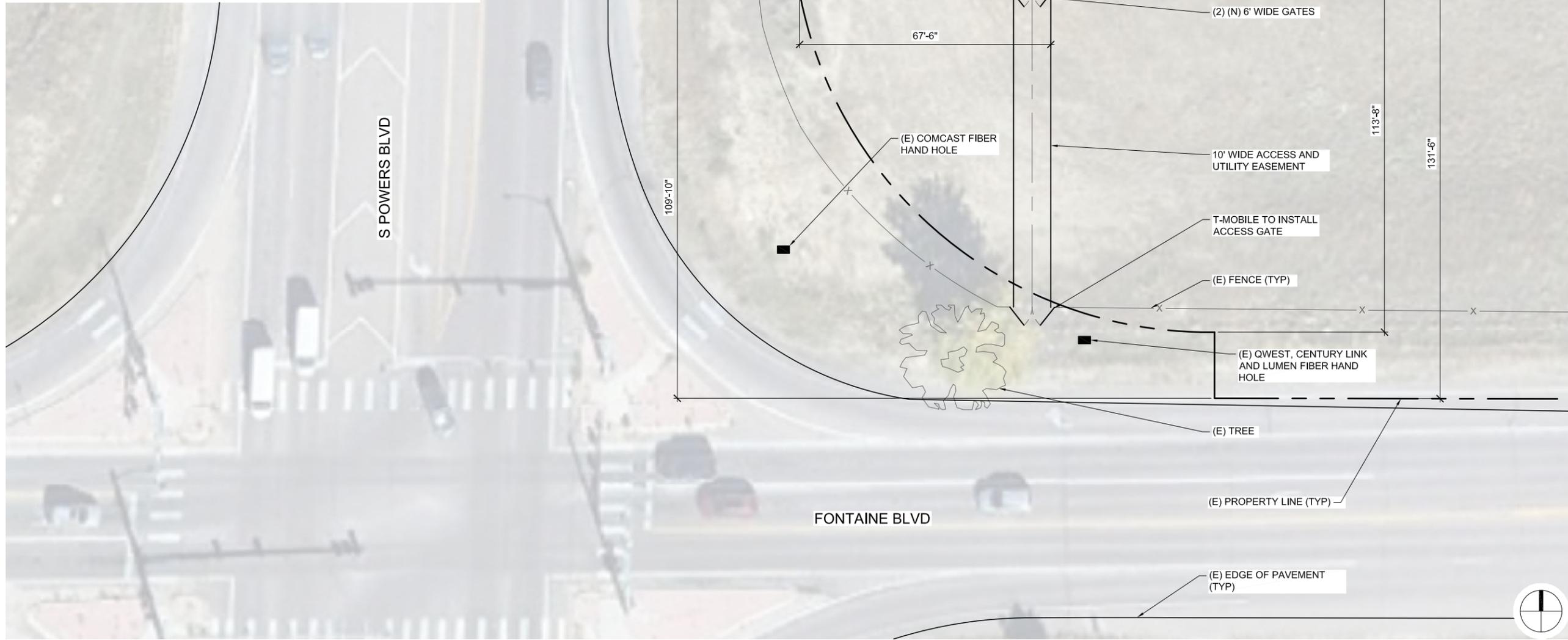


(N) 45'-0" X 70'-0" T-MOBILE  
TEMPORARY LEASE AREA RE: 1/A2

2 LEASE AREA PHOTO

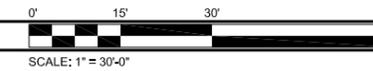
N.T.S.

NOTE:  
ACTUAL GROUND SURVEY WAS NOT PERFORMED FOR THIS SITE. THE SITE PLAN WAS  
DERIVED FROM PROVIDED DRAWINGS AND PHOTOS, GIS DATA, AND AERIAL IMAGES.



1 ENLARGED SITE PLAN

SCALE: AS NOTED



990 SOUTH BROADWAY, DENVER, CO 80209

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SITE ID:  
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S POWERS BLVD  
& FONTAINE BLVD  
EL PASO COUNTY

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PLANS PREPARED BY:



LICENSURE NO:

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MEM	ML	TA

SHEET TITLE:

**ENLARGED  
SITE PLAN**

SHEET NUMBER:

**A2.0**

PROJECT INFORMATION:

SITE NAME:

**FOUNTAIN CELL**

SITE ID:

**DN02728A**

S POWERS BLVD  
& FONTAINE BLVD  
EL PASO COUNTY

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PLANS PREPARED BY:



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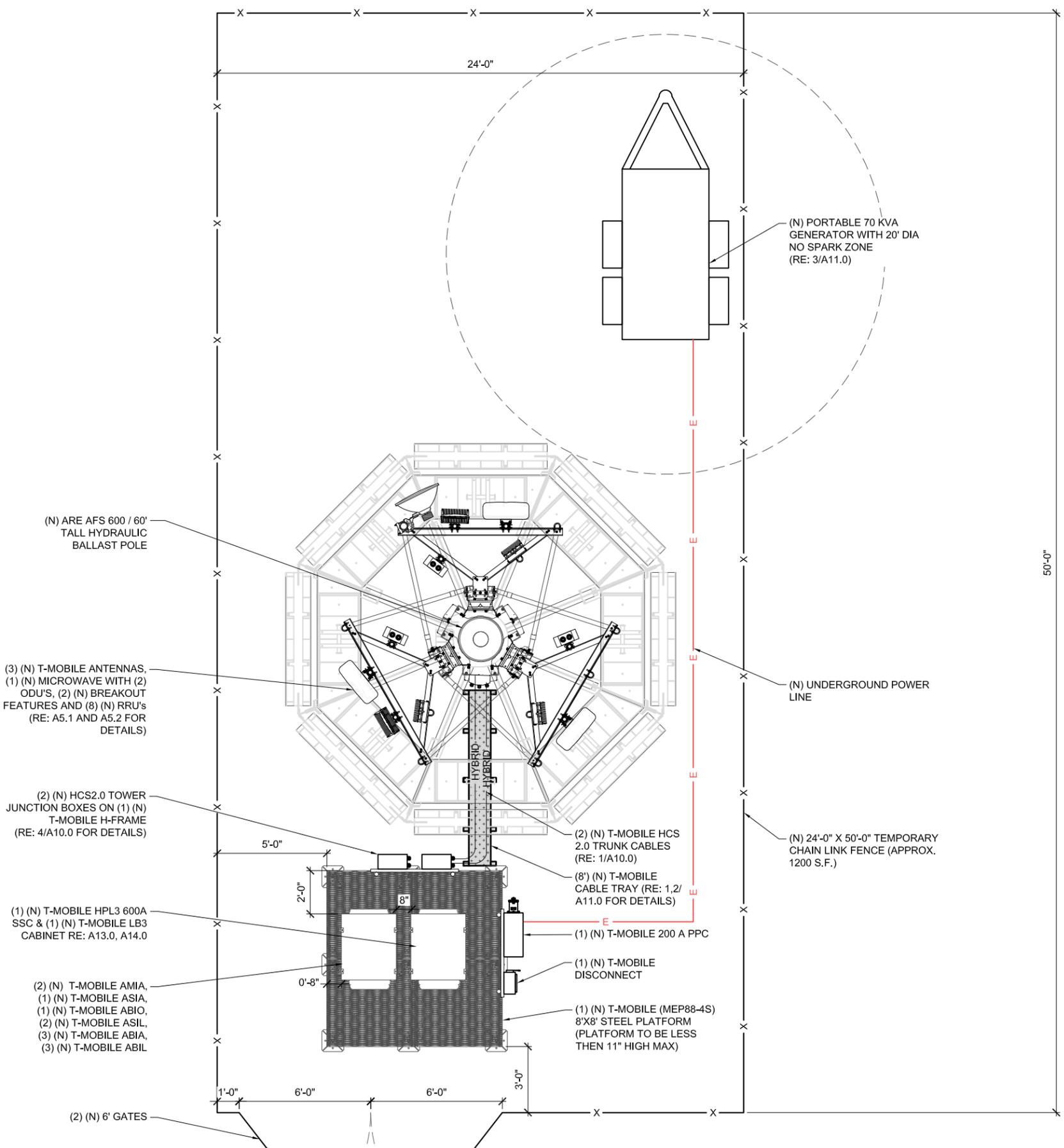
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MEM	ML	TA

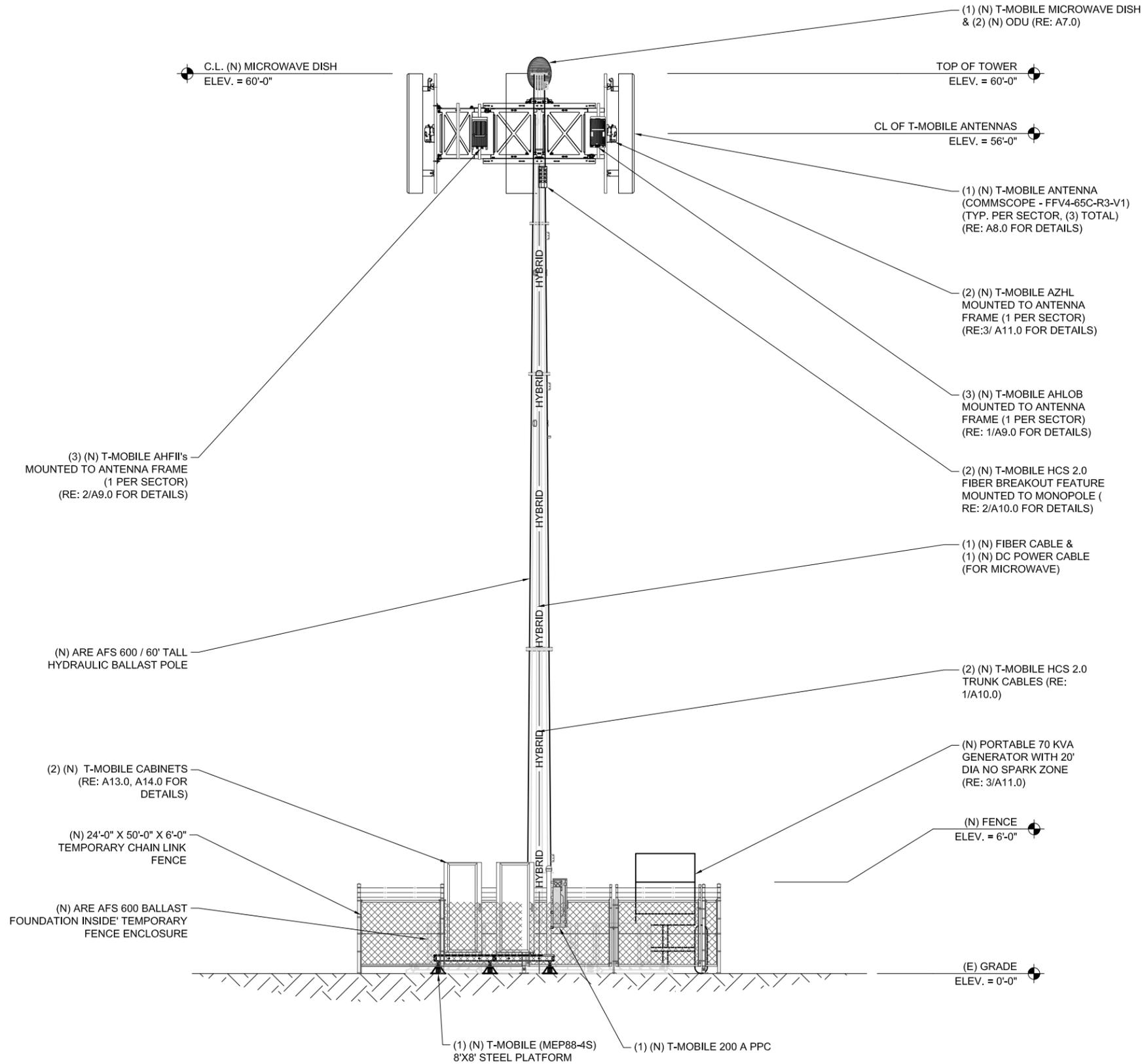
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**EQUIPMENT  
PLAN**

SHEET NUMBER:

**A3.0**





PROJECT INFORMATION:

SITE NAME:  
**FOUNTAIN CELL**  
 SITE ID:  
**DN02728A**  
 S POWERS BLVD  
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PLANS PREPARED BY:



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MEM	ML	TA

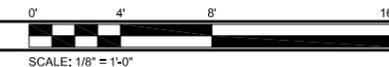
SHEET TITLE:

**ELEVATION**

SHEET NUMBER:

**A4.0**

PCD FILE: VA242



ANTENNA NOTES:

- ANTENNA CONTRACTOR SHALL ENSURE THAT ALL ANTENNA MOUNTING PIPES ARE PLUMB.
- FEEDLINE LENGTHS INDICATED ARE APPROXIMATE.
- ANTENNA COAXIAL FEEDERS & ANTENNA JUMPERS SHALL BE COLOR CODED PER T-MOBILE REQUIREMENTS.
- IN ADDITION TO THE COLOR CODE, THE FOLLOWING ANTENNA SECTOR COLOR STRIPE SHALL BE ADDED TO EACH ANTENNA SECTOR FEEDLINE & JUMPER.
- SEE SHEET A\_ FOR DETAILS
  - ALPHA - RED STRIPE
  - BETA - BLUE STRIPE
  - GAMMA - WHITE STRIPE
  - DELTA - GREEN STRIPE
  - EPSILON - GRAY STRIPE
  - ZETA - BROWN STRIPE
  - HYBRID - GRAY STRIPE
- MULTI PORT ANTENNAS: TERMINATE UNUSED ANTENNA PORTS WITH CONNECTOR CAP & WEATHERPROOF THOROUGHLY. JUMPERS FROM TMAs MUST TERMINATE TO OPPOSITE POLARIZATIONS IN EACH SECTOR.
- CONTRACTOR MUST FOLLOW ALL MANUFACTURERS' RECOMMENDATIONS REGARDING THE INSTALLATION OF FEEDLINES, CONNECTORS, AND ANTENNAS.
- MINIMUM BEND RADIUS:
  - LDF4-50A (1/2" HARD LINE) = 5"
  - FSJ4-50B (1/2" SUPER FLEX) = 1 1/4"
  - AVA5-50A (7/8" HARD LINE) = 10"
  - AVA7-50A (1-5/8" HARD LINE) = 15"
  - LDF7-50A (1-5/8" HARD LINE) = 20"
- CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO T-MOBILE.
- WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE.
- ANTENNA CONTRACTOR SHALL PERFORM A "TAPE DROP" MEASUREMENT TO CONFIRM/ VALIDATE ANTENNA CENTERLINE (ACL) HEIGHT. CONTRACTOR SHALL SUBMIT A COMPLETED HEIGHT VERIFICATION FORM TO THE CONSTRUCTION MANAGER.
- ALL FIBER RUNS CONTAINED IN ONE COMMSCOPE HYBRID DC-FIBER CABLE (MODEL# HCS 2.0 TRUNK CABLE 12#6AWG24 SM FIBER PR) FROM LOWER JUNCTION BOX TO UPPER JUNCTION BOX, HYBRID CABLE SHALL BE COLOR CODED PER T-MOBILE REQUIREMENTS.

1 ANTENNA NOTES

ANTENNA KEY

STATUS	ANTENNA NUMBER	AZIMUTH	ANTENNA CENTERLINE AGL	ANTENNA VENDOR	MODEL NUMBER	BEAM WIDTH	MECH. DOWNTILT	ELEC. DOWNTILT	TECH.	FEEDER	
										(QTY) SIZE	COLOR CODE
(N)	A1	0	56'-0"	COMMSCOPE	FFV4-65C-R3-V1	65°	0°	6° / 3°	N600/L700/L600/N2500 /N1900/L1900/L2100/N2100(DARK)	(8) 1/2" COAX CABLES FOR EACH ANTENNA	RED STRIPE
(N)	B1	130°	56'-0"	COMMSCOPE	FFV4-65C-R3-V1	65°	0°	6° / 3°	N600/L700/L600/N2500 /N1900/L1900/L2100/N2100(DARK)	(8) 1/2" COAX CABLES FOR EACH ANTENNA	BLUE STRIPE
(N)	C1	230°	56'-0"	COMMSCOPE	FFV4-65C-R3-V1	65°	0°	6° / 3°	N600/L700/L600/N2500 /N1900/L1900/L2100/N2100(DARK)	(8) 1/2" COAX CABLES FOR EACH ANTENNA	WHITE STRIPE
(N)	M1	26.22°	60'-0"	ANDREW	VHLP2-11WA	-	-	-	BACKHAUL	80' ARMORED LC/LC FO CABLE	

TOWER EQUIPMENT KEY

STATUS	LOCATION	VENDOR	EQUIPMENT	MODEL NUMBER	TECH.	QTY.
(N)	TOWER	CERAGON	MICROWAVE	FRU-D	-	1
(N)	TOWER	NOKIA	FIBER BREAKOUT	HCS 2.0 FIBER BREAKOUT FEATURE	-	1
(N)	H-FRAME	NOKIA	RRU	AZHL	N2500	2
(N)	H-FRAME	NOKIA	RRU	AHFII	L1900 / L2100 N1900/N2100 (DARK)	3
(N)	H-FRAME	NOKIA	RRU	AHLOB	N600/L600/L700	3

EQUIPMENT PAD / EQUIPMENT KEY

STATUS	LOCATION	VENDOR	EQUIPMENT	MODEL NUMBER	TECH.	QTY.
(N)	RACK	NOKIA	TRANSPORT SYSTEM	CSR IXRe V2 (GEN2)	-	1
(E)	RACK	NOKIA	SYSTEM MODULE	ASIA	L600/L700/L1900 /2100	1
(N)	RACK	NOKIA	SYSTEM MODULE	ASIL	N600/N1900/ N2500	2
(N)	RACK	NOKIA	SYSTEM MODULE	ABIA	L600 / L700 L1900 / L2100	3
(N)	RACK	NOKIA	SYSTEM MODULE	ABIL	N600/N1900 N2100 (DARK)	3
(N)	RACK	NOKIA	SYSTEM MODULE	ABIO	N2500	1
(N)	RACK	NOKIA	SYSTEM MODULE	AMIA	-	2
(N)	RACK	CERAGON	IDU	IP20D-HP11-80X-A_4501	MICROWAVE	1
(N)	H-FRAME	NOKIA	FIBER J-BOX	HCS 2.0 TOWER JUNCTION BOX	-	2
(N)	H-FRAME	NOKIA	VOLTAGE BOOSTER	-	-	1

2 ANTENNA AND EQUIPMENT SCHEDULES

EQUIPMENT FEEDLINE KEY

STATUS	LOCATION	VENDOR	EQUIPMENT	MODEL NUMBER	TECH.	QTY.
(N)	-	COMMSCOPE	HYBRID TRUNK CABLE	15' HCS 2.0 HYBRID TRUNK CABLE 12#6AWG24-SM-FIBER-PR	-	2
(N)	-	COMMSCOPE	HYBRID JUMPER	15' HCS 2.0 JUMPER CABLE 2#6AWG-2-PR-AIRSCALE	-	8
(N)	-	COMMSCOPE	MICROWAVE	80' ARMORED LC/LC FO CABLE 80' 2X14 AWG OUTDOOR DC CABLE	-	1

NOTES:  
 - INFORMATION PER RFDS DATED: 11/30/23  
 CONTRACTOR TO REFER TO MOST RECENT RFDS BY T-MOBILE PRIOR TO COMMENCING WORK.  
 - REFER TO SHEETS A8 FOR ANTENNA SPECIFICATIONS.



990 SOUTH BROADWAY, DENVER, CO 80209

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 EL PASO COUNTY

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B	04/09/24	CITY COMMENTS	SMV

PLANS PREPARED BY:



LICENSURE NO:

ALL SCALES ARE SET FOR 11"x17" SHEET

DRAWN BY:	CHK BY:	APV BY:
MEM	ML	TA

SHEET TITLE:

**ANTENNA AND EQUIPMENT SCHEDULES**

SHEET NUMBER:

**A5.1**

PROJECT INFORMATION:

SITE NAME:  
**FOUNTAIN CELL**  
SITE ID:  
**DN02728A**  
S POWERS BLVD  
& FONTAINE BLVD  
EL PASO COUNTY

REV:	DATE:	DESCRIPTION:	BY:
A	01/12/24	PRELIMINARY	MEM
B	04/09/24	CITY COMMENTS	SMV

PLANS PREPARED BY:



LICENSURE NO:

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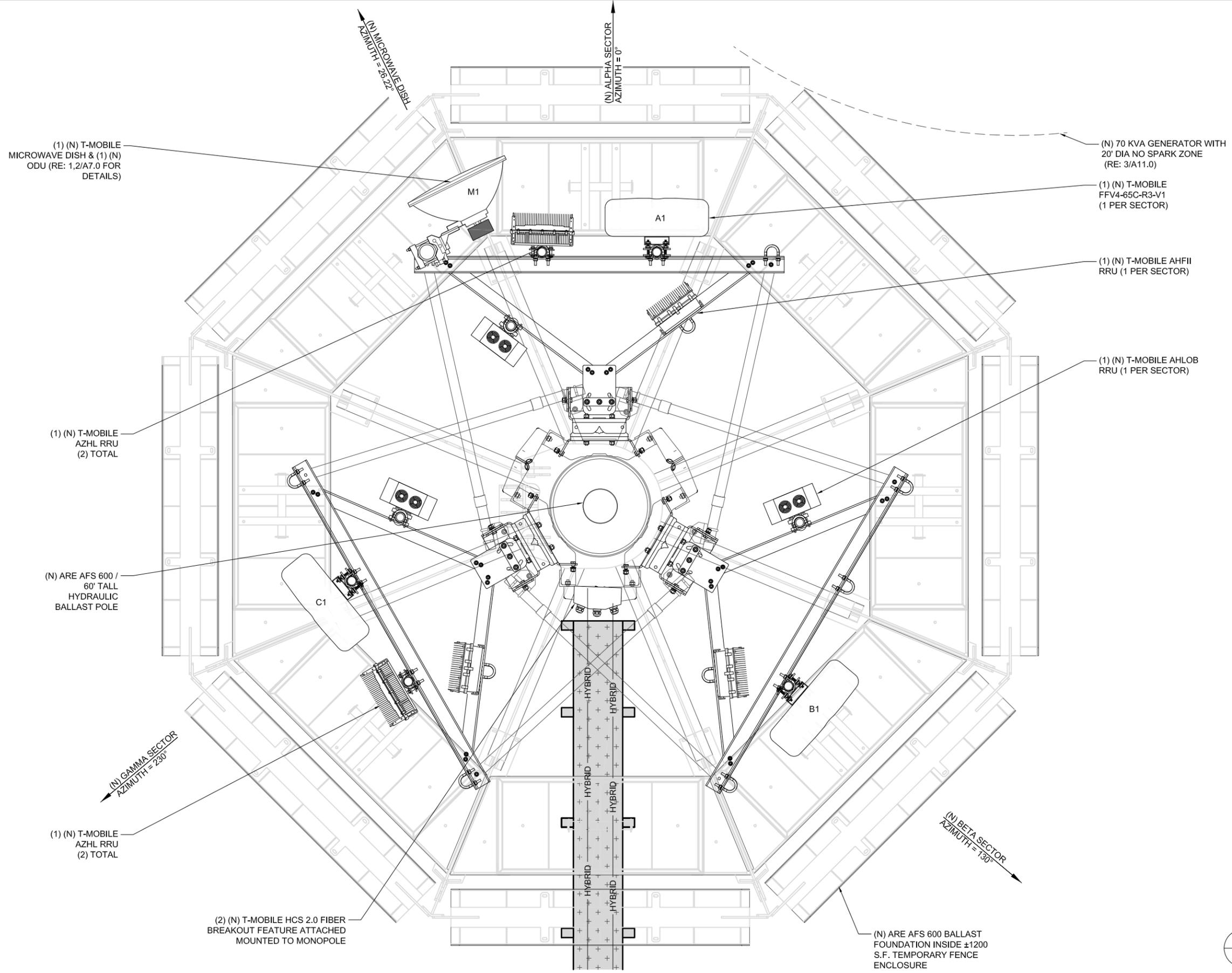
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MEM	ML	TA

SHEET TITLE:

**ANTENNA PLAN**

SHEET NUMBER:

**A5.2**



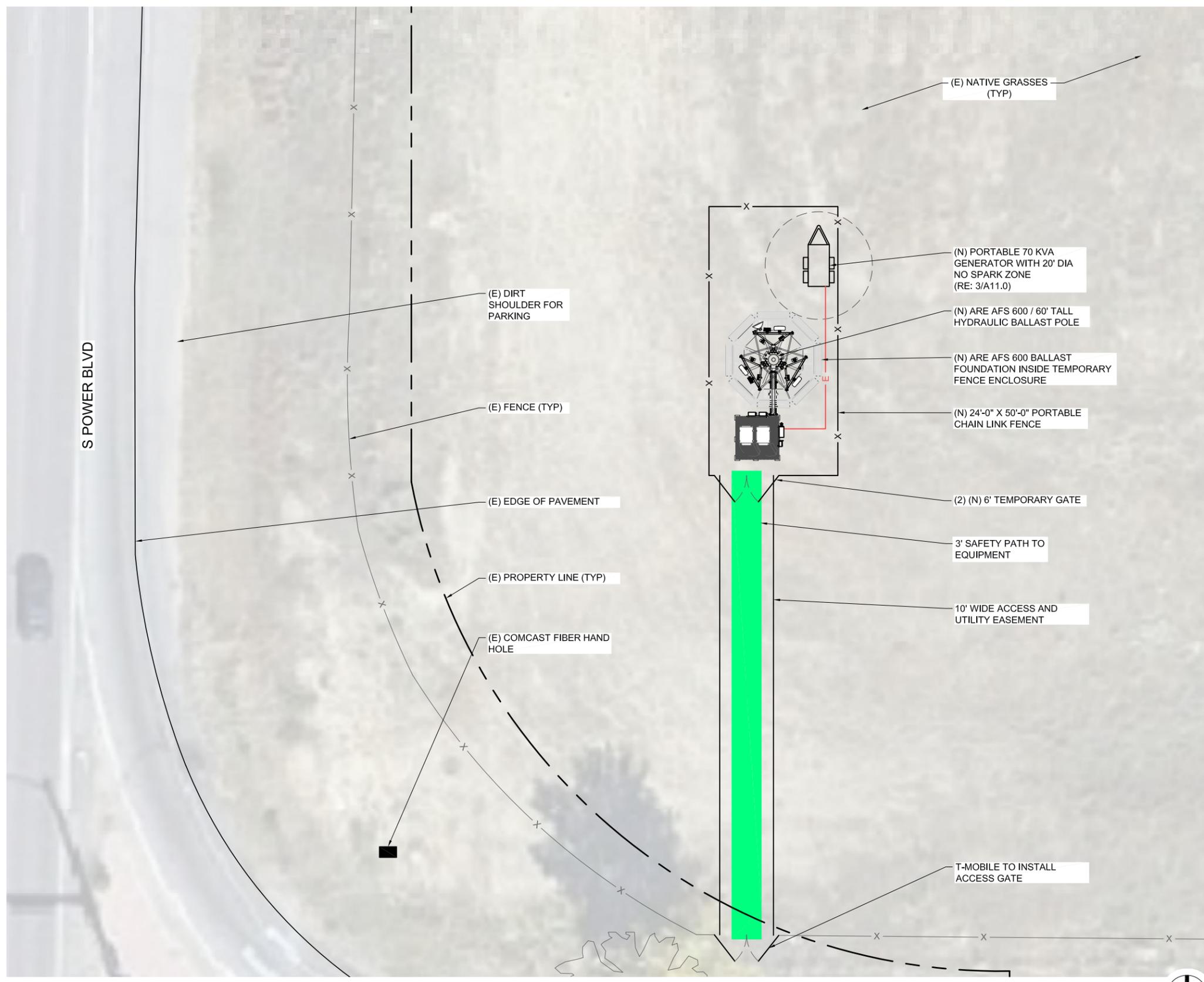
NOTE:  
THIS SITE MEETS OSHA COMPLIANCE FOR FIELD OPERATIONS TO ACCESS BTS EQUIPMENT ON THE GROUND. ALPHA, BETA, & GAMMA SECTOR RADIOS AND ANTENNA'S ARE ACCESSIBLE BY TOWER CREW ONLY.

GC NOTE: ALL HOLES LARGER THAN 2"X2" ARE REQUIRED TO BE COVERED BY THE GC WITH A STEEL PLATE.

LEGEND

 6' UNPROTECTED WALK ZONE

 3' SAFETY PATH TO EQUIPMENT



990 SOUTH BROADWAY, DENVER, CO 80209

PROJECT INFORMATION:  
SITE NAME:  
**FOUNTAIN CELL**  
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S POWERS BLVD  
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CONSTRUCTION SERVICES, LLC  
4751 FOX STREET, DENVER, CO 80216

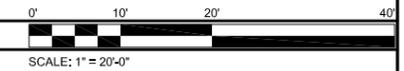
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**SAFETY PLAN**

SHEET NUMBER:  
**A6.0**



PROJECT INFORMATION:

SITE NAME:

**FOUNTAIN CELL**

SITE ID:

**DN02728A**

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EL PASO COUNTY

REV: DATE: DESCRIPTION: BY:

REV:	DATE:	DESCRIPTION:	BY:
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PLANS PREPARED BY:



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SHEET TITLE:

**EQUIPMENT  
DETAILS**

SHEET NUMBER:

**A7.0**

# VHLP2-11W/A



0.6 m | 2 ft ValuLine® High Performance Low Profile Antenna, single-polarized, 10.000–11.700 GHz

## Product Classification

**Product Type** Microwave antenna  
**Product Brand** ValuLine®

## General Specifications

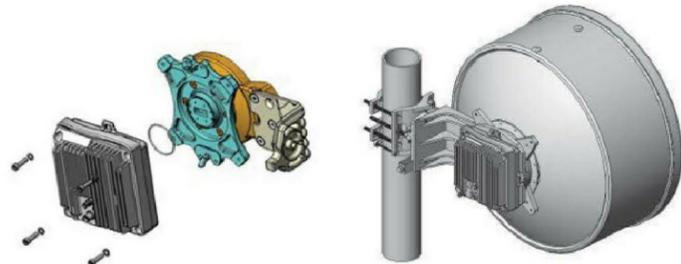
**Antenna Type** VHLP - ValuLine® High Performance Low Profile Antenna, single-polarized  
**Polarization** Single  
**Side Struts, Included** 0  
**Side Struts, Optional** 0

## Dimensions

**Diameter, nominal** 0.6 m | 2 ft

## Electrical Specifications

**Operating Frequency Band** 10.000 – 11.700 GHz  
**Gain, Low Band** 33.7 dBi  
**Gain, Mid Band** 34.5 dBi  
**Gain, Top Band** 35.2 dBi  
**Boresite Cross Polarization Discrimination (XPD)** 30 dB  
**Front-to-Back Ratio** 61 dB  
**Beamwidth, Horizontal** 3.3 °  
**Beamwidth, Vertical** 3.3 °  
**Return Loss** 17.7 dB  
**VSWR** 1.3  
**Radiation Pattern Envelope Reference (RPE)** 7200A | 7201A



## CERAGON ODU RFU-D

DIMENSIONS	WEIGHT
9"H, 9.2"W 3.9"D	14.3 LBS

### 1 ODU SPECIFICATIONS

SCALE: N.T.S.



## CERAGON IDU IP-20A

DIMENSIONS	WEIGHT
(1RU) 1.75"H, 17.5"W, 9.6"D	11.3 LBS

### 2 IDU SPECIFICATIONS

SCALE: N.T.S.

### 3 ANTENNA SPECIFICATIONS

SCALE: N.T.S.

# FFV4-65C-R3-V1

**CommScope—Proprietary and Confidential. Preliminary specifications are for illustrative purposes only and will be updated prior to publication.**

12-port sector antenna, 4x 617-894 and 8x 1695-2690 MHz, 65° HPBW, 3x RET



## Electrical Specifications

Frequency Band, MHz	617-698	698-894	1695-1880	1850-1990	1920-2200	2300-2500	2500-2690
Gain, dBi	15.7	16.3	17.7	18.1	18.6	18.7	19.2
Beamwidth, Horizontal, degrees	64	62	62	61	61	60	60
Beamwidth, Vertical, degrees	10.4	8.6	5.6	5.3	5.0	4.3	4.0
Beam Tilt, degrees	2-13	2-13	2-12	2-12	2-12	2-12	2-12
USLS (First Lobe), dB	18	17	19	18	20	19	19
Front-to-Back Ratio at 180°, dB	29	32	33	31	30	30	31
Isolation, Cross Polarization, dB	25	25	25	25	25	25	25
Isolation, Inter-band, dB	28	28	28	28	28	28	28
VSWR   Return Loss, dB	1.5   14.0	1.5   14.0	1.5   14.0	1.5   14.0	1.5   14.0	1.5   14.0	1.5   14.0
PIM, 3rd Order, 2 x 20 W, dBC	-150	-153	-153	-153	-153	-153	-153
Input Power per Port at 50°C, maximum, watts	250	250	200	200	200	200	150
Polarization	±45°	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm						

## Electrical Specifications, BASTA\*

Frequency Band, MHz	617-698	698-894	1695-1880	1850-1990	1920-2200	2300-2500	2500-2690
Gain by all Beam Tilts, average, dBi	15.5	15.8	17.3	17.7	18.0	18.3	18.6
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.5	±0.5	±0.5	±0.6	±0.6	±0.7
Gain by Beam Tilt, average, dBi	2°   15.3 7°   15.6 13°   15.5	2°   15.7 7°   16.0 13°   15.6	2°   17.2 6°   17.4 12°   17.2	2°   17.6 6°   17.8 12°   17.6	2°   17.7 6°   18.1 12°   18.1	2°   18.2 6°   18.6 12°   18.1	2°   18.4 6°   18.8 12°   18.3
Beamwidth, Horizontal Tolerance, degrees	±3	±5	±4.4	±4.8	±5.7	±6.9	±10
Beamwidth, Vertical Tolerance, degrees	±0.6	±1.1	±0.3	±0.3	±0.4	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	18	13	13	14	16	15	14
Front-to-Back Total Power at 180° ± 30°, dB	22	22	27	26	24	25	24
CPR at Boresight, dB	17	16	20	20	18	16	16
CPR at Sector, dB	9	8	6	5	4	5	7

\* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, [download the whitepaper Time to Raise the Bar on BSAs](#).

# FFV4-65C-R3-V1

## General Specifications

Operating Frequency Band	1695 – 2690 MHz   617 – 894 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage
Total Input Power, maximum	900 W @ 50 °C

## Mechanical Specifications

RF Connector Quantity, total	12
RF Connector Quantity, low band	4
RF Connector Quantity, high band	8
RF Connector Interface	4.3-10 Female
Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Radiator Material	Aluminum   Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	1055.0 N @ 150 km/h 237.2 lbf @ 150 km/h
Wind Loading, lateral	355.0 N @ 150 km/h 79.8 lbf @ 150 km/h
Wind Loading, maximum	1433.0 N @ 150 km/h 322.2 lbf @ 150 km/h
Wind Speed, maximum	241 km/h   150 mph

## Dimensions

Length	2437.0 mm   95.9 in
Width	640.0 mm   25.2 in
Depth	235.0 mm   9.3 in
Net Weight, without mounting kit	59.8 kg   131.8 lb

## Remote Electrical Tilt (RET) Information

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

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### SHEET TITLE:

**EQUIPMENT  
DETAILS**

### SHEET NUMBER:

**A8.0**

## AHLOB AirScale RRH 4T4R B71/85 320W Preliminary Specifications

Specification	Details
Standard	3GPP compliant, FCC&ISED, FDD-LTE, NR
Band / Frequency range	<b>Band 71:</b> RX 663 MHz – 698 MHz, TX 617 MHz – 652 MHz <b>Band 85:</b> RX 698 MHz – 716 MHz, TX 728 MHz – 746 MHz
Max. supported modulation	256QAM UL / 1024 QAM DL
Number of TX/RX paths	4T4R
Instantaneous bandwidth IBW	Full Band
Occupied bandwidth OBW	Full Band
Max. output power per TRX	4x80W shared between B71 and B85
Core Dimensions (mm) W x H x D	350 x 645 x 130
Envelope Dimensions (mm) W x H x D	370 x 676 x 160 (Not to Exceed)
Volume	30 l
Weight	<37.5 Kg
Supply voltage / Connector type	DC -48 V / -40.5 V to -60 V / 2 pole connector
Power consumption	ETSI 24hr Average: 765W 100% RF Loading: 1314W
Antenna ports	4 x 4.3-10
Optical ports	2 x SFP28 Ports, CPRI 9.8 Gbps (Rate 7)
Other interfaces / Connector type	RET RS485, AISG 3.0, EAC MDR26
Operational temperature range	-40 °C ... +55 °C
Cooling	Forced air convection
Installation options	Pole, wall, Rail
Ingress / Surge protection	IP65, DC Power Port: 20 kA 8/20 µs
Ext B30 Notch Filter	Integrated in the Radio

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## AirScale Triple Band RRH Benefits

- Up to 4x80W shared between B71 and B85
- Up to 1024 QAM DL capable hardware
- Up to 2xSFP28 Ports
- Integrated PIM Cancellation



Product Code: 475910A

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## AHFII AirScale RRH 4T4R B25/66 480W

Specification	Details
Standard	3GPP compliant, FDD-LTE, NR, GSM, WCDMA
Band / Frequency range	<b>Band 25:</b> RX 1850 MHz – 1915 MHz, TX 1930 MHz – 1995 MHz <b>Band 66:</b> RX 1710 MHz – 1780 MHz, TX 2110 MHz – 2200 MHz
Max. supported modulation	256QAM UL / 1024 QAM DL
Number of TX/RX paths	4T4R
Instantaneous bandwidth IBW	Full Band
Occupied bandwidth OBW	OBW B25 65MHz (UL/DL), B66 70MHz (UL) 90MHz (DL)
Max. output power per TRX	4x80W in any band while 4x40W in other band
Core Dimensions (mm) W x H x D	350 x 645 x 120
Envelope Dimensions (mm) W x H x D	370 x 676 x 150 (Not to exceed)
Volume	<25 l
Weight	<32.5 kg
Supply voltage / Connector type	DC -40.5 V ... -60 V / 2 pole connector
Power consumption	100% RF Loading: 1869 W 24hr weighted: 1103 W
Antenna ports	4 x 4.3-10
Optical ports	3 x SFP28 Ports CPRI 9.8 Gbps (Rate 7)
Other interfaces / Connector type	RET RS485, AISG 3.0, EAC MDR26
Operational temperature range	-40 C ... +55 C
Cooling	Forced Convection (fans)
Installation options	Pole, wall, rail
Ingress / Surge protection	IP65, DC Power Port: 20 kA 8/20 µs

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## AirScale Multiband RRH Benefits

- Up to 4x80W in either AWS or PCS bands while 4x40W in the other band
- CPRI Fronthaul interface
- Up to 1024 QAM DL capable hardware
- Up to 3xSFP28 Ports
- Integrated PIM Cancellation
- Wide NR carriers (up to 40MHz)
- Up to max 8 carrier per TX across both bands



AHFII 475656A

NOKIA

**T-Mobile**  
990 SOUTH BROADWAY, DENVER, CO 80209

PROJECT INFORMATION:

SITE NAME:  
**FOUNTAIN CELL**  
SITE ID:  
**DN02728A**  
S POWERS BLVD  
& FONTAINE BLVD  
EL PASO COUNTY

REV:	DATE:	DESCRIPTION:	BY:
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PLANS PREPARED BY:

**UCI**<sup>2</sup>  
CONSTRUCTION SERVICES, LLC  
4751 FOX STREET, DENVER, CO 80216

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SHEET TITLE:

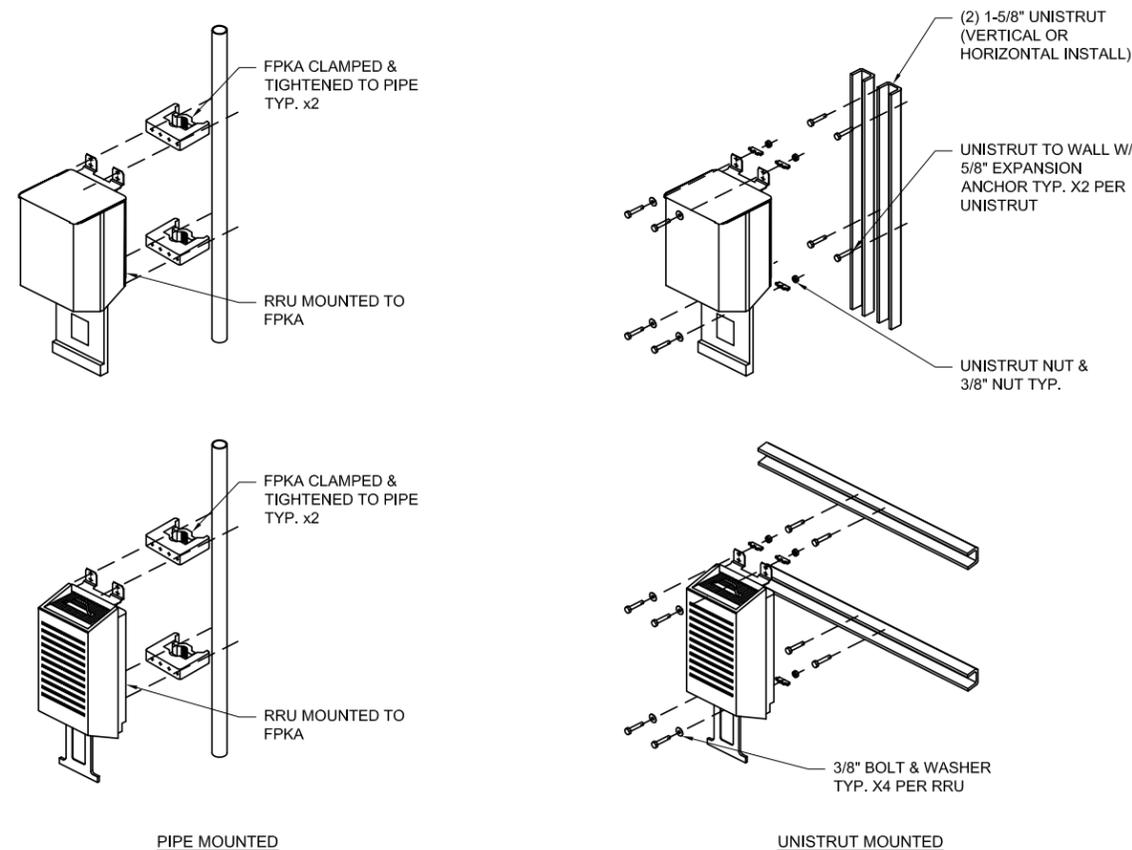
**EQUIPMENT  
DETAILS**

SHEET NUMBER:

**A9.0**

### 1 AHLOB RRU SPECIFICATIONS

SCALE: N.T.S.



### 3 RRU MOUNTING DETAIL

SCALE: N.T.S.

### 2 AHFII RRU SPECIFICATIONS

SCALE: N.T.S.

## AZHL AirScale RRH 8T8R B41 320W Technical data

Specification	Details
Standard	3GPP compliant, TDD
Band / Frequency range	N41/B41 2496 – 2690MHz
Max. supported modulation	256 QAM
Number of TX/RX paths	8T / 8R
Instantaneous bandwidth IBW	194 MHz
Occupied bandwidth OBW	190 MHz
Max. output power per TRX	40 W / TRX (320 W total)
Dimensions	350 mm (H) x 395 mm (W) x 190 mm (D)
Volume	26.3 l
Weight	23 kg (without mounting bracket)
Supply voltage / Connector type	DC -36 V ... -60 V / 2 pole connector
Power consumption	559 W typical (75% DL duty cycle, ETSI 24H Average) 1140 W max (75% DL duty cycle, 100% RF load)
Antenna ports, Calibration port	8 x 4.3-10, 1 x 4.3-10
ALD Control Interfaces	Control AISG2.0/3.0,
Optical ports	2 x SFP28, 9.8G CPRI, 10/25GE eCPRI (Octis Boot)
Other interfaces / Connector type	External Alarms / MDR26,
Operational temperature range	-40 °C ... +55 °C
Cooling	Natural convection cooling
Installation options	Pole, Wall, Book
Ingress / Surge protection	IP65, DC-port Class II +/- 5kA
Supported RAT	TD-LTE, NR

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## AirScale High Power RRH benefits

- Connectivity with AirScale BBU (via CPRI/eCPRI) – Initial release with CPRI
- Beamforming capable 8T8R with 8x 40 W
- Various operating modes: 8T8R, 2x 4T4R and 4x 2T2R
- Deployment flexibility for different use cases with multiple mounting options



AZHL 475432A

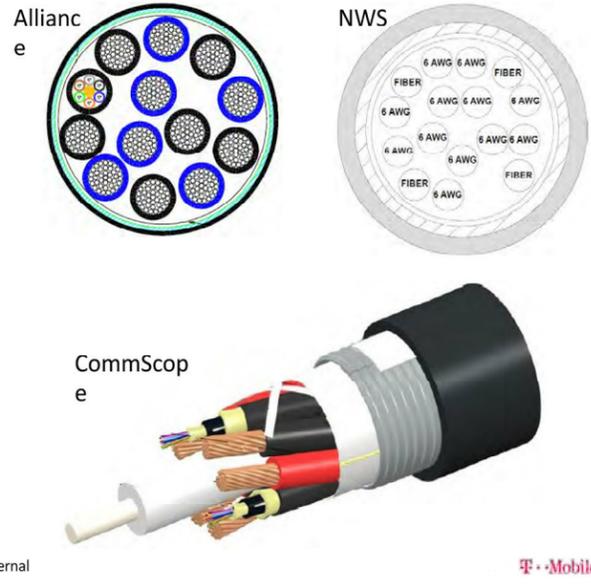
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### 4 RRU SPECIFICATIONS (AZHL)

SCALE: N.T.S.

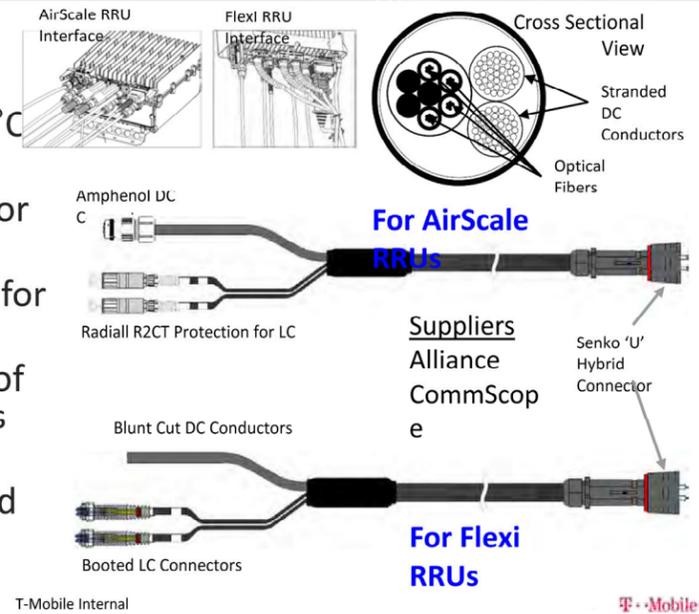
## Trunk Cable General Specifications

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



## Hybrid Jumper Cable General Specifications

- Outer diameter: 0.72"
- Weight: 0.34 lb/ft
- Operating Temp: -40 °C to +75 °C
- Connectorized for mating with tower top trunk cable breakout or roof top box
- DC and fiber interfaces versions for Nokia Airscale and Flexi RRUs
- Short (tower top 15') & long (roof top 20' - 250') AirScale versions available
- Also available with legacy booted LC connectors and blunt cut DC conductors for Flexi RRU applications



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1 TRUNK CABLE SPECIFICATIONS

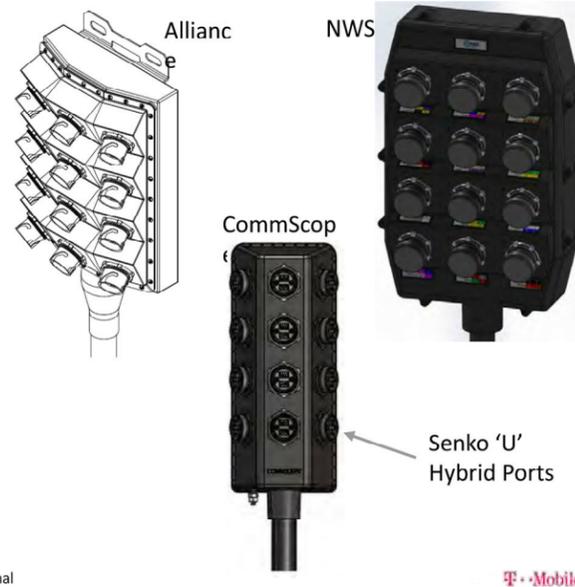
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2 HCS 2.0 HYBRID JUMPER CABLE SPECIFICATIONS

SCALE: N.T.S.

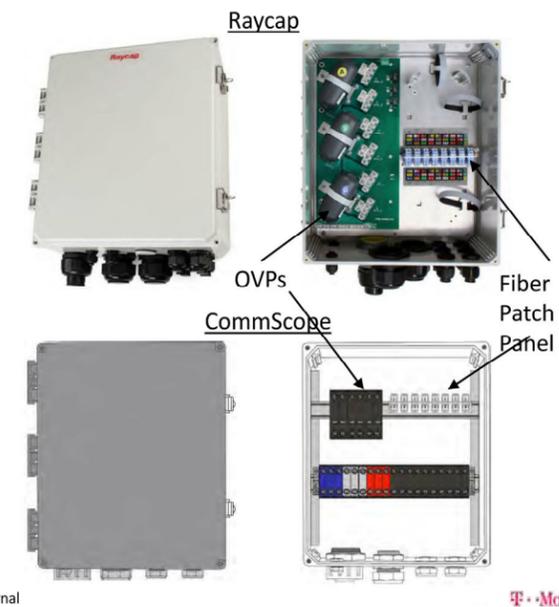
## Breakout Feature General Specifications

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



## Bottom Junction Box General Specifications

Characteristics	CommScope	Raycap
Dimensions	14"x16"x8"	14"x16"x8"
Weight	23.5 lb	21.9 lb
OVP, IEC 61643-1	24"	Class I SPD (3)
UL Rating		1449, 4 <sup>th</sup> Ed.
OVP Monitoring	Dry contact	Dry contact
Fiber Patch Panel	24 LC pairs	24 LC pairs
Environmental Rating	IP67	IP66
Operating Temperature	-40 °C to +75 °C	-40 °C to +80 °C



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3 ~~NOS USED~~ BREAKOUT FEATURE SPECIFICATIONS

SCALE: N.T.S.

4 ~~NOS USED~~ BOTTOM JUNCTION BOX SPECIFICATIONS

SCALE: N.T.S.



Qty: 1

Add to Cart

SKU: LT-VSS-06-A  
Size: 6"

Description

- LT-VSS-06-A • Cable Tray Covers.
- Straight Aluminum Ladder Cable Tray Covers.
- 6" x 12' • Covers are two 6' pieces.

1 CABLE TRAY COVER OR APPROVED EQUAL FROM CM

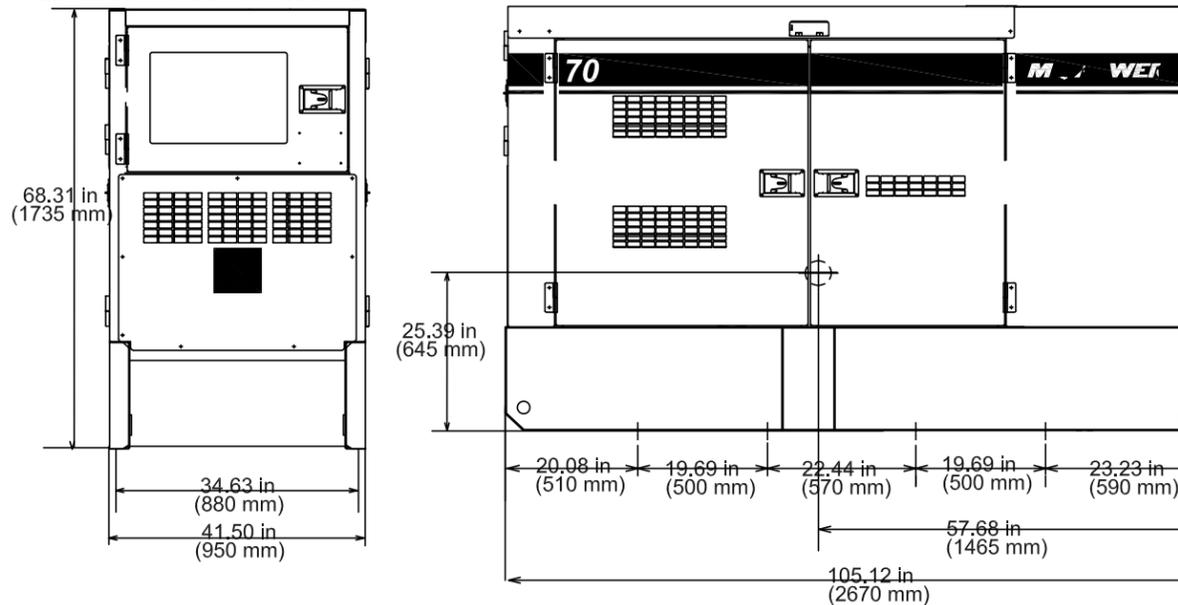
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2 NOT USED

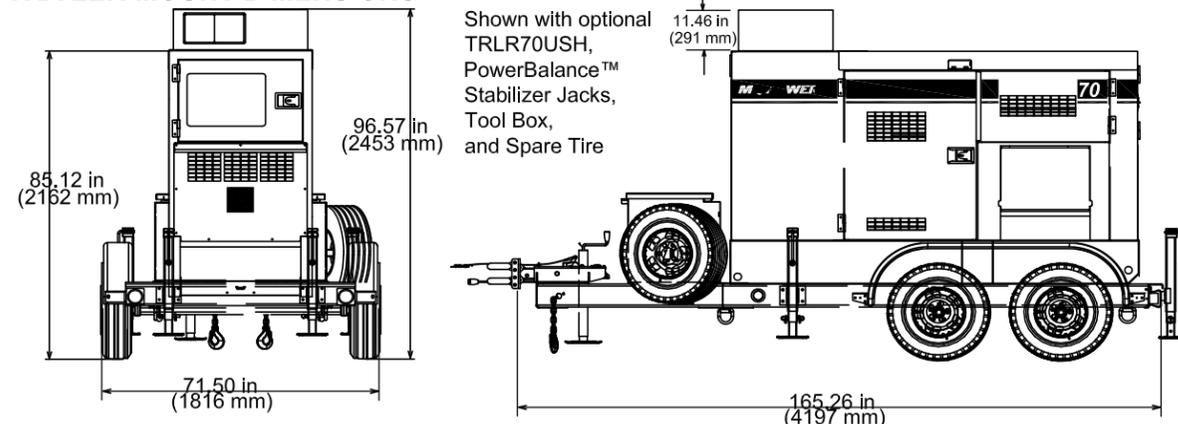
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SKID-MOUNT DIMENSIONS



TRAILER-MOUNT DIMENSIONS



**DCA70SSIU4F Weights\***

Dry Weight	3,326 lbs. (1,509 kg)
Wet Weight	4,207 lbs. (1,908 kg)
Max. Lifting Point Capacity	6,960 lb. (3,157 kg)

**DCA70SSIU4F and TRLR70US Weights\***

Dry Weight (with TRLR75XF2)	4,415 lbs. (2,003 kg)
Wet Weight (with TRLR75XF2)	5,296 lbs. (2,402 kg)

\* Weights do not include options.

Generator can be placed on MQ Trailer Models TRLR70US and TRLR75XF2.

Features and Specifications are subject to change without notice.

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DCA70SSIU4F Rev. #6 (10/16/19)



3 GENERATOR DETAIL

SCALE: N.T.S.



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9/28/2018

LTE2262: AirScale Subrack AMIA

Figure: AMIA AirScale Subrack (factory default)

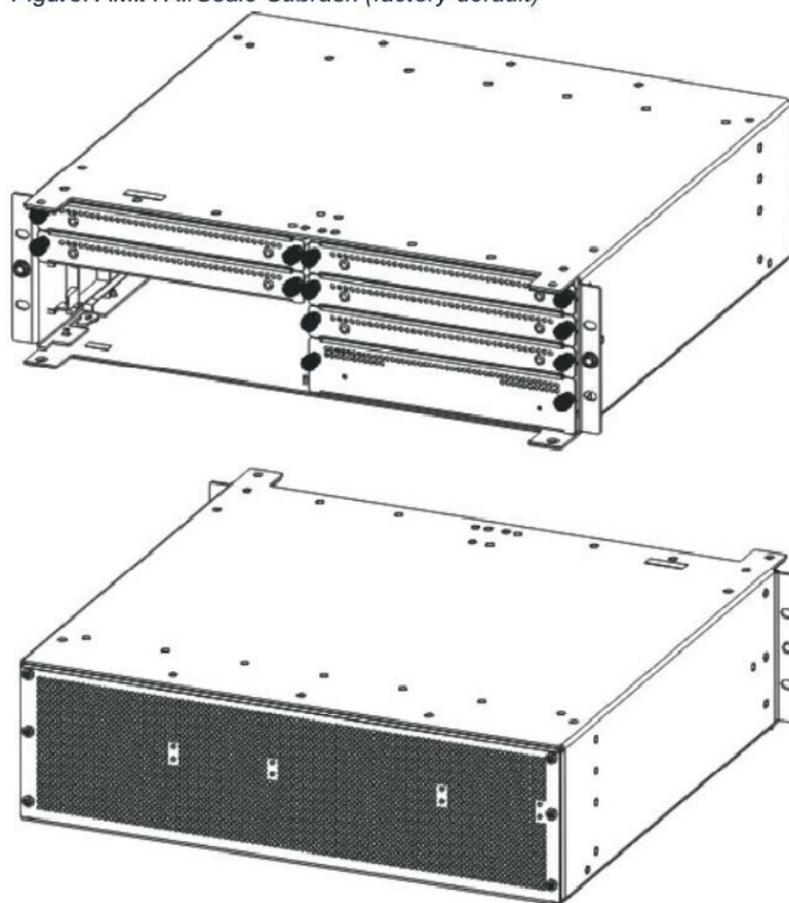


Table: AMIA dimensions and weight

Property	Value	Dimensions orientation
Height	128.5 mm (5.1 in.)	
Depth	400 mm (15.7 in.)	
Width	447 mm (17.6 in.)	

<http://rqai.eng.t-mobile.com:9090/informationbrowser/index.jsp>

3/7

9/28/2018

LTE2262: AirScale Subrack AMIA

Property	Value	Dimensions orientation
Weight	Empty: 5.1 kg (11.2 lb)	
	With dummy panels: 6.8 kg (15 lb)	
	With all units: 23.9 kg (52.7 lb)	

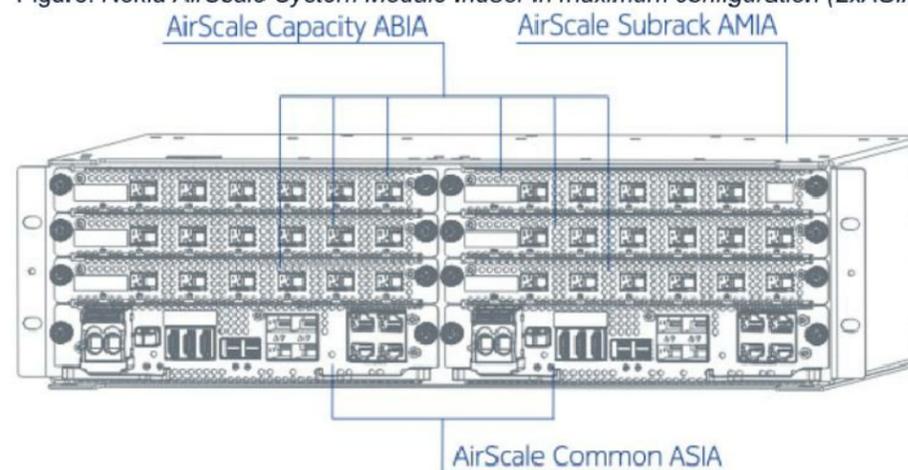
For more information, see the *Nokia AirScale Base Station Product Description* document.

### Nokia AirScale System Module Indoor

Nokia AirScale System Module Indoor consists of the following items:

- One Nokia AirScale Subrack (AMIA), including backplane for high bandwidth connectivity between processing plug-in units
- One or two Nokia AirScale Common (ASIA) plug-in units for transport interfacing and for centralized processing
- Up to six Nokia AirScale Capacity (ABIA) plug-in units for baseband processing and for optical interfaces with radio units

Figure: Nokia AirScale System Module Indoor in maximum configuration (2xASIA, 6xABIA)



<http://rqai.eng.t-mobile.com:9090/informationbrowser/index.jsp>

4/7

PROJECT INFORMATION:		
SITE NAME: FOUNTAIN CELL		
SITE ID: DN02728A		
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LICENSURE NO:

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DRAWN BY:	CHK BY:	APV BY:
MEM	ML	TA

SHEET TITLE:  
**EQUIPMENT  
DETAILS**

SHEET NUMBER:

**A12.0**

PROJECT INFORMATION:

SITE NAME:

FOUNTAIN CELL

SITE ID:

DN02728A

S POWERS BLVD  
& FONTAINE BLVD  
EL PASO COUNTY

REV: DATE: DESCRIPTION: BY:

A	01/12/24	PRELIMINARY	MEM
B	04/09/24	CITY COMMENTS	SMV

PLANS PREPARED BY:



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Specifications

**Model HPL3 (HP-Large 3 Power Cabinet)**

<b>1. General</b>	
Construction	Aluminum enclosure
Dimensions (W x H x D)	30 x 72 x 34.6 in. (762 x 1829x 879mm), Depth with Door/Hatch: 44.7 in. (1136mm)
Weight	~595 lbs (~270kg) (without customer equipment or batteries)
Total Equipment space 30RU:	
Internal rack dimension	Horizontal rack: 19" x 27RU Vertical rack: 19" x 3RU Power System space: 23" x 12RU
Mounting options	Pad-mount, plinth option
Finish	Polyester Power Paint (Tan)
Safety	UL Listed , IEC / EN 60950
<b>2. Environment</b>	
Operating temperature	-40°C to +50°C (-40°F to +122°F) with solar load. IP 55
Protection class	designed to GR-487
Acoustics	65dBA @5000W heat load , 70dBA @ 6000W
Humidity (relative)	95%, non-condensing (Max.)
<b>3. Thermal Management</b>	
Cooling Equipment:	Direct Air Cooling, 6000W capacity, 5°C delta T
Heating Equipment:	Forced air heating (2) 1000W AC heaters
<b>4. Equipment</b>	
Cable entry	Knock-out plate on each upper side wall / Additional knockouts on sides (1) 3" conduit hole with hole plug
Door latch	3 point latching, 5/16 nut driver tool, pad-locking capability
Primary ground	10 double-hole ¼"-20 threaded holes on 5/8" center ground bar
Lifting Ears	4 Lifting Tabs
Plinth	Optional 6" plinth available
AC Load Center:	
240V split phase, dual feed / (1) 200A + (1)100A	
208V 3-phase, single feed / (1) 200A	
AC Surge Protection for each breaker feed	
GFCI Receptacle 120V	
Temp Probes	
Standard equipment	(6 form-C) Alarm Termination block 605A/ 54V (336kW) redundant Power System with DIN rail distribution: 12 rectifier positions (3x55A DPR3000 rectifiers included) 48 poles for load (2x10A, 3x50A, and 6x100A load breakers included) 16 poles for battery (2) SB350 / (2) SB175 Battery connections (3) SB350 Generator connections (6) DC powered centrifugal fans with (3) MERV-13 filters, (GORE option) Clogged Filter alarm pressure switch
Front Door:	Door intrusion alarm (2) 1000W AC powered heaters LED interior cabinet light
Rear Hatch:	Exhaust vent with (3) MERV-13 filters, (GORE option)
<b>5. Ordering information</b>	
Cabinet	ESOA600-HCU01 HP-Large 3 600A Power / Equipment Cabinet
Rectifier	ESR-48/60A A-T 48V / 56A 3000W, 96.4%, CAN communication
Controller (Spare)	TPS1020028AU17 Orion TOUCH Controller
Plinth, 6"	37993318816900-S Plinth for V1/V2, HPL2, HPL3, LB2 and LB3

\*All specifications are subject to change without prior notice

Delta Group Website:  
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**HP-Large 3 Power Cabinet**

Product Features

Compact design for equipment & power:

- 30RU supports 3 radios and transport equipment
- 600A @ -48V power system
- Slimline high efficiency rectifier
- ORION Touch screen Controller
- Rear Access Hatch

Direct air-cooling solution, 6000W capacity, 5°C delta T

Easy slide-in filter replacement

Connects with:

- SB3, 2-string battery cabinet
- LB3, 4-string battery cabinet
- V2, Expansion equipment and battery cabinet

Designed to GR-487 specifications

[www.deltaww.com](http://www.deltaww.com)





## Specifications

### Model LB3 (Large Battery 3 Cabinet)

1. General	
Construction	Aluminium enclosure
Dimensions (W x H x D)	30 x 72 x 35 in. (381 x 1829x 889mm), Depth with Door: 41.2 in. (1047mm)
Weight	~540 lbs (~245kg) (without batteries)
Internal rack dimension	4 battery trays to support up to 4 strings 210Ah batteries
Mounting options	Pad-mount, plinth option
Finish	Polyester Power Paint (Tan)
Safety	UL Listed , IEC / EN 60950
2. Environment	
Operating temperature	-40°C to +50°C (-40°F to +122°F) with solar load
Protection class	IP55 designed to GR-487
Acoustics	65dBA
Humidity (relative)	95%, non-condensing (Max.)
3. Thermal Management	
Cooling Equipment:	Direct Air Cooling
Heating Equipment:	Forced air heating (1) 1000W AC heaters
4. Equipment	
Cable entry	Knock-out plate on each upper side wall Additional knockouts each side
Door latch	3 point latching, 5/16 nut driver tool, pad-locking capability
Primary ground	10 double-hole 1/4"-20 threaded holes on 5/8" center ground bar
Lifting Ears	4 Lifting Tabs
Plinth	Optional 6" plinth available
AC Load Center:	30A heater breaker Left or Right side AC entry options AC Surge Protection (option)
DC Load Center:	600A bulk feed bus bar (4) 200A bolt in battery breakers (4) 2-hole lug landings,(2 output/2 input from second battery cabinet)
Temp Probes	
Battery Trays:	(4) battery trays (4) -48V battery strings (210Ah max each)
Connection kit:	(1) DC 10A Breaker supplied (install onto HPL3 Power Cabinet) LED interior cabinet light
Front Door:	(2) DC powered Axial fans with (1) F5 Filters Door intrusion alarm (1) 1000W AC powered heaters
5. Ordering information	
Cabinet	ESOF015-ECV04 Large Battery 3 (LB3) Cabinet
Plinth, 6"	37993318816900-S Plinth for V1/V2, HPL2, HPL3, LB2 and LB3

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

Delta Group Website:  
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990 SOUTH BROADWAY, DENVER, CO 80209

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**A14.0**

# Large Battery 3 Cabinet

## Product Features

Compact design for battery strings:

- Direct air cooling solution
- Supports four strings of -48V VRLA batteries up to 210Ah
- 600A rated bus bar with 200A breaker per string
- Bulk Input / Output with ability to daisy chain cabinets
- Front to Front Air Flow
- Corrosion resistant aluminum construction
- Powder coated high gloss finish
- Designed to meet GR-487

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