

EL PASO



COUNTY

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PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT
CRAIG DOSSEY, EXECUTIVE DIRECTOR

**TO: El Paso County Planning Commission
Jim Egbert, Chair**

**FROM: Nina Ruiz, PM/Planner II
Jeff Rice, PE Engineer III
Craig Dossey, Executive Director**

**RE: Project File #: VA-17-005
Project Name: Woodmen Hills School Tower
Parcel No.: 43061-02-001**

OWNER:	REPRESENTATIVE:
Falcon School District No. 49 10850 E Woodmen Road Peyton, CO 80831	Centerline Solutions 16035 Table Mountain Parkway Golden, CO 80403

Commissioner District: 2

Planning Commission Hearing Date:	12/5/2017
Board of County Commissioners Hearing Date	12/26/2017

EXECUTIVE SUMMARY

A request by Centerline Solutions for approval of a variance of use for a 93 foot tall freestanding commercial mobile radio service facility (CMRS) located on 30.79 acres zoned RR-0.5 (Residential Rural) on which Woodmen Hills Elementary school is currently located. The proposed freestanding CMRS will replace an existing CMRS facility that was constructed without approval of the Board of County Commissioners. The property is located east of North Meridian Road and south of Woodmen Hills Drive, and is within Section 6, Township 13 South, Range 64 West of the 6th P.M. The property is included within the Falcon/Peyton Small Area Master Plan (2008).

2880 INTERNATIONAL CIRCLE, SUITE 110
PHONE: (719) 520-6300



COLORADO SPRINGS, CO 80910-3127
FAX: (719) 520-6695

A. REQUEST/WAIVERS/AUTHORIZATION

Request: A request by Centerline Solutions for approval of a variance of use for a 93 foot tall freestanding commercial mobile radio service facility (CMRS).

Waiver(s): There are no waivers requested with this application.

Authorization to Sign: There are no documents associated with this application that require signing.

B. PLANNING COMMISSION SUMMARY

Request Heard:

Recommendation:

Waiver Recommendation:

Vote:

Vote Rationale:

Summary of Hearing:

Legal Notice:

C. APPROVAL CRITERIA

In approving a variance of use, the following criteria may be considered:

- The strict application of any of the provisions of this Code would result in peculiar and exceptional practical difficulties or undue hardship.
- The proposed use is compatible with the surrounding area, harmonious with the character of the neighborhood, not detrimental to the surrounding area, not detrimental to the future development of the area, and not detrimental to the health, safety, or welfare of the inhabitants of the area and County;
- The proposed use will be able to meet air, water, odor or noise standards established by County, State or federal regulations during construction and upon completion of the project;
- The proposed use will comply with all applicable requirements of this Code and all applicable County, State and federal regulations except those portions varied by this action;
- The proposed use will not adversely affect wildlife or wetlands;
- The applicant has addressed all off-site impacts;
- The site plan for the proposed variance of use will provide for adequate parking, traffic circulation, open space, fencing, screening, and landscaping;
and/or
- Sewer, water, storm water drainage, fire protection, police protection, and roads will be available and adequate to serve the needs of the proposed variance of use as designed and proposed.

D. LOCATION

North: RR-0.5 (Residential Rural)	Residential
South: RR-0.5 (Residential Rural)	Residential
East: RS-5000 (Residential Suburban)	Residential
West: RR-0.5 (Residential Rural)	Residential

E. BACKGROUND

The property was zoned RR-1 (Rural Residential) on April 8, 1999. Due to changes in the nomenclature of the El Paso County Land Development Code, the RR-1 zoning district was renamed as the RR-0.5 (Rural Residential) zoning district. The property was platted as Tract A of the Woodmen Hills Filing No. 8 on July 29, 1999. Tract A was dedicated to Falcon School District No. 49 as a school site. Schools may not need to obtain a building permit from the local jurisdiction if they have otherwise obtained approval from the State Board of Education. This exemption does not extend to CMRS facilities located on the same property as a school. The existing 100 foot tall freestanding CMRS facility was constructed around the same time as the school but was not approved by El Paso County prior to being constructed.

The existing tower no longer has the structural capacity for additional carriers. The applicant is proposing to remove this existing tower and replace it with a 93 foot tall freestanding CMRS facility designed to allow for additional co-location. The proposed tower would meet all setback requirements. Should the variance of use request be approved, a site development plan will be required prior to authorization of a building permit to construct the tower and associated equipment.

F. ANALYSIS

1. Land Development Code Analysis

The property is currently zoned RR-0.5 (Residential Rural). The RR-0.5 zoning district is primarily rural residential in nature. There is an existing approximately 90 foot tall freestanding CMRS facility on the subject parcel. Section 5.2.19 of the Code allows for a CMRS facility to exceed the allowed height of the zoning district up to 120 feet in height. The proposed tower will replace the existing tower, which has become a part of the visual landscape in the area.

2. Zoning Compliance

The property is within the RR-0.5 (Residential Rural) zoning district, which does not allow for a freestanding CMRS facility. Only if the variance of use and site development plan are approved will the proposed CMRS facility be allowed and authorized for construction.

3. Policy Plan Analysis

Consistency with the El Paso County Policy Plan (1998) is not a required review criteria for a variance of use request. For background, the El Paso County Policy

Plan (1998) has a dual purpose; it serves as a guiding document concerning broader land use planning issues, and provides a framework to tie together the more detailed sub-area elements of the County master plan. Relevant policies are as follows:

Policy 6.3.8 *Recognize the need and allow for the reasonable accommodation of adequate amounts of land with sufficient infrastructure for land uses of a heavy industrial nature and/or considered to be “locally undesirable” within all subareas of the County provided the adequate facilities and services will be available. Consider the environmental, visual and land use compatibility impacts and incorporate, where possible, buffering and screening techniques to address compatibility with surrounding uses.*

Goal 7.1 *Reasonably accommodate unique and special uses which provide value to the greater community and which can be made consistent with surrounding uses.*

Policy 7.1.2 *Consider future combined impact of potential additional land use requests when considering individual applications for special or unique land uses.*

Goal 7.5 *Allow for towers, transmission lines, and related facilities that provide a benefit to County residents in a manner which balances considerations of economics, equity, and environmental sensitivity and provides equitable compensation to private land owners for impacts caused by these facilities.*

A tower is identified as one of several uses listed in the Policy Plan that may be considered “ancillary to traditional land uses” (General Policies page 45). Other “ancillary uses” identified in the Plan include institutional uses, mining operations, agriculture-oriented business, and outdoor recreational facilities. The Plan recognizes the difficulties in siting these types of special or unique land uses. These uses can sometimes be considered “locally undesirable” and can be controversial in nature. The Plan also recognizes that “the location of these lines and facilities is often governed by geographic factors such as the need to respond to topography, make linear connections or serve defined areas” (Minimizing Impacts of Towers, Transmission Facilities and Related Facilities Page 50).

As demonstrated in the applicant’s coverage maps, there is no coverage for T-Mobile subscribers in the vicinity of the proposed tower. This tower will provide coverage to T-Mobile’s customers and allow for co-location of other carriers. The applicant has submitted photo simulations to demonstrate the potential visual

impact to surrounding parcels. The proposed 93 foot tall freestanding CMRS facility will be visible to most surrounding parcels in the vicinity. Attempts at a stealth design for a facility of this height are not practical.

Should the Board of County Commissioners determine the freestanding CMRS facility provides a benefit to County residents in a manner which balances considerations of economics, equity, and environmental sensitivity, consistency with the Plan could be found.

4. Small Area Plan Analysis

The property is within the Falcon/Peyton Small Area Master Plan (2008). The plan shows this area as a potential node and corridor of activity. The surrounding area has been developed as residential rural lots with lot sizes averaging one-half acre in size. The Plan does not include any discussion or recommendations specific to commercial towers or other similar uses.

5. Other Master Plan Elements

The El Paso County Wildlife Habitat Descriptors (1996) identifies the property as having a high wildlife impact potential. The proposed freestanding CMRS facility is not expected to have an impact upon the wildlife in the area.

The Master Plan for Mineral Extraction (1996) identifies potential upland deposits in the area of the subject property. A mineral rights certification was prepared by the applicant indicating that, upon researching the records of El Paso County, no severed mineral rights exist.

G. PHYSICAL SITE CHARACTERISTICS

1. Hazards

No physical hazards were identified in the review of the variance of use.

2. Wildlife

The El Paso County Wildlife Habitat Descriptors (1996) identifies the property as having a high wildlife impact potential. The proposed freestanding CMRS facility is not expected to have an impact upon the wildlife in the area.

3. Floodplain

As indicated on FEMA Flood Insurance Rate Map (FIRM) panel number 08041C0575F, the tower lease area is located entirely outside of the current 100-year regulatory floodplain.

4. Drainage And Erosion

The property is located within the Falcon drainage basin. Since the property is not being platted with this application, drainage and bridge fees are not applicable. A drainage report was not required since the proposed freestanding CMRS facility is anticipated to have no significant drainage impact.

5. Transportation

The property is accessed via McClure Road. A traffic impact study was not required and the County road impact fee does not apply to this request because the variance of use is not expected to generate 100 more daily vehicle trips than the property would be expected to generate currently. If the variance is approved, the applicant will be required to obtain an access permit if Woodmen Hills Elementary School has not already obtained one.

H. SERVICES

1. Water

The existing school is served by Woodmen Hills Metropolitan District for water. There is no need for additional water as the proposed freestanding CMRS facility is to be unmanned.

2. Sanitation

The existing school is served by Woodmen Hills Metropolitan District for sanitation. There is no need for additional sanitation as the proposed freestanding CMRS facility is to be unmanned.

3. Emergency Services

The parcel is located within the Falcon Fire Protection District. The District was sent a referral and has no outstanding comments.

4. Utilities

Mountain View Electrical Association will serve the freestanding CMRS facility.

5. Metropolitan Districts

The property is within the Woodmen Hills Metropolitan District. The district was sent a referral and did not respond.

6. Parks/Trails

There are no planned parks/trails on the subject parcel. No park fees or land dedication in lieu of fees are required for this application.

7. Schools

The property is located within Falcon School District No. 49. No school fees or land dedication in lieu of fees are required with this application.

I. APPLICABLE RESOLUTIONS

Approval Page 51

Disapproval Page 52

J. STATUS OF MAJOR ISSUES

There are no outstanding issues.

K. CONDITIONS AND NOTATIONS

Should the Planning Commission and Board of County Commissioners find that the request meets the criteria for approval outlined in 5.3.4 (Variance of Use) of the El Paso County Land Development Code (2016), staff recommends the following conditions and notations:

1. Approval is limited to the one (1) freestanding CMRS facility 93 feet in height as discussed and depicted in the applicant's letter of intent and site plan drawings.
2. The freestanding CMRS facility shall remain designed to allow for co-location of other antennae.
3. Any subsequent co-location or additional antenna on the Freestanding CMRS Facility other than that shown on the site plan shall be subject to administrative review, and if it is the opinion of the Planning and Community Development Director it constitutes a substantial increase in the size of the Freestanding CMRS Facility, it shall be subject to review and approval by the Board of County Commissioners. The Variance of Use approval for the tower also includes giving the Planning and Community Development Director the authority to administratively approve minor modifications and a non-substantial increase in the size of the tower as provided by the Nationwide Collocation Agreement, as amended.
4. Prior to authorization of a building permit, a guarantee of financial surety shall be provided to El Paso County for the removal of the tower in the event of abandonment.
5. The freestanding CMRS facility shall not be lighted except in accordance with the requirements of the Federal Aviation Administration (FAA).
6. The tower shall be painted and maintained in a suitable color to fit the natural surroundings, as determined by the Planning and Community Development Department.

NOTATIONS

1. Variance of Use approval includes conditions of approval and the accompanying site plan and elevation drawings. No substantial expansion, enlargement, intensification or modification shall be allowed except upon reevaluation and public hearing as specified in the El Paso County Land Development Code.
2. The Board of County Commissioners may consider revocation and/or suspension if zoning regulations and/or Variance of Use conditions/standards are being violated, preceded by notice and public hearing.
3. If the Variance of Use is discontinued or abandoned for two (2) years or longer, the Variance of Use shall be deemed abandoned and of no further force and effect.

L. PUBLIC COMMENT AND NOTICE

The Planning and Community Development Department notified 52 adjoining property owners on November 14, 2017, for the Planning Commission meeting. Responses will be provided at the hearing.

M. ATTACHMENTS

Vicinity Map
Letter of Intent
Site Development Plan
Coverage Maps

El Paso County Parcel Information

File Name: VA-17-005

PARCEL	NAME
4306102001	FALCON SCHOOL DISTRICT NO 49

Zone Map No.: --

ADDRESS	CITY	STATE
10850 E WOODMEN RD	PEYTON	CO

ZIP	ZIPLUS
80831	8127

Date: November 14, 2017



Please report any parcel discrepancies to:
 El Paso County Assessor
 1675 W. Garden of the Gods Rd.
 Colorado Springs, CO 80907
 (719) 520-6600



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16035 Table Mountain Pkwy.
Golden, CO 80403
303-993-3293

10/12/2017

Letter of Intent

Applicant on behalf of property and tower owner:

Centerline Solutions
16035 Table Mtn. Pkwy, Golden, CO 80403
Darren Hunter 913-634-1245
dhunter@centerlinesolutions.com

Property Owner:

Falcon School District No 49
10850 E. Woodmen Rd., Peyton, CO 80831
Jim Rohr 719-495-1166

Tower Owner:

Vertical Bridge
750 Park of Commerce Dr., Ste. 200, Boca Raton, FL 33478
Matthew Grugan 678-488-1866

Re: Proposed CMRS Facility at Woodmen Hills Elementary School 8308 Del Rio Rd., Falcon, CO 80831. The lot size is 30.79 acres and the property is zoned RR-0.5. The new address for the proposed tower is 12119 McClure Rd.

To whom it may concern,

In an effort to improve telecommunications quality and capacity, Vertical Bridge has identified the above-named property for which it desires to replace an existing monopole tower with a new 90' telecommunications facility to service Falcon, CO and the surrounding areas of El Paso County. The proposed site is located near the intersection of Del Rio and McClure Rd. on property owned by Falcon School District No 49. This site will provide wireless coverage to the steady-growing population of residents in this vicinity as well as provide improved E911 services to the area.

It was determined by T-Mobile that they need a site located in this area to meet the objectives noted above. We studied the area and identified the subject property, Woodmen Hills Elementary School, where an existing tower exists, as an ideal location for servicing the community's wireless needs and the coverage objectives of T-Mobile. Vertical Bridge then entered into an agreement with the property owner to lease land to construct a 90' monopole tower to replace the existing tower of similar height with one that has greater capacity for T-Mobile and additional cellular carriers. Please refer to the propagation maps included in the application that show how we greatly improve coverage to the area by replacing the old tower with a new tower of the same height vs a shorter, 65' tower. With the 90' tower we're able to tie into T-Mobile's network to the south where they have an existing site and we can't accomplish this with a shorter structure. Lowering the height of the tower also reduces the number of other carriers that can collocate on the tower, requiring more towers in the future. The leased area for the tower is .052 acres. The closest residence to the proposed structure is approximately 455'. This structure is not located on a ridgeline and does not obstruct any views to significant landforms or impact scenic viewsheds from any residence. The entire structure will be made of non-reflective galvanized steel (the same as a standard monopole or self-support tower) and the equipment compound will be screened with a 6' chain link fence.



16035 Table Mountain Pkwy.
Golden, CO 80403
303-993-3293

The site will be unmanned and will require electrical and telephone and/or fiber optic services if available. It will not require potable water or wastewater services. There were no other existing towers or structures with similar height within the search ring that meet the objectives for T-Mobile to collocate on. Additional details regarding our proposed tower location are noted below:

- 35'x70' Tower Lease Area totaling 2,450 S.F.
- Proposed 35'x70' chain link fenced compound to secure the tower and equipment
- Proposed 15' wide access road to the property's existing access road

Respectfully,

Darren Hunter

Darren Hunter
913-634-1245
Centerline Solutions, Inc. on behalf of Vertical Bridge
& Falcon School District No 49, Property Owner



**NEW SITE
BUILD**

T-MOBILE SITE NAME: WOODMEN ELEMENTARY
VERTICAL BRIDGE SITE NAME: WOODMEN HILLS ELEMENTARY
T-MOBILE SITE NUMBER: DN04333A
VERTICAL BRIDGE SITE NUMBER: US-CO-5052
SITE ADDRESS: 12119 McCLURE ROAD
 FALCON, CO 80831
SITE TYPE: MONOPOLE



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 Westminster, CO 80020
 Office # 303.426.1475
 Fax # 303.426.1483
 US N. AREA 404-552



DRAWING NOTICE
 THESE DOCUMENTS ARE CONFIDENTIAL AND ARE THE SOLE PROPERTY OF T-MOBILE AND MAY NOT BE REPRODUCED, DISSEMINATED OR USED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF T-MOBILE.

REVISION	DESCRIPTION	DATE	BY	REV

WOODMEN ELEMENTARY
 DN04333A
 US-CO-5052

12119 McCLURE ROAD
 FALCON, CO 80831

**TITLE SHEET &
PROJECT DATA**

T-1

DRAWING INDEX

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PROJECT DESCRIPTION

THESE PLANS HAVE BEEN DEVELOPED FOR THE INSTALLATION OF AN ANTENNA SYSTEM ON THE EXISTING TOWER AT THE LOCATION OF THE PLACEMENT OF A 90' MONOPOLE TOWER SPACE FOR CARRIER EQUIPMENT & A UTILITY RACK WITHIN A FENCED COMPOUND (NO WATER OR SEWER IS REQUIRED), IN ACCORDANCE WITH THE SCOPE OF WORK AND THE SPECIFICATIONS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL ANALYSIS AND ENGINEER'S SEAL. THE ENGINEER'S SEAL AND SIGNATURE SHALL BE IN THE RIGHT MARGINS OF THESE PLANS. THE FOLLOWING PROPOSES TO INSTALL THE FOLLOWING:
 T-MOBILE PROPOSES TO INSTALL THE FOLLOWING:
 • INSTALL (1) NEW ANTENNA MOUNT, (2) NEW COV*, (3) NEW FRP*, & (3) NEW T-MOBILE PANEL ANTENNAS AT ANTENNA MOUNT LEVEL.
 • INSTALL (2) NEW HI-CAP HYBRID CABLES
 • INSTALL (1) NEW DELTA SITE SUPPORT CABINET, (1) NEW STACKED SLEEVES & (2) NEW COV* ON NEW 10'x12' STEEL EQUIPMENT PLATFORM WITHIN 10'x20' EDGE AREA.
 • INSTALL (1) NEW OPS UNIT WITH (1) NEW 1/2" COAX CABLE
 • INSTALL NEW ICE BRIDGE

APPLICABLE CODES

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES UNLESS OTHERWISE NOTED. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.
 1. INTERNATIONAL BUILDING CODE (2009 IBC)
 2. TIA-EM-222-C OR LATEST EDITION
 3. TIA-222-B OR LATEST EDITION
 4. 2014 NATIONAL ELECTRIC CODE OR LATEST EDITION
 5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES,
 6. CITY/COUNTY ORDINANCES
 7. LOCAL BUILDING CODE
 8. CITY/COUNTY ORDINANCES

AREA MAP



LOCATION MAP



SITE INFORMATION

APPLICANT: T-MOBILE, 3330 KANY STREET, DENVER, CO 80216
CONTACT: JOHN WARSZCZENIC (303) 313-6930
TOWER OWNER: BOCA RATON, FL 33478
VERTICAL BRIDGE, P.M.: WATT ORUGAN (978) 489-1886
LOCATION (NAD83): 38.57 04 91' N 104.5593297' W
COUNTY: EL PASO

ZONING JURISDICTION:

EL PASO COUNTY
 POWER COMPANY: MOUNTAIN VIEW ELECTRIC (719) 775-2861
 TELCO PROVIDER: CENTURYLINK (303) 343-0681
 T-MOBILE C.M.: TBD



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 Denver, CO 80202

verticalbridge
 750 Park of Commerce Drive
 Suite 200
 Boulder, CO 80501
 Office # 1931-548-337



REVISION	DESCRIPTION	DATE	BY	CHK
1	ISSUED FOR THE CONTRACTOR	07/27/01	AW	AW
2	REVISED FOR THE CONTRACTOR	07/27/01	AW	AW
3	REVISED FOR THE CONTRACTOR	07/27/01	AW	AW
4	REVISED FOR THE CONTRACTOR	07/27/01	AW	AW
5	REVISED FOR THE CONTRACTOR	07/27/01	AW	AW

VERTICAL BRIDGE SHEET NAME: **WOODMEN ELEMENTARY**
 #MOBILE SITE #: **DN04333A**
 VERTICAL BRIDGE SHEET # **US-CO-5052**
 SITE ADDRESS: **12119 McClure Road, FALCON, CO 80831**
 SHEET DESCRIPTION: **T-MOBILE SPECIFICATIONS**
 SHEET NUMBER: **SP-1**

INSURANCE AND BONDS
 1. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND MAINTAINING ALL NECESSARY INSURANCE AND BONDS THROUGHOUT THE TERM OF THIS CONTRACT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND MAINTAINING ALL NECESSARY INSURANCE AND BONDS THROUGHOUT THE TERM OF THIS CONTRACT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND MAINTAINING ALL NECESSARY INSURANCE AND BONDS THROUGHOUT THE TERM OF THIS CONTRACT.

GENERAL NOTES:
 1. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE PERFORMED AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION.
 2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE USED AS A GUIDE AND NOT TO BE CONSIDERED AS A CONTRACT. ANY CHANGES TO THE DRAWINGS OR SPECIFICATIONS SHALL BE INDICATED BY A CHANGE ORDER.
 3. THE INTENTION OF THE DRAWINGS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY TO COMPLETE THE WORK.
 4. THE PURPOSE OF THE SPECIFICATIONS IS TO DESIGNATE THE METHOD OF THE PROCEDURE, TYPE AND QUALITY OF MATERIALS REQUIRED TO COMPLETE THE WORK.
 5. MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED AS PART OF THE WORK. NO CHANGES THAT ALTER THE CHARACTER OF THE WORK SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE OWNER.

ABBREVIATIONS
 AW: APPROXIMATE
 CAB: CABINET
 CLG: CEILING
 CON: CONCRETE
 DIA: DIAMETER
 DNG: DRAWING
 ELEV: ELEVATION
 EQ: EQUIPMENT
 EX: EXISTING
 EXT: EXTERIOR
 GALV: GALVANIZED
 GEN: GENERAL CONTRACTOR
 L: LONG
 M: MEDIUM
 MECH: MECHANICAL
 MFG: MANUFACTURER
 MIN: MINIMUM
 NEW: NEW
 N: NOT IN CONTRACT
 NS: NOT TO SCALE
 O: OPPOSITE
 PCS: PERFORMING COMMUNICATION SYSTEM
 P: PROPOSED
 R: RECTANGULAR
 S: SQUARE
 SH: SHEET
 SHW: SHOWER
 S: STEEL
 STL: STEEL
 TOP: TOP OF CONCRETE
 TYP: TYPICAL
 UN: UNLESS OTHERWISE NOTED
 UN: UNLESS OTHERWISE NOTED
 UN: UNLESS OTHERWISE NOTED
 UN: UNLESS OTHERWISE NOTED

CONTRACTS AND WARRANTIES
 1. CONTRACTOR IS RESPONSIBLE FOR APPLICATION AND PAYMENT OF ALL NECESSARY CONTRACTS AND WARRANTIES.
 2. SEE MASTER CONTRACTOR SERVICES AGREEMENT FOR ADDITIONAL DETAILS.

STORAGE
 1. ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION TO PREVENT DAMAGE TO THE MATERIALS.
 2. ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION TO PREVENT DAMAGE TO THE MATERIALS.
 3. ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION TO PREVENT DAMAGE TO THE MATERIALS.

CLEANUP
 1. THE CONTRACTOR SHALL, AT ALL TIMES, KEEP THE SITE FREE OF DEBRIS AND UNNECESSARY MATERIALS.
 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL DEBRIS AND UNNECESSARY MATERIALS.
 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL DEBRIS AND UNNECESSARY MATERIALS.

BACKWARDS COMPT
 1. PENETRATIONS OF WALLS, FLOORS AND ROOFS, FOR THE INSTALLATION OF MECHANICAL EQUIPMENT, SHALL BE MADE PRIOR TO THE INSTALLATION OF THE EQUIPMENT.
 2. PENETRATIONS OF WALLS, FLOORS AND ROOFS, FOR THE INSTALLATION OF MECHANICAL EQUIPMENT, SHALL BE MADE PRIOR TO THE INSTALLATION OF THE EQUIPMENT.

WIRING
 1. CONTRACTOR TO COORDINATE WITH EQUIPMENT SUPPLIER AND MANUFACTURER TO DETERMINE THE LOCATION AND TYPE OF ALL PENETRATIONS.
 2. CONTRACTOR TO COORDINATE WITH EQUIPMENT SUPPLIER AND MANUFACTURER TO DETERMINE THE LOCATION AND TYPE OF ALL PENETRATIONS.

CONDUIT
 1. CONTRACTOR TO PROVIDE ALL CONDUIT AND FITTINGS.
 2. CONTRACTOR TO PROVIDE ALL CONDUIT AND FITTINGS.
 3. CONTRACTOR TO PROVIDE ALL CONDUIT AND FITTINGS.

CLEANING
 1. REMOVE ALL CONSTRUCTION DEBRIS RESULTING FROM THE WORK.
 2. CLEAN EQUIPMENT AND SYSTEMS FOLLOWING THE COMPLETION OF THE WORK.
 3. CLEAN EQUIPMENT AND SYSTEMS FOLLOWING THE COMPLETION OF THE WORK.

TESTS
 1. BEFORE ENERGIZING ANY ELECTRICAL INSTALLATION, INSPECT EACH UNIT IN DETAIL. TEST ALL BULBS AND CONNECTIONS.
 2. BEFORE ENERGIZING ANY ELECTRICAL INSTALLATION, INSPECT EACH UNIT IN DETAIL. TEST ALL BULBS AND CONNECTIONS.

OPERATIONAL CONDITION
 1. THE SYSTEM SHALL BE OPERATIONAL AND FUNCTIONING PROPERLY AT THE TIME OF ACCEPTANCE.
 2. THE SYSTEM SHALL BE OPERATIONAL AND FUNCTIONING PROPERLY AT THE TIME OF ACCEPTANCE.

ELECTRICAL NOTES:
 1. PROVIDE ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL AND STATE ELECTRICAL CODES.
 2. PROVIDE ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL AND STATE ELECTRICAL CODES.

CONDUIT
 1. CONTRACTOR TO PROVIDE ALL CONDUIT AND FITTINGS.
 2. CONTRACTOR TO PROVIDE ALL CONDUIT AND FITTINGS.
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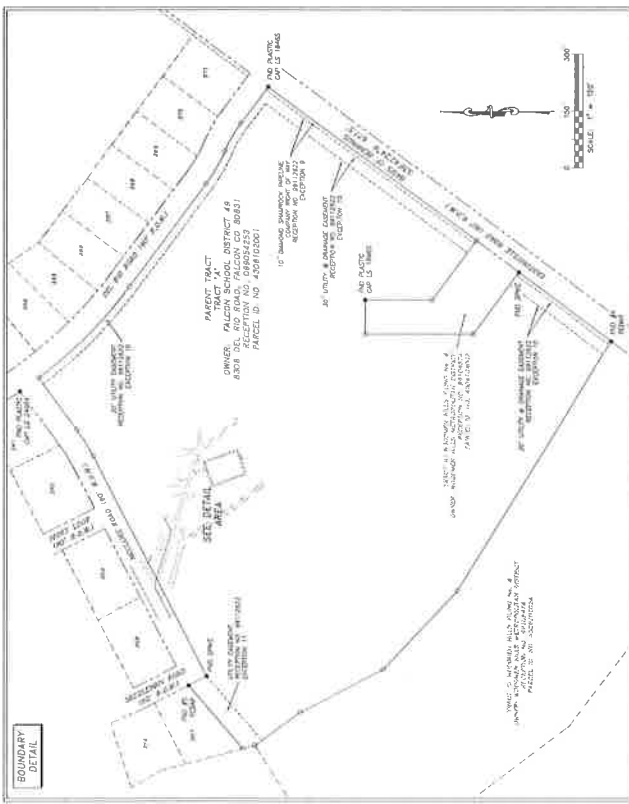
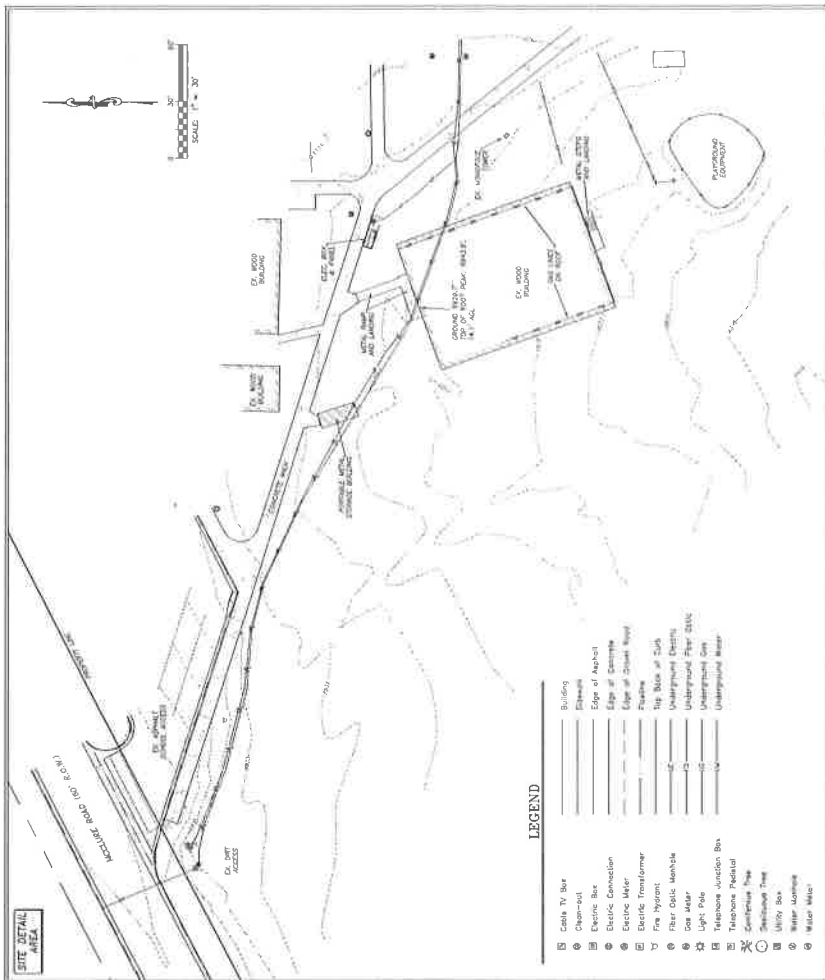
TOPOGRAPHIC SURVEY
VERTICAL BRIDGE SITE No. US-CO-5052
SITUATED IN THE NORTH HALF OF SECTION 6,
TOWNSHIP 13 SOUTH, RANGE 64 WEST OF THE 6TH P.M.
COUNTY OF EL PASO, STATE OF COLORADO

LEGAL DESCRIPTION AND REFERENCE:
 Per Commission No. 2323581 Effective Date: June 30, 2016 at 8:00 am, Fidelity National Title Insurance Company, The bond referred to in Schedule A is voidable in the County of El Paso, State of Colorado and is described as follows:
 An interest in land and interest being over a portion of the following described parent parcel:
 Parcel A, Resurvey Map No. 8, County of El Paso, State of Colorado,
 Parcel 6, Section 6, Township 13 South, Range 64 West of the 6th P.M., of the Survey of O. Peter and wife of Colorado from Faxon Petroleum and Investments, LP by record instrument book 44431, 1992 and recorded April 28, 1993 in Instrument No. 99902-035.

SURVEYOR'S CERTIFICATE:
 I, the undersigned, being duly sworn, on August 2, 2016, a topographic survey and conducted under my supervision and the knowledge of the nature and extent of the same and the true contents of the same as shown on the face of the drawing. The drawing does not represent of Land Survey, Land Survey, Improvement, Land Survey, or Improvement Location.
 This drawing and any other drawings or surveys hereon are for information only and do not, in any way, constitute a representation of the truth or of any other matter. It is the responsibility of the client to verify the accuracy of the information provided and to ensure that the same is used for the purposes intended. I have no responsibility for the use of the information provided or for any other matter.
 I, the undersigned, certify that the same is a true and correct copy of the original and that the same has been filed for record in the County of El Paso, State of Colorado.

MADE UP OF:
 1. A plan of the land to be surveyed, showing the boundaries, area, and other particulars as required by law.
 2. A plan of the land to be surveyed, showing the boundaries, area, and other particulars as required by law.
 3. A plan of the land to be surveyed, showing the boundaries, area, and other particulars as required by law.

CONFORMANCE WITH THE FIELD INSTRUMENTS:
 Item 1. Not survey related
 Item 2. Not survey related
 Item 3. Not survey related
 Item 4. Not survey related
 Item 5. Not survey related
 Item 6. Not survey related
 Item 7. Not survey related
 Item 8. Not survey related
 Item 9. Not survey related
 Item 10. Not survey related
 Item 11. Not survey related
 Item 12. Not survey related
 Item 13. Not survey related
 Item 14. Not survey related



LAND SURVEY
 Sheet Number: **LS1**

PROJECT INFORMATION:

Item	Date	Description	By:
1	8/2/16	Survey	ND
2	8/19/16	Examination/Issue	JV
3	10/12/17	Address change	ND

SITE NAME: WOODMEN HILLS ELEMENTARY
 SITE ADDRESS: 12119 McCLURE ROAD
 FALCON, COLORADO 80831
 VERTICAL BRIDGE SITE NUMBER: US-CO-5052

DRAWN BY: []
 CHECK BY: []
 APPROVED BY: []

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 WWW.INFINIGY.COM

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REVISION	DESCRIPTION	DATE	BY	REV

VERTICAL BRIDGE SITE NAME
WOODMEN ELEMENTARY

MOBILE SITE #
DN04333A

VERTICAL BRIDGE SITE #
US-CO-5052

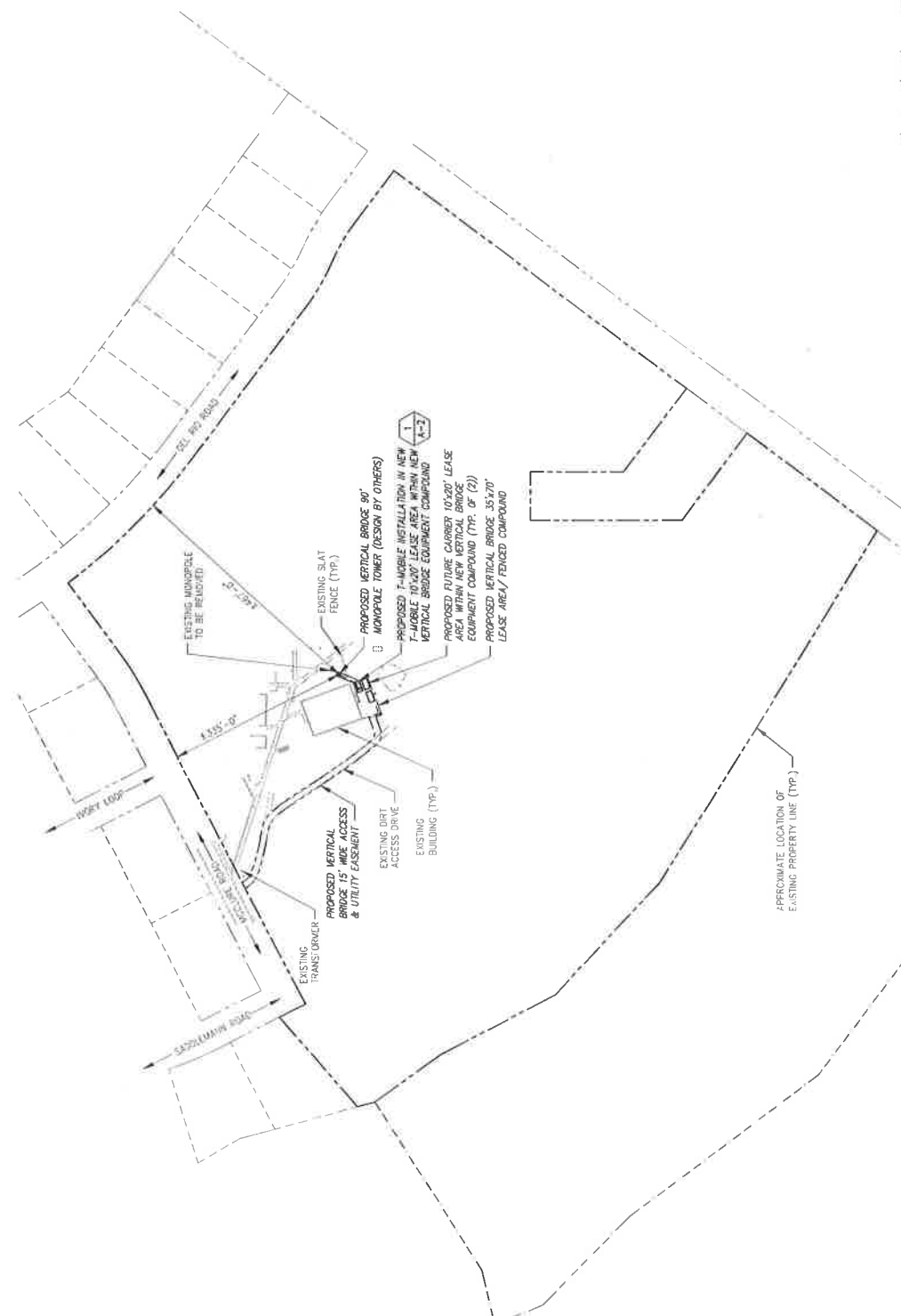
SITE ADDRESS
12119 McCLURE ROAD
FALCON, CO 80831

SHEET DESCRIPTION
OVERALL SITE PLAN

SHEET NUMBER
A-1

INFORMATION CONTAINED WITHIN DRAWINGS IS BASED ON PROVIDED INFORMATION AND A DESIGN WALK THROUGH SURVEY. FOR THE MOST PART, A "TOPOGRAPHIC SURVEY BY DATE" LAND SURVEYING, DATED 06/15/16.

TOWER & FOUNDATION DESIGNS NOT AVAILABLE AT TIME OF ISSUANCE OF THESE PLANS. CLIENTS SHOULD REFER TO TOWER & FOUNDATION DESIGNS PRIOR TO CONSTRUCTION.



OVERALL SITE PLAN

SCALE: AS NOTED

PLANS PREPARED FOR:



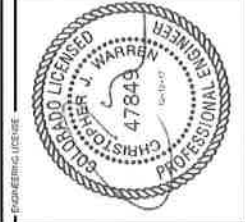
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REVISION	DESCRIPTION	DATE	BY	REV
1	REVISED TO ADD FOR CONSTRUCTION	08/15/16	DALE	1
2	REVISED TO ADD FOR CONSTRUCTION	08/26/16	DALE	2
3	REVISED TO ADD FOR CONSTRUCTION	07/27/16	DALE	3
4	REVISED TO ADD FOR CONSTRUCTION	07/27/16	DALE	4
5	REVISED TO ADD FOR CONSTRUCTION	07/27/16	DALE	5

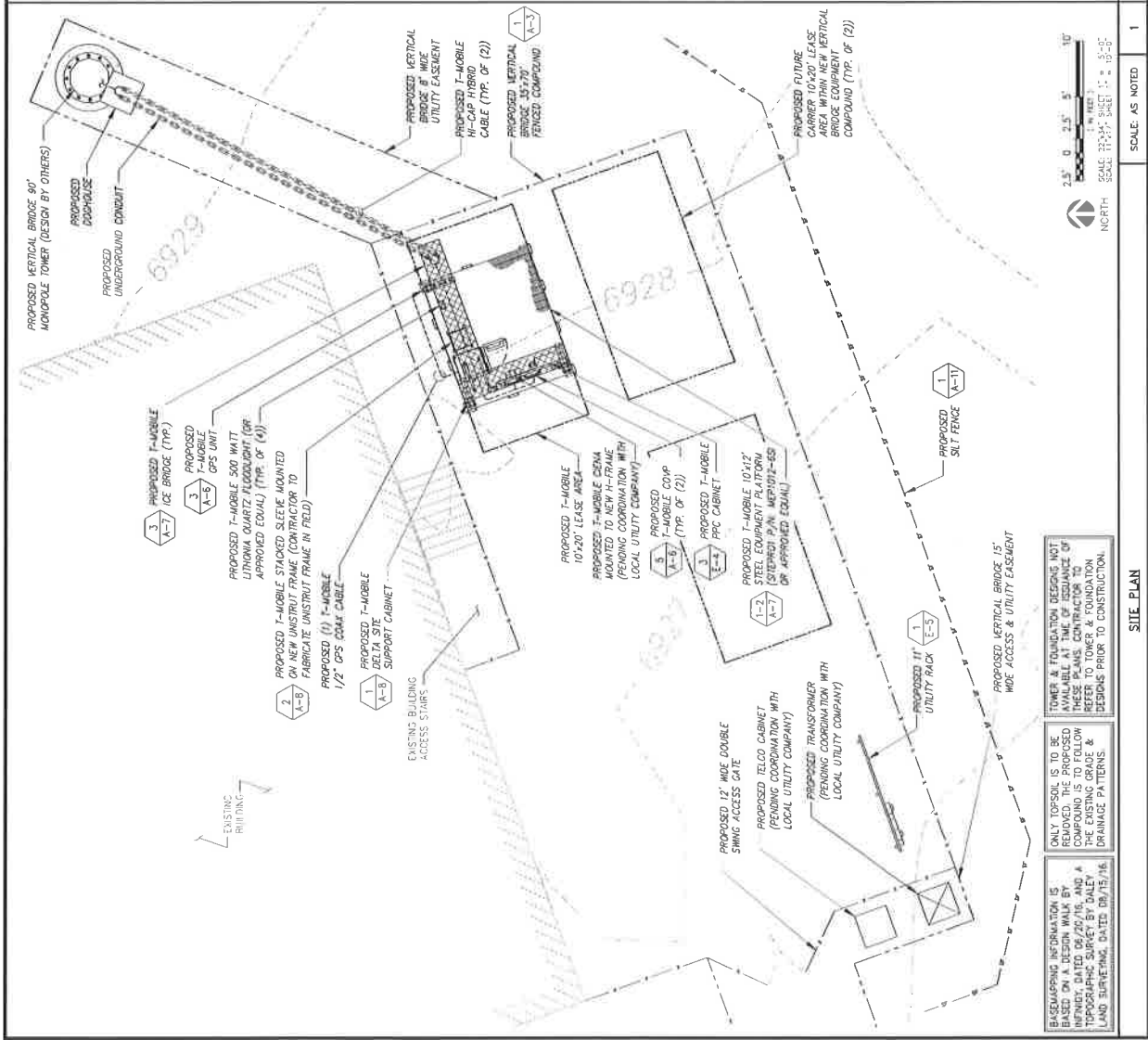
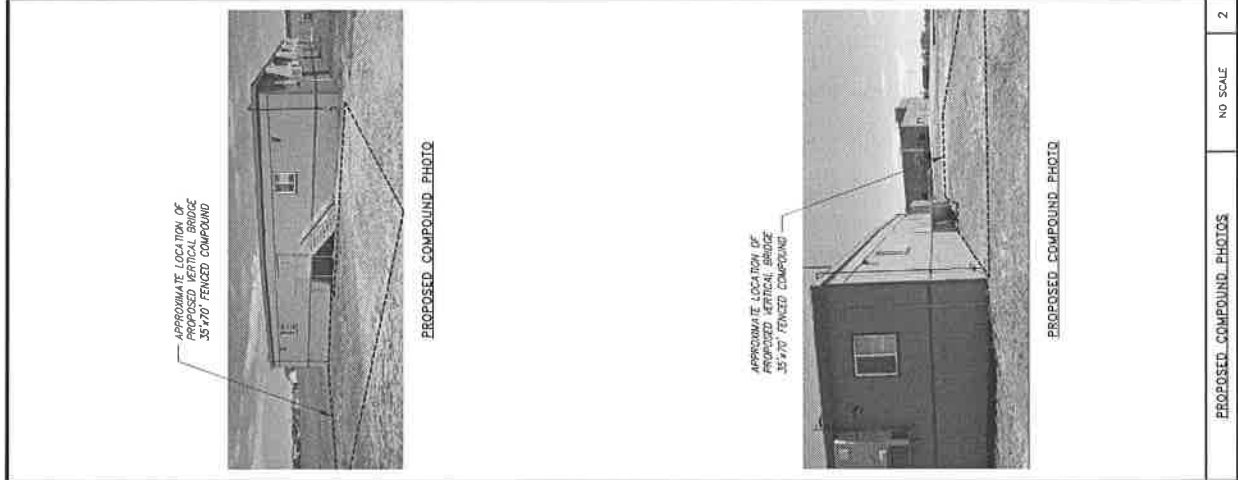
WOODMEN ELEMENTARY
MOBILE SITE #
DN04333A

VERTICAL BRIDGE SITE #
US-CO-5052

SITE ADDRESS
12119 McCLURE ROAD
FALCON, CO 80831

SHEET DESCRIPTION
PROPOSED SITE PLAN

SHEET NUMBER
A-2



BASEMAP INFORMATION IS BASED ON A BOUNDARY WALK BY INFINIGY, DATED 06/20/16, AND A TOPOGRAPHIC SURVEY BY DALEY LAND SURVEYING, DATED 09/15/16.

ONLY TOWER IS TO BE REMOVED. THE PROPOSED COMPOUND IS TO FOLLOW THE EXISTING GRADE & DRAINAGE PATTERNS.

TOWER & FOUNDATION BECOME NOT AVAILABLE AT TIME OF ISSUANCE OF THESE PLANS. CONTRACTOR TO REFER TO TOWER & FOUNDATION DESIGNS PRIOR TO CONSTRUCTION.

BUS MAPPING INFORMATION IS BASED ON A DESIGN WALK BY ROBERT M. WALKER AND A TOPOGRAPHIC SURVEY BY DALEY LAND SURVEYING, DATED 08/15/18.

TOWER & FOUNDATION DESIGN NOT BASED ON THE ASSISTANCE OF ANY OTHER ENGINEERS. PLEASE REFER TO TOWER & FOUNDATION DESIGN PRIOR TO CONSTRUCTION.

ONLY TOPSOIL IS TO BE RELOCATED. THE EXISTING GRADE & DRAINAGE PATTERNS.

ONLY TOPSOIL IS TO BE RELOCATED. THE EXISTING GRADE & DRAINAGE PATTERNS.

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2123 Delaware Street, Denver, CO 80218

PLANS PREPARED BY



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REGISTERED PROFESSIONAL ENGINEER



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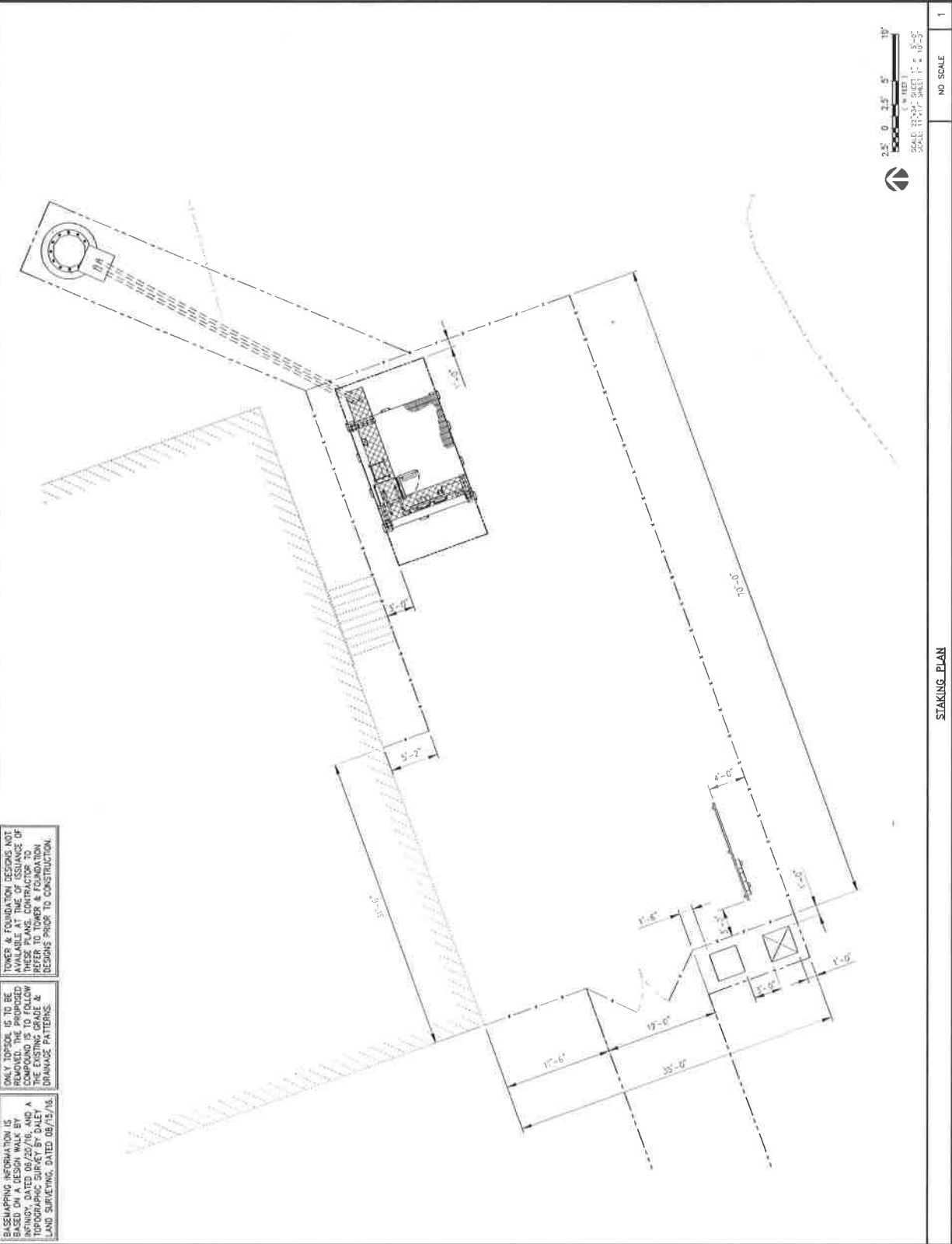
Table with 4 columns: REVISION, DESCRIPTION, DATE, BY. It contains several rows of revision information.

VERTICAL BRIDGE SITE NAME: WOODMEN ELEMENTARY
FACILITY SITE #: DN04-333A
VERTICAL BRIDGE SITE #: US-CO-5052

SITE ADDRESS: 12119 McCLURE ROAD, FALCON, CO 80831

SHEET DESCRIPTION: STAKING PLAN

SHEET NUMBER: A-3



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REVISION	DESCRIPTION	DATE	BY	REV
1	ISSUED FOR CONSTRUCTION	08/27/17	302	1
2	REVISED FOR CONSTRUCTION	08/27/17	302	1
3	REVISED FOR CONSTRUCTION	08/27/17	302	1
4	REVISED FOR CONSTRUCTION	08/27/17	302	1
5	REVISED FOR CONSTRUCTION	08/27/17	302	1
6	REVISED FOR CONSTRUCTION	08/27/17	302	1
7	REVISED FOR CONSTRUCTION	08/27/17	302	1
8	REVISED FOR CONSTRUCTION	08/27/17	302	1
9	REVISED FOR CONSTRUCTION	08/27/17	302	1
10	REVISED FOR CONSTRUCTION	08/27/17	302	1

VERTICAL BRIDGE SITE NAME
WOODMEN ELEMENTARY

T-SHIELD SITE #
 DN04333A

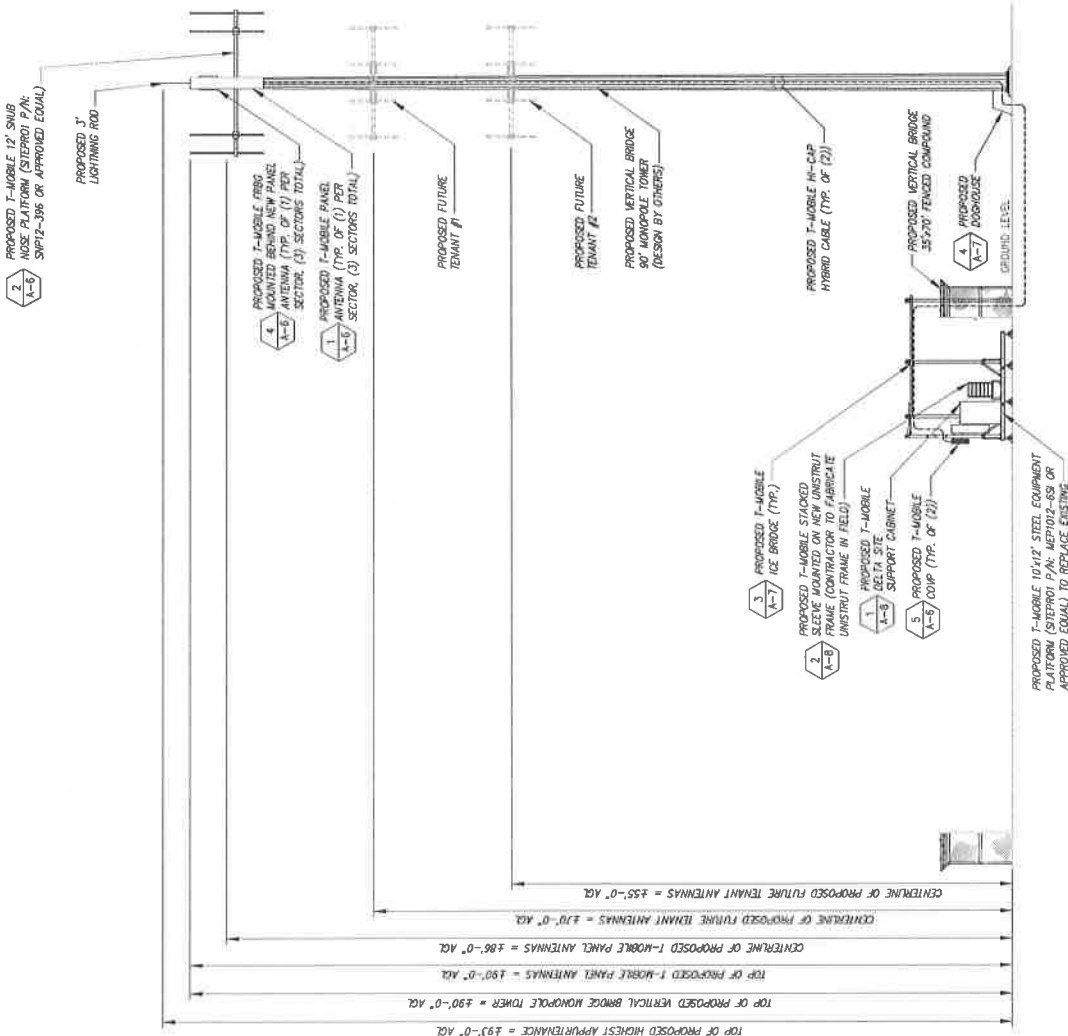
VERTICAL BRIDGE SITE #
 US-CO-5052

SITE ADDRESS
 12119 McCURE ROAD
 FALCON, CO 80831

SHEET DESCRIPTION
PROPOSED TOWER ELEVATION

SHEET NUMBER
A-4

INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER OR FOUNDATION DESIGN. THE USER SHALL BE RESPONSIBLE FOR THE INTEGRITY OF THE DESIGN AND ASSUMES ALL LIABILITY FOR ANY DAMAGE OR OTHERS PRIOR TO ANY CONSTRUCTION.



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REVISIONS	DESCRIPTION	DATE	BY	REV
1	ISSUED FOR CONSTRUCTION	08/17/17	SEJ	1
2	REVISED FOR CONSTRUCTION	09/20/17	SEJ	2
3	REVISED FOR CONSTRUCTION	10/27/17	ML	3
4	ISSUED FOR CONSTRUCTION	11/17/17	ML	4

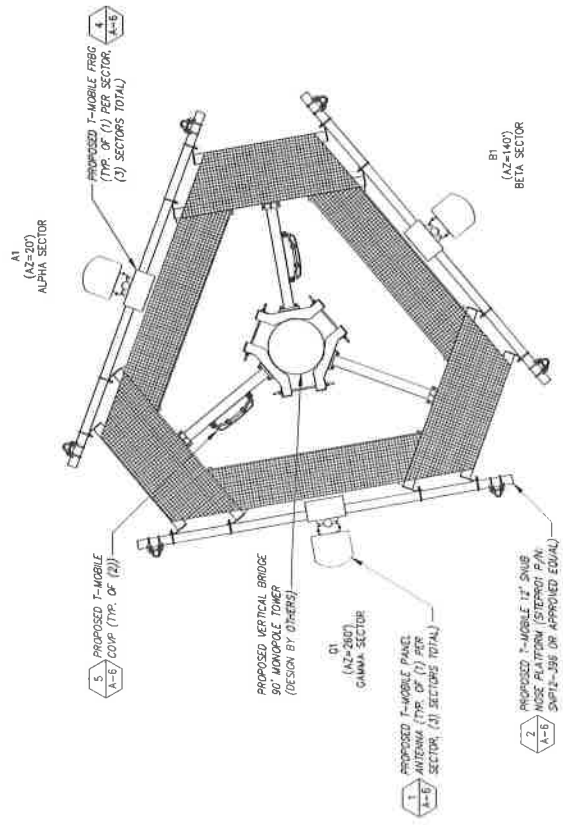
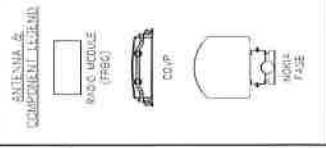
VERTICAL BRIDGE SITE NAME
WOODMEN ELEMENTARY
 TAGLINE SITE #
 DN04333A
 VERTICAL BRIDGE SITE #
 US-CO-5052

SITE ADDRESS
 12119 McCURE ROAD
 FALCON, CO 80831

SHEET DESCRIPTION
ANTENNA LAYOUT & LOADING CHART

SHEET NUMBER
A-5

THE CONFIGURATION PLAN IS BASED ON THE INFORMATION PROVIDED BY THE CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.



NORTH = 0°

NO SCALE

PROPOSED ANTENNA LAYOUT

1

SITE LOADING CHART

SECTOR	POSITION	SECTOR COLOR	TECHNOLOGY	ANTENNA MODEL #	VENDOR	O.Y. (REVOLVED)	QTY. (NEW)	TMA (CITY/MODEL)	AZIMUTH	DOMINANT MECHANICAL ELECTRICAL	RAD CENTER	FEED LINE TYPE/LENGTH
ALP-4	A	RED	LTE 700/LTE AMS UMIS PCS	FASB RAS	NOKIA	---	1	---	20°	0	±85' AGL	PROPOSED (2) W-CAP HYBRID CABLES LENGTH = 3175
BETA	BT	BLUE	LTE 700/LTE AMS UMIS PCS	FASB RAS	NOKIA	---	1	---	140°	0	±85' AGL	HYBRID CABLES SHARED W/ ALPHA SECTOR
GAMMA	GI	WHITE	LTE 700/LTE AMS UMIS PCS	FASB RAS	NOKIA	---	1	---	260°	0	±85' AGL	HYBRID CABLES SHARED W/ ALPHA SECTOR

NOTE:
 CABLE LENGTHS ARE BASED ON PROVIDED INFORMATION. CONTRACTOR TO VERIFY REQUIRED CABLE LENGTHS PRIOR TO CONSTRUCTION.

SITE LOADING CHART

NO SCALE

2

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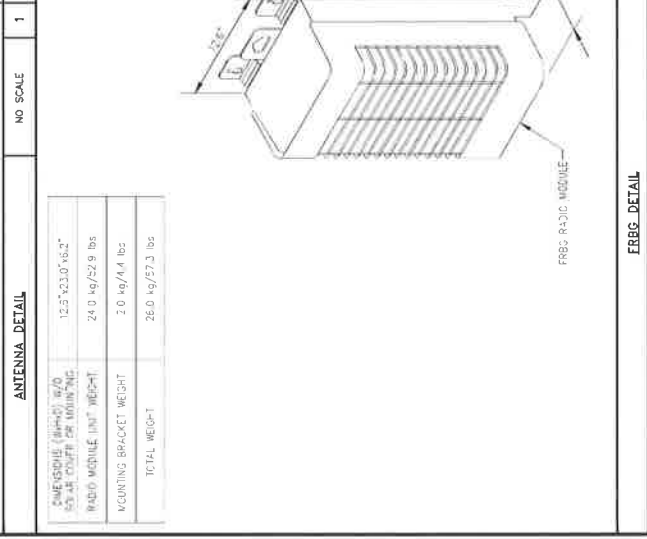
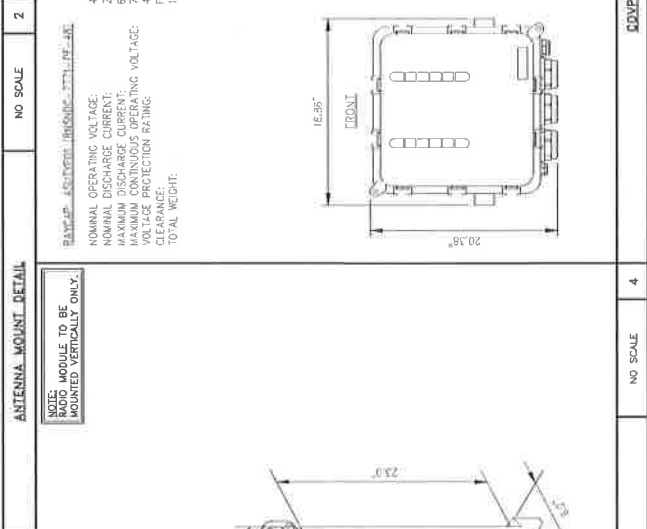
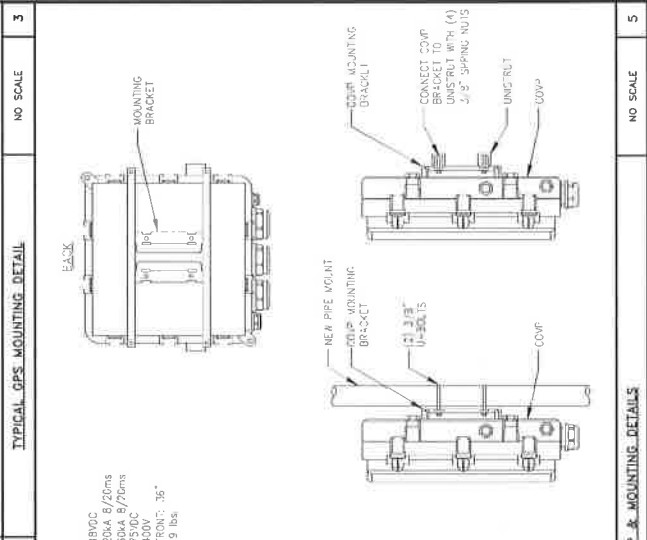
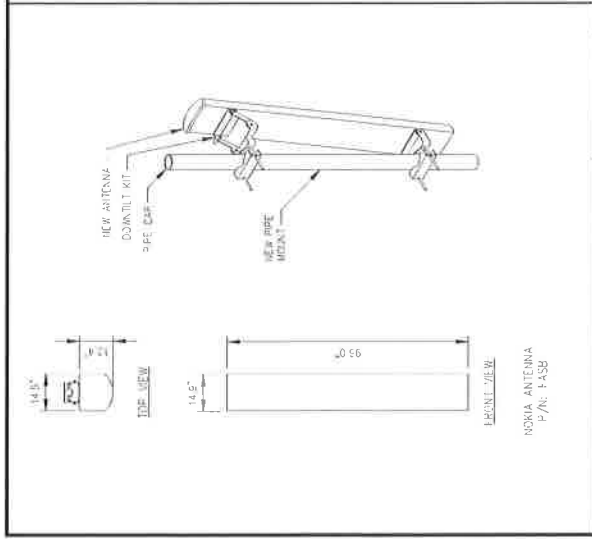
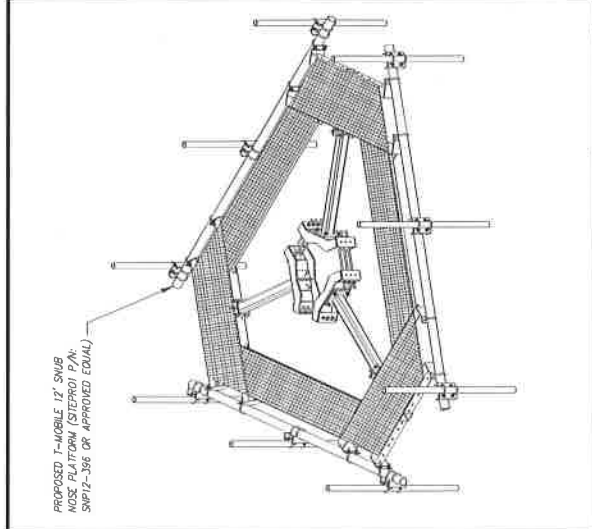
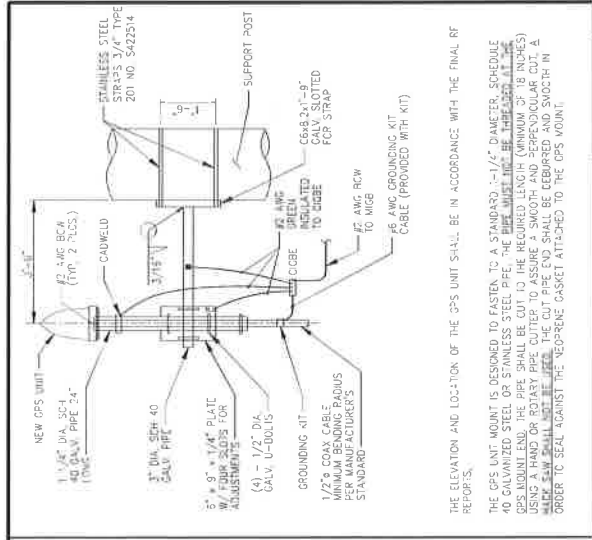
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FALCON, CO 80831

REVISION	DESCRIPTION	DATE	BY	REV
1	ISSUED FOR CONSTRUCTION	8/17/17	TRB	1
2	REVISED FOR CONSTRUCTION	8/23/17	TRB	2
3	REVISED FOR CONSTRUCTION	8/23/17	TRB	3
4	REVISED FOR CONSTRUCTION	8/23/17	TRB	4
5	REVISED FOR CONSTRUCTION	8/23/17	TRB	5

VERTICAL BRIDGE SITE NAME: WOODMEN ELEMENTARY
 MOBILE SITE #: DN04333A
 VERTICAL BRIDGE SITE #: US-CO-5052
 SITE ADDRESS: 12119 McCURE ROAD, FALCON, CO 80831
 SHEET DESCRIPTION: EQUIPMENT & MOUNTING DETAILS
 SHEET NUMBER: A-6



DESCRIPTION (PART) w/O 15% DISCOUNT	QTY	UNIT PRICE	TOTAL PRICE
FRBS RADIO MODULE	1	26.0	26.0
MOUNTING BRACKET	1	2.0	2.0
TOTAL WEIGHT			28.0

THE ELEVATION AND LOCATION OF THE GPS UNIT SHALL BE IN ACCORDANCE WITH THE FINAL RT REPORTS.

THE GPS UNIT IS DESIGNED TO FASTEN TO A STANDARD, 1-1/2" DIAMETER, SCHEDULE 40 GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST BE THREADED AT THE GPS MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MINIMUM OF 18 INCHES) USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A 1/2" DIA. COAX CABLE SHALL BE USED TO CONNECT THE GPS UNIT TO THE ANTENNA IN ORDER TO SEAL AGAINST THE WEATHER. GASKET ATTACHES TO THE GPS UNIT.

NOTE: RADIO MODULE TO BE MOUNTED VERTICALLY ONLY.

FRBS RADIO MODULE

FRBS RADIO MODULE



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REVISION	DESCRIPTION	DATE	BY	RECD
1	ISSUED FOR CONSTRUCTION	01/27/21	SM	1
2	REVISED FOR CONSTRUCTION	02/01/21	SM	1
3	REVISED FOR CONSTRUCTION	02/01/21	SM	1
4	REVISED FOR CONSTRUCTION	02/01/21	SM	1
5	ISSUED FOR CONSTRUCTION	02/01/21	SM	1

VERTICAL BRIDGE SITE NAME
WOODMEN ELEMENTARY

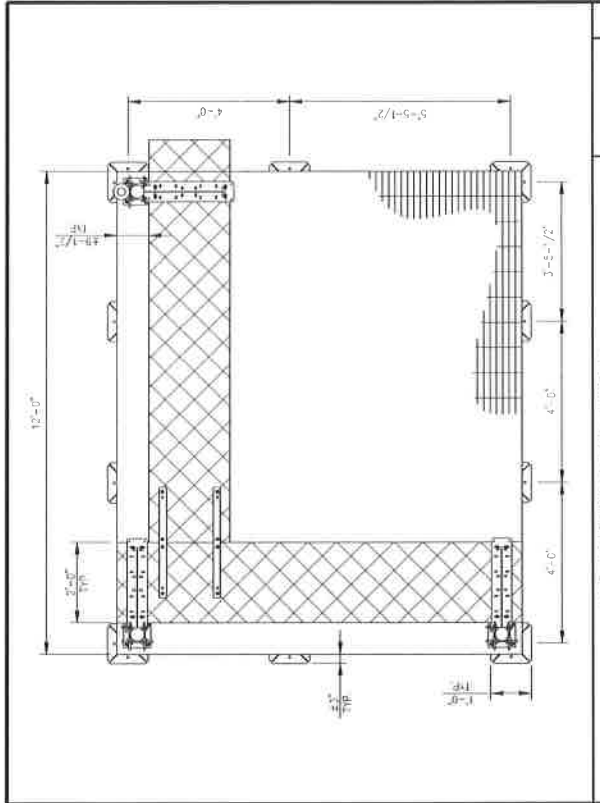
VERTICAL BRIDGE SITE #
DN04333A

VERTICAL BRIDGE SITE #
US-CO-5052

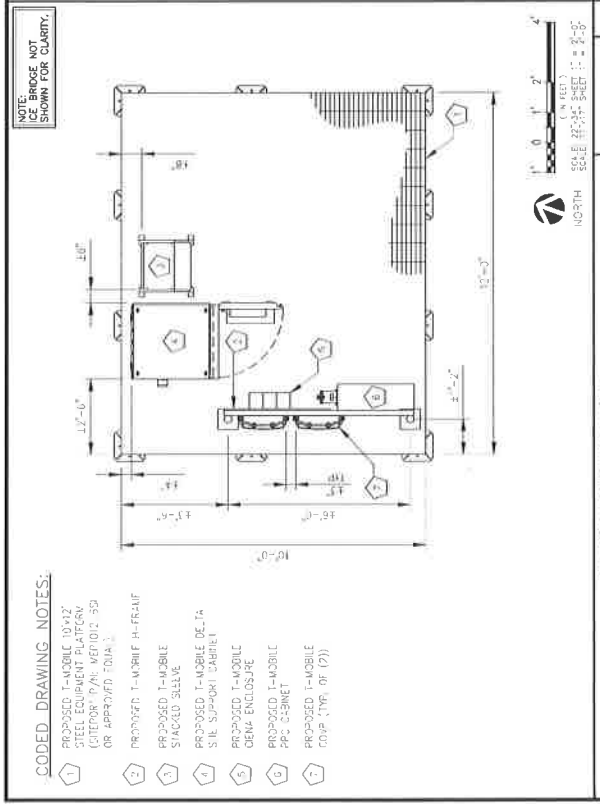
VERTICAL BRIDGE SITE #
**12119 McCURE ROAD
FALCON, CO 80831**

SHEET DESCRIPTION
**EQUIPMENT LAYOUT
& DETAILS**

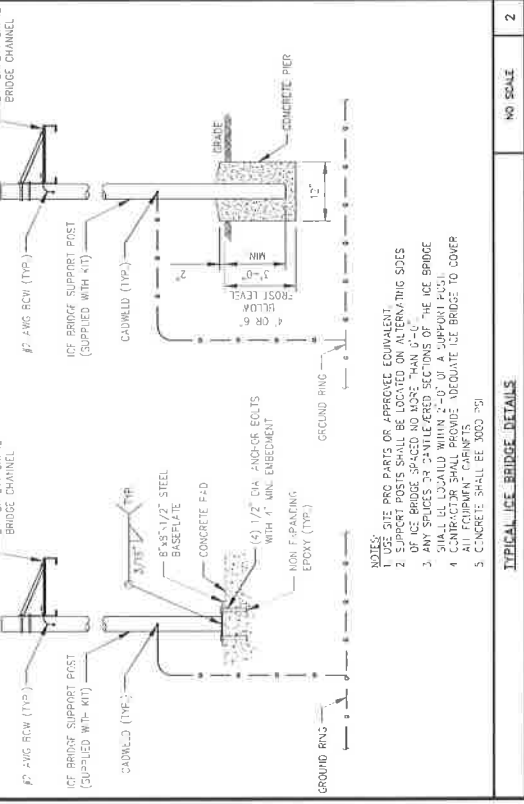
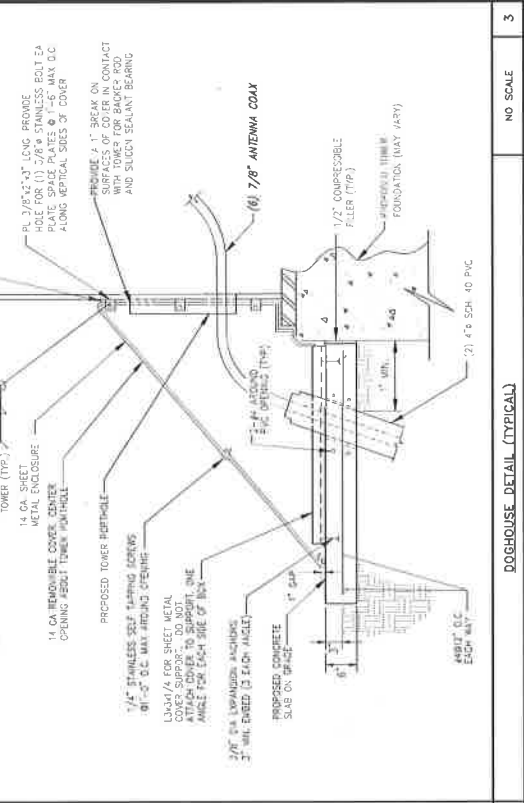
SHEET NUMBER
A-7



PLATFORM EQUIPMENT LAYOUT
SCALE: AS NOTED 1



STEEL EQUIPMENT CABINET PLATFORM
SCALE: AS NOTED 1



DOGHOUSE DETAIL (TYPICAL)
NO SCALE 3

- CODED DRAWING NOTES:**
- PROPOSED T-MOBILE ON-RAMP STEEL EQUIPMENT PLATFORM (GENERAL PLAN: VERTICAL BRIDGE OR APPROVED TOPIA.)
 - PROPOSED T-MOBILE AIR-RAIL SPACED SILLING
 - PROPOSED T-MOBILE DELTA SILL SUPPORT CABINET
 - PROPOSED T-MOBILE DELTA ENCL-ENCLOSURE PPO CABINET
 - PROPOSED T-MOBILE (TOP: (TR) OF 17))

- NOTES:**
- USE 3/16\"/>



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1	ISSUED FOR CONSTRUCTION	01/27/11	BOB	1
2	REVISED FOR CONSTRUCTION	01/27/11	BOB	1
3	REVISED FOR CONSTRUCTION	01/27/11	BOB	1
4	ISSUED FOR CONSTRUCTION	01/27/11	BOB	1

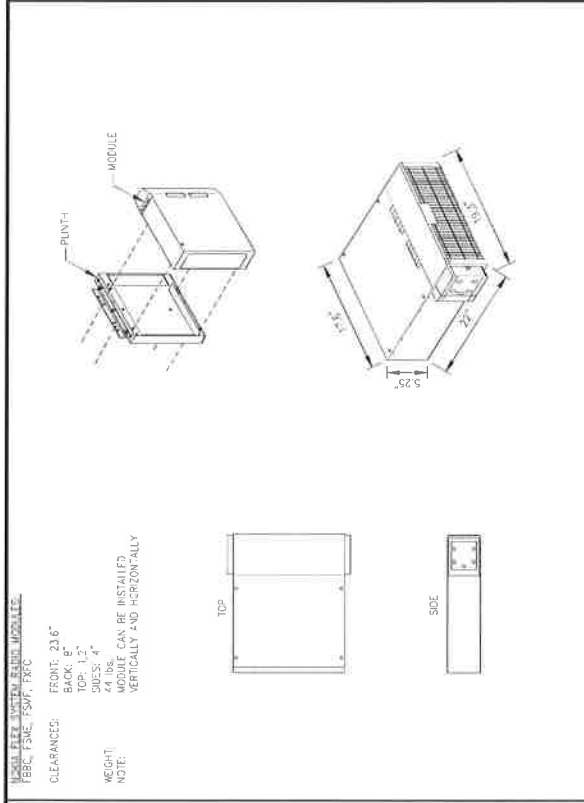
WOODMEN ELEMENTARY
 FACILITY SITE #
 DN04333A

WOODMEN ELEMENTARY
 US-CO-5052

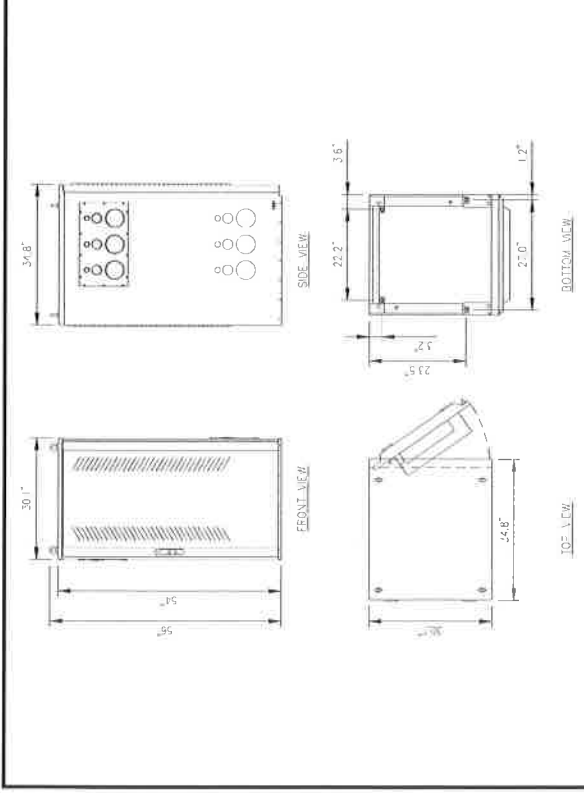
SITE ADDRESS
 12119 McCLURE ROAD
 FALCON, CO 80831

SHEET DESCRIPTION
 EQUIPMENT & MOUNTING DETAILS

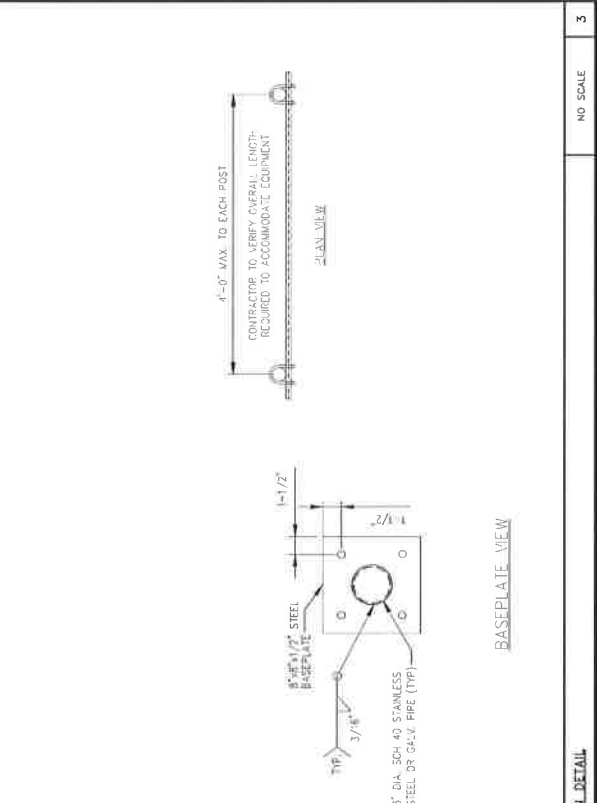
SHEET NUMBER
 A-8



RADIO_MODULE_DETAIL 2 NO SCALE



DELTA-SITE_SUPPORT_CABINET_DETAIL 1 NO SCALE



TYPICAL_H-FRAME_FABRICATION_DETAIL 3 NO SCALE

PLANS PREPARED BY:

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REVISION	DESCRIPTION	DATE	BY	APP'D
1	ISSUED FOR CONSTRUCTION	8/12/17	SEE 1	
2	REVISED FOR CONSTRUCTION	8/27/17	SEE 2	
3	REVISED FOR CONSTRUCTION	9/11/17	SEE 3	
4	REVISED FOR CONSTRUCTION	9/11/17	SEE 4	

VERTICAL BRIDGE SITE NAME:
WOODMEN ELEMENTARY

T-MOBILE SITE #:
DN04333A

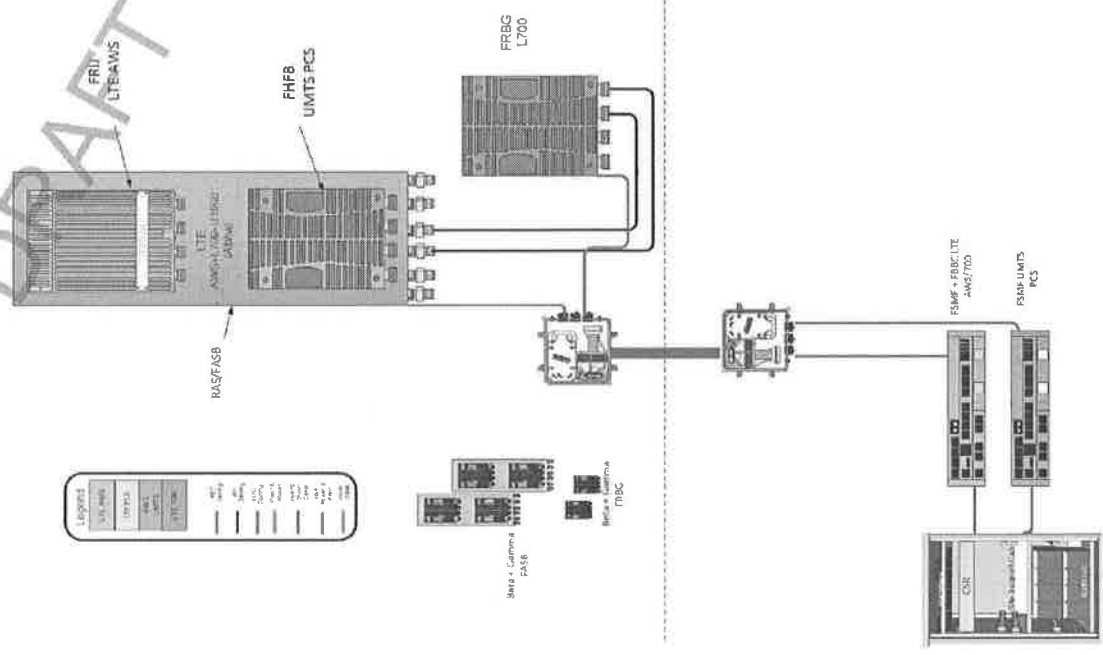
VERTICAL BRIDGE SITE #:
US-CO-5052

SITE ADDRESS:
12119 McCURE ROAD
FALCON, CO 80831

SHEET DESCRIPTION:
PLUMBING DIAGRAM

SHEET NUMBER:
A-9

NSD custom RAS configuration 716R (L700/L2100/U1900)



Mobile
 2322 Delagany Street
 Denver, CO 80216

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 Westminster, CO 80020
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 Fax # 303.425.8510
 JOB NUMBER 44-16-26

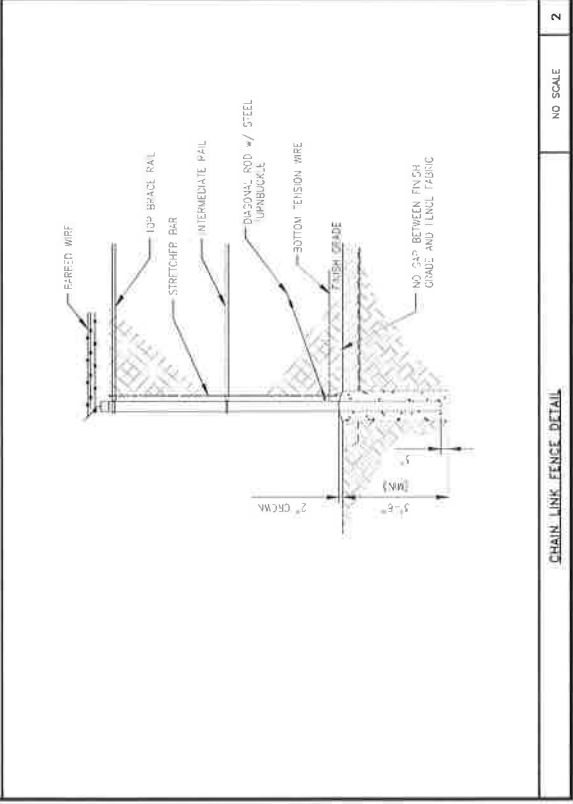
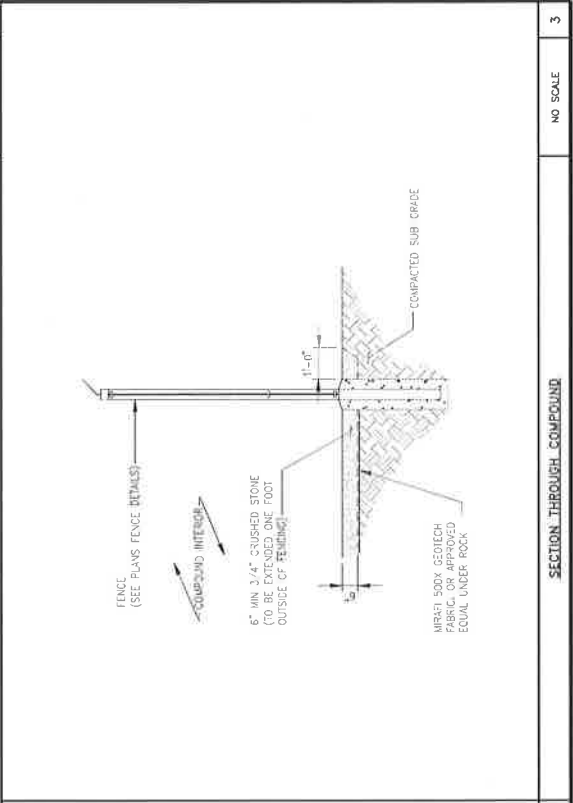
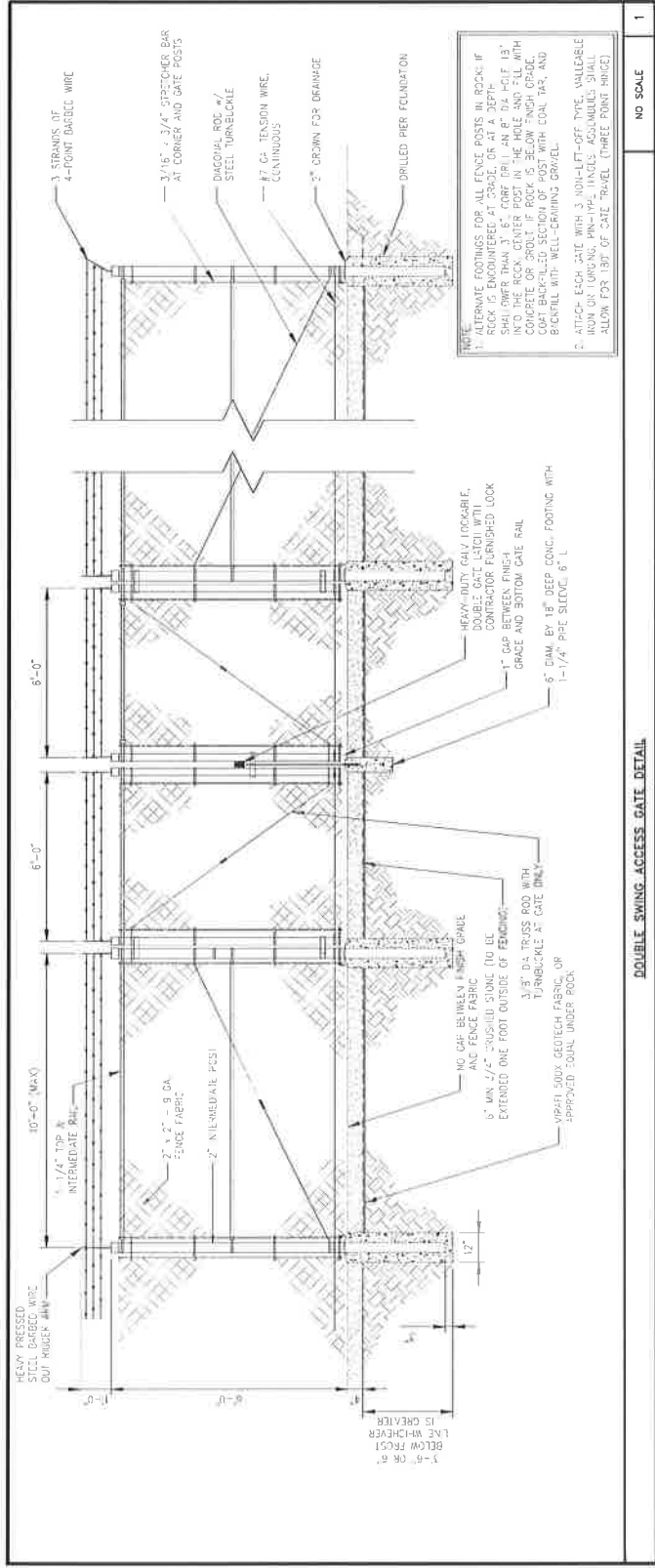
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REVISION	DESCRIPTION	DATE	BY	CHK
1	ISSUED FOR CONSTRUCTION	08/17/21	001	3
2	REVISED FOR CONSTRUCTION	08/17/21	001	3
3	REVISED FOR CONSTRUCTION	08/17/21	001	3
4	ISSUED FOR CONSTRUCTION	10/07/21	001	3

VERTICAL BRIDGE SITE NAME: _____
 PROJECT: _____
WOODMEN ELEMENTARY
 FENCE TYPE: _____
 DRAWING NO.: DN04333A
 PROJECT: _____
 CONTRACTOR: _____
 ADDRESS: 12119 McCLURE ROAD, FALCON, CO 80831
 SHEET NO.: _____
FENCE DETAILS
 SHEET NUMBER: **A-10**



DOUBLE SWING ACCESS GATE DETAIL NO SCALE 1

CHAIN LINK FENCE DETAIL NO SCALE 2

SECTION THROUGH COMPOUND NO SCALE 3



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1	REVISIONS FOR CONSTRUCTION	07/20/11	LRB	Y
2	REVISIONS FOR CONSTRUCTION	07/20/11	LRB	Y
3	REVISIONS FOR CONSTRUCTION	07/20/11	LRB	Y
4	REVISIONS FOR CONSTRUCTION	07/20/11	LRB	Y
5	REVISIONS FOR CONSTRUCTION	07/20/11	LRB	Y

VERTICAL BRIDGE SITE #

 WOODMEN ELEMENTARY

 TAG/LEG/LET #

 DN04333A

VERTICAL BRIDGE SITE #

 US-CO-5052

SITE ADDRESS

 12119 McCLURE ROAD

 FALCON, CO 80831

SHEET DESCRIPTION

 CIVIL DETAILS

SHEET NUMBER

A-11

SILT FENCE DETAIL

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO TOP AND MID SECTION.
2. FILTER CLOTH TO BE FASTENED SECURELY TO TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6 IN.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
5. ALL SILT FENCE MATERIALS MUST BE LISTED ON THE CURRENT STATES "D.O.L. QUALIFIED PRODUCTS LIST".

NOTE:

1. 12" TRENCH
2. 12" IN. FABRIC TO BOTTOM OF TRENCH
3. BACKFILL TRENCH, COVERING FABRIC.

INDEX:

1. TRENCH
2. 12" IN. FABRIC TO BOTTOM OF TRENCH
3. BACKFILL TRENCH, COVERING FABRIC.

NOTES:

1. ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY 18" THROUGHOUT THE ENTIRE LENGTH OF THE DRIVEWAY. STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE.
2. AT THE END OF EACH CONSTRUCTION DAY ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE.

NO SCALE	NO SCALE
1	2
NO SCALE	NO SCALE
1	3



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1	ISSUED FOR PERMITS	10/27/11	DL	1
2	REVISED FOR T-MOBILE COMMENTS	11/15/11	DL	2
3	REVISED FOR T-MOBILE COMMENTS	11/22/11	DL	3
4	REVISED FOR T-MOBILE COMMENTS	12/21/11	DL	4
5	ISSUED FOR CONSTRUCTION	1/10/12	DL	5

WOODMEN ELEMENTARY
 MOBILE SITE #
 DN04333A
 US-CO-5052

12119 McCURE ROAD
 FALCON, CO 80831

OVERALL
 UTILITY LAYOUT

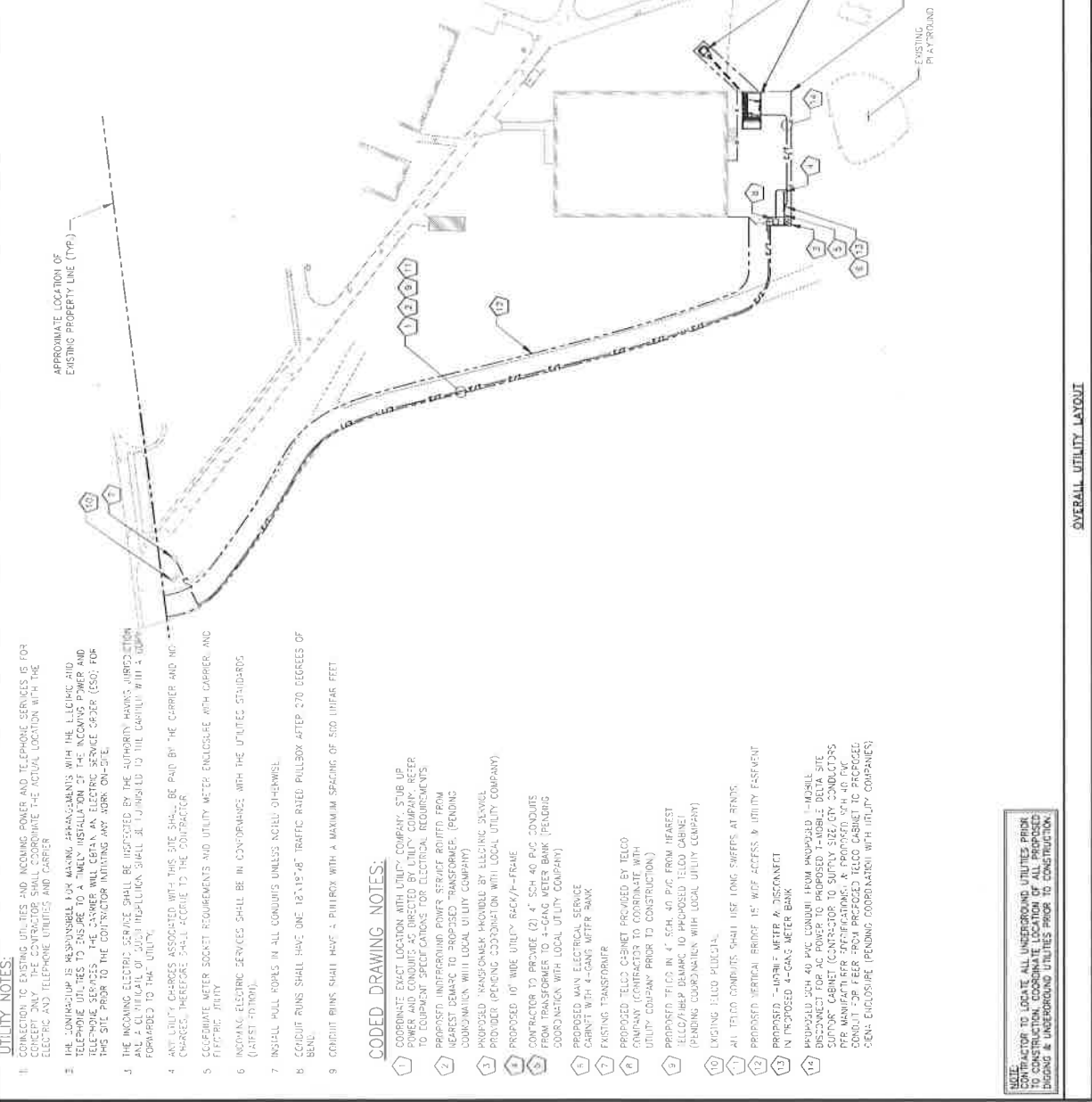
E-1

GENERAL ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES.
2. ALL UNDERGROUND CONDUIT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES. UNDERGROUND CONDUIT SHALL BE INSTALLED AT A MINIMUM OF 18" BELOW GRADE. PROVIDE 3" SEPARATION FROM PIPES AND UNDERGROUND UTILITIES. PROVIDE 3" SEPARATION FROM UNDERGROUND PIPES AND TELEPHONE CONDUITS. PROVIDE 12" SEPARATION FROM UNDERGROUND CONDUITS.
3. ALL CONDUCTORS SHALL BE COPPER WITH THRU/THIN INSULATION. CONTROL CONDUCTORS SHALL BE SOLID FOR 1/0 THROUGH 2/0. ALL OTHER CONDUCTORS SHALL BE STRANDED. ALL 1/2 CONDUCTORS AND STRANDED FOR ALL OTHER SIZES.
4. ELECTRICAL DRAWINGS ARE IN PART AUTOMATIC. COORDINATE ELECTRICAL WORK WITH SITE CONDITIONS.
5. LOCATE ALL UNDERGROUND UTILITIES BEFORE TRENCHING. IF CONFLICTS ARISE, CONTACT UTILITY COMPANY AND ENGINEER IMMEDIATELY.
6. ALL EXPOSED CONDUITS SHALL HAVE WEATHERPROOF CAPS AND DUCT TAPE.
7. PROVIDE 500 LB TEST FILL WIRE IN EACH TELEPHONE AND POWER CONDUIT.
8. PULL BOXES SHALL BE INSTALLED AS NEEDED PER NEC AND UTILITY REQUIREMENTS.

ABBREVIATIONS:

A	AND
B	BASE
AWG	AMERICAN WIRE GAUGE
BSW	BASE COPPER WIRE
BFC	BELOW FINISH GRADE
BTS	BASE FINISHED STRANDED
C	CONDUIT
CO	COPPER
CS	CORRUGATED GALVANIZED STEEL
DLO	DIESEL LOCOMOTIVE CABLE
DWG	DRAWING
E	EXTENDED
ES	EXTENDED ISOLATED GROUND BAR
G	GROUND
GPS	GLOBAL POSITIONING SYSTEM
HLO	HOT LOW VOLTAGE
INT	INTERIOR
IP	INTERIOR PENETRATING
MCB	MULTI-CIRCUIT BREAKER
MCS	MULTI-GROUNDED CENTRAL
MSC	MOBILE SWITCHING CENTER
MTCO	MOBILE TELEPHONE SWITCHING OFFICE
PVC	POLYVINYL CHLORIDE
RF	RADIO FREQUENCY
RIG	RIGID GALVANIZED STEEL
SS	STAINLESS STEEL
SSS	SELF SUPPORT TOWER
TOR	TOWER GROUND RING
W/	WITH



UTILITY NOTES:

1. CONNECTION TO EXISTING UTILITIES AND INCOMING POWER AND TELEPHONE SERVICES IS FOR CONTRACTOR TO VERIFY. THE CONTRACTOR SHALL CORROBORATE THE ACTUAL LOCATION WITH THE UTILITY AND TELEPHONE COMPANIES AND CARRIER.
2. THE CONTRACTOR IS RESPONSIBLE FOR MAKING ARRANGEMENTS WITH THE ELECTRIC AND TELEPHONE UTILITIES TO INSURE TO A TIMELY INSTALLATION OF THE INCOMING POWER AND TELEPHONE SERVICES. THE CARRIER WILL CERTAIN AN ELECTRIC SERVICE ORDER (ESO) FOR THIS SITE PRIOR TO THE CONTRACTOR INITIATING ANY WORK ON-SITE.
3. THE INCOMING ELECTRICAL SERVICE SHALL BE PROVIDED BY THE AUTHORITY HAVING JURISDICTION AND A CLERICAL OF SUCH INSTALLATION SHALL BE TURNED TO THE CARRIER WITH A COPY FORWARDED TO THE UTILITY.
4. ANY UTILITY CHARGES ASSOCIATED WITH THIS SITE SHALL BE PAID BY THE CARRIER AND NOT INFINIGY. THEREFORE, CHARGES SHALL ACCRUE TO THE CONTRACTOR.
5. COORDINATE METER SOCKET REQUIREMENTS AND UTILITY METER ENCLOSURE WITH CARRIER AND ELECTRICAL JURY.
6. INCOMING ELECTRICAL SERVICES SHALL BE IN CONFORMANCE WITH THE UTILITIES STANDARDS (LATEST EDITION).
7. INSTALL PULL BOXES IN ALL CONDUITS UNLESS NOTED OTHERWISE.
8. CONDUIT RUNS SHALL HAVE ONE 18"x18" 48" TRAFFIC RATED PULLBOX AFTER 270 DEGREES OF BEND.
9. CEMENT BINS SHALL HAVE 2" PULLBOX WITH A MAXIMUM SPACING OF 500 LINEAR FEET.

CODED DRAWING NOTES:

1. COORDINATE EXACT LOCATION WITH UTILITY COMPANY, STUB UP POWER AND CONDUITS AS DIRECTED BY UTILITY COMPANY. REFER TO EQUIPMENT SPECIFICATIONS FOR ELECTRICAL REQUIREMENTS.
2. PROPOSED UNDERGROUND POWER SERVICE ROUTED FROM NEAREST DEMARC TO PROPOSED TRANSFORMER. (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
3. PROPOSED TRANSFORMER PROVIDED BY ELECTRIC SERVICE PROVIDER. (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
4. PROPOSED 10" WIRE UTILITY RACK/P-FRAME CONTRACTOR TO PROVIDE (2) 4" 50# 48" PVC CONDUITS FROM TRANSFORMER TO 15' WIRE METER BANK. (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
5. PROPOSED 10" WIRE UTILITY RACK/P-FRAME CONTRACTOR TO PROVIDE (2) 4" 50# 48" PVC CONDUITS FROM TRANSFORMER TO 15' WIRE METER BANK. (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
6. PROPOSED 10" WIRE UTILITY RACK/P-FRAME CONTRACTOR TO PROVIDE (2) 4" 50# 48" PVC CONDUITS FROM TRANSFORMER TO 15' WIRE METER BANK. (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
7. EXISTING TRANSFORMER
8. PROPOSED TELCO CABINET PROVIDED BY TELCO COMPANY (CONTRACTOR TO COORDINATE WITH UTILITY COMPANY PRIOR TO CONSTRUCTION)
9. PROPOSED TELCO IN 4" 50# 48" PVC FROM NEAREST TELCO/HELP BENCH TO PROPOSED TELCO CABINET (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
10. EXISTING TELCO RACK/P-FRAME
11. ALL TELCO CABINETS SHALL USE LONG SWEEPERS AT RENTS.
12. PROPOSED VERTICAL BRIDGE 15' WIRE ACCESS & UTILITY ESSENTIAL
13. PROPOSED 10" WIRE METER & DISCONNECT IN PROPOSED 4-GANG METER BANK
14. PROPOSED 200 40 PVC CONDUIT FROM PROPOSED VERTICAL BRIDGE TO PROPOSED 10" WIRE ACCESS & UTILITY ESSENTIAL. CONTRACTOR TO PROVIDE (2) 4" 50# 48" PVC CONDUITS FROM METER BANK TO PROPOSED TELCO CABINET. (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)

NOTE:
 CONTRACTOR TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. COORDINATE LOCATION OF ALL PROPOSED DIGGING & UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.



SCALE: AS NOTED

OVERALL UTILITY LAYOUT



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Denver, CO 80216



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1	ISSUED FOR CONSTRUCTION	01/27/11	AW	AW
2	ISSUED FOR CONSTRUCTION	01/27/11	AW	AW
3	ISSUED FOR CONSTRUCTION	01/27/11	AW	AW
4	ISSUED FOR CONSTRUCTION	01/27/11	AW	AW

VERTICAL BRIDGE SITE NAME
WOODMEN ELEMENTARY

T-MOBILE SITE #
DN04-333A

VERTICAL BRIDGE SITE #
US-CO-5052

SITE ADDRESS
12119 McCLURE ROAD
FALCON, CO 80831

SHEET DESCRIPTION
COMPOUND UTILITY LAYOUT

SHEET NUMBER
E-2

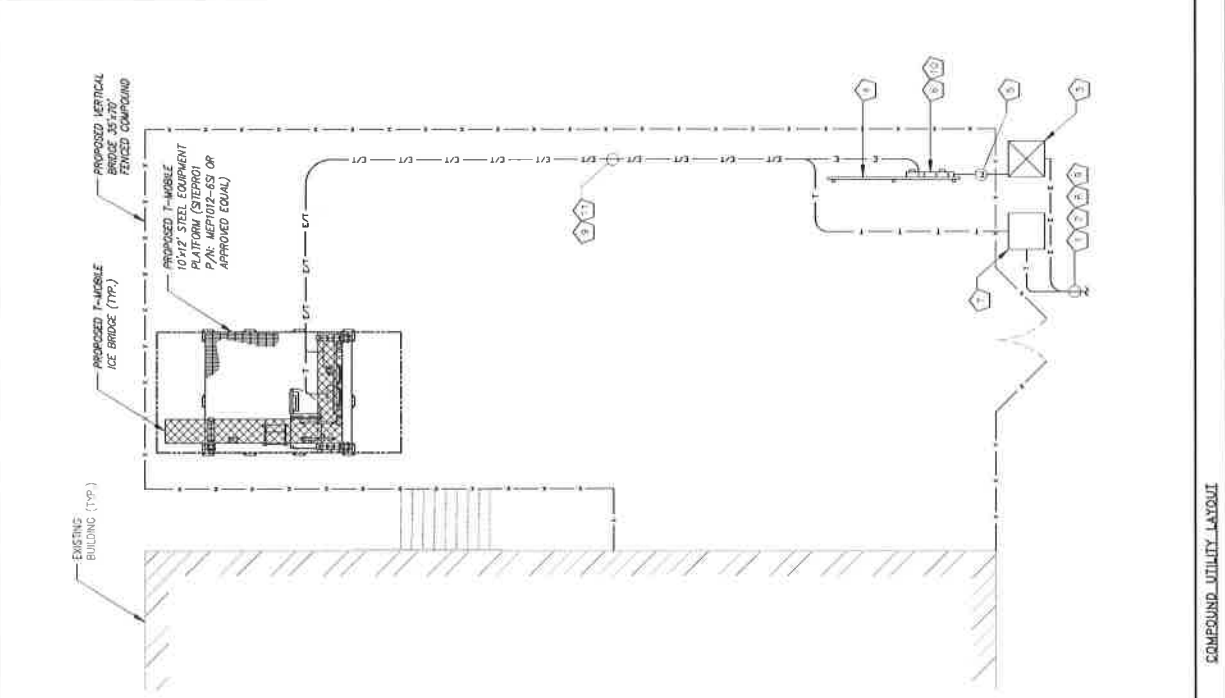
ABBREVIATIONS:

AND ALL WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES.

A	AND
AW	AWG
BW	BROWN
BFD	BELOW FINISH GRADE
BT	BARE
BTS	BARE TINNED STRANDED
C	CONDUIT
CB	COAXIAL
CBR	COAXIAL ISOLATED GROUND BAR
DLO	DRAWING
DWG	DRAWING
EDR	EXTERIOR
EGP	GROUND
G	GROUND
GPS	GLOBAL POSITIONING SYSTEM
HALO	INTERIOR GROUND RING
HCB	MULTI-CONDUCTOR CABLE
MSC	MULTI-CONDUCTOR CABLE
MISC	MOBILE SWITCHING CENTER
MTSO	MOBILE TELEPHONE SWITCHING OFFICE
PVC	POLYVINYL CHLORIDE
POS	POSITION
RCS	RADIATION CURED
SS	STAINLESS STEEL
SST	SELF SUPPORT TOWER
TOR	TOWER GROUND RING
TR	TRIAL
W	WITH

ELECTRICAL SYMBOLS:

○	RECEPTACLE
—●—	BURIED POWER CONDUIT
—●—	BURIED TELCO CONDUIT
○	ELECTRICAL METER
□	INDICATES CORED NUMBER
□	SAFETY SWITCH
□	UTILITY POLE



- GENERAL ELECTRICAL NOTES:**
- ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES.
 - ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE NOTED. CONDUITS SHALL BE INSTALLED AT LEAST 18" BELOW GRADE, ALONG ENTIRE LENGTH OF UNDERGROUND CONDUITS.
 - ALL CONDUITS SHALL BE PROPERLY MARKED WITH TYPICAL POWER & LIGHTING CONDUITS SHALL BE ORANGE, TELEPHONE & FIBER CONDUITS SHALL BE BLUE, AND ALL OTHER SIZES, SHALL BE WHITE.
 - ELECTRICAL DRAWINGS ARE IN PART AUTOMATICALLY GENERATED. COORDINATE ELECTRICAL WORK WITH SITE CONDITIONS.
 - LOCATE ALL UNDERGROUND UTILITIES BEFORE TRENCHING. CONSULT ALL LOCAL UTILITY COMPANIES AND ENGINEERS IMMEDIATELY.
 - ALL GROUND CONDUITS SHALL HAVE WEATHERPROOF CAPS NOT DUCT TAPE.
 - PROVIDE 200 LB. TEST PULL WIRES IN EACH TELEPHONE AND POWER CONDUIT.
 - PULL PIPES SHALL BE INSTALLED AS NEEDED PER ALL UTILITY REQUIREMENTS.

- CODED DRAWING NOTES:**
- COORDINATE EXACT LOCATION WITH UTILITY COMPANY, STATE UP POWER AND CONDUITS AS DIRECTED BY UTILITY COMPANY. REFER TO EQUIPMENT SPECIFICATIONS FOR ELECTRICAL REQUIREMENTS.
 - PROPOSED UNDERGROUND POWER STRAIGHT ROUTED FROM NEAREST DEMARC TO PROPOSED TRANSFORMER. (PENDING LOCAL UTILITY WITH LOCAL UTILITY COMPANY)
 - PROPOSED TRANSFORMER PROVIDED BY ELECTRIC SERVICE PROVIDER. (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
 - PROPOSED 10" WIDE UTIL. RACK/F--FRAME
 - CONTRACTOR TO PROVIDE (0) 4" SCH. 40 PVC CONDUITS FROM TRANSFORMER TO 4-GANG METER BANK. (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
 - PROPOSED METER ELECTRICAL SERVICE CABINET WITH 4-GANG METER BANK
 - PROPOSED TELCO CABINET PROVIDED BY TELCO COMPANY. (CONTRACTOR TO COORDINATE WITH UTILITY COMPANY PRIOR TO CONSTRUCTION.)
 - PROPOSED TELCO IN 4" SCH. 40 PVC FROM NEAREST TELCO/FIBER DEMARC TO PROPOSED TELCO CABINET. (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
 - ALL TELCO CONDUITS SHALL USE LONG SWIFFETS AT BENDS.
 - PROPOSED T-MOBILE METER & DISCONNECT IN PROPOSED 4 GANG METER BANK
 - PROPOSED SCH. 40 PVC CONDUIT FROM PROPOSED T-MOBILE DISCONNECT TO T-MOBILE POWER METER. (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
 - PROVIDE SUPPORT CABINET (CONTRACTOR TO SUPPLY SUFFICIENT CONDUITS PER MANUFACTURER SPECIFICATIONS) & PROPOSED SCH. 40 PVC CONDUIT FOR FEED FROM PROPOSED TELCO CABINET TO PROPOSED DEMARC ENCLOSURE. (PENDING COORDINATION WITH UTILITY COMPANIES)

NOTE:
CONTRACTOR TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. COORDINATE LOCATION OF ALL PROPOSED DIGGING & UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.



SCALE AS NOTED

1

PLANS PREPARED FOR



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REVISION	DESCRIPTION	DATE	BY	REV
1	REVISED FOR CONSTRUCTION	08/27/17	BOJ	1
2	REVISED FOR CONSTRUCTION	09/27/17	BOJ	2
3	REVISED FOR CONSTRUCTION	10/27/17	BOJ	3
4	REVISED FOR CONSTRUCTION	11/27/17	BOJ	4
5	REVISED FOR CONSTRUCTION	12/27/17	BOJ	5

WOODMEN ELEMENTARY
PROJECT NUMBER: DN04333A

US-CO-5052

SITE ADDRESS
12119 McCURE ROAD
FALCON, CO 80831

DIBED PRODUCTION
EQUIPMENT
UTILITY LAYOUT

SHEET NUMBER
E-3

ABBREVIATIONS:

- A AWG
- BCW BARE COPPER WIRE
- BFG BELOW FINISH GRADE
- BTS BARE TINNED STRANDED CABLE
- CAB CABINET
- COBX COAX ISOLATED GROUND BAR EXTERNAL
- DLO DIESEL LOCOMOTIVE CABLE
- DWG DRAWING
- EXTD EXTERIOR
- EXTOR EXTERIOR ISOLATED GROUND BAR
- GRND GROUND
- GRAL GENERAL
- INTD INTERIOR
- INTOR INTERIOR ISOLATED GROUND BAR
- MSK MULTIMEDIA
- MSC MOBILE SWITCHING CENTER
- MOB MOBILE TELEPHONE SWITCHING OFFICE
- PLTY PLASTIC
- RDG ROAD
- RSR ROAD
- SS STAINLESS STEEL
- SST SPLIT SUPPORT TOWER
- TOR TOWER
- W/ WITH

ELECTRICAL SYMBOLS:

- RECEPTACLE
- BURIED POWER CONDUIT
- BURIED TELCO CONDUIT
- ELECTRICAL METER
- INDICATES CODED NUMBER
- SAFETY SWITCH
- UTILITY HOLE

GENERAL ELECTRICAL NOTES:

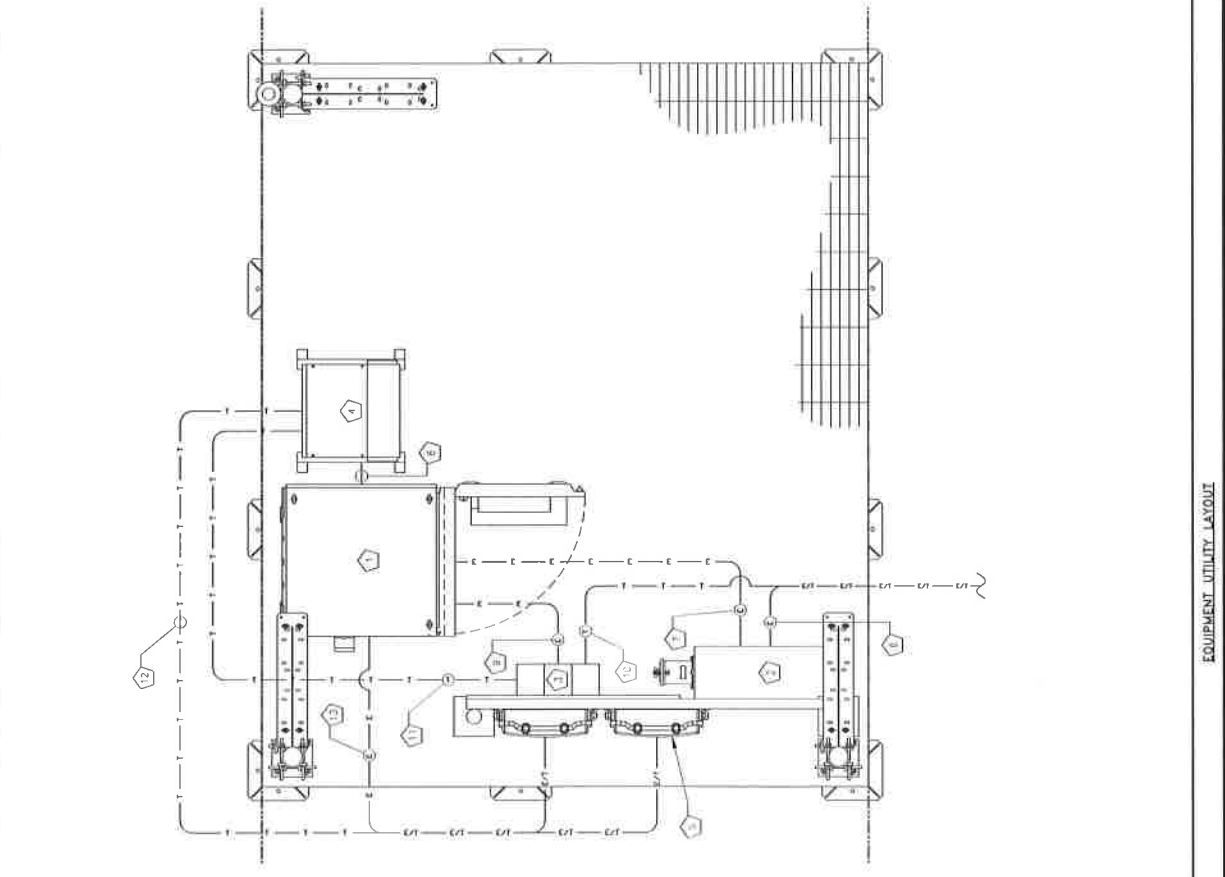
1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES.
2. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE INDICATED. SUPPLY UTILITY MARKING TAPE BURIED 12" BELOW GRADE ALONG ENTIRE LENGTH OF UNDERGROUND CONDUITS.
3. ALL CONDUITS SHALL BE COPPER WITH THIN/WALL/INSULATION CONTROL. CONDUCTORS SHALL BE STRANDED 3/4" JUMPS & LIGHTING CONDUITS SHALL BE SOLID 1/2" #10 & #12 CONDUCTORS AND STRANDED FOR ALL OTHER SIZES.
4. ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE COORDINATE ELECTRICAL WORK WITH THE CONTRACTOR AND ENGINEER IMMEDIATELY.
5. LOCATE ALL UNDERGROUND UTILITIES BEFORE TRENCHING.
6. ALL EXPOSED CONDUITS SHALL HAVE WEATHERPROOF AND POWER CONDUIT.
7. PULL BOXES SHALL BE INSTALLED AS NEEDED PER NEC AND LOCAL REQUIREMENTS.

CODED DRAWING NOTES:

1. PROPOSED T-MOBILE DELTA SITE SUPPORT CABINET
2. PROPOSED T-MOBILE PFC CABINET
3. PROPOSED T-MOBILE STACKEE SILLW
4. PROPOSED T-MOBILE COVP (TYP OF 22)
5. 1/2" PVC CONDUIT WITH (3) 3/8" & (1) #6 GROUND WIRE FROM T-MOBILE W/CONDUCTOR TO T-MOBILE PFC (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
6. 1/2" PVC OR LIQUIDTIGHT CONDUIT FROM PROPOSED T-MOBILE SUPPORT CABINET TO SUPPLY SIZE/TYPE CONDUCTORS PER MANUFACTURER SPECIFICATIONS
7. 1/2" PVC OR LIQUIDTIGHT CONDUIT FOR DC POWER TO PROPOSED T-MOBILE STACKEE SILLW (CONNECTION TO SUPPLY SIZE/TYPE CONDUCTORS PER MANUFACTURER SPECIFICATIONS)
8. 1/2" PVC OR LIQUIDTIGHT CONDUIT FOR DC POWER TO PROPOSED DCVA ENCLOSURE (CONNECTION TO SUPPLY SIZE/TYPE CONDUCTORS PER MANUFACTURER SPECIFICATIONS)
9. 1/2" PVC OR LIQUIDTIGHT CONDUIT FOR DC POWER FROM NEW TELCO CABINET TO PROPOSED DCVA ENCLOSURE
10. 1/2" PVC OR LIQUIDTIGHT CONDUIT FOR FIBER FROM PROPOSED DCVA ENCLOSURE TO PROPOSED T-MOBILE STACKEE SILLW
11. 1/2" PVC OR LIQUIDTIGHT CONDUITS FOR FIBER FROM PROPOSED T-MOBILE STACKEE SILLW TO PROPOSED T-MOBILE COVPs
12. 1/2" PVC OR LIQUIDTIGHT CONDUITS FOR DC POWER FROM PROPOSED T-MOBILE DELTA SITE SUPPORT CABINET TO PROPOSED T-MOBILE COVPs (CONNECTION TO SUPPLY SIZE/TYPE CONDUCTORS PER MANUFACTURER SPECIFICATIONS)

NOTE:
ICE BRIDGE NOT SHOWN FOR CLARITY.

NOTE:
CONTRACTOR TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. COORDINATE LOCATION OF ALL PROPOSED DIGGING & UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.



0.75" = 0 0.75' = 1.5'
SCALE: AS NOTED

SCALE AS NOTED

1

EQUIPMENT UTILITY LAYOUT

PLANS PREPARED FOR



2223 Delaware Street
Denver, CO 80216

PLANS PREPARED BY



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3	REVISED FOR CONSTRUCTION	07/27/11	MM	1
4	ISSUED FOR CONSTRUCTION	07/27/11	MM	1
5	ISSUED FOR CONSTRUCTION	07/27/11	MM	1

WOODMEN ELEMENTARY

MOBILE SITE #

DN04333A

VERTICAL BRIDGE SITE #

US-CO-5052

SEE SHEETS

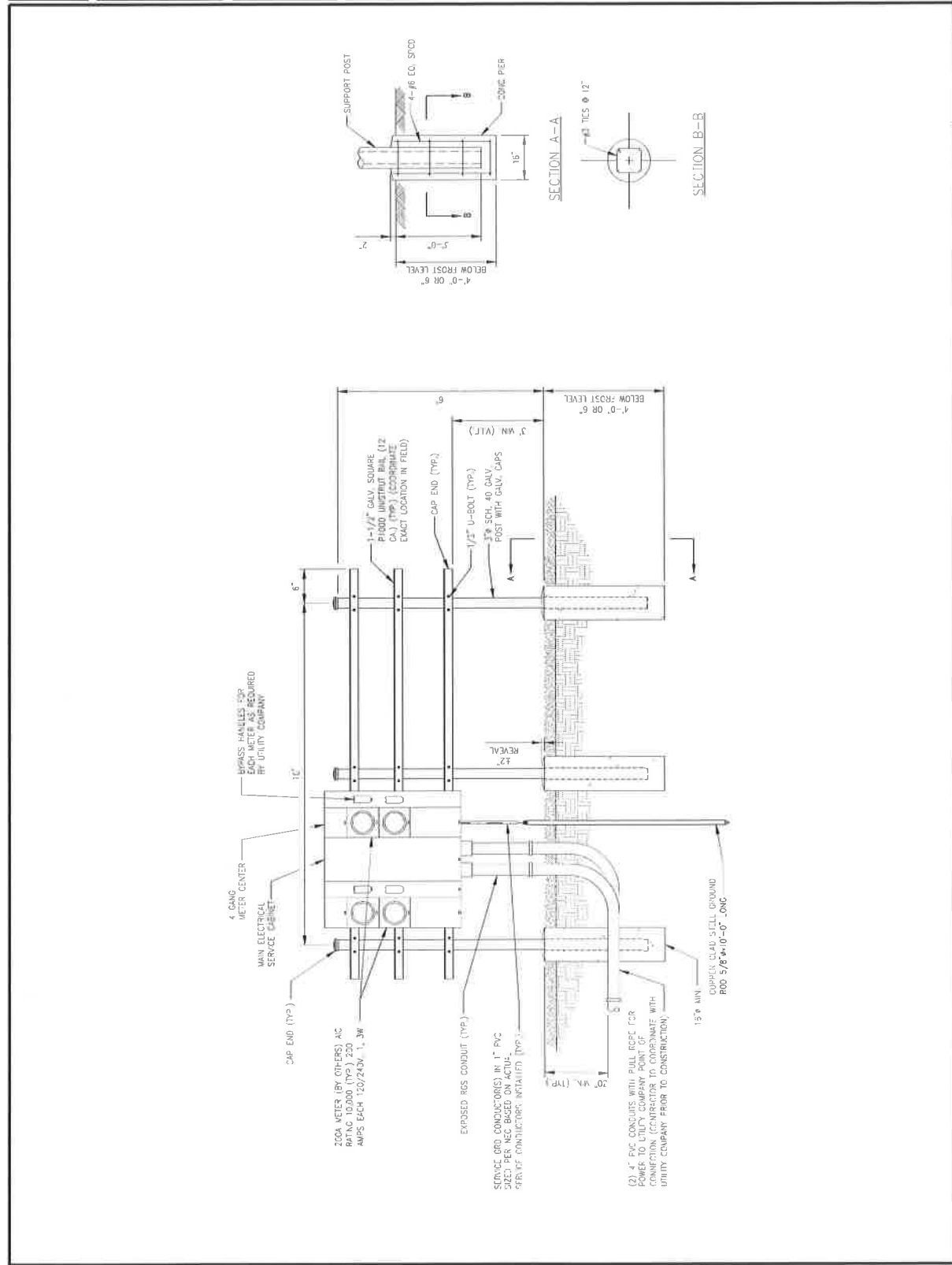
12119 McCLURE ROAD
FALCON, CO 80831

SHEET DESCRIPTION

UTILITY RACK DETAIL

SHEET NUMBER

E-5



TYPICAL UTILITY RACK

NO SCALE 1

PLEASE PREPARE PIPE

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 Fax: 303.442.8038
 JIM HARRIS - P.E.

verticalbridge
 750 Park of Commerce Drive
 Suite 300 - 30457
 Office: 303.744.8067

PROFESSIONAL ENGINEER
 CHRISTOPHER J. HARRIS
 47849
 LICENSED IN THE STATE OF COLORADO
 EXPIRES 12/31/2018

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2	REVISED FOR CONSTRUCTION	10/27/11	CH	2
3	REVISED FOR CONSTRUCTION	10/27/11	CH	3
4	REVISED FOR CONSTRUCTION	10/27/11	CH	4
5	REVISED FOR CONSTRUCTION	10/27/11	CH	5
6	REVISED FOR CONSTRUCTION	10/27/11	CH	6
7	REVISED FOR CONSTRUCTION	10/27/11	CH	7
8	REVISED FOR CONSTRUCTION	10/27/11	CH	8
9	REVISED FOR CONSTRUCTION	10/27/11	CH	9
10	REVISED FOR CONSTRUCTION	10/27/11	CH	10
11	REVISED FOR CONSTRUCTION	10/27/11	CH	11
12	REVISED FOR CONSTRUCTION	10/27/11	CH	12

WOODMEN ELEMENTARY
 12119 McCLURE ROAD
 FALCON, CO 80831

US-CO-5052

12119 McCLURE ROAD
 FALCON, CO 80831

GROUNDING PLANS
 COMPOUND

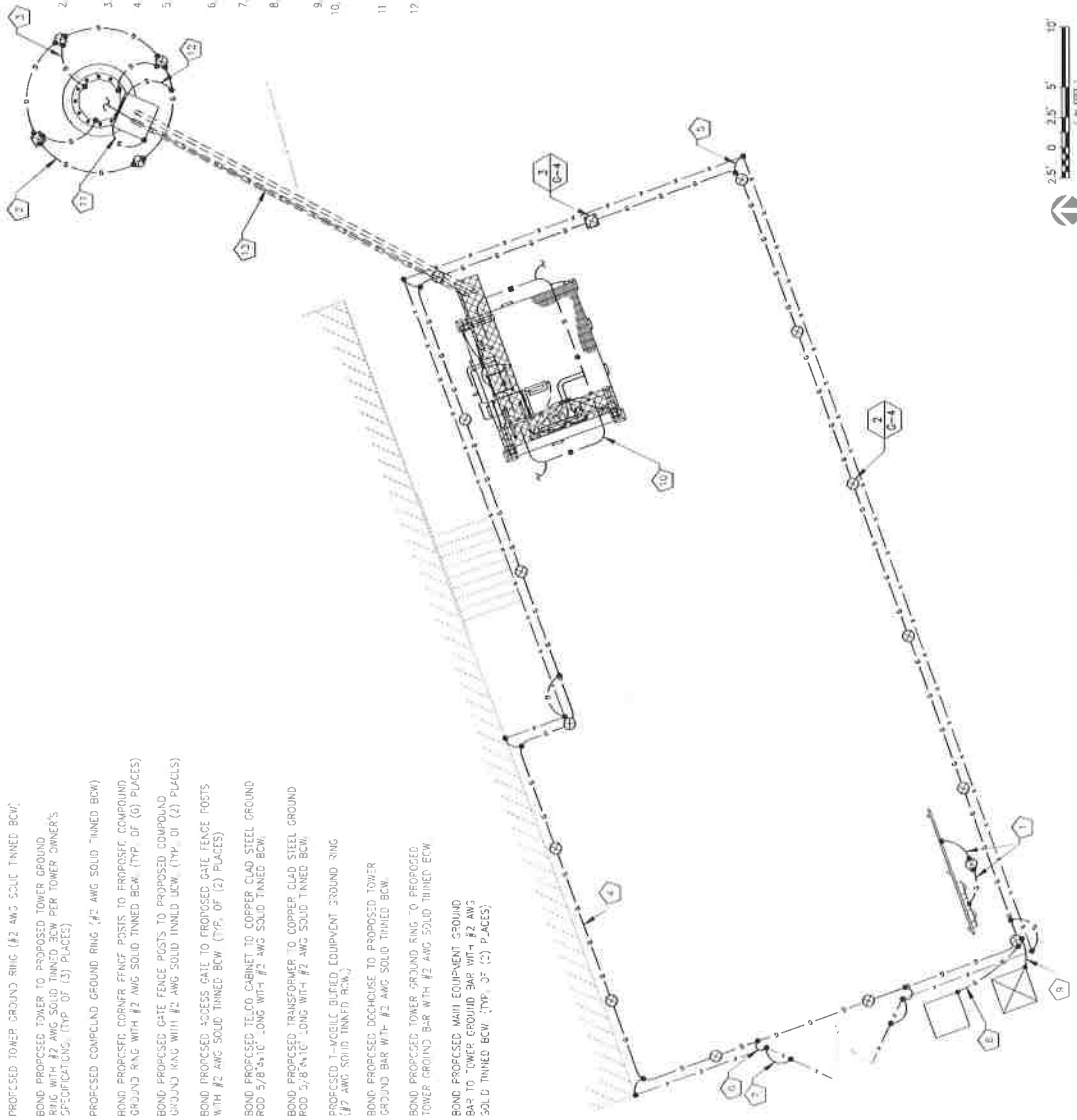
G-1

GENERAL GROUNDING NOTES:

- TO ENSURE PROPER BONDING, ALL CONNECTIONS SHALL BE AS FOLLOWS:
 #2 AWG BONDING AND SOLID COPPER CONDUCTOR: ELECTROWELD TO LUGS AND BOND BAR (UNLESS NOTED OTHERWISE). SANGED CLEAN, COATED WITH OXIDE INHIBITOR AND BOLLUD FOR MAXIMUM SURFACE CONTACT. ALL LUGS SHALL BE COPPER (NO ALUMINUM SHALL BE PERMITTED). PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT.
 ALL GROUNDING CABLE IN CONCRETE OR THROUGH WALLS SHALL BE IN 3/4" DIA. CONCRETE ENCASEMENT WITH 3/8" DIA. COPPER BARS. NO METALLIC CONTACT SHALL BE ALLOWED FOR GROUNDING CONDUCTORS.
 CONTRACTOR'S REPRESENTATIVE WILL INSPECT EXISTING WELDS AND CONDUIT WELDS TEST PRIOR TO BURIAL. MAXIMUM 3 OHMS RESISTANCE IS REQUIRED. PLACE FORM ON PAU.
 CONTRACTOR TO INSTALL GROUNDINGS IN CLOSE PROXIMITY TO EQUIPMENT.
 MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. ALL BENDS SHALL BE A MINIMUM 8" RADIUS AND NO GREATER THAN 90 DEGREES.
 ALL CABLES TO BURIED GROUND RING SHALL BE THE PARALLEL TYPE, EXCEPT FOR THE GROUND RODS WHICH SHALL BE THE TEE TYPE.
 BOND SERVICE CONDUITS TO GROUND RING AS THEY CROSS.
 DO NOT ELECTROCHEMICALLY WELD TO CONDUITS.
 THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE GROUNDING SYSTEM IS COMPLETE. THE CONSTRUCTION MANAGER SHALL INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.
 THE MINIMUM SPACING BETWEEN GROUND RODS SHALL BE 10'-0" (MAX. 15'-0").
 BOND JOBS TO EXTERNAL GROUND RING WITH 2 RUNS 3" - #2 AWG BARE, #2 AWG BONDING AND SOLID COPPER CONDUCTOR TO GROUNDING PLANS. BONDING WELDS, LUGS, AND CABLES TO THE OTHER END TO THE EXTERNAL GROUND ROD.
 THE PREFERRED LOCATION FOR EACH GROUNDING IS AT THE BASE OF THE TOWER PRIOR TO THE COAX BEND.
 BONDING OF THE PROPOSED CONDUCTOR (NEUTRAL) AND THE GROUNDING CONDUCTOR SHALL BE PERFORMED AT THE POINTS OF THE GROUNDING JUMPS. SHALL BE INSTALLED PER N.E.C. ARTICLE 250-30.

CODED DRAWING NOTES:

- BOND PROPOSED UTILITY BARS & MAIN ELECTRICAL SERVICE CABINET TO COPPER CLAD STEEL GROUND ROD 5/8" x 10' LONG PER MANUFACTURER'S SPECIFICATIONS WITH #2 AWG SOLID TINNED BOW.
- PROPOSED TOWER GROUND RING (#2 AWG SOLID TINNED BOW).
- BOND PROPOSED TOWER TO PROPOSED TOWER GROUND RING WITH #2 AWG SOLID TINNED BOW PER TOWER OWNER'S SPECIFICATIONS. (TYP. OF (3) PLACES)
- PROPOSED CONDUIT GROUND RING (#2 AWG SOLID TINNED BOW).
- BOND PROPOSED CORNER FENCE PISTS TO PROPOSED CONDUIT GROUND RING WITH #2 AWG SOLID TINNED BOW. (TYP. OF (6) PLACES)
- BOND PROPOSED CORNER FENCE PISTS TO PROPOSED CONDUIT GROUND RING WITH #2 AWG SOLID TINNED BOW. (TYP. OF (2) PLACES)
- BOND PROPOSED GATE FENCE POSTS TO PROPOSED GATE FENCE POSTS WITH #2 AWG SOLID TINNED BOW. (TYP. OF (2) PLACES)
- BOND PROPOSED TOWER CABINET TO COPPER CLAD STEEL GROUND ROD 5/8" x 10' LONG WITH #2 AWG SOLID TINNED BOW.
- BOND PROPOSED TRANSFORMER TO COPPER CLAD STEEL GROUND ROD 5/8" x 10' LONG WITH #2 AWG SOLID TINNED BOW.
- PROPOSED T-WELDED BOND EQUIPMENT GROUND RING (#2 AWG SOLID TINNED BOW).
- BOND PROPOSED DOORHOUSE TO PROPOSED TOWER GROUND BAR WITH #2 AWG SOLID TINNED BOW.
- BOND PROPOSED TOWER GROUND RING TO PROPOSED TOWER GROUND BAR WITH #2 AWG SOLID TINNED BOW.
- BOND PROPOSED MAIN EQUIPMENT GROUND BAR TO TOWER GROUND BAR WITH #2 AWG SOLID TINNED BOW. (TYP. OF (2) PLACES)



GROUNDING SYMBOLS:

- ⊗ GROUND ROD
- ⊠ ACCESS WELL
- ⊞ GROUND ROD WITH ACCESS
- ⊞ COMPRESSION TYPE CONNECTION
- ELECTROWELD WELD TYPE CONNECTION
- G #2 B16 COPPER CONDUCTOR
- BURIED GROUND CABLE
- ⚡ INDICATES CODED NOTE

2.5' 0' 2.5' 5' 10'
 1" = 5 FEET
 NORTH
 SCALE: 1/4" = 5'-0"
 SHEET 12 OF 12

COMPOUND GROUNDING PLANS

SCALE AS NOTED 1

PLEASE REFER TO:

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 2222 Delaware Street
 Denver, CO 80216

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 Suite 200
 Broomfield, CO 80020
 Phone: 303.440.3333
 Fax: 303.440.3337
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PROFESSIONAL ENGINEER
 CHRISTOPHER J. WARREN
 47849
 198-0417
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3	ISSUED FOR CONSTRUCTION	06/27/17	DBL	3
4	ISSUED FOR CONSTRUCTION	07/17/17	DBL	4
5	ISSUED FOR CONSTRUCTION	07/17/17	DBL	5

WOODMEN ELEMENTARY
 MOBILE SITE
 DN04333A

US-CO-5052

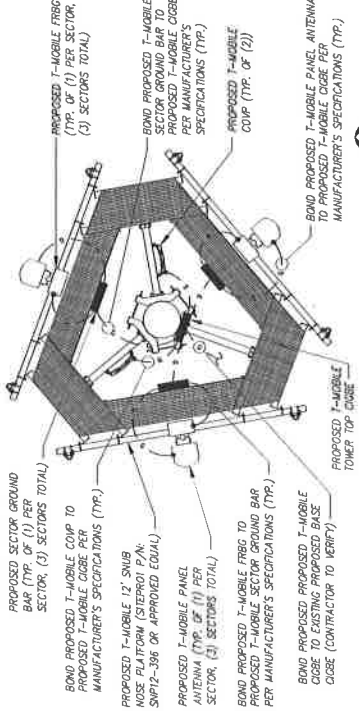
12119 McCLURE ROAD
 FALCON, CO 80831

PROJECT DESCRIPTION
GROUNDING PLANS

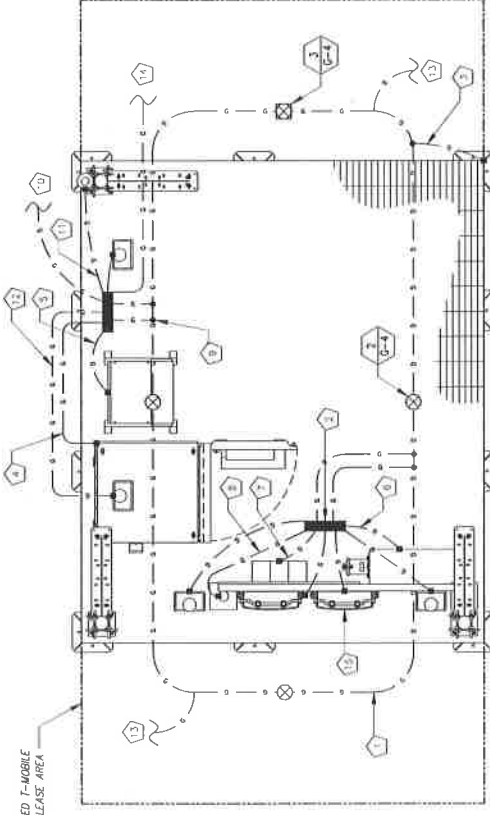
SHEET NUMBER
G-2

GENERAL GROUNDING NOTES:

- TO ENSURE PROPER BONDING, ALL CONNECTIONS SHALL BE AS FOLLOWS:
 #2 AWG GAGE TINNED SOLID COPPER CONDUCTOR; EXOTHERMIC WELD TO #2S OR
 #2S AND BUS BAR (UNLESS NOTE OTHERWISE); Sanded CLEAN COATED WITH ZINC
 INHIBITOR AND BOLTED FOR MAXIMUM SURFACE CONTACT. ALL LOGS SHALL BE COPPER
 (NO ALUMINUM SHALL BE PERMITTED). PROVIDE LOCK WASHERS FOR ALL MECHANICAL
 CONNECTIONS FOR GROUND CONDUCTORS. USE STAINLESS STEEL-HARDWARE THROUGHOUT
 PIC CONDUIT. SEAL AROUND CONDUIT THROUGH WALLS. NO METALLIC
 CONDUIT SHALL BE USED FOR GROUNDING CONDUCTORS.
- OWNER'S REPRESENTATIVE WILL INSPECT EXOTHERMIC WELD AND CONDUIT
 CONNECTIONS AND SIGN OFF ON WORK. PROVIDE PHOTOGRAPHIC EVIDENCE TO
 CONTRACTOR TO INSTALL GROUNDING IN CLOSE PROXIMITY TO EQUIPMENT PLATFORM OR PAD.
- CONTRACTOR TO VERIFY ALL GROUNDING IS AS SHOWN ON THESE PLANS AND TO
 BE SURE ALL GROUNDING IS AS SHOWN ON THESE PLANS AND TO VERIFY ALL GROUNDING IS
 BEING INSTALLED TO THE PROPER PADS. ALL GROUNDING SHALL BE AT LEAST 90 DEGREES
 EXCEPT FOR THE GROUND RODS WHICH SHALL BE THE FEE TYPE.
- BOND SERVICE CONDUITS TO GROUND RING AS THEY CROSS.
 DO NOT EXOTHERMICALLY WELD TO CONDUITS.
- THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN
 THE GROUNDING SYSTEM IS COMPLETE. THE CONSTRUCTION MANAGER
 SHALL INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.
- THE MINIMUM SPACING BETWEEN GROUND RODS SHALL BE 10'-0" (MAX. 15'-0").
- BOND CABLE TO EXTERNAL GROUND RING WITH 2 RUNS OF #2 AWG BARE,
 TINNED, SOLID COPPER CONDUCTION IN PVC. CONNECT BARE END WITH 2" HOLE
 LUG, AND "WELD" THE OTHER END TO THE EXTERNAL GROUND ROD.
- THE PREFERRED LOCATION FOR COAX GROUNDING IS AT THE BASE OF
 THE TOWER PRIOR TO THE COAX BEND.
- BONDING OF THE GROUND CONDUCTOR (NEUTRAL) AND THE GROUNDING
 CONDUCTOR SHALL BE AT THE SERVICE DISCONNECT MEANS. BONDING
 JUNCTION SHALL BE INSTALLED PER N.E.C. ARTICLE 250.30.



- PROPOSED T-MOBILE RIGID EQUIPMENT GROUND RING (#2 AWG SOLID TINNED BARE) BELOW PLATFORM)
- PROPOSED EQUIPMENT GROUND BAR (#2 RIGID)
- PROPOSED T-MOBILE EQUIPMENT (1P OF (3)) PLATFORM TO BE GROUND PER MANUFACTURER'S SPECIFICATIONS
- PROPOSED T-MOBILE DELTA SITE SUPPORT CABINET TO BE GROUND PER MANUFACTURER'S SPECIFICATIONS
- PROPOSED T-MOBILE STAIRWAY TO BE GROUND PER MANUFACTURER'S SPECIFICATIONS
- PROPOSED T-MOBILE PFC CABINET TO BE GROUND PER MANUFACTURER'S SPECIFICATIONS
- PROPOSED T-MOBILE DELTA ENCLOSURE TO BE GROUND PER MANUFACTURER'S SPECIFICATIONS
- PROPOSED T-MOBILE DELTA ENCLOSURE TO BE GROUND PER MANUFACTURER'S SPECIFICATIONS
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- PROPOSED T-MOBILE DELTA ENCLOSURE TO BE GROUND PER MANUFACTURER'S SPECIFICATIONS
- PROPOSED T-MOBILE DELTA ENCLOSURE TO BE GROUND PER MANUFACTURER'S SPECIFICATIONS



GROUNDING SYMBOLS:

- ⊗ GROUND FCC
- ⊠ ACCESS WELL
- ⊞ GROUND ROD WITH ACCESS
- ⊞ COMPRESSION TYPE CONNECTION
- EXOTHERMIC WELD TYPE CONNECTION
- #2 BIG COPPER CONDUCTOR
- SURGED GROUND CABLE
- ④ INDICATES DECED NOTE



GROUNDING PLANS

SCALE: AS NOTED

1

PLANS PREPARED FOR:



3333 Delaware Street
Denver, CO 80216

PLANS PREPARED BY:



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Fax # 303.218.8856
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MANUFACTURER:



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PROFESSIONAL ENGINEER



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3	REVISED FOR CONSTRUCTION	10/27/11	MS	3
4	SCALE FOR CONSTRUCTION	12/18/11	JAF	4

VERTICAL BRIDGE SITE NAME:
WOODMEN ELEMENTARY

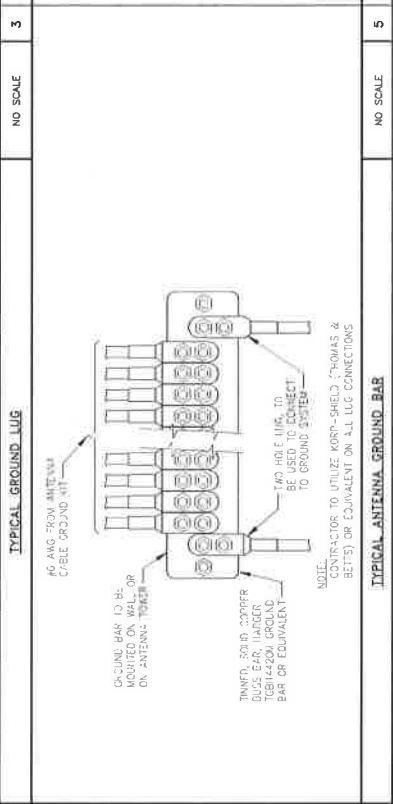
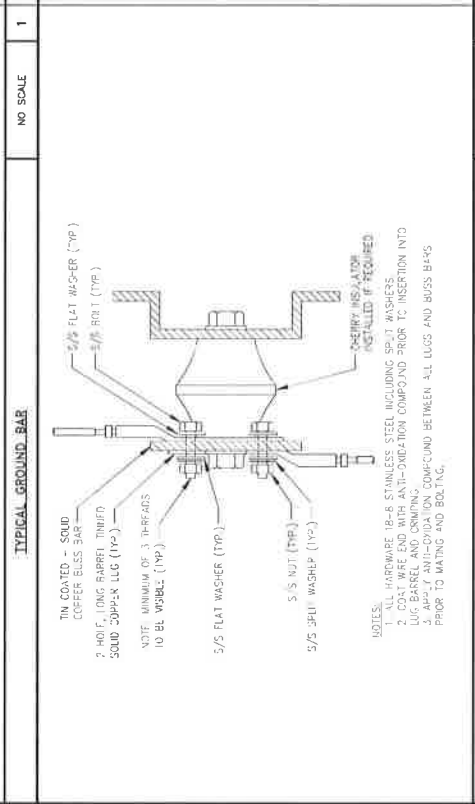
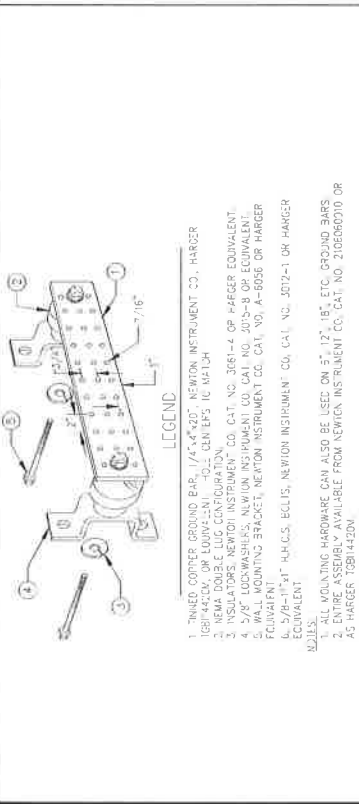
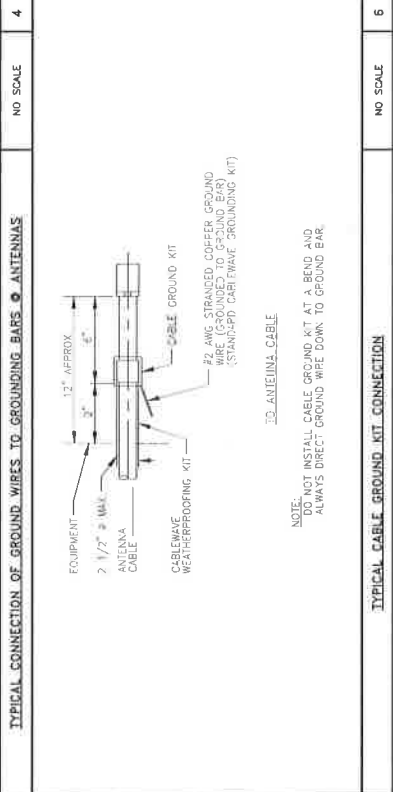
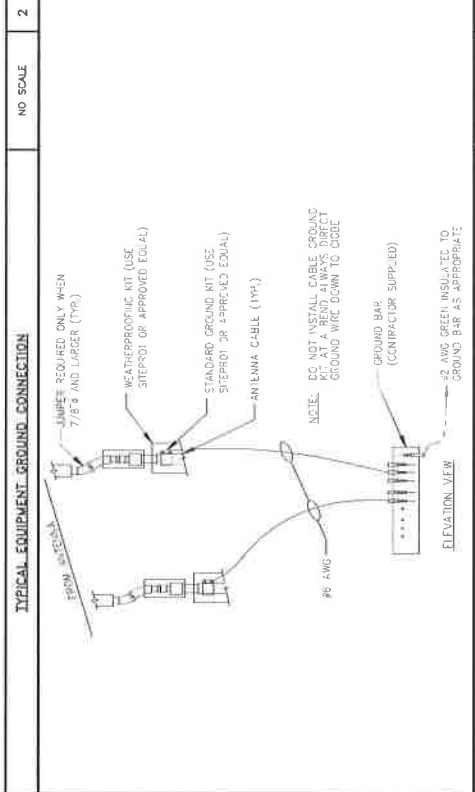
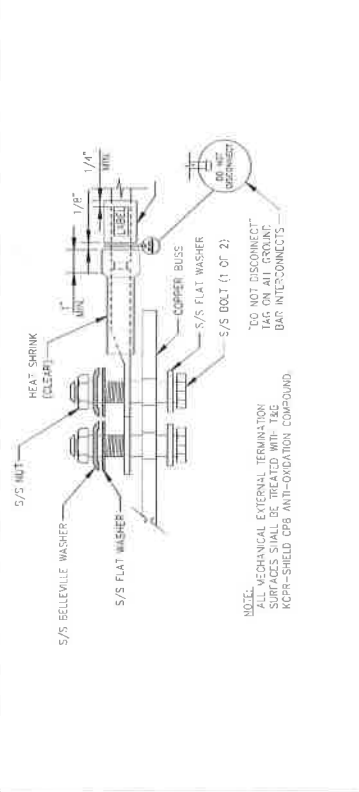
MOBILE SITE #:
DN045333A

VERTICAL BRIDGE SITE #:
US-CO-3052

SITE ADDRESS:
12119 McCLURE ROAD
FALCON, CO 80831

SHEET DESCRIPTION:
GROUNDING DETAILS

SHEET NUMBER:
G-3



NO SCALE

NO SCALE

NO SCALE

NO SCALE

TYPICAL EQUIPMENT GROUND CONNECTION

TYPICAL CONNECTION OF GROUND WIRES TO GROUNDING BARS & ANTENNAS

NO SCALE

NO SCALE

TYPICAL GROUND BAR

TYPICAL ANTENNA GROUND BAR

NO SCALE

NO SCALE

PLANS PREPARED FOR



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Denver, CO 80216

PLANS PREPARED BY



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1	REVISED FOR CONSTRUCTION	08/17/11	SEE 1	
2	REVISED FOR CONSTRUCTION	05-21-07	SEE 1	
3	REVISED FOR CONSTRUCTION	11/17/04	AGE 1	
4	REVISED FOR CONSTRUCTION	1/10/04	AGE 1	

WOODMEN ELEMENTARY

7-MOBILE SITE #

DN04333A

VERTICAL BRIDGE #

US-CO-5052

SITE ADDRESS

12119 McCLURE ROAD

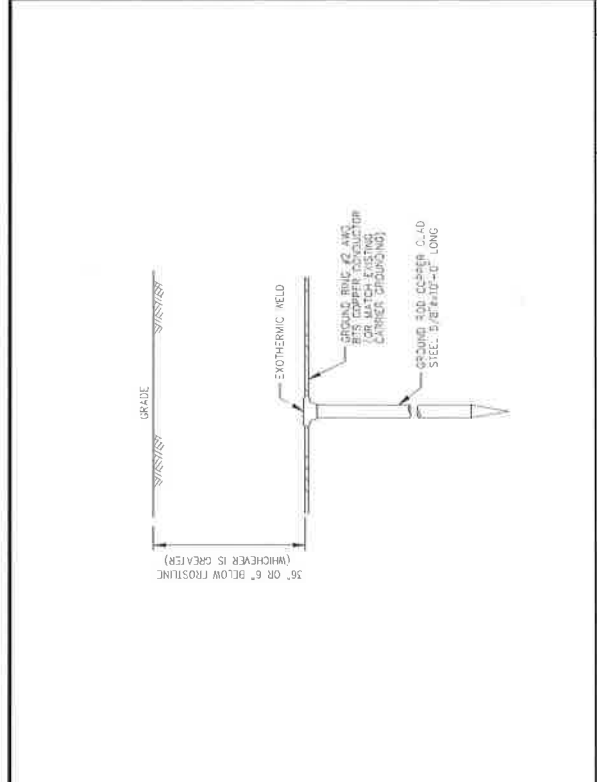
FALCON, CO 80831

SHEET DESCRIPTION

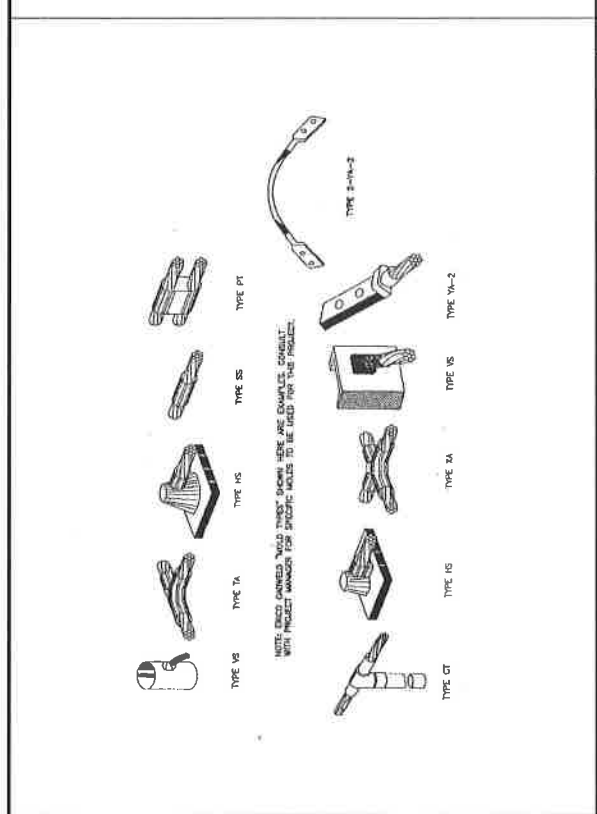
GROUNDING DETAILS

SHEET NUMBER

G-4



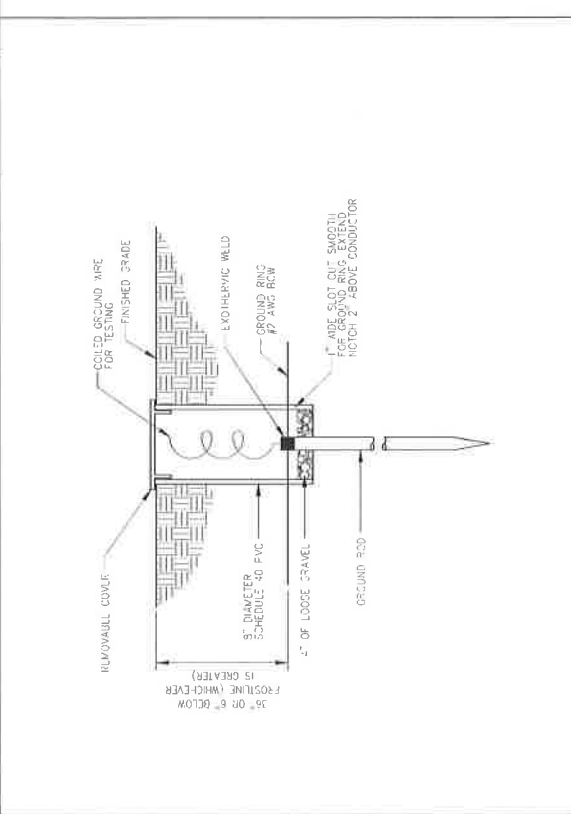
TYPICAL GROUND ROD NO SCALE 2



TYPICAL EQUIPMENT GROUND CONNECTIONS NO SCALE 1



TYPICAL INSPECTION SLEEVE NO SCALE 3



DETAIL NOT USED NO SCALE 4

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Denver, CO 80216

PLANS PREPARED BY



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1	ISSUED FOR CONSTRUCTION	10/27/21	JAW	J
2	REVISED FOR CONSTRUCTION	10/28/21	JAW	J
3	REVISED FOR CONSTRUCTION	11/22/21	JAW	J
4	REVISED FOR CONSTRUCTION	01/18/22	JAW	J

VERTICAL BRIDGE NAME

WOODMEN ELEMENTARY

TABLE SITE #

DN04333A

VERTICAL BRIDGE SITE #

US-CO-3052

SITE ADDRESS

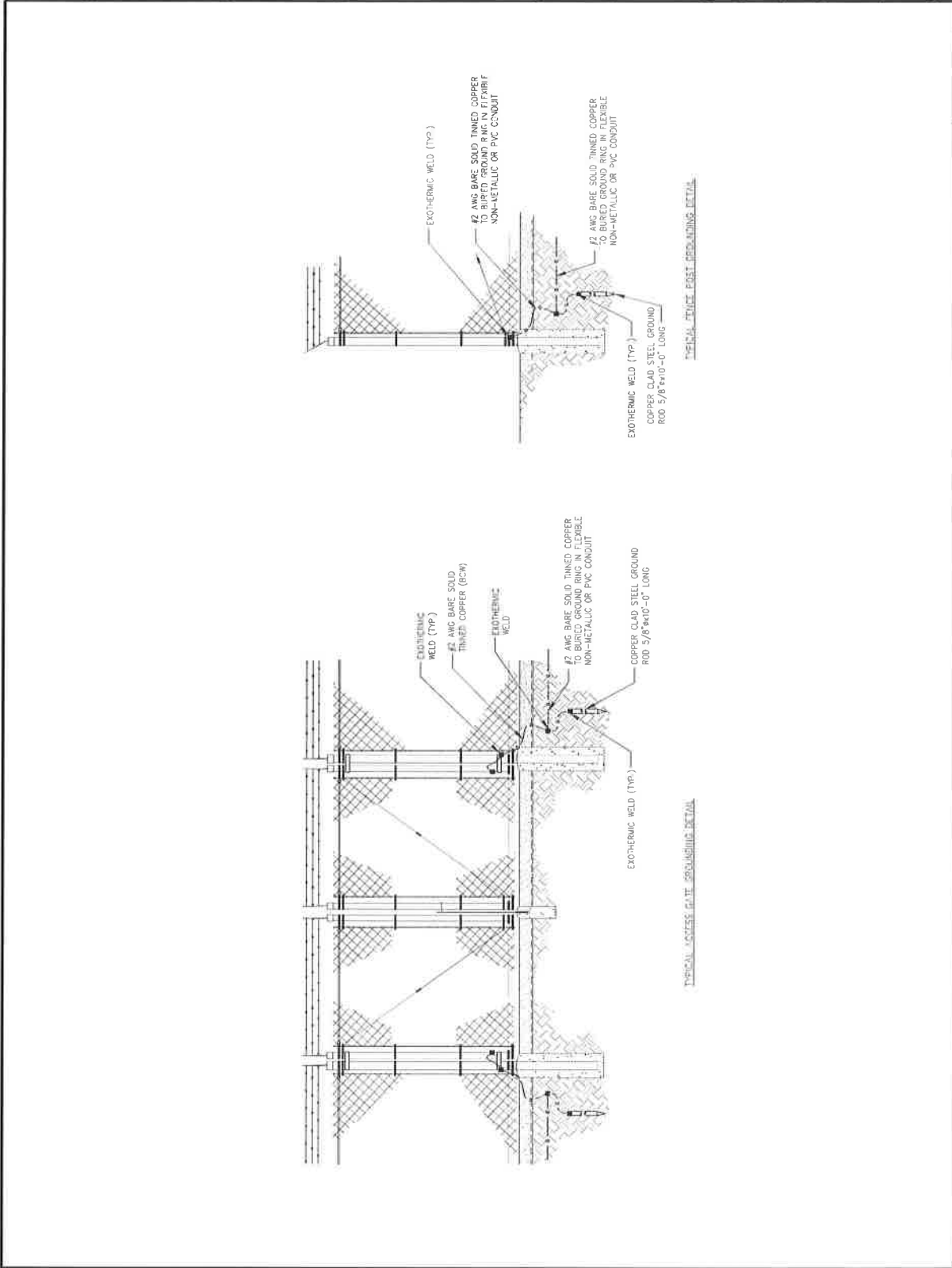
12119 McCLURE ROAD
FALCON, CO 80831

SHEET DESCRIPTION

GROUNDING DETAILS

SHEET NUMBER

G-5



NO SCALE

1

FENCE GROUNDING DETAILS

T-Mobile®

**DN04333 WOODMEN ELEMENTARY
RF PROPOGATION STUDY**

The Right Results
The Right Way™



T-Mobile

Vertical Bridge is requesting to build a site at 8308 Del Rio Road with an overall height of 93' and a T-Mobile antenna centerline of 86' AGL to add coverage and improve existing service in the Falcon residential areas near Hwy 24. The accompanying coverage prediction plots exhibit the need for this height. The colored shade shows "In building" quality coverage.

The Right Results
The Right Way™



**EXISTING T-MOBILE COVERAGE - WITHOUT T-Mobile®
SITE DN04333 WOODMEN ELEMENTARY**

Existing T-Mobile Coverage



There is no in-building coverage currently in the area of the proposed tower.

**PROPOSED T-MOBILE COVERAGE - AT 60' RAD T-Mobile
SITE DN04333 WOODMEN ELEMENTARY**

Proposed Coverage at 60'



There is improvement in service quality around the proposed site but coverage gaps still exist in the residential areas along Hwy 24.

PROPOSED T-MOBILE COVERAGE - AT 86' RAD T-Mobile SITE DN04333 WOODMEN ELEMENTARY

Proposed Coverage at 86'



The greater height (86') provides an improved area of service in all directions but the largest area of improvement can be seen along Highway 24 and adjacent residential neighborhoods near Meridian Road.