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CROWN CASTLE  
CROWN CASTLE 695 RIVER  
OAKS PARKWAY SAN JOSE,  
CA 95134

RECORD DRAWINGS ISSUE DATE: 02.26.19

SHIFT

Shift Companies, LLC

3334 N. 20TH ST.  
PHOENIX, ARIZONA 85016  
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RELEASE	
DATE	SUBMITTAL
03.18.19	1ST SUBMITTAL
06.21.19	2ND SUBMITTAL

REVISIONS		
NO.	DATE	COMMENT

PROJECT NAME  
SAN FRANCISCO BAY EXPANSION - 58 SITES

NODE NUMBER  
SFB002m2

NODE ADDRESS  
3777 KERNER BLVD  
SAN RAFAEL, CA

HUB AREA  
SF36XC052

SHIFT JOB NUMBER  
150601

IN HOUSE  
DRAWN BY: RA  
CHECKED BY: CM

SHEET TITLE  
TITLE SHEET

SHEET NUMBER  
T1.1

PAGE  
1 OF 8

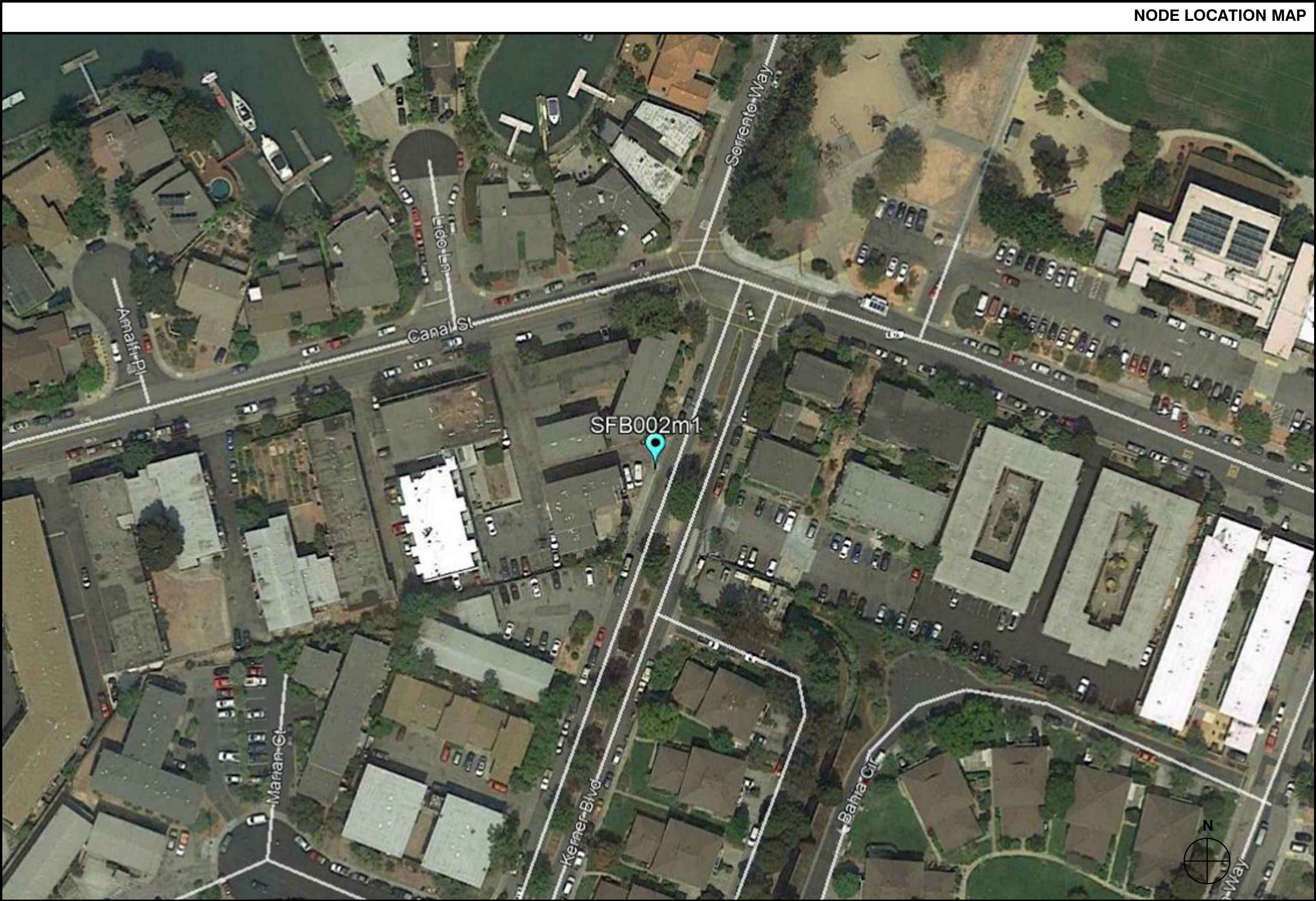
PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"

PROJECT NAME: SAN FRANCISCO BAY EXPANSION - 58 SITES  
PROJECT ADDRESS: 3777 KERNER BLVD, SAN RAFAEL, CA  
PROJECT TYPE: EXIST. WOOD JPA POLE  
CUSTOMER NODE ID #: SF90XS3T6  
CROWN NODE ID #: SFB002m2  
HUB NAME: SF36XC052  
COORDINATES: LAT: 37.967602 LONG: -122.499832  
CROWN CASTLE BILLING / SCU #: 479642

PROJECT TEAM	
ARCHITECT	OWNER INFO
Company: SHIFT CONSULTING	Company: CROWN CASTLE
Address: 3334 N. 20TH ST. PHOENIX, AZ 85016	Address: 695 RIVER OAKS PARKWAY SAN JOSE, CA 95134
Phone Number: 480.264.0829	Phone Number: 707.756.2030
Fax Number: 480.264.0163	Fax Number:
Contact: CHRIS MYERS	Contact: JOHN GRIFFITHS
STRUCTURAL	RF ENGINEER
Company: STRUKTUR STUDIO, LLC	Company: CROWN CASTLE
Address: 1525 N. GRANITE REEF RD., STE. 9 SCOTTSDALE, AZ 85257	Address: 695 RIVER OAKS PARKWAY SAN JOSE, CA 95134
Phone Number: 480.425.2250	Phone Number: 408.468.5546
Fax Number: 480.425.2225	Fax Number:
Contact: DAVID LUNENG	Contact: ERNESTO FIGUEROA

PROJECT SUMMARY	
JURISDICTION: SAN RAFAEL PUBLIC WORKS 111 MORPHEW ST. SAN RAFAEL, CA 94901 PHONE: 415.485.3355	APPLICANT: CROWN CASTLE 695 RIVER OAKS PARKWAY SAN JOSE, CA 95134
HANDICAPPED REQUIREMENTS: -FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.	CODES: GENERAL ORDER (GO) 95, RULE 94 2012 INTERNATIONAL BUILDING CODE (IBC) 2014 NATIONAL ELECTRICAL CODE (NEC)
-HANDICAPPED ACCESS REQUIREMENTS ARE NOT REQUIRED.	PLUMBING REQUIREMENTS: FACILITY HAS NO PLUMBING
	POWER COMPANY: PACIFIC GAS AND ELECTRIC (PG&E)

PROJECT DESCRIPTION
THIS PROJECT WILL CONSIST OF ADDING A NEW FIBER-STRAND MOUNTED ANTENNA TO AN EXISTING WOOD UTILITY POLE . A SIDE-MOUNTED EQUIPMENT CHASSIS WILL ALSO BE INSTALLED TO THE EXISTING POLE. THE EQUIPMENT CHASSIS WILL CONTAIN THE FOLLOWING: (1) NEW RADIO UNIT (1) FIBER ENCLOSURE BOX (1) ELECTRICAL LOAD CENTER / DISTRIBUTION PANEL (1) ELECTRICAL POWER METER

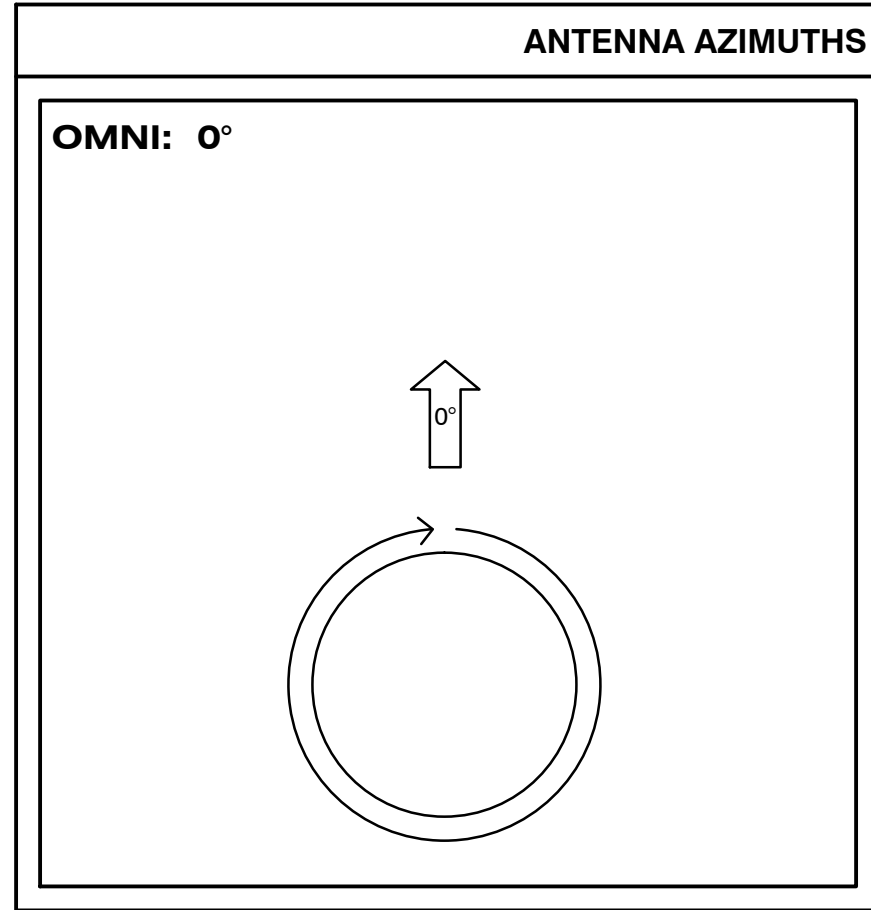
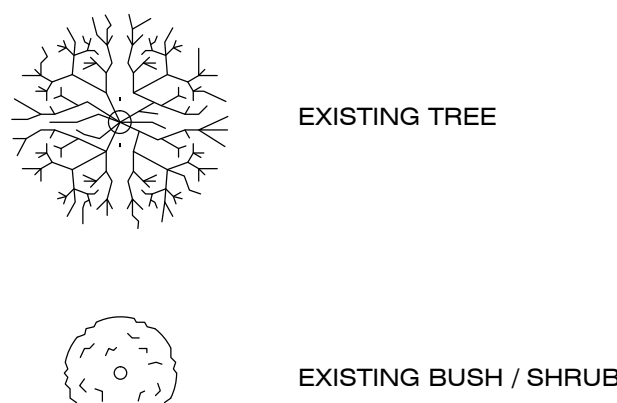




1. RIGHT-OF-WAY USE PERMIT SHALL BE OBTAINED BY CONTRACTOR PRIOR TO COMMENCING WORK.  
2. ALL WORK TO BE CONDUCTED IN CITY RIGHT OF WAY, U.N.O.  
3. ALL DISTURBED LANDSCAPING SHALL BE REPLACED TO SIMILAR EXISTING CONDITION.  
4. ANY SIDEWALK CLOSURE SHALL BE COORDINATED WITH THE CITY AND PROPER SIGNAGE WILL BE PLACED.  
5. TEMPORARY LIGHTING WILL BE COORDINATED WITH CITY AND PROVIDED WHENEVER EXISTING LIGHTING IS REMOVED OR UNAVAILABLE AS REQUIRED.  
6. NO MATERIALS OR EQUIPMENT SHALL BE STORED ON PRIVATE PROPERTY OR BLOCK ACCESS TO PRIVATE PROPERTY.  
7. CLEANUP OF THE WORK AREA WILL BE COMPLETED EACH EVENING AND THE PROJECT AREA WILL BE RETURNED TO EXISTING CONDITION AT THE COMPLETION OF CONSTRUCTION AT EACH NODE LOCATION.  
8. ALL WORK TO COMPLY WITH OSHA AND CITY GUIDELINES.  
9. THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE AND REPLACE, AT THEIR COST, ANY AND ALL DAMAGED PAVEMENT, SIDEWALK, CURB AND GUTTER OUTSIDE THE PAY LIMIT. DAMAGE DUE TO THEIR ACTIVITIES ON THE PROJECT. THIS INCLUDES, BUT IS NOT LIMITED TO THE REMOVAL AND REPLACEMENT OF NEWLY CRACKED, THE REMOVAL AND REPLACEMENT OF EXISTING CRACKS WHERE THE CRACKS HAVE BEEN ENLARGED DUE TO THE CONTRACTORS OPERATIONS. THE REMOVAL AND REPLACEMENT OF DEFORMED PAVEMENT, CURB AND GUTTER, SIDEWALK, ETC., ALL SAW CUTS USED FOR THE REMOVAL OF THESE ITEMS SHALL BE PERPENDICULAR AND PARALLEL TO THE CENTERLINE CONTROLLING THAT ITEM, OR AT THE DISCRETION OF THE CITY INSPECTOR.

- — — — — CENTER LINE  
— - - - - PROPERTY LINE  
— - - - - RIGHT-OF-WAY  
— F — F — FIBER  
— G — G — GAS  
— P — P — POWER  
— S — S — SANITARY SEWER  
— SD — SD — STORM DRAIN  
— W — W — WATER  
— P — P — LIGHT CIRCUIT POWER  
— OHE — OHE — OVERHEAD POWER LINE

- △ 3 REVISION  
◇ A01 KEY NOTE  
⊙ 1 M DETAIL REFERENCE  
⊙ 8 A-2 ELEVATION REFERENCE  
⬠ 17 A-3 SECTION REFERENCE  
⊙ ELEVATION MARKER  
⊙ PHOTOSIM REFERENCE  
◀ ## ANTENNA AZIMUTH



SUBJECT POLE: SFB002m2

GPS COORDINATES:

LAT: 37.967602  
LONG: -122.499832

POLE TYPE: EXIST. WOOD JPA POLE

POLE ID #: 120051185  
ANTENNA MODEL: INTEGRITY MICROWAVE 500-1011-V01  
ANTENNA RAD CENTER: 29'-0" A.G.L.

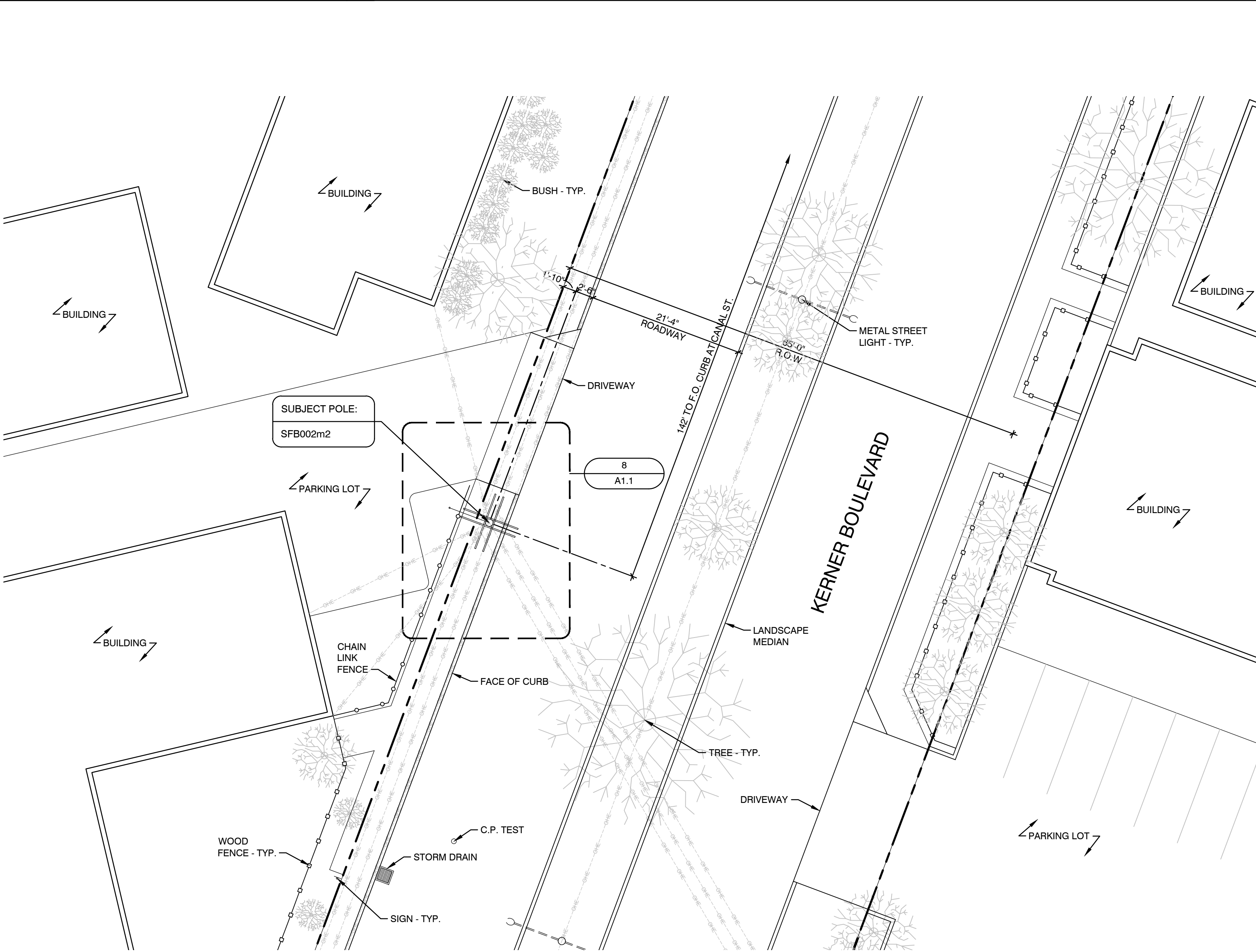
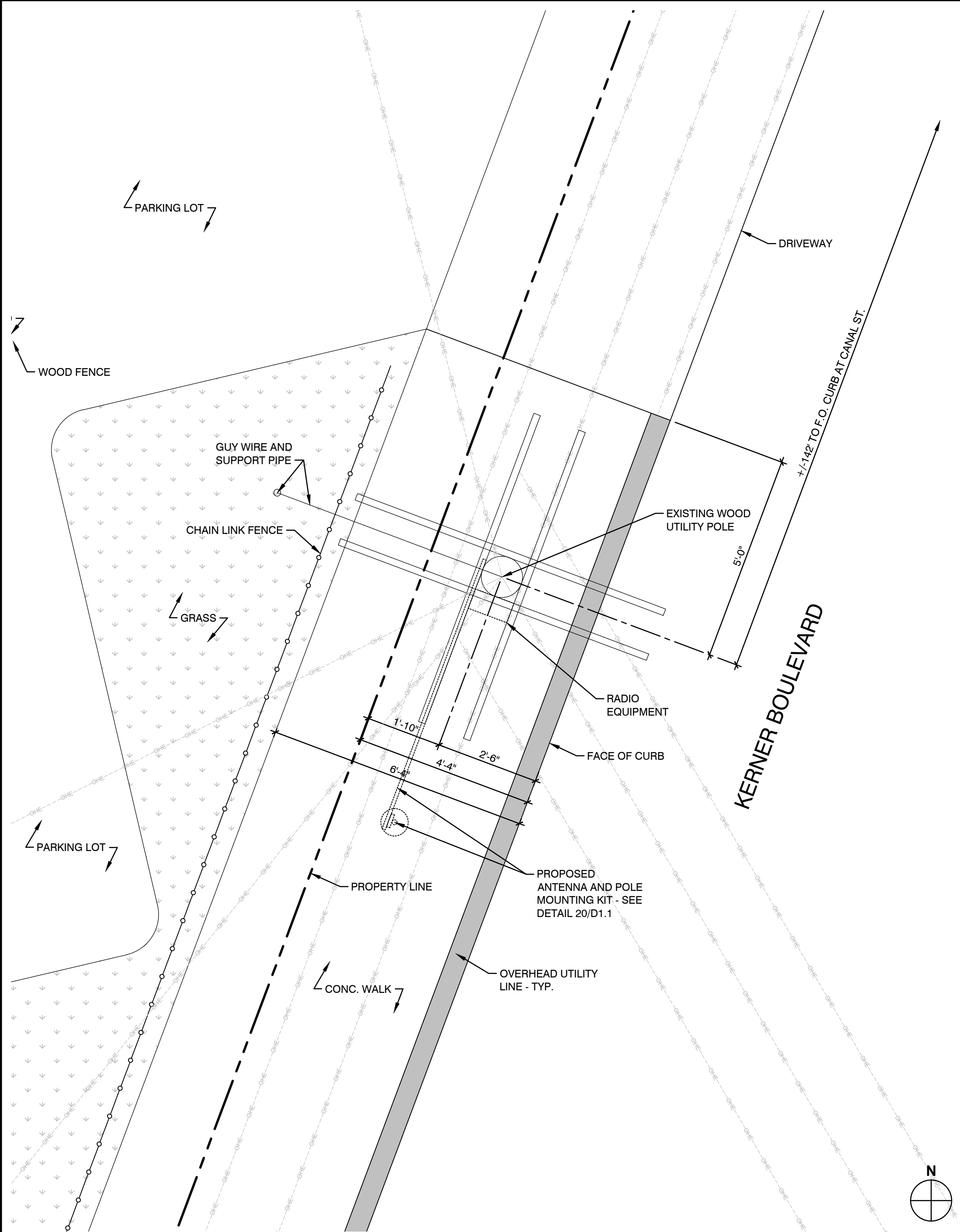
SUBJECT POLE IS LOCATED IN:  
CITY OF SAN RAFAEL R.O.W.

GENERAL PROJECT NOTES

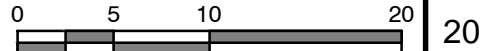
SCALE: NTS 1

ABBREVIATIONS AND SYMBOLS

SCALE: NTS 9

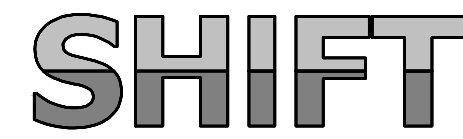


1" = 10'-0"



CROWN CASTLE  
CROWN CASTLE 695 RIVER  
OAKS PARKWAY SAN JOSE,  
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PROJECT NAME

SAN FRANCISCO BAY EXPANSION - 58 SITES

NODE NUMBER

SFB002m2

NODE ADDRESS

3777 KERNER BLVD  
SAN RAFAEL, CA

HUB AREA

SF36XC052

SHIFT JOB NUMBER

150601

IN HOUSE

DRAWN BY: RA  
CHECKED BY: CM

SHEET TITLE

SITE PLAN

SHEET NUMBER

A1.1

PAGE

2 OF 8

PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"



C:\Users\Bawa\Google Drive\Private\Projects\Shift Companies\San Francisco\_SF-D1's (10.26.18)\SFB-002.dwg  
Jun 21, 2019 - 2:59pm

EXISTING POLE TYPE = EXIST. PG&E-OWNED WOOD JPA POLE

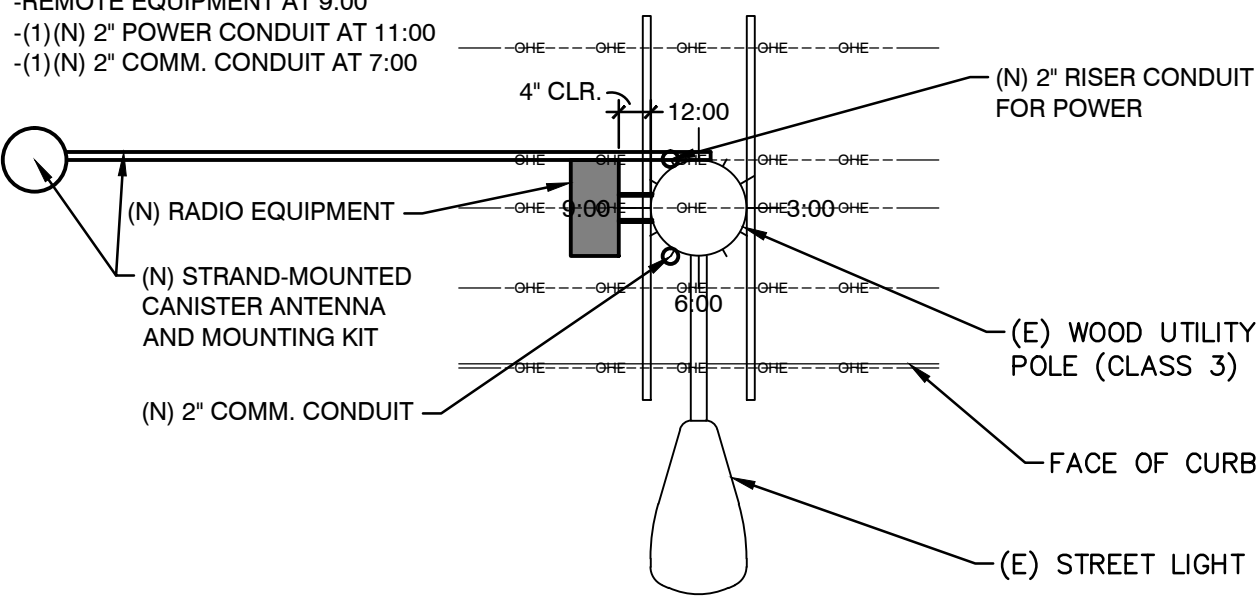
EXISTING POLE CLASS = 3

EXISTING POLE WIDTH = 12' - 0"

EXISTING POLE HEIGHT = 42'-3"

POLE WILL BE STEPPED ACCORDING TO GO 95  
STANDARDS FOR CLIMBING SPACE

-REMOTE EQUIPMENT AT 9:00  
-(1)(N) 2" POWER CONDUIT AT 11:00  
-(1)(N) 2" COMM. CONDUIT AT 7:00



POLE INFORMATION

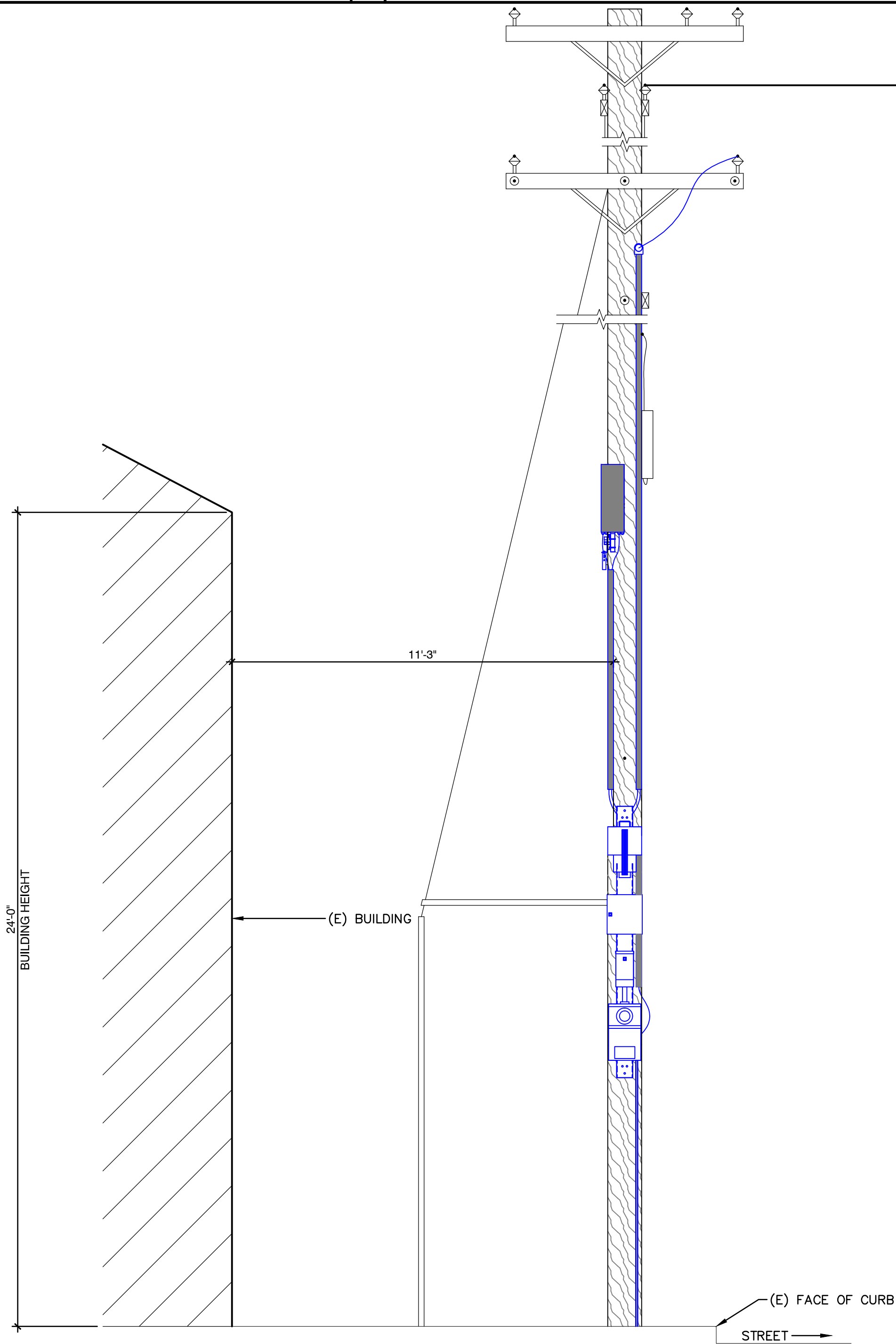
SCALE: NTS

1

RISER POLE DETAIL

SCALE: 1/2" = 1'-0"

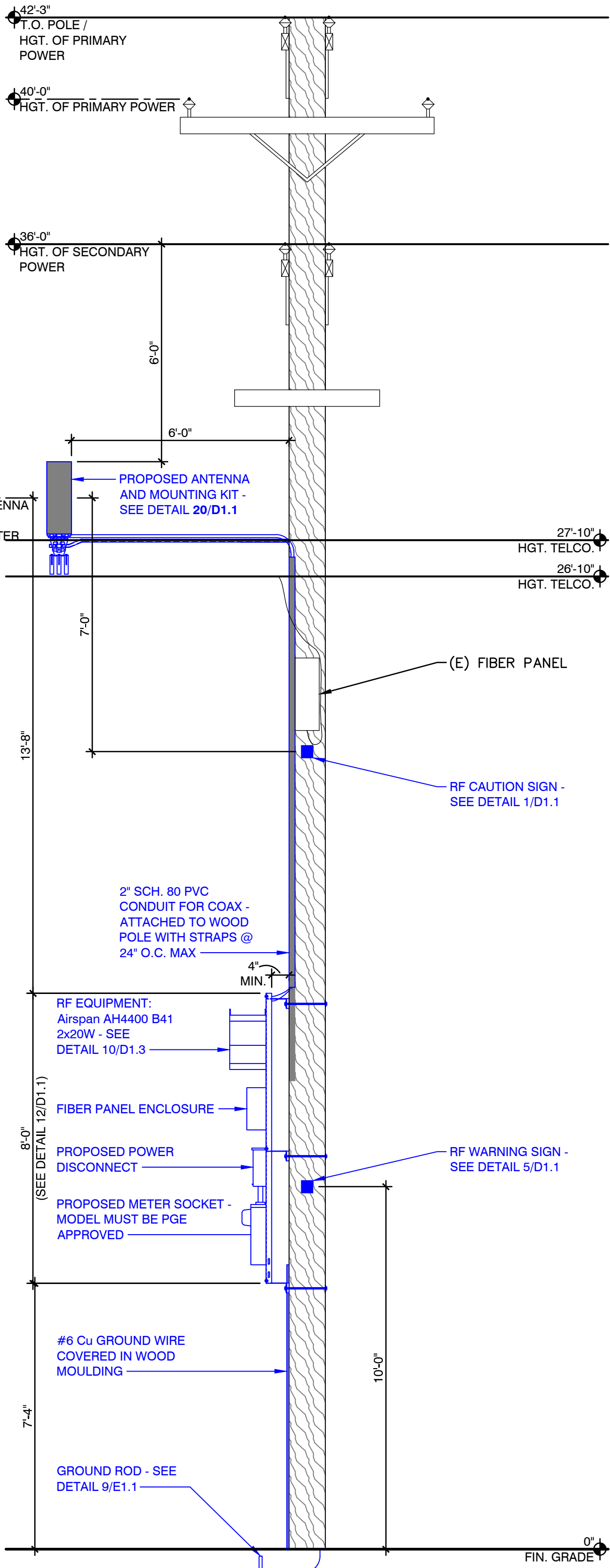
5



POLE ELEVATION (WEST)

SCALE: 3/8" = 1'-0"

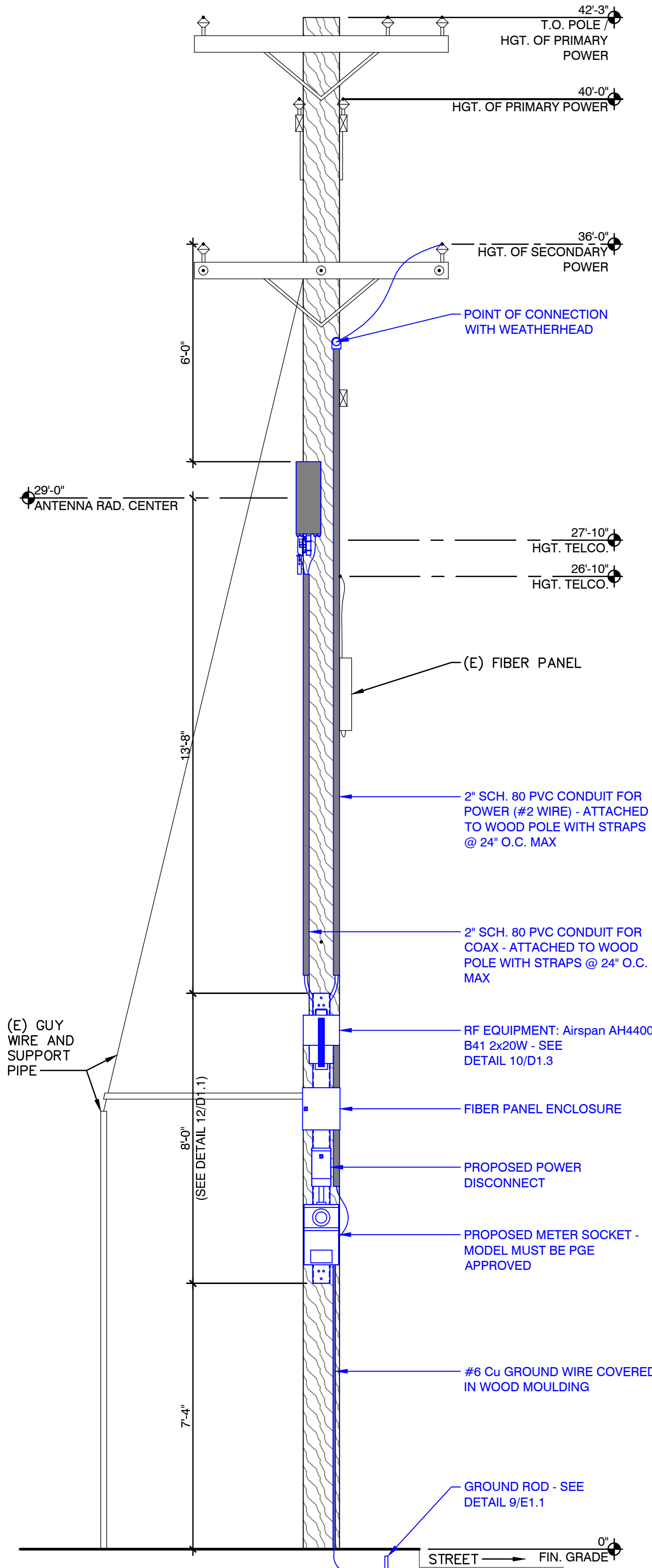
16



POLE ELEVATION (SOUTH)

SCALE: 3/8" = 1'-0"

16



POLE ELEVATION (WEST)

SCALE: 3/8" = 1'-0"

20



CROWN CASTLE  
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58 SITES

NODE NUMBER

SFB002m2

NODE ADDRESS

3777 KERNER BLVD

HUB AREA

SF36XC052

SHIFT JOB NUMBER

150601

IN HOUSE

DRAWN BY: RA  
CHECKED BY: CM

SHEET TITLE

POLE ELEVATIONS

SHEET NUMBER

A1.2

PAGE

3 OF 8

PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"



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Jun 21, 2019 - 2:59pm



POLE PHOTO SIMULATION - VIEW 1 (EXISTING)

SCALE: NTS 4



POLE PHOTO SIMULATION - VIEW 1 (PROPOSED)

SCALE: NTS 8



POLE PHOTO SIMULATION - VIEW 2 (PROPOSED)

SCALE: NTS 16



POLE PHOTO SIMULATION - VIEW 2 (PROPOSED)

SCALE: NTS 20



CROWN CASTLE  
CROWN CASTLE 695 RIVER  
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58 SITES

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SFB002m2

### NODE ADDRESS

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SAN RAFAEL, CA

### HUB AREA

SF36XC052

### SHIFT JOB NUMBER

150601

### IN HOUSE

DRAWN BY: RA  
CHECKED BY: CM

### SHEET TITLE

PHOTO SIMULATIONS

### SHEET NUMBER

A1.3

### PAGE

4 OF 8

PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"



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Jun 21, 2019 - 2:59pm



CAUTION

Keep Back        FT From  
this Antenna. FCC RF Public  
Exposure Limits May Be  
Exceeded Within This Distance.  
Call 888-632-0931 for Instructions.  
Qualified Workers:  
FCC Occupational Limits May Be  
Exceeded Within This Distance.  
Site ID #

Rev. A



NOTICE

POLE WORKERS

There is an antenna operation  
high on this pole. Please follow  
guidance on signs near the antenna or  
call the number below.

Site ID #

 888-632-0931

Rev. A

EXPANSION JOINT

1/2" PREMOLDED NON-EXTRUDING  
EXPANSION JOINT MATERIAL TO MEET  
AASH TO SPEC. M-59.  
\*EXPANSION JOINTS SHALL BE INSTALLED  
WHEN ABUTTING EXISTING CONCRETE OR  
FIXED STRUCTURES SUCH AS INLETS AND  
DRIVEWAYS, AND EVERY 300' ON LONG  
STRAIGHT CONCRETE STRETCHES

CONTROL JOINT

1/4" MAX.  
TEMPLATE

GROOVE JOINT

FORM W/ TEMPLATE OR SAWCUT JOINTS.  
SAWCUT JOINTS, IF USED, SHALL BEGIN AS  
SOON AS CONC. IS HARDENED  
SUFFICIENTLY TO PERMIT SAWING  
WITHOUT EXCESSIVE RAVELING AND  
BEFORE UNCONTROLLED CRACKING  
OCCURS. MAX DISTANCE BETWEEN JOINTS  
= 10'; MIN DISTANCE = 5'

TO ANTENNA

WOOD UTILITY POLE

1/2" DIA. J-BOLT

COAX CABLE

SLIP-ON HOISTING GRIP

APPROVED U-GUARD PROTECTION

TO EQUIPMENT

KEYED JOINT

1/8" RADIUS

1/4"

1"

1 1/2"

2 1/4"

3/4"

FILL W/ JOINT SEALER

GROOVE JOINT

KEYWAY FORMED BY FASTENING METAL  
KEY TO FORM

RF WARNING SIGNAGE

SCALE: NTS

1

RF WARNING SIGNAGE

SCALE: NTS

5

COAX HANGER DETAIL

SCALE: NTS

6

CONCRETE JOINT DETAILS

SCALE: NTS

10

2" SCH. 80 PVC CONDUIT FOR POWER  
x 16.5FT

0.36

2" SCH. 80 PVC CONDUIT FOR COAX x  
18.5FT

0.404

MISC. EXPOSED CABLE

0.001

ANTENNA  
2.454

RADOME  
2.294

6.381

SKIRT  
1.633

RADIO  
1.166

FIBER PANEL  
ENCLOSURE  
.639

2.67

DISCONNECT  
.194

METER  
.667

TOTAL CuFt: 9.82

EQUIPMENT VOLUME DETAIL

SCALE: 1" = 1'-0"

4

EQUIPMENT MOUNTING CHASIS DETAIL

SCALE: 1" = 1'-0"

12

POLE-TOP EXTENSION / ANTENNA DETAIL

SCALE: 1" = 1'-0"

20

UTILITY POLE

INTEGRITY MICROWAVE  
QUASI-OMNI ANTENNA

FIBER STRAND

1" SQ. STOCK  
SUPPORTING BAR

MODIFIED STRAND  
CLAMP FASTENER

COUNTER WEIGHTS

SIDE VIEW

INTEGRITY MICROWAVE  
QUASI-OMNI ANTENNA

6'-0"

8"

3'-1"

UTILITY POLE

IN-LINE POLE  
SUSPENSION CLAMP  
ASSEMBLY

FIBER STRAND

1" SQ. STOCK  
SUPPORTING BAR

MODIFIED STRAND  
CLAMP FASTENER

COUNTER WEIGHTS

7'-4"

FRONT VIEW

CROWN CASTLE  
CROWN CASTLE 695 RIVER  
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CONSTRUCTION  
DETAILS

SHEET NUMBER

D1.1

PAGE

5 OF 8

PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"







AirHarmony-4400 Datasheet

#### High Capacity Outdoor LTE-Advanced eNodeB

AirHarmony 4400 is part of Airspan's carrier-class LTE Advanced small cell eNodeB family. AirHarmony 4400 is a Macro-class product that supports 3GPP's Long Term Evolution (LTE) eNodeB specifications, providing high-speed data, mobility, Voice over LTE, and broadcast/multicast services in order to meet the demands of the LTE Mobile Carriers.

AirHarmony 4400 is a compact, easy to install Macro-class eNodeB, allowing an operator to deploy LTE broadband services using existing infrastructure or Street Furniture. AirHarmony 4400 has two 20W (43dBm) transmit channels and four receive channels. AirHarmony 4400 supports single or dual carrier up to 2x 20MHz.

#### Release 10 LTE-Advanced

AirHarmony 4400 supports 3GPP LTE Broadband access technologies; Airspan's 3GPP LTE implementation is compliant with the 3GPP standards and has interoperable S1 and X2 interfaces and supports commercial GCF tested UE devices, including Smartphones, Dongles and Tablet computers.

#### The Power of HETNETS

As operators struggle to cope with growing customer demand for higher throughput, they are discovering that layering small base stations into a macro cell coverage area, enables a significant increase in network capacity by filling in coverage gaps and addressing actual traffic distribution where demand is highest. AirHarmony 4400 is ideal for these networks, delivering high data rates where needed most, whether at the macro cell edge or closer to the user base, maximizing coverage and customer satisfaction.

#### Broadband Access

AirHarmony 4400 supports 3GPP LTE Broadband access technologies; Airspan's 3GPP LTE implementation is compliant with the 3GPP standards and has interoperable S1 and X2 interfaces and supports commercial GCF tested UE devices, including Smartphones, Dongles and Tablet computers.

#### Integrated Backhaul

AirHarmony also supports tight integration with Ibridge or iRelay, Airspan's small cell backhaul product. AirHarmony plus iRelay creates a single install process for LTE Access and Backhaul, and enables "Just add Power" plug and play deployment method saving deployment CAPEX and OPEX.



AirHarmony-4400 Datasheet

#### Physical

##### Dimensions

Variant	Dimensions <sup>1</sup> (H x W x D)
Main Unit w/o filters	509 x 262 x 210 mm / 20.0 x 10.3 x 8.3 inch
Main Unit with external filters	509 x 262 x 305 mm / 20.0 x 10.3 x 12.0 inch
Cavity Filter Set (4 filters in 2 sets of 2 filters each)	229 x 120 x 39.0 / 9.01 x 4.72 x 1.53 inch (2 units)

##### Weight

Variant	Weight
Main Unit w/o filters / duplexers	19 Kg / 41.89 Lbs.
Main Unit with filter set	24 Kg / 52.9 Lbs.
Universal mounting bracket	3 Kg / 6.6 Lbs.
Quadruple Filter Set (B41)	6 Kg / 13.2 Lbs.

##### Operational Tolerances

Type	Details	Standard Compliance
Operating temperature	-40°C to 55°C / -40°F to 131°F	ETSI 300 019 1-4
Operating humidity	5% - 100% non-condensing	ETSI 300 019 1-4
Storage temperature	-40°C to 70° C / -40°F to 158°F	N/A
Storage humidity	5% - 100% non-condensing	ETSI 300 019 1-4
Rain and dust ingress protection	IP66	N/A
Operational altitude	70-106 kPa as well as: From -60m to 1800m @ 40°C From 1800m to 4000m @ 30°C	ETSI 300 019 1-4
Solar radiation	1120 W/m <sup>2</sup>	ETSI 300 019 1-4

<sup>1</sup> Dimensions excludes connectors height and protruding screws  
Page 2 of 8

Page 1 of 8

RADIO SPEC.

SCALE: N.T.S. 10

LT-CFTT2424

#### 2.3 Routing Cable into the Unit

Twenty-four adapter ports are provided inside the enclosure. These ports open to the top and bottom and are numbered (1 through 24).

Grommets on the bottom of the enclosure allow fiber routing (Figure 4).

An optional conduit kit is available that provides protection for fibers as they enter the enclosure (97-000012-A, sold separately). For kit mounting instructions, see the documentation that ships with the kit.

##### 2.3.1 Feed Cable

1. Insert the connectorized feed cable into the CFTT-2424 through the center grommet.
2. Use local practice for securing cable. Three strain relief brackets are provided.
3. Connect the fibers to the adapter ports that face the top of the CFTT-2424.

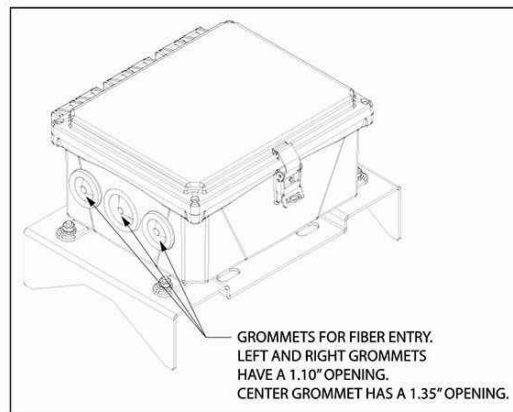


Figure 4 CFTT-2424 Grommets

##### 2.3.2 Drop Cable

1. Insert the first 12 connectorized drop cables into the CFTT-2424 through the left-most grommet. Use the right-most grommet to route fibers to ports 13-24.
2. Use local practice for securing cable. Three strain relief brackets are provided.
3. Connect the fibers to the adapter ports that face the bottom of the CFTT-2424. Check the numbering to ensure that the fibers are connected to the correct ports.

#### 3. TECHNICAL ASSISTANCE AND REPAIR SERVICE

For questions on product repair or if technical assistance is required, contact Charles Technical Support.

847-806-8500  
[techserv@charlesindustries.com](mailto:techserv@charlesindustries.com) (email)  
<http://www.charlesindustries.com/techserv.htm>

#### 4. WARRANTY & CUSTOMER SERVICE

Charles Industries, Ltd. offers a one-year warranty on the housing and a one-year warranty on the optical components. The Charles warranty is limited to the operation of the hardware as described in this documentation and does not cover equipment which may be integrated by a third party. The terms and conditions applicable to any specific sale of product shall be defined in the resulting sales contract. For questions on warranty or other customer service assistance, contact your Charles Customer Service Representative.

847-806-6300  
[mktiserv@charlesindustries.com](mailto:mktiserv@charlesindustries.com) (email)  
[http://www.charlesindustries.com/main/telecom\\_sales\\_support.htm](http://www.charlesindustries.com/main/telecom_sales_support.htm)

#### 5. SPECIFICATIONS

Physical	
Weight	Approx. 6.0 lbs. as shipped
Available Colors	CFTT-2424LCUXPB: Onyx Black CFTT-2424LCUXPG: Gray CFTT-2424LCUXPT: Beige
Kits and Replacement Parts	
Fiber Conduit Adapter Kit	97-000012-A

Page 2 of 2

1<sup>st</sup> Printing

FIBER ENCLOSURE SPEC.

SCALE: N.T.S. 18



LT-CFTT2424  
1<sup>st</sup> Printing, April 3, 2018

## Charles Industries CFTT-2424 Series Fiber Enclosure General Description and Installation

### 1. GENERAL INTRODUCTION

#### 1.1 Document Purpose

This document provides installation instructions for the Charles Industries' CFTT-2424 series fiber enclosures. Figure 1 shows the front view of the CFTT-2424.

#### 1.2 Product Purpose

The CFTT-2424 provides a means of managing fiber optics service cable. The enclosure houses 24 fiber adapter ports. Feed and drop fibers enter the enclosure and are connected to these ports. The CFTT-2424 is designed for mounting on a pole or wall.

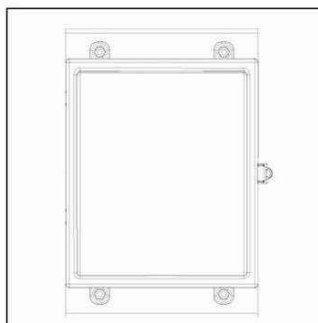


Figure 1 CFTT-2424 Front

### 2. INSTALLATION

#### 2.1 Warnings and Precautions

- Follow all national safety codes, OSHA requirements, and local environmental, workplace and company codes, safety procedures and practices
- Only authorized trained personnel shall install the unit.

#### 2.2 Mounting the CFTT-2424 on a Pole

The CFTT-2424 ships with the enclosure attached to the pole mounting bracket. To mount the unit, first remove the enclosure from the bracket by removing the hardware from the four attachment points as shown in Figure 2. Save this hardware.

The bracket has two mounting options.

- Option 1: use the two holes in the center of the bracket to mount a pair of lag bolts into the pole.
- Option 2: use the four obround slots at the sides of the bracket to mount to the pole using straps.

See Figure 3 for locations of mounting holes and slots. Use local practice for mounting the bracket to the pole. All hardware for mounting to the pole is customer supplied.

Once the bracket is securely on the pole, re-attach the enclosure onto the PEM studs using the hardware removed previously.

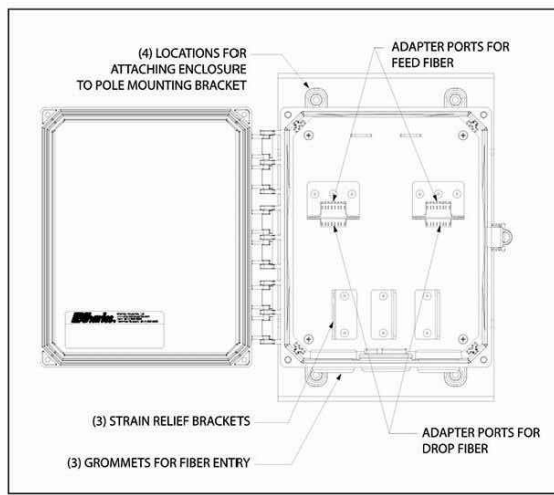


Figure 2 CFTT-2424 Components

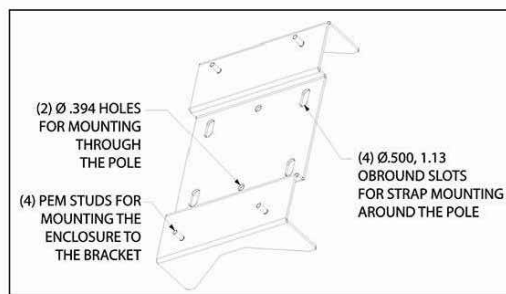


Figure 3 Pole Mount Bracket

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RECORD DRAWINGS ISSUE DATE: 02.26.19

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#### RELEASE

DATE	SUBMITTAL
03.18.19	1ST SUBMITTAL
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#### REVISIONS

NO.	DATE	COMMENT

#### PROJECT NAME

SAN FRANCISCO BAY EXPANSION -  
58 SITES

#### NODE NUMBER

SFB002m2

#### NODE ADDRESS

3777 KERNER BLVD  
SAN RAFAEL, CA

#### HUB AREA

SF36XC052

#### SHIFT JOB NUMBER

150601

#### IN HOUSE

DRAWN BY: RA  
CHECKED BY: CM

#### SHEET TITLE

EQUIPMENT  
SPECIFICATIONS

#### SHEET NUMBER

D1.3

#### PAGE

7 OF 8

PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"

DISCONNECT MUST BE  
APPROVED BY PG&E

DISCONNECT

SCALE: N.T.S. 12

METER MUST BE  
APPROVED BY PG&E

METER SPEC.

SCALE: N.T.S. 16

ANTENNA SPEC.

SCALE: N.T.S. 20