

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-17-006**  
**Project Name: Falcon School Tower**  
**Parcel No.: 52253-00-002**

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	12/28/2017

**EXECUTIVE SUMMARY**

A request by Centerline Solutions for approval of a variance of use for a 100 foot tall freestanding commercial mobile radio service facility (CMRS) located on 39.08 acres zoned RR-5 (Residential Rural) on which the Falcon Middle School is located. There is an existing 100 foot tall freestanding commercial mobile radio service facility onsite that does not allow for co-location. The existing tower was not approved by El Paso County. The applicant is requesting to replace that facility with a new 100 foot tall facility that is capable of co-location. The property is located east of Towner Avenue and north of Stapleton Drive and is within Section 25, Township 12 South, Range 65 West of the 6<sup>th</sup> P.M. The property is included within the Falcon/Peyton Small Area Master Plan (2008).

## **A. REQUEST/WAIVERS/AUTHORIZATION**

**Request:** A request by Centerline Solutions for approval of a variance of use for a 100 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: RS-20000 (Residential Suburban)	Residential
South: RS-5000 (Residential Suburban)	Residential
East: RS-20000 (Residential Suburban)	Residential
West: RS-6000 (Residential Suburban)	Vacant

#### **E. BACKGROUND**

The property was zoned A-4 (Agricultural) in 1984. Due to changes in the nomenclature of the El Paso County Land Development Code, the A-4 zoning district was renamed as the RR-5 (Rural Residential) zoning district. There is an existing 100 foot freestanding CMRS facility on the subject parcel.

The subject parcel is also the location of the Falcon Middle School. 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 100 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-5 (Residential Rural). The RR-5 zoning district is primarily rural residential in nature. There is an existing approximately 100 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-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. The proposed tower will provide coverage for 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 100 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 surrounding area has been developed as residential suburban 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 low 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 low 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 Towner Avenue. 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.

## **H. SERVICES**

### **1. Water**

The existing school is served by Paint Brush 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 Paint Brush 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 Paint Brush 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**

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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:

### **CONDITIONS**

1. Approval is limited to the one (1) freestanding CMRS facility 100 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 41 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

Zone Map No.: --

PARCEL	NAME
4306102001	FALCON SCHOOL DISTRICT NO 49

ADDRESS	CITY	STATE
10850 E WOODMEN RD	PEYTON	CO

ZIP	ZIP+4
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](mailto: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

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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

T-Mobile

verticalbridge

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

PLANS PREPARED BY:



PLANS PREPARED BY:



verticalbridge



verticalbridge



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
1	REVISED FOR CONSTRUCTION	07/27/11	SSB	1
2	REVISED FOR CONSTRUCTION	07/27/11	SSB	2
3	REVISED FOR CONSTRUCTION	07/27/11	SSB	3
4	REVISED FOR CONSTRUCTION	07/27/11	SSB	4
5	REVISED FOR CONSTRUCTION	07/27/11	SSB	5

WOODMEN ELEMENTARY
DN04333A

US-CO-5052
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SITE ADDRESS
12119 McCLURE ROAD FALCON, CO 80831

TITLE SHEET & PROJECT DATA
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SHEET NUMBER
T-1

SITE INFORMATION	AREA MAP	PROJECT DESCRIPTION	DRAWING INDEX																																																																														
<p><b>APPLICANT:</b> T-MOBILE 2330 DELAGANY STREET DENVER, CO 80218</p> <p><b>CONTACT:</b> JOHN MARCZEWICZ (303) 313-6930</p> <p><b>TOWER OWNER:</b> WOODMEN ELEMENTARY 750 PARK OF COMMERCE DRIVE, STE 200 BOCA RATON, FL 33478</p> <p><b>VERTICAL BRIDGE PM:</b> WATT ORGAN (978) 489-1886</p> <p><b>LOCATION (NAD83):</b> 38° 57' 04.91" N 38° 57' 04.91" W</p> <p><b>LONGITUDE (NAD83):</b> 38° 57' 04.91" W -104° 59' 59.27" W</p> <p><b>COUNTY:</b> EL PASO</p> <p><b>ZONING JURISDICTION:</b> EL PASO COUNTY</p> <p><b>POWER COMPANY:</b> MOUNTAIN VIEW ELECTRIC (719) 775-2861</p> <p><b>TELCO PROVIDER:</b> CENTURYLINK (360) 343-6881</p> <p><b>T-MOBILE CMC:</b> TBD</p>		<p>THESE PLANS HAVE BEEN DEVELOPED FOR THE INSTALLATION OF AN ANTENNA SYSTEM ON THE EXISTING TOWER. THE ANTENNA SYSTEMS OF THE PLACEMENT OF A 90' MONOPOLE TOWER, SPACE FOR CARRIER EQUIPMENT &amp; A UTILITY RACK WITHIN A FENCED COMPOUND (NO WATER OR SEWER IS REQUIRED). IN ACCORDANCE WITH THE SCOPE OF WORK, THE ANTENNA SYSTEMS WILL BE INSTALLED AND THE TOWER WILL BE MODIFIED TO THIS SCOPE OF WORK. IN THE PLANS, THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL ANALYSIS AND ENGINEERED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST BE DONE BY BOTH TOWER AND 400V.</p> <p>T-MOBILE PROPOSES TO INSTALL THE FOLLOWING:</p> <ul style="list-style-type: none"><li>INSTALL (1) NEW ANTENNA MOUNT, (2) NEW COVPS, (3) NEW FRPS &amp; (3) NEW T-MOBILE PANEL ANTENNAS AT ANTENNA MOUNT LEVEL</li><li>INSTALL (2) NEW HI-CAP HYBRID CABLES</li><li>INSTALL (1) NEW DELTA SITE SUPPORT CABINET, (1) NEW STACKED SLEWES &amp; (2) NEW COVPS ON NEW 10'x12' STEEL EQUIPMENT PLATFORM WITHIN 10'x20' LODGE AREA</li><li>INSTALL (1) NEW OPS UNIT WITH (1) NEW 1/2" COAX CABLE</li><li>INSTALL NEW ICE BRIDGE</li></ul> <p><b>APPLICABLE CODES</b></p> <p>ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.</p> <ol style="list-style-type: none"><li>INTERNATIONAL BUILDING CODE (2009 IBC)</li><li>TIA-EM-222-G OR LATEST EDITION</li><li>IEEE 68-2002 OR LATEST EDITION</li><li>2014 NATIONAL ELECTRIC CODE OR LATEST EDITION</li><li>ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, ORDINANCES, RULES, REGULATIONS, SPECIFICATIONS, STANDARDS, CODES, BUILDING CODE</li><li>LOCAL BUILDING CODE</li><li>CITY/COUNTY ORDINANCES</li></ol>	<table><tr><th>SHEET NO:</th><th>TITLE SHEET &amp; PROJECT DATA</th><th>REV</th></tr><tr><td>T-1</td><td>TITLE SHEET &amp; PROJECT DATA</td><td>3</td></tr><tr><td>SP-1</td><td>T-MOBILE SPECIFICATIONS</td><td>3</td></tr><tr><td>LS1</td><td>LAND SURVEY</td><td>3</td></tr><tr><td>LS2</td><td>LAND SURVEY</td><td>3</td></tr><tr><td>A-1</td><td>OVERALL SITE PLAN</td><td>3</td></tr><tr><td>A-2</td><td>PROPOSED SITE PLAN</td><td>3</td></tr><tr><td>A-3</td><td>STAKING PLAN</td><td>3</td></tr><tr><td>A-4</td><td>PROPOSED TOWER ELEVATION</td><td>3</td></tr><tr><td>A-5</td><td>ANTENNA LAYOUT &amp; LOADING CHART</td><td>3</td></tr><tr><td>A-6</td><td>EQUIPMENT LAYOUT &amp; DETAILS</td><td>3</td></tr><tr><td>A-7</td><td>EQUIPMENT LAYOUT &amp; DETAILS</td><td>3</td></tr><tr><td>A-8</td><td>PLUMBING DIAGRAM</td><td>3</td></tr><tr><td>A-9</td><td>FENCE DETAILS</td><td>3</td></tr><tr><td>A-10</td><td>CIVIL DETAILS</td><td>3</td></tr><tr><td>A-11</td><td>OVERALL UTILITY LAYOUT</td><td>3</td></tr><tr><td>E-1</td><td>COMPOUND UTILITY LAYOUT</td><td>3</td></tr><tr><td>E-2</td><td>EQUIPMENT UTILITY LAYOUT</td><td>3</td></tr><tr><td>E-3</td><td>UTILITY RACK DETAIL</td><td>3</td></tr><tr><td>E-4</td><td>UTILITY RACK DETAIL</td><td>3</td></tr><tr><td>E-5</td><td>COMPOUND GROUNDING PLANS</td><td>3</td></tr><tr><td>G-1</td><td>GROUNDING PLANS</td><td>3</td></tr><tr><td>G-2</td><td>GROUNDING DETAILS</td><td>3</td></tr><tr><td>G-3</td><td>GROUNDING DETAILS</td><td>3</td></tr><tr><td>G-4</td><td>GROUNDING DETAILS</td><td>3</td></tr><tr><td>G-5</td><td>GROUNDING DETAILS</td><td>3</td></tr></table>	SHEET NO:	TITLE SHEET & PROJECT DATA	REV	T-1	TITLE SHEET & PROJECT DATA	3	SP-1	T-MOBILE SPECIFICATIONS	3	LS1	LAND SURVEY	3	LS2	LAND SURVEY	3	A-1	OVERALL SITE PLAN	3	A-2	PROPOSED SITE PLAN	3	A-3	STAKING PLAN	3	A-4	PROPOSED TOWER ELEVATION	3	A-5	ANTENNA LAYOUT & LOADING CHART	3	A-6	EQUIPMENT LAYOUT & DETAILS	3	A-7	EQUIPMENT LAYOUT & DETAILS	3	A-8	PLUMBING DIAGRAM	3	A-9	FENCE DETAILS	3	A-10	CIVIL DETAILS	3	A-11	OVERALL UTILITY LAYOUT	3	E-1	COMPOUND UTILITY LAYOUT	3	E-2	EQUIPMENT UTILITY LAYOUT	3	E-3	UTILITY RACK DETAIL	3	E-4	UTILITY RACK DETAIL	3	E-5	COMPOUND GROUNDING PLANS	3	G-1	GROUNDING PLANS	3	G-2	GROUNDING DETAILS	3	G-3	GROUNDING DETAILS	3	G-4	GROUNDING DETAILS	3	G-5	GROUNDING DETAILS	3
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VERIFY IN FIELD  
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B. NOTIFY THE OWNER/PROJECT MANAGER IN WRITING NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, TOWERER ERECTIONS, AND EQUIPMENT CABINET PLACEMENTS.

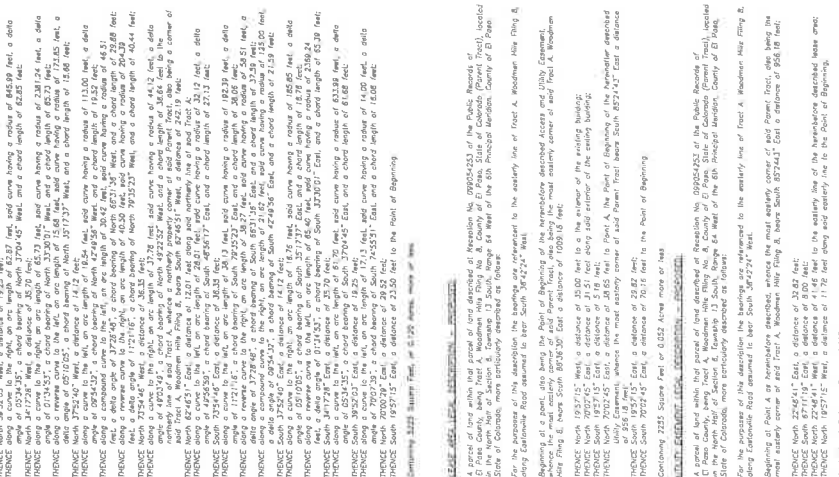
GOVERNING THE WORK 5

K. ALL EXTERIOR MOUNTING HARDWARE TO BE GALVANIZED STEEL. COORDINATE WITH BUILDING ENGINEER PRIOR TO ATTACHING TO BUILDING STRUCTURE.

THAT MAY ARISE DUE TO DEFECTS OR OMISSIONS IN MATERIALS OR WORKMANSHIP WITH NO ADDITIONAL COMPENSATION AND AS DIRECTED BY ARCHITECT.



For the purpose of this investigation, the following specimens were deposited to the library line of Trist A. Woodson: *Mytilus* sp. 1972-73, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648,



SHEET INFORMATION		LAND SURVEY	
LS ELEMENTARY E ROAD GRADO 80831 R: CO-05052		Sheet Number <div style="font-size: 48pt; text-align: center;">LS2</div>	

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[illegible]

WOODMEN ELEMENTARY

— 790 —

VENTILATION PATTERNS

2020-03-20

12119 McCLURE ROAD

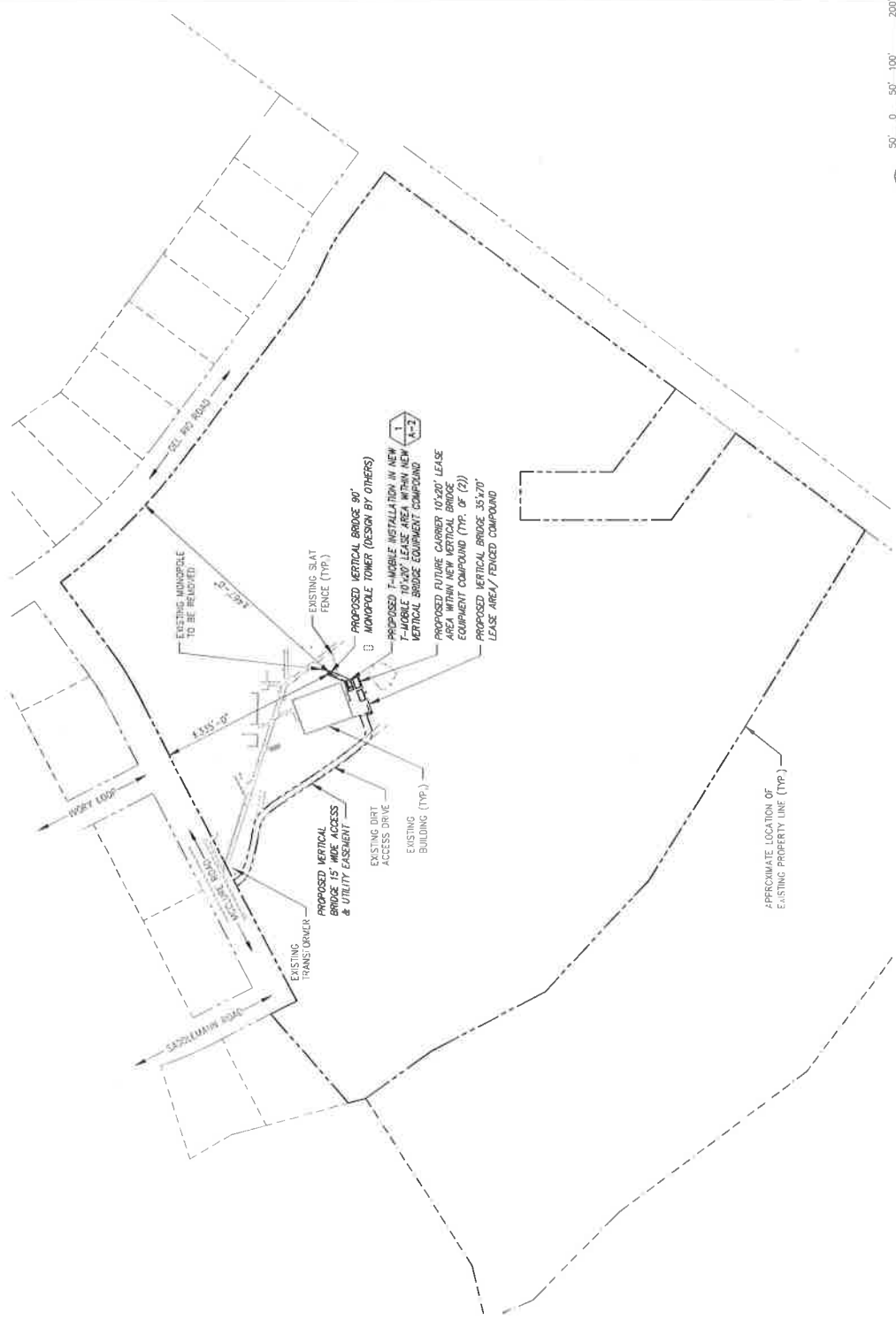
1000

OVERALL SITE PLAN

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A-1

INFORMATION CONTAINED WITHIN  
DRAWINGS IS BASED ON PROVIDED  
INFORMATION AND A DESIGN WALK  
BY INFINITY, DATED 06/20/16, AND  
A TOPOGRAPHIC SURVEY BY DALEY  
LAND SURVEYING, DATED 06/15/16.



50' 0 50' 100' 200' (IN FEET)

SCALE: 22"=34' SHEET 1" = 100'-0"

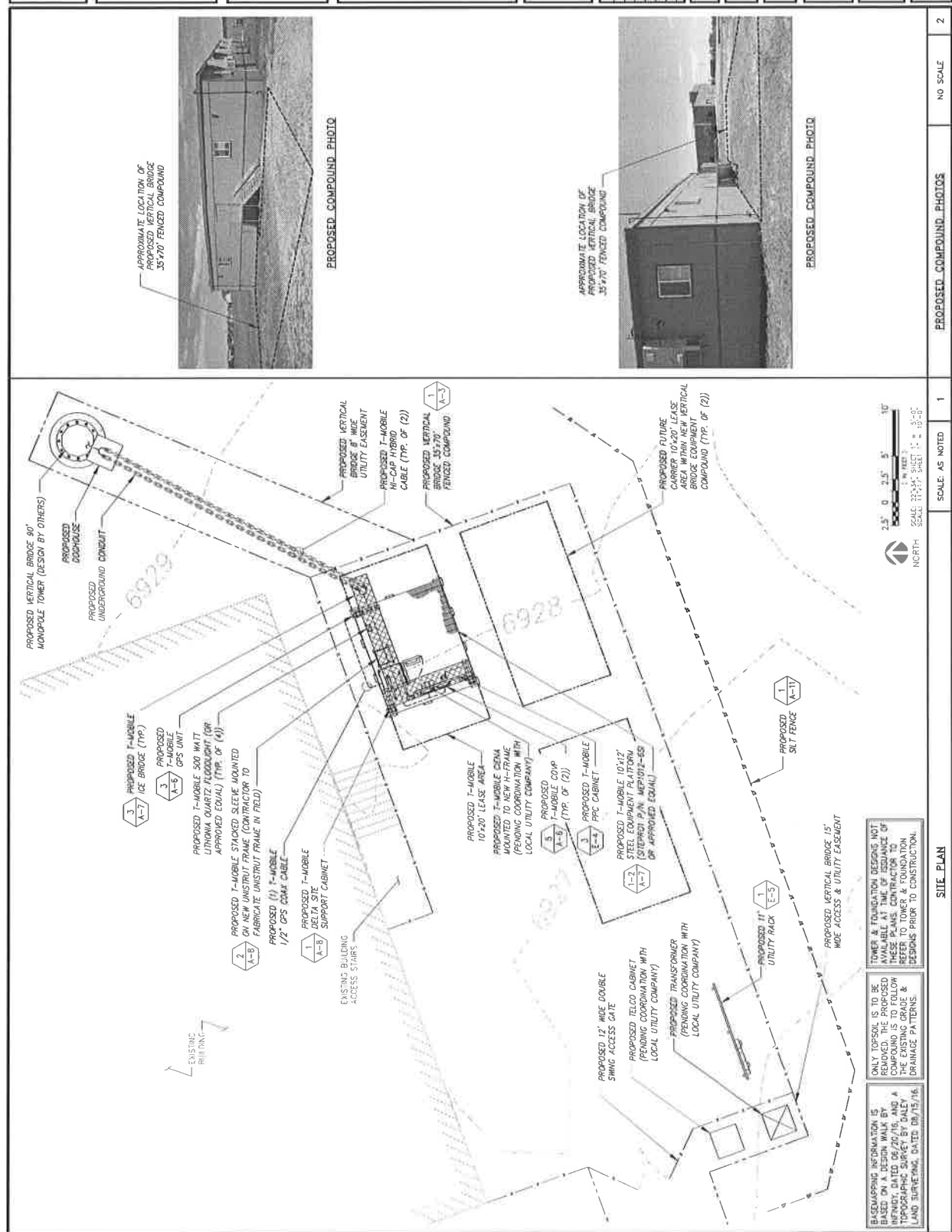
SCALE: 11"=34' SHEET 1" = 200'-0"

	SCALE: AS NOTED	1
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OVERALL SITE PLAN

1

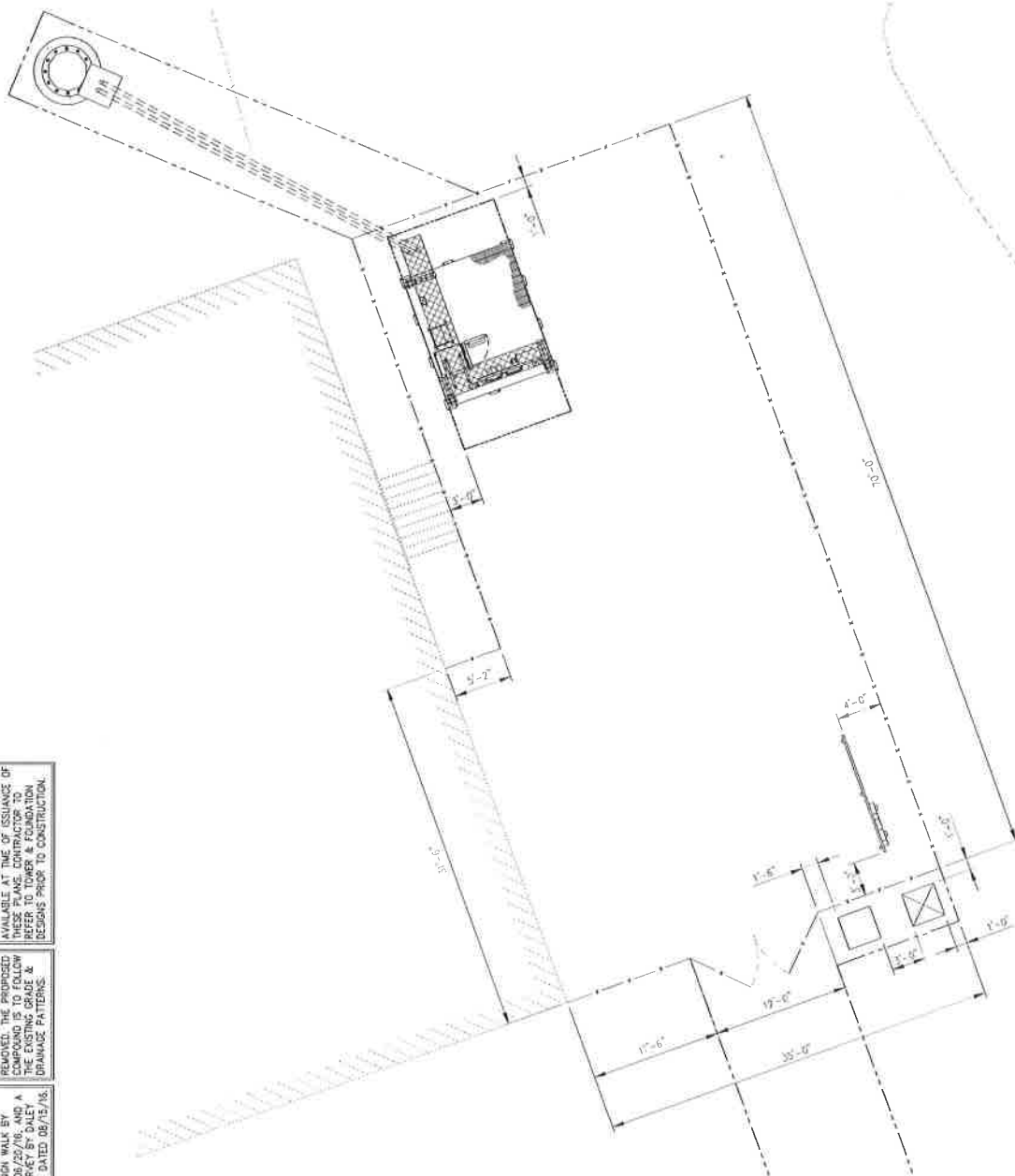




BLUESAPPING INFORMATION IS BASED ON A DESIGN WALK BY INFINITY, DATED 08/20/16, AND A TOPOGRAPHIC SURVEY BY DALEY AND SURVEYING, DATED 08/15/16.

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

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



2" 0 2.5' 5' 10'

(IN FEET)

SCALE: 22"=3'-7" SHEET 1" = 5'-6"

SCALE: 11"=17'-7" SHEET 1" = 10'-5"

NO SCALE

## STAKING PLAN

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**Table 1**



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REVISION	DESCRIPTION	DATE	BY	REV
	REVISIONS FOR CONSTRUCTION	08/01/00	WES	1
	REVISIONS FOR CONSTRUCTION	05/10/00	WES	2
	REVISIONS FOR CONSTRUCTION	07/07/00	WES	3
	REVISIONS FOR CONSTRUCTION	07/07/00	WES	4
	REVISIONS FOR CONSTRUCTION	07/07/00	WES	5

WOODMEN ELEMENTARY

TABLE 1

UN04333A

US-CO-5052

DATE RECEIVED

12119 McCLURE ROAD  
EATON CO 48021

FALCONI, C. 000531

## STAFFING PLAN

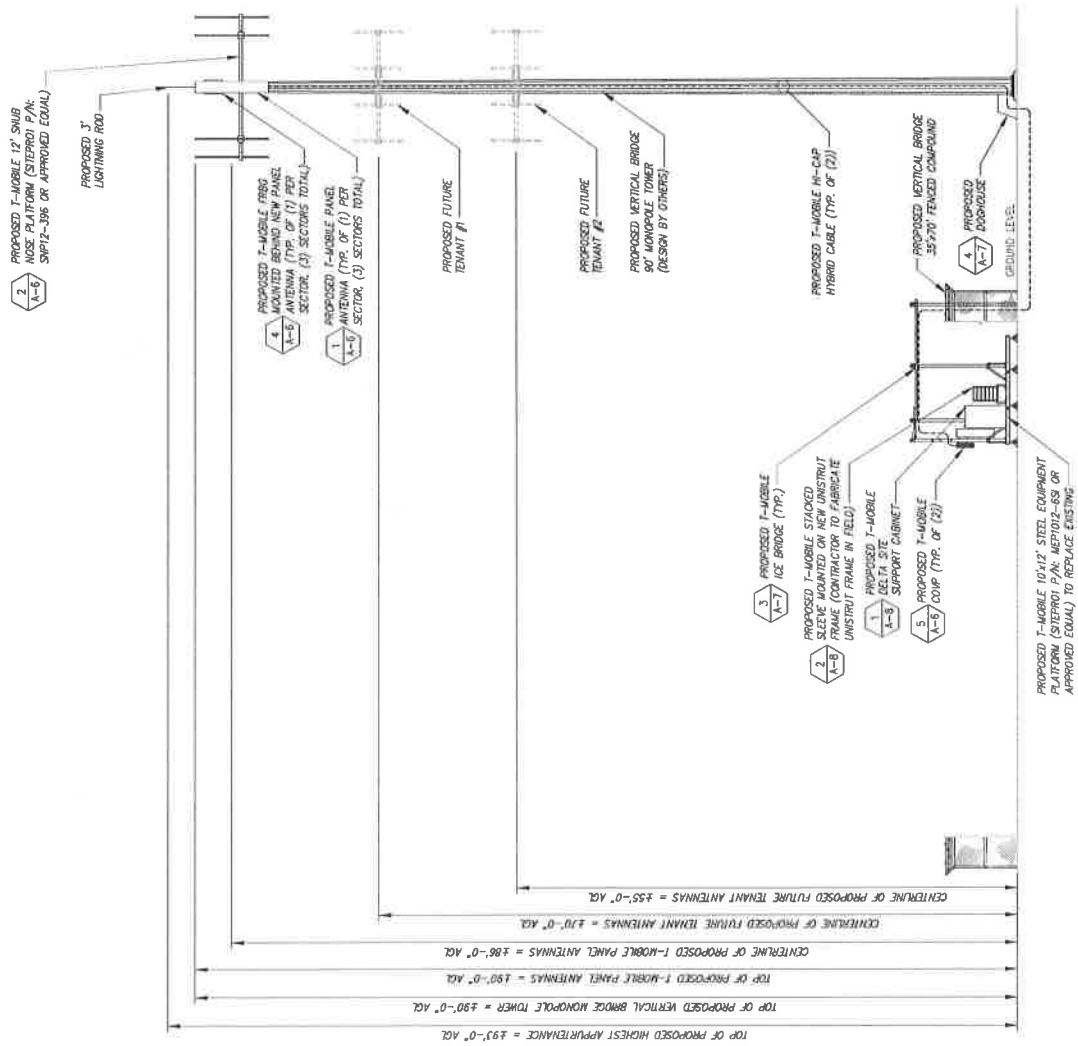
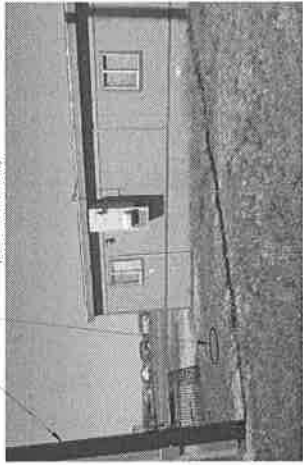
## STAIRING PLAN

— **AC** —

A-3

INFENGY ENGINEERING HAS NOT EVALUATED THE TOWER OR MOUNT FOR THIS SITE AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. REFER TO STRUCTURAL ANALYSIS BY OTHERS PRIOR TO ANY CONSTRUCTION.

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

PROPOSED TOWER ELEVATION

PROPOSED TOWER PHOTO

EXISTING MONOPOLE  
TO BE REMOVED

APPROXIMATE LOCATION OF PROPOSED  
VERTICAL BRIDGE 90' MONOPOLE  
TOWER (DESIGN BY OTHERS)

<u>PROPOSED TOWER PHOTO</u>	NO SCALE	2
-----------------------------	----------	---

NO SCALE	1
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--

15 JULY 2005

EVALUATIONPROPOSED TOWER ELEVATION

15 JULY 2005

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10-10-11

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REVISIONS	DESCRIPTION	DATE	BY	REV
1	ISSUED FOR CONSTRUCTION	09/17/11	SEE 3	
2	REVISED FOR CONSTRUCTION	09/15/11	SEE 2	
3	REVISED FOR CONSTRUCTION	09/15/11	SEE 1	
4	ISSUED FOR CONSTRUCTION	10/10/11	SEE 1	

WOODMEN ELEMENTARY

DN04333A

US-CO-5052

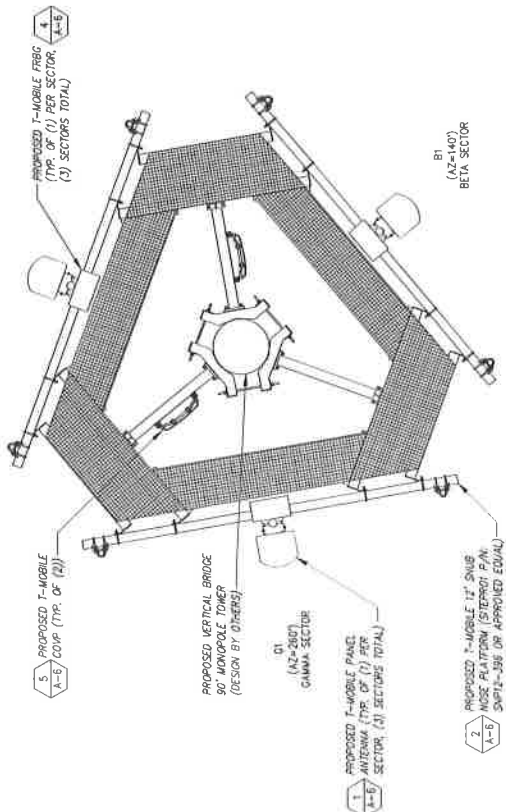
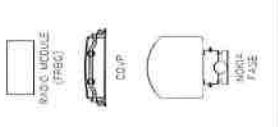
12119 McCURE ROAD  
FALCON, CO 80831

ANTENNA LAYOUT & LOADING CHART

A-5

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

ANTENNA & COMPONENT LEGEND



NORTH = 0°

PROPOSED ANTENNA LAYOUT

NO SCALE

1

SITE LOADING CHART

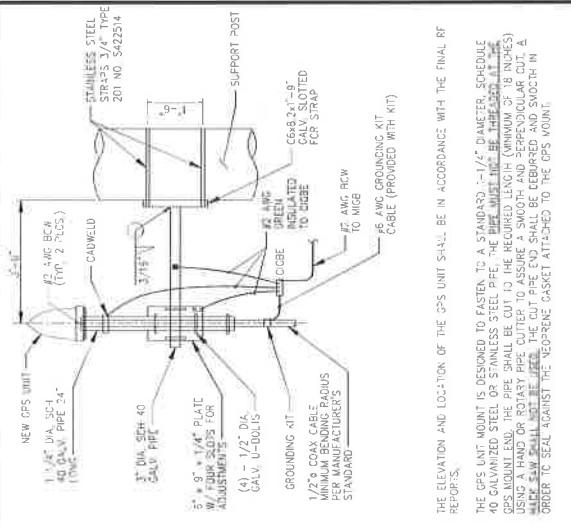
SECTOR	POSITION	SECTOR COLOR	TECHNOLOGY	ANTENNA MODEL #	VENDOR	O.Y. (REVISED)	QTY. (NEW)	TWA (QTY/MODEL)	ADJUTH	DOMINANT MECHANICAL ELECTRICAL	RAD CENTER	FEED LINE TYPE/LENGTH
ALPHA	A	RED	LTE 700/LTE AWS UNITS PCS	FASB RAS	NOKIA	---	1	---	20'	0	±85' AGL	PROPOSED (2) W-CAP HYBRID CABLES LENGTH = 4175
BETA	BT	BLUE	LTE 700/LTE AWS UNITS PCS	FASB RAS	NOKIA	---	1	---	140'	0	±85' AGL	HYBRID CABLES SHARED W/ ALPHA SECTOR
GAMMA	GI	WHITE	LTE 700/LTE AWS UNITS 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

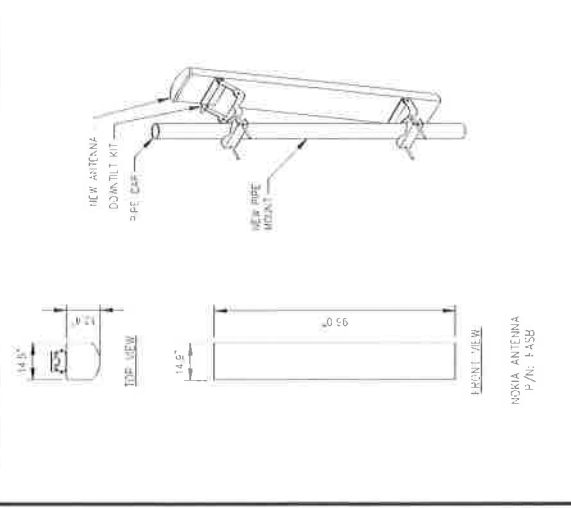
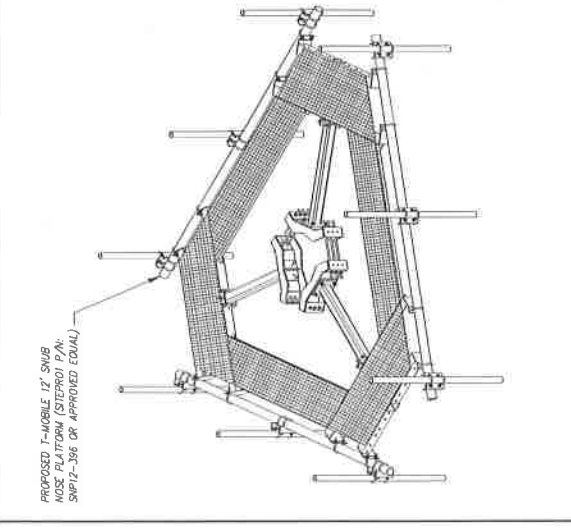
NO SCALE

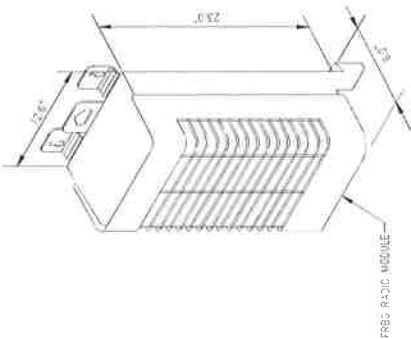
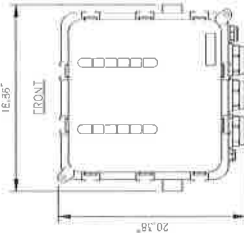
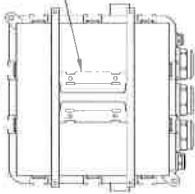
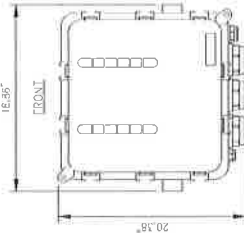
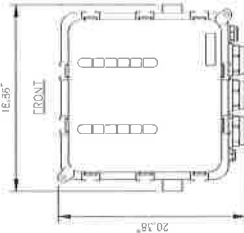
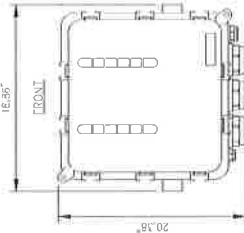
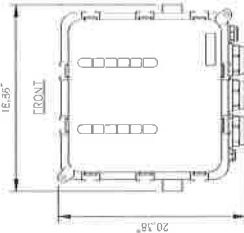
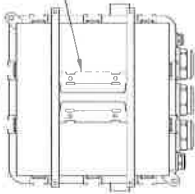
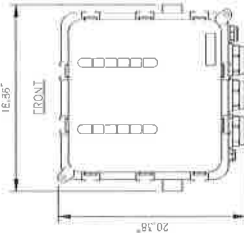
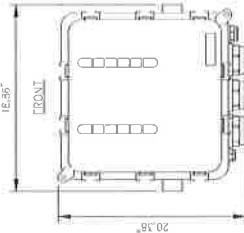
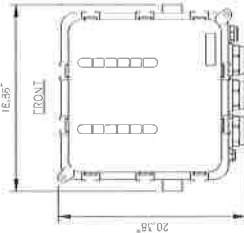
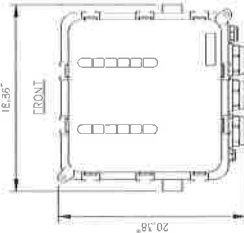
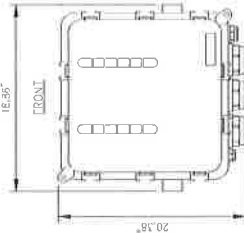
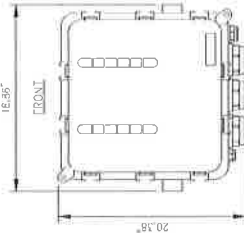
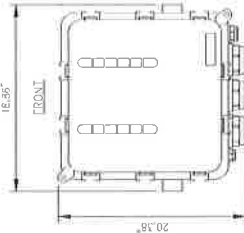
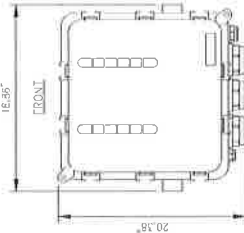
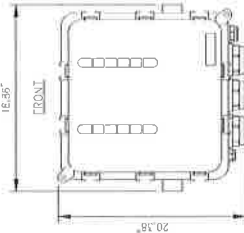
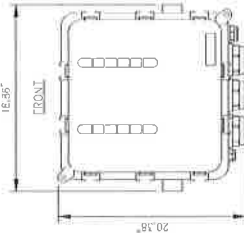
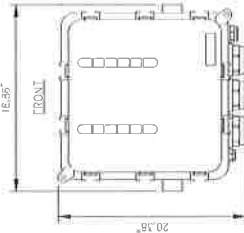
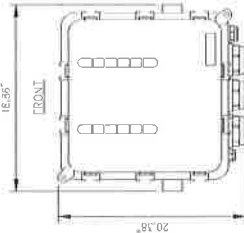
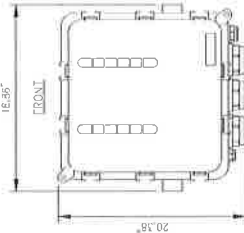
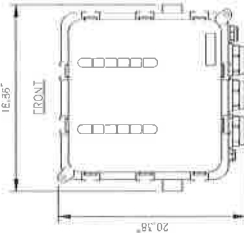
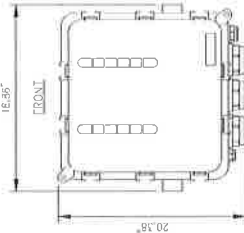
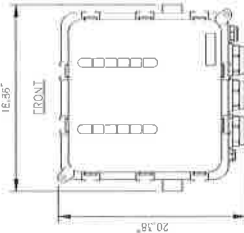
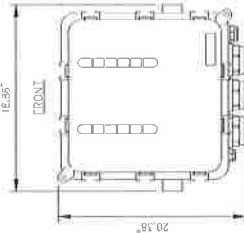
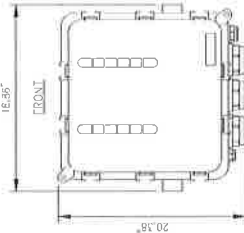
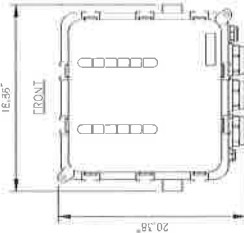
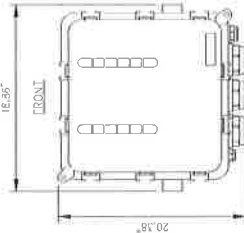
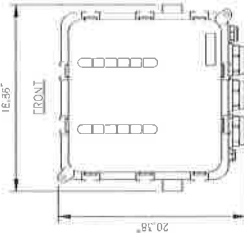
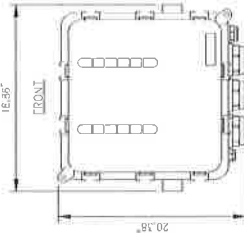
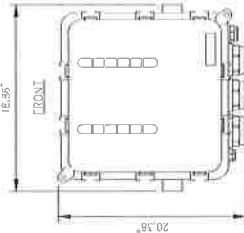
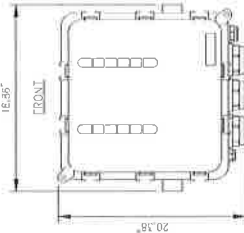
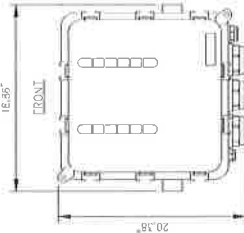
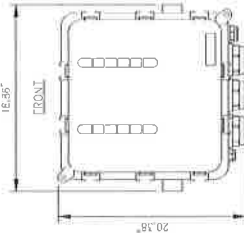
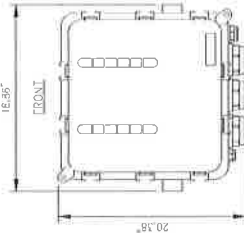
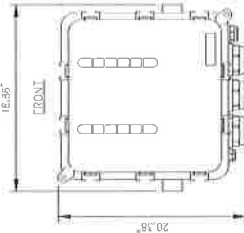
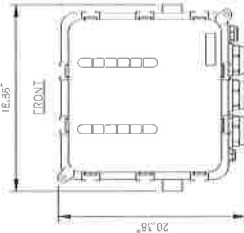
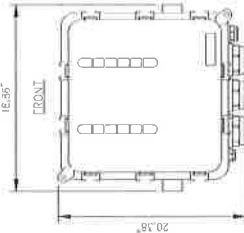
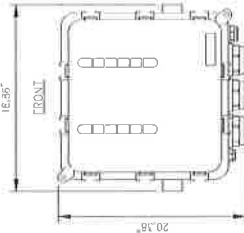
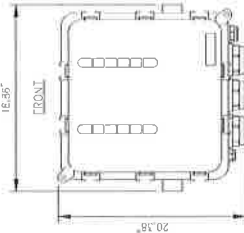
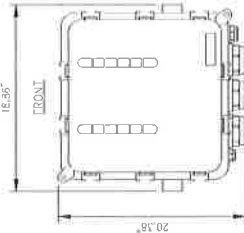
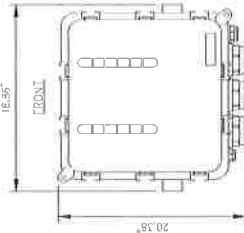
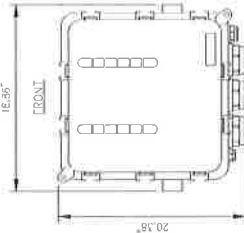
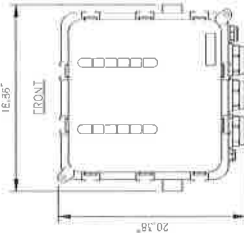
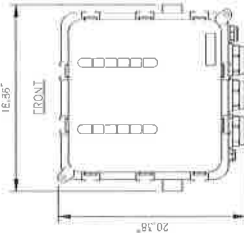
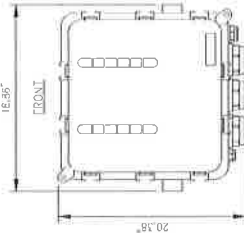
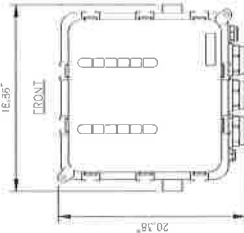
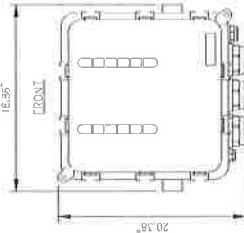
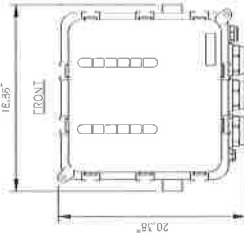
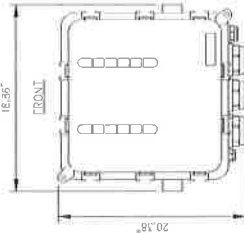
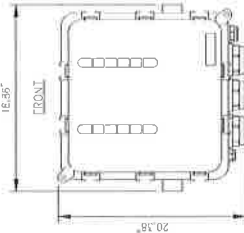
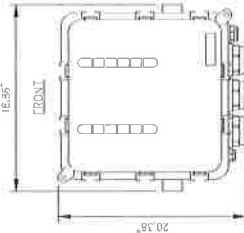
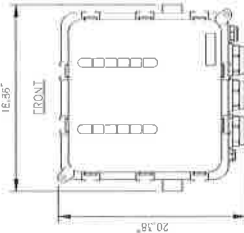
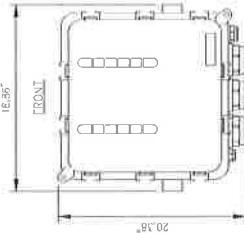
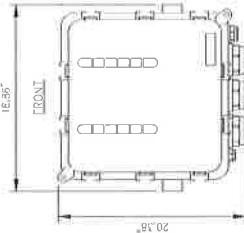
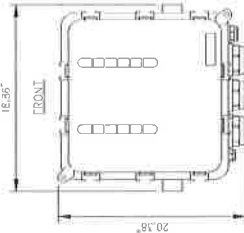
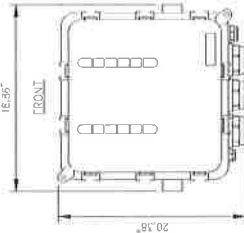
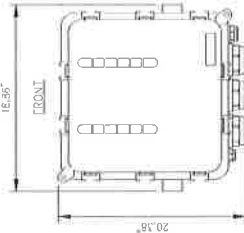
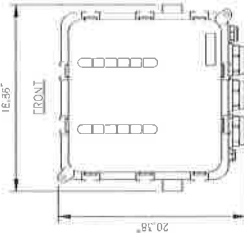
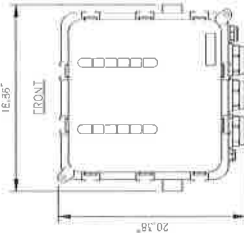
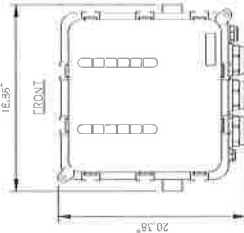
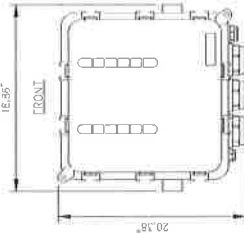
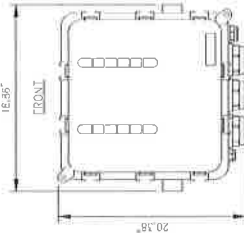
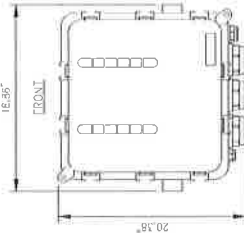
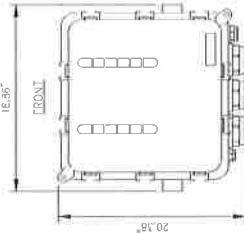
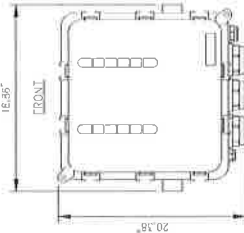
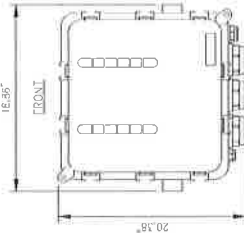
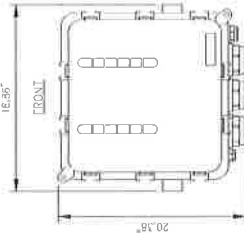
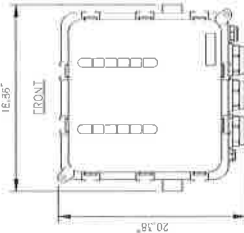
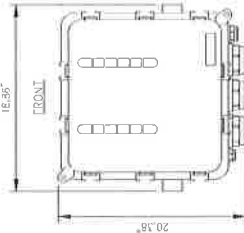
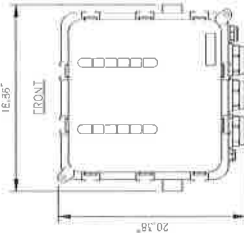
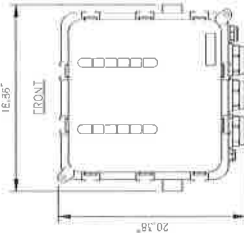
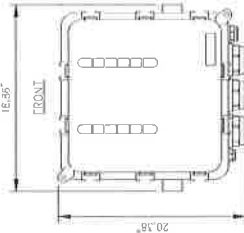
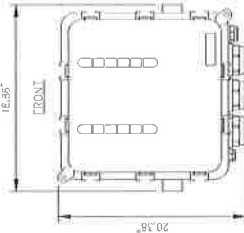
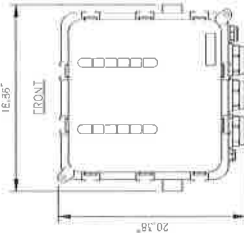
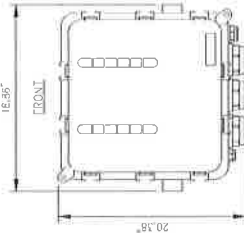
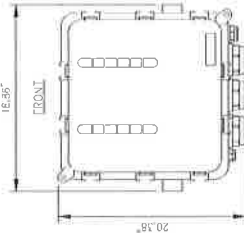
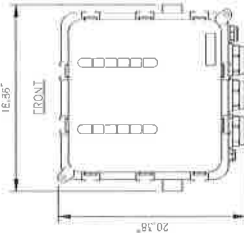
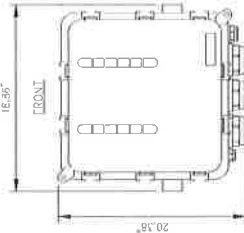
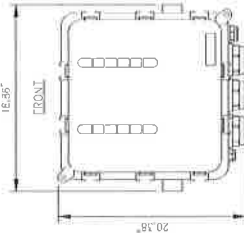
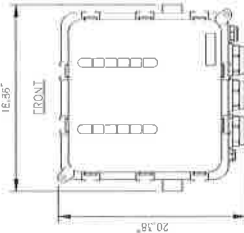
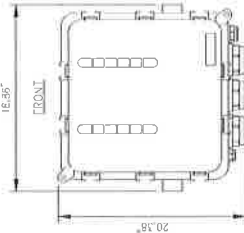
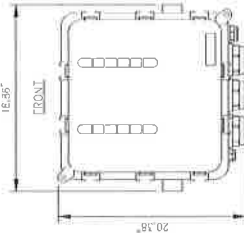
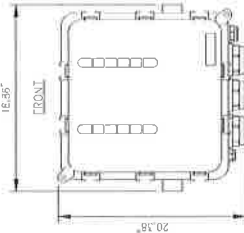
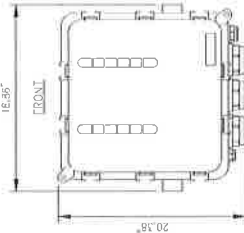
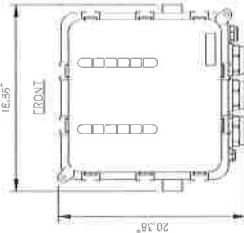
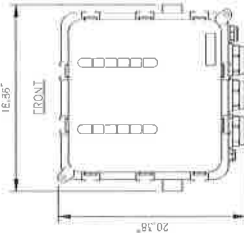
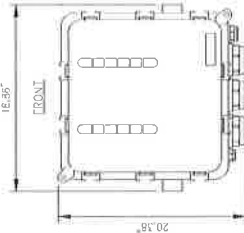
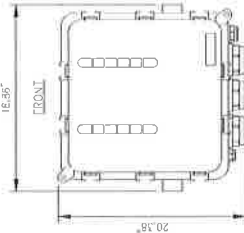
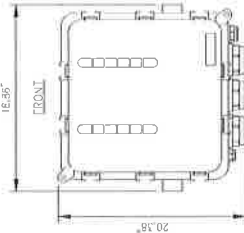
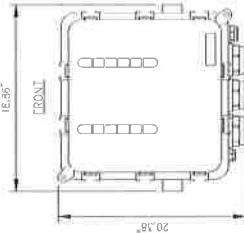
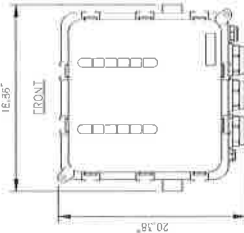
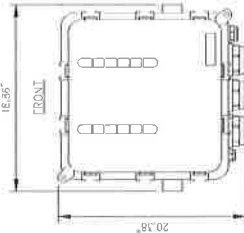
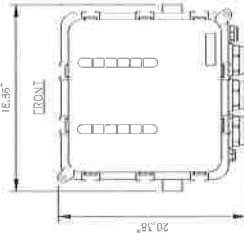
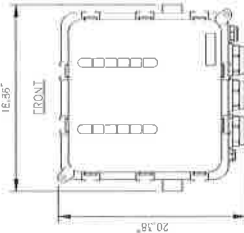
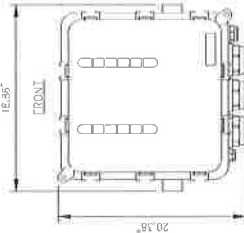
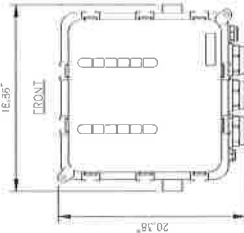
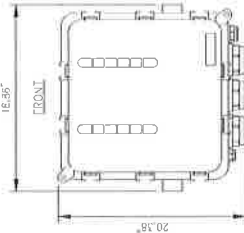
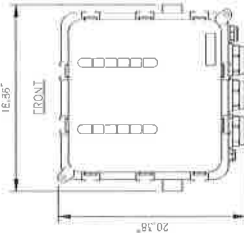
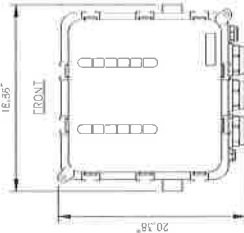
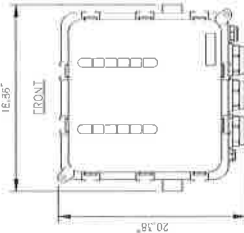
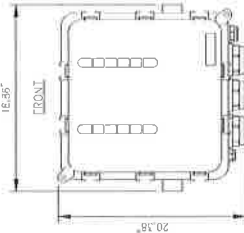
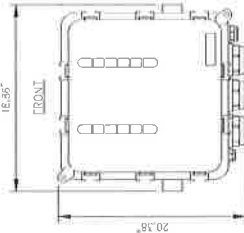
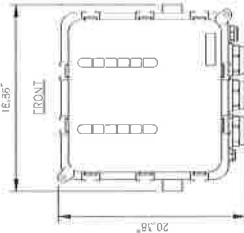
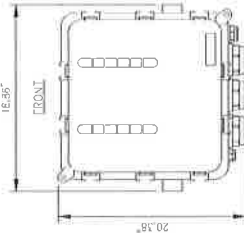
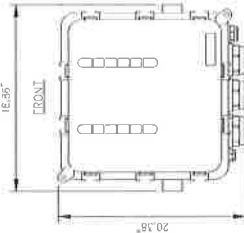
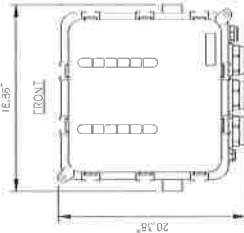
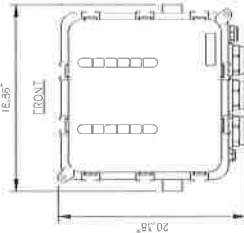
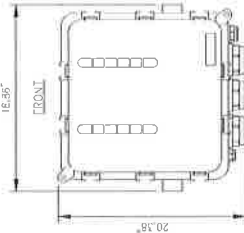
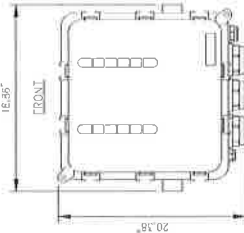
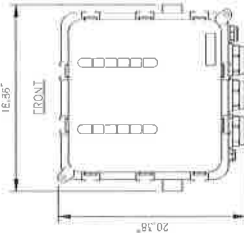
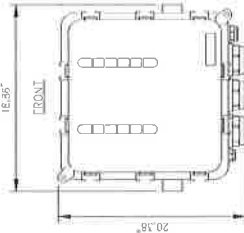
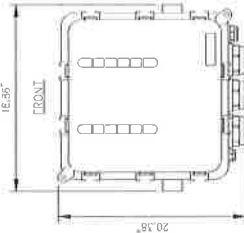
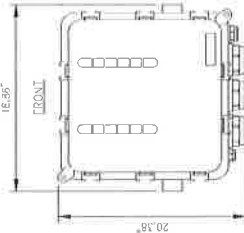
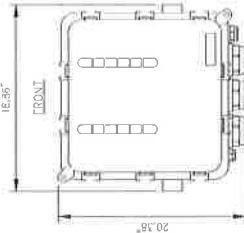
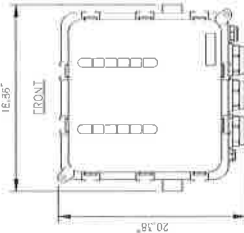
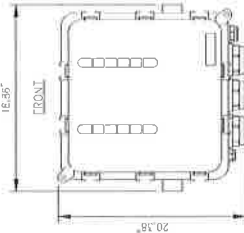
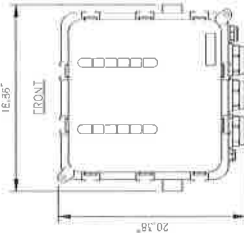
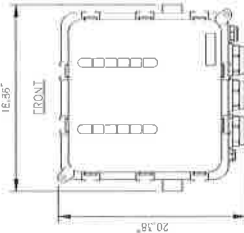
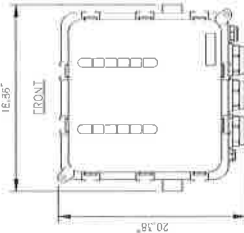
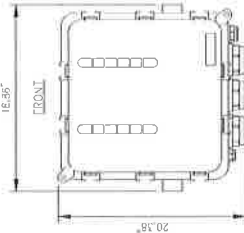
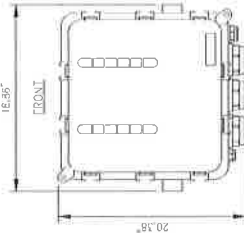
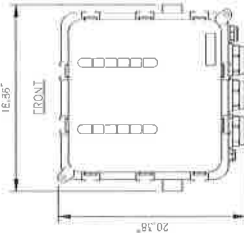
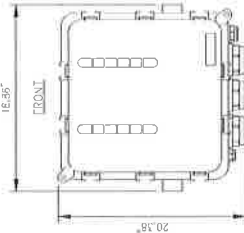
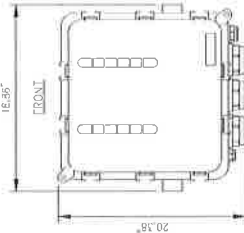
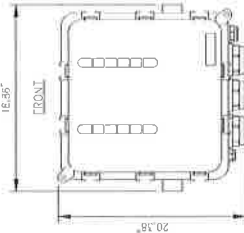
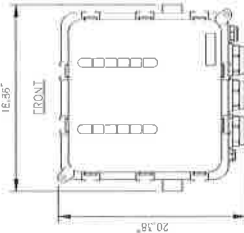
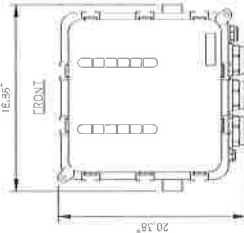
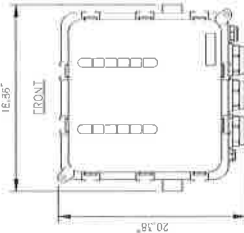
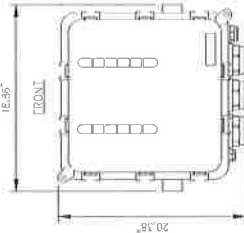
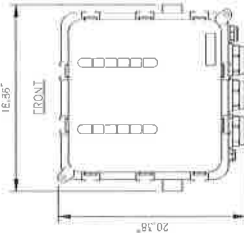
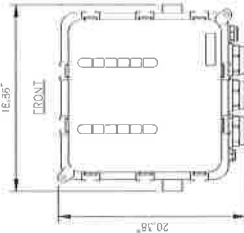
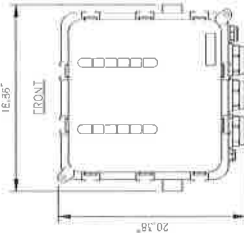
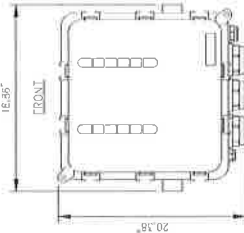
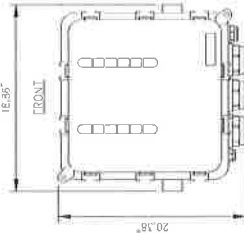
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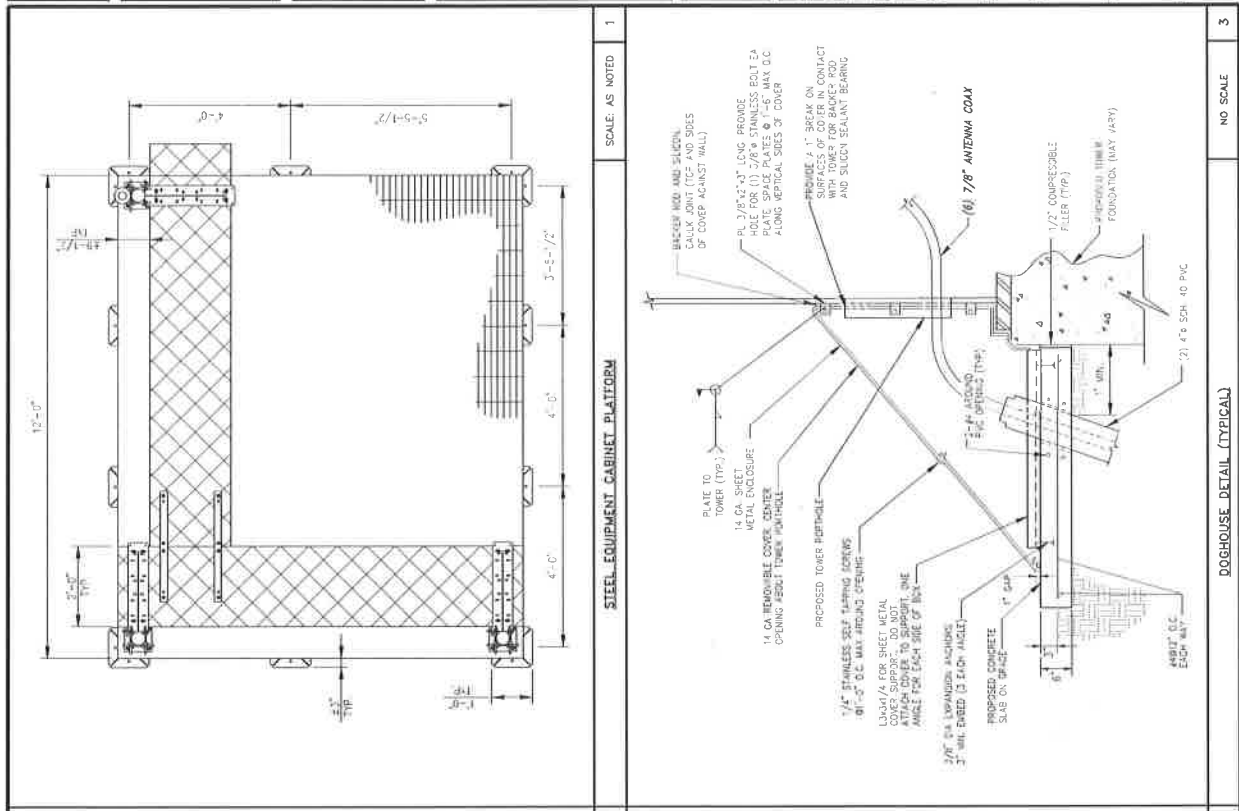
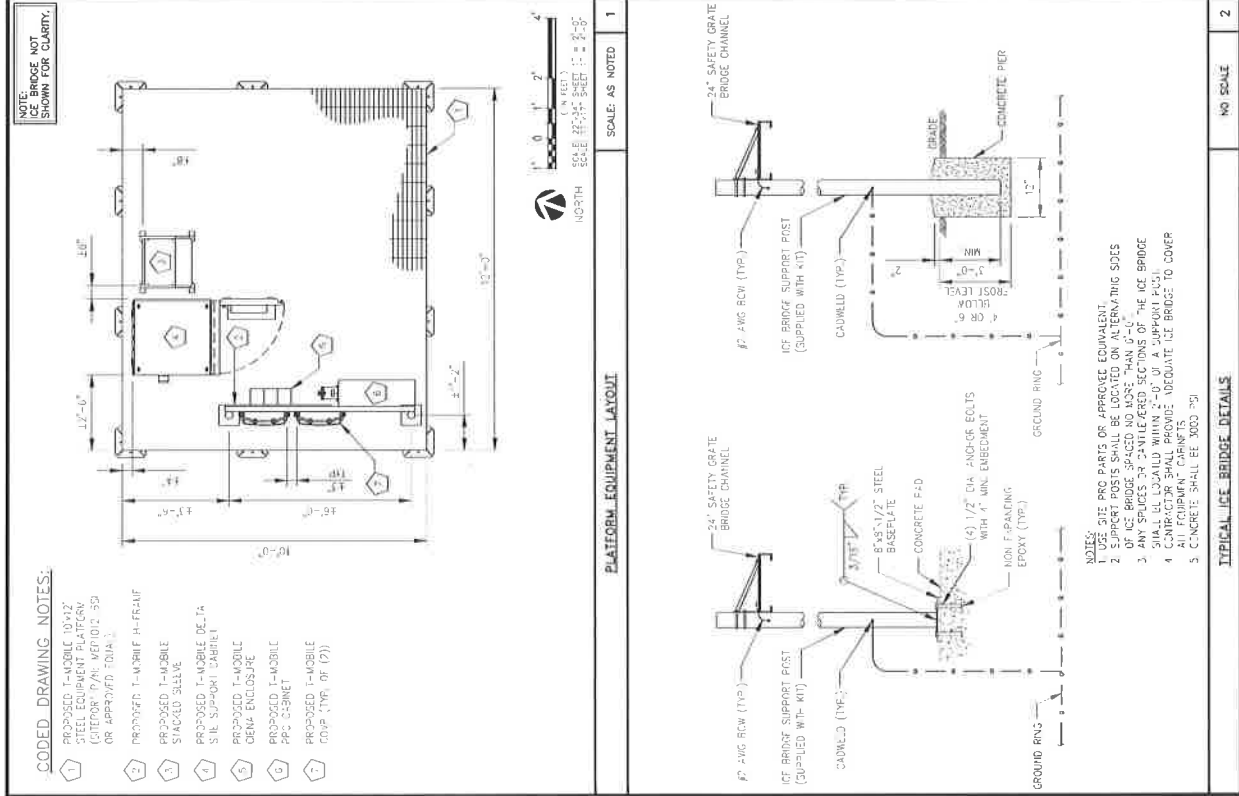


THE ELEVATION AND LOCATION OF THE CPS UNIT SHALL BE IN ACCORDANCE WITH THE FINAL REPORTS.

THE CPS UNIT MUST BE DESIGNED TO FASTEN TO A STANDARD 1-1/2" DIAMETER SCHEDULE 40 GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AND THE CPS MOUNT LENS. 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 CONSPICUOUS CUT. THE CPS UNIT SHALL BE ATTACHED TO THE PIPE USING TWO (2) 1/2" DIA. BOLTS. THE BOLTS SHALL BE TIGHTENED IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE CPS MOUNT.



ANTENNA DETAIL		ANTENNA MOUNT DETAIL		TYPICAL OPS. MOUNTING DETAIL		NO SCALE									
<table><tr><td>EMERGENCY (FRBQ) MOBILE CENTER FOR MOUNTING</td><td>12.5"x23.0"x6.2"</td></tr><tr><td>RADIO MODULE (ANT) WEIGHT</td><td>24.0 kg/52.9 lbs</td></tr><tr><td>MOUNTING BRACKET WEIGHT</td><td>2.0 kg/4.4 lbs</td></tr><tr><td>TOTAL WEIGHT</td><td>26.0 kg/57.3 lbs</td></tr></table>		EMERGENCY (FRBQ) MOBILE CENTER FOR MOUNTING	12.5"x23.0"x6.2"	RADIO MODULE (ANT) WEIGHT	24.0 kg/52.9 lbs	MOUNTING BRACKET WEIGHT	2.0 kg/4.4 lbs	TOTAL WEIGHT	26.0 kg/57.3 lbs	<p>NOTE: RADIO MODULE TO BE MOUNTED VERTICALLY ONLY.</p> 					
EMERGENCY (FRBQ) MOBILE CENTER FOR MOUNTING	12.5"x23.0"x6.2"														
RADIO MODULE (ANT) WEIGHT	24.0 kg/52.9 lbs														
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47849

PROFESSIONAL ENGINEER

CHRISTOPHER J. WARRIN

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1	ISSUED FOR CONSTRUCTION	07/27/21	260	1
2	REVISED FOR CONSTRUCTION	07/27/21	260	1
3	REVISED FOR CONSTRUCTION	07/27/21	260	1
4	REVISED FOR CONSTRUCTION	07/27/21	260	1
5	REVISED FOR CONSTRUCTION	07/27/21	260	1

**WOODMEN ELEMENTARY**

MOBILE SITE #

DN04333A

MOBILE SITE #

US-CO-5052

MOBILE ADDRESS

12119 McCURE ROAD  
FALCON, CO 80831

SHEET DESCRIPTION

EQUIPMENT LAYOUT & DETAILS

SHEET NUMBER

A-7

PLAN PREPARED FOR



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PLANS PREPARED BY



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REVISION	DESCRIPTION	DATE	BY	REV
1	REVISED FOR CONSTRUCTION	08/12/11	REV	1
2	REVISED FOR CONSTRUCTION	08/22/11	REV	2
3	REVISED FOR CONSTRUCTION	08/22/11	REV	3
4	REVISED FOR CONSTRUCTION	08/22/11	REV	4

WOODMEN ELEMENTARY

MOBILE SITE #  
DN04333A

MOBILE SITE #  
US-CO-5052

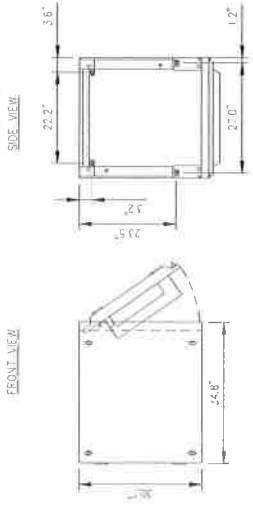
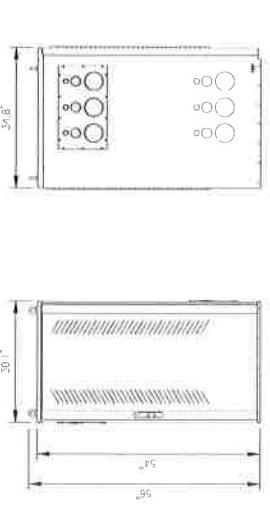
SITE ADDRESS  
12119 McCLURE ROAD  
FALCON, CO 80831

SHEET DESCRIPTION  
EQUIPMENT &  
MOUNTING DETAILS

SHEET NUMBER  
A-8

TYPICAL H-FRAME FABRICATION

FRONT: 23.6"  
BACK: 6"  
TOP: 1.2"  
SIDE: 4"  
WEIGHT: 4.4 lbs.  
NOTE: MODULE CAN BE INSTALLED VERTICALLY AND HORIZONTALLY



TOP VIEW

BOTTOM VIEW

DELTA SITE SUPPORT CABINET DETAIL

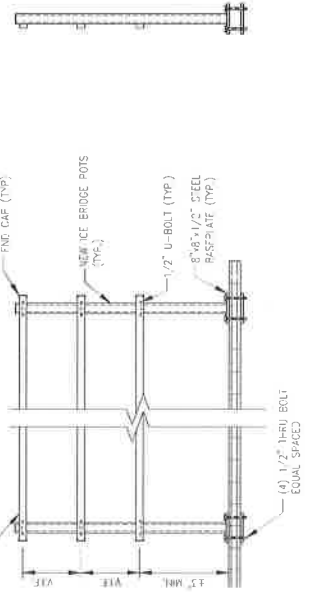
RADIO MODULE DETAIL

NO SCALE

NO SCALE

2

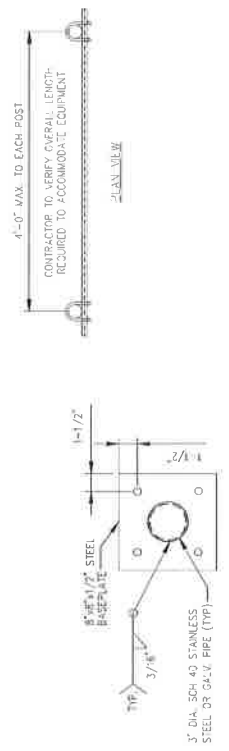
1-1/2" DIA. SQUARE  
HOLE UNMOUNTED REIL (12  
IN.) (TYP.) COORDINATE  
EXACT LOCATION IN FIELD



ELEVATION

END VIEW

BASEPLATE VIEW



TYPICAL H-FRAME FABRICATION DETAIL

NO SCALE

NO SCALE

3

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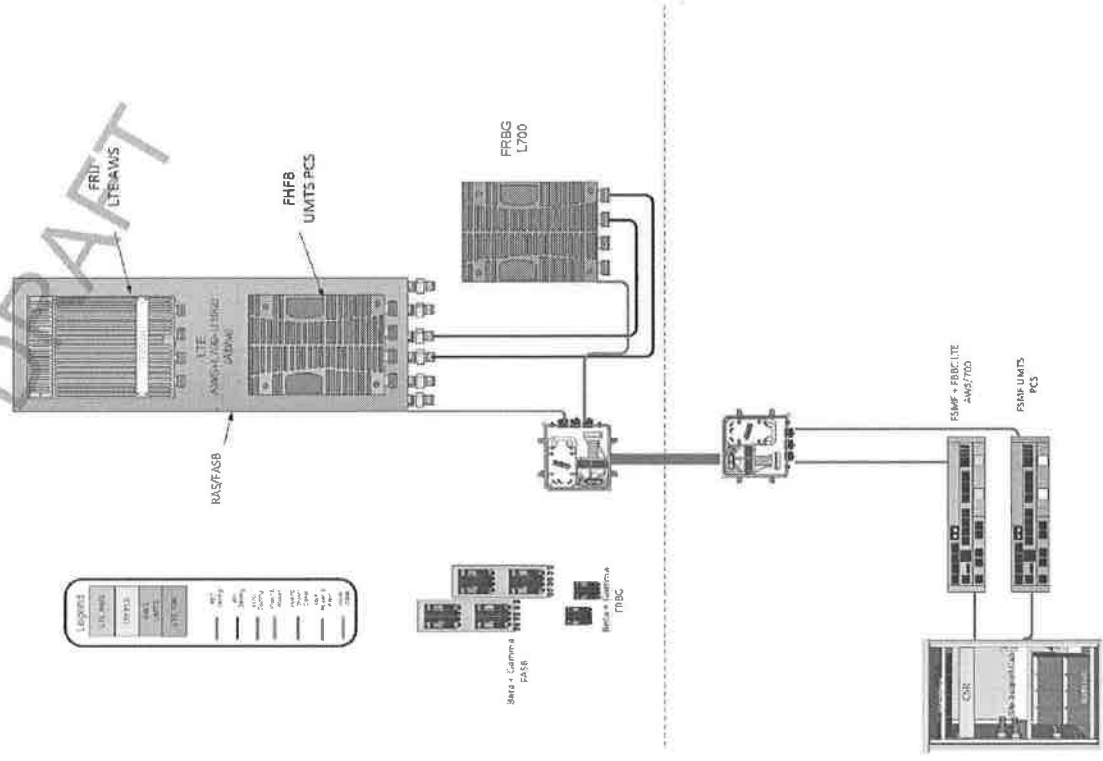
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PLUMBING MEDICINE

PLUMBING MEDICINE

PLUMBING MEDICINE

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



PLUMBING DIAGRAM

NO SCALE

1

A-9

SHEET NUMBER

PLUMBING DIAGRAM

SHEET DESCRIPTION

12119 McCURE ROAD  
FALCON, CO 80831

LITE ADDRESS

US-CO-5052

VERTICAL BRIDGE SITE #

DN04333A

TACQUIS SITE #

WOODMEN ELEMENTARY

VERTICAL BRIDGE SITE NAME

REVISION	DESCRIPTION	DATE	BY	REV
1	REVISED FOR CONSTRUCTION	8/1/21	1	1
2	REVISED FOR CONSTRUCTION	8/1/21	2	2
3	REVISED FOR CONSTRUCTION	8/1/21	3	3
4	REVISED FOR CONSTRUCTION	8/1/21	4	4
5	REVISED FOR CONSTRUCTION	8/1/21	5	5

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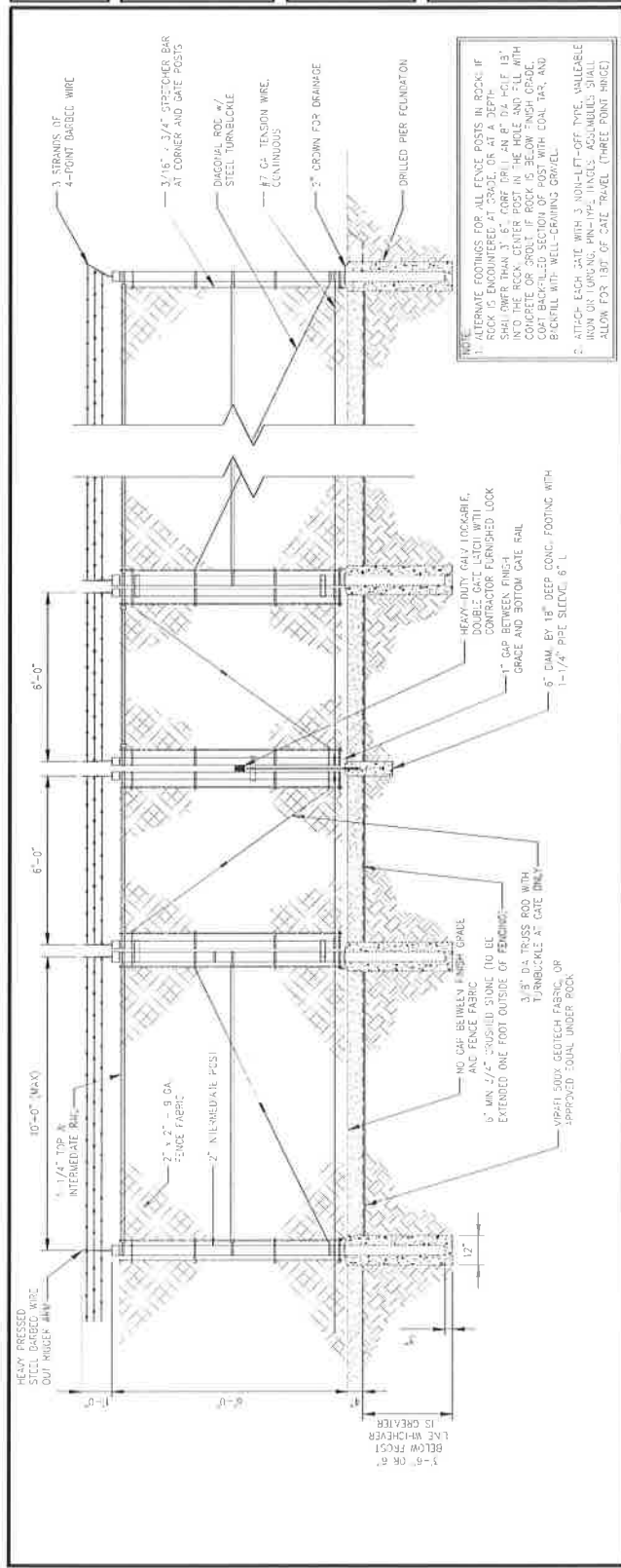


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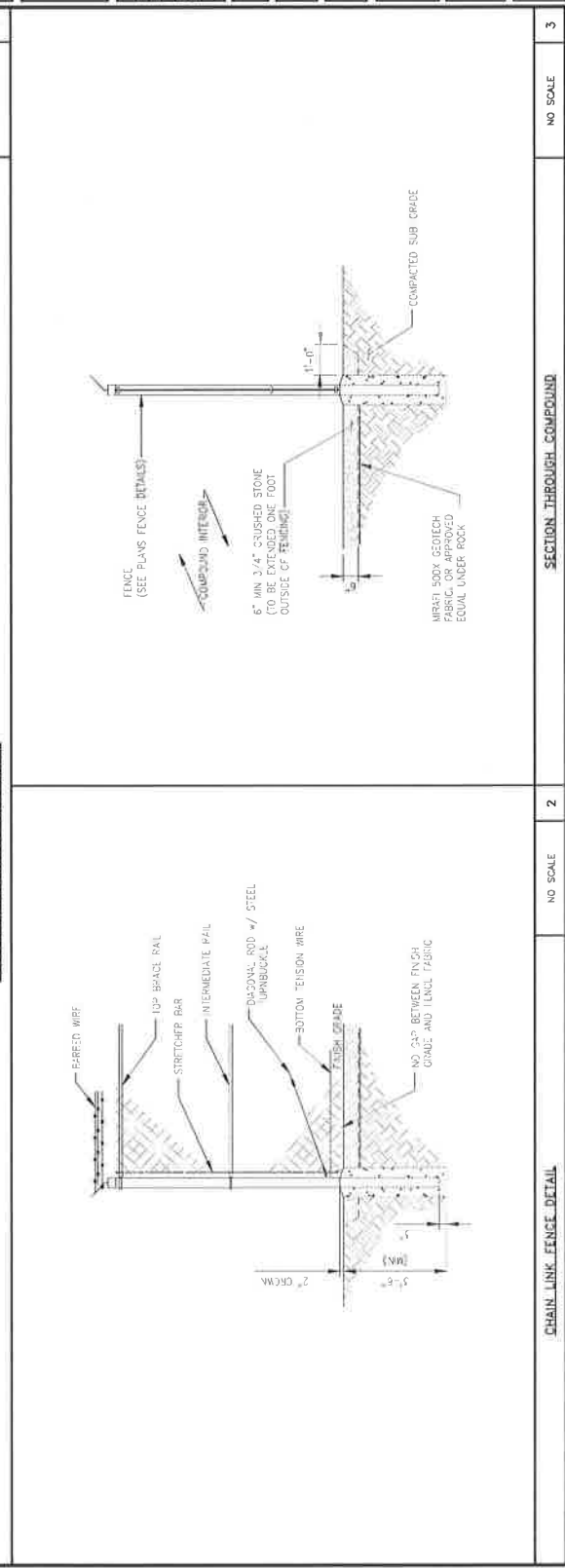


MC PARTNER





DOUBLE SWING ACCESS GATE DETAIL



REVISION	DESCRIPTION	DATE	BY	REV
	REWORK 100420 FOR CONSTRUCTION	20/10/17	100	5
	REWORK 100420 FOR CONSTRUCTION	20/10/17	100	7
	REWORK 100420 FOR CONSTRUCTION	22/12/17	100	1
	REWORK 100420 FOR CONSTRUCTION	1/10/18	200	11

VERTICAL BRIDGE SITE NAME  
WOODMEN ELEMENTARY

<p>  <b>TACOS, E 2017 E</b> </p>	<p> <b>DN04333A</b> </p>
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US-CO-5057  
VEGETICAL SURFACE STATE # \_\_\_\_\_

12119 McCURE ROAD  
FALCON, CO 80831

CIVIL DETAILS

— CHIEF NUMBER —



SILT FENCE DETAIL

NO SCALE	1
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DRIVEWAY SECTION - GROWNED

NO SCALE

BOLLARD DETAIL

NO SCALE

3



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REVISION	DESCRIPTION	DATE	BY	REV
1	ISSUED FOR CONSTRUCTION	10/01/14	MM	1
2	REVISED FOR CONSTRUCTION	02/24/15	MM	2
3	REVISED FOR CONSTRUCTION	12/22/15	MM	3
4	ISSUED FOR CONSTRUCTION	01/01/16	MM	4

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  
UTILITY LAYOUT

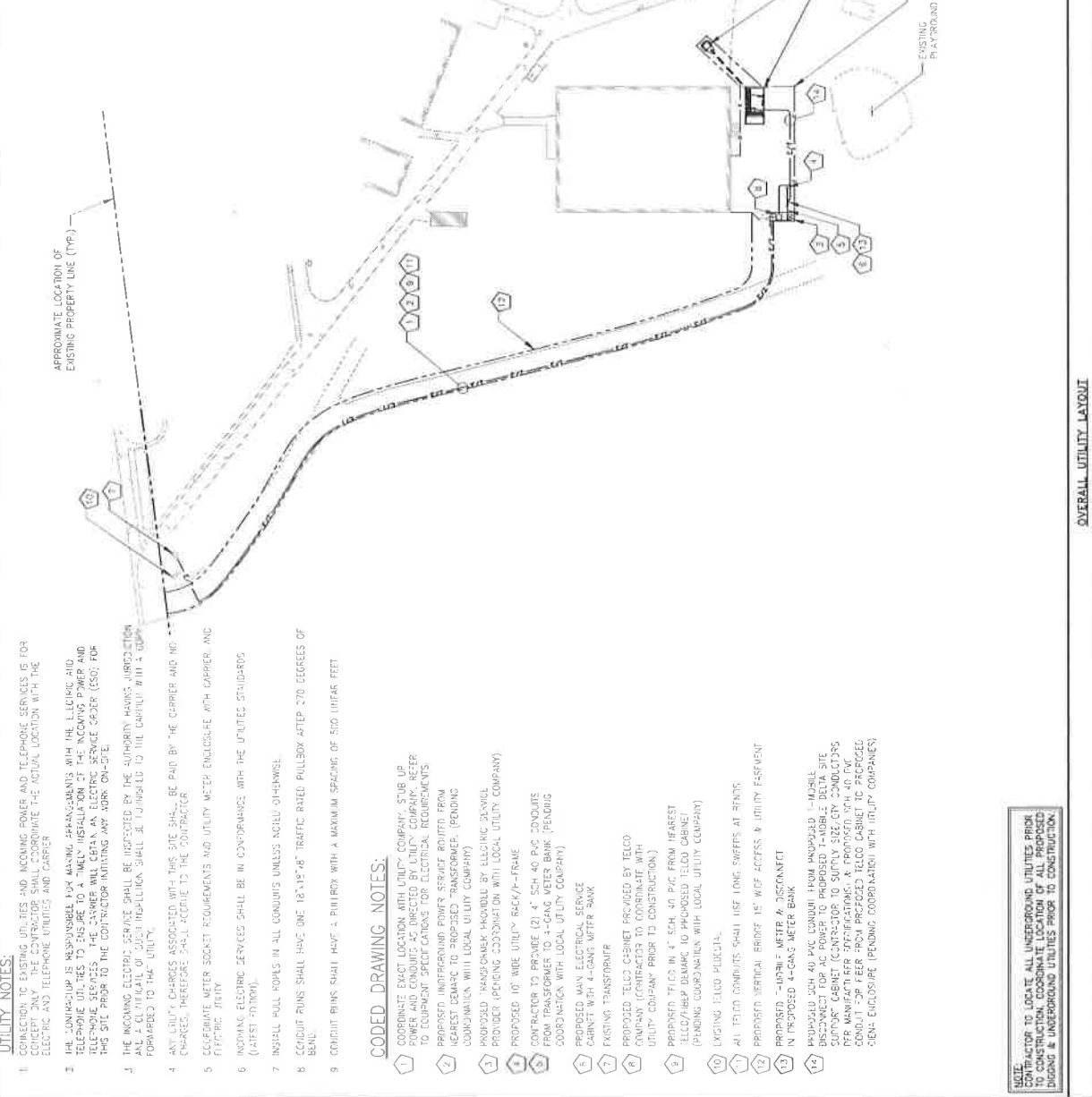
SHEET NUMBER  
E-1

# 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 PVC SCHEDULE 40 RIGID UNLESS OTHERWISE NOTED. CONDUIT SHALL BE LAYED OUT TO FOLLOW THE EXISTING UTILITY LAYOUT. CONDUIT SHALL BE LAYED OUT TO FOLLOW THE EXISTING UTILITY LAYOUT. CONDUIT SHALL BE LAYED OUT TO FOLLOW THE EXISTING UTILITY LAYOUT.
3. ALL CONDUITS SHALL BE COPPER WITH THHN/THWN INSULATION. CONDUIT SHALL BE LAYED OUT TO FOLLOW THE EXISTING UTILITY LAYOUT. CONDUIT SHALL BE LAYED OUT TO FOLLOW THE EXISTING UTILITY LAYOUT. CONDUIT SHALL BE LAYED OUT TO FOLLOW THE EXISTING UTILITY LAYOUT.
4. ELECTRICAL DRAWINGS ARE IN PART DEPARTMENTAL. 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 NOT DUCT TAPE.
7. PROVIDE 100 LB TEST PULL WIRES IN EACH TELEPHONE AND POWER CONDUIT.
8. UTILITY REQUIREMENTS.

## ABBREVIATIONS:

A	AND
B	BUS
C	CABLE
D	DIAGRAM
E	ELECTRIC
F	FUSE
G	GROUND
H	HOT
I	INTER
J	JUNCTION
K	KW
L	LINE
M	MOBILE
N	NEUTRAL
O	OFF
P	POWER
Q	QUANTITY
R	RANGE
S	SELF
T	TELEPHONE
U	UTILITY
V	VOLTS
W	WIRE
X	X-RAY
Y	YIELD
Z	ZONE



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

## OVERALL UTILITY LAYOUT

SCALE: AS NOTED

1

# GENERAL ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES.
2. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40, 1/2" OR 3/4" IN DIAMETER, UNLESS OTHERWISE SPECIFIED. CONDUIT SHALL BE BURIED 18" BELOW GRADE ALONG ENTIRE LENGTH OF UNDERGROUND CONDUITS.
3. ALL CONDUITS SHALL BE PROTECTED WITH TRAP/VENTS, VENTILATION, AND CONDENSATION SHALL BE INSTALLED. POWER & LIGHTING CONDUITS SHALL BE SOLID LIX #10 & #12 CONDUCTORS AND STRANDED FOR ALL OTHER SIZES.
4. ELECTRICAL DRAWINGS ARE IN PART DIAGRAMMATIC. COORDINATE ELECTRICAL WORK WITH SITE CONDITIONS.
5. LOCATE ALL UNDERGROUND UTILITIES BEFORE TRENCHING. IF CONDUITS ARE LOCATED AT UTILITY COMPANY AND ENGINEER IMMEDIATELY.
6. ALL E-PROCES CONDUITS SHALL HAVE WEATHERPROOF CAPS NOT DUCT TAPE.
7. PROVIDE 200 LB TEST PULL WIRES IN EACH TELEPHONE AND POWER CONDUIT.
8. PULL PIPES SHALL BE INSTALLED AS NEARLY H/V AS POSSIBLE.

## CODED DRAWING NOTES:

1. COORDINATE EXACT LOCATION WITH UTILITY COMPANY. SITE UP POWER AND CONDUITS AS DIRECTED BY UTILITY COMPANY. REFER TO EQUIPMENT SPECIFICATIONS FOR ELECTRICAL REQUIREMENTS.
2. PROPOSED UNDERGROUND POWER STRAIGHT 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" WIDE UTIL-RACK/F-RAME.
5. CONTRACTOR TO PROVIDE (1) 4" SCH 40 P.V.C. CONDUITS FROM TRANSFORMER TO 1-GANG METER BANK. (PENDING COORDINATION WITH LOCAL UTILITY COMPANY).
6. PROPOSED MAIN ELECTRICAL SERVICE CABINET WITH 4-GANG METER BANK.
7. PROPOSED TELCO CABINET PROVIDED BY TELCO COMPANY. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY PRIOR TO CONSTRUCTION.
8. PROPOSED TELCO IN 4" SCH. 40 P.V.C. FROM NEAREST TELCO/FIBER DEMARC TO PROPOSED TELCO CABINET. (PENDING COORDINATION WITH LOCAL UTILITY COMPANY).
9. ALL TELCO CONDUITS SHALL USE LONG SWIFTS AT JUNCTIONS.
10. PROPOSED 1-MOBILE METER & DISCONNECT IN PROPOSED 4-GANG METER BANK.
11. PROPOSED SCH 40 P.V.C. CONDUIT FROM PROPOSED 1-MOBILE DISCONNECT TO 1-GANG METER BANK. (PENDING COORDINATION WITH UTILITY COMPANY).
12. SUPPORT CABINET (CONTRACTOR TO SUPPLY OFF-UTILITY CONDUITS PER MANUFACTURER SPECIFICATIONS) & PROPOSED SCH 40 P.V.C. CONDUIT FOR FEED FROM PROPOSED TELCO CABINET TO PROPOSED CEMA 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.

# ABBREVIATIONS:

A	AND
AWG	AMERICAN WIRE GAUGE
BOW	BASE COOPER WIRE
BTD	BELOW FINISH GRADE
BTS	BIARE TINNED STRANDED
C	CONDUIT
COB	COAXIAL CABLE
DLO	DIESEL LOCATIVE CABLE
DWG	DRAWING
EDG	EXTERIOR GROUND RING
ESB	EXTERIOR ISOLATED GROUND BAR
G	GROUND
GPS	GLOBAL POSITIONING SYSTEM
HALO	HALO
ISO	ISOLATED GROUND BAR
MSC	MOBILE SWITCHING CENTER
MSC	MOBILE TELEPHONE SWITCHING OFFICE
MTSD	MOBILE TELEPHONE SWITCHING OFFICE
PVC	POLYVINYL CHLORIDE
QUAN	QUANTITY
RCS	REDUCED
SS	STAINLESS STEEL
SST	SELF SUPPORT TOWER
TOR	TOWER GROUND RING
TYP	TYPICAL
W/	WITH

# ELECTRICAL SYMBOLS:

—●—	RECEPTACLE
—■—	BURIED POWER CONDUIT
—□—	BURIED TELCO CONDUIT
—○—	ELECTRICAL METER
—◇—	INDICATES CODED NUMBER
—□—	SAFETY SWITCH
—○—	UTILITY POLL

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47849  
6-14-15

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REVISION	DESCRIPTION	DATE	BY	CHKD
1	REVISED MOBILE FOR CONSTRUCTION	10/01/15	WARRIN	WARRIN
2	REVISED MOBILE FOR CONSTRUCTION	10/01/15	WARRIN	WARRIN
3	REVISED MOBILE FOR CONSTRUCTION	10/01/15	WARRIN	WARRIN

WOODMEN ELEMENTARY  
14250 E. 8TH AVE  
DENVER, CO 80231

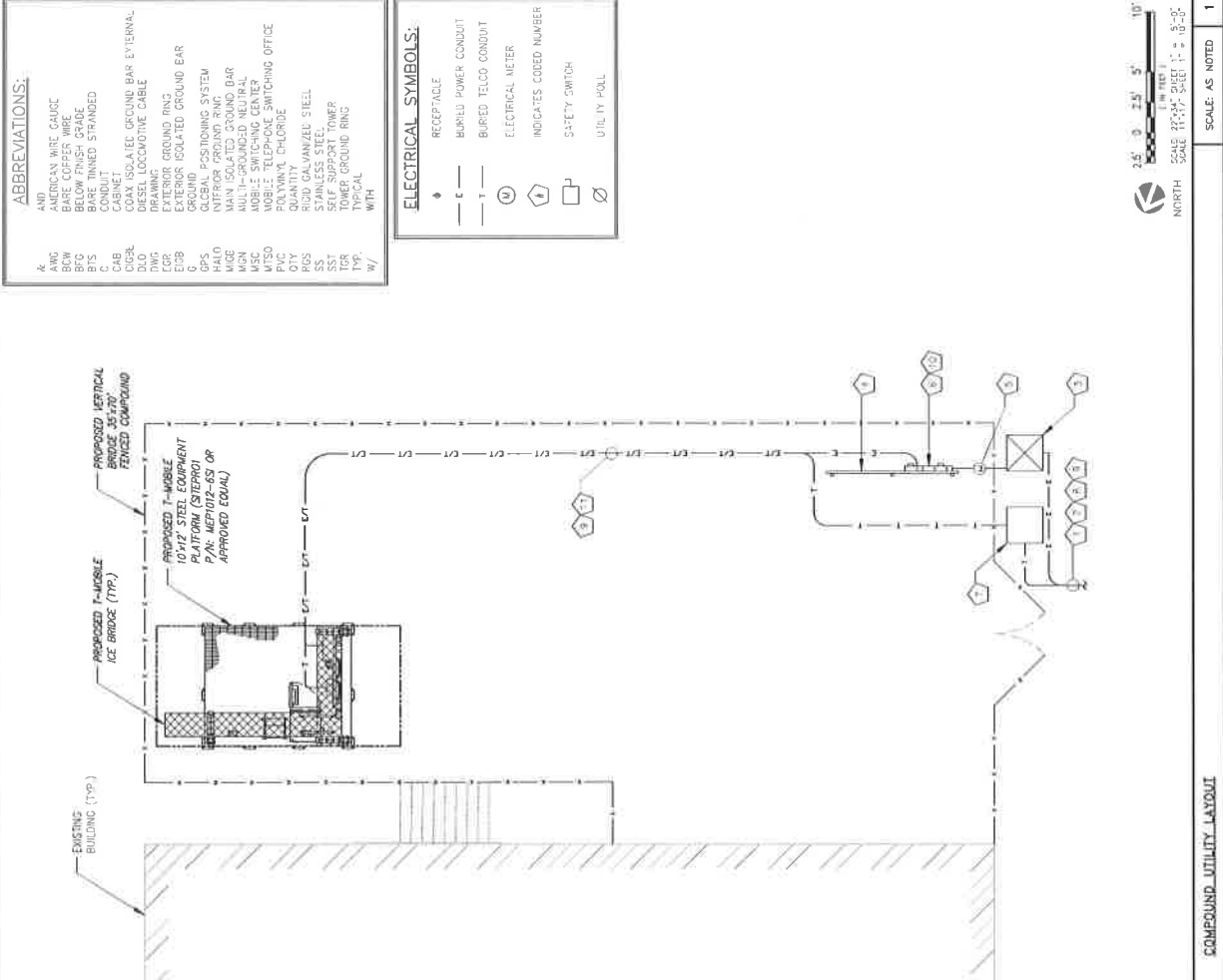
VERTICAL BRIDGE SITE #  
DN04-333A

US-CO-3052

12119 McCLURE ROAD  
FALCON, CO 80831

COMPOUND  
UTILITY LAYOUT

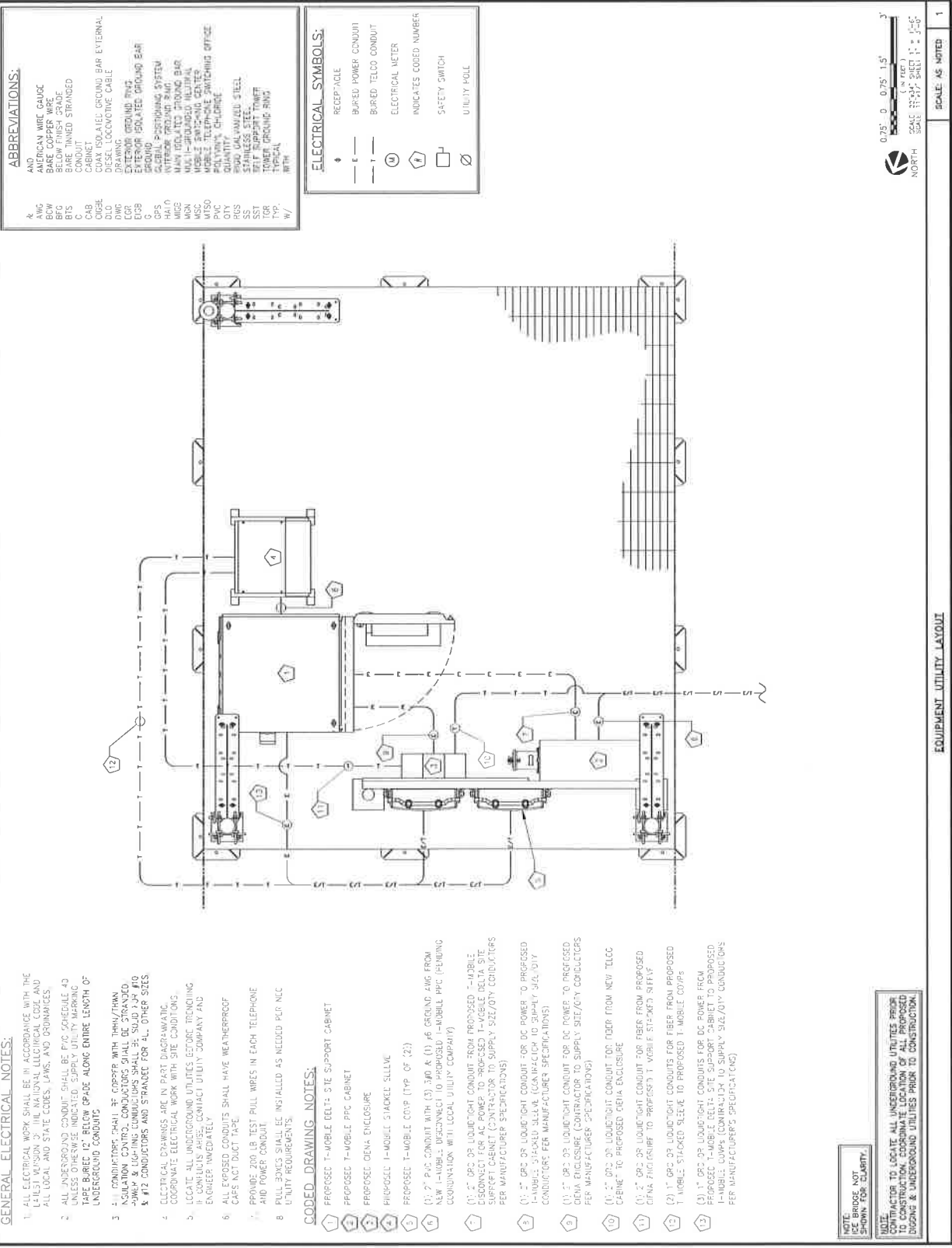
E-2



COMPOUND UTILITY LAYOUT

SCALE AS NOTED

1



EQUIPMENT UTILITY LAYOUT

0.75' 0 0.75' 1.5' 3'

( IN FEET )

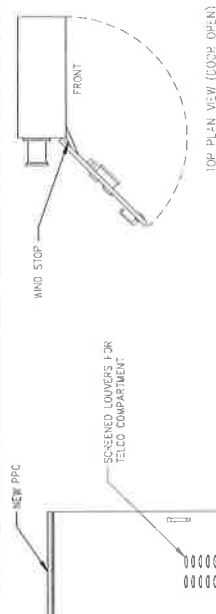
SCALE 22"=34' SHEET 1' = 1'-6"  
SCALE 11"=17' SHEET 1' = 3'-0"

 NORTH

SCALE: AS NOTED	1
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[illegible]

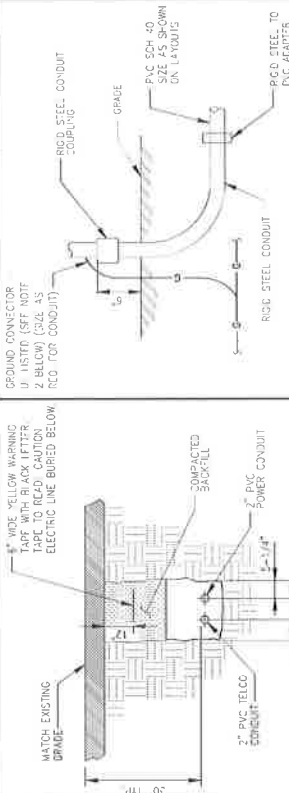
## BREAKER PANEL SCHEDULE



TOP PLAN VIEW (LOOK OPEN)

1. METER SOCKET BY THIS CONTRACT, WATER TO BE SUPPLIED BY LOCAL UTILITY COMPANY.
2. AC POWER ENDSIRE 200 AMP, 208/240V, 3W, 3W 1/2" CONDUIT, 200A/2P MAIN CIRCUIT BREAKER.
3. ALL EQUIPMENT SHALL BE GROUNDED PER LATEST EDITION OF NEC AND AS INDICATED.
4. ELECTRICAL EQUIPMENT SHALL BE MIN. 3'-0" FROM ANY STRUCTURE AND AS REQUIRED BY LOCAL UTILITY COMPANIES AND A.H.I.
5. CONTRACTOR MUST LABEL ALIVE BREAKERS IN POWER CABINET.
6. REFER TO ACTUAL EQUIPMENT DRAWINGS.

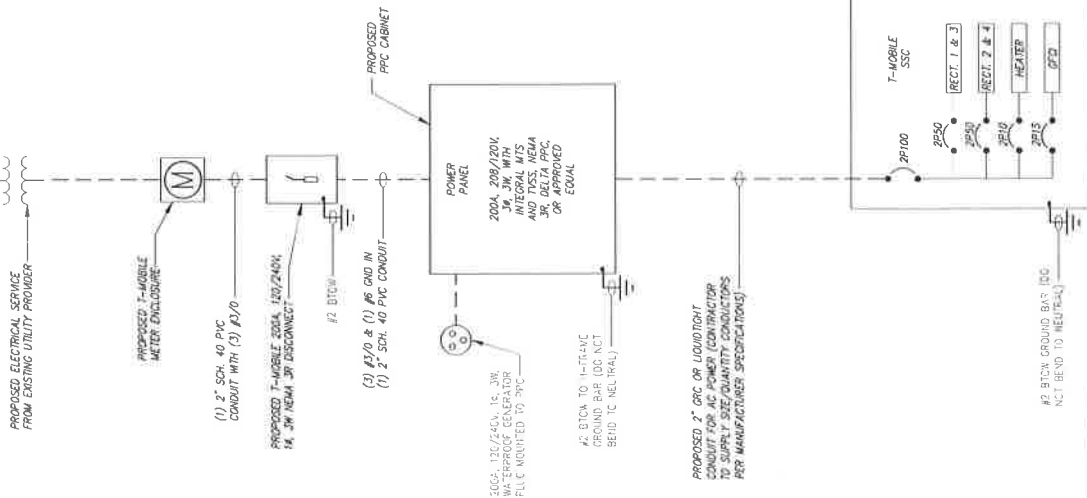
### PPC DETAIL



**NOTES:**

1. ALL NEW STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 OR 60 AFTER FABRICATION.
2. FIELD APPLICATORS SHALL BE 1252R ULTIMATE WITH ZINC RICH COATING PERMANENT FINISH OF NONCORROSIVE WITH ASTM A600.
3. PROOF CAPS DO NOT USE DUCT TAPE.
5. PROVIDE TABLE TEST BOLT WIFES IN EACH TELEPHONE AND WATER CONDUIT. STEEL CONDUITS INTO ENCLOSURE AND AFTER.

NOTE:  
NUMBER AND SIZE OF CONDUITS MAY VARY. SEE DWG  
E-1 THRU E-3 FOR CONDUIT SIZE AND LOCATION.  
CONCRETE DIMENSIONS SHOWN WITH UTILITY COMPANY.



NOTE-  
CONTRACTOR TO CONFIRM  
WITH LOCAL UTILITY PROVIDER.

## ELECTRICAL ONE LINE DIAGRAM

CONDUIT TRENCH DETAIL	NO SCALE	4	UNDERGROUND CONDUIT STUB-UP	NO SCALE	5

DESCRIPTION	DATE	BY	REV
RECEIVED FOR CONSTRUCTION	03/03/17	MDR	1
RECEIVED FOR CONSTRUCTION	07/02/17	MDR	2
RECEIVED FOR CONSTRUCTION	03/02/17	MD	3
RECEIVED FOR CONSTRUCTION	03/07/16	MD	0

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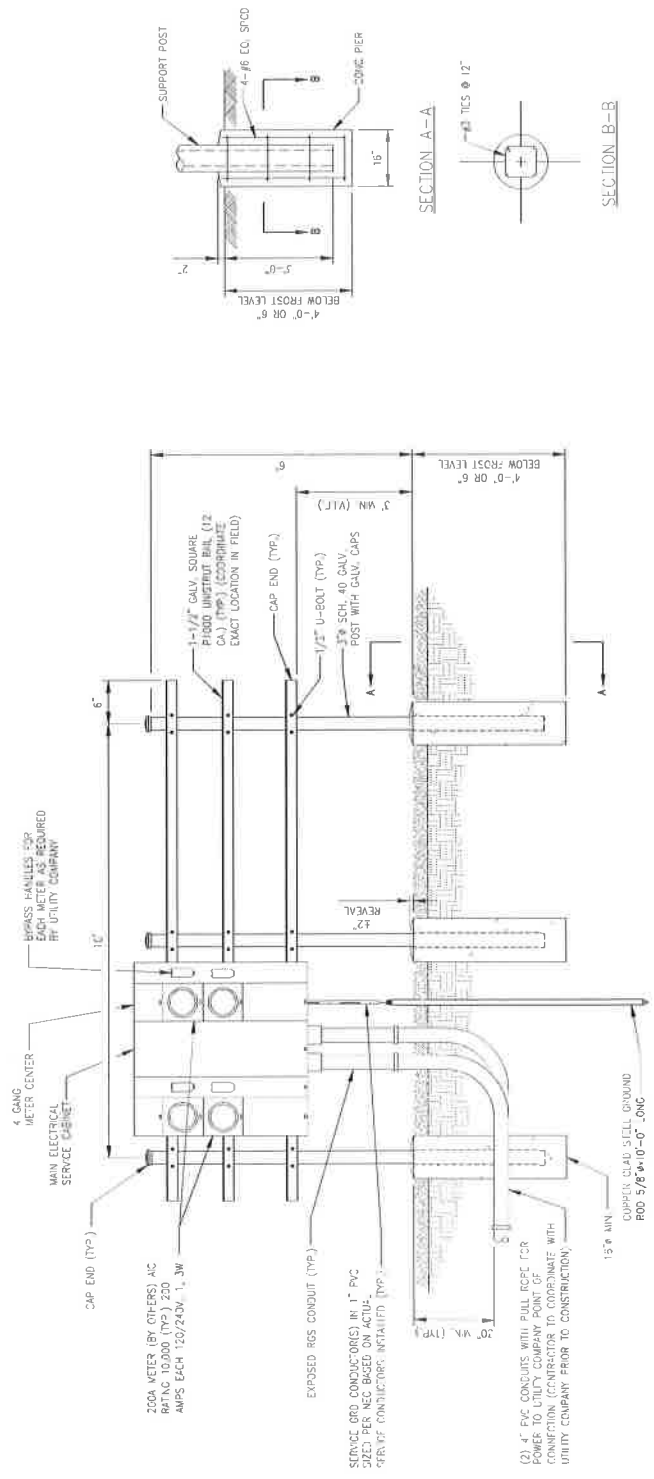
DN04333A

US-CO-5052

12119 MCCLURE ROAD  
FALCON, CO 80831

UTILITY RACK DETAIL

E-5



### TYPICAL UTILITY RACK

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DISSEMINATION NOTICE

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FIG. 50-252

DATE RECEIVED  
12119 McCLURE ROAD  
FALCON, CO 80831

GROUNDING PLANS  
COMPOUND

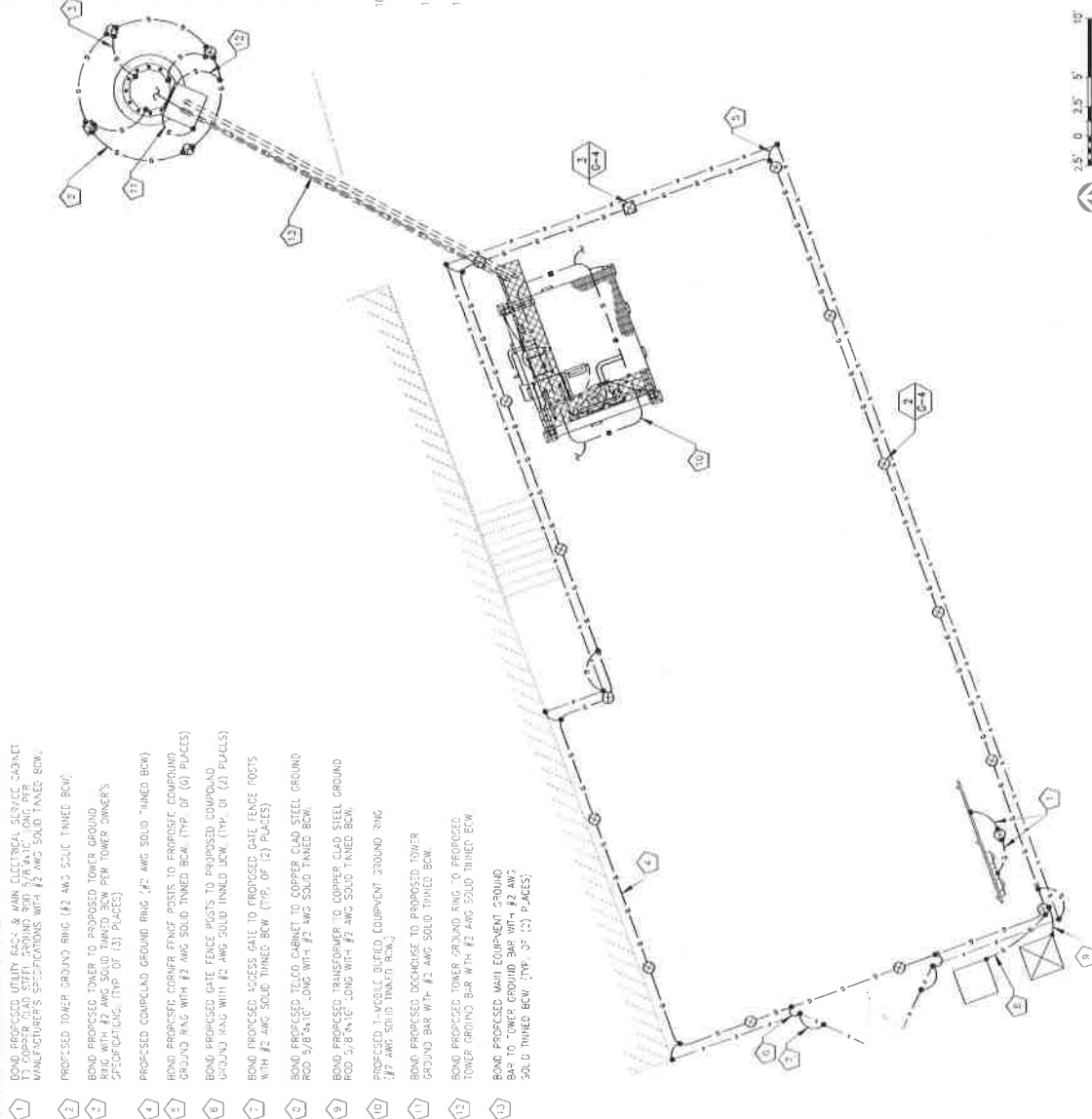
G-1

## GENERAL GROUNDING NOTES:

1. TO ENSURE PROPER BONDING, ALL CONNECTIONS SHALL BE AS FOLLOWS:
  - #2 AND AWG THINNED SOLID COPPER CONDUCTOR, EXCEPTING MILD TO RODS OR GROUNDING SNG.
  - LUGS AND BUS BAR (UNLESS NOTED OTHERWISE) SANKED CLEAN, COATED WITH OILY MINERAL OIL, AND BOLTED TO MAXIMUM SURFACE CONTACT. ALL LUGS SHALL BE OF THE SAME TYPE AND SIZE AS THE CONDUCTOR TO BE ATTACHED.
  - WAGERS FOR ELECTRICAL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS, USE STAINLESS STEEL WAGERS THROUGHOUT.
2. ALL GROUNDING CABLE IN CONCRETE OR THROUGH WALLS SHALL BE 3/4" PVC CONDUIT, SEAM AROUND CONDUIT THROUGH WALLS. NO METALLIC CONDUIT SHALL BE USED FOR GROUNDING CONDUCTORS.
3. OWNER'S REPRESENTATIVE WILL INSPECT EXISTING METE AND CONDUIT VEGGER TEST PRIOR TO BURIAL. MAXIMUM 5 OHMS RESISTANCE IS REQUIRED.
4. CONTRACTOR TO INSTALL GROUNDING IN CLOSE PROXIMITY TO EQUIPMENT PLATFORM ON PAD.
5. AVOID ALL GROUND CONNECTIONS AS SHORT AND BARE AS POSSIBLE.
6. AVOID SHARP BENDS, ALL BENDS SHALL BE A MINIMUM 90° RADIUS AND NO GREATER THAN 90 DEGREES.
7. ALL CABLES TO BURIED GROUND RING SHALL BE THE PARALLEL TREE, EXCEPT FOR THE GROUND RODS WHICH SHALL BE THE TREE TYPE.
8. BOND SERVICE CONDUITS TO GROUND RING AS THEY CROSS.
9. THE CONDUCTOR SHALL BE ATTACHED TO THE CONSTRUCTION MANAGER WHEN THE CONDUCTOR SHALL COMPLETE THE CONSTRUCTION, AFTER WHICH THE CONTRACTOR SHALL INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.
10. THE MINIMUM SPACING BETWEEN GROUND RODS SHALL BE 10' 0" (MAX 15' 0").
11. GROUND CABLE TO EXTERNAL GROUND RING SHALL BE 3" RAIN SP-31 AWG BARE, THINNED SOLID COPPER CONDUCTOR IN PVC, CONNECT BAR END WITH 2" METE LUG, AND "CABLE" THE OTHER END TO THE EXTERNAL GROUND RING.
12. THE PREFERRED LOCATION FOR GROUNDING IS AT THE EAST OF THE TOWER PRIOR TO THE COAX BEND.
13. BONDING OF THE GROUNDING CONDUCTOR (LIGHTNING) AND THE GROUNDING CONDUCTOR SHALL BE AT THE SERVICE DISCONNECTING MEANS. BONDING JUMPS SHALL BE INSTALLED PER IEEE ARTICLE 250-30.

GROUNDING SYMBOLS:

- ⊗ GROUND ROD  
 □ ACCESS WELL  
 ⊗ GROUND ROD WITH ACCESS  
 ■ COMPRESSION TYPE CONNECTION  
 ● EXOTHERMIC WELD TYPE CONNECTION  
 - G - BURIED CABLE  
 (P) INDICATES COATED PIPE



25' 0 2.5 5' 10'

SCALE: 22' = 1" SHEET 1' = 6'-0"

SCALE: 11' = 1" SURVEY 1' = 10'-0"

↑ NORTH




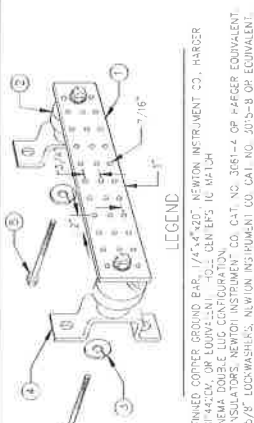
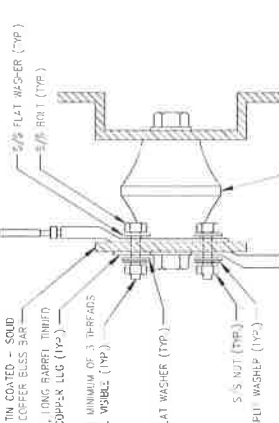
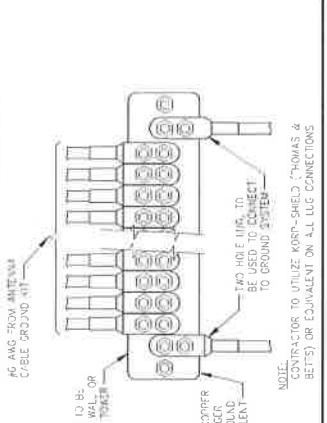
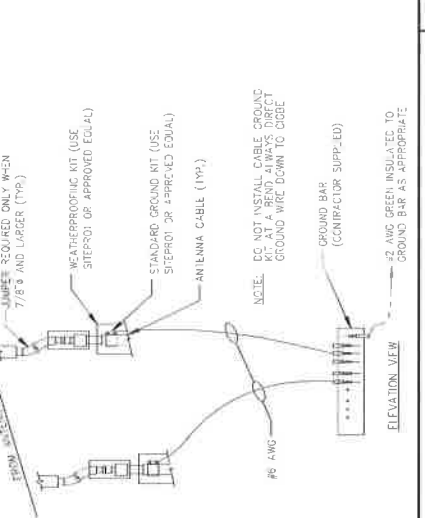
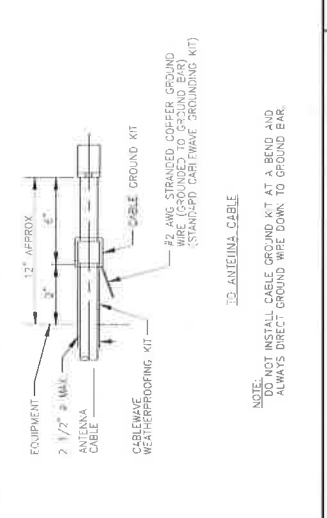
### COMPOUND GROUNDING PLANS

SCALE: AS NOTED

1





 <p>3333 Delaware Street Denver, CO 80216</p>	<p><b>INFINIGY8</b></p> <p>FROM ZERO TO INFINITY</p> <p>the solutions are endless</p> <p>1791 Franklin Blvd., Suite 101 Westminster, CO 80020 Office # (303) 218-1178 Fax # (303) 218-1178 JES NUMBER 400-502</p>	 <p>verticalbridge</p> <p>179 Park of Commerce Drive Suite 200 Broomfield, CO 80020 Phone # (303) 218-1178 Office # (303) 218-1178</p>	 <p>GOLDADO LICENSED PROFESSIONAL ENGINEER CHRISTOPHER J. WARREN 47849 10-00002</p>	<p>PROPRIETARY NOTICE</p> <p>THESE DOCUMENTS ARE CONFIDENTIAL AND ARE THE SOLE PROPERTY OF TP-MOBILE AND MAY NOT BE REPRODUCED, DISSEMINATED OR REDISTRIBUTED WITHOUT THE EXPRESS WRITTEN CONSENT OF TP-MOBILE.</p> <table><tr><th>REVISION</th><th>DESCRIPTION</th><th>DATE</th><th>BY</th><th>REV</th></tr><tr><td>1</td><td>REVISION FOR CONSTRUCTION</td><td>10/20/01</td><td>WAR</td><td>1</td></tr><tr><td>2</td><td>REVISION FOR CONSTRUCTION</td><td>10/20/01</td><td>WAR</td><td>2</td></tr><tr><td>3</td><td>REVISION FOR CONSTRUCTION</td><td>10/20/01</td><td>WAR</td><td>3</td></tr><tr><td>4</td><td>REVISION FOR CONSTRUCTION</td><td>10/20/01</td><td>WAR</td><td>4</td></tr></table>	REVISION	DESCRIPTION	DATE	BY	REV	1	REVISION FOR CONSTRUCTION	10/20/01	WAR	1	2	REVISION FOR CONSTRUCTION	10/20/01	WAR	2	3	REVISION FOR CONSTRUCTION	10/20/01	WAR	3	4	REVISION FOR CONSTRUCTION	10/20/01	WAR	4	<p>VERTICAL BRIDGE SITE NAME _____</p> <p>WOODMEN ELEMENTARY</p> <p>WOODBLEN SITE # _____</p> <p>DN04533A</p> <p>VERTICAL BRIDGE SITE # _____</p> <p>US-CO-3052</p> <p>SITE NUMBER _____</p> <p>12119 McCLELLURE ROAD FALCON, CO 80831</p> <p>SHEET OCCUPANCY _____</p> <p>GROUNDING DETAILS</p> <p>SHEET NUMBER _____</p> <p>G-3</p>
REVISION	DESCRIPTION	DATE	BY	REV																										
1	REVISION FOR CONSTRUCTION	10/20/01	WAR	1																										
2	REVISION FOR CONSTRUCTION	10/20/01	WAR	2																										
3	REVISION FOR CONSTRUCTION	10/20/01	WAR	3																										
4	REVISION FOR CONSTRUCTION	10/20/01	WAR	4																										
 <p><b>LEGEND</b></p> <ol style="list-style-type: none"><li>1. TINNED COPPER GROUND BAR (1/4" x 4" x .020" NEWTON INSTRUMENT CO. HARGER TGB14420M, OR EQUIVALENT) - 10 LUGS MINIMUM TO MATCH</li><li>2. NEMA DOUBLE LUG CONFIGURATION</li><li>3. INSULATORS NEWTON INSTRUMENT CO. CAT. NO. 3061-4 OR EQUIVALENT</li><li>4. 1/2" DIA. 1/4" THICK 304 STAINLESS STEEL WASHERS</li><li>5. 1/2" DIA. 1/4" THICK 304 STAINLESS STEEL WASHERS</li><li>6. 1/2" DIA. 1/4" THICK 304 STAINLESS STEEL WASHERS</li><li>7. 1/2" DIA. 1/4" THICK 304 STAINLESS STEEL WASHERS</li><li>8. 1/2" DIA. 1/4" THICK 304 STAINLESS STEEL WASHERS</li><li>9. 1/2" DIA. 1/4" THICK 304 STAINLESS STEEL WASHERS</li><li>10. 1/2" DIA. 1/4" THICK 304 STAINLESS STEEL WASHERS</li></ol> <p><b>NOTES:</b></p> <ol style="list-style-type: none"><li>1. ALL MOUNTING HARDWARE CAN ALSO BE USED ON 1/2", 1/4", 1/8", ETC. GROUND BARS</li><li>2. ENTIRE ASSEMBLY AVAILABLE FROM NEWTON INSTRUMENT CO. CAT. NO. 2106050010 OR AS HARGER TGB14420M</li></ol>	 <p><b>TYPICAL GROUND BAR</b></p> <p>TIN COATED - SOLID COPPER BUS BAR</p> <p>2 WOLFE LONG BARREL THINER SOLID COPPER LUG (1/4")</p> <p>NOTE: MINIMUM OF 3 TH-READS TO BL WASHBL (1/4")</p> <p>5/16" FLAT WASHER (TYP.)</p> <p>5/16" NUT (TYP.)</p> <p>5/16" SPRU WASHER (1/4")</p> <p>CHERRY INSULATOR INSTALLED IF REQUIRED</p> <p><b>NOTES:</b></p> <ol style="list-style-type: none"><li>1. ALL HARDWARE (B-B) STAINLESS STEEL INCLUDING SP-IT WASHERS</li><li>2. COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION INTO LUG BARREL AND GROUNDING</li><li>3. APPLY ANTI-OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSSES B4455 PRIOR TO MATING AND BOLTING</li></ol>	 <p><b>TYPICAL ANTENNA GROUND BAR</b></p> <p>1/4" ANG. FROM ANTENNA CABLE GROUND KIT</p> <p>CONTRACTOR TO BE RESPONSIBLE FOR WELDING ON ANTENNA TOWER</p> <p>TINNED, SOLID COPPER BLUES BAR, HARGER TGB14420M, GROUND BAR OR EQUIVALENT</p> <p>TWO WOLFE LUGS TO BE USED TO CONNECT TO GROUND SYSTEM</p> <p><b>NOTE:</b> CONTRACTOR TO UTILIZE KOPR-SHIELD (THOMAS &amp; BETTS) OR EQUIVALENT ON ALL LUG CONNECTIONS</p>	 <p><b>TYPICAL EQUIPMENT GROUND CONNECTION</b></p> <p>1/8" ANG. FROM ANTENNA CABLE GROUND KIT</p> <p>WEATHERPROOFING KIT (USE SITEPROT OR APPROVED EQUAL)</p> <p>STANDARD GROUND KIT (USE SITEPROT OR APPROVED EQUAL)</p> <p>ANTENNA CABLE (1/4")</p> <p>GROUND BAR (CONTRACTOR SUPPLIED)</p> <p>1/4" ANG. GREEN INSULATED TO GROUND BAR AS APPROPRIATE</p> <p>ELEVATION VIEW</p> <p><b>NOTE:</b> DO NOT INSTALL CABLE GROUND KIT AT A BEND. ALWAYS DIRECT GROUND WIRE DOWN TO CABLE</p>	 <p><b>TYPICAL CONNECTION OF GROUND WIRES TO GROUND BARS &amp; ANTENNAS</b></p> <p>EQUIPMENT</p> <p>2 1/2" DIA. WALL</p> <p>ANTENNA CABLE</p> <p>CABLEWAY WEATHERPROOFING KIT</p> <p>CABLE GROUND KIT</p> <p>1/2" ANG. STRANDED COPPER GROUND WIRE (GROUNDED TO GROUND BAR) (STANDARD CABLEWAY WEATHERPROOFING KIT)</p> <p>TO ANTENNA CABLE</p> <p><b>NOTE:</b> DO NOT INSTALL CABLE GROUND KIT AT A BEND. ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR</p>	<p>NO SCALE</p> <p>NO SCALE</p> <p>NO SCALE</p> <p>NO SCALE</p> <p>NO SCALE</p> <p>NO SCALE</p>	<p>2</p> <p>1</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p>																								

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**PROFESSIONAL ENGINEER**  
CHRISTOPHER J. WARREN  
47849  
EXPIRATION DATE: 12/31/2017  
SPECIALTY: ELECTRICAL

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2	REVISED FOR CONSTRUCTION	05-24/17	SW	2
3	REVISED FOR CONSTRUCTION	11/17/17	AW	1
4	REVISED FOR CONSTRUCTION	1/10/18	JAW	3

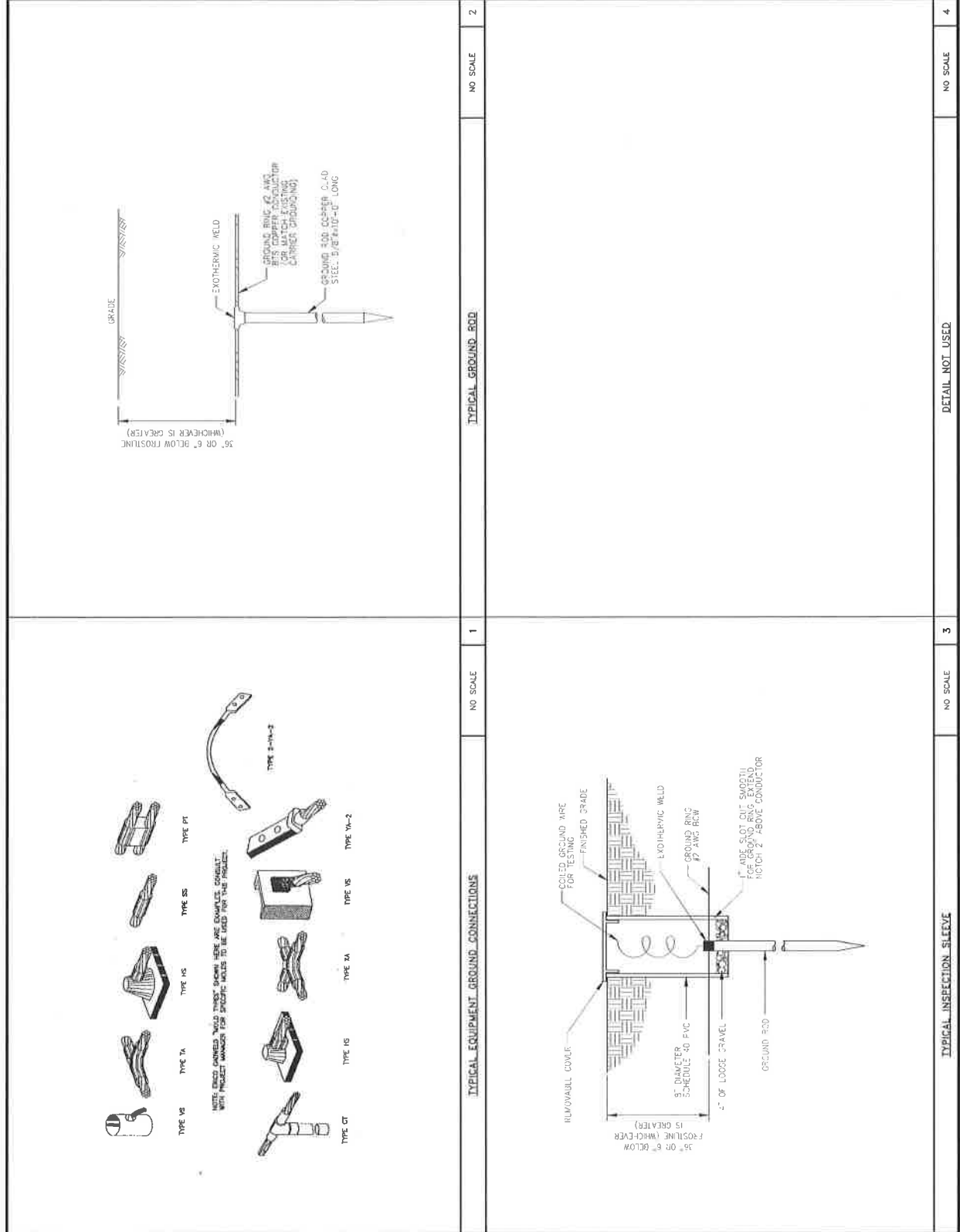
**WOODMEN ELEMENTARY**  
T-MOBILE SITE #  
DN04333A

VERTICAL BRIDGE SITE #  
US-CO-5052

SITE ADDRESS:  
12119 McCURE ROAD  
FALCON, CO 80831

SHEET DESCRIPTION:  
**GROUNDING DETAILS**

SHEET NUMBER:  
**G-4**

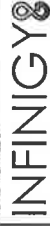


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1	ISSUED FOR CONSTRUCTION	08/01/07	JW	1
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3	REVISED FOR CONSTRUCTION	11/27/07	JW	3
4	REVISED FOR CONSTRUCTION	01/18/08	JW	4

VERTICAL BRIDGE SITE NAME

WOODMEN ELEMENTARY

VERTICAL BRIDGE SITE #

DN04333A

VERTICAL BRIDGE SITE #

US-CO-3052

SITE ADDRESS

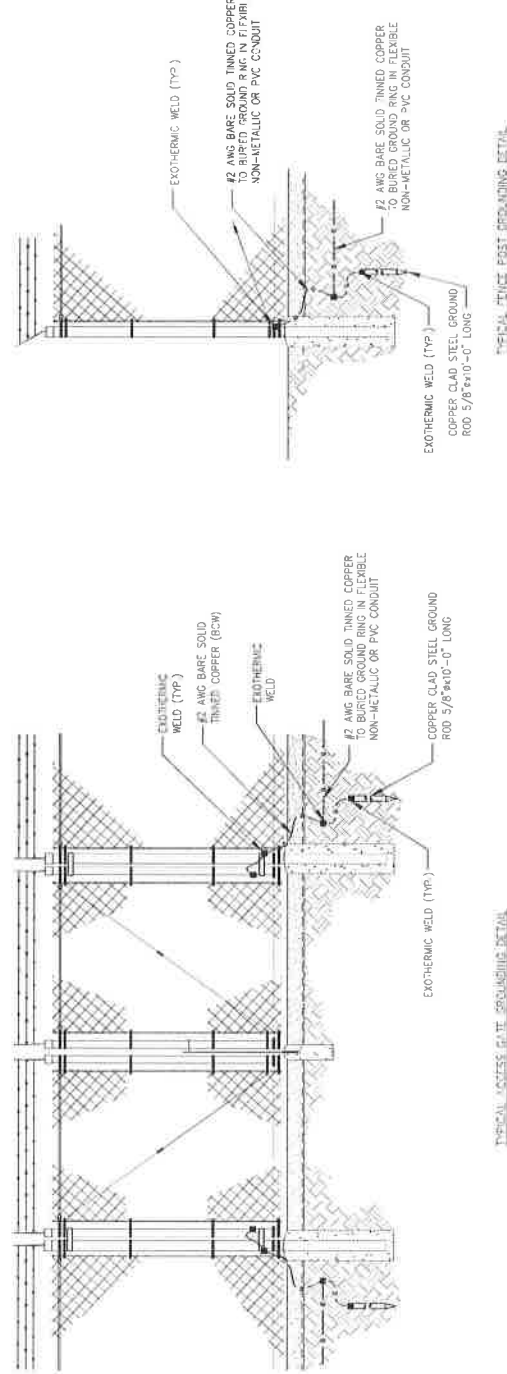
12119 McCLURE ROAD  
FALCON, CO 80831

SHEET DESCRIPTION

GROUNDING DETAILS

SHEET NUMBER

G-5



TYPICAL ACCESS GATE GROUNDING DETAIL

TYPICAL FENCE POST GROUNDING DETAIL

FENCE GROUNDING DETAILS

NO SCALE

1



**DN04333 WOODMEN ELEMENTARY  
RF PROPOGATION STUDY**

The Right Results  
The Right Way™





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 DN043333 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.