6790S_SR_T_6x24

vertical bridge

T-Mobile

PROJECT: NEW SITE BUILD
VB SITE NAME: TEXAS CREEK
VB SITE NUMBER: US-CO-5091
SITE ADDRESS: HWY 50 & HWY 9 CANON CITY, CO 81212
SITE TYPE: 194' SELF SUPPORT
T-MOBILE SITE NAME: TEXAS CREEK
T-MOBILE SITE ID: DN02546A

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0052080
PROFESSIONAL ENGINEER
11/19/2024

VICINITY MAP:

AERIAL MAP:

PROJECT INFORMATION:

SITE ADDRESS:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SITE COORDINATES:
LATITUDE: 38° 29' 43.32" N (38.49537°N)
LONGITUDE: 105° 21' 14.34" W (-105.35398°W)

PARCEL OWNER:
DAVID S. EATON

GEOCODE NUMBER:
99924523

APPLICANT
VB BTS II, LLC
750 PARK OF COMMERCE DRIVE
BOCA RATON, FL 33487
PHONE: (561) 948-6367

A&E FIRM
RAMAKER & ASSOCIATES, INC.
855 COMMUNITY DRIVE
SAUK CITY, WI 53583
CONTACT: ADAM SINDERMANN
EMAIL: ASINDERMANN@RAMAKER.COM
PHONE: (608) 643-4100

ELECTRIC PROVIDER
BLACK HILLS ENERGY
CONTACT: TROY BEDFORD
EMAIL: Troy.Bedford@blackhillscorp.com
PHONE: (719) 289-8253

SCOPE OF WORK:

- PROPOSED 194' SELF SUPPORT TOWER
- PROPOSED 10'x13'-3" CONCRETE PAD WITH FULL CANOPY
- (2) PROPOSED EQUIPMENT CABINETS
- (1) PROPOSED GENERATOR
- (3) PROPOSED PANEL ANTENNAS MOUNTED ON PROPOSED ANTENNA MOUNTS
- (6) PROPOSED RRHs
- (1) PROPOSED TOP OF TOWER RAYCAPS
- (1) PROPOSED PPC CABINET
- (1) PROPOSED HYPERBOOSTER
- (1) PROPOSED HOFFMAN BOX
- (1) PROPOSED NEW COMMERCIAL POWER SERVICE, PER LOCAL PROVIDER DESIGN, CONTRACTOR TO CONFIRM
- INSTALL (1) HYBRID TRUNK 6/24 (1) CSR IXRe ROUTER
- INSTALL (1) ASIA
- INSTALL (1) ASIL
- INSTALL (3) ABIA
- INSTALL (3) ABIL
- INSTALL (2) AMIA
- INSTALL (24) COAX JUMPERS

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.

1. 2015 INTERNATIONAL BUILDING CODE
2. INTERNATIONAL MECHANICAL CODE
3. ANSI/TIA-222 STRUCTURAL STANDARD
4. NFPA 780 - LIGHTNING PROTECTION CODE
5. NATIONAL ELECTRICAL CODE

811 Know what's below. Call before you dig. www.call811.com

APPROVALS:

CONSTRUCTION MANAGER:	
LANDLORD:	

SHEET INDEX

SHEET NUMBER	SHEET DESCRIPTION
T-1	COVER SHEET
N-1 - N-3	COMPOUND NOTES
LS1 - LS5	SURVEY
C-1	OVERALL SITE PLAN
C-2	COMPOUND SITE PLAN
C-3	COMPOUND GRADING PLAN
C-4	EROSION CONTROL DETAILS
C-5T	T-MOBILE EQUIPMENT PLAN
A-1T	COMPOUND TOWER ELEVATION AND T-MOBILE ANTENNA LAYOUT
A-2T	T-MOBILE ANTENNA AND LINE SCHEDULE
A-3T	T-MOBILE ANTENNA EQUIPMENT AND COAX DETAILS
A-4T	T-MOBILE ANTENNA EQUIPMENT AND COAX DETAILS
A-5	PLUMBING DIAGRAM
A-6T	T-MOBILE EQUIPMENT AND COAX DETAILS
A-7T	T-MOBILE EQUIPMENT AND COAX DETAILS
A-8T	T-MOBILE EQUIPMENT AND COAX DETAILS
A-9T	T-MOBILE EQUIPMENT DETAILS
A-10T	T-MOBILE EQUIPMENT DETAILS
A-11T	T-MOBILE EQUIPMENT DETAILS
A-12T	T-MOBILE EQUIPMENT DETAILS
A-13	SIGNAGE
A-14	COMPOUND SITE DETAILS
A-15	COMPOUND SITE DETAILS
S-1	STRUCTURAL DETAILS
S-2T	T-MOBILE ANTENNA SECTOR FRAME DETAILS
E-1	OVERALL UTILITY SITE PLAN
E-2	ENLARGED UTILITY SITE PLAN
E-3T	T-MOBILE UTILITY PLAN
E-4T	T-MOBILE EQUIPMENT UTILITY PLAN
E-5T	T-MOBILE UTILITY RISER AND POWER BOARD SCHEDULE
E-6	COMPOUND UTILITY DETAILS
E-7	COMPOUND GROUNDING PLAN
E-8T	TYPICAL T-MOBILE GROUNDING RISER
E-9T	TYPICAL T-MOBILE EQUIPMENT GROUNDING ELEVATION
E-10	COMPOUND GROUNDING DETAILS
E-11	COMPOUND GROUNDING DETAILS

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
TITLE SHEET

SCALE: NONE

PROJECT NUMBER: 58067
SHEET NUMBER: T-1

GENERAL

THE CONSTRUCTION DOCUMENT DRAWINGS ARE INTERRELATED. WHEN PERFORMING THE WORK, EACH CONTRACTOR MUST REFER TO ALL DRAWINGS. COORDINATION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

DIVISION 1: GENERAL REQUIREMENTS

SECTION 01700 - PROJECT CLOSEOUT

PART 1 - GENERAL

1. OBTAIN AND SUBMIT RELEASES ENABLING THE OWNER UNRESTRICTED USE OF THE WORK AND ACCESS TO SERVICES AND UTILITIES; INCLUDE OCCUPANCY PERMITS, OPERATING CERTIFICATES AND SIMILAR RELEASES

2. SUBMIT RECORD DRAWINGS, DAMAGE OR SETTLEMENT SURVEY, PROPERTY SURVEY, AND ACCESS TO SERVICES AND UTILITIES; INCLUDE OCCUPANCY PERMITS, OPERATING

3. COMPLETE FINAL CLEAN UP REQUIREMENTS, INCLUDING TOUCH-UP PAINTING. TOUCH UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES.

PART 2 - FINAL CLEANING

1. COMPLETE THE FOLLOWING CLEANING OPERATIONS BEFORE REQUESTING INSPECTION FOR CERTIFICATION OF COMPLETION.
   A. CLEAN THE PROJECT SITE, YARD AND GROUNDS, IN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, INCLUDING LANDSCAPE DEVELOPMENT AREAS, OF RUBBISH, WASTE MATERIALS, LITTER AND FOREIGN SUBSTANCES. SWEEP PAVED AREAS BROOM CLEAN. REMOVE PETRO-CHEMICAL SPILLS, STAINS AND OTHER FOREIGN DEPOSITS. RAKE GROUNDS THAT ARE NEITHER PLANTED NOR PAVED, TO A SMOOTH EVEN-TEXTURED SURFACE.
   B. REMOVE TOOLS, CONSTRUCTION EQUIPMENT, MACHINERY AND SURPLUS MATERIAL FROM THE SITE.
   C. REMOVE SNOW AND ICE TO PROVIDE SAFE ACCESS TO THE SITE AND EQUIPMENT ENCLOSURE.
   D. CLEAN EXPOSED EXTERIOR AND INTERIOR HARD-SURFACED FINISHES TO A DIRT FREE CONDITION, FREE OF STAINS, FILMS AND SIMILAR FOREIGN SUBSTANCES. AVOID DISTURBING NATURAL WEATHERING OF EXTERIOR SURFACES.
   E. REMOVE DEBRIS FROM LIMITED ACCESS SPACES, INCLUDING ROOFS, EQUIPMENT ENCLOSURE, MANHOLES, AND SIMILAR SPACES.
   F. REMOVE LABELS THAT ARE NOT PERMANENT LABELS.
   G. TOUCH-UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES AND SURFACES. REPLACE FINISHES AND SURFACES THAT CAN NOT BE SATISFACTORILY REPAIRED OR RESTORED, OR THAT SHOW EVIDENCE OF REPAIR OR RESTORATION. DO NOT PAINT OVER "UL" AND SIMILAR LABELS, INCLUDING ELECTRICAL NAME PLATES.
   H. LEAVE THE PROJECT CLEAN AND READY FOR OCCUPANCY.

DIVISION 2: SITE WORK

SECTION 02200 - EARTHWORK AND DRAINAGE

PART 1 - GENERAL

1. WORK INCLUDED: SEE SITE PLAN.

2. DESCRIPTIONS
   LEASE AREA, AND IF APPLICABLE ACCESS DRIVE / TURNAROUND AREA, AND UNDERGROUND UTILITY EASEMENTS ARE TO BE CONSTRUCTED TO PROVIDE A WELL DRAINED, EASILY MAINTAINED, EVEN SURFACE FOR MATERIAL AND EQUIPMENT DELIVERIES AND MAINTENANCE PERSONNEL ACCESS.

3. QUALITY ASSURANCE
   A. APPLY SOIL STERILIZER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS (AS NEEDED).
   B. APPLY AND MAINTAIN GRASS SEED AS RECOMMENDED BY THE SEED PRODUCER (IF REQUIRED).
   C. PLACE AND MAINTAIN VEGETATION LANDSCAPING, IF INCLUDED WITHIN THE CONTRACT, RECOMMENDED BY NURSERY INDUSTRY STANDARDS.

4. SEQUENCING
   A. CONFIRM SURVEY STAKES AND SET ELEVATION STAKES PRIOR TO ANY CONSTRUCTION.
   B. COMPLETELY GRUB THE ACCESS DRIVE W/ TURNAROUND, UNDERGROUND UTILITY EASEMENTS, (IF APPLICABLE) AND LEASE AREA PRIOR TO FOUNDATION CONSTRUCTION, PLACEMENT OF BACKFILL AND SUB-BASE MATERIAL.
   C. CONSTRUCT TEMPORARY CONSTRUCTION AREA ALONG ACCESS DRIVE.
   D. BRING THE LEASE AREA AND ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION PRIOR TO INSTALLING FOUNDATION.
   E. APPLY SOIL STERILIZER PRIOR TO PLACING BASE MATERIALS.
   F. GRADE, SEED, FERTILIZE, AND MULCH ALL AREAS DISTURBED BY CONSTRUCTION (INCLUDING UNDERGROUND UTILITY EASEMENTS) IMMEDIATELY AFTER BRINGING LEASE AREA AND ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION, WATER TO ENSURE GROWTH.
   G. REMOVE GRAVEL FROM TEMPORARY CONSTRUCTION ZONE TO AN AUTHORIZED AREA OR AS DIRECTED BY PROJECT MANAGER.
   H. AFTER APPLICATIONS OF FINAL SURFACES, APPLY SOIL STERILIZER TO STONE SURFACES.

PART 2 - PRODUCTS

1. MATERIALS
   A. SOIL STERILIZER SHALL BE EPA-REGISTERED, PRE-EMERGENCE LIQUID:
      TOTAL KILL (PRODUCT 910) - EPA 10292-7
      PHASAR CORPORATION
      P.O. BOX 5123
      DEARBORN, MI 48128
      (313) 563-8000
      AMBUSH HERBICIDE - EPA REGISTERED
      FRAMAR INDUSTRIAL PRODUCTS
      1435 MORRIS AVE.
      UNION, NJ 07083
      (800) 526-4924

   B. ROAD AND SITE MATERIALS SHALL CONFORM TO DOT SPECIFICATIONS FILL MATERIAL (UNLESS OTHERWISE NOTED) - ACCEPTABLE SELECT FILL SHALL STANDARD SPECIFICATIONS... BE IN ACCORDANCE WITH STATE DEPARTMENT OF HIGHWAY AND TRANSPORTATION.
   C. SOIL STABILIZER FABRIC SHALL BE MIRAFI - 500X.

PART 3 - EXECUTION

1. INSPECTIONS
   LOCAL BUILDING INSPECTORS SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, UNLESS OTHERWISE SPECIFIED BY JURISDICTION.

2. PREPARATION
   A. CLEAR TREES, BRUSH AND DEBRIS FROM LEASE AREA, ACCESS DRIVE W/ TURN-AROUND AND UNDER GROUND UTILITY EASEMENTS AS REQUIRED FOR CONSTRUCTION.
   B. PRIOR TO OTHER EXCAVATION AND CONSTRUCTION, GRUB ORGANIC MATERIAL TO A MINIMUM OF SIX (6) INCHES BELOW GRADE.
   C. UNLESS OTHERWISE INSTRUCTED BY CARRIER, TRANSPORT ALL REMOVED TREES, BRUSH AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED LANDFILL.
   D. PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL.
   E. WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, LINE THE AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL.

3. INSTALLATION
   A. GRADE OR FILL THE LEASE AREA AND ACCESS DRIVE W/TURNAROUND AS REQUIRED IN ORDER THAT UPON DISTRIBUTION OF SPOILS, RESULTING FROM EXCAVATIONS, THE RESULTING GRADE WILL CORRESPOND WITH SAID SUB-BASE COURSE. ELEVATIONS ARE TO BE CALCULATED FROM BENCHMARK, FINISHED GRADES, OR INDICATED SLOPES.
   B. CLEAR EXCESS SPOILS, IF ANY, FROM JOB SITE AND DO NOT SPREAD BEYOND THE LIMITS OF PROJECT AREA UNLESS AUTHORIZED BY PROJECT MANAGER AND AGREED TO BY LANDOWNER.
   C. BRING THE ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION TO FACILITATE CONSTRUCTION AND OBSERVATION DURING CONSTRUCTION OF THE SITE.
   D. AVOID CREATING DEPRESSIONS WHERE WATER MAY POND.
   E. THE CONTRACT SHALL INCLUDE GRADING, BANKING, AND DITCHING, UNLESS OTHERWISE INDICATED.
   F. WHEN IMPROVING AN EXISTING ACCESS DRIVE, GRADE THE EXISTING DRIVE TO REMOVE ANY ORGANIC MATTER AND SMOOTH THE SURFACE BEFORE PLACING FILL OR STONE.
   G. PLACE FILL OR STONE IN SIX (6) INCH MAXIMUM LIFTS, AND COMPACT BEFORE PLACING NEXT LIFT.
   H. THE TOP SURFACE COURSE SHALL EXTEND A MINIMUM OF ONE (1) FOOT BEYOND THE SITE FENCE (UNLESS OTHERWISE NOTED) AND SHALL COVER THE AREA AS INDICATED.
   I. APPLY RIPRAP TO THE SIDE SLOPES OF ALL FENCED SITE AREAS, PARKING AREAS, AND ALL OTHER SLOPES GREATER THAN 2:1.
   J. APPLY RIPRAP TO THE SIDES OF DITCHES OR DRAINAGE SWALES.
   K. RIPRAP ENTIRE DITCH FOR SIX (6) FEET IN ALL DIRECTIONS AT CULVERT OPENINGS.
   L. APPLY SEED, FERTILIZER, AND STRAW COVER TO ALL OTHER DISTURBED AREAS, DITCHES, AND DRAINAGE SWALES, NOT OTHERWISE RIP RAPPED.
   M. UNDER NO CIRCUMSTANCES WILL DITCHES, SWALES, OR CULVERTS BE PLACED SO THAT THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO COMPOUND. IF DESIGNS OR ELEVATIONS ARE IN CONFLICT WITH THIS, ADVISE CONSTRUCTION MANAGER IMMEDIATELY.
   N. IN DITCHES WITH SLOPES GREATER THAN 10%, MOUND DIVERSIONARY HEADWALLS IN THE DITCH AT CULVERT ENTRANCES. POSITION THE HEADWALL AT AN ANGLE NO GREATER THAT 60° OFF THE DITCH LINE. RIPRAP THE UPSTREAM SIDE OF THE HEADWALL AS WELL AS THE DITCH FOR SIX (6) FEET ABOVE THE CULVERT ENTRANCE.
   O. APPLY SEED AND FERTILIZER TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. RAKE AREAS TO BE SEEDED TO EVEN THE SURFACE AND LOOSEN THE SOIL.
   P. SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.
   Q. ENSURE GROWTH OF SEEDED AND LANDSCAPED AREAS, BY WATERING, UP TO THE POINT OF RELEASE FROM THE CONTRACT. CONTINUE TO REWORK THE BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.

4. FIELD QUALITY CONTROL
   COMPACT SOILS TO MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557. AREAS OF SETTLEMENT WILL BE EXCAVATED AND REFILLED AT CONTRACTOR'S EXPENSE. INDICATE PERCENTAGE OF COMPACTION ACHIEVED ON AS-BUILT DRAWINGS.

5. PROTECTION
   A. PROTECT SEEDED AREAS FROM EROSION BY SPREADING STRAW TO A UNIFORM LOOSE DEPTH OF 1-2 INCHES, STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET WILL BE AN ACCEPTABLE ALTERNATE.
   B. ALL TREES PLACED IN CONJUNCTION WITH A LANDSCAPE CONTRACT WILL BE WRAPPED, TIED WITH HOSE PROTECTED WIRE, AND SECURED TO 2" X 2" X 4'-0" WOODEN STAKES EXTENDING TWO-FEET INTO THE GROUND ON FOUR SIDES OF THE TREE.
   C. PROTECT ALL EXPOSED AREAS AGAINST WASHOUTS AND SOIL EROSION. PLACE STRAW BALES AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS. WHERE THE SITE OR ROAD AREAS HAVE BEEN ELEVATED IMMEDIATELY ADJACENT TO THE RAIL LINE, STAKE EROSION CONTROL FABRIC FULL LENGTH IN THE SWALE TO PREVENT CONTAMINATION OF THE RAIL BALLAST. ALL EROSION CONTROL METHODS SHALL CONFORM TO APPLICABLE BUILDING CODE REQUIREMENTS.

SECTION 02830 - FENCING AND GATE(S)

PART 1 - GENERAL

1. WORK INCLUDED
   SEE PLAN FOR SITE AND LOCATION OF FENCE AND GATE(S).

2. QUALITY ASSURANCE
   ALL STEEL MATERIALS UTILIZED IN CONJUNCTION WITH THIS SPECIFICATION WILL BE GALVANIZED OR STAINLESS STEEL. WEIGHT OF ZINC COATING ON THE FABRIC SHALL NOT BE LESS THAN 12 OUNCES
   PER SQUARE FOOT OF MATERIAL COVERED. POSTS SHALL BE HOT-DIPPED IN GRADE 'E' ZINC, 18 OUNCES PER SQUARE FOOT.

3. SEQUENCING
   IF THE SITE AREA HAS BEEN BROUGHT UP TO SURFACE COURSE ELEVATION (PRIOR TO THE FENCE CONSTRUCTION), FENCE POST EXCAVATION SPOILS MUST BE CONTROLLED TO PRECLUDE CONTAMINATION OF SAID SURFACE COURSE.

4. SUBMITTALS
   A. MANUFACTURER'S DESCRIPTIVE LITERATURE.
   B. CERTIFICATE OR STATEMENT OF COMPLIANCE WITH THE SPECIFICATIONS.

PART 2 - PRODUCTS

1. FENCE MATERIAL
   A. ALL FABRIC WIRE, RAILS, HARDWARE, AND OTHER STEEL MATERIALS SHALL BE HOT-DIPPED GALVANIZED.
   B. FABRIC SHALL BE SEVEN-FOOT HIGH OR TO MATCH EXISTING FENCE TWO-INCH CHAIN LINK MESH OF NO. 9 GAUGE (0.148") WIRE. THE FABRIC SHALL HAVE A KNUCKLED FINISH FOR THE TOP SELVAGES. FABRIC SHALL CONFORM TO THE SPECIFICATIONS OF ASTM A-392 CLASS 1.
   C. BARBED WIRE SHALL BE DOUBLE-STRAND, 12-1/2 GAUGE TWISTED WIRE, WITH 14-GAUGE, 4-POINT ROUND BARBS SPACED ON FIVE-INCH CENTERS.
   D. ALL POSTS SHALL BE SCHEDULE - 40 MECHANICAL SERVICE PIPE AND SHALL BE TYPE 1 ASTM A-128 AND OF THE FOLLOWING DIAMETER LINE 2" SCHEDULE 40 (23#8" O.D.)
      GATE 3" SCHEDULE 40 (31#2" O.D.)
      CORNER 3" SCHEDULE 40 (31#2" O.D.)
   E. GATE POSTS SHALL BE EXTENDED 12 INCHES, INCLUDING DOME CAP, TO PROVIDE FOR ATTACHMENT OF BARBED WIRE.
   F. ALL TOP AND BRACE RAILS SHALL BE 1" DIAMETER SCHEDULE 40 MECHANICAL-SERVICE PIPE.
   G. GATE FRAMES AND BRACES SHALL BE 1.90 INCH DIAMETER SCHEDULE 40 MECHANICAL-SERVICE PIPE. FRAMES SHALL HAVE WELDED CORNERS.
   H. GATE FRAMES SHALL HAVE A FULL-HEIGHT VERTICAL BRACE, AND A FULL-WIDTH HORIZONTAL BRACE, SECURED IN PLACE BY USE OF GATE BRACE CLAMPS.
   I. GATE HINGES SHALL BE MERCHANTS METAL MODEL 64386 HINGE ADAPTER WITH MODEL 6409, 188-DEGREE ATTACHMENT.
   J. THE GUIDE (LATCH ASSEMBLY) SHALL BE HEAVY INDUSTRIAL DOUBLE GATE LATCH. SEE DETAIL.
   K. LATCHES AND STOPS SHALL BE PROVIDED FOR ALL GATES.
   L. PLUNGER ROD COMPLETE WITH RECEPTOR TO BE PROVIDED AT THE INACTIVE LEAF OF ALL DOUBLE GATE INSTALLATIONS.
   M. ALL STOPS SHALL HAVE KEEPERS CAPABLE OF HOLDING THE GATE LEAF IN THE OPEN POSITION.
   N. A NO. 7 GAUGE ZINC COATED TENSION WIRE SHALL BE USED AT THE BOTTOM OF THE FABRIC, TERMINATED WITH BAND CLIPS AT CORNER AND GATE POSTS.
   O. A SIX-INCH BY 1/2-INCH DIAMETER EYEBOLT TO HOLD TENSION WIRE SHALL BE PLACED AT LINE POSTS.
   P. STRETCHER BARS SHALL BE 3/16-INCH BY 3/4-INCH OR HAVE EQUIVALENT CROSS-SECTIONAL AREA.
   Q. ALL CORNER GATE AND PANELS SHALL HAVE A 3/8-INCH TRUSS ROD WITH TURNBUCKLES.
   R. ALL POSTS EXCEPT GATE POSTS SHALL HAVE A COMBINATION CAP AND BARBED WIRE SUPPORTING ARM. GATE POSTS SHALL HAVE A DOME CAP.
   S. OTHER HARDWARE INCLUDES BUT MAY NOT BE LIMITED TO TIE CLIPS, BAND CLIPS AND TENSION BAND CLIPS.
   T. BARBED WIRE GATE GUARDS SHALL BE FITTED WITH DOME CAPS.
   U. BARBED WIRE SUPPORT ARMS SHALL BE PRESSED STEEL COMPLETE WITH SET BOLT AND LOCK WIRE IN THE ARM.
   V. ALL CAPS SHALL BE MALLEABLE IRON, DOME OR ACORN SHAPED AS REQUIRED BY PIPE SIZE.
   W. WHERE THE USE OF CONCERTINA HAS BEEN SPECIFIED, 24-INCH DIAMETERS COIL. BARBED TAPE, STAINLESS STEEL, CYCLONE FENCE MODEL G8P TO TYPE III SHALL BE FURNISHED. IT SHALL BE SUPPORTED ABOVE THE TOP RAIL BY USE OF SIX (6) WIRE BARBED WIRE ARMS POSITIONED ATOP EACH LINE/CORNER POST.

1. INSPECTION
   TO CONFIRM PROPER DEPTH AND DIAMETER OF POST HOLE EXCAVATIONS. ALL POST HOLES WILL BE EXCAVATED AS PER CONSTRUCTION DOCUMENTS.

2. INSTALLATION
   A. FOUNDATIONS SHALL HAVE A MINIMUM SIX (6) INCH CONCRETE COVER UNDER POST.
   B. ALL FENCE POSTS SHALL BE VERTICALLY PLUMB; ONE QUARTER (1/4) INCH
   C. AT CORNER POSTS, GATE POSTS, AND SIDES OF GATE FRAME, FABRIC SHALL BE ATTACHED WITH STRETCHER AND TENSION BAND-CLIPS AT FIFTEEN(15) INCH INTERVALS.
   D. AT LINE POSTS, FABRIC SHALL BE ATTACHED WITH BAND-CLIPS AT FIFTEEN (15) INCH INTERVALS.
   E. FABRIC SHALL BE ATTACHED TO BRACE RAILS, TENSION WIRE AND TRUSS RODS WITH TIE-CLIPS AT TWO (2) FOOT INTERVALS.
   F. A MAXIMUM GAP OF ONE INCH WILL BE PERMITTED BETWEEN TIE CHAIN LINE FABRIC AND THE FINAL GRADE.
   G. GATE SHALL BE INSTALLED SO LOCKS ARE ACCESSIBLE FROM BOTH SIDES.
   H. GATE HINGE BOLTS SHALL HAVE THEIR THREADS PEENED OR WELDED TO PREVENT UNAUTHORIZED REMOVAL.
   I. CONCRETE TO BE A MINIMUM OF 4,000 PSI AT 7 DAYS. CEMENT SHALL EXCEED ASTM C150, TYPE IIIA.

3. PROTECTION
   UPON COMPLETION OF ERECTION, INSPECT FENCE MATERIAL AND PAINT FIELD CUTS OR GALVANIZING BREAKS WITH ZINC-BASED PAINT, COLOR TO MATCH THE GALVANIZED METAL.

APPLICABLE STANDARDS

ASTM-A120 SPECIFICATION FOR PIPE, STEEL BLACK AND HOT-DIPPED ZINC COATED (GALVANIZED) WELDED AND SEAMLESS, FOR ORDINARY USES.
ASTM-A123 ZINC (HOT-DIP GALVANIZED) COATING ON IRON AND STEEL PRODUCTS.
ASTM-A153 STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE.
ASTM-A392 SPECIFICATION FOR ZINC-COATED STEEL CHAIN LINK FENCE FABRIC.
ASTM-A491 SPECIFICATION FOR ALUMINUM-COATED STEEL CHAIN LINK FENCE FABRIC
ASTM-A525 STANDARD SPECIFICATION FOR STEEL SHEET ZINC COATED (GALVANIZED) BY THE HOT-DIPPED PROCESS. ASTM-A570 SPECIFICATION FOR HOT-ROLLED CARBON STEEL SHEET AND STRIP. STRUCTURAL QUALITY.
ASTM-A535 SPECIFICATION FOR ALUMINUM COATED STEEL BARBED WIRE.

FEDERAL SPECIFICATION RR-F-191- FENCING, WIRE AND POST METAL (AND GATES, CHAIN LINK FENCE FABRIC, AND ACCESSORIES)

verticalbridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
COMPOUND NOTES

SCALE: NONE

PROJECT NUMBER: 58067
SHEET NUMBER: N-1

DIVISION 3: CONCRETE
SECTION 03000 - BASIC CONCRETE MATERIALS AND METHODS

PART 1 - GENERAL

1. WORK INCLUDED FORM WORK, REINFORCEMENT, ACCESSORIES, CAST-IN-PLACE CONCRETE, FINISHING, AND CURING.

2. INSPECTIONS
   A. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING BUILDING DEPARTMENT INSPECTIONS REQUIRED FOR HIS SCOPE OF WORK.
   B. ALL REINFORCING STEEL SHALL BE INSPECTED AND APPROVED BY THE CARRIER CONSTRUCTION MANAGER, OR THEIR DESIGNEE, PRIOR TO PLACEMENT OF CONCRETE.
   C. THE CARRIER CONSTRUCTION MANAGER SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS.

3. QUALITY ASSURANCE
   A. CONSTRUCT AND ERECT CONCRETE FORM WORK IN ACCORDANCE WITH ACI 301 AND ACI 318.
   B. PERFORM CONCRETE REINFORCING WORK IN ACCORDANCE WITH ACI 301, ACI 318, AND ASTM A184.
   C. PERFORM CAST-IN-PLACE CONCRETE WORK IN ACCORDANCE WITH ACI 301, ACI 318, AND ACI 117-90.
   D. OPEN FOUNDATION TRENCHES SHALL BE INSPECTED BY MES PRIOR TO CONCRETE INSTALLATION.

4. SUBMITTALS SUBMIT CONCRETE MIX AND REINFORCING STEEL SHOP DRAWINGS FOR APPROVAL BY CARRIER CONSTRUCTION MANAGER/ENGINEER. THE SHOP DRAWINGS SHALL BE SUBMITTED IN THE FORM OF TWO (2) CONCRETE MIX DESIGN INFORMATION SHEETS AND TWO (2) BLUE LINE DRAWINGS FOR REINFORCING STEEL.

PART 2 - PRODUCTS

1. REINFORCEMENT MATERIALS
   A. REINFORCEMENT STEEL, ASTM A615, 60 ksi YIELD GRADE, DEFORMED BILLET STEEL BARS, PLAIN FINISH.
   B. WELDED STEEL WIRE FABRIC ASTM A185 PLAIN TYPE, IN FLAT SHEETS, PLAIN FINISH.
   C. CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS. SIZED AND SHAPED FOR SUPPORTS OF REINFORCING.
   D. FABRICATE CONCRETE REINFORCING IN ACCORDANCE WITH ACI 315, ACI 318, ASTM A184

2. CONCRETE MATERIALS
   A. CEMENT: ASTM C150, PORTLAND TYPE
   B. FINE AND COURSE AGGREGATES: ASTM C33 - MAXIMUM SIZE OF CONCRETE AGGREGATE SHALL NOT EXCEED; ONE (1) INCH SIZE SUITABLE FOR INSTALLATION METHOD UTILIZED OR ONE-THIRD CLEAR DISTANCE BEHIND OR BETWEEN REINFORCING.
   C. WATER: CLEAN AND NOT DETRIMENTAL TO CONCRETE
   D. AIR ENTRAINING ADMIXTURE: ASTM C260
   E. BONDING AGENT: LATEX EMULSION FOR BONDING NEW TO OLD CONCRETE AS MANUFACTURED BY DAYTON SUPERIOR.
   F. NON-SHRINK GROUT: PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE. CEMENT, WATER REDUCING AND PLASTICIZING AGENTS.

3. CONCRETE MIX
   A. CONCRETE MATERIALS SHALL CONFORM TO THE APPROPRIATE A.C.I. REQUIREMENTS FOR EXPOSED STRUCTURAL CONCRETE.
   B. MIX AND DELIVER CONCRETE IN ACCORDANCE WITH ASTM C94, ALT. 3.
   C. PROPORTIONS OF CONCRETE MATERIALS SHALL BE SUITABLE FOR THE INSTALLATION METHOD UTILIZED AND SHALL RESULT IN DURABLE CONCRETE FOR LOCAL ANTICIPATED AGGRESSIVE ACTIONS. THE DURABILITY REQUIREMENTS OF ACI 318 CHAPTER 4 SHALL BE SATISFIED BASED ON THE CONDITIONS EXPECTED AT THE SITE. PROVIDE CONCRETE AS FOLLOWS:
      1. COMPRESSIVE STRENGTH: 4000 psi AT 28 DAYS.
      2. SLUMP: 3 INCHES

PART 3 - EXECUTION

1. INSERTS, EMBEDDED COMPONENTS AND OPENINGS
   A. THE CONTRACTOR SHALL COORDINATE AND CROSS-CHECK ARCHITECTURAL, BUILDING & ELECTRICAL DRAWINGS FOR OPENINGS, SLEEVES, ANCHORS, HANGERS, AND OTHER ITEMS RELATED TO CONCRETE WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THE PROPER LOCATION BEFORE PLACING CONCRETE
   B. PROVIDE FORMED OPENINGS WHERE REQUIRED FOR WORK TO BE EMBEDDED IN AND PASSING THROUGH CONCRETE MEMBERS.
   C. COORDINATE WORK OF OTHER SECTIONS IN FORMING AND SETTING OPENING, SLOTS, RECESSES, CHASES, SLEEVES, BOLTS, ANCHORS, AND OTHER INSERTS.
   D. INSTALL CONCRETE ACCESSORIES STRAIGHT, LEVEL AND PLUMB.

2. REINFORCEMENT PLACEMENT
   A. PLACE REINFORCEMENT, SUPPORTED AND SECURED AGAINST DISPLACEMENT.
   B. ENSURE REINFORCING IS CLEAN, FREE OF LOOSE SCALE, DIRT, OR OTHER FOREIGN COATINGS.
   C. WELDING IS PROHIBITED ON REINFORCING STEEL AND EMBEDMENTS.
   D. MINIMUM CONCRETE COVER FOR REINFORCING SHALL BE 3 INCHES UNLESS OTHERWISE NOTED.E. CONCRETE COVER FROM TOP OF FOUNDATION TO ENDS OF VERTICAL REINFORCEMENT SHALL NOT EXCEED 3 INCHES NOR BE LESS THAN 2INCHES.

3. PLACING CONCRETE
   A. VIBRATE ALL CONCRETE.
   B. ALL CONCRETE WORK SHALL ADHERE TO THE LATEST A.C.I STANDARDS FOR WINTER POURING AND CURING PROCEDURES IF SEASONAL CONDITIONS APPLY

4. CURING
   A. AFTER PLACEMENT, PROTECT CONCRETE FROM PREMATURE DRYING.
   B. MAINTAIN CONCRETE WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.

5. PROVIDE HAND RUBBED SMOOTH FINISH TO ALL EXPOSED VERTICAL FORMED CONCRETE SURFACES.

6. FIELD QUALITY CONTROL
   A. SUBMIT THREE (3) CONCRETE TEST CYLINDERS - TAKEN FOR EVERY 15 CUBIC YARD OR LESS. SUBMIT CONCRETE TESTS TO THE PROJECT MANAGER IN ACCORDANCE WITH ASTM , C-31 AND C-39.
   B. SUBMIT ONE (1) ADDITIONAL TEST CYLINDER - TAKEN DURING COLD WEATHER POURS, AND CURED ON JOB SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
   C. SUBMIT ONE (1) SLUMP TEST - TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.

7. DEFECTIVE CONCRETE MODIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LINES, DETAILS OR ELEVATIONS AT COST OF GC, AS DIRECTED BY ARCHITECT/ENGINEER.

DIVISION 5: METALS
SECTION 05000 - METALS

PART 1 - GENERAL

1. SECTION INCLUDES:
   STRUCTURAL STEEL FRAMING MEMBERS, BASE PLATES, PLATES, BARS AND GROUTING UNDER BASE PLATES.
2. SUBMITTALS:
   SHOP DRAWINGS: INDICATE SIZES, SPACING, AND LOCATIONS OF STRUCTURAL MEMBERS, OPENINGS, CONNECTIONS, CAMBERS, LOADS, AND WELDED SECTIONS.
3. QUALITY ASSURANCE:
   A. FABRICATE STRUCTURAL STEEL MEMBERS IN ACCORDANCE WITH AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.
   B. PERFORM DESIGN UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE.

PART 2 - PRODUCTS

1. MATERIALS:
   A. STRUCTURAL STEEL MEMBERS: ASTM A572, GRADE 50
   B. STRUCTURAL TUBING: ASTM A500, GRADE B
   C. PIPE: ASTM A53, TYPE E OR S, GRADE B
   D. BOLTS, NUTS, AND WASHERS: ASTM A325
   E. ANCHOR BOLTS: ASTM A307
   F. WELDING MATERIALS: AWS D1.1, TYPE REQUIRED FOR MATERIALS BEING WELDED
   G. GROUT: NON-SHRINK TYPE, PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING ADDITIVES, CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE STRENGTH OF 7000 psi AT 28 DAYS.
   H. SHOP AND TOUCH-UP PRIMER: SSPC 15, TYPE 1, RED OXIDE
   I. TOUCH-UP PRIMER FOR GALV. SURFACES: ZINC RICH TYPE
2. FABRICATION: CONTINUOUSLY SEAL JOINTED MEMBERS BY CONTINUOUS WELDS. GRIND EXPOSED WELDS SMOOTH.
3. FINISH:
   A. PREPARE STRUCTURAL COMPONENT SURFACES IN ACCORDANCE WITH SSPC SP-1 TO SP-10 PROCEDURES.
   B. STRUCTURAL STEEL MEMBERS SHALL BE HOT DIPPED GALVANIZED.

PART 3 - EXECUTION

1. EXAMINATION AND PREPARATION:
VERIFY THAT THE FIELD CONDITIONS ARE ACCEPTABLE.
2. ERECTION:
   A. ALLOW FOR ERECTION LOADS. PROVIDE TEMPORARY BRACING TO MAINTAIN FRAMING IN ALIGNMENT UNTIL COMPLETION OF ERECTION AND INSTALLATION OF PERMANENT BRIDGING AND BRACING.
   B. FIELD WELD COMPONENTS INDICATED ON SHOP DRAWINGS.
   C. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT APPROVAL OF THE ARCHITECT/ENGINEER.
   D. AFTER ERECTION, TOUCH-UP WELDS, ABRASIONS, AND SURFACES NOT SHOP PRIMED OR GALVANIZED WITH TOUCH-UP PRIMERS AS SPECIFIED UNDER SECTION 05000,-METALS, PART 2 - PRODUCTS, H & I. SURFACES TO BE IN CONTACT WITH CONCRETE NOT INCLUDED.
3. FIELD QUALITY CONTROL: FIELD INSPECTION OF MEMBERS, CONNECTIONS, WELDS AND TORQUING.

DIVISION 16: ELECTRICAL
SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

1. CONTRACTOR SHALL REVIEW THE CONTRACT DOCUMENTS PRIOR TO ORDERING THE ELECTRICAL EQUIPMENT AND STARTING THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT LISTING ANY DISCREPANCIES OR CONFLICTING INFORMATION.
2. ELECTRICAL PLANS, DETAILS AND DIAGRAMS ARE DIAGRAMMATIC ONLY. VERIFY EXACT LOCATIONS AND MOUNTING HEIGHTS OF ELECTRICAL EQUIPMENT WITH OWNER PRIOR TO INSTALLATION.
3. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANELBOARD, PULLBOX, JUNCTION BOX, SWITCH BOX, ETC. THE TYPE OF TAGGING METHODS SHALL BE IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.).
4. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN GOOD WORKING CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED "U" WHERE APPLICABLE. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA, NBFU AND "UL" LISTED.
5. ALL CONDUIT SHALL HAVE A PULL CORD.
6. PROVIDE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.
7. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
8. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY UBC, NEC AND ALL APPLICABLE CODES.
9. PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
10. PLASTIC PLATES FOR ALL SWITCHES, RECEPTACLES, TELEPHONE AND BLANKED OUTLETS SHALL HAVE ENGRAVED LETTERING WHERE INDICATED ON THE DRAWINGS. WEATHERPROOF RECEPTACLES SHALL HAVE SIERRA #WPD-8 LIFT COVER PLATES.

SECTION 16400 - SERVICE AND DISTRIBUTION

1. WIRE AND CABLE CONDUCTORS SHALL BE COPPER, 600V, TYPE THHN OR THWN, WITH A MIN. SIZE OF #12 AWG, COLOR CODED. ALL RECTIFIER DROPS SHALL BE STRANDED TO ACCEPT CRIMP CONNECTORS.
2. ALL CHEMICAL GROUND RODS SHALL BE "UL" APPROVED.
3. METER SOCKET AMPERES, VOLTAGE, NUMBER OF PHASES SHALL BE A NOTED ON THE DRAWINGS. MANUFACTURED BY MILBANK OR APPROVED EQUAL, AND SHALL BE UTILITY COMPANY APPROVED.
4. CONDUIT:
   A. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH GALVANIZED ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 2/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
   B. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTING SHALL BE GLAND RING COMPRESSION TYPE.
   C. FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE. ALL FLEXIBLE CONDUITS SHALL HAVE FULL LENGTH GROUND WIRE.
   D. ALL UNDERGROUND CONDUIT SHALL BE AS NOTED ON THE DRAWINGS AT A MINIMUM DEPTH OF 30" BELOW GRADE. IT IS REQUIRED AND WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO NOTIFY THE UTILITY CLEARANCE HOTLINE (DIGGER'S HOTLINE OR OTHER SUCH NOTIFYING AGENCY) SEVENTY-TWO (72) BUSINESS HOURS PRIOR TO DIGGING.
5. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS ARE TO BE PAID BY THE CONTRACTOR.
6. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS WITH WHITE ON BLUE BACKGROUND LETTERING (MINIMUM LETTER HEIGHT SHALL BE 1/4-INCH). NAMEPLATES SHALL BE FASTENED WITH STAINLESS STEEL SCREWS, NOT ADHESIVE.
7. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS BY AN INDEPENDENT TESTING SERVICE ENGAGED BY THE CONTRACTOR SHALL BE SUBMITTED FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
8. GROUNDING ELECTRODE SYSTEM
   A. PREPARATION
      1. SURFACE PREPARATION: ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FIELD INSPECTED AND MODIFIED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON-OXIDIZING AGENT APPLIED PRIOR TO INSTALLATION.
      2. GROUND BAR PREPARATION: ALL COPPER GROUND BARS SHALL BE CLEANED, POLISHED AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
      3. SLEEVES: ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
   B. GROUND BARS
      1. ALL GROUND BARS SHALL BE 1/4-INCH THICK TINNED COPPER PLATE AND OF SIZE INDICATED ON DRAWINGS.
      2. ALL CONNECTIONS TO THE GROUND BARS SHALL OBSERVE THE FOLLOWING SEQUENCE:
         A. BOLT-HEAD
         B. 2-HOLE LUG
         C. NON-OX (ANTI-OXIDATION COMPOUND)
         D. TINNED COPPER BUSS BAR
         E. NON-OX (ANTI-OXIDATION COMPOUND)
         F. STAR WASHER
         G. NUT
   C. EXTERNAL CONNECTIONS
      1. ALL BURIED GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS. CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, TEE'S, CROSSES, ETC. ALL CABLE TO GROUND RODS, GROUND ROD SPLICES AND LIGHTNING PROTECTION SYSTEMS ARE TO BE AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING METAL, TOOLS, ETC.) SHALL BE BY "CADWELD" AND INSTALLED PER MANUFACTURER'S RECOMMENDED PROCEDURES.
      2. ALL ABOVE GRADE GROUNDING AND BONDING CONDUCTORS SHALL BE CONNECTED BY TWO HOLE CRIMP TYPE (COMPRESSION) CONNECTIONS (EXCEPT FOR THE ACEG AND GROUND ROD) MECHANICAL CONNECTIONS, FITTINGS OR CONNECTIONS THAT DEPEND SOLELY ON SOLDER SHALL NOT BE USED. ALL CABLE TO CABLE CONNECTIONS SHALL BE HIGH PRESSURE DOUBLE CRIMP TYPE CONNECTIONS.CONNECTIONS TO STRUCTURAL STEEL SHALL BE EXOTHERMIC WELDS.
   D. GROUND RODS ALL GROUND RODS SHALL BE 5/8-INCH DIAMETER X 10'-0" LONG "COPPERED" OR APPROVED EQUAL, OF THE NUMBER AND LOCATIONS INDICATED. GROUND RODS SHALL BE DRIVEN FULL LENGTH VERTICAL IN UNDISTURBED EARTH.
   E. GROUND CONDUCTORS ALL GROUND CONDUCTORS SHALL BE STANDARD TINNED SOLID BARE COPPER ANNEALED, AND OF SIZE INDICATED ON DRAWINGS UNLESS NOTED OTHERWISE.
   F. LUGS
      1. LUGS SHALL BE 2-HOLE, LONG BARREL, STRAND COPPER UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. LUGS SHALL BE THOMAS AND BETTS SERIES #548 BE OR EQUIVALENT MINIMUM BENDING

A. 535 MCM DLO	54880BE
B. 262 MCM DLO	54872BE
C. #1/0 DLO	54862BE
D. #4/0 THWN AND BARE	54866BE
E. #2/0 THWN	54862BE
F. #2 THHN	54207BE
G. #6 DLO	54205BE

      2. WHEN THE DIRECTION OF THE CONDUCTOR MUST CHANGE, IT SHALL BE DONE GRADUALLY. THE CURVATURE OF THE TURN SHALL BE DONE IN ACCORDANCE WITH THE FOLLOWING CHART:

GROUNDING CONDUCTOR SIZE	RADIUS TO INSIDE EDGE
NO. 6 AWG TO NO. 4 AWG	6 INCHES
NO. 2 AWG TO NO. 1/0 AWG	8 INCHES
NO. 2/0 AWG TO 4/0 MCM	12 INCHES
250 MCM TO 750 MCM	24 INCHES

   G. GROUND RING
      1. THE EXTERNAL GROUND RING ENCIRCLING THE TOWER (IF APPLICABLE) AND BETWEEN THE EQUIPMENT SHELTER PLATFORM ANCHORS SHALL BE MINIMUM NO. 2 A.W.G. SOLID TINNED BARE COPPER CONDUCTORS IN DIRECT CONTACT WITH THE EARTH AT THE DEPTH INDICATED ON THE DRAWINGS. CONDUCTOR BENDS SHALL HAVE A MINIMUM BENDING RADIUS OF EIGHT (8) INCHES.
      2. ALL EXTERNAL GROUND RINGS ARE TO BE JOINED TOGETHER AND ALL CONNECTIONS MUST BE CADWELDED. NO LUGS OR CLAMPS WILL BE ACCEPTED.
   H. FENCE/GATE GROUND EACH GATE POST, CORNER POST AND GATE AS INDICATED ON DRAWING GROUND CONNECTIONS TO FENCE POSTS AND ALL OTHER CONNECTIONS FOR THE GROUND GRID SYSTEM SHALL BE MADE BY EXOTHERMIC WELD PROCESS, AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES, AND SPRAYED WITH COLD GALVANIZED PAINT.
9. I.E.E.E. FALL POTENTIAL TESTS
   A. FOR RAW LAND SITE
      1. GROUND TESTS SHALL BE PERFORMED AS INDICATED ON DRAWINGS. A BIDDLE GROUND OHMER OR THE METHOD OF USING TWO AUXILIARY GROUND RODS (AS DESCRIBED IN I.E.E.E. STANDARDS NO. 81-1983, PART 1) MAY BE USED. THE I.E.E.E. METHOD REQUIRES THE USE OF AN A.C. TEST CURRENT. THE AUXILIARY TEST RODS MUST BE SUFFICIENTLY FAR AWAY FROM THE ROD UNDER TEST SO THAT THE REGIONS IN WHICH THEIR RESISTANCE IS LOCALIZED DO NOT OVERLAP. THE TEST POINT WILL BE THE GROUND ROD AND WILL CONSIST OF THE THREE POINT FALL OF POTENTIAL MEGGER TEST METHOD, USING THE BIDDLE NULL-BALANCE EARTH TESTER (MEGGER #250220-2 OR EQUIVALENT)
      2. CONTRACTOR TO CONDUCT GROUND RESISTANCE TEST IN THE FORMAT AS FOLLOWS:

verticalbridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PARKER
PE 0058800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
COMPOUND NOTES

SCALE: NONE

PROJECT NUMBER: 58067
SHEET NUMBER: N-2

A. TOWER
1. FIRST TEST - SHALL BE WITH THREE GROUND RODS INSTALLED (MINIMUM), EQUALLY SPACED AROUND THE TOWER FOUNDATION, BUT NOT CONNECTED TO THE SHELTER PAD EXTERNAL GROUND RING. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL THREE GROUND RODS TOGETHER TO MAKE A SYSTEM TEST AFTER EACH ROD IS INDIVIDUALLY TESTED. IF ANY INDIVIDUAL ROD TESTS 25 OHMS OR MORE, NOTIFY THE CONTRACTOR AND OWNER'S REPRESENTATIVE SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL THREE (3) RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.
2. SECOND TEST - SHALL BE WITH THE GROUND RODS CONNECTED, WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR THE PAST TEN (10) DAYS , THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND. IF THE RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 5 OHMS THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT EITHER ADDITIONAL AND/OR DEEPER RODS CAN BE INSTALLED.

C. EQUIPMENT PAD AND TOWER
1. AFTER THE EQUIPMENT PAD AND TOWER GROUND RESISTANCE TEST IS COMPLETED, CONTRACTOR SHALL TIE EQUIPMENT PAD EXTERNAL GROUND RING AND TOWER EXTERNAL GROUND RING TOGETHER. AFTER FIRST AND SECOND TEST ALL CONNECTIONS MUST BE MADE USING EXOTHERMIC WELD. NO LUGS OR CLAMPS WILL BE ACCEPTED.
2. AFTER ALL THE EXTERNAL GROUND RINGS ARE TIED TOGETHER, COMPLETE A MEGGER CHECK OF THE GROUND SYSTEM SHOULD BE DONE. THE MAXIMUM ALLOWABLE LEADING IS 5 OHMS TO GROUND. 10. GROUNDING RESISTANCE TEST REPORT UPON COMPLETION OF THE TESTING FOR EACH SITE, A TEST REPORT SHOWING RESISTANCE IN OHMS WITH AUXILIARY POTENTIAL ELECTRODES AT 5 FEET AND 10 FEET INTERVALS UNTIL THE AVERAGE RESISTANCE STARTS INCREASING AND ALSO NOTE THAT 10-15 PHOTOS MUST BE TAKEN TO PROOF ENTIRE EXTERNAL GROUND RING SYSTEM BEFORE BACKFILL. TWO (2) SETS OF TEST DOCUMENTS ARE OF THE INDEPENDENT TESTING SERVICE TO BE BOUND AND SUBMITTED WITHIN ONE (1) WEEK OF WORK COMPLETION.

10. GROUNDING RESISTANCE TEST REPORT UPON COMPLETION OF THE TESTING FOR EACH SITE, A TEST REPORT SHOWING RESISTANCE IN OHMS WITH AUXILIARY POTENTIAL ELECTRODES AT 5 FEET AND 10 FEET INTERVALS UNTIL THE AVERAGE RESISTANCE STARTS INCREASING AND ALSO NOTE THAT 10-15 PHOTOS MUST BE TAKEN TO PROOF ENTIRE EXTERNAL GROUND RING SYSTEM BEFORE BACKFILL. TWO (2) SETS OF TEST DOCUMENTS ARE OF THE INDEPENDENT TESTING SERVICE TO BE BOUND AND SUBMITTED WITHIN ONE (1) WEEK OR WORK COMPLETION.

SECTION 16503 - POLES, POSTS, AND STANDARDS (SINGLE MAST AND SELF SUPPORTING TOWERS)

1. GENERAL
A. LIGHTNING ROD AND EXTENSION PIPE INCLUDING ALL APPURTENANCES, TO BE FURNISHED BY OWNER, IF REQUIRED.
B. PROVIDE TEMPORARY LIGHTING FOR TOWER AS PER FAA REGULATIONS DURING CONSTRUCTION, IF REQUIRED.
C. GROUNDING: GROUND TOWER WITH A MINIMUM OF #2 AWG TINNED SOLID BARE COPPER CONDUCTOR CADWELDED TO TOWER BASE PLATE. TWO (2) GROUNDING LEADS PER TOWER BASE PLATE. NON-EXOTHERMIC WELDS SHALL BE ATTACHED DIRECTLY TO THE MONOPOLE TOWER SHAFT.

verticalbridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PAYNE
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
COMPOUND NOTES

SCALE: NONE

PROJECT NUMBER: 58067
SHEET NUMBER: N-3

TOPOGRAPHIC SURVEY
VERTICAL BRIDGE SITE US-CO-5091 TEXAS CREEK
SITUATED IN SECTION 8, TOWNSHIP 18 SOUTH, RANGE 71 WEST OF THE 6TH P.M.
COUNTY OF FREMONT, STATE OF COLORADO

SURVEYOR'S CERTIFICATE

I hereby certify to: Vertical Bridge REIT, LLC, a Delaware limited liability company, its subsidiaries, and their respective successors and/or assigns; and (ii) Toronto Dominion (Texas) LLC, as Administrative Agent, for itself and on behalf of the lenders parties from time to time to that certain Second Amended and Restated Loan Agreement dated June 17, 2016 with Vertical Bridge Holdco, LLC, as borrower, and Vertical Bridge Holdco Parent, LLC, as parent, as may be amended, restated, modified or renewed, their successors and assigns as their interests may appear; and Tower Title, LLC.

I further certify that on July 27, 2023, a topographic survey was conducted under my supervision using the normal standard of care of Professional Land Surveyors and the map hereon accurately represents said survey, to the best of my knowledge. This drawing does not represent a Land Survey, Land Survey Plat, Improvement Land Survey Plat or Improvement Location Certificate and any monuments or boundary lines shown are for information only and are not to be relied on.

This survey relied upon a title commitment by Tower Title & Closing, Fidelity National Title Insurance Commitment Number VTB-147125-C dated February 21, 2023 for legal descriptions and easements of the clients request.

This site plan does not constitute a title search by this surveyor or Daley Land Surveying, Inc. of the property shown and described hereon to determine:
1. Ownership of this tract of land.
2. Rights-of-way, easements and encumbrances recorded or unrecorded affecting this tract of land.
3. Compatibility of this description with those of adjacent tracts of land.

COLORADO REGISTERED PROFESSIONAL LAND SURVEYOR
9-28-23
35597

Job No. 2004-023
For and on behalf of
Daley Land Surveying, Inc.
17011 Lincoln Ave., #361
Parker CO. 80134
303 953 9841
Robert Daley, PLS 35597

SURVEYOR'S NOTES:

BASIS OF BEARINGS:
The bearings shown on this survey are referenced to the southerly line of Lot A, Royal Gorge Bluffs Subdivision, assumed to bear North 80°46'11" East, a distance of 1737.81 feet, monumented by a 1½" blue plastic cap marked PLS 34987 at the southeast corner of said Lot A and by a 1½" blue plastic cap marked PLS 34987 calculated to be a 6 foot witness corner at the southwest corner of said Lot A.

COORDINATE SYSTEM AND DATUM:
Horizontal coordinates are referenced to NAD83, Vertical datum is NAVD88 and originates from the local C.O.R.S. network, utilizing the Geoid18 model.

FLOOD ZONE:
Zone X, Other Areas, Areas determined to be outside the 0.2% annual chance floodplain per FEMA National Flood Insurance Program Map 08043C0605E, Panel 605 of 925, Map Revision date of September 19, 2007.

UTILITIES:
The utilities which are readily visible upon the ground, such as manholes, power and light poles, inlets, etc. were located by field surveys and shown hereon. Sub-surface utilities, if shown, are the result of field surveys of utility location marks provided by others.

NOTICE:
According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

SPECIFIC SURVEYOR'S NOTES:

1. At the time of this survey there does not appear to be any visible encroachments affecting the Lease Area the Access and Utility Easement and the Utility Easement.
2. The Access and Utility Easement and the Utility Easement described on this survey was calculated to intersect the existing Parent Tract access road which is a Public Right of Way.
3. The Lease Area, the Access and Utility Easement and the Utility Easement described on this survey lies entirely within the Parent Tract.

TOWER TITLE & CLOSING

Commitment for Title Insurance issued by Fidelity National Title Insurance Company

Transaction Identification Data for reference only:
Issuing Agent: 147759.1.27.06
Issuing Office: Tower Title, LLC Loan/ID Number: (LOC)US-CO-5091
Commitment Number: VTB-147125-C
Issuing Office File Number: VTB-147125-C
Property Address: 43340 US Highway 50, Canon City, CO 81212
Revision Number:

SCHEDULE A

1. Commitment Date: 21st day of February, 2023
2. Policy to be issued:
   a. 2006 ALTA Owner's Policy 2006 Proposed Insured: VB BTS II, LLC Proposed Policy Amount: $250,000.00
3. The estate or interest in the Land described or referred to in this Commitment is: Fee simple.
4. The Title is, at the Commitment Date, vested in: David S. Easton
5. The Land is described as follows: per Exhibit A attached

SCHEDULE B, PART II Exceptions

This commitment does not republish any covenant, condition, restriction, or limitation contained in any document referred to in this commitment to the extent that the specific covenant, condition, restriction, or limitation violates state or federal law based on race, color, religion, sex, sexual orientation, gender identity, handicap, familial status, or national origin.
The Policy will not insure against loss or damage resulting from the terms and provisions of any lease or easement identified in Schedule A, and will include the following

Exceptions unless cleared to the satisfaction of the Company:

1. Any defect, lien, encumbrance, adverse claim, or other matter that appears for the first time in the Public Records or is created, attaches, or is disclosed between the Commitment Date and the date on which all of the Schedule B, Part I – Requirements are met. **The Exception is a standard Exception and not the type to be depicted hereon**
2. Rights or claims of parties in possession not shown by the public records. **The Exception is a standard Exception and not the type to be depicted hereon**
3. Easements or claims of easements not shown by the public records. **The Exception is blanket in nature and not plottable, at the time of the survey there were no apparent claims of easements noted**
4. Discrepancies, conflicts in boundary lines, encroachments, overlaps, variations or shortage in area or content, party walls and any other matters that would be disclosed by a correct survey and/or physical inspection of the land. **The Exception is blanket in nature and not plottable, at the time of the survey there were no apparent encroachments noted**
5. Any lien, or right to lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the public record. **The Exception is a standard Exception and not the type to be depicted hereon**
6. Any water or well rights, or rights or title to water or claims thereof, in, on or under the land. **The Exception is a standard Exception, blanket in nature and not the type to be depicted hereon**
7. Unpatented mining claims; reservations or exceptions in patents or in the Acts authorizing the issuance of said patents. **The Exception is a standard Exception, blanket in nature and not the type to be depicted hereon**
8. All taxes, assessments, levies and charges which constitute liens or are due or payable including unredeemed tax sales. **The Exception is a standard Exception and not the type to be depicted hereon**
9. Rights of fee simple owners in and to the subject property. **The Exception is a standard Exception and not the type to be depicted hereon**
10. Any and all matters disclosed on the map entitled "Royal Gorge Bluffs Subdivision" dated February 23, 2004 and recorded February 23, 2004 in (instrument) 783312 in Fremont County, Colorado. **The Exception is blanket in nature, platted easements are depicted hereon**

Exhibit A

All the real property together with improvements, if any, situate, lying and being in the County of Fremont, State of Colorado, described as follows: Lot A, Royal Gorge Bluff's Subdivision according to the recorded plat in the County of Fremont, State of Colorado.

Parcel ID: 99924523 (Account: R038978) This being the same property conveyed to David S. Easton by a Deed from David R. Shippey dated 8/17/2021 and recorded 8/16/2021 in Instrument 1005282 in the County of Fremont, State of Colorado.

vertical bridge

VERTICAL BRIDGE
750 PARK OF COMMERCE DR #200
BOCA RATON, FL 33487
OFFICE: (561) 948-6367

RAMAKER
employee-owned
(808) 843-4100 www.ramaker.com

Certification & Seal:

DALEY LAND SURVEYING, INC.
17011 LINCOLN AVE #361
PARKER, CO 80134

MARK	DATE	DESCRIPTION
4	9/28/23	REVISE CERTIFICATION
3	9/11/23	REVISE ACCESS AND ADD UTILITY EASEMENT
2	9/1/23	LEASE AND EASEMENT
1	8/7/23	SURVEY

ISSUE PHASE — DATE ISSUED

PROJECT TITLE:
FA# XXXXXXXX
SITE # US-CO-5091
TEXAS CREEK

PROJECT INFORMATION:
43340 US HIGHWAY 50
CANYON CITY, CO 81212
FREMONT COUNTY

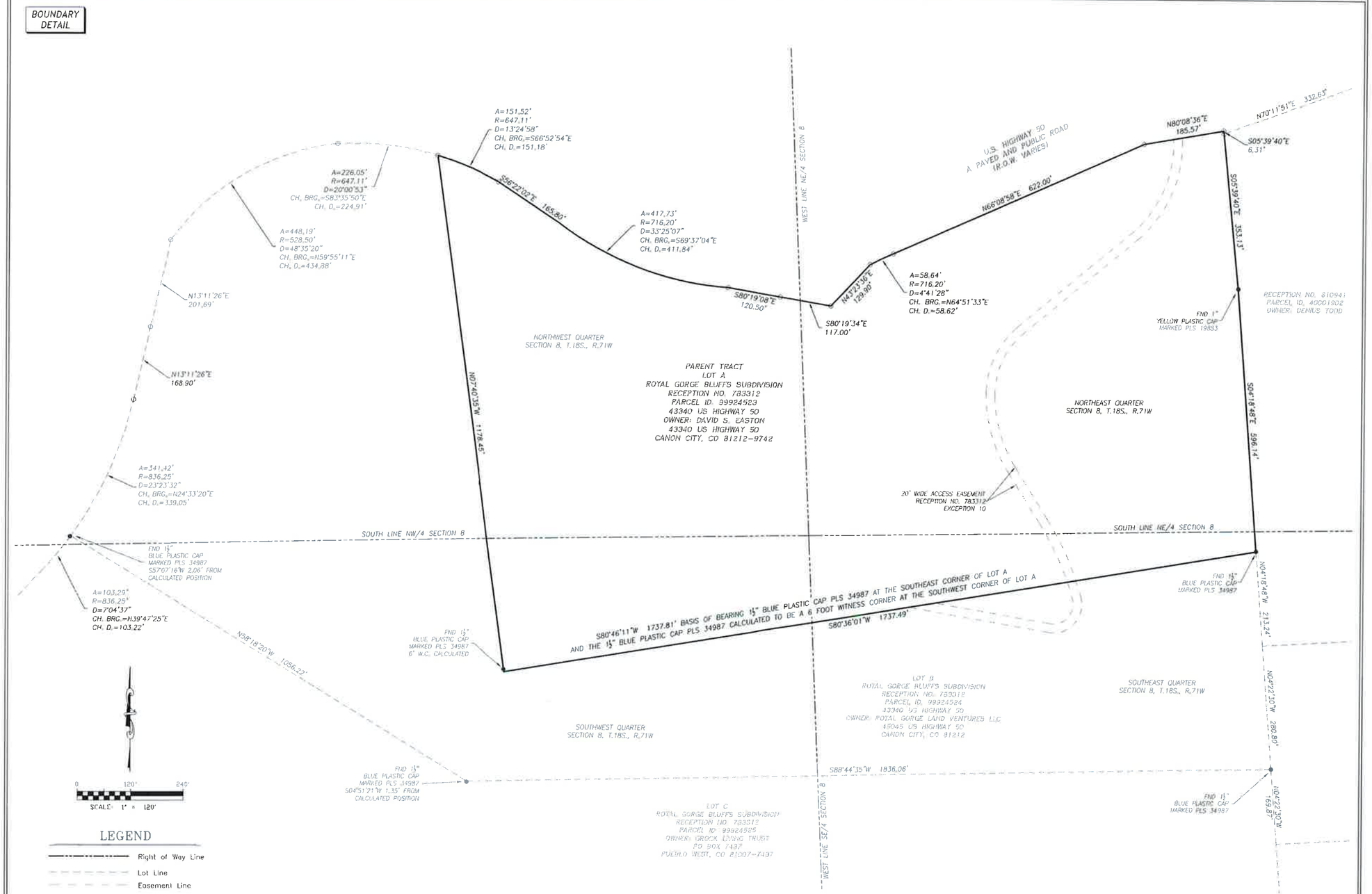
SHEET TITLE:
TOPOGRAPHIC SURVEY

PROJECT NUMBER

SHEET NUMBER LS1

TOPOGRAPHIC SURVEY
VERTICAL BRIDGE SITE US-CO-5091 TEXAS CREEK
SITUATED IN SECTION 8, TOWNSHIP 18 SOUTH, RANGE 71 WEST OF THE 6TH P.M.
COUNTY OF FREMONT, STATE OF COLORADO

BOUNDARY DETAIL



LEGEND

- Right of Way Line
- Lot Line
- Easement Line

vertical bridge

VERTICAL BRIDGE
750 PARK OF COMMERCE DR #200
BOCA RATON, FL 33487
OFFICE: (561) 948-6367

RAMAKER
employee-owned
(808) 643-4100 www.ramaker.com

Certification & Seal:

DALEY LAND SURVEYING, INC.
17011 LINCOLN AVE #361
PARKER, CO 80134

MARK	DATE	DESCRIPTION
4	9/28/23	REVISE CERTIFICATION
3	9/11/23	REVISE ACCESS AND ADD UTILITY EASEMENT
2	9/1/23	LEASE AND EASEMENT
1	8/7/23	SURVEY

ISSUE PHASE | DATE ISSUED

PROJECT TITLE:
FA# XXXXXXXX
SITE # US-CO-5091
TEXAS CREEK

PROJECT INFORMATION:
43340 US HIGHWAY 50
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
TOPOGRAPHIC SURVEY

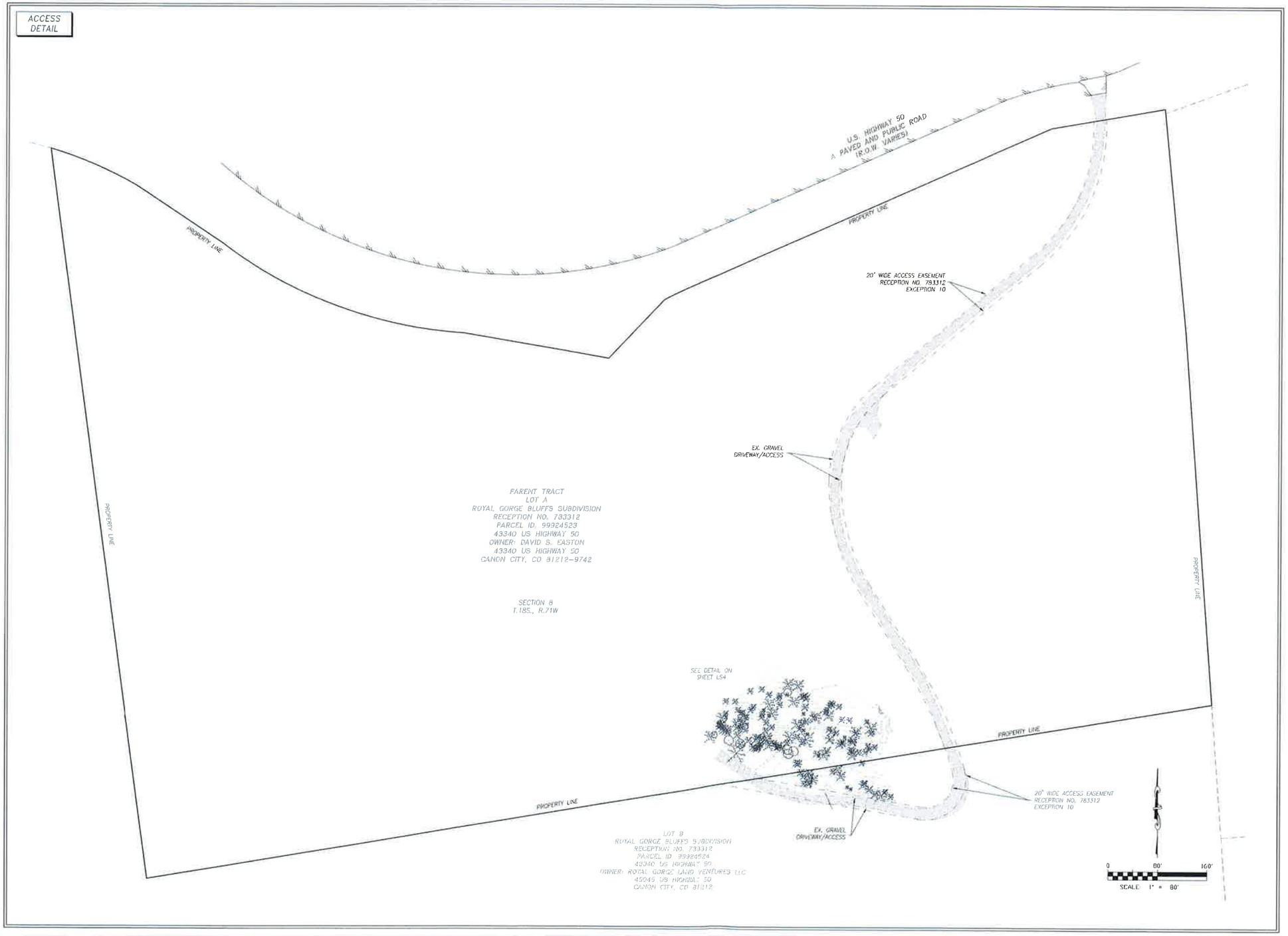
0 120' 240' 480'
11" x 17" - 1"=240'
22" x 34" - 1"=120'

PROJECT NUMBER

SHEET NUMBER LS2

DRAWN BY: AV
CHECKED BY: RD

TOPOGRAPHIC SURVEY
VERTICAL BRIDGE SITE US-CO-5091 TEXAS CREEK
SITUATED IN SECTION 8, TOWNSHIP 18 SOUTH, RANGE 71 WEST OF THE 6TH P.M.
COUNTY OF FREMONT, STATE OF COLORADO



vertical bridge

VERTICAL BRIDGE
750 PARK OF COMMERCE DR #200
BOCA RATON, FL 33487
OFFICE: (561) 948-6367

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification # Seal:

DALEY LAND SURVEYING, INC.
17011 LINCOLN AVE #361
PARKER, CO 80134

MARK	DATE	DESCRIPTION
4	9/28/23	REVISE CERTIFICATION
3	9/11/23	REVISE ACCESS AND ADD UTILITY EASEMENT
2	9/1/23	LEASE AND EASEMENT
1	8/7/23	SURVEY

ISSUE PHASE | DATE ISSUED

PROJECT TITLE:
FA# XXXXXXXX
SITE # US-CO-5091
TEXAS CREEK

PROJECT INFORMATION:
43340 US HIGHWAY 50
CANYON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
TOPOGRAPHIC SURVEY

0 80' 160' 320'
11" x 17" - 1"=160'
22" x 34" - 1"=80'

PROJECT NUMBER

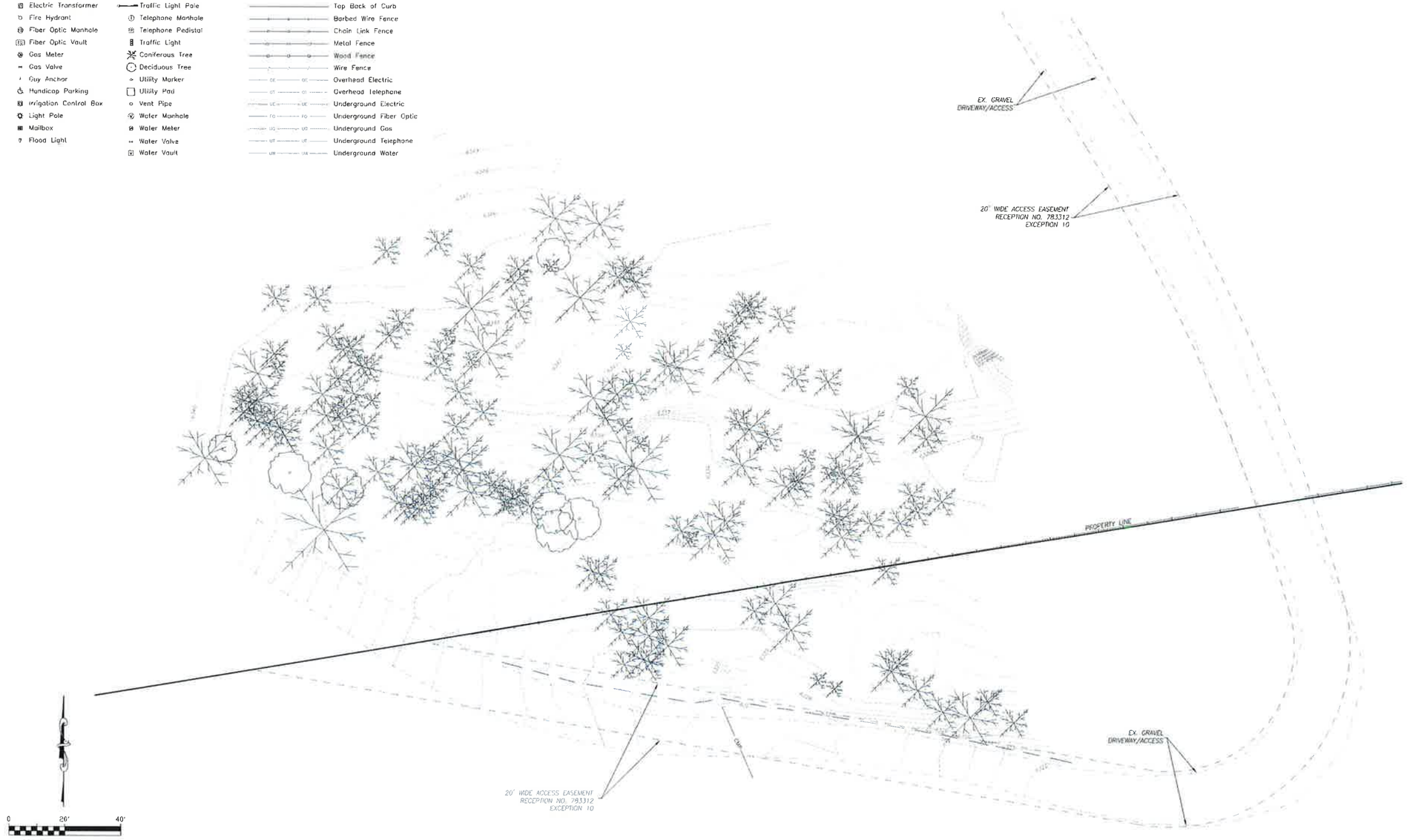
SHEET NUMBER LS3

TOPOGRAPHIC SURVEY
VERTICAL BRIDGE SITE US-CO-5091 TEXAS CREEK
SITUATED IN SECTION 8, TOWNSHIP 18 SOUTH, RANGE 71 WEST OF THE 6TH P.M.
COUNTY OF FREMONT, STATE OF COLORADO

SITE DETAIL

LEGEND

- Bollard
- Bike Rack
- Bush
- Cable TV Box
- Electric Box
- Electric Connection
- Electric Meter
- Electric Manhole
- Electric Transformer
- Fire Hydrant
- Fiber Optic Manhole
- Fiber Optic Vault
- Gas Meter
- Gas Valve
- Guy Anchor
- Handicap Parking
- Irrigation Control Box
- Light Pole
- Mailbox
- Flood Light
- Power Pole
- Roof Drain
- Street Light
- Sign
- Sanitary Manhole
- Storm Manhole
- Traffic Control Cabinet
- Telephone Junction Box
- Traffic Light Pole
- Telephone Manhole
- Telephone Pedistal
- Traffic Light
- Coniferous Tree
- Deciduous Tree
- Utility Marker
- Utility Pad
- Vent Pipe
- Water Manhole
- Water Meter
- Water Valve
- Water Vault
- Building
- Sidewalk
- Centerline
- CMP — CMP — Corrugated Metal Pipe
- Edge of Asphalt
- Edge of Concrete
- Edge of Gravel Road
- Flowline
- Top Back of Curb
- Barbed Wire Fence
- Chain Link Fence
- Metal Fence
- Wood Fence
- Wire Fence
- OE — OE — Overhead Electric
- OT — OT — Overhead Telephone
- UE — UE — Underground Electric
- FO — FO — Underground Fiber Optic
- UG — UG — Underground Gas
- UT — UT — Underground Telephone
- UW — UW — Underground Water



vertical bridge

VERTICAL BRIDGE
750 PARK OF COMMERCE DR #200
BOCA RATON, FL 33487
OFFICE: (561) 948-6367

RAMAKER
employee-owned
(808) 843-4100 www.ramaker.com

Certification & Seal:

DALEY LAND SURVEYING, INC.
17011 LINCOLN AVE #361
PARKER, CO 80134

MARK	DATE	DESCRIPTION
4	9/28/23	REVISE CERTIFICATION
3	9/11/23	REVISE ACCESS AND ADD UTILITY EASEMENT
2	9/1/23	LEASE AND EASEMENT
1	8/7/23	SURVEY

ISSUE PHASE | DATE ISSUED

PROJECT TITLE:
FA# XXXXXXXX
SITE # US-CO-5091
TEXAS CREEK

PROJECT INFORMATION:
43340 US HIGHWAY 50
CANYON CITY, CO 81212
FREMONT COUNTY

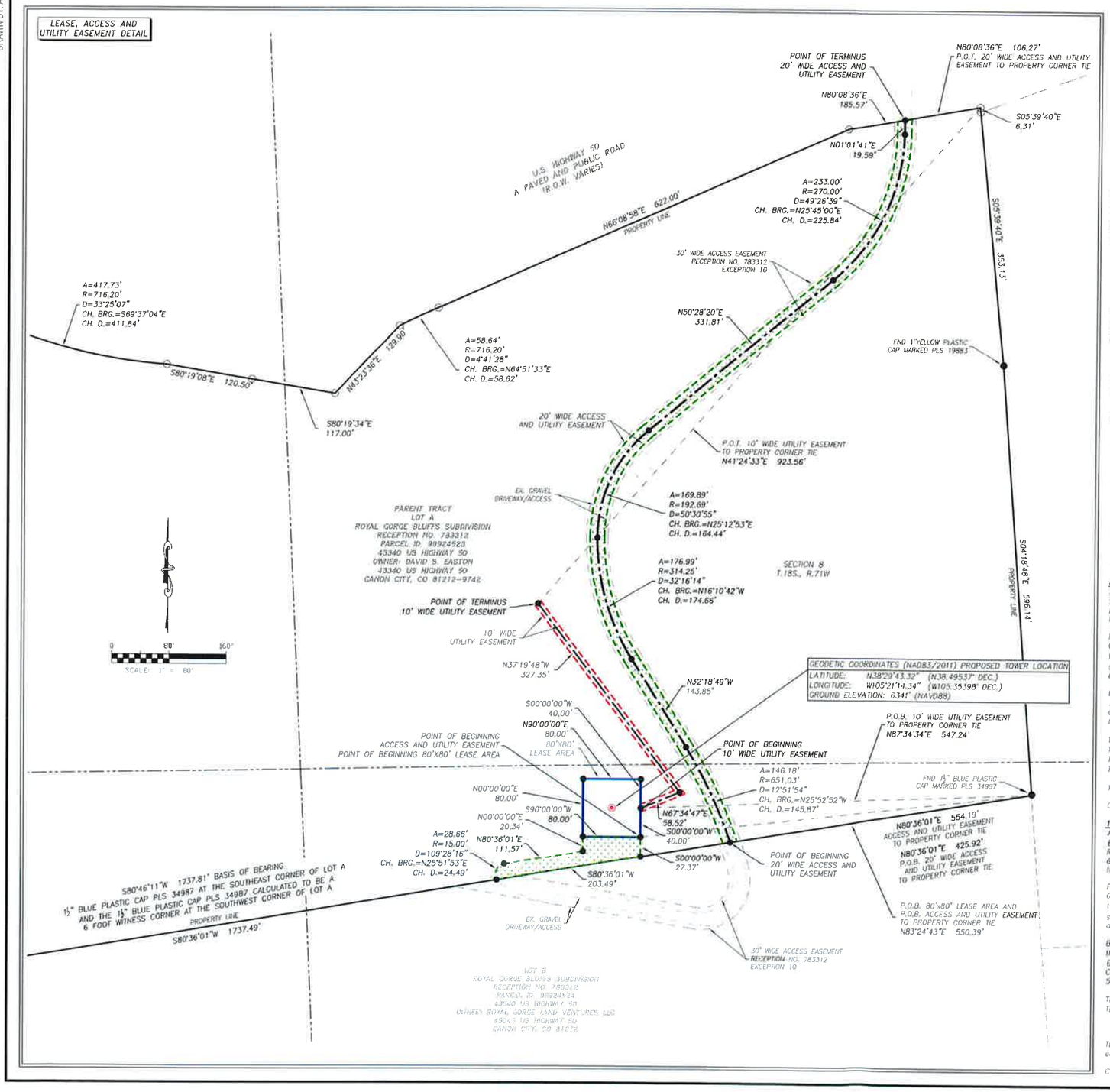
SHEET TITLE:
TOPOGRAPHIC SURVEY

0 20' 40' 80'
11" x 17" - 1"=40'
22" x 34" - 1"=20'

PROJECT NUMBER

SHEET NUMBER LS4

TOPOGRAPHIC SURVEY
VERTICAL BRIDGE SITE US-CO-5091 TEXAS CREEK
SITUATED IN SECTION 8, TOWNSHIP 18 SOUTH, RANGE 71 WEST OF THE 6TH P.M.
COUNTY OF FREMONT, STATE OF COLORADO



ACCESS AND UTILITY EASEMENT:
A strip of land over and across that parcel of land described as Lot A, Royal Gorge Bluffs Subdivision recorded at Reception No. 783312 (Parent Tract) in the records in the Clerk and Recorder's Office of Fremont County, located in Section 8, Township 18 South, Range 71 West of the 6th Principal Meridian, County of Fremont, State of Colorado, said strip being more particularly described as follows:

For the purpose of this description the bearings are referenced to the southerly line of Lot A, Royal Gorge Bluffs Subdivision (Parent Tract), assumed to bear South 80°46'11" West, a distance of 1737.81' feet, monumented by a ½" blue plastic cap marked PLS 34987 at the southeast corner of said Lot A and by a ½" blue plastic cap marked PLS 34987 calculated to be a 6 foot witness corner at the southwest corner of said Lot A.

Beginning at the southeast corner of the hereinafter described 80'X80' Lease Area, being the Point of Beginning of said hereinafter described 80'X80' Lease Area, whence the southeast corner of Lot A, Royal Gorge Bluffs Subdivision recorded at Reception No. 783312 (Parent Tract) in the records in the Clerk and Recorder's Office of Fremont County bears North 83°24'43" East, a distance of 550.39 feet;

THENCE South 00°00'00" East, a distance of 27.37 feet to the southerly line of said Lot A, whence the southeast corner of said Lot A, bears North 80°36'01" East, a distance of 554.19 feet;
THENCE South 80°36'01" West, along said southerly line, a distance of 203.49 feet;
THENCE along a curve to the right, an arc length of 28.66 feet, said curve having a radius of 15.00 feet, a delta angle of 109°28'16", a chord bearing of North 25°51'53" East, and a chord length of 24.49 feet;
THENCE North 80°36'01" East, a distance of 111.57 feet;
THENCE North 00°00'00" West, a distance of 20.34 feet to the southwest corner of said hereinafter described 80'X80' Lease Area;
THENCE North 90°00'00" East, a distance of 80.00 feet to the Point of Beginning.

Containing 5168 Square Feet, or 0.119 Acres, more or less.

20' WIDE ACCESS AND UTILITY EASEMENT:
A 20 foot wide strip of land over and across that parcel of land described as Lot A, Royal Gorge Bluffs Subdivision recorded at Reception No. 783312 (Parent Tract) in the records in the Clerk and Recorder's Office of Fremont County, located in Section 8, Township 18 South, Range 71 West of the 6th Principal Meridian, County of Fremont, said 20 foot wide strip being 10.00 feet on both sides of the following described centerline:

For the purpose of this description the bearings are referenced to the southerly line of Lot A, Royal Gorge Bluffs Subdivision (Parent Tract), assumed to bear South 80°46'11" West, a distance of 1737.81' feet, monumented by a ½" blue plastic cap marked PLS 34987 at the southeast corner of said Lot A and by a ½" blue plastic cap marked PLS 34987 calculated to be a 6 foot witness corner at the southwest corner of said Lot A.

Beginning at a point on the southerly line of Lot A, Royal Gorge Bluffs Subdivision recorded at Reception No. 783312 (Parent Tract) in the records in the Clerk and Recorder's Office of Fremont County, whence the southeast corner of said Lot A, bears North 80°36'01" East, a distance of 425.92 feet;

THENCE along a curve to the left, an arc length of 146.18 feet, said curve having a radius of 651.03 feet, a delta angle of 12°51'54", a chord bearing of North 25°52'52" West, and a chord length of 145.87 feet;
THENCE North 32°18'49" West, a distance of 143.85 feet;
THENCE along a curve to the right, an arc length of 176.99 feet, said curve having a radius of 314.25 feet, a delta angle of 32°16'14", a chord bearing of North 16°10'42" West, and a chord length of 174.66 feet;
THENCE along a curve to the right, an arc length of 169.89 feet, said curve having a radius of 192.69 feet, a delta angle of 50°30'55", a chord bearing of North 25°12'53" East, and a chord length of 164.44 feet;
THENCE North 50°28'20" East, a distance of 331.81 feet;
THENCE along a curve to the left, an arc length of 233.00 feet, said curve having a radius of 270.00 feet, a delta angle of 49°26'39", a chord bearing of North 25°45'00" East, and a chord length of 225.84 feet;
THENCE North 01°01'41" East, a distance of 19.59 feet to the northerly line of said Lot A, the southerly right of way line of Colorado U.S. Highway 50 and the Point of Terminus, whence the northeast corner of said Lot A (Parent Tract) bears North 80°08'36" East, a distance of 106.27 feet.

The sidelines of said 20 foot wide strip are to be lengthened or shortened to intersect said southerly line of Lot A (Parent Tract), and said northerly line of Lot A (Parent Tract) and said southerly right of way line of Colorado U.S. Highway 50.

Containing 24426 Square Feet, or 0.561 Acres, more or less.

80'X80' LEASE AREA LEGAL DESCRIPTION:
A parcel of land over and across that parcel of land described as Lot A, Royal Gorge Bluffs Subdivision recorded at Reception No. 783312 in the records in the Clerk and Recorder's Office of Fremont County, located in Section 8, Township 18 South, Range 71 West of the 6th Principal Meridian, County of Fremont, said parcel described as follows:

For the purpose of this description the bearings are referenced to the southerly line of Lot A, Royal Gorge Bluffs Subdivision (Parent Tract), assumed to bear South 80°46'11" West, a distance of 1737.81' feet, monumented by a ½" blue plastic cap marked PLS 34987 at the southeast corner of said Lot A and by a ½" blue plastic cap marked PLS 34987 calculated to be a 6 foot witness corner at the southwest corner of said Lot A.

Beginning at the southeast corner of the 80'X80' Lease Area, whence the southeast corner of Lot A, Royal Gorge Bluffs Subdivision recorded at Reception No. 783312 (Parent Tract) in the records in the Clerk and Recorder's Office of Fremont County, bears North 83°24'43" East, a distance of 550.39 feet;

THENCE South 90°00'00" West, a distance of 80.00 feet;
THENCE North 00°00'00" East, a distance of 80.00 feet;
THENCE North 90°00'00" East, a distance of 80.00 feet;
THENCE South 00°00'00" West, a distance of 40.00 feet to the Point of Beginning of the hereinafter described 10' wide Utility Easement;
THENCE continuing South 00°00'00" West, a distance of 40.00 feet to the Point of Beginning.

Containing 6400 Square Feet, or 0.147 Acres, more or less.

10' WIDE UTILITY EASEMENT:
A 10 foot wide strip of land over and across that parcel of land described as Lot A, Royal Gorge Bluffs Subdivision recorded at Reception No. 783312 (Parent Tract) in the records in the Clerk and Recorder's Office of Fremont County, located in Section 8, Township 18 South, Range 71 West of the 6th Principal Meridian, County of Fremont, said 10 foot wide strip being 5.00 feet on both sides of the following described centerline:

For the purpose of this description the bearings are referenced to the southerly line of Lot A, Royal Gorge Bluffs Subdivision (Parent Tract), assumed to bear South 80°46'11" West, a distance of 1737.81' feet, monumented by a ½" blue plastic cap marked PLS 34987 at the southeast corner of said Lot A and by a ½" blue plastic cap marked PLS 34987 calculated to be a 6 foot witness corner at the southwest corner of said Lot A.

Beginning at the hereinbefore described Point of Beginning of the 10' wide Utility Easement on the east line of the 80'X80' Lease Area, whence the southeast corner of Lot A, Royal Gorge Bluffs Subdivision recorded at Reception No. 783312 (Parent Tract) in the records in the Clerk and Recorder's Office of Fremont County, bears North 87°34'34" East, a distance of 547.24 feet;

THENCE North 67°34'47" East, a distance of 58.52 feet;
THENCE North 37°19'48" West, a distance of 327.35 feet to the Point of Terminus, whence the northeast corner of said Lot A (Parent Tract) bears North 41°24'33" East, a distance of 923.56 feet.

The sidelines of said 20 foot wide strip are to be lengthened or shortened to intersect said east line of the 80'X80' Lease Area and to be perpendicular at the end.

Containing 3859 Square Feet, or 0.089 Acres, more or less.

verticalbridge
VERTICAL BRIDGE
750 PARK OF COMMERCE DR #200
BOCA RATON, FL 33487
OFFICE: (561) 948-6367

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com
Certification # Seal:

DALEY LAND SURVEYING, INC.
17011 LINCOLN AVE #302
PARKER, CO 80134

MARK	DATE	DESCRIPTION
5	4/4/24	UPDATE EX. ACCESS ESMT LOT A
4	9/28/23	REVISE CERTIFICATION
3	9/11/23	REVISE ACCESS AND ADD UTILITY EASEMENT
2	9/1/23	LEASE AND EASEMENT
1	8/7/23	SURVEY

ISSUE PHASE | DATE ISSUED

PROJECT TITLE:
FA# XXXXXXXX
SITE # US-CO-5091
TEXAS CREEK

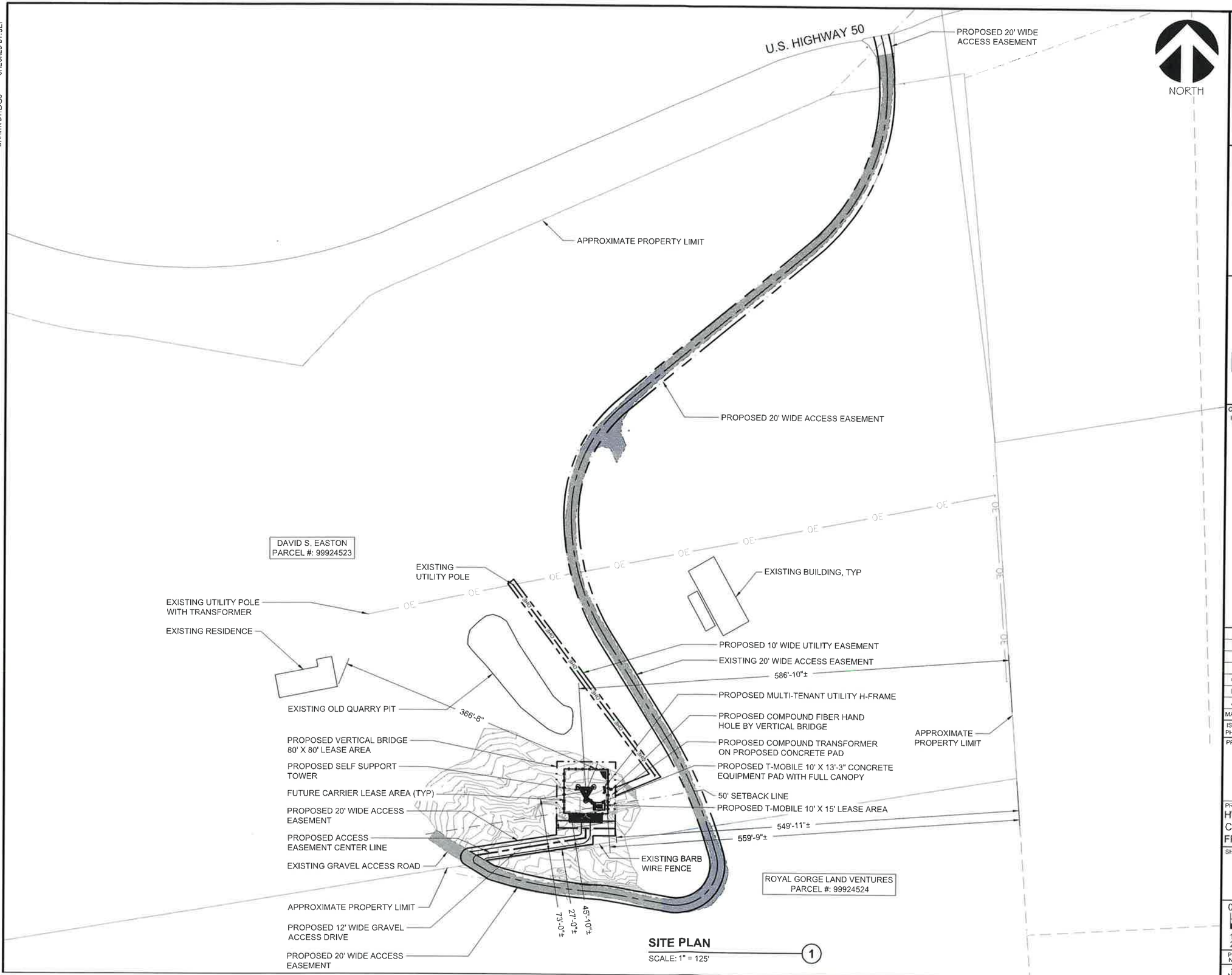
PROJECT INFORMATION:
43340 US HIGHWAY 50
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
TOPOGRAPHIC SURVEY

0 80' 160' 320'
11" x 17" - 1"=160'
22" x 34" - 1"=80'

PROJECT NUMBER

SHEET NUMBER LS5



SITE PLAN (1)
SCALE: 1" = 125'

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0050000
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

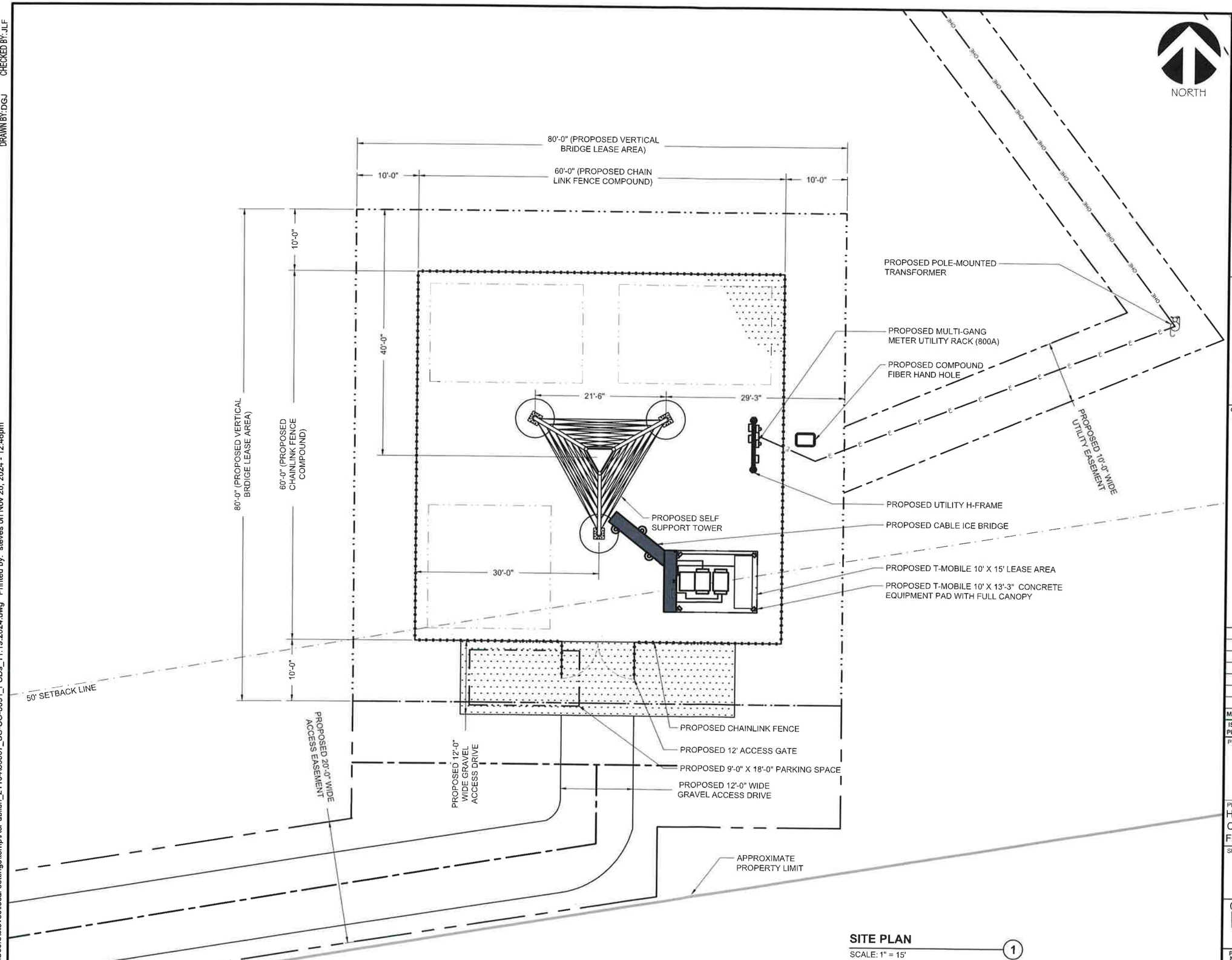
PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
OVERALL SITE PLAN

0 62'-6" 125' 250'
11" x 17" - 1" = 125'
22" x 34" - 1" = 250'

PROJECT NUMBER: 58067
SHEET NUMBER: C-1



SITE PLAN
SCALE: 1" = 15' (1)

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
COMPOUND SITE PLAN

0 7.5' 15' 30'
11" x 17" - 1" = 15'
22" x 34" - 1" = 7.5'

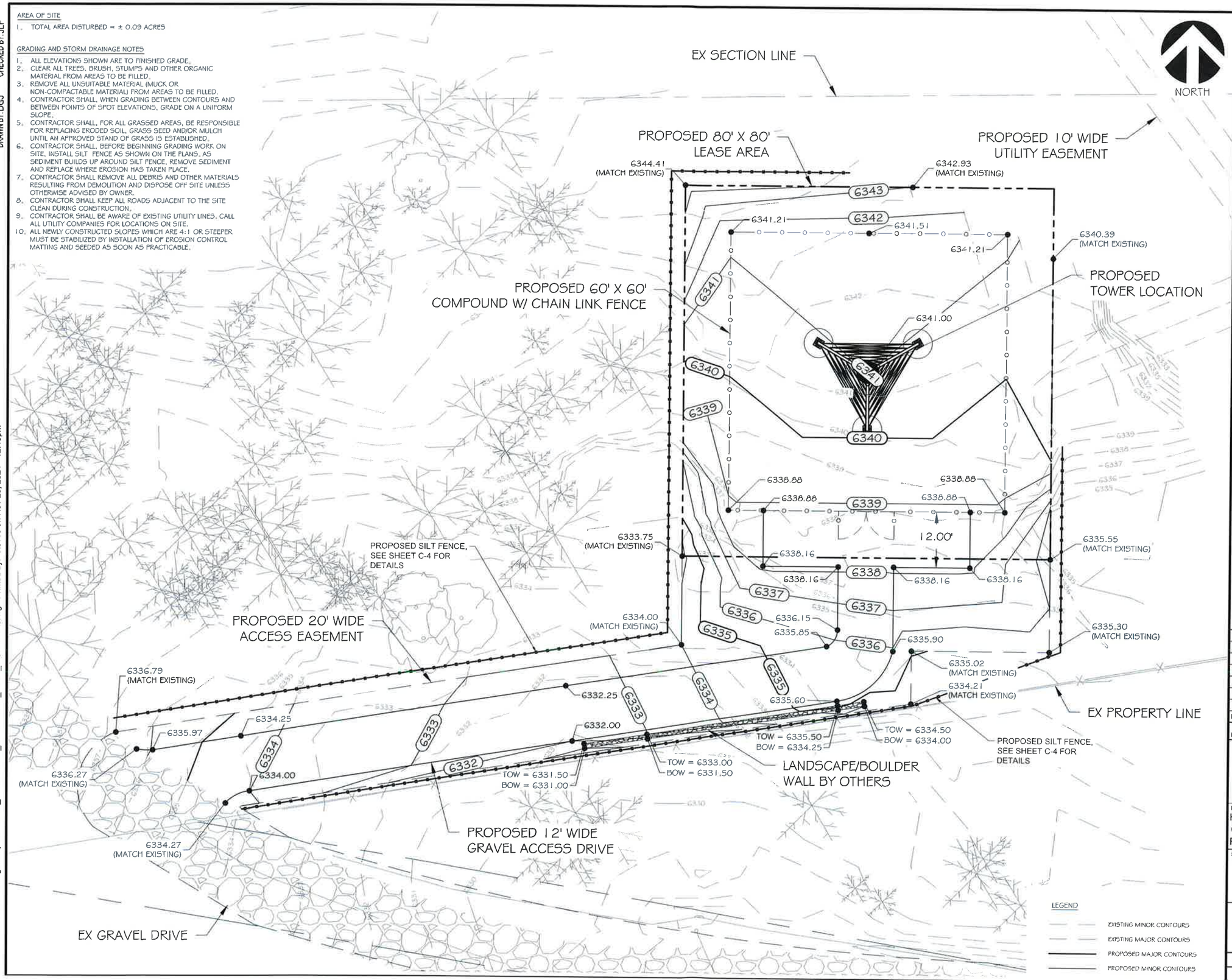
PROJECT NUMBER: 58067
SHEET NUMBER: C-2

AREA OF SITE

1. TOTAL AREA DISTURBED = ± 0.09 ACRES

GRADING AND STORM DRAINAGE NOTES

1. ALL ELEVATIONS SHOWN ARE TO FINISHED GRADE.
2. CLEAR ALL TREES, BRUSH, STUMPS AND OTHER ORGANIC MATERIAL FROM AREAS TO BE FILLED.
3. REMOVE ALL UNSUITABLE MATERIAL (MUCK OR NON-COMPACTABLE MATERIAL) FROM AREAS TO BE FILLED.
4. CONTRACTOR SHALL, WHEN GRADING BETWEEN CONTOURS AND BETWEEN POINTS OF SPOT ELEVATIONS, GRADE ON A UNIFORM SLOPE.
5. CONTRACTOR SHALL, FOR ALL GRASSED AREAS, BE RESPONSIBLE FOR REPLACING ERODED SOIL, GRASS SEED AND/OR MULCH UNTIL AN APPROVED STAND OF GRASS IS ESTABLISHED.
6. CONTRACTOR SHALL, BEFORE BEGINNING GRADING WORK ON SITE, INSTALL SILT FENCE AS SHOWN ON THE PLANS. AS SEDIMENT BUILDS UP AROUND SILT FENCE, REMOVE SEDIMENT AND REPLACE WHERE EROSION HAS TAKEN PLACE.
7. CONTRACTOR SHALL REMOVE ALL DEBRIS AND OTHER MATERIALS RESULTING FROM DEMOLITION AND DISPOSE OFF SITE UNLESS OTHERWISE ADVISED BY OWNER.
8. CONTRACTOR SHALL KEEP ALL ROADS ADJACENT TO THE SITE CLEAN DURING CONSTRUCTION.
9. CONTRACTOR SHALL BE AWARE OF EXISTING UTILITY LINES, CALL ALL UTILITY COMPANIES FOR LOCATIONS ON SITE.
10. ALL NEWLY CONSTRUCTED SLOPES WHICH ARE 4:1 OR STEEPER MUST BE STABILIZED BY INSTALLATION OF EROSION CONTROL MATTING AND SEEDED AS SOON AS PRACTICABLE.



vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL — DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

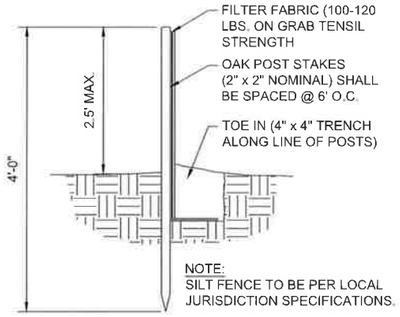
PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
COMPOUND GRADING PLAN

0 10' 20' 40'
11" x 17" - 1" = 20'
22" x 34" - 1" = 10'

PROJECT NUMBER: 58067
SHEET NUMBER: C-3

NOTE:
REMOVE EROSION FROM SILT FENCE WHEN IT RISES TO ONE-HALF HEIGHT OF FENCE AND REPLACE WHERE EROSION HAS OCCURRED.



SILT FENCE DETAIL (2)
SCALE: NTS

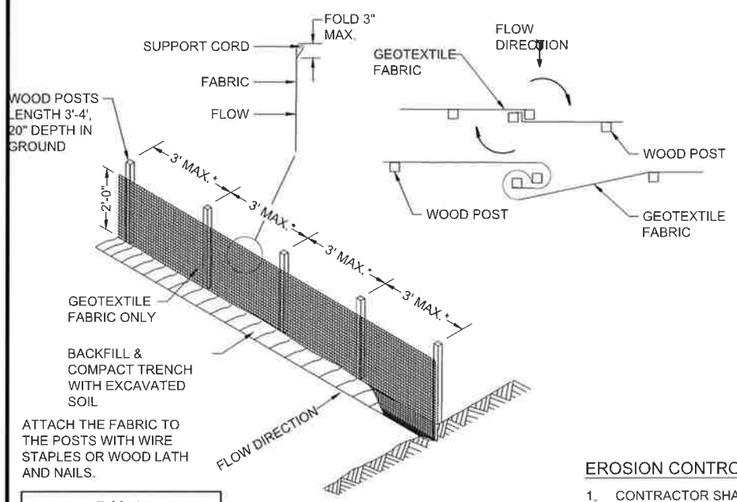
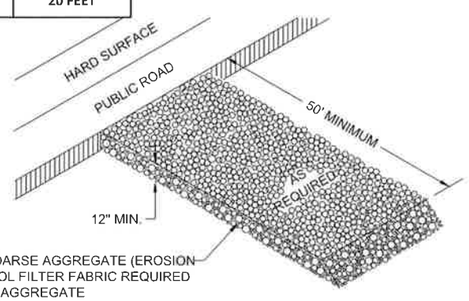


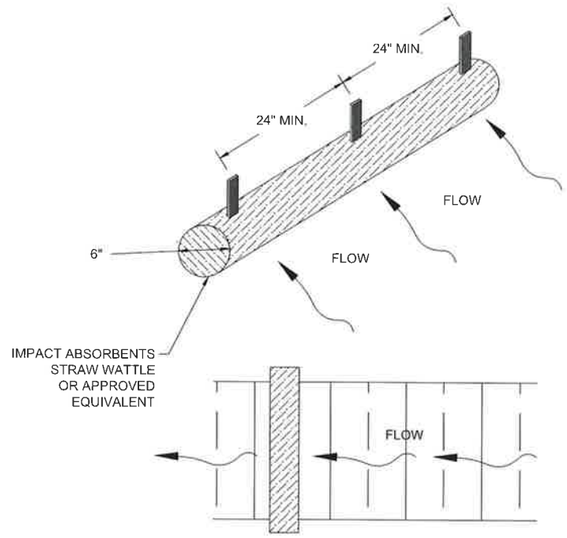
Table 1.	
Slope	Fence Spacing
<2%	100 FEET
2 TO 5%	75 FEET
5 TO 10%	50 FEET
10 TO 33%	25 FEET
>33%	20 FEET

*NOTE:
8' POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE (3)
SCALE: NTS



GRAVEL CONSTRUCTION ENTRANCE/EXIT (4)
SCALE: NTS



STRAW WATTLES
NOT TO SCALE

STRAW WATTLES (5)
SCALE: NTS

EROSION CONTROL NOTES:

1. CONTRACTOR SHALL HAVE ALL EROSION CONTROL MEASURES IN PLACE PER THESE CONSTRUCTION PLANS PRIOR TO COMMENCEMENT OF EXCAVATION ACTIVITIES.
2. INLET PROTECTION REQUIRED ON ALL/ANY STORM INLETS WITHIN THE CONSTRUCTION AREA.
3. ALL SILT FENCES SHALL BE INSPECTED DAILY, CLEANING, ADJUSTING AND REPLACING EROSION MEASURES SHALL BE DONE AS REQUIRED THROUGHOUT CONSTRUCTION. ALL EROSION MEASURES SHALL BE IN WORKING CONDITION AT THE END OF EACH WORK DAY.
4. SEDIMENT FROM OVERLAND FLOW SHALL BE PREVENTED FROM LEAVING THE WORK SITE BY INSTALLING SILT FENCING PARALLEL TO THE CONTOURS LOCATED DOWNHILL FROM THE WORK AREA.
5. STONE TRACKING PADS SHALL BE INSTALLED AT ALL CONSTRUCTION SITE EXITS TO PREVENT TRACKING OF SOIL. TRACKED SOIL SHALL BE COLLECTED FROM PAVED ROADS LOCATED NEAR THE CONSTRUCTION SITE AT THE END OF EACH WORKING DAY OR AS DIRECTED BY THE ENGINEER.
7. EXISTING VEGETATION SHALL BE REMOVED ONLY AS NECESSARY TO PERFORM CONSTRUCTION ACTIVITIES. CLEARING OF LARGE AREAS THAT ARE CLEARLY OUTSIDE THE LIMITS OF CONSTRUCTION SHALL NOT BE PERMITTED.
8. ALL DISTURBED AREAS SHALL BE RESTORED AND VEGETATED AS SOON AS POSSIBLE AFTER DISTURBANCE.
9. EROSION MEASURES SHALL NOT BE REMOVED UNTIL THE AREAS SERVED HAVE ESTABLISHED VEGETATIVE COVER.
10. TEMPORARY MULCH SHALL BE PLACED WITHIN 14 DAYS OF GRADING OPERATIONS. ALL AREAS OF EXPOSED SOIL SHALL BE COVERED WITH A STRAW MULCH. MULCH SHALL BE APPLIED AT THE RATE OF 1.5 TONS PER ACRE, MINIMUM IMMEDIATELY AFTER SPREADING, THE STRAW MULCH SHALL BE PROTECTED BY COVERING WITH A MAT OR CRIMPING. MULCHING SHALL BE REPLACED AND CRIMPED AS NECESSARY TO MAINTAIN ADEQUATE COVER UNTIL PERMANENT
11. AREAS OF THE SITE THAT ARE NOT UNDER THE BUILDING FOOTPRINT, PAVED AREAS OR EMBANKMENTS THAT ARE 3:1 SLOPES OR STEEPER, SHALL BE DEEP TILLED TO A DEPTH OF 2 FEET PRIOR TO FINAL GRADING FOR RESTORATION.

SEEDING & MULCHING NOTES:

1. TEMPORARY SEEDING & MULCHING SHALL BE APPLIED TO ANY AREA OF THE SITE THAT WILL REMAIN INACTIVE FOR AT LEAST 7 DAYS BUT LESS THAN 1 YEAR.
2. TEMPORARY SEEDING SHALL CONSIST OF WINTER WHEAT, CEREAL RYE, OR SPRING OATS AND BE APPLIED AT A MINIMUM RATE OF 3 BUSHELS PER ACRE.
3. TEMPORARY MULCH SHALL BE APPLIED AT A MINIMUM RATE OF 1.5 TONS PER ACRE AND SHALL BE PROTECTED BY COVERING WITH A MAT OR CRIMPING. MULCHING SHALL BE REPLACED AND/OR CRIMPED AS NECESSARY TO MAINTAIN ADEQUATE COVER UNTIL PERMANENT SEEDING IS IN PLACE.
4. ALL DISTURBED AREAS OR AREAS THAT WILL REMAIN INACTIVE FOR GREATER THAN 1 YEAR SHALL BE RESTORED AND VEGETATED WITH PERMANENT SEEDING IMMEDIATELY AFTER LAND DISTURBING ACTIVITIES ARE COMPLETED.
5. PERMANENT SEEDING SHALL CONFORM TO LOCAL JURISDICTION STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.

SILT FENCE NOTES:

1. CROSS BRACE WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS AS DIRECTED BY THESE PLANS AND ASSOCIATED SPECIFICATIONS.
2. MINIMUM 14 GAGE WIRE REQUIRED FOLD FABRIC 3" OVER THE WIRE AND STAPLE OR PLACE WIRE RINGS ON 12" C-C.
3. EXCAVATE A TRENCH A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
4. WIRE SUPPORT FENCE SHALL BE 14 GAGE MINIMUM WOVEN WIRE WITH A MAXIMUM MESH SPACING OF 6". SECURE TOP OF GEOTEXTILE FABRIC TO TOP OF FENCE WITH STAPLES OR WIRE RINGS AT 12" C-C.
5. GEOTEXTILE FABRIC SHALL BE REINFORCED WITH AN INDUSTRIAL POLYPROPYLENE NETTING WITH A MAXIMUM MESH SPACING OF 3'-0" OR EQUAL. A HEAVY DUTY NYLON TOP SUPPORT CORD OR EQUIVALENT IS REQUIRED.
6. STEEL POSTS SHALL BE STUDDED "TEE" OR "U" TYPE WITH A MINIMUM WEIGHT OF 1.28 LBS/LINEAL FOOT (WITHOUT ANCHOR). PIN ANCHORS SUFFICIENT TO RESIST POST MOVEMENT ARE REQUIRED. WOOD POSTS SHALL BE A MINIMUM SIZE OF 4" DIA. OR 4" X 4" EXCEPT WOOD POSTS FOR GEOTEXTILE FABRIC REINFORCED WITH NETTING SHALL BE A MINIMUM SIZE OF 1-1/2" X 1-1/2" OAK OR HICKORY.
7. SILT FENCE SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL. REPAIR OF REPLACEMENT SHALL BE MADE IMMEDIATELY.
8. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN DEPOSITS REACH ONE THIRD OF THE HEIGHT OF THE SILT FENCE.
9. AFTER DITCH GRADING, SILT FENCE SHALL BE INSTALLED EVERY 75 FEET, FOR THE LENGHT OF THE SWALE. SILT FENCE SHALL BE PLACED IN AN ARC OR V FROM TOP OF SWALE.
10. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY, USE THE FOLLOWING METHOD; TWIST METHOD--OVERLAP THE END POSTS AND TWIST. OR ROTATE, AT LEAST 180 DEGREES.
11. PROVIDE A TEMPORARY STONE SPLASH PAD AT ALL FIRE HYDRANTS OR OTHER POINTS OF DISCHARGE DURING TESTING OF THE WATER DISTRIBUTION SYSTEM.
12. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES AS MAY BE TO CONTROL SOIL EROSION DURING OFF SITE UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION.

verticalbridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

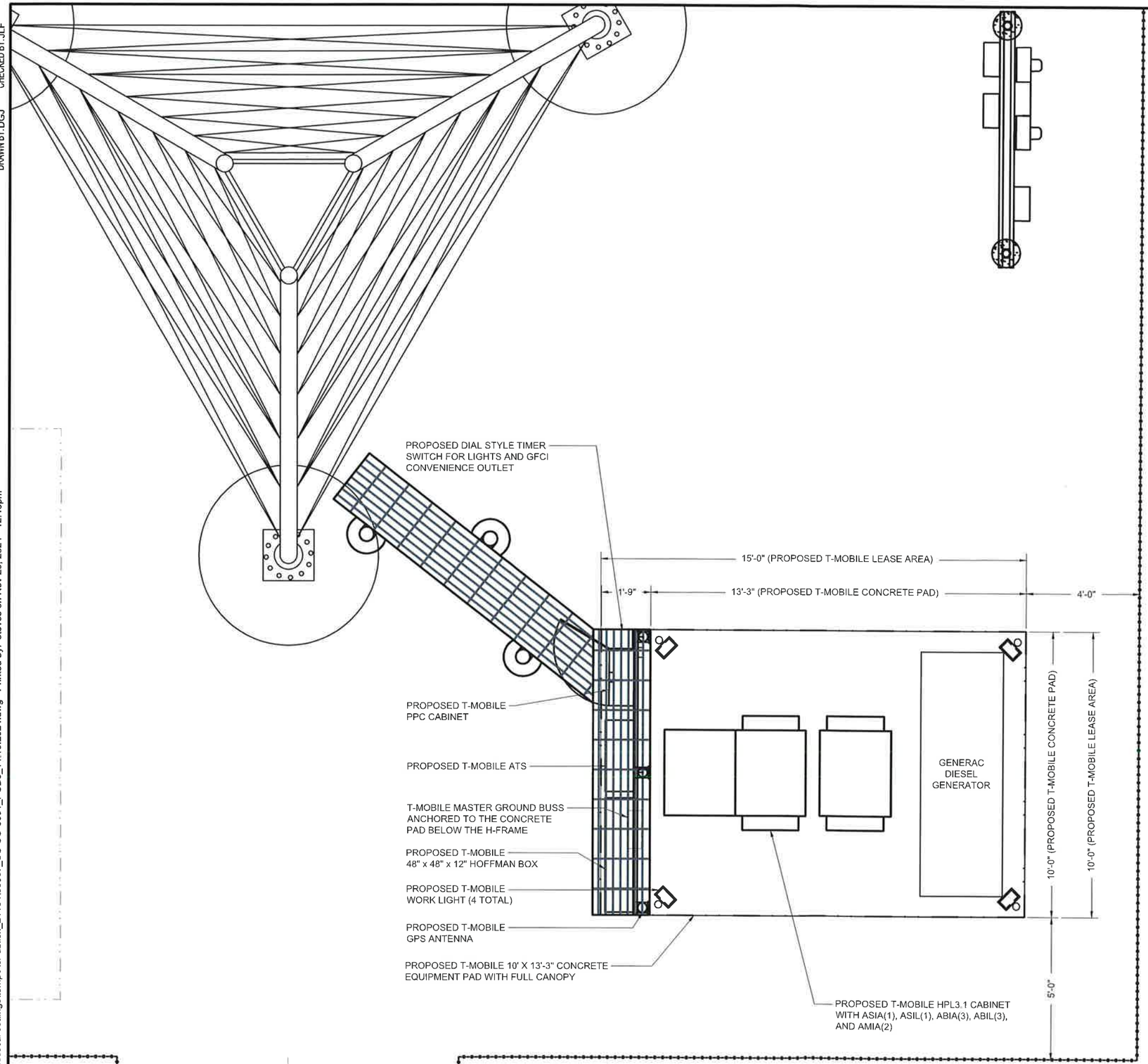
PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
EROSION CONTROL DETAILS

0 10' 20' 40'
11" x 17" - 1" = 20'
22" x 34" - 1" = 10'

PROJECT NUMBER: 58067
SHEET NUMBER: C-4



EQUIPMENT PLAN (1)
SCALE: 1" = 3.75'

NORTH

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0050800
PROFESSIONAL ENGINEER

11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

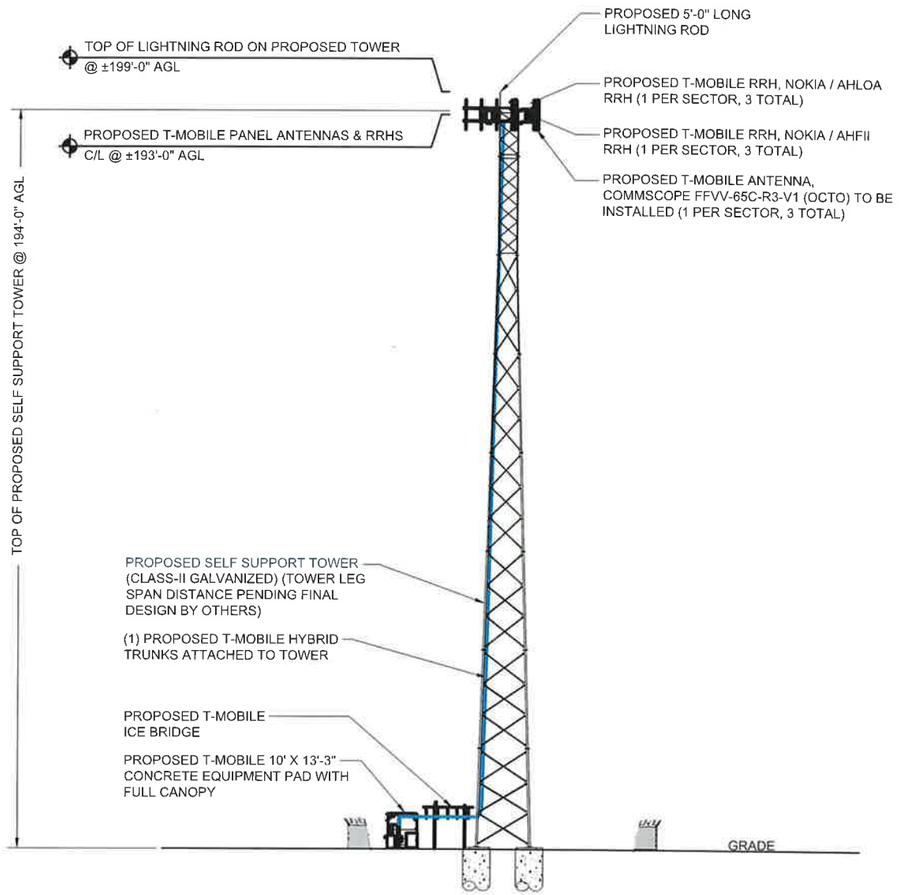
PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

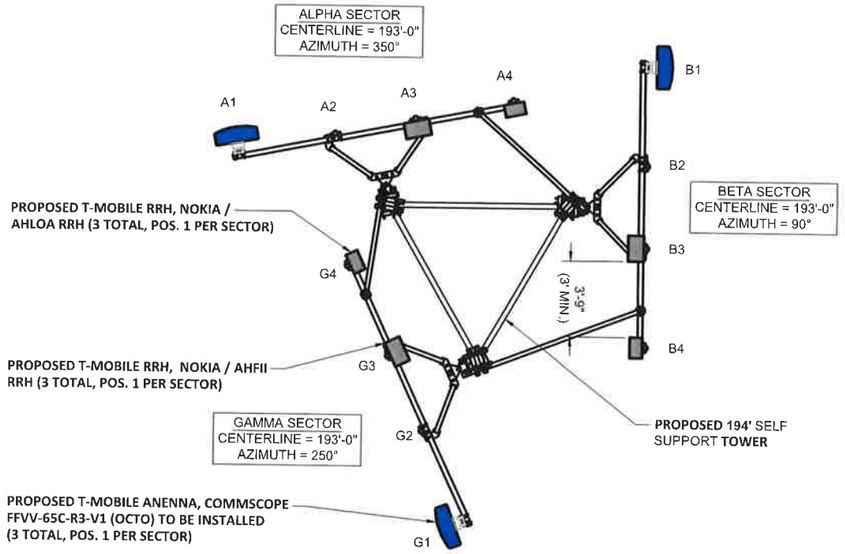
SHEET TITLE:
T-MOBILE EQUIPMENT PLAN

0 1.875' 3.75' 7.5'
11" x 17" - 1" = 3.75'
22" x 34" - 1" = 1.875'

PROJECT NUMBER: 58067
SHEET NUMBER: C-5T

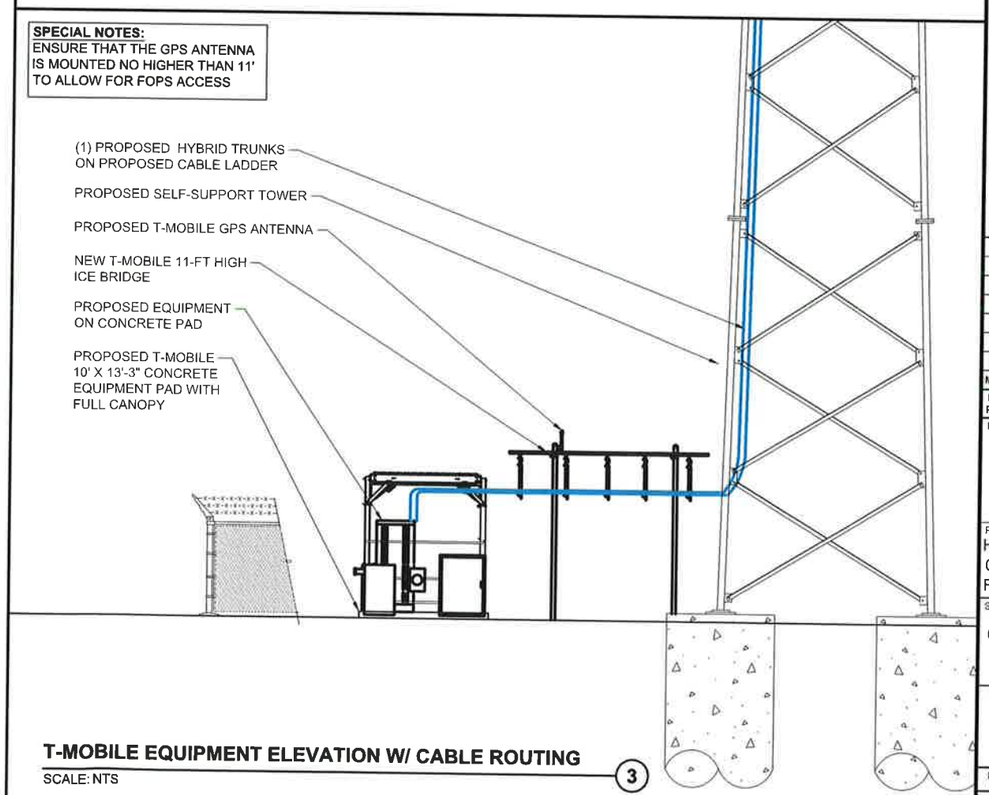


TOWER ELEVATION (1)
SCALE: 1"= 40'



PROPOSED T-MOBILE ANTENNA ARRAY (2)
SCALE: NTS

SPECIAL NOTES:
ENSURE THAT THE GPS ANTENNA IS MOUNTED NO HIGHER THAN 11' TO ALLOW FOR FOPS ACCESS



T-MOBILE EQUIPMENT ELEVATION W/ CABLE ROUTING (3)
SCALE: NTS

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
COMPOUND TOWER ELEVATION & T-MOBILE ANTENNA LAYOUT

0 20' 40' 80'
11" x 17" - 1" = 40'
22" x 34" - 1" = 20'

PROJECT NUMBER: 58067
SHEET NUMBER: A-1T

ANTENNA & LINE SCHEDULE

SECTOR	POS.	TECHNOLOGY	ANTENNA MODEL NUMBER	ANTENNA MANUFACTURER	ANTENNA CABLES	AZIMUTH	RAD CENTER	ELECT D-TILT	MECH D-TILT	RRH MODEL NUMBER	RRH MANUFACTURER	JUMPER SIZE	JUMPER QTY	JUMPER LENGTH	HYBRID CABLE LENGTH	TOP OF TOWER EQUIPMENT
ALPHA	A1	L600/N600/LAWS3 L700/L1900/L2100/ N1900/N2100	FFVV-65C-R3-V1 (OCTO)	COMMSCOPE	HYBRID TRUNK	350°	-	6	-	-	-	-	-	-	-	(1) 6x24 HCS (24) COAX JUMPERS
	A2	-	-	-	-		193'-0"	6	-	-	-	-	-	-	-	
	A3	-	-	-	-		-	3	-	(1) AHFII	NOKIA	6x24HCS	(1)	15'-0"	-	
	A4	-	-	-	-		-	3	-	(1) AHLOA	NOKIA	6x24HCS	(2)	15'-0" 15'-0"	-	
BETA	B1	L600/N600/LAWS3 L700/L1900/L2100/ N1900/N2100	FFVV-65C-R3-V1 (OCTO)	COMMSCOPE	(SHARED)	90°	-	6	-	-	-	-	-	-	-	
	B2	-	-	-	-		193'-0"	6	-	-	-	-	-	-	-	
	B3	-	-	-	-		-	3	-	(1) AHFII	NOKIA	6x24HCS	(1)	15'-0"	-	
	B4	-	-	-	-		-	3	-	(1) AHLOA	NOKIA	6x24HCS	(2)	15'-0" 15'-0"	-	
GAMMA	G1	L600/N600/LAWS3 L700/L1900/L2100/ N1900/N2100	FFVV-65C-R3-V1 (OCTO)	COMMSCOPE	(SHARED)	250°	-	6	-	-	-	-	-	-	-	
	G2	-	-	-	-		193'-0"	6	-	-	-	-	-	-	-	
	G3	-	-	-	-		-	3	-	(1) AHFII	NOKIA	6x24HCS	(1)	15'-0"	-	
	G4	-	-	-	-		-	3	-	(1) AHLOA	NOKIA	6x24HCS	(2)	15'-0" 15'-0"	-	

RFDS DESIGN VERSION: 1
DATE: 01/24/2023

NOTES:

1. GENERAL CONTRACTOR TO VERIFY FINAL RF CONFIGURATION WITH T-MOBILE RF ENGINEER PRIOR TO INSTALLATION.

ANTENNA AND COAXIAL CABLE SCHEDULE:

1. ALL ANTENNAS SHALL BE FURNISHED WITH DOWN TILT BRACKETS. CONTRACTOR SHALL COORDINATE REQUIRED MECHANICAL DOWN TILT FOR BEACH ANTENNA WITH RF ENGINEER. ANTENNA DOWNTILT SHALL BE SET AND VERIFIED BY A SMART LEVEL.

2. ANTENNA CENTERLINE HEIGHT IS IN REFERENCE TO ELEVATION 0'-0".

3. CONTRACTOR SHALL INSTALL COLOR CODE RINGS AT EACH OF THE HYBRID CABLES AND JUMPER CABLES WITH UV RESISTANT TAPE. ALL CABLES SHALL BE MARKED AT TOP AND BOTTOM WITH 2" COLOR TAPE OR STENCIL TAG. COLOR TAPE MAY BE OBTAINED FROM GARY BAR ELECTRONICS.

T- MOBILE ANTENNA & LINE SCHEDULE (1)
SCALE: N.T.S.

verticalbridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED MICHAEL L. PINSKE PE.0050800 PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
T-MOBILE ANTENNA AND LINE SCHEDULE

SCALE: NONE

PROJECT NUMBER: 58067
SHEET NUMBER: A-2T

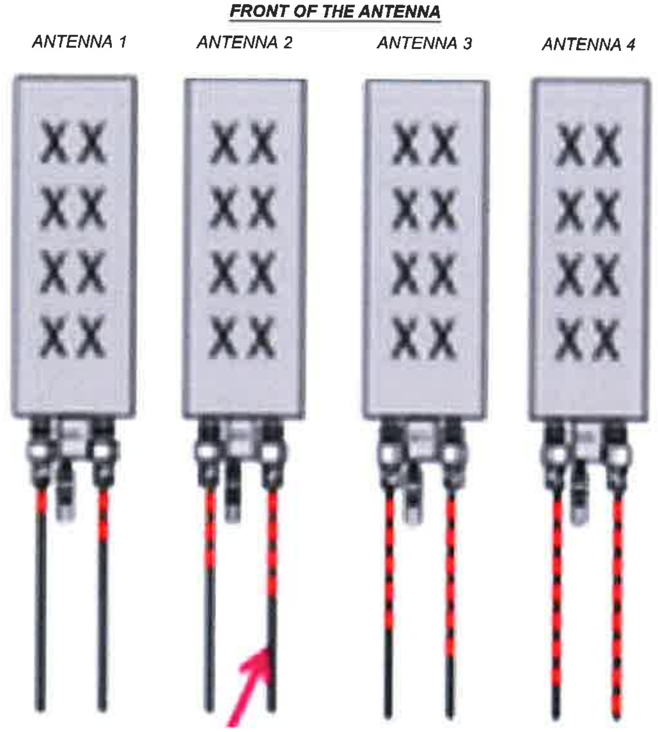
DRAWN BY: DGJ CHECKED BY: JLF

C:\Users\steves\local settings\temp\AcPublish_21104158067_US-CO-5091_PCDs_11.19.2024.dwg Printed by: steves on Nov 20, 2024 - 12:46pm

COAX COLOR CODING:

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

SECTOR A	RED
SECTOR B	GREEN
SECTOR C	BLUE
SECTOR D	YELLOW
SECTOR E	WHITE
SECTOR F	PURPLE
LMU	BROWN + SECTOR COLOR BANDS (1 & 2)
FIBER ID	GRAY
UNUSED COAX	PINK
MICROWAVE	ORANGE
DWE T-1s + GPS DOWNLINK CABLE	ID W/ LABEL MAKER



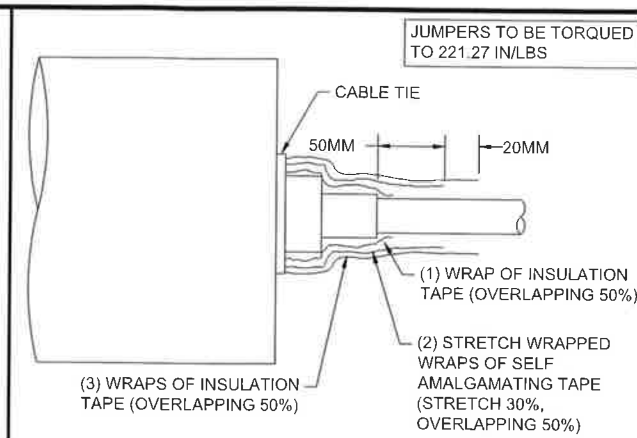
EXAMPLE: COAX WITH FOUR BANDS OF RED TAPE WILL REPRESENT ALPHA SECTOR AND THE 4TH PORT OF THE ANTENNA.

1. ALL ANTENNAS SHALL BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR SHALL COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH RF ENGINEER. ANTENNA DOWNTILT SHALL BE SET AND VERIFIED BY A SMART LEVEL.

2. CONTRACTOR SHALL INSTALL COLOR CODE RINGS ON EACH OF THE COAX CABLES AND JUMPER CABLES WITH UV RESISTANT TAPE. ALL CABLES SHALL BE MARKED AT TOP AND BOTTOM WITH 2" COLOR TAPE OR STENCIL TAG. COLOR TAPE MAY BE OBTAINED FROM GRAYBAR ELECTRONICS.

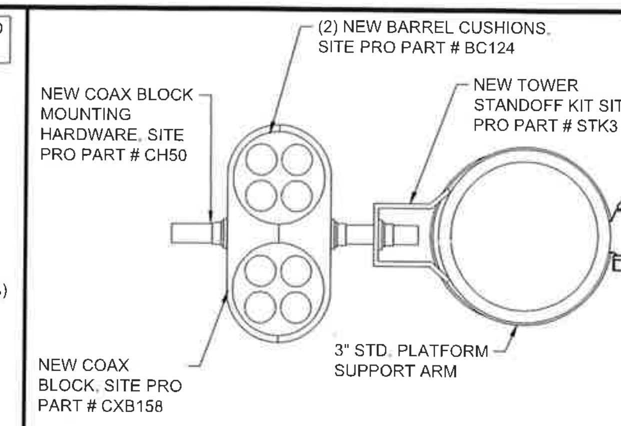
COLOR CODING AND NOTES (1)

SCALE: NTS



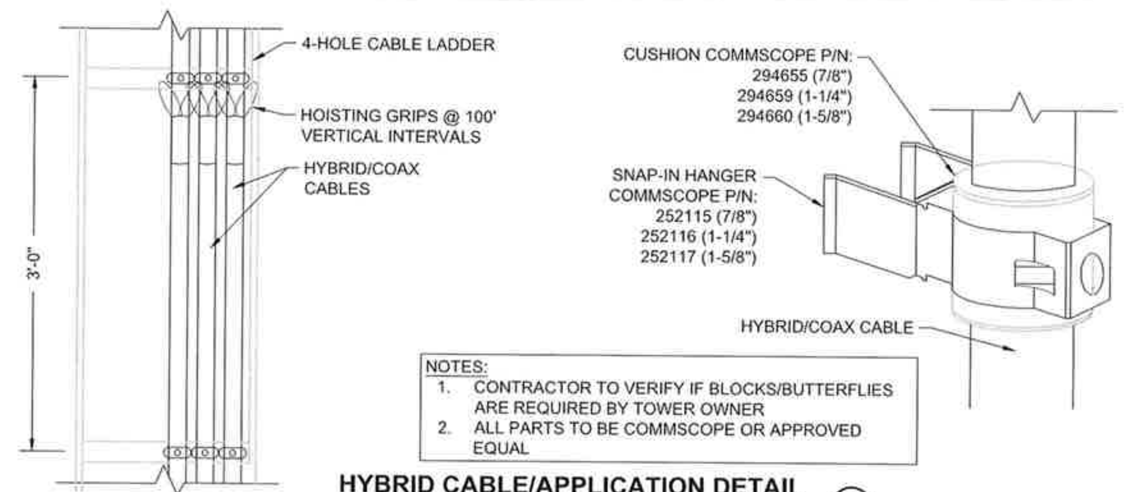
RF JUMPER CONNECTION DETAIL (2)

SCALE: N.T.S.



RF JUMPER MOUNTING DETAIL (3)

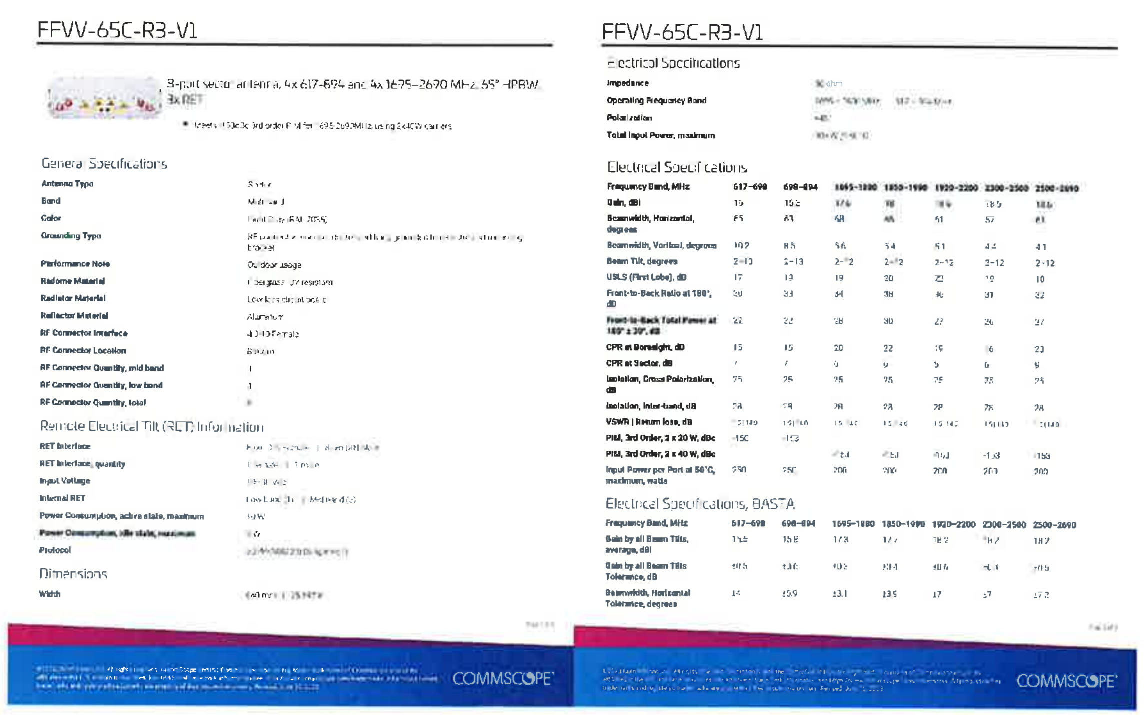
SCALE: N.T.S.



NOTES:
1. CONTRACTOR TO VERIFY IF BLOCKS/BUTTERFLIES ARE REQUIRED BY TOWER OWNER
2. ALL PARTS TO BE COMMSCOPE OR APPROVED EQUAL

HYBRID CABLE/APPLICATION DETAIL (4)

SCALE: N.T.S.



COMMSCOPE - FFVV-65C-R3-V1
WEIGHT (WITHOUT MOUNTING HARDWARE): 118.6 LBS.
SIZE (HxWxD): 96.0x25.2x9.3 IN.
MOUNTING HARDWARE P/N: BSAMNT-4
RATED WIND VELOCITY: 149.8 MPH

COMMSCOPE FFVV-65C-R3-V1 DETAILS (5)

SCALE: NTS

vertical bridge

RAMAKER employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED MICHAEL L. PINSKI PE.0050800 PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
T-MOBILE ANTENNA EQUIPMENT AND COAX DETAILS

SCALE: NONE

PROJECT NUMBER: 58067
SHEET NUMBER: A-3T

DRAWN BY: DGJ CHECKED BY: JLF

AHFII AirScale RRH 4T4R B25/66 480W

Specification	Details
Standard	3GPP compliant, FDD-LTE, NR, GSM, WCDMA
Band / Frequency range	**Band 25**: RX 1850 MHz - 1915 MHz, TX 1930 MHz - 1995 MHz **Band 66**: 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	<23 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

2 © 2020 Nokia Confidential

PROPOSED AHFII DETAILS (1)
SCALE: NTS

Nokia Dual Low Band Radio Specification

1

AHLOA: 600MHz/700MHz Radio (4Tx4Rx RRH)

Specification	
Configuration	4T4R Dual Band
Output Power	4x30W
IBW/OBW	Full Band/Full Band
PIM Cancellation	Yes (Multi Band)
Power Sharing	Yes
Weight	83.7 lbs with no covers & brackets
Size	Approx 32.6L
Dimensions	560 mm x 308 mm x 189 mm
Connector	4.3-10+ (4 ports)

AHLOA
- Based on Airscale Platform
- Tower Installation only (No Ground installation)
- License requirement for MIMO Functions and Dual Band
- Utilizes 4.3-10 RF Connector
- CPRI fiber front haul
- Product expected Q2 2018

T-Mobile Confidential T-Mobile

PROPOSED AHLOA DETAILS (2)
SCALE: NTS

vertical bridge

RAMAKER employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED MICHAEL L. PINSKE PE 0050800 PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
T-MOBILE ANTENNA EQUIPMENT AND COAX DETAILS

SCALE:
AS NOTED

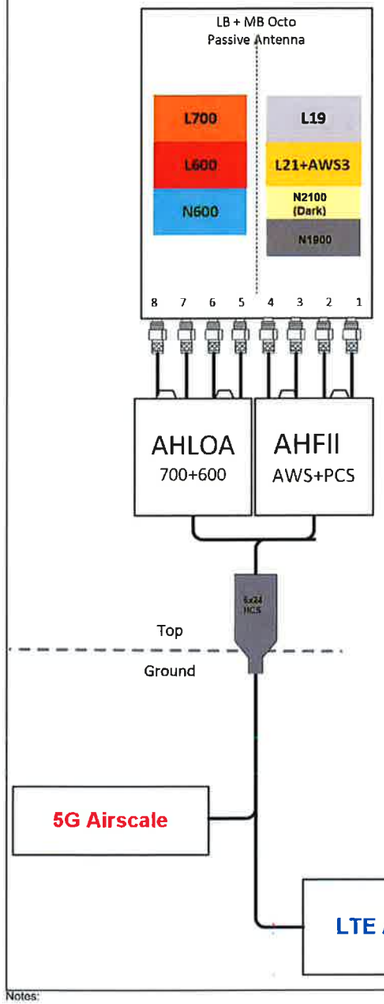
PROJECT NUMBER: 58067
SHEET NUMBER: A-4T

6790S_SR_AWS3 AHFII Phase 2Y 6x24.png

Configuration 6790S_SR

(Alpha, Beta, Gamma)

*for 5G and LTE Airscale BB dimensioning refer to fiber port matrices



Lowband
L700 – 5 MHz
L600 –10 MHz
N600 – 10 MHz

Midband
L2100 – 20 MHz
L1900 – 20 MHz
SRAN – UMTS

Notes:

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSEL
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

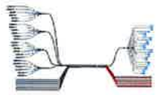
PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
PLUMBING DIAGRAM

SCALE: NONE

PROJECT NUMBER: 58067
SHEET NUMBER: A-5

FDH1204-48SE2



HELIAX® Direct-connect 6 x 24 hybrid trunk assembly; 6 pairs of 4AWG DC conductors x 24 pairs of single mode fibers.

- RRU (top) breakout; 5 blunt-cut power cords (6-6AWG pairs), 48 single mode fibers in outdoor-rated tails with ODC compatible interface
- BBU (bottom) breakout; 12-4AWG power conductors blunt cut, 48 single mode fibers within 24 DLC tails

Product Classification

Regional Availability	Asia | Australia/New Zealand | EMEA | Latin America | North America
Portfolio	CommScope®
Product Type	Hybrid cable assembly
Product Brand	HELIAX®
Product Series	FDH

General Specifications

Conductors, quantity	12
Construction Type	Direct breakout trunk
Interface, Connector A	ODC-HC
Interface Feature, connector A	Outdoor
Interface Body Style, connector A	Straight
Interface, Connector B	DLC
Interface Feature, connector B	Standard
Interface Body Style, connector B	Straight
Jacket Color	Black
Total Fibers, quantity	48

Dimensions

Cable Assembly Length Range (m)	10 – 130
Diameter Over Jacket	44.78 mm | 1.763 in
Center Conductor Gauge	4 AWG

Mechanical Specifications

Minimum Bend Radius	523.2 mm | 20.598 in

COMMSCOPE®

FDH1204-48SE2

Minimum Bend Radius, furcation	30 mm | 1.181 in

Optical Specifications

Fiber Type	G.657.A2/B2
Insertion Loss, typical note	Insertion loss is measured at 1310 and 1550 nm
Insertion Loss, typical	0.75

Environmental Specifications

Operating Temperature	-40 °C to +75 °C (-40 °F to +167 °F)

Packaging and Weights

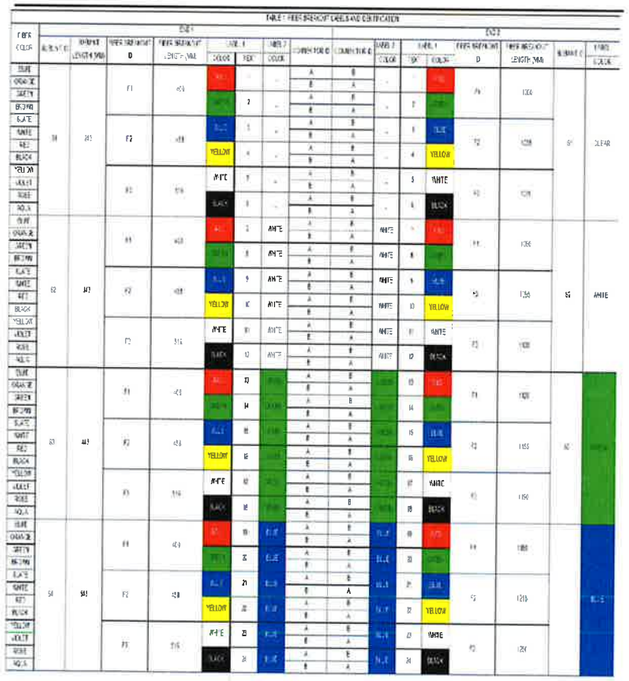
Cable weight	3.4 kg/m | 2.285 lb/ft

* Footnotes

Insertion Loss, typical note Insertion loss is measured at a room temp of 120°C (168°F)

COMMSCOPE®

FDH1204-48SE2



COMMSCOPE®

6x24 HYBRID TRUNK SPECIFICATIONS
SCALE: NTS
1

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINKERTON
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

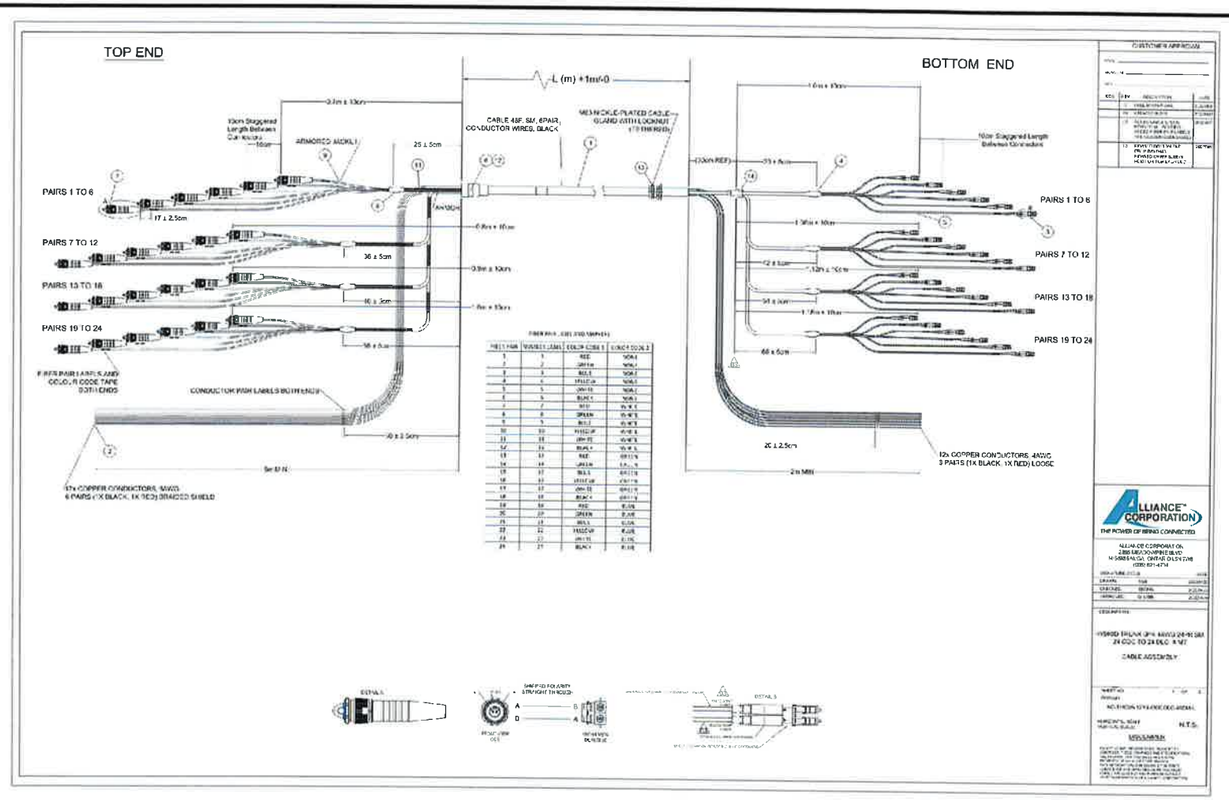
PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

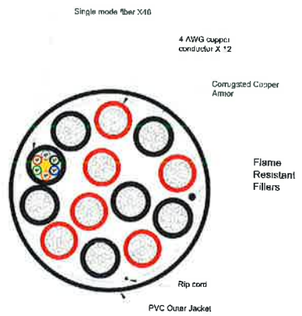
SHEET TITLE:
T-MOBILE EQUIPMENT AND COAX DETAILS

SCALE:
AS NOTED

PROJECT NUMBER: 58067
SHEET NUMBER: A-6T



MECHANICAL	JACKET COLOR	BLACK
	OUTER DIAMETER (IN)	1.8
	MIN BENDING RADIUS(IN), MULTIPLE BENDS, LOADED	36
	MIN BENDING RADIUS(IN), MULTIPLE BENDS, UNLOADED	18
	MIN BENDING RADIUS(IN), SINGLE BEND, UNLOADED	12.6
	MIN BENDING RADIUS(IN), FURCATION	1.2
	ARMOR	CORRUGATED COPPER
	WEIGHT(lb/kft)	2480
	COMPRESSION(lb/IN)	250
	TENSILE LOAD, LONG TERM(lbf)	180
	TENSILE LOAD, SHORT TERM(lbf)	600
ELECTRICAL	CONDUCTOR MATERIAL	COPPER
	CONDUCTOR CONSTRUCTION	STRAND
	CONDUCTOR COLOR	RED /BLACK
	RESISTIVITY(nO @20°C)	16.78 nohm-M
	CONDUCTORS, QTY	12
	CONDUCTOR SIZE(AWG)	4
	EMI SHIELD	YES
	UL RATING	UL TC-OF-ER
OPTICAL	FIBER TYPE	SINGLE MODE (G.657.A2)
	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)	-40 TO +167
	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

6x24 HYBRID TRUNK SPECIFICATIONS
SCALE: NTS

1

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0058000
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

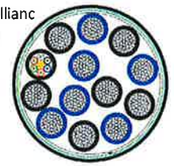
PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
T-MOBILE EQUIPMENT AND COAX DETAILS

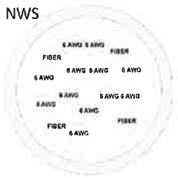
SCALE:
AS NOTED

PROJECT NUMBER: 58067
SHEET NUMBER: A-7T

Allianc e



NWS



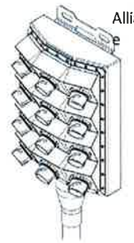
CommScop e

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

TRUNK CABLE GENERAL SPECIFICATIONS (1)

SCALE: NTS

Allianc e



NWS

CommScope

Senko 'U' Hybrid Ports

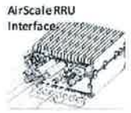
Characteristics	Alliance	CommScope	NWS
Dimensions, In.	9.3x14.9x5.8	6.7x16.9x4.7	10.2x16.0x3.2
Weight	1.61 lb/ft	0.970 lb/ft	1.61 lb/ft
Port Interface	Senko U	Senko U	Senko U
Hybrid Ports	12	12	12
Conductor Termination	None	None	None
Single Mode Fibers	48	48	48
Fiber Termination	LC pair	LC pair	LC pair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

Note: Permanently attached to trunk cable, not field
Note: No Internal GND

BREAKOUT FEATURE GENERAL SPECIFICATIONS (2)

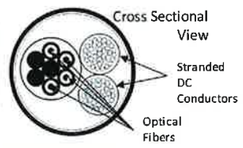
SCALE: NTS

AirScale RRU Interface



Flexi RRU Interface

Cross Sectional View



Amphenol DC C

For AirScale RRUs

Radiall R2CT Protection for LC

Suppliers
Alliance
CommScop e

Senko 'U' Hybrid Connector

Blunt Cut DC Conductors

Booble Internal

Booted LC Connectors

For Flexi RRUs

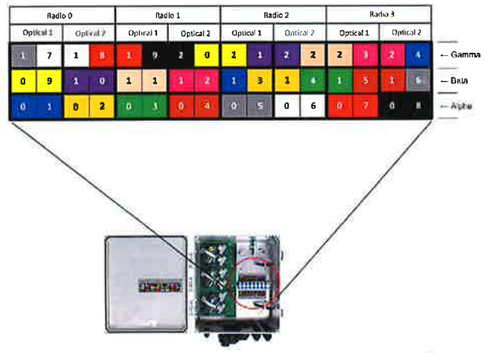
T··Mobile·

- 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

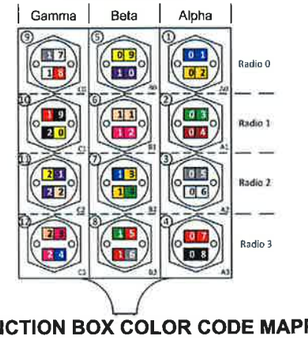
HYBRID JUMPER CABLE GENERAL SPECIFICATIONS (3)

SCALE: NTS

Bottom Junction Box
Fiber Patch Panel

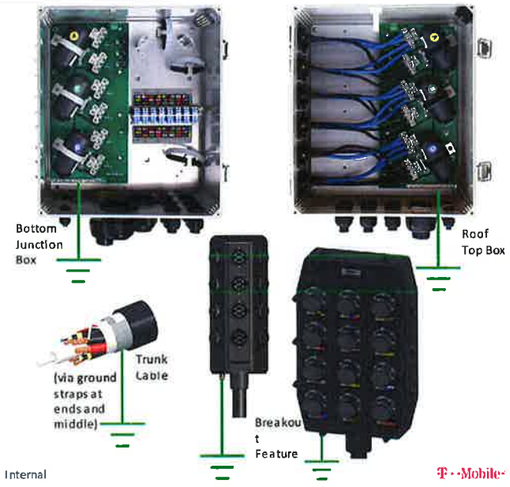


Breakout Feature



BOTTOM JUNCTION BOX COLOR CODE MAPPING (4)

SCALE: NTS



- Extremely important to ground each and every piece of equipment for lightning protection
  - Roof top box
  - Bottom junction box
  - Breakout feature
  - Trunk cable (uses same ground straps as coax)
- OVP devices will work properly per design only if ground path is established, i.e. grounding is mandatory
- Reference: Grounding Standard

GROUNDING (5)

SCALE: NTS

verticalbridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINKE
PE.0050880
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:

US-CO-5091 / DN02546A

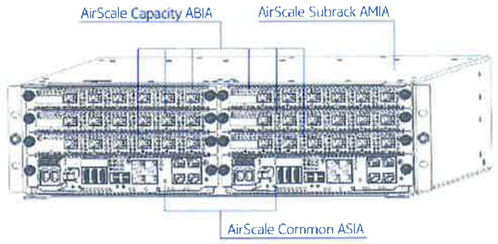
PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:

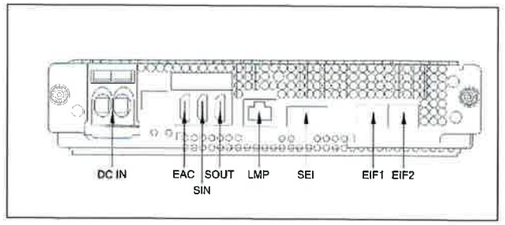
T-MOBILE EQUIPMENT AND COAX DETAILS

SCALE:
AS NOTED

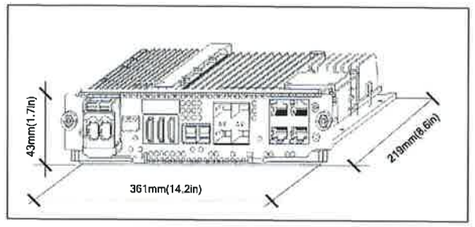
PROJECT NUMBER: 58067
SHEET NUMBER: A-8T



AIRSCALE SYSTEM RADIO MODULES (1)
SCALE: NTS

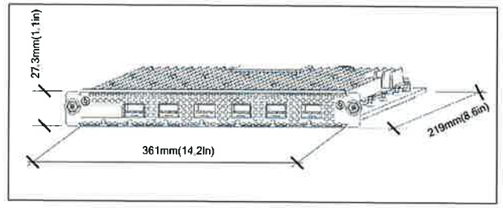


AIRSCALE SYSTEM RADIO SUBMODULE - ABIL (2)
SCALE: NTS



ASIA DETAIL
WEIGHT : 6.83 LBS.
SIZE (HxWxD): 1.9"X8.3"X14.8"

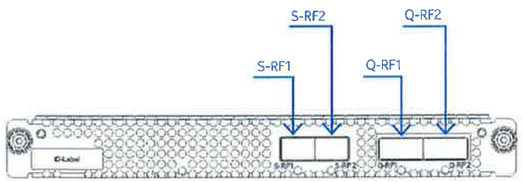
AIRSCALE SYSTEM RADIO MODULES - ASIA (3)
SCALE: NTS



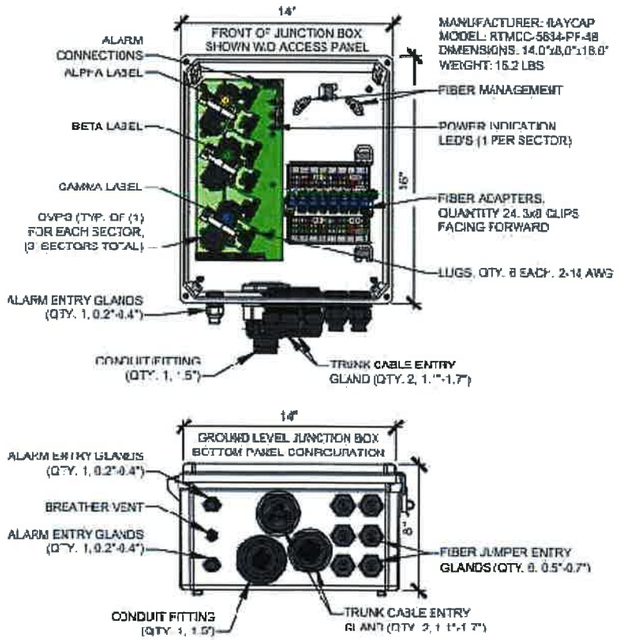
ABIA DETAIL
WEIGHT : 4.63 LBS.
SIZE (HxWxD): 1.9"X8.3"X14.8"

AIRSCALE SYSTEM RADIO SUBMODULES - ABIA (4)
SCALE: NTS

Figure 1 ABIL external interfaces



AIRSCALE SYSTEM RADIO MODULES (5)
SCALE: NTS



AIRSCALE SYSTEM RADIO MODULE- ASIL (6)
SCALE: NTS

7250 IXR-e 2QSFP28 8SFP28 24SFP+

7250 IXR-e 14SFP+ 4RJ45

NOKIA IXR-e ROUTERS (7)
SCALE: NTS

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL — DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
T-MOBILE EQUIPMENT DETAILS

SCALE:
AS NOTED

PROJECT NUMBER: 58067
SHEET NUMBER: A-9T

Mechanical	
Dimensions H x W x D	(44 mm x 434.3 mm x 420.8 mm) (5.2 in. x 17.1 in. x 19.9 in.)
Weight	18.4 kg (40.5 lb)
Mounting	• 3RU height • Flush mount • Offset mount • Center mount
CAN Communication	RJ12 offset

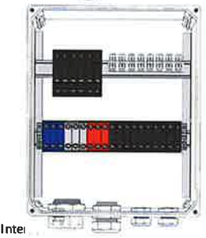
HYPERBOOST
SCALE: NTS (1)

Mechanical - Module	
Dimensions H x W x D	41 mm x 104 mm x 333 mm (1.6 in. x 4.1 in. x 13.1 in.)
Weight	1.83 kg (4 lb)
Mechanical - Shelf	
Dimensions H x W x D	(44 mm x 434.3 mm x 420.8 mm) (1.7 in. x 17.1 in. x 16.6 in.)
Weight	7.3 kg (16 lb)
Modules per shelf	4
Mounting	• 1RU height • Flush mount • 6 in. offset center mount
CAN Communication	RJ12 offset

BOOSTER RECTIFIER
SCALE: NTS (2)

- Bottom Junction Box and Roof Top Box requires 3 DC-breakered feeds each
- Allows each sector to be de-energized individually for maintenance without service impact to the other sectors

Bottom Junction Box



bile Inte

DC POWER FEEDS FROM RECTIFIER DISTRIBUTION
SCALE: NTS (3)

verticalbridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINKE
PE 0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

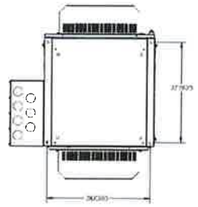
PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
T-MOBILE EQUIPMENT DETAILS

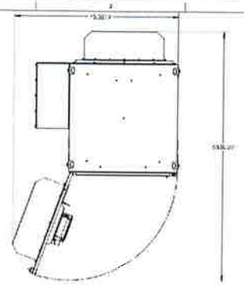
SCALE:
AS NOTED

PROJECT NUMBER: 58067
SHEET NUMBER: A-10T

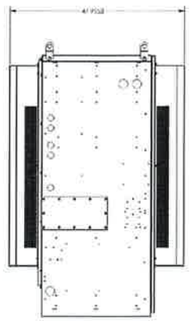
NOTES: OPTIONAL CONFIGURATION



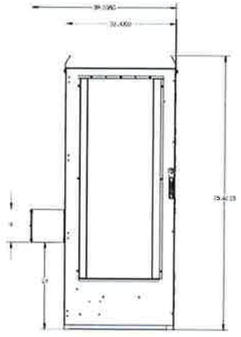
BOTTOM VIEW
MOUNTING FOOTPRINT



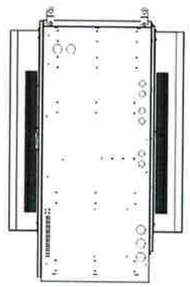
TOP VIEW
DOOR OPEN



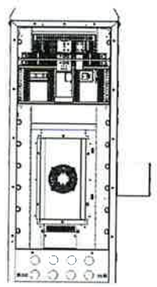
LEFT VIEW



FRONT VIEW



RIGHT VIEW



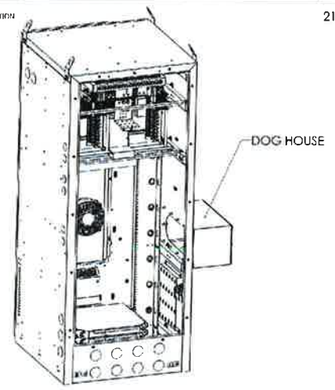
REAR VIEW
HATCH REMOVED

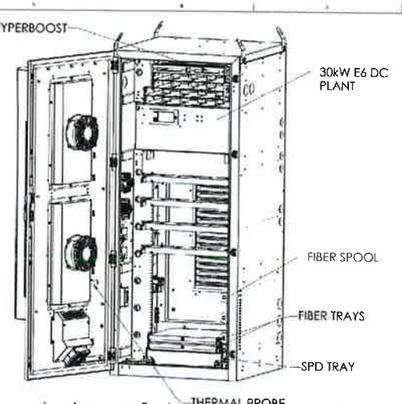
PROPRIETARY INFORMATION

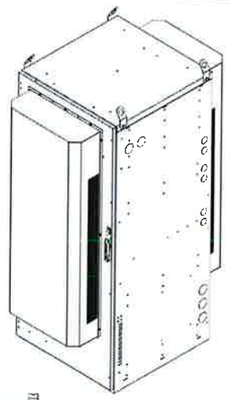
Purcell SYSTEMS

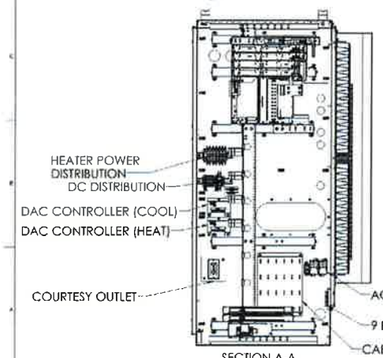
D 2000006435

NOTES: OPTIONAL CONFIGURATION

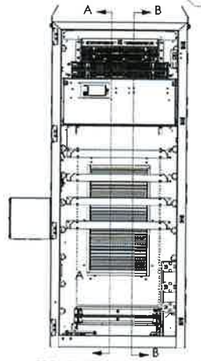




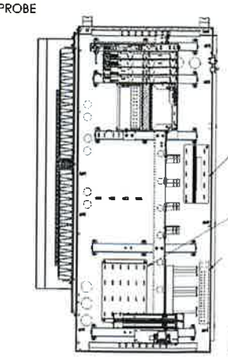




SECTION A-A



FRONT VIEW (DOOR HIDDEN)



SECTION B-B

Purcell SYSTEMS

D 2000006435

CABINET DETAIL
WEIGHT : 480 LBS.(WITHOUT EQUIP.)
SIZE (HxWxD): 75"X30"X48"

PURCELL HPL3.1 POWER CABINET DETAILS (1)

SCALE: NTS

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0050800
PROFESSIONAL ENGINEER

11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:

US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:

T-MOBILE EQUIPMENT DETAILS

SCALE:
AS NOTED

PROJECT NUMBER: 58067

SHEET NUMBER: A-11T

Purcell HPL3
Large Battery Cabinet

(4) -48V 190Ahr Battery Strings

The Battery Cabinet is designed to house four -48V strings of 190Ahr batteries as part of the HPL3 Site Support Lineup

Cabinet Features

- Polyester powder coated aluminum, GR-487 process control, off white, texture
- Weight: 350 lbs.
- Four battery shelves / four batteries per shelf
- Front door pad lockable with three point latching system
- Left and Right lineup interconnections or remote mounting

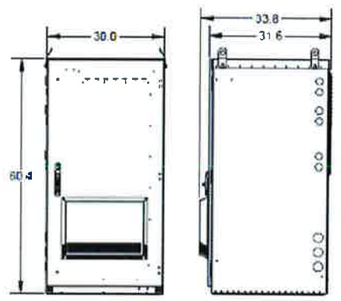
Thermal Management

- Direct Air Cooling (DAC) with two fans
- Ambient operating temperature -40°C to +50°C
- Optional battery heater mats – one mat per shelf

T-Mobile SAP	Purcell PN	Description
33966	2000005434	Battery Cabinet (4 string)

Standards

- UL 508A standards
- Designed to standard GR-487, issue 5, hydrogen out gassing, external paint, zone 4 seismic loading, safety, thermal, intrusion and impact



FRONT VIEW RIGHT VIEW

Purcell SYSTEMS
16125 East Euclid Avenue ■ Spokane, Washington 99216
509.755.0341 ■ www.purcellsystems.com

CABINET DETAIL
WEIGHT : 350 LBS.(WITHOUT EQUIP.)
SIZE (HxWxD): 60.4"X30"X33.8"

PURCELL HPL3.1 BATTERY CABINET DETAILS (1)
SCALE: NTS

verticalbridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PIERCE
PE.0056800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
T-MOBILE EQUIPMENT DETAILS

SCALE:
AS NOTED

PROJECT NUMBER: 58067
SHEET NUMBER: A-12T

vertical bridge

Typical Sign Layout

Please use galvanized or stainless "hog rings" to install the signs.

Place the "Vertical Bridge" sign on the Left Gate.

Place the "Caution" and "Notice" signs on the Right Gate.

For Access Road Gates, "Vertical Bridge" sign only on the Left Gate.

Purchase and place Vertical Bridge locks on all fence and access gates. (Set Combo To: 0951)

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0058500
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

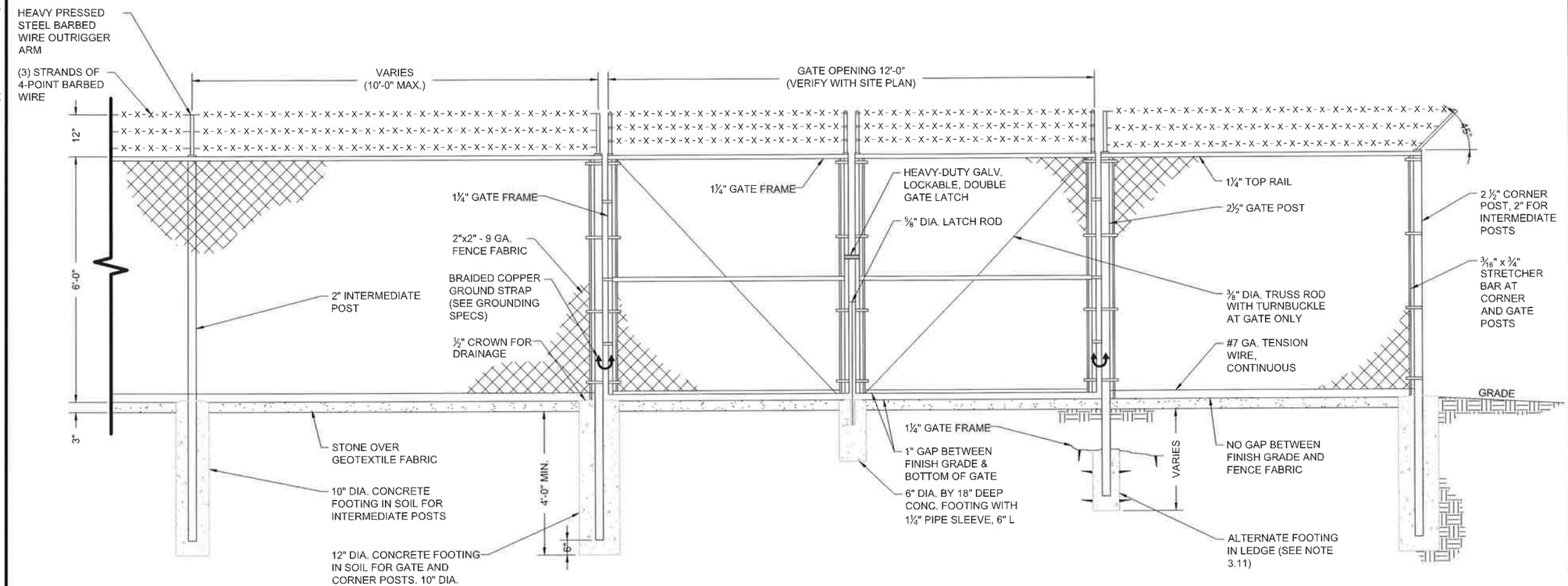
PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
SIGNAGE

SCALE: NONE

PROJECT NUMBER: 58067
SHEET NUMBER: A-13



1.SCOPE:
1.1 THIS SECTION COVERS THE REQUIREMENTS FOR THE MATERIALS AND THE CONSTRUCTION OF SITE FENCING, GUY AREA FENCING, ACCESS ROAD GATES AND CATTLE GUARDS. SEE SITE PLAN AND DRAWINGS FOR DETAILS.

2. SPECIAL REQUIREMENTS:
2.1 All WIRE, FABRIC, FITTINGS, HARDWARE AND STEEL MEMBERS USED FOR SITE AREA FENCING, GUY ANCHOR FENCING AND ACCESS ROAD GATES SHALL BE HOT DIPPED GALVANIZED OR OTHER APPROVED NON-CORROSIVE MATERIAL.
2.2 ALL NON-CORROSIVE MATERIAL SHALL BE APPROVED BY THE PROJECT MANAGER.
2.3 ANY DAMAGE TO GALVANIZING OR NON-CORROSIVE COATING DURING CONSTRUCTION SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S RECOMMENDED METHODS.

3. FENCE POSTS:
3.1 LOCATION OF CORNER POSTS SHALL BE DETERMINED FROM STAKES AND PROPERTY PINS INSTALLED BY THE REGISTERED LAND SURVEYOR UNDER CONTRACT. IF THE STAKES ARE NOT PRESENT OR DO NOT CONFORM TO THE SITE PLAN, CONSULT WITH THE PROJECT MANAGER.
3.2 CORNER POSTS SHALL BE SET WITHIN ONE INCH (1") OF DIMENSIONS INDICATED ON THE SITE PLAN.
3.3 FENCE POSTS SHALL BE VERTICALLY PLUMB IN ALL PLANES WITHIN ½" INCH.
3.4 CORNER & GATE POST FOUNDATIONS SHALL BE A MINIMUM FOUR FEET (4') DEEP OR SIX INCHES (6") BELOW THE FROST LINE, WHICHEVER IS GREATER. WITH MINIMUM SIX INCH (6") CLEARANCE BETWEEN BOTTOM OF POST AND BOTTOM OF THE HOLE.
3.5 CORNER POSTS AND GATE POSTS SPACING SHALL BE EQUAL WITH A TEN FOOT (10') MAXIMUM SPACING. GATE POST SPACING AND SPECIFIC LOCATIONS SHALL BE IN ACCORDANCE WITH SITE PLAN AND SHALL BE VERIFIED WITH THE PROJECT MANAGER.

4. GATE:
4.1 LOCATION OF GATE SHALL CONFORM TO THE SITE PLAN.
4.2 GATE HINGES SHALL PROVIDE FOR 180 DEGREE RADIUS GATE SWING. ALL HINGE NUTS SHALL BE ON THE INSIDE AND DOUBLE-NUT TO DETER UNAUTHORIZED ENTRY.
4.3 GATE STOPS SHALL BE INSTALLED AND SHALL HOLD GATE IN "OPEN" POSITION.
4.4 GATE SHALL BE INSTALLED PLUMB AND SHALL OPEN AND CLOSE FREELY.
4.5 GATE POSTS SHALL NOT BE SHARED AS A CORNER POST.

FENCE AND GATE DETAIL (1)
SCALE: NTS

verticalbridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED PROFESSIONAL ENGINEER
MICHAEL L. RANSKE
PE.0058800
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

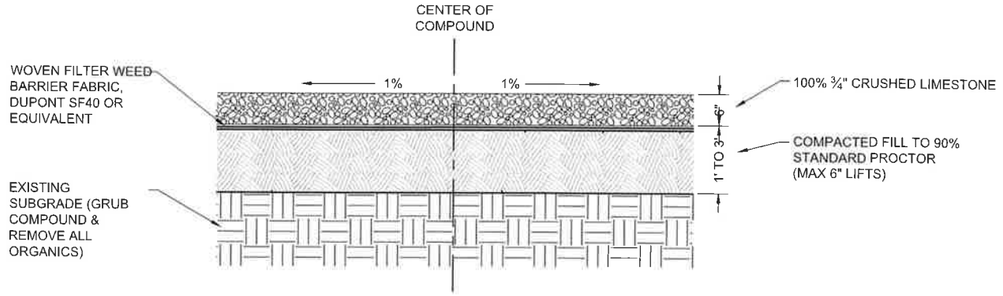
PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
COMPOUND SITE DETAILS

SCALE:
AS NOTED

PROJECT NUMBER: 58067
SHEET NUMBER: A-14

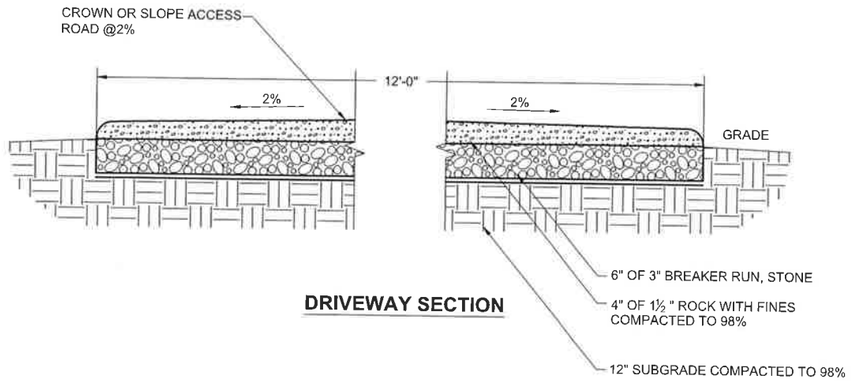


COMPOUND SECTION

NOTES:

THE FABRIC SHOULD BE PLACED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. INTERSECTIONS OF SHEETS MUST BE SEWN OR SUFFICIENTLY OVERLAPPED (AT LEAST 24 INCHES OR AS SPECIFIED BY THE MANUFACTURER). THE GEOTEXTILE SHEETS SHOULD ALSO BE PLACED TAUT TO REDUCE WRINKLES OR FOLDS. CARE MUST BE EXERCISED TO PREVENT PHYSICAL DAMAGE OF THE GEOTEXTILE PRIOR TO, DURING AND AFTER INSTALLATION. UTILITIES SHOULD BE INSTALLED BEFORE PLACING THE FABRIC.

TYPICAL COMPOUND GRAVEL (1)
SCALE: NTS



DRIVEWAY SECTION

TYPICAL GRAVEL DRIVEWAY (2)
SCALE: NTS

verticalbridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0050500
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

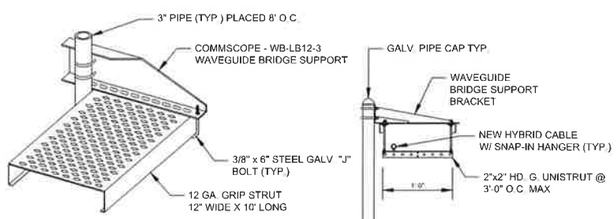
PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

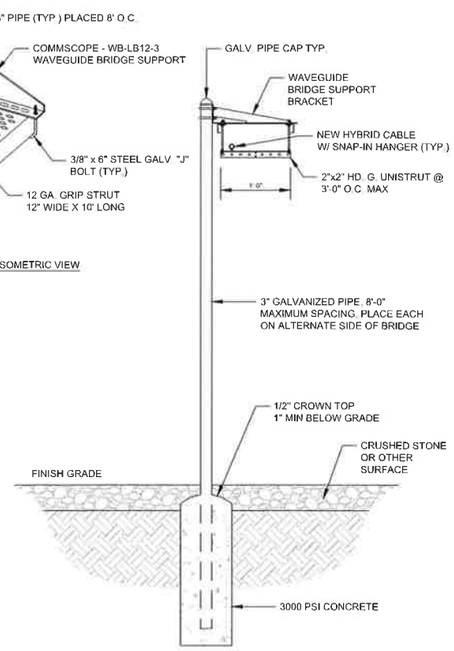
SHEET TITLE:
COMPOUND SITE DETAILS

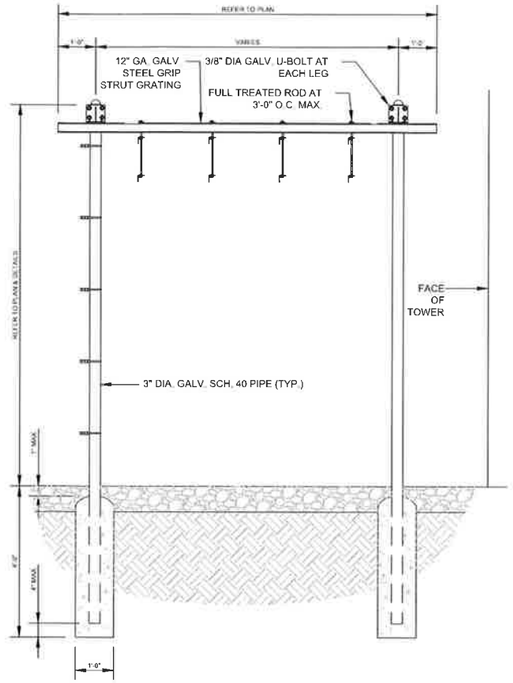
SCALE:
AS NOTED

PROJECT NUMBER: 58067
SHEET NUMBER: A-15



ISOMETRIC VIEW





ICE BRIDGE DETAILS

SCALE: NTS

(1)

IC-0810-S

Ice Canopy, 8 ft x 10 ft, four 10 ft 6 in base shoe pipes

Product Classification

Product Type	Ice canopies and shields

General Specifications

Pipe, quantity	4

Dimensions

Height	3 200.4 mm | 126 in
Width	2 438.4 mm | 96 in
Length	3048 mm | 120 in
Pipe Length	3 200.4 mm | 126 in

IC-1010-S

Ice Canopy, 10 ft x 10 ft, four 10 ft 6 in base shoe pipes

Product Classification

Product Type	Ice canopies and shields

General Specifications

Pipe, quantity	4

Dimensions

Height	3 200.4 mm | 126 in
Width	3048 mm | 120 in
Length	3048 mm | 120 in
Pipe Length	3 200.4 mm | 126 in

ICE CANOPY DETAILS

SCALE: NTS

(2)

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE 0000000
PROFESSIONAL ENGINEER

11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL DATE ISSUED: 06/25/2024

PROJECT TITLE:

US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

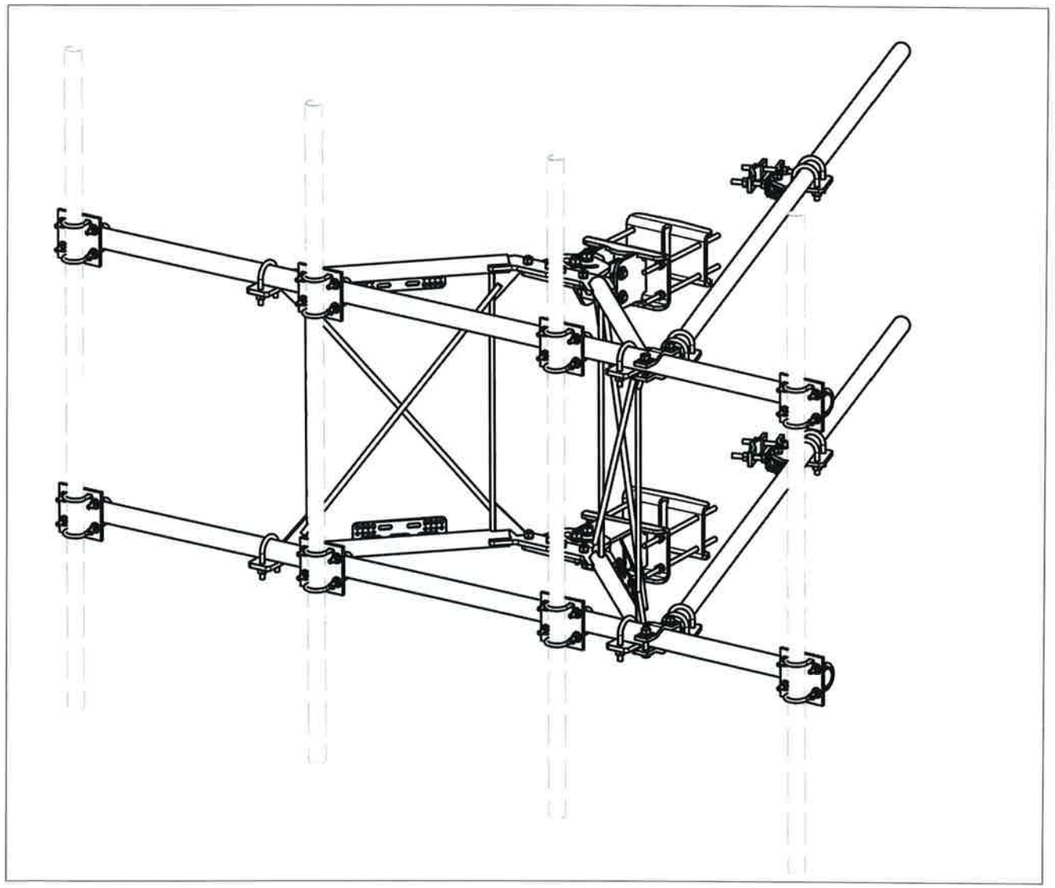
SHEET TITLE:

STRUCTURAL DETAILS

SCALE:
AS NOTED

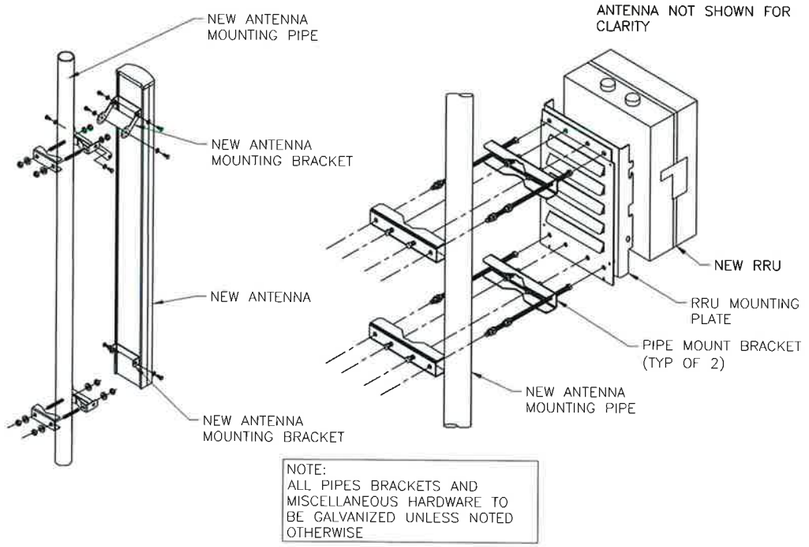
PROJECT NUMBER: 58067

SHEET NUMBER: S-1T



10' VFA10-HD SECTOR FRAME OR EQUIVALENT (1)
SCALE: NTS

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFAW	SUPPORT ARM		71.41	142.81
2	1	X-HDCAMTBW	CLAMP WELDMENT FOR BCAM-HD		33.86	33.86
3	1	X-MHTPHD	MULTI-HOLE TAPER PLATE WELDMENT		36.24	36.24
4	2	X-VFAPL4	VFA-HD PIVOT PLATE	12 in	15.88	31.77
5	2	X-LCBP4	BENT BACKING PLATE	13 in	19.00	38.01
6	1	X-HDCAMSS	ANGLE ADJUSTMENT WELDMENT FOR BCAM-HD		16.39	16.39
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	1	X-HDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM-HD		2.58	2.58
9	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
10	8	SCX2	CROSSOVER PLATE	7 in	4.80	38.37
11	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
12	8	DCP	1/2" THICK, 5-3/4" CNTER TO CENTER CLAMP HALF	8 1/8 in	2.36	18.90
13	2	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	81.50
14	2	P30126	2-7/8" O.D. X 126" SCH. 40 PIPE	126 in	64.63	129.25
15	4	A34212	3/4" x 2-1/2" UNC HEX BOLT (A325)	2 1/2 in	0.48	1.92
16	4	G34FW	3/4" HDG USS FLATWASHER		0.06	0.24
17	4	G34LW	3/4" HDG LOCKWASHER		0.04	0.17
18	4	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.85
19	8	G58R-18	5/8" x 18" THREADED ROD (HDG.)	18 in	0.40	3.19
20	4	G58R-12	5/8" x 12" THREADED ROD (HDG.)		1.05	4.18
21	4	G58R-8	5/8" x 8" THREADED ROD (HDG.)		0.70	2.79
22	4	X-UB5300	5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.)		1.15	4.60
23	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
24	2	G5807	5/8" x 7" HDG HEX BOLT GR5 FULL THREAD	7 in	0.70	1.41
25	1	G5806	5/8" x 6" HDG HEX BOLT GR5 FULL THREAD	6 in	0.62	0.62
26	8	G5804	5/8" x 4" HDG HEX BOLT GR5		0.44	3.55
27	4	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.08
28	8	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	2.50
29	25	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.76
30	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
31	71	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	9.22
32	32	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	23.64
33	16	X-UB1212	1/2" X 2" X 3" X 1-1/4" U-BOLT (HDG.)		0.60	9.56
34	64	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.18
35	64	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.89
36	64	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	4.58
					TOTAL WT. #	713.44



TYPICAL ANTENNA AND RRU MOUNTING DETAIL (2)
SCALE: NTS

verticalbridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINDEL
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

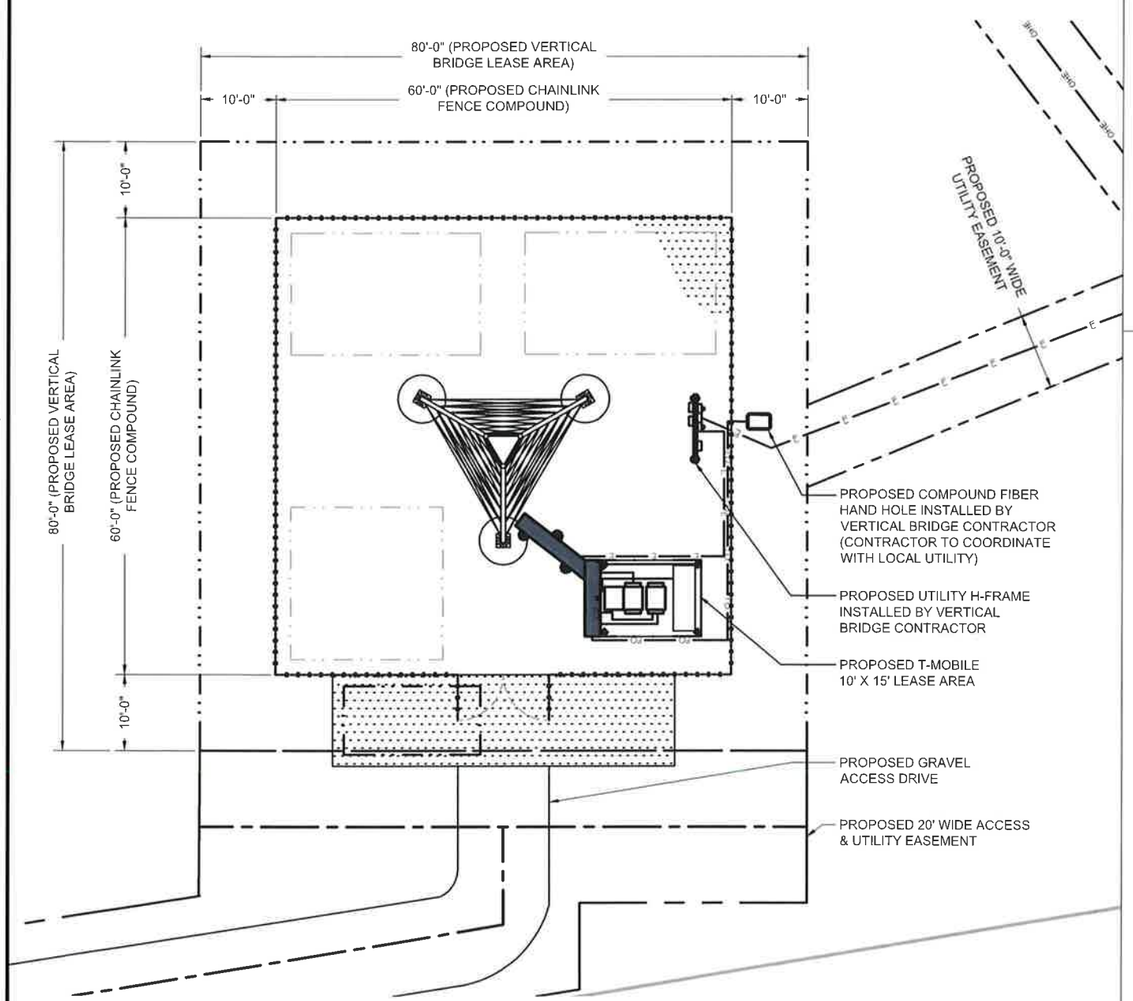
PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
T-MOBILE ANTENNA SECTOR FRAME DETAILS

SCALE:
AS NOTED

PROJECT NUMBER: 58067
SHEET NUMBER: S-2T

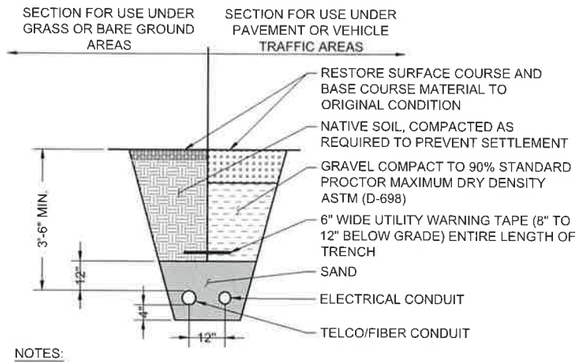
DRAWN BY: DGJ CHECKED BY: JLF



NOTE:
UTILITY/GROUNDING LINES ARE SHOWN FOR SCHEMATIC PURPOSES ONLY & DO NOT REPRESENT THE EXACT LOCATION OF THE RUN. CONTRACTOR SHALL FIELD VERIFY PROPOSED & EXISTING SERVICE LOCATIONS. NOTIFY CONSTRUCTION/ PROJECT MANAGER IMMEDIATELY OF ANY DISCREPANCIES.

LEGEND:	
—E—E—E—E—	PROPOSED ELECTRIC
—T—T—T—T—	PROPOSED TELCO
—FO—FO—FO—	PROPOSED FIBER

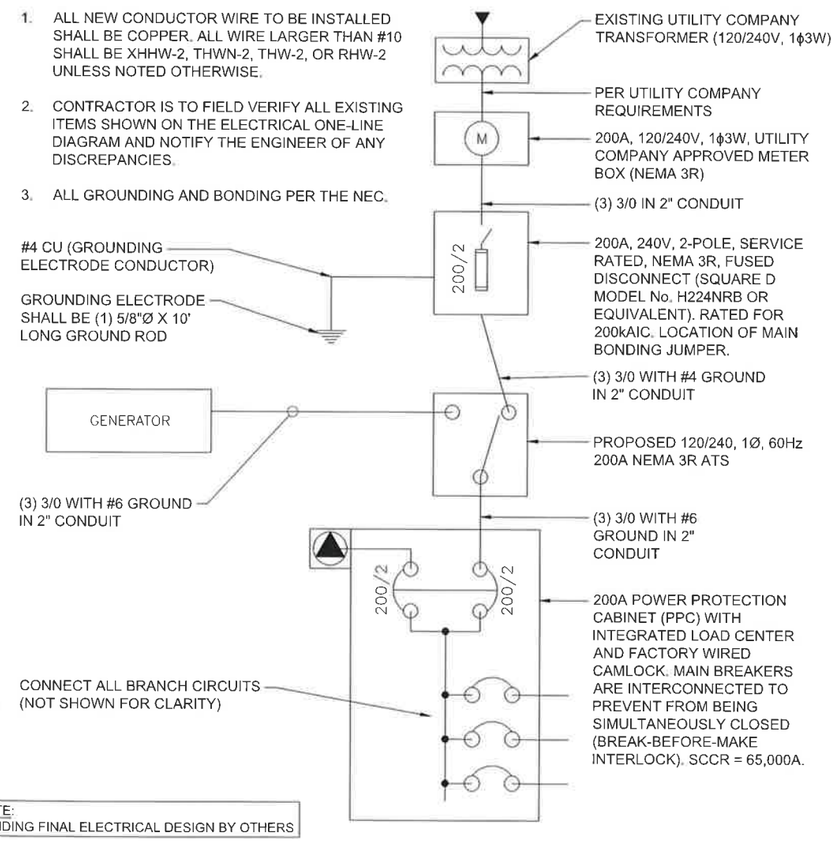
OVERALL UTILITY SITE PLAN (1)
SCALE: 1" = 20'



NOTES:
1. CONTRACTOR TO VERIFY LOCAL UTILITY REQUIREMENTS FOR DEPTH, SIZE, & SEPARATION OF CONDUITS PRIOR TO INSTALLATION. NOTIFY CONSTRUCTION MANAGER IMMEDIATELY OF ANY DISCREPANCIES.
2. CONTRACTOR TO CALL DIGGERS HOTLINE (1-800-242-8511) 48 HOURS PRIOR TO EXCAVATING FOR UNDERGROUND UTILITY LOCATIONS. LOCATION SURROUNDING EXCAVATED AREA MUST BE PRIVATELY LOCATED FOR NON-PUBLIC UTILITIES.

TYPICAL UTILITY TRENCH DETAIL (2)
SCALE: NTS

1. ALL NEW CONDUCTOR WIRE TO BE INSTALLED SHALL BE COPPER. ALL WIRE LARGER THAN #10 SHALL BE XHHW-2, THWN-2, THW-2, OR RHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.



NOTE:
PENDING FINAL ELECTRICAL DESIGN BY OTHERS

ONE-LINE DIAGRAM (3)
SCALE: NTS

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINKERTON
PE.0058800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

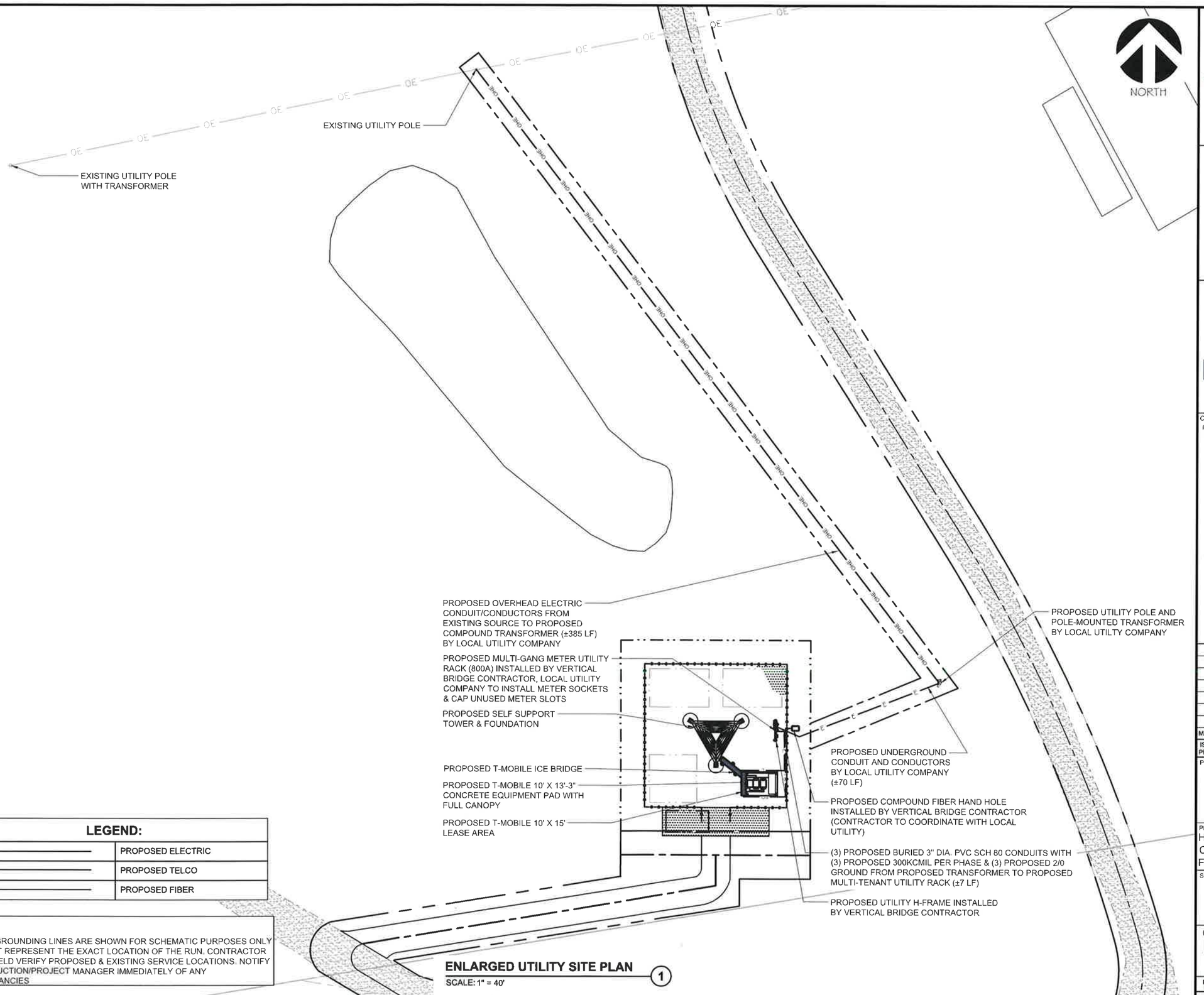
PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
OVERALL UTILITY SITE PLAN

0 10' 20' 40'
11" x 17" - 1" = 20'
22" x 34" - 1" = 10'

PROJECT NUMBER: 58067
SHEET NUMBER: E-1

C:\Users\steves\local settings\temp\AcPublish_21104\58067_US-CO-5091_PCDs_11.19.2024.dwg Printed by: steves on Nov 20, 2024 - 12:47pm



ENLARGED UTILITY SITE PLAN (1)
SCALE: 1" = 40'

LEGEND:	
———	PROPOSED ELECTRIC
———	PROPOSED TELCO
———	PROPOSED FIBER

NOTE:

UTILITY GROUNDING LINES ARE SHOWN FOR SCHEMATIC PURPOSES ONLY & DO NOT REPRESENT THE EXACT LOCATION OF THE RUN. CONTRACTOR SHALL FIELD VERIFY PROPOSED & EXISTING SERVICE LOCATIONS. NOTIFY CONSTRUCTION/PROJECT MANAGER IMMEDIATELY OF ANY DISCREPANCIES

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINKE
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

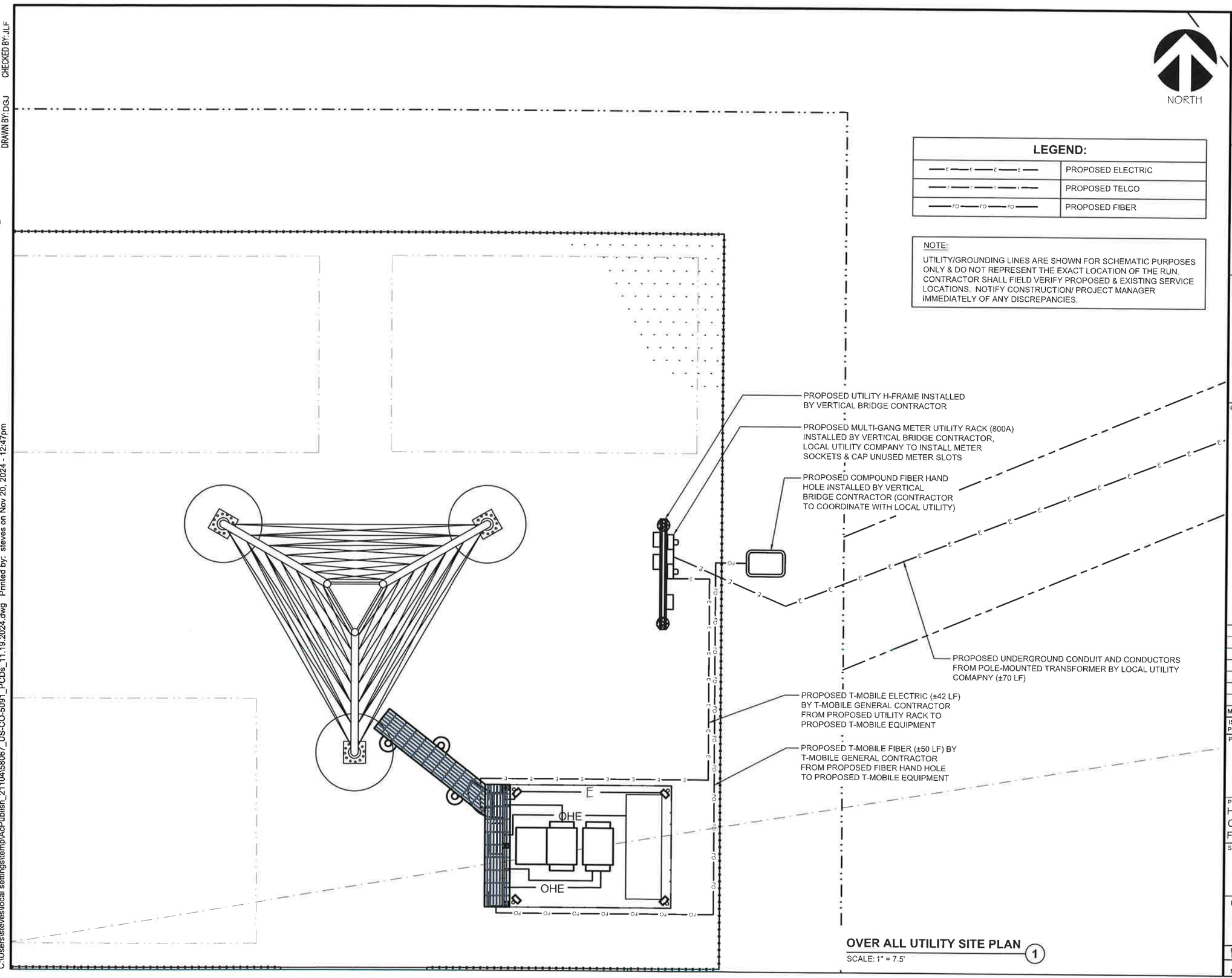
PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
ENLARGED UTILITY SITE PLAN

0 20' 40' 80'
11" x 17" - 1" = 40'
22" x 34" - 1" = 20'

PROJECT NUMBER: 58067
SHEET NUMBER: E-2



LEGEND:

—E—E—E—E—	PROPOSED ELECTRIC
—T—T—T—T—	PROPOSED TELCO
—FO—FO—FO—	PROPOSED FIBER

NOTE:
UTILITY/GROUNDING LINES ARE SHOWN FOR SCHEMATIC PURPOSES ONLY & DO NOT REPRESENT THE EXACT LOCATION OF THE RUN. CONTRACTOR SHALL FIELD VERIFY PROPOSED & EXISTING SERVICE LOCATIONS. NOTIFY CONSTRUCTION/ PROJECT MANAGER IMMEDIATELY OF ANY DISCREPANCIES.

OVER ALL UTILITY SITE PLAN (1)
SCALE: 1" = 7.5'

verticalbridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

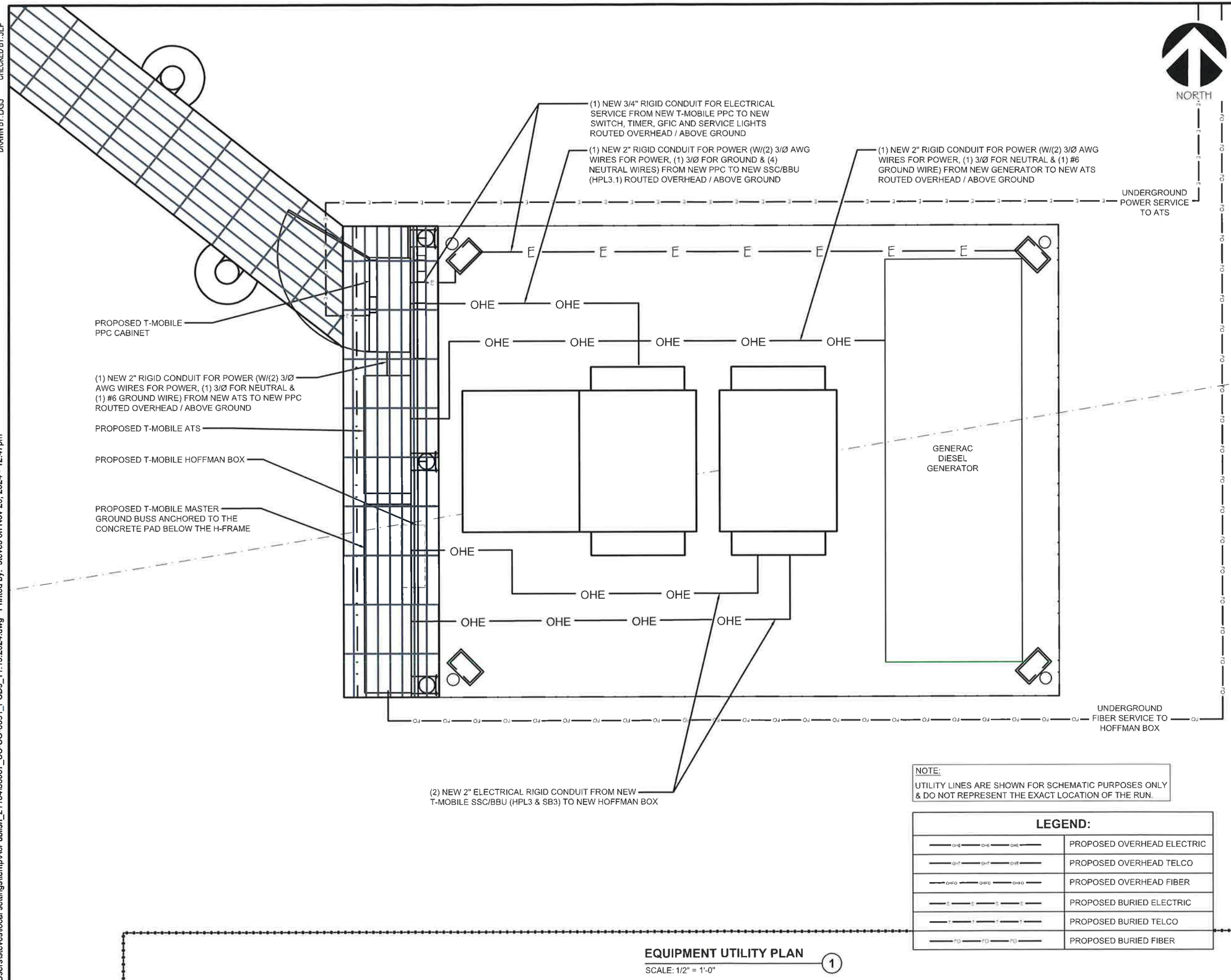
PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
T-MOBILE UTILITY PLAN

0 3.75' 7.5' 15'
11" x 17" - 1" = 7.5'
22" x 34" - 1" = 3.75'

PROJECT NUMBER: 58067
SHEET NUMBER: E-3T

DRAWN BY: DGJ
CHECKED BY: JLF



NOTE:
UTILITY LINES ARE SHOWN FOR SCHEMATIC PURPOSES ONLY & DO NOT REPRESENT THE EXACT LOCATION OF THE RUN.

LEGEND:	
OHE OHE OHE	PROPOSED OVERHEAD ELECTRIC
OHT OHT OHT	PROPOSED OVERHEAD TELCO
OHFO OHFO OHFO	PROPOSED OVERHEAD FIBER
E E E	PROPOSED BURIED ELECTRIC
T T T	PROPOSED BURIED TELCO
FO FO FO	PROPOSED BURIED FIBER

EQUIPMENT UTILITY PLAN (1)
SCALE: 1/2" = 1'-0"

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINKERTON
PE.0050700
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

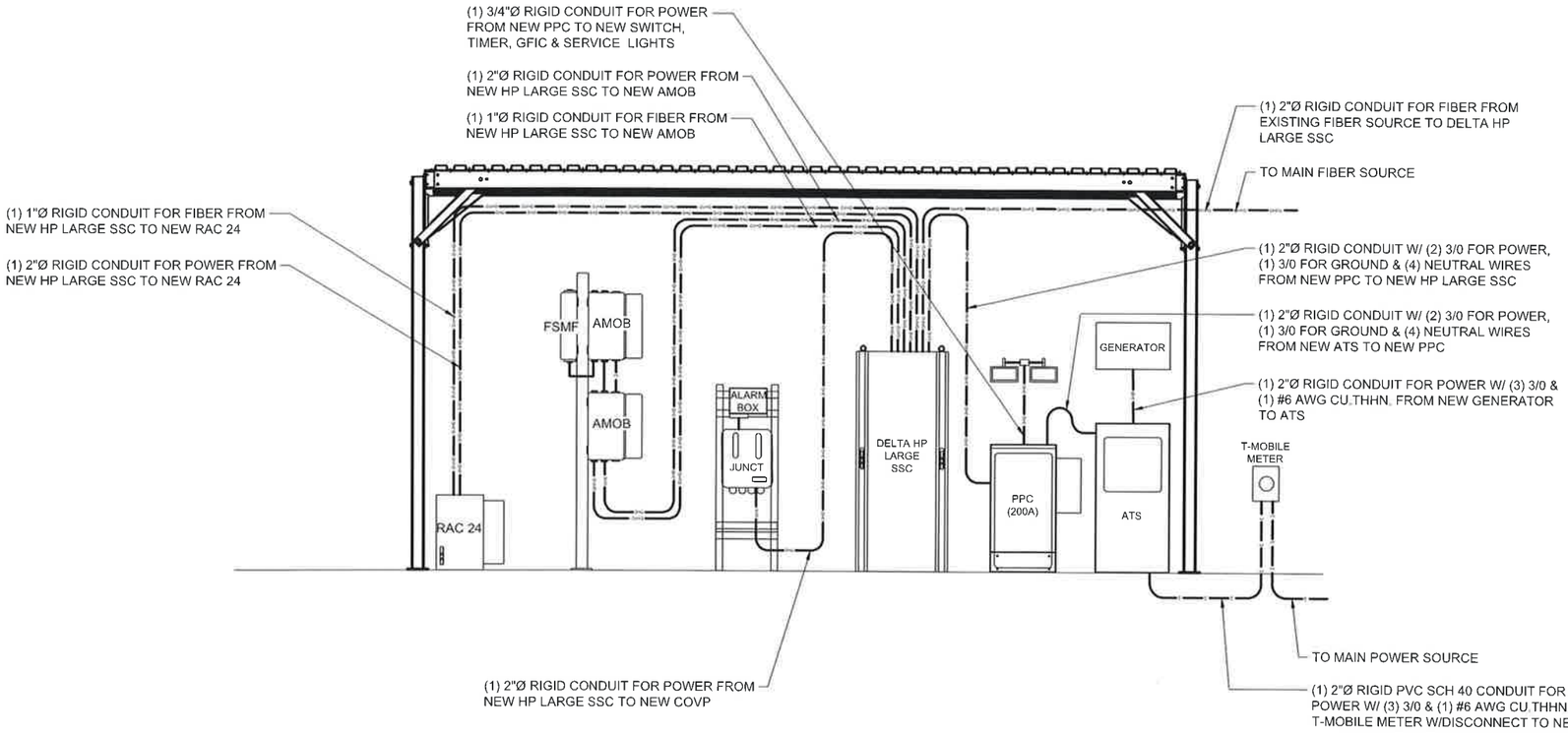
PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
T-MOBILE EQUIPMENT UTILITY PLAN

0 1' 2' 4'
11" x 17" - 1/2" = 1'
22" x 34" - 1" = 1'

PROJECT NUMBER: 58067
SHEET NUMBER: E-4T

C:\Users\steves\local settings\temp\AcPublish_21104\58067_US-CO-5091_PCDs_11.19.2024.dwg Printed by: steves on Nov 20, 2024 - 12:47pm



UTILITY RISER DIAGRAM

SCALE: NTS (1)

PANEL BOARD SCHEDULE

T-MOBILE PROJECT NAME:		NSD		PANEL STATUS:		NEW			N TO GROUND BOND:		YES				
VOLTAGE:		240V/120		MODEL NUMBER:		T.B.D.			INTERNAL TVSS:		YES				
MAIN BREAKER:		200 AMP		PHASE:		1			WIRE:		3				
MOUNT:		H-FRAME		BUSS RATING		200 AMPS			AIC:		22,000				
ENCLOSURE TYPE:		NEMA 3R		NEUTRAL BAR:		YES			GROUND BAR:		YES				
CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD VA	USAGE FACTOR	PHASE A VA	PHASE B VA	USAGE FACTOR	SERVICE LOAD VA	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
1	SURGE ARRESTOR	30	2	ON	0	1.00	8800		1.00	8800	ON	4	200	SSC	2
3		---	---	ON	0	1.00		8800	1.00	8800	ON	---	200		4
5	SERVICE LIGHT	20	1	ON	180	1.00	8880		1.00	8800	ON	---	200		6
7	---	---	---	N/A	0	0.00		8800	1.00	8800	ON	---	200		8
9	---	---	---	N/A	0	0.00	0		0.00	0	N/A	---	---	---	10
11	---	---	---	N/A	0	0.00		0	0.00	0	N/A	---	---	---	12
13	---	---	---	N/A	0	0.00	0		0.00	0	N/A	---	---	---	14
15	---	---	---	N/A	0	0.00		0	0.00	0	N/A	---	---	---	16
17	---	---	---	N/A	0	0.00	0		0.00	0	N/A	---	---	---	18
19	---	---	---	N/A	0	0.00		0	0.00	0	N/A	---	---	---	20
21	---	---	---	N/A	0	0.00	0		0.00	0	N/A	---	---	---	22
23	---	---	---	N/A	0	0.00		180	1.00	180	ON	1	20	GFI OUTLET	24
							17780	17780	VA			TOTAL KVA	35.56		
												AMPS	148.17		

POWER BOARD SCHEDULE

SCALE: NTS (2)

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PISKE
PE.0000000
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

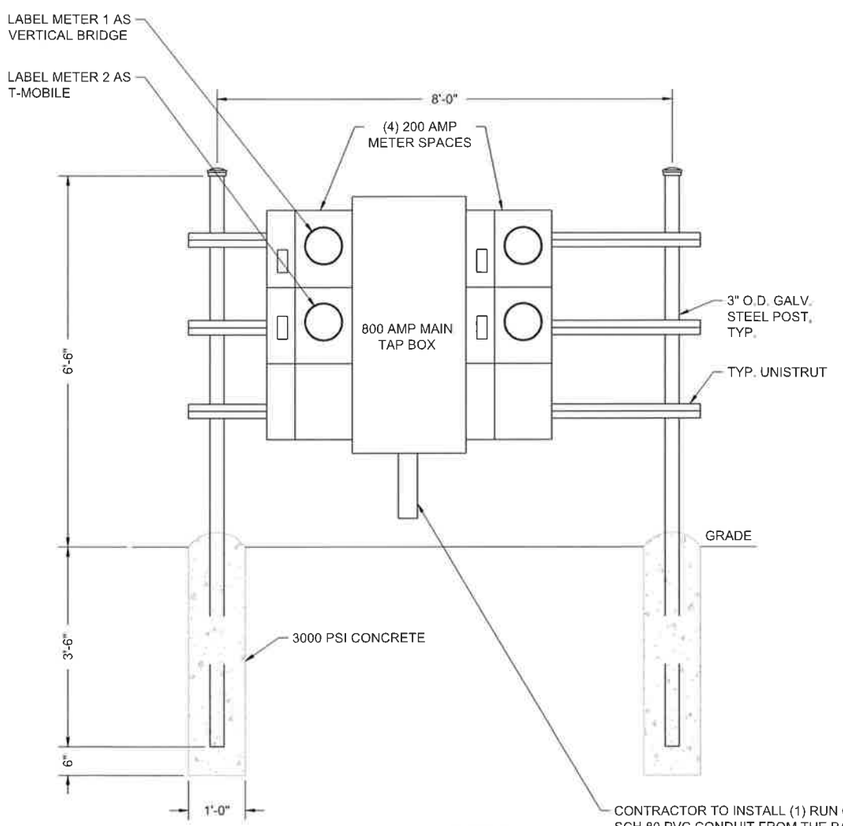
PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
T-MOBILE UTILITY RISER AND POWER BOARD SCHEDULE

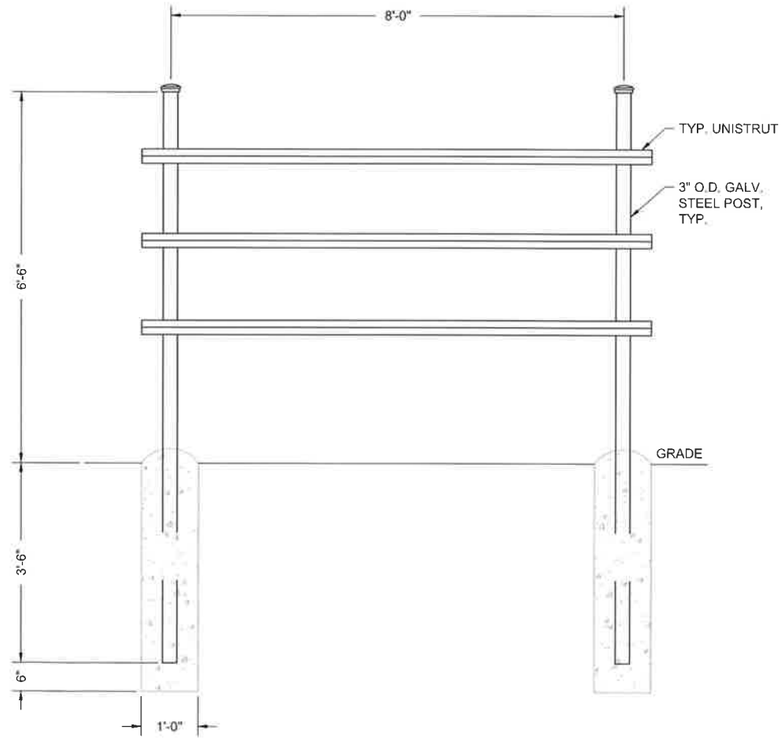
SCALE: NONE

PROJECT NUMBER: 58067

SHEET NUMBER: E-5T



FRONT



REAR

NOTE:
-FINAL LAYOUT & DESIGN DETERMINED BY CONTRACTOR/UTILITY PROVIDER. VERIFY DESIGN WITH CONSTRUCTION MANAGER.

-PROVIDE PHENOLIC ENGRAVED NAME PLATES FOR EQUIPMENT AT UTILITY RACK.

-METERING TO BE RINGLESS WITH A LEVER BYPASS. LOCAL UTILITY COMPANY MUST APPROVE METERING PRIOR TO PURCHASE.

UTILITY STAND DETAIL (1)
SCALE: NTS

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PIERCE
P.E. 0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

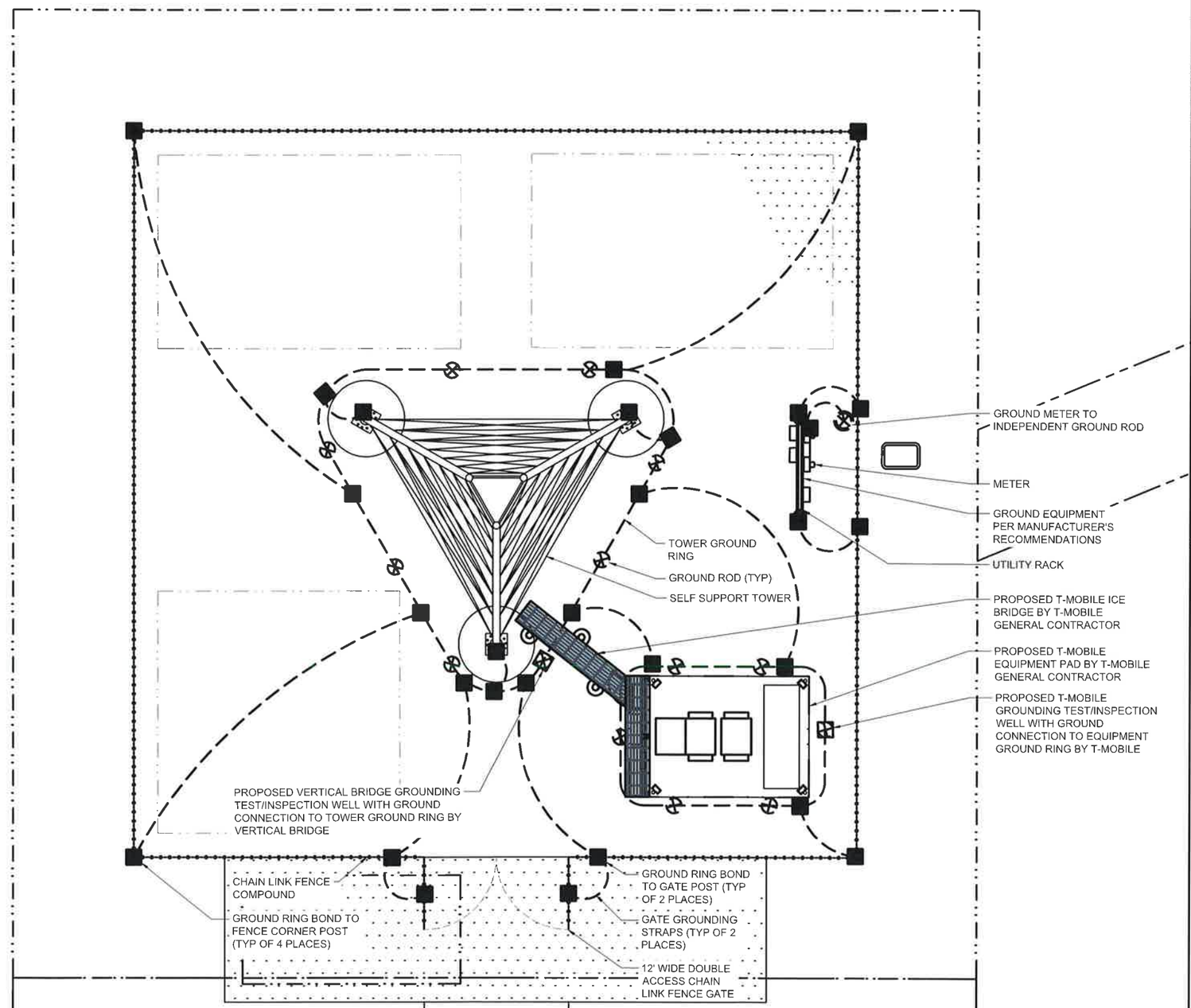
PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
COMPOUND UTILITY DETAILS

SCALE: NONE

PROJECT NUMBER: 58067
SHEET NUMBER: E-6

DRAWN BY: DGJ CHECKED BY: JLF



GROUNDING PLAN (1)
SCALE: 1" = 10'

NOTE: SEE DETAIL PAGES E-8T AND E-9T FOR MORE T-MOBILE GROUNDING INFORMATION

LEGEND:

----------	PROPOSED GROUND CABLE
▲	MECHANICAL CONNECTION
■	EXOTHERMIC CONNECTION
⊗	5/8" DIA. x 10'-0" GROUND ROD
⊗	GROUND TEST WELL

GROUNDING LINES ARE SHOWN FOR SCHEMATIC PURPOSES ONLY & DO NOT REPRESENT THE EXACT LOCATION OF THE RUN. CONTRACTOR SHALL FIELD VERIFY PROPOSED & EXISTING SERVICE LOCATIONS. NOTIFY CONSTRUCTION/ PROJECT MANAGER IMMEDIATELY OF ANY DISCREPANCIES.

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER SHALL BE BONDED TOGETHER BELOW GRADE BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE 2011 NATIONAL ELECTRICAL CODE.
2. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT & PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED CODING FITTINGS OR BE BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES. #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS. #2 AWG STRANDED COPPER FOR OUTDOOR BTS.
7. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/ GROUND BARS AND THE GROUND RING SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
8. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
9. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR & EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
10. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
11. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND TOWER GROUND BAR.
12. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
13. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
14. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH (1) #2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
15. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS. NONMETALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIX CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

verticalbridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL — DATE ISSUED: 06/25/2024

PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
COMPOUND GROUNDING PLAN

0 5' 10' 20'
11" x 17" - 1" = 10'
22" x 34" - 1" = 5'

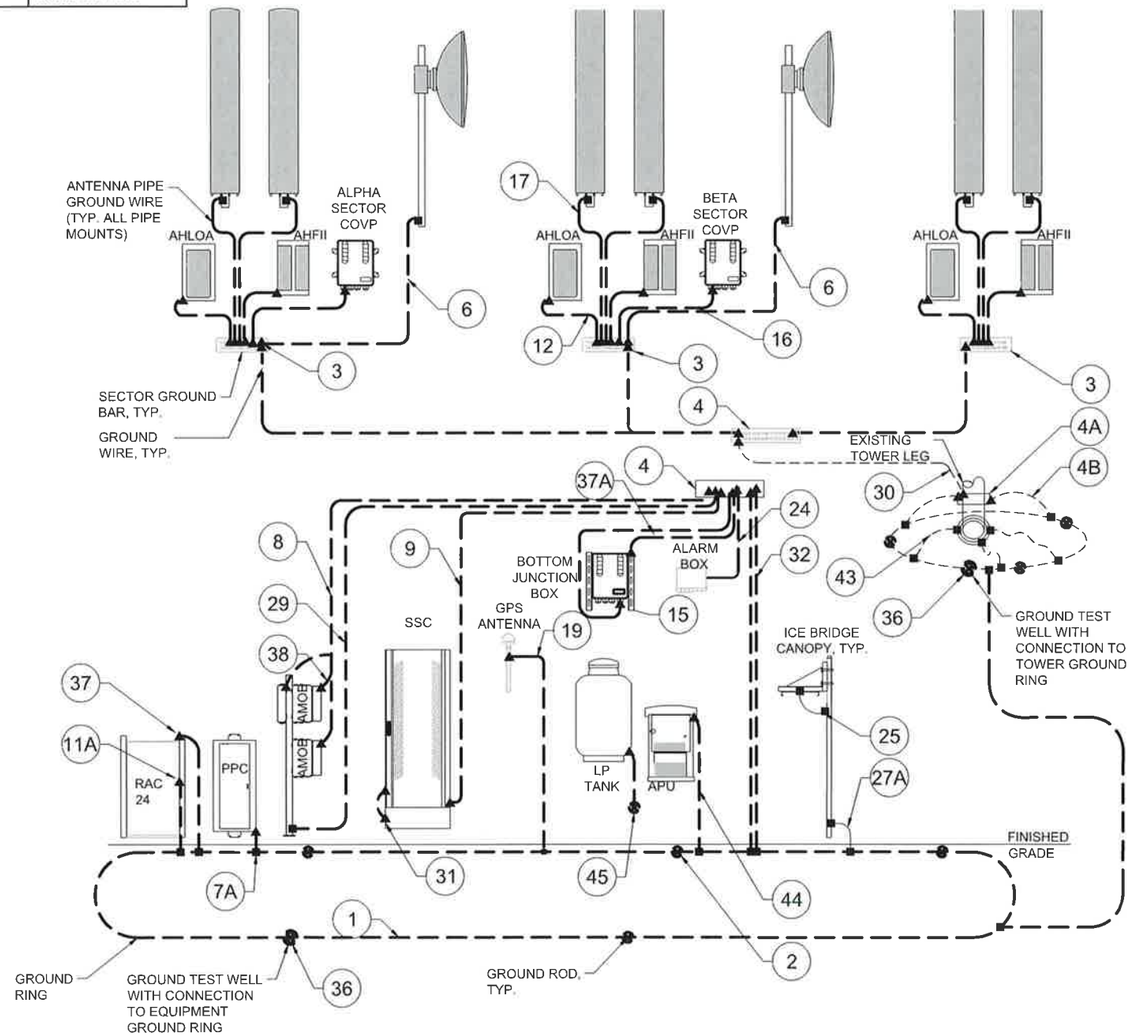
PROJECT NUMBER: 58067
SHEET NUMBER: E-7

GROUNDING NOTES:

1.) UNDERGROUND AND OVERHEAD UTILITY LENGTHS TO BE DETERMINED FROM SITE PLAN.
2.) SEE ELECTRICAL SPECIFICATIONS SECTION 16000 FOR ALL ELECTRICAL AND GROUNDING INSTALLATION REQUIREMENTS.
3.) FOR ORIENTATION OF SITE LAYOUT, SEE SITE PLAN, DRAWING.
4.) UDA CABINET FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.
5.) GROUND KITS PROVIDED BY OWNER SHALL BE RETROFITTED TO ACCOMMODATE 2 HOLE LUG CONNECTION AND APPROPRIATE LENGTH
6.) CONTRACTOR RESPONSIBLE TO PROVIDE OWNER CERTIFICATION OF RESISTIVELY TESTING.
7.) GROUND RODS TO BE INSTALLED AT 10' CENTERS.
8.) ALL GROUND LEADS TO BE SLEEVE IN ¾" Ø SCHEDULE 40 PVC CONDUIT AND SEALED W/ SILICON.
9.) GROUND BAR SUPPLIED BY OWNER AND INSTALLED BY CONTRACTOR.
10.) ALL BENDS IN GROUNDING SYSTEM MUST BE SMOOTH AND WELL ROUNDED AND MAINTAIN BENDING RADIUS.
11.) SEE SITE PLAN FOR COAXIAL ROUTING THIS SHEET IS INTENDED FOR GROUNDING CLARITY ONLY AND IS SCHEMATIC IN DETAIL.
12.) GROUND KITS SHALL BE INSTALLED BETWEEN 8"-18" OF ALL CONNECTORS.
13.) TOWER FOUNDATION DESIGN BY OWNER, INSTALLED BY CONTRACTOR.
14.) ADDITIONAL GROUND KITS TO BE PLACED AT 100' WHEN ANTENNA CENTERLINE IS 200' OR ABOVE.
15.) ALL CONDUITS TO BE SEALED W/ SILICONE TO PROVIDE A WATER TIGHT SEAL.

1	GROUND RING, #2 SOLID, TINNED BARE COPPER WIRE CONSTRUCT RING FROM ONE CONTINUOUS PIECE.
2	5/8" Ø X 10' COPPER CLAD GROUND ROD
3	SECTOR GROUND BAR (TYP. OF 1 PER SECTOR)
4	MASTER GROUND BAR
4A	LOWER TOWER COPPER GROUND BAR
4B	#2 AWG SOLID, TINNED BARE COPPER GROUND WIRE 4B FROM LOWER TOWER GROUND BAR TO GROUND RING (2 REQUIRED)
5	#2 AWG GREEN STRANDED GROUND CU WIRE BOND DIRECTLY TO TOWER
6	#6 AWG GREEN STRANDED GROUND CU WIRE FROM NEW MICROWAVE DISH TO LOWER TOWER GROUND BAR
7	#6 AWG GREEN STRANDED GROUND CU WIRE FROM PPC/ AC PANELTO MASTER GROUND BAR
7A	#2 AWG SOLID, TINNED BARE CU GROUND WIRE FROM PPC TO GROUND RING
8	#6 AWG GREEN STRANDED GROUND CU WIRE FROM STEEL CUBE W/MODULES TO MASTER GROUND BAR
8A	#2 AWG SOLID, TINNED BARE CU GROUND WIRE FROM STEEL CUBE W/MODLES TO GROUND RING
9	#2 AWG SOLID, TINNED BARE COPPER GROUND WIRE FROM NEW SSC TO MASTER GROUND BAR
9A	#2 AWG SOLID, TINNED BARE CU GROUND WIRE FROM NEW SSC TO GROUND RING
10	#2 AWG GREEN STRANDED GROUND CU WIRE FROM NEW METER TO EXISTING SITE WATER MAIN
11	#6 AWG GREEN STRANDED GROUND CU WIRE FROM NEW RAC 24 TO MASTER GROUND BAR
11A	#2 AWG SOLID, TINNED BARE CU GROUND WIRE FROM NEW RAC 24 TO NEW GROUND RING
12	#2 AWG GREEN STRANDED GROUND CU WIRE FROM NEW MODULE PLINTH TO NEW SECTOR GROUND BAR
13	#2 AWG GREEN JACKETED GROUND CU WIRE FROM MASTER GROUND BAR TO EXISTING SITE WATER MAIN
14	#2 AWG GREEN STRANDED GROUND CU WIRE FROM NEW SECTOR GROUND BAR TO MASTER GROUND BAR
14A	#2 AWG SOLID, TINNED BARE CU GROUND WIRE FROM NEW SECTOR GROUND BAR TO NEW SECTOR GROUND BAR
15	#2 AWG GREEN STRANDED GROUND CU WIRE FROM NEW BOTTOM JUNCTION BOX TO MASTER GROUND BAR
15A	#2 AWG SOLID, TINNED BARE CU GROUND WIRE FROM NEW BOTTOM COVP TO GROUND RING
16	#2 AWG GREEN STRANDED GROUND CU WIRE FROM NEW TOP COVP TO NEW SECTOR GROUND BAR
17	#2 AWG SOLID, TINNED BARE COPPER GROUND WIRE FROM NEW ANTENNA PIPE TO NEW SECTOR GROUND BAR
18	#2 AWG SOLID, TINNED BARE COPPER GROUND WIRE FROM METER SOCKET TO ISOLATED GROUND ROD
19	#2 AWG SOLID, TINNED BARE COPPER GROUND WIRE FROM NEW GPS ANTENNA TO GROUND RING
19A	#6 AWG GREEN STRANDED GROUND CU WIRE FROM NEW GPS ANTENNA TO MASTER GROUND BAR
20	EXISTING GROUND RING
21	#6 AWG GREEN STRANDED GROUND CU WIRE FROM HYBRID CABLE & MICROWAVE COAX CABLE TO MASTER GROUND BAR
21A	#2 AWG SOLID, TINNED BARE CU GROUND WIRE FROM HYBRID CABLE TO GROUND RING
22	EXISTING TOWER GROUND RING
23	#6 AWG GREEN STRANDED CU GROUND WIRE FROM NEW CABLE LADDER TO MASTER GROUND BAR
24	#2 AWG GREEN STRANDED COPPER GROUND WIRE FROM NEW ALARM BOX TO MASTER GROUND BAR
24A	#2 AWG SOLID, TINNED BARE COPPER GROUND WIRE FROM NEW ALARM BOX TO GROUND RING
25	#2 AWG GREEN STRANDED COPPER GROUND WIRE FROM ICE BRIDGE TO ICE BRIDGE POST
25A	#2 AWG GREEN STRANDED COPPER GROUND WIRE FROM FENCE TO FENCE POST
26	#2 AWG SOLID, TINNED BARE COPPER GROUND WIRE FROM UTILITY POST TO GROUND RING
27	#2 AWG SOLID, TINNED BARE COPPER GROUND WIRE FROM GROUND RING TO FENCE POST
27A	#2 AWG SOLID, TINNED BARE COPPER GROUND WIRE FROM GROUND RING TO ICE BRIDGE POST
28	#2 AWG SOLID, TINNED BARE CU GROUND WIRE FROM JUNCTION BOX TO GROUND RING
28A	#2 AWG GREEN STRANDED CU GROUND WIRE FROM JUNCTION BOX TO MASTER GROUND BAR
29	#2 AWG GREEN STRANDED CU GROUND WIRE FROM SYSTEM MODULE PLINTH TO MASTER GROUND BAR
30	#2 AWG GREEN STRANDED GROUND CU WIRE FROM UPPER TOWER GROUND BAR TO LOWER TOWER GROUND BAR
30A	#2 AWG GREEN STRANDED GROUND CU WIRE FROM GROUND BAR TO GROUND BAR
31	#2 AWG GREEN STRANDED GROUND CU WIRE FROM NEW SSC TO SSC PLINTH
32	#2 AWG SOLID, TINNED BARE CU GROUND WIRE FROM MASTER GROUND BAR TO GROUND RING
33	#2 AWG SOLID, TINNED BARE COPPER GROUND WIRE FROM NEW LIGHT TO GROUND RING
33A	#2 AWG GREEN STRANDED GROUND CU WIRE FROM NEW NEW LIGHT TO MASTER GROUND BAR
34	#2 AWG SOLID, TINNED BARE COPPER GROUND WIRE FROM STEEL PLATFORM TO GROUND RING
34A	#2 AWG GREEN STRANDED GROUND CU WIRE FROM NEW STEEL PLATFORM TO MASTER GROUND BAR
35	#2 AWG GREEN STRANDED GROUND CU WIRE FROM NEW TMA TO MASTER GROUND BAR
36	GROUND TEST WELL
37	#2 AWG SOLID, TINNED BARE CU GROUND WIRE FROM UNISTRUT TO GROUND RING
37A	#2 AWG GREEN STRANDED GROUND CU WIRE FROM UNISTRUT TO MASTER GROUND BAR
38	#6 AWG GREEN STRANDED CU GROUND WIRE FROM NEW SYSTEM MODULE PLINTH TO NEW SYSTEM MODULE
39	#2 AWG SOLID, TINNED BARE COPPER GROUND WIRE FROM NEW BATTERY CABINET TO MASTER GROUND BAR
39A	#2 AWG GREEN STRANDED GROUND CU WIRE FROM NEW BATTERY CABINET TO BATTERY CABINET PLINTH
40	#2 AWG SOLID, TINED BARE COPPER GROUND WIRE FROM NEW GROUND RING TO NEW TOWER GROUND RING
41	#2 AWG GREEN STRANDED GROUND CU WIRE FROM NEW MASTER GROUND BAR TO NEW LADDER
42	#2 AWG SOLID, TINNED BARE COPPER GROUND WIRE FROM NEW TOWER GROUND RING TO THE EXTENT OF LEASE AREA (RADIAL LEAD) TO GROUND RING
43	#2 AWG SOLID , TINNED BARE COPPER GROUND WIRE FROM TOWER BASE PLATE TO GROUND RING; (4) REQUIRED
44	#2 AGW SOLID, TINNED BARE COPPER GROUND WIRE FROM GENERATOR CABINET BUS BAR TO GROUND RING
45	#2 AGW SOLID, TINNED BARE COPPER GROUND WIRE FROM EXOTHERMIC WELD ON THE TANK BASE TO ISOLATED GROUND ROD

LEGEND:	
	EXISTING GROUND CABLE
	PROPOSED GROUND CABLE
▲	MECHANICAL CONNECTION
■	EXOTHERMIC CONNECTION
⊗	GROUND ROD
⊗	GROUND TEST WELL



TYPICAL GROUNDING DIAGRAM (1)
SCALE: NTS

GROUNDING NOTES:

1. CONTRACTOR TO ENSURE PROPER SEQUENCING OF GROUNDING AND UNDERGROUND CONDUIT INSTALLATION TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM AND/OR DAMAGE TO THE CONDUIT.
2. ALL EXTERIOR GROUND CONDUCTORS SHALL BE #2 AWG SOLID TINNED COPPER UNLESS NOTED OTHERWISE.
3. ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
4. ALL GROUND CONNECTIONS ABOVE GRADE AND/OR INTERIOR SHALL BE COMPRESSION TYPE, TWO-HOLE LUGS OR DOUBLE-CRIMP "C" TAPS.
5. CONTACT AREAS WHERE CONNECTIONS ARE MADE SHALL BE PREPARED TO A BARE BRIGHT FINISH AND COATED WITH AN ANTI-OXIDATION MATERIAL BEFORE CONNECTIONS ARE MADE.
6. MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS.
7. WHERE GROUNDING CONNECTIONS ARE MADE TO PAINTED METAL SURFACES, PAINT SHALL BE REMOVED TO BEAR METAL TO ENSURE PROPER CONTACT AND RESTORED/PAINTED TO ORIGINAL FINISH.
8. GROUND DEPTH SHALL BE 30" MINIMUM BELOW FINISHED GRADE, OR 6" BELOW FROST LINE, WHICHEVER IS GREATER.

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. FENKE
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL — DATE ISSUED: 06/25/2024

PROJECT TITLE:

US-CO-5091 / DN02546A

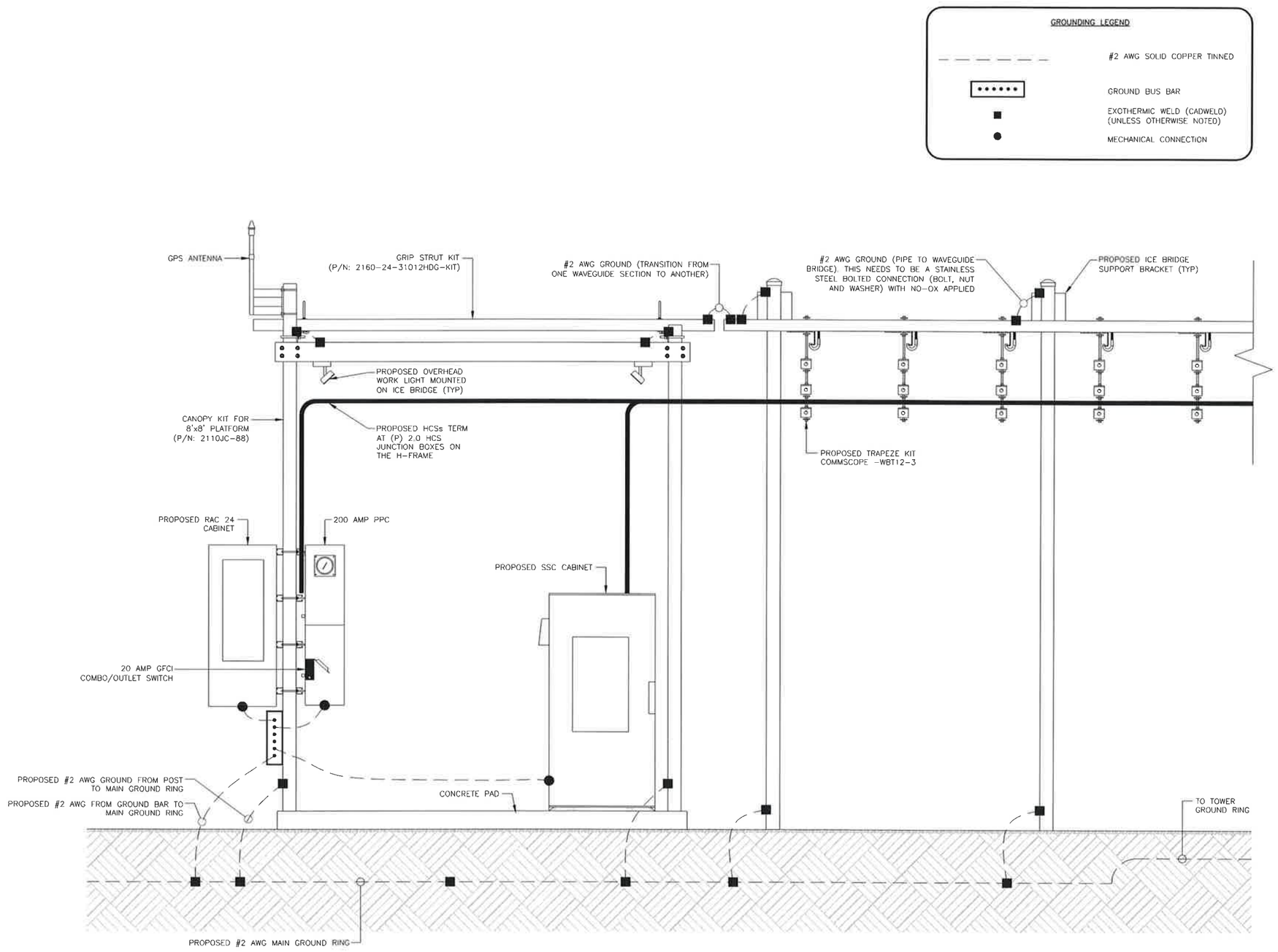
PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:

TYPICAL T-MOBILE GROUNDING RISER

SCALE: NONE

PROJECT NUMBER: 58067
SHEET NUMBER: E-8T



TYPICAL T-MOBILE EQUIPMENT GROUNDING ELEVATION (1)
SCALE: NTS

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINSKE
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

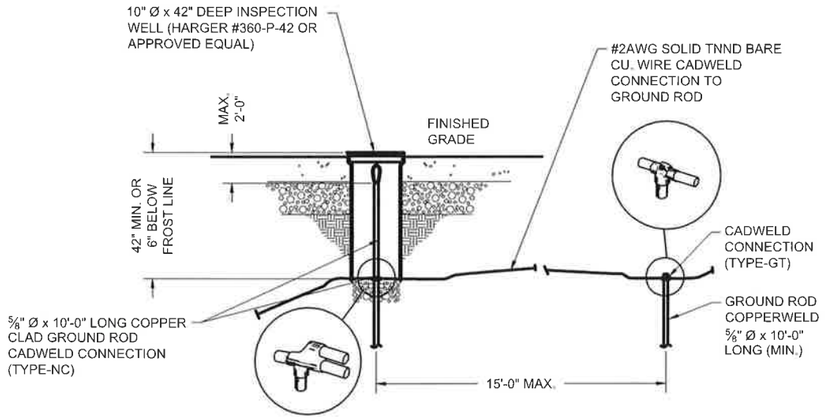
PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

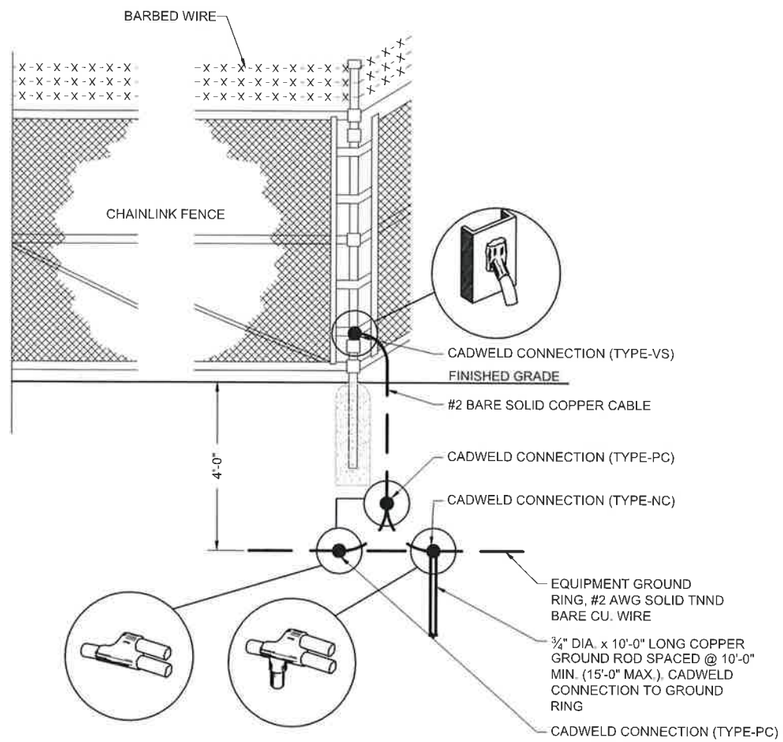
SHEET TITLE:
TYPICAL T-MOBILE EQUIPMENT GROUNDING ELEVATION

SCALE: NONE

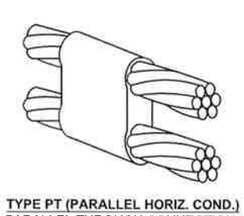
PROJECT NUMBER: 58067
SHEET NUMBER: E-9T



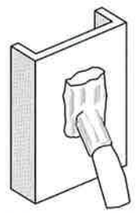
INSPECTION WELL & GROUND ROD DETAIL (1)
SCALE: NTS



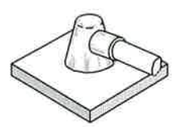
FENCE CORNER POST GROUNDING DETAIL (2)
SCALE: NTS



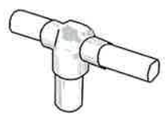
TYPE PT (PARALLEL HORIZ. COND.)
PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES



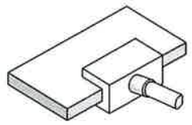
TYPE VS (VERT. STEEL SURFACE)
CABLE TAP DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE



TYPE HS (HORIZ. STEEL SURFACE)
TO FLAT STEEL SURFACE OR HORIZONTAL PIPE



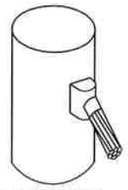
TYPE GT (THROUGH CABLE TO GROUND ROD)
THROUGH CABLE TO TOP OF GROUND ROD



TYPE LJ (FLAT BUSBAR)
TAP OF HORIZONTAL CABLE TO EDGE OF HORIZONTAL

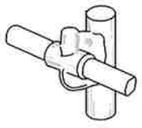
TYPE YA-2 (COPPER LUGS)
TWO HOLE- LONG BARREL LENGTH

TYPE 2-YA-2 (BOND JUMPER)
FIELD FABRICATED GREEN STRANDED INSULATED



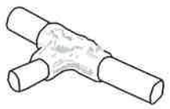
TYPE VS (VERTICAL PIPE)
CABLE TAP DOWN AT 45° TO RANGE OF VERTICAL PIPES

TYPE NC
THROUGH AND TAP CABLES TO GROUND ROD

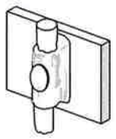


TYPE GY
THROUGH CABLE TO SIDE OF GROUND ROD

TYPE GR
CABLE TAP TO TOP OF GROUND ROD

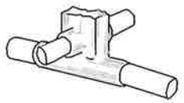


TYPE TA
TEE OF HORIZONTAL RUN AND TAP CABLES



TYPE W
THROUGH VERTICAL CABLE TO VERTICAL STEEL SURFACE OR TO THE SIDE OF EITHER HORIZONTAL OR VERTICAL PIPE

TYPE PC
PARALLEL TAP CABLES



TYPE XB
CROSS OF HORIZONTAL CABLES. LAPPED AND NOT CUT.

TYPICAL CADWELD TYPES DETAIL (3)
SCALE: NTS

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. ANSELL
PE.00060800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL — DATE ISSUED: 06/25/2024

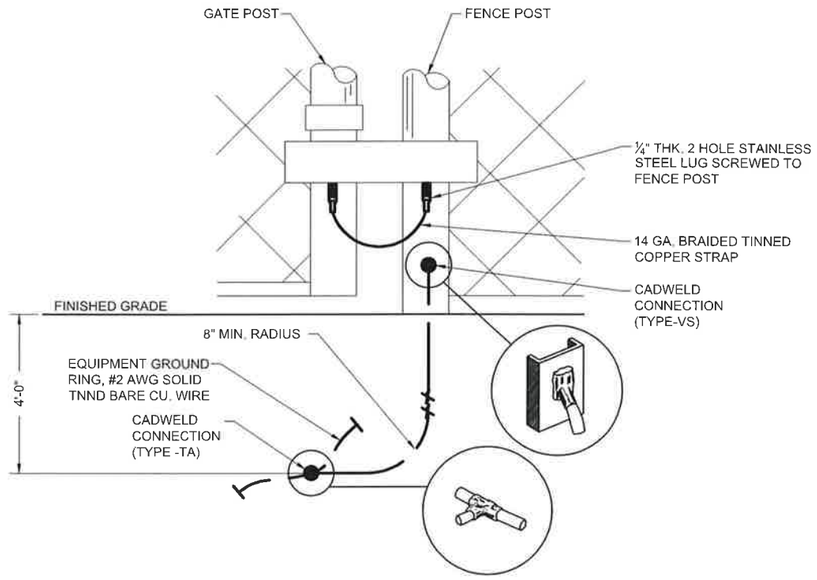
PROJECT TITLE:
US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:
COMPOUND GROUNDING DETAILS

SCALE: NONE

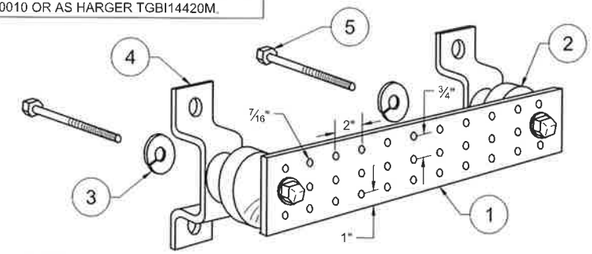
PROJECT NUMBER: 58067
SHEET NUMBER: E-10



GATE POST GROUNDING DETAIL (1)
SCALE: NTS

NOTES:

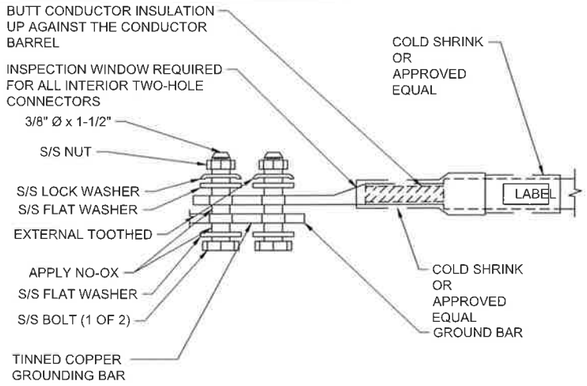
1. ALL MOUNTING HARDWARE CAN BE USED ON 6", 12", 18", ETC. GROUND BARS.
2. ENTIRE ASSEMBLY AVAILABLE FROM NEWTON INSTRUMENT CO. CAT. NO. 2106060010 OR AS HARGER TGBI14420M.



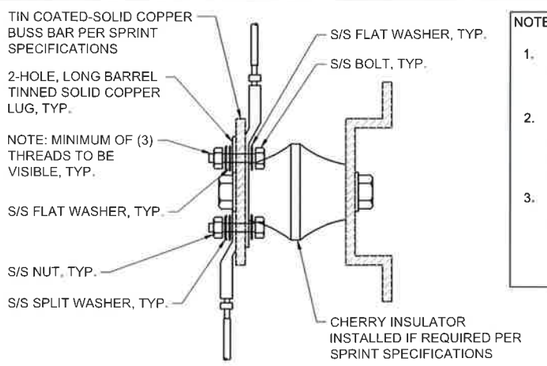
LEGEND

1. TINNED COPPER GROUND BAR, ¼" x 4" x 20", NEWTON CO., HARGER TGBI14420M, OR EQUIVALENT. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS. INSTRUMENT CO. CAT. NO. 3061-4 OR HARGER EQUIVALENT.
3. ⅝" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUIVALENT.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR HARGER EQUIVALENT.
5. ⅝" x 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR HARGER EQUIVALENT.

TYPICAL GROUND BAR DETAIL (2)
SCALE: NTS



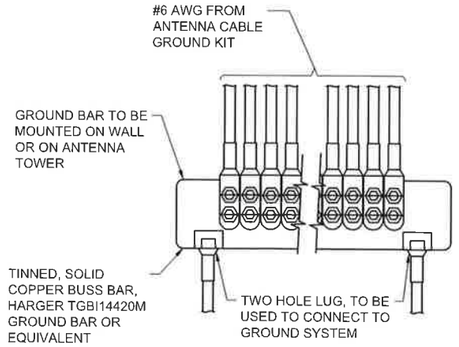
MECHANICAL GROUND CONNECTION (3)
SCALE: NTS



NOTES:

1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING SPLIT WASHERS.
2. COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION INTO LUG BARREL & CRIMPING.
3. APPLY ANTI-OXIDATION COMPOUND BETWEEN ALL LUGS & BUSS BARS PRIOR TO MATING & BOLTING.

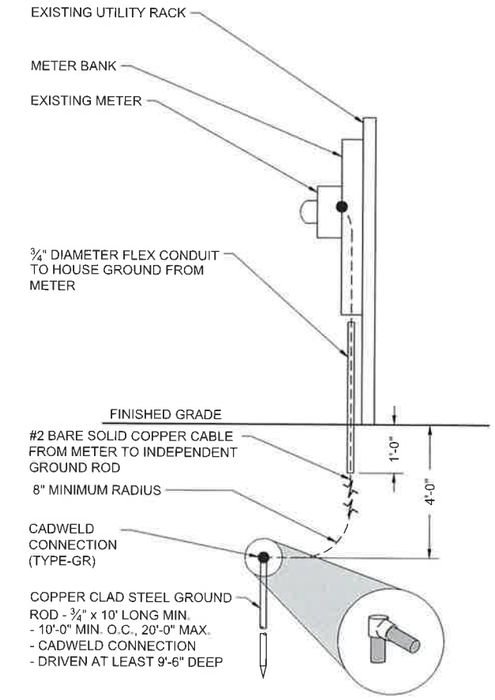
STANDARD GROUND BAR DETAIL (4)
SCALE: NTS



NOTE:

CONTRACTOR TO UTILIZE KOPR-SHIELD (THOMAS & BETTS) OR EQUIVALENT ON ALL LUG CONNECTIONS

GROUND BAR DETAIL (5)
SCALE: NTS



SERVICE ENTRANCE GROUNDING (6)
SCALE: NTS

vertical bridge

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.

COLORADO LICENSED
MICHAEL L. PINKERTON
PE.0050800
PROFESSIONAL ENGINEER
11/19/2024

MARK	DATE	DESCRIPTION
3	11/19/24	EQUIPMENT AREA RELOCATION
2	06/25/24	JURISDICTION COMMENTS
1	04/11/24	JURISDICTION COMMENTS
0	01/26/24	FINAL CDs ISSUED
C	11/28/23	GRADING PLAN ADDED
B	09/18/23	CHANGE TOWER HEIGHT
A	09/13/23	REDLINES

ISSUE PHASE: FINAL
DATE ISSUED: 06/25/2024

PROJECT TITLE:

US-CO-5091 / DN02546A

PROJECT INFORMATION:
HWY 50 & HWY 9
CANON CITY, CO 81212
FREMONT COUNTY

SHEET TITLE:

COMPOUND GROUNDING DETAILS

SCALE: NONE

PROJECT NUMBER: 58067
SHEET NUMBER: E-11