



**REVIEW BY FORT BEND COUNTY  
COMMISSIONERS COURT**

**Fort Bend County  
Engineering Department**  
301 Jackson Suite 401  
Richmond, Texas 77469  
281.633.7500  
Permits@fortbendcountytx.gov

- Right of Way Permit**
- Commercial Driveway Permit**

Permit No: 2016-10750

**Applicant:** Crown Castle NG General LLC/Shift Companies

**Job Location Site:** EAST OF CINCO RANCH BLVD AND MIDDLEWOOD MANOR LN, KATY, TX 77494

**Bond No.**                      **Date of Bond:** 5/12/2014 **Amount:** \$50,000.00

The above applicant came to make use of certain Fort Bend County property subject to, "The Order Regulating the Laying, Construction, Maintenance, and Repair of Buried Cables, Conduits, and Pole Lines, In, Under, Across or Along Roads, Streets, Highways, and Drainage Ditches in Fort Bend County, Texas, Under the Jurisdiction of the Commissioners Court of Fort Bend County, Texas," as passed by the Commissioners Court of Fort Bend County, Texas, of the Minutes of the Commissioners Court of Fort Bend County, Texas, to the extent that such order is not inconsistent with Chapter 181, Vernon's Texas Statutes and Codes Annotated.

**Notes:**

1. Evidence of review by the Commissioners Court must be kept on the job site and failure to do so constitutes grounds for job shutdown.
2. Written notices are required:
  - a. 48 hours in advance of construction start up, and
  - b. When construction is completed and ready for final inspection, submit notification to Permit Administrator thru [MyGovernmentOnline.org](http://MyGovernmentOnline.org) portal.
3. This permit expires one (1) year from date of permit if construction has not commenced.

On this 13th day of December, 2016, Upon Motion of Commissioner Meyers, seconded by Commissioner Patterson, duly put and carried, it is ORDERED, ADJUDGED AND DECREED that said notice of said above purpose is hereby acknowledged by the Commissioners Court of Fort Bend County, Texas, and that said notice be placed on record according to the regulation order thereof.

**Signature**

Presented to Commissioners Court and approved.

By: Charles O. Ay  
fa County Engineer

Date Recorded 12-21-16 Comm. Court No. 131

Clerk of Commissioners Court

By: N/A  
Drainage District Engineer/Manager

By: Ronda Willis  
Deputy



**PERMIT APPLICATION REVIEW FORM FOR  
CABLE, CONDUIT, AND POLE LINE ACTIVITY  
IN FORT BEND COUNTY**

**Fort Bend County  
Engineering Department**  
301 Jackson Suite 401  
Richmond, Texas 77469  
281.633.7500  
Permits@fortbendcountytexas.gov

- Right of Way Permit**  
 **Commercial Driveway Permit**

Permit No: 2016-10750

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The following "Notice of Proposed Cable, Conduit, and/or Pole Line activity in Fort Bend County" and accompanying attachments have been reviewed and the notice conforms to appropriate regulations set by Commissioner's Court of Fort Bend County, Texas.

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**(1) COMPLETE APPLICATION FORM:**

- |                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | a. Name of road, street, and/or drainage ditch affected. |
| <input checked="" type="checkbox"/> | b. Vicinity map showing course of directions             |
| <input checked="" type="checkbox"/> | c. Plans and specifications                              |

---

**(2) BOND:**

- |                                     |  |                                       |                                     |
|-------------------------------------|--|---------------------------------------|-------------------------------------|
| <input type="checkbox"/>            | County Attorney, approval when applicable. |                                       |                                     |
| <input checked="" type="checkbox"/> | Perpetual bond currently posted.           | Bond No: <u>                    </u>  | Amount: \$50,000.00                 |
| <input type="checkbox"/>            | Performance bond submitted.                | Bond No: <u>                    </u>  | Amount: <u>                    </u> |
| <input type="checkbox"/>            | Cashier's Check                            | Check No: <u>                    </u> | Amount: <u>                    </u> |

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**(3) DRAINAGE DISTRICT APPROVAL (WHEN APPLICABLE):**

\_\_\_\_\_  
Drainage District Approval

\_\_\_\_\_  
Date

---

**We have reviewed this project and agree it meets minimum requirements.**

*Charly O. AJ*

\_\_\_\_\_  
Permit Administrator

*12/6/16*

\_\_\_\_\_  
Date

# SHIFT

November 28, 2016

Carmen Escobar, CFM  
Permit Administrator  
Fort Bend County Engineering  
301 Jackson St, Richmond, TX 77469

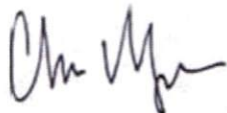
**RE: Cinco Ranch Traffic Control Plan  
- Shift Project #160614**

Carmen,

Per our conversation on the phone, the work we are doing in the ROW will not require any road closures. There is no TCP required, the contractor will take adequate measure to ensure they are not impeding the public way.

Please let me know if you need anything else.

Thank you,



Chris Myers  
Principal  
SHIFT Companies



**PROJECT NAME:** CINCO RANCH EXPANSION  
**PROJECT ADDRESS:** CINCO RANCH BLVD AND MIDDLEWOOD MANOR LN  
**PROJECT TYPE:** BLACK DECORATIVE SLIMLINE POLE  
**HUB AREA:** CINCO RANCH - HGCW  
**NODE #(s):** **CCR-36**  
**COORDINATES:** LAT: 29.714185, LONG: -95.818125

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**FORT BEND COUNTY ENGINEER**  
 ENGINEER: *Richard W. Stokes, P.E.*  
 DATE: 11/1/16  
 THESE SIGNATURES ARE VOID IF CONSTRUCTION HAS NOT COMMENCED IN (1) YEAR FROM DATE OF APPROVAL.  
 APPROVED: *[Signature]*  
 DATE: 11/1/16

TEAM MEMBER'S REVIEW	REVIEWED/DATE
RF ENGINEERING	
PRODUCT MANAGEMENT	
NETWORK REAL ESTATE TEAM	
UTILITY TEAM	
IMPLEMENTATION	
OPERATIONS	

PROJECT TEAM	
<b>ARCHITECT</b> Company: SHIFT CONSULTING Address: 7333 E. MONTE VISTA RD. SCOTTSDALE, AZ 85257 Phone Number: 480.264.0829 Fax Number: 480.264.0163 Contact: CHRIS MYERS	<b>OWNER INFO</b> Company: CROWN CASTLE Address: 1220 AUGUSTA DR HOUSTON, TX 77057 Phone #: 817.449.3113 Email: BARRY.CAMPALU@CROWNCASTLE.COM Contact: BARRY CAMPALU
<b>STRUCTURAL</b> Company: T.B.D. Address: Phone Number: Fax Number: Contact:	<b>RF ENGINEER</b> Company: CROWN CASTLE Address: 1220 AUGUSTA DR HOUSTON, TX 77057 Phone Number: Fax Number: Contact:
<b>FIBER ENGINEERING</b> Company: TDC2 Address: 710 EAST PARK BLVD, SUITE 110 PLANO, TX 75074 Phone: 972.423.9060 Email: scott@tdc2.com Contact: SCOTT CRUM	

PROJECT SUMMARY	
<b>PROJECT NAME:</b> CINCO RANCH EXPANSION <b>PROJECT AREA:</b> CINCO RANCH - HGCW <b>JURISDICTION:</b> FORT BEND COUNTY ENGINEERING DEPT 1124 BLUME RD ROSENBERG, TX 77471 PH: 281.633.7500 CONTACT: JOHNNY ORTEGA	<b>APPLICANT:</b> CROWN CASTLE 1220 AUGUSTA DR HOUSTON, TX 77057 CONTACT: BARRY CAMPALU <b>CODES:</b> 2009 INTERNATIONAL BUILDING CODE (IBC) 2009 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) 2008 NATIONAL ELECTRICAL CODE (NEC) 2008 NATIONAL ELECTRICAL SAFETY CODE (NESC) <b>PLUMBING REQUIREMENTS:</b> FACILITY HAS NO PLUMBING. <b>HANDICAPPED REQUIREMENTS:</b> -FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. -HANDICAPPED ACCESS REQUIREMENTS ARE NOT REQUIRED
	<b>POWER COMPANY:</b> CENTERPOINT ENERGY 5431 HIGHWAY BLVD. KATY, TX 77494 PH: 281.520.6275 CONTACT: KEN CORTEZ

NOTE: NOT ALL SITES ARE INCLUDED IN THIS SET. SEE NODE #S ABOVE FOR SITES THAT ARE IN THIS SET.



CROWN CASTLE  
 800 E. JOHN CARPENTER FWAY  
 SUITE 200  
 IRVING, TX 75062

RECORD DRAWINGS ISSUE DATE: 10/18/16  
 RECORD DRAWING DRAFTING ONLY



Shift Companies, LLC  
 7311 E. HIGHWAY 60W  
 SUITE 100, AUSTIN, TX 78745  
 PH: 480.264.0829  
 FAX: 480.264.0823

THIS DRAWING IS COPYRIGHTED AND IS THE SOLE PROPERTY OF THE OWNER. IT IS PRODUCED SOLELY FOR USE BY THE OWNER AND ITS APPLICABLE REPRODUCTION OR USE OF THIS DRAWING AND/OR THE INFORMATION CONTAINED IN IT IS FORBIDDEN WITHOUT THE WRITTEN PERMISSION OF THE OWNER.

RELEASE	
DATE	SUBMITTAL
5/2/16	1ST CITY SUBMITTAL
10/18/16	2ND CITY SUBMITTAL

REVISIONS		
NO.	DATE	COMMENT
1	10/18/16	CITY COMMENTS

**PROJECT NAME**  
 CINCO RANCH EXPANSION

**NODE ADDRESS**  
 CINCO RANCH - HGCW

**NODE #:** CCR-36  
 CINCO RANCH BLVD AND MIDDLEWOOD MANOR LN

**HUB AREA**  
 CINCO RANCH - HGCW

**SHIFT JOB NUMBER** 150802  
**IN HOUSE** DRAWN BY: RA CHECKED BY: DM

**SHEET TITLE**  
 TITLE SHEET

SHEET NUMBER	PAGE
T1.1	1 OF 14

PLLOT SCALE: 1:1 @ 24x36" 1:2 @ 11x17"

**PART 2 - EXECUTION**

**EXECUTION**

- Provide (1) main ground from the antenna mounting bracket at the top of the pole, to the main ground bus bar (TMGB) (location defined below). Main vertical ground shall consist of a #2 solid bare copper cable. Solid ground shall be protected by a PVC U-Guard to the top of the pole and extend vertically to the connection between (cable) galvanized staples. Ground rod shall be 1/2" diameter minimum and extend to the top of pole. #20 U-Guard is recommended by City. An #8 copper wire lead #20 bare copper cable is highly susceptible to theft and may be a lot expensive to theft.
- Provide (1) main ground from the main ground bus bar (TMGB) to the antenna mounting bracket at the top of the pole. Main ground vertical shall consist of a #2 solid bare copper cable. Solid ground shall be protected by a PVC U-Guard to the bottom of the pole and extend vertically to the connection between (cable) galvanized staples. Ground rod shall be 1/2" diameter minimum and extend to the top of pole. #20 U-Guard is recommended by City. An #8 copper wire lead #20 bare copper cable is highly susceptible to theft and may be a lot expensive to theft.
- #2 ground shall be attached directly to the ground rod via cast resin.
- Ground rod shall be placed per NEC code with regards to depth and distance from wood pole.
- Ground rod shall be 1/2" diameter minimum and extend to the top of pole.
- #2 ground shall be attached directly to the ground rod via cast resin.
- Main ground vertical shall be attached directly to ground bus bar (TMGB) mounted to the face of the utility pole. Method of contact shall be 2 hole drilled lug (driven to the main ground bus (TMGB) on the left top lug and depending on the location of the TMGB
- Main ground vertical to the antenna mounting bracket shall be attached directly to the antenna bracket via a self-tapping bolt or screw. A washer must be added to the this bolt or screw to avoid damage to the top wire maintaining a secure bond.
- TMGB shall be mounted above the Charles cabinet below the WRN element directly to the wood pole structure.
- All pole mounted devices, including but not limited to: antenna mounts and antenna mounting brackets, cabinets shall be connected to the TMGB with a #8 copper braided cable. UV coated and green in color.
- All pole mounted devices, including but not limited to: antenna mounts and antenna mounting brackets, cabinets shall be connected to the TMGB using compression type, 2 hole connector lugs.
- Connector lugs must attach to the bus bar with two holes facing up and out with the bolt heads on the back side of the bus bar.
- Strapping of connector lugs is prohibited.
- Placement of connector lugs on front and rear face of grounding bar is permitted.
- Any modifications to the connector lug are prohibited, including but not limited to grinding, sanding or bending.
- Connector lugs must be placed with even spacing and must not come in contact with another connector lug.
- Strapped side of the connector lug should be placed on the outside side of the bus bar.
- Connector lugs shall have two (2) compression per lug.
- All connector lugs must have MO-CR equipped to any slots within contact another metal to related connector including and especially the conductor in the compression end.
- All connector lugs must be properly sealed from weather with seal grease.
- All connector lugs must be attached using 3/8" hardware x 2 per each lug and in the following manner:
  - Fit Washer on the top side of the lug.
  - Put 1/2" the lug hole facing outward.
  - Fit Washer on the front side of the lug.
  - Lock Washer on the front side of the fit washer.
  - Not cut the lug hole opening at maximum stress.
  - All nuts on connector bolts must be tightened so that the lock washers are completely compressed.
- No redundant connections are acceptable except in the event of merchandise fittings being a integral part of the product from the factory. i.e. Charles cabinet # 6 ground lugs on each side of the cabinet.
- Excess wires on Charles must be ground off to a safe layer.
- All wire ends must be covered with wire or tape product with green coating.
- All exposed metallic surfaces must be sprayed with a protective coating such as Zinc-11.
- All things required to be installed must be installed in excess of 1/16th of an inch.

- RIGHT-OF-WAY USE PERMIT SHALL BE OBTAINED BY CONTRACTOR PRIOR TO COMMENCING WORK.
- A UTILITY LOCATE IS REQUIRED FOR ALL PROJECTS.
- CROSSING OF EXISTING UTILITIES SHALL BE COORDINATED BY CONTRACTOR.
- ALL WORK TO BE CONDUCTED IN CITY RIGHT OF WAY, U.N.O.
- ALL DISTURBED LANDSCAPING SHALL BE REPLACED TO SIMILAR EXISTING CONDITION.
- ALL SURFACE REPAIR SHALL BE TO CITY SPECIFICATIONS.
- ANY SIDEWALK CLOSURE SHALL BE COORDINATED WITH THE CITY AND PROPER SIGNAGE WILL BE PLACED.
- TEMPORARY LIGHTING WILL BE COORDINATED WITH CITY AND PROVIDED WHENEVER EXISTING LIGHTING IS REMOVED OR UNAVAILABLE AS REQUIRED.
- NO MATERIALS OR EQUIPMENT SHALL BE STORED ON PRIVATE PROPERTY OR BLOCK ACCESS TO PRIVATE PROPERTY.
- OPEN EXCAVATIONS SHALL BE PROPERLY GUARDED AND SIGNED. NO OPEN EXCAVATIONS WILL BE LEFT ACCESSIBLE TO THE PUBLIC.
- 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.
- ALL WORK TO COMPLY WITH OHSA AND CITY GUIDELINES.
- CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING PRIVATE IRRIGATION PRIOR TO EXCAVATION. CONTRACTOR WILL REPAIR OR REDUCE IRRIGATION IN NOW AS NECESSARY.
- 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 CONTRACTOR'S OPERATIONS. THE REMOVAL AND REPLACEMENT OF DEFORMED PAVEMENT, CURB AND GUTTERS, 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.
- THE VAULTS INSTALLED IN CONJUNCTION WITH THE INDIVIDUAL ANTENNA NODES SHALL BE FLUSH WITH THE GROUND.

AC	AIR CONDITIONING	HORZ	HORIZONTAL	S	SOUTH
ADJ	ADJUSTABLE	HR	HOUR	SCHED	SCHEDULE
AF	ABOVE FINISH FLOOR	H7	HEATING, VENTING AND AIR CONDITIONING	SF	SQUARE FEET
AMAL	AMERICAN WIRE GAUGE	HYAC		SHT	SHEET
APPROX				SIL	SIMILAR
AVG				SPEC	SPECIFICATION
				SQ	SQUARE
BCW	BARE COPPER WIRE	IBC	INTERNATIONAL BUILDING CODE	SE	SANITARY SEWER
BLOC	BLOCK	ID	INSIDE DIA	SET	STRUCTURAL
BLDG	BUILDING	IN	INCH	STL	STEEL
BOB	BOTTOM OF BLOCK	INFO	INFORMATION	STRUT	STRUCTURAL
BS	BUILDING STANDARD	INT	INTERIOR	SUSP	SUSPENDED
				SY	SQUARE YARD
CLD	CIRLING	LBS	POUNDS	THRU	THROUGH
CLR	CLEAR	LF	LINEAR FEET	THVD	THINW
CMC	CONCRETE	LT	TOP OF	T.O.	TOP OF
CONCT	CONSTRUCTION	MECH	MECHANICAL	TOB	TOP OF BLOCK
CONT	CONTINUOUS	MFR	MANUFACTURER	TOC	TOP OF CONCRETE
CO	COMPANY	MGR	MANAGER	TCM	TOP OF MASONRY
		MNR	MANUFACTURER	TSE	TUBE STEEL
		MISC	MISCELLANEOUS	TS	TRANSIT SIGNAL
				TYT	TYPICAL
DBL	DOUBLE	N	NORTH	UG	UNDERGROUND
DIA	DIAMETER	NA	NOT APPLICABLE	UNB	UNIVERSAL RADIO HEAD
DM	DIMENSION	NIC	NOT IN CONTRACT	UNO	UNLESS NOTED OTHERWISE
DIVG	DRAWING	NTS	NOT TO SCALE		
				VERT	VERTICAL
E	EAST	ON	ON CENTER	VF	VERIFY IN FIELD
EA	EACH	OD	OUTSIDE DIAMETER	VT	VERT. TILE
EL	ELEVATION	OP	OPENING	W	WEST
ELECT	ELECTRICAL	ORF	OPENING	WDW	WINDOW
EPB	ELECTRICAL PULL BOX	OSCR	OPENING	W/O	WITHOUT
EQ	EQUAL	PL	PROPERTY LINE	W/O	WITHOUT
EQUIP	EQUIPMENT	PLY	PLYWOOD	W/W	WITH/OUT
EW	EACH WAY	PR	PAIR	WP	WORKING POINT
EX	EXISTING	PROJ	PROPERTY	WTR	WATER
EXT	EXTERIOR	PROP	PROPERTY		
		RF	REFLECTED CEILING PLAN		
FIN	FINISH	REQD	REQUIRED		
FLOOR	FLOOR	RM	ROOM		
FLR	FLOOR	RO	ROUGH OPENING		
FT	FOOT FEET	ROV	ROUGH-OF-WAY		
		RX	RECEIVE SIGNAL		
GA	GALVE				
GALV	GALVANIZED				
GC	GENERAL CONTRACTOR				
GLB	GLUE LAMINATED BEAM				
GRND	GROUND				
GWB	GYPSEUM WALL BOARD				

**PART 3 - TESTING AND DOCUMENTATION**

**TESTING**

- Obtain to ground is required for acceptance. If E-Grid cannot be met with requirements, additional ground rods will be added to the fails and 5 Ohms is achieved.

**DOCUMENTATION**

- Three of the tests are required as set in test results in formal document format. Submit result of test to CC Construction Manager prior to final walkthrough. Submit all photos and tests with detailed passage per Section 01770 - Closeout Procedures and Required Documents.

**GROUNDING SPECIFICATIONS** SCALE: NTS 8

- FORT BEND COUNTY MUST BE INVITED TO THE PRE-CONSTRUCTION MEETING.
- CONTRACTOR SHALL NOTIFY FORT BEND COUNTY ENGINEERING DEPARTMENT 48 HOURS PRIOR TO COMMENCING CONSTRUCTION AND 48 HOURS NOTICE TO ANY CONSTRUCTION ACTIVITY WITHIN THE LIMITS OF THE FRINGE AT CONSTRUCTION FOR 10 BUSINESS DAYS.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED PRIOR TO COMMENCING CONSTRUCTION OF ANY IMPROVEMENTS WITHIN COUNTY ROAD RIGHT-OF-WAY.
- ALL PAVING IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FORT BEND COUNTY "RULES, REGULATIONS AND REQUIREMENTS" RELATING TO THE APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS AS CURRENTLY AMENDED.
- CONSTRUCTION OF ANY IMPROVEMENTS WITHIN COUNTY ROAD RIGHT-OF-WAY.
- ALL ROAD WIDTHS, CURB RADI AND CURB ALIGNMENT SHOWN INDICATES SHALL BE CURRENTLY AMENDED.
- A CONTINUOUS CONDITIONAL REINFORCING BAR SHALL BE USED IN THE CURBS.
- ALL CONCRETE PAVEMENT SHALL BE 5" SACK CEMENT WITH A MINIMUM COMPRESSIVE STRENGTH OF 2800 PSI AT 28 DAYS. TRANSVERSE EXPANSION JOINTS SHALL BE INSTALLED AT EACH CURB RETURN AND AT A MAXIMUM SPACING OF 60 FEET.
- ALL WEATHERS APPLIED TO ALL EXISTING STREETS AND DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.
- 4"x12" REINFORCED CONCRETE CURB SHALL BE PLACED IN FRONT OF SINGLE FAMILY LOTS ONLY. ALL OTHER AREAS SHALL BE 6" REINFORCED CONCRETE CURB.
- AT ALL INTERSECTION LOCATIONS, TYPE 7 RAMPS SHALL BE PLACED IN ACCORDANCE WITH TxDOT RD-10A STANDARD DETAIL SHEET, A.D.A. - HANDICAP RAMPS SHALL BE INSTALLED WITH STREET PAVING AT ALL INTERSECTIONS AND COMPLY WITH CURRENT A.D.A. REGULATIONS.
- CURB HEADERS ARE REQUIRED AT CURB CONNECTIONS TO HANDICAP RAMPS, WITH NO CONSTRUCTION JOINT WITHIN 8' OF RAMPS.
- ALL INTERSECTIONS UTILIZING TRAFFIC CONTROL HEADGATES SHALL HAVE A D.A. WHEEL CHAIR RAMPS INSTALLED.
- DOUBLELINE ARE SET BOTH IN THE CURB "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AS CURRENTLY AMENDED, SHALL BE OBSERVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE FLAGMEN, SIGNING, STRIPING AND WARNING DEVICES, ETC. DURING CONSTRUCTION - BOTH DAY AND NIGHT.
- ALL "H" STOP SIGNS SHALL BE 30"x30" WITH DIAMOND GRADE SHEETING PER TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- STREET NAME SIGNAGE SHALL BE ON A 9" HIGH SIGN PLATE BLADE REFLECTIVE GREEN BACKGROUND. STREET NAMES SHALL BE UPPER AND LOWERCASE LETTERING WITH UPPER CASE LETTERS OF 6" MINIMUM AND LOWERCASE LETTERS OF 4.5" MINIMUM. THE LETTERS SHALL BE REFLECTIVE WHITE. STREET NAME SIGNS SHALL BE MOUNTED ON STOP SIGN POST.
- A BLUE DOUBLE REFLECTORIZED BUTTON SHALL BE PLACED AT ALL FIRE HYDRANT LOCATIONS. THE BUTTON SHALL BE PLACED 12 INCHES OFF OF THE CENTERLINE OF THE STREET ON THE SAME SIDE AS THE HYDRANT.

**NOTE: FORT BEND COUNTY NOTES SUPERSEDE ANY CONFLICTING NOTES.**

INSPECTION, THE PROJECT AND ALL PARTS THEREOF SHALL BE SUBJECT TO INSPECTION FROM TIME TO TIME BY INSPECTORS DESIGNATED BY FORT BEND COUNTY. NO SUCH INSPECTIONS SHALL RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER. NEITHER FAILURE TO INSPECT NOR FAILURE TO DISCOVER OR REJECT ANY OF THE WORK AS NOT IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, REQUIREMENTS AND SPECIFICATIONS OF FORT BEND COUNTY OR ANY PROVISION OF THIS PROJECT SHALL BE CONSTRUED TO IMPLY AN ACCEPTANCE OF SUCH WORK OR TO RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER.

**GENERAL PROJECT NOTES** SCALE: NTS 10

CREW MUST HAVE ONE ALL CERTIFIED PERSON - PERSONNEL WORKING INCLUDING THE NODE CABINET MUST HAVE THE ALL METRO CELL CERTIFICATION. - ONLY CERTIFIED PERSONNEL MAY INSTALL ALL METRO CELLS. I.E. NO TRAIN THE TRAINER OPTIONS PERMITTED. - A CERTIFIED INSTALLER MAY SUPERVISE ONE OR MORE NON-CERTIFIED HELPERS AS LONG AS THE CERTIFIED INSTALLER IS ON THE SAME SITE 100% OF THE TIME. I.E. NO ROAMING SUPERVISORS. - A CERTIFIED INSTALLER MAY NOT ACT AS A ROAMING QUALITY AUDITOR UNLESS THE ORIGINAL INSTALLATION IS COMPLETED BY A CERTIFIED INSTALLER AND THE QUALITY AUDIT IS ONLY COMPLETED BY A CERTIFIED INSTALLER. IN NO WAY WILL THIS AUDIT BE PORTFOLIO AS AN ALTCAL-LICENT AUDIT. - CERTIFIED PERSONNEL HAVE ACCESS TO REMOTE TECHNICAL SUPPORT FOR ISSUES RELATED TO METRO CELL INSTALLATION. @669 952-3668 /@669-LICENT - THE FOLLOWING PRODUCTS ARE COVERED: 9263 METRO CELL, INDOOR, 9264 METRO CELL OUTDOOR, 9263 METRO CELL, INDOOR, 9264 METRO CELL OUTDOOR, 9268 METRO RADIO OUTDOOR V1.0, AND THE 7310 CABINET.

**ALLU CERTIFIED TECH NOTE** SCALE: NTS 11

**ABBREVIATIONS AND SYMBOLS** SCALE: NTS 20

---	CENTER LINE	△	REVISION
---	PROPERTY LINE	AP	KEY-NOTE
---	RIGHT-OF-WAY	1	DETAIL REFERENCE
-F--F-	FIBER	2	ELEVATION REFERENCE
-G--G-	GAS	AS	SECTION REFERENCE
-P--P-	POWER	AS	ELEVATION MARKER
-S--S-	SANITARY SEWER	AS	PHOTOGRAPH REFERENCE
-SD--SD-	STORM DRAIN	##	ANTENNA AZMUTH
-W--W-	WATER	##	VIEW NUMBER
-L--L-	LIGHT CIRCUIT POWER	##	SHEET NUMBER
-OHE--OHE-	OVERHEAD POWER LINE	##	SHEET GROUP
		△	EXISTING TREE
		△	EXISTING BUSH / SHRUB

**REVISION**

DATE	SUBMITTAL
8/20/16	1ST CITY SUBMITTAL
10/18/16	2ND CITY SUBMITTAL

**REVISIONS**

NO.	DATE	COMMENT
1	10/18/16	CITY COMMENTS

**PROJECT NAME**  
**CINCO RANCH EXPANSION**

**HUB AREA**  
**CINCO RANCH - HGCV**

**SHEET JOB NUMBER** 150802 **IN HOUSE**

**DRAWN BY:** RA **CHECKED BY:** DA

**SHEET TITLE**  
**GENERAL NOTES ABBREVIATIONS AND SYMBOLS**

**SHEET NUMBER** 11.2 **PAGE** 2 OF 14

**PLOT SCALE:** 1:1 @ 24"X36" 1:2 @ 11"X17"

APPROVED: [Signature] Development Coordinator

DATE: [Signature]

**ABBREVIATIONS AND SYMBOLS** SCALE: NTS 20

REVISION

KEY-NOTE

DETAIL REFERENCE

ELEVATION REFERENCE

SECTION REFERENCE

ELEVATION MARKER

PHOTOGRAPH REFERENCE

ANTENNA AZMUTH

VIEW NUMBER

SHEET NUMBER

SHEET GROUP

EXISTING TREE

EXISTING BUSH / SHRUB

**CROWN CASTLE**

600 E. JOHN CARPENTER Pkwy  
SUITE 300  
IRVING, TX 75062

RECORD DRAWINGS ISSUE DATE: 10/18/16

**SHIFT**

Shift Companies, LLC  
7331 N. HWY 75 #200  
SCOTTSDALE, ARIZONA 85257  
PH: 480.368.0000  
FX: 480.368.0555

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**Cinco Ranch Expansion**  
700 RRH Specifications

Mechanical	
Frequency Band	810 (700A)
Technology	LTE FDD
RF Output Power	2400W/4800W (5W configurable)
Operational Range	DL: 746-756 MHz UL: 775-785 MHz
Instantaneous BW	10 MHz (4 Carriers)
RF Configuration	2T2R, 2T4R, 4T4R
Interfaces	2 CPRI ports (rate 7) 2 integrated Smart Bias Tees 1 port external antenna (x4) Tx & Rx monitor ports
Power	48 VDC 800W typical @ full RF load
Environmental Conditions	-40 C to +55 C
Connectors	DIN 716



Environmental	
Dimensions	31.8 x 12.8 x 9 in
Weight	87 lbs
Mounting options	Post/Wall
Connector Location	Bottom

**Cinco Ranch Expansion**  
PCS RRH Specifications (Future)

Mechanical	
Frequency Band	810 & 830 (1900)
Technology	LTE FDD
RF Output Power	2400W/4800W (5W configurable)
Operational Range	DL: 1920-1930 MHz UL: 1850-1915 MHz
Instantaneous BW	10 MHz (4 Carriers)
RF Configuration	2T2R, 2T4R, 4T4R
Interfaces	2 CPRI ports (rate 7) 2 integrated Smart Bias Tees 1 port external antenna (x4) Tx & Rx monitor ports
Power	48 VDC 800W typical @ full RF load
Environmental Conditions	-40 C to +55 C
Connectors	DIN 716



Environmental	
Dimensions	23.2 x 12.8 x 9 in
Weight	83 lbs
Mounting options	Post/Wall
Connector Location	Bottom

**Cinco Ranch Expansion**  
AWS RRH Specifications

Mechanical	
Frequency Band	810 (700A)
Technology	LTE FDD
RF Output Power	2400W/4800W (5W configurable)
Operational Range	DL: 710-720 MHz UL: 1995-1995 MHz
Instantaneous BW	70 MHz
RF Configuration	2T2R, 2T4R, 4T4R
Interfaces	2 CPRI ports (rate 7) 2 integrated Smart Bias Tees 1 port external antenna (x4)
Power	48 VDC 800W typical @ full RF load
Environmental Conditions	-40 C to +55 C
Connectors	MIL-DTL 43-10



Environmental	
Dimensions	30 x 12 x 7.7 in
Weight	78 lbs
Mounting options	Post/Wall
Connector Location	Bottom

**RADIO SPECIFICATIONS**

Amphenol ANTENNA SOLUTIONS 696-960 / 696-960 / 1695-2700 / 1695-2700 MHz

**ZC2U1360X12Fxyz0**

PAIR DUAL BAND | PSEUDO OMNI | CARBON FIBER ANTENNA | 5/8" DIA. | 100% | 100% | 100% | 5.0 / 5.0 / 5.0 / 5.0 | 1695-2700

- Features**
- Pseudo Omni configuration with 8 connectors
  - Ideal for small Cell - DAS application
  - Available with 5.0V or 2.7V or 1.5V DCN connection
  - Three unique mounting options
  - Can be painted to blend in with surrounding structure

**Connector Description**

Band	Frequency	Color	Dimensions
Low Band #1 & 2	474-482 MHz	Red Rings	2x4.119 in @ 4.310 in 174-DIN Female
High Band #1	1695-2700 MHz	Yellow Rings	2x4.119 in @ 4.310 in 174-DIN Female
High Band #2	1695-2700 MHz	Orange Rings	2x4.119 in @ 4.310 in 174-DIN Female

**Electrical Characteristics**

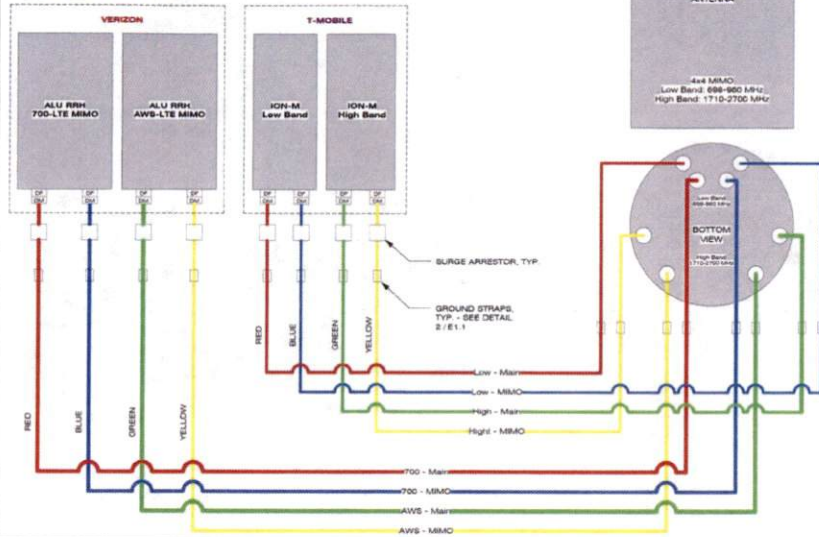
Frequency Range (MHz)	Low Band #1 and #2		High Band #1 and #2	
	474-482 MHz	1695-2700 MHz	1695-2700 MHz	1695-2700 MHz
Gain	10.5 dBi	10.5 dBi	10.5 dBi	10.5 dBi
Vertical Beamwidth	100°	100°	100°	100°
Horizontal Beamwidth	100°	100°	100°	100°
Gain	10.5 dBi	10.5 dBi	10.5 dBi	10.5 dBi
Vertical Beamwidth (°)	100	100	100	100
Horizontal Beamwidth (°)	100	100	100	100
Gain	10.5 dBi	10.5 dBi	10.5 dBi	10.5 dBi
Vertical Beamwidth (°)	100	100	100	100
Horizontal Beamwidth (°)	100	100	100	100

**Mechanical Characteristics**

Antenna Dimensions (Height x Diameter)	12.19 x 3.71 in	48.0 x 14.6 in
Weight without Mounting Bracket (kg)	17.2 kg	38.1 lb
Mounting Wind Speed	200 mph	125 mph
Wind Area	1.61 m <sup>2</sup>	1.61 m <sup>2</sup>
Wind Load (160 mph or 100 mph)	91 N	91 N

SCALE: N T 8 12

**CROWN CASTLE**



**WIRING DIAGRAM**

SCALE: N T 8 18

**ANTENNA SPECIFICATIONS**

**EQUIPMENT CABINET SPECIFICATIONS**

SCALE: N T 8 20



CROWN CASTLE  
800 E. JOHN CARPENTER FWY  
SUITE 300  
IRVING, TX 75062

RECORD DRAWINGS ISSUE DATE: 10/18/16



Shift Companies, LLC  
7311 E. MONTE VISTA ROAD  
SCOTTSDALE, ARIZONA 85251  
PH: 480.254.9000  
FAX: 480.254.9133

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RELEASE	DATE	SUBMITTAL
	6/20/16	1ST CITY SUBMITTAL
	10/18/16	2ND CITY SUBMITTAL

REVISIONS	NO.	DATE	COMMENT
	10/18/16		CITY COMMENTS

PROJECT NAME  
**CINCO RANCH EXPANSION**

HUB AREA  
**CINCO RANCH - HGCW**

SHIFT JOB NUMBER  
**150602**

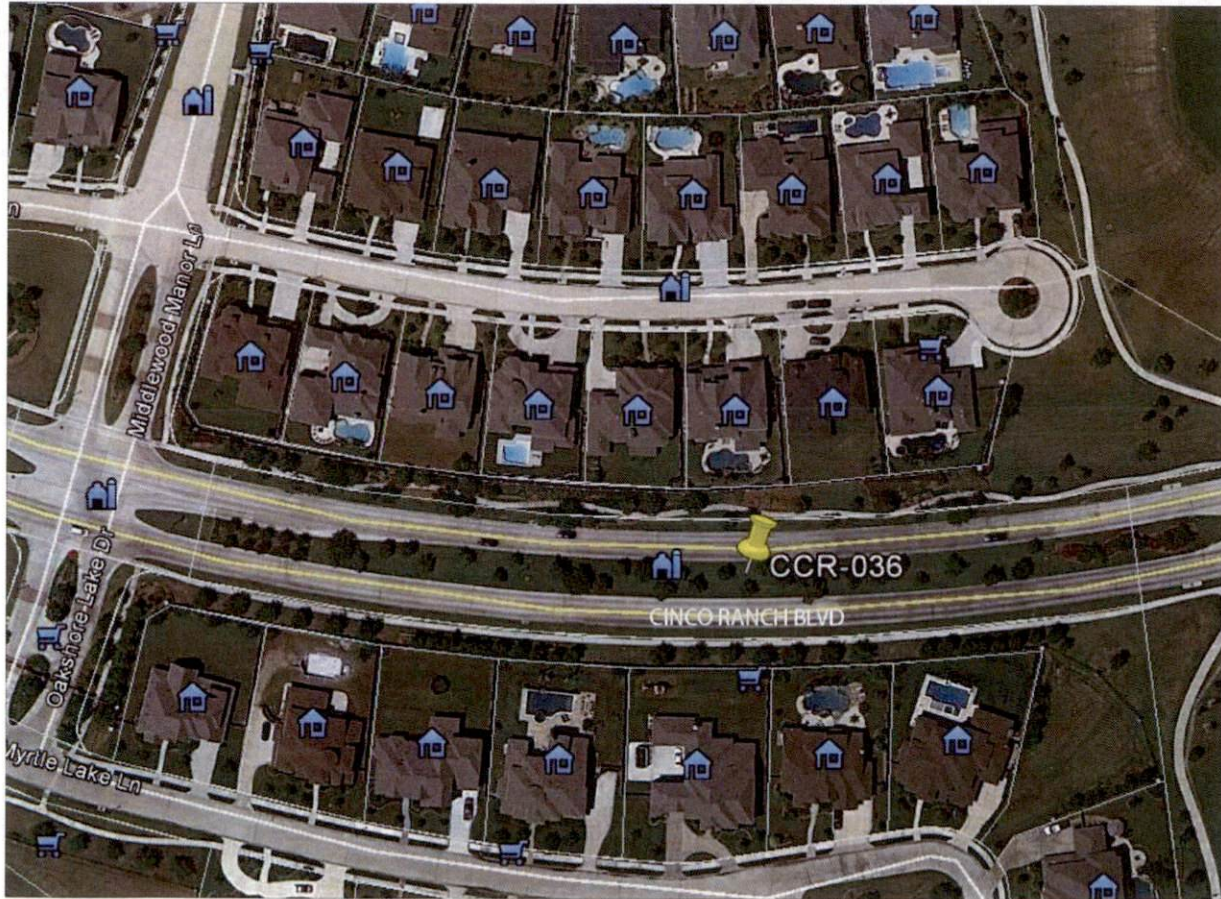
SHEET TITLE  
**EQUIPMENT SPECIFICATIONS**

SHEET NUMBER  
**T1.3**

PAGE  
**3 OF 14**

PLOT SCALE: 1" = 24" X 36"; 1:2 @ 11" X 17"

PLAN CHECK #  
CASE #



NODE AERIAL PLAN

**SUBJECT POLE:** CCR-36

**GPS COORDINATES:**

**LAT:** 29.714182

**LONG:** -95.818128

**POLE TYPE:** BLACK DECORATIVE SLUANE POLE

**POLE ID #**

**UPPER ANTENNA RAD CENTER:** 32 - 0' A.F.G.

**LOWER ANTENNA RAD CENTER:** 50 - 0' A.F.G.

**APPROVED:** *[Signature]*  
Development Coordinator

**DATE:** 11/1/16



**CROWN CASTLE**  
800 E. JOHN CARPENTER Fwy  
SUITE 500  
IRVING, TX 75062

RECORD DRAWING ISSUE DATE: 10/18/15



**Shift Companies, LLC**  
1111 E. WOOD RD SUITE  
SCOTTSDALE, ARIZONA 85257  
602.463.2888  
SH: 461.24.5557

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RELEASE	
DATE	SUBMITTAL
9/28/15	1ST CITY SUBMITTAL
10/18/16	2ND CITY SUBMITTAL

REVISIONS		
NO.	DATE	COMMENT
	10/18/16	CITY COMMENTS

**PROJECT NAME**  
CINCO RANCH EXPANSION

**NODE ADDRESS**  
NODE #:CCR-36

CINCO RANCH BLVD AND MIDDLEWOOD MANOR LN

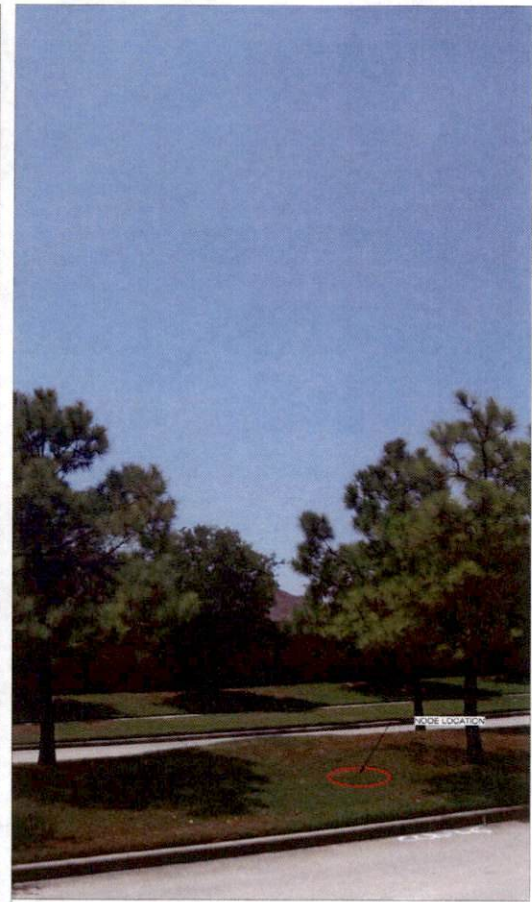
**HUB AREA**  
CINCO RANCH - HGCW

**SHEET JOB NUMBER** 150602 **IN HOUSE**  
DRAWN BY: RA  
CHECKED BY: CM

**SHEET TITLE**  
AERIAL

**SHEET NUMBER** A1.0 **PAGE** 4 OF 14

PLOT SCALE: 1/1" @ 24'X36'; 1/2" @ 11'X17'



SITE PHOTO (EXISTING)

N.T.S.

PLAN CHECK #

CASE #

KEYNOTE	DESCRIPTION	DETAIL
A01	PROPOSED CROWN CASTLE GAN ANTENNA	16D1.1
A02	PROPOSED CROWN CASTLE 2" U.G. CONDUIT (APPROXIMATE LOCATION, F.V.)	2D1.1
A03	PROPOSED CROWN CASTLE REMOTE RADIO UNIT INSIDE EQUIPMENT CABINET	18D1.1
A04	PROPOSED NEW METAL SLALINE POLE	10D1.1
A05	PROPOSED CROWN CASTLE 1" UNDERGROUND CONC. FIBER VAULT	9D1.2
A06	PROPOSED CROWN CASTLE NODE IDENTIFICATION SIGNAGE	20D1.2
A07	PROPOSED CROWN CASTLE EQUIPMENT CABINET	18D1.1
A08	PROPOSED CROWN CASTLE PIER FOUNDATION	10D1.1
A09	PROPOSED ELECTRICAL HAND HOLE	

KEYNOTE	DESCRIPTION	DETAIL
E01	PROPOSED POWER METER MOUNTED TO EQUIPMENT CABINET (DISTRIBUTED PANEL AND DISCONNECT)	18D1.1
U01	PROPOSED 2" CROWN CASTLE U.G. POWER CONDUIT (APPROXIMATE LOCATION, F.V.)	2D1.1 & 6D1.2
U02	PROPOSED CROWN CASTLE 2" U.G. FIBER CONDUIT BY OTHERS (APPROXIMATE LOCATION, F.V.)	3D1.1 & 6D1.2



NOTES:  
 1. ANY DAMAGE TO EXISTING GUTTER, CURB, SIDEWALK AND ROADWAY DURING CONSTRUCTION TO BE REPAIRED OR REPLACED.  
 2. EXISTING VEGETATION DAMAGED IN CONSTRUCTION TO BE REPLACED BY SAME SPECIES.

**GENERAL NOTES**

1. PAINT PROPOSED GROUND EQUIPMENT A NATURAL EARTH COLOR OR AS APPROVED BY CITY.
2. CONTRACTOR TO FIELD LOCATE EXIST' UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
3. EX' LANDSCAPE PLANTINGS AND DECORATIVE HARDSCAPES (DETACHED OR DESTROYED AS A RESULT OF CONSTRUCTION SHALL BE REPLACED WITH A LIKE SIZE AND SPECIE).
4. CONTRACTOR TO HAND LOCATE EX' IRRIGATION PRIOR TO EXCAVATION.
5. SITE PLAN IS A DIAGRAMMATIC REPRESENTATION ONLY. VERIFY ALL DIMENSIONS.
6. VERIFY ALL PROPERTY LINE INFORMATION WITH AVAILABLE R.O.W. DATA.
7. EXIST' UTILITY LOCATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY (AS PROVIDED BY LOCAL UTILITIES).

**SUBJECT POLE:** CCR-36

**GPS COORDINATES:**

**LAT:** 29.714185  
**LONG:** -95.818125

**POLE TYPE:** BLACK DECORATIVE SLALINE POLE

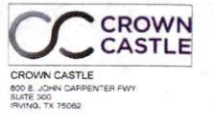
**POLE ID #:**

**UPPER ANTENNA RAD CENTER:** 30' - 0" O.A.P.G.  
**LOWER ANTENNA RAD CENTER:** 30' - 0" O.A.P.G.

**SUBJECT POLE IS LOCATED IN:** FORT BEND COUNTY R.O.W.

**APPROVED:** [Signature]  
 Development Coordinator

**DATE:** 11/1/16



RECORD DRAWING ISSUE DATE: 10/18/16



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DATE	SUBMITTAL
9/28/16	1ST CITY SUBMITTAL
10/18/16	2ND CITY SUBMITTAL

NO.	DATE	COMMENT
1	10/18/16	CITY COMMENTS

**PROJECT NAME:** CINCO RANCH EXPANSION

**NODE ADDRESS:**

**NODE #:** CCR-36

**CINCO RANCH BLVD AND MIDDLEWOOD MANOR LN**

**HUB AREA:** CINCO RANCH - HGCW

**SHIFT JOB NUMBER:** 150602

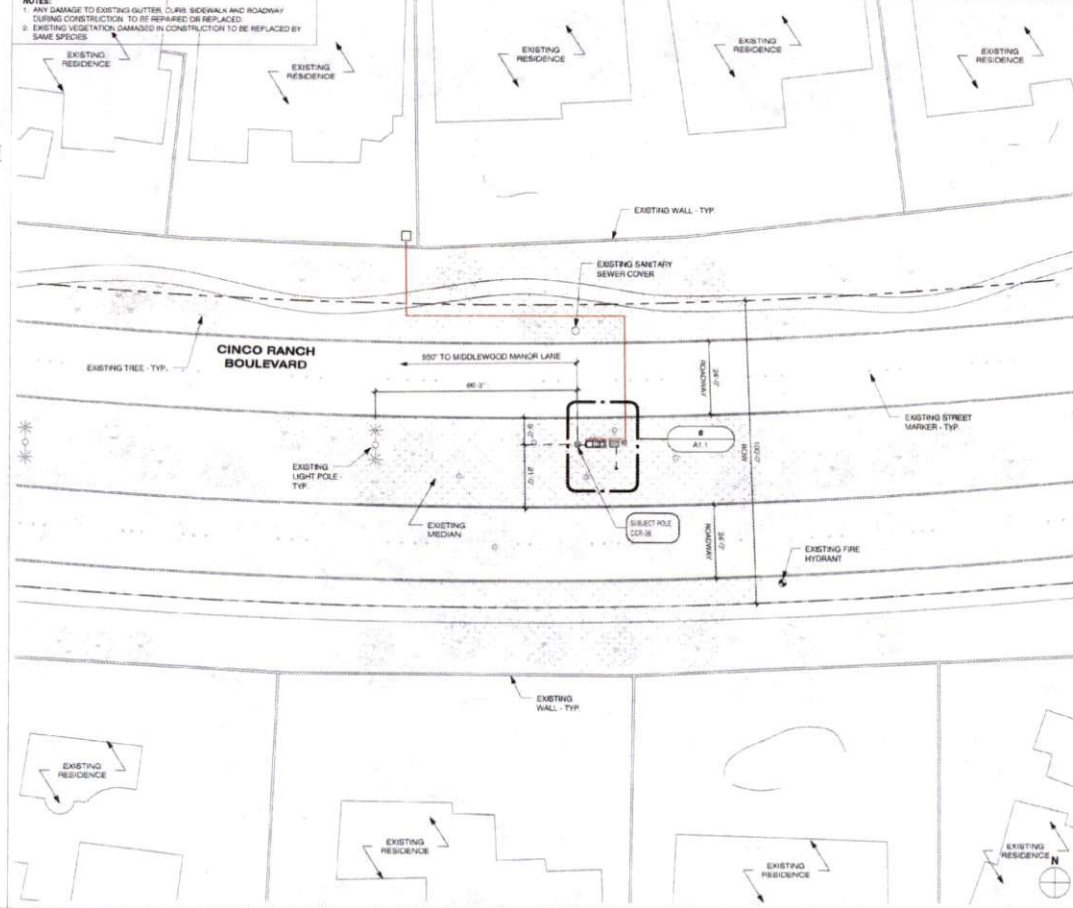
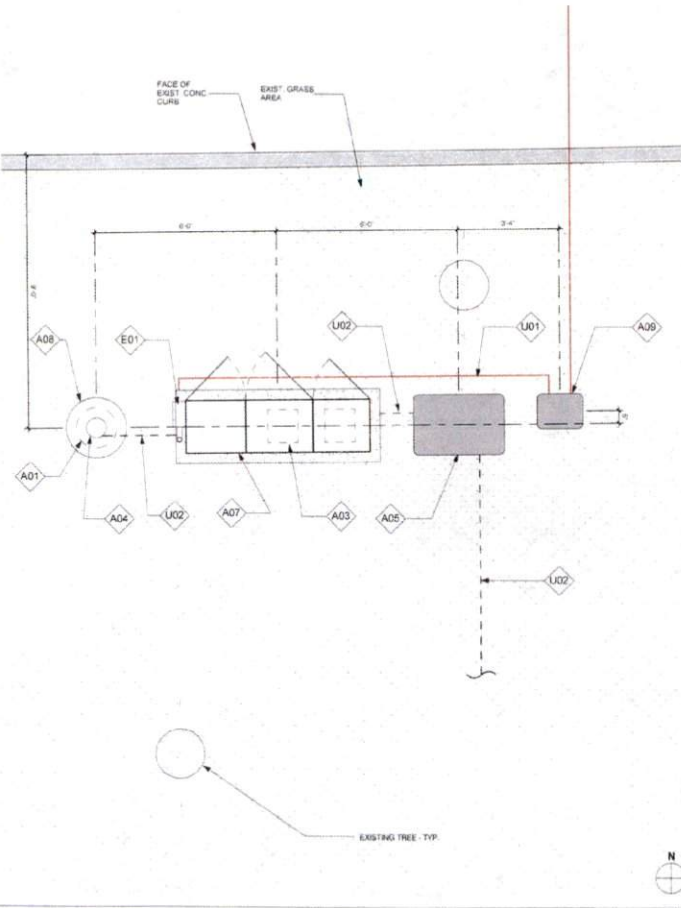
**IN HOUSE:** DRAWN BY: RA, CHECKED BY: GM

**SHEET TITLE:** SITE PLAN, EQUIPMENT AND ANTENNA PLAN

**SHEET NUMBER:** A1.1

**PAGE:** 5 OF 14

**PLOT SCALE:** 1:1 @ 24"X36" | 1:2 @ 11"X17"



EQUIPMENT AND ANTENNA PLAN

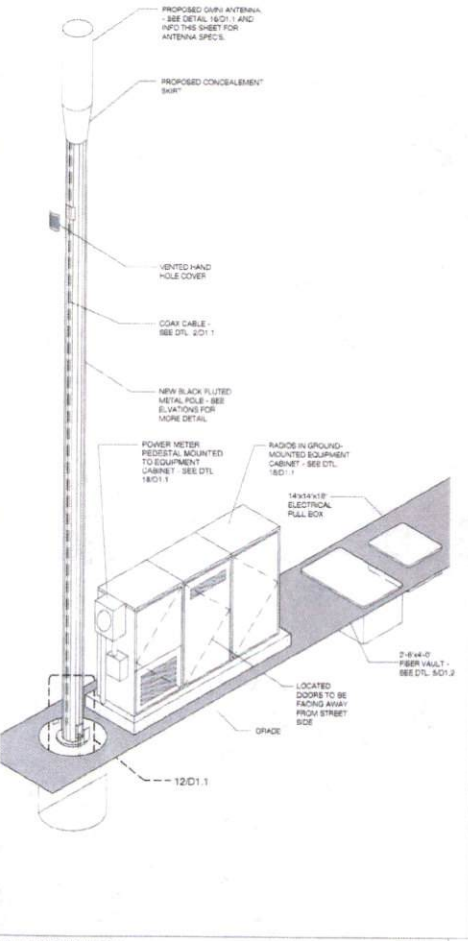
1/2" = 1'-0" 8

OVERALL SITE PLAN

1" = 20'-0" 20

PLAN CHECK # CASE #

NOTE:  
ISO IS SCHEMATIC IN NATURE. FIBER VAULT, POWER METER PEDESTAL AND GROUND-MOUNTED RADIO EQUIPMENT PEDESTAL CAN BE RECONFIGURED TO SUIT PROJECT LOCATION



KEYNOTE LEGEND		
KEYNOTE	DESCRIPTION	DETAIL NUMBER
A01	PROPOSED CROWN CASTLE OMNI ANTENNA	1501.1
A02	PROPOSED CROWN CASTLE 2" U.S. CONDUIT (APPROXIMATE LOCATION F.V.)	201.1
A03	PROPOSED CROWN CASTLE REMOTE RADIO UNITS INSIDE EQUIPMENT CABINET	1801.1
A04	PROPOSED NEW METAL SLIMLINE POLE	201.1
A05	PROPOSED CROWN CASTLE UNDERGROUND CONCL. FIBER VAULT	501.2
A06	PROPOSED CROWN CASTLE NODE IDENTIFICATION SIGNAGE	201.2
A07	PROPOSED CROWN CASTLE EQUIPMENT CABINET	1801.1
A08	PROPOSED CROWN CASTLE POLE FOUNDATION	1201.1
A09	PROPOSED ELECTRICAL HAND HOLE	
E01	PROPOSED POWER METER MOUNTED TO EQUIPMENT CABINET (DISTRIBUTED PANEL AND DISCONNECT)	1801.1

MODEL	AMPENCL-25UT20A12FV05
LENGTH	48"
WIDTH	14" DIA.
DEPTH	N/A
WEIGHT	38.1 LBS

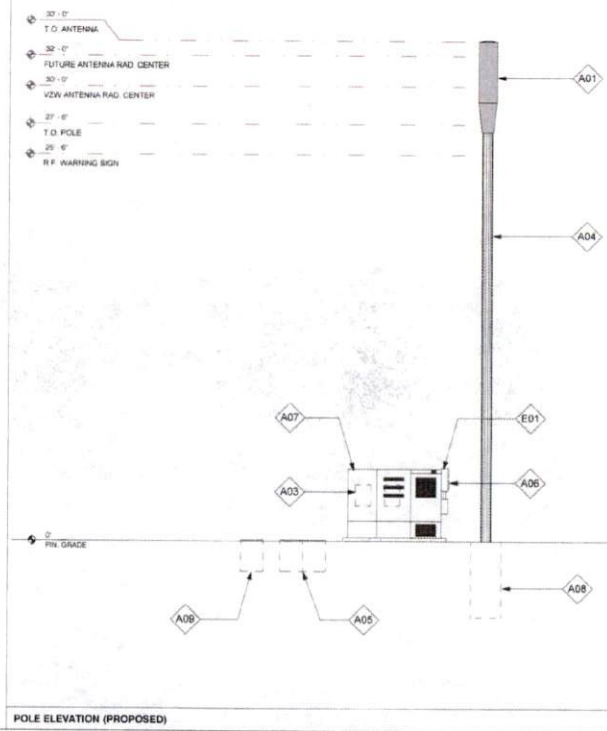
PROPOSED PANEL ANTENNA SPECS

PROPOSED POLE WIDTH	5" Ø
PROPOSED POLE HEIGHT	27'-0"
	(14'-0" ANTENNA AND 1'-0" ANTENNA MOUNT)

POLE INFO

APPROVED: *[Signature]*  
Development Coordinator  
DATE: 11/1/16



CROWN CASTLE  
800 E. JOHN CARPENTER FWY.  
SUITE 300  
IRVING, TX 75062

RECORD DRAWINGS ISSUE DATE: 10/18/16



Shift Companies, LLC  
1331 E. WYATT STREET  
SCOTTSDALE, ARIZONA 85261  
PH: 480.344.8800  
FAX: 480.344.1330

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6/23/16	1ST CITY SUBMITTAL
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REVISIONS		
NO.	DATE	COMMENTS
	10/18/16	CITY COMMENTS

PROJECT NAME  
**CINCO RANCH EXPANSION**

NODE ADDRESS  
**NODE #:CCR-36**

**CINCO RANCH BLVD AND MIDDLEWOOD MANOR LN**

HUB AREA  
**CINCO RANCH - HGCW**

SHIFT JOB NUMBER: 150602  
IN HOUSE: DRAWN BY: ISA, CHECKED BY: DM

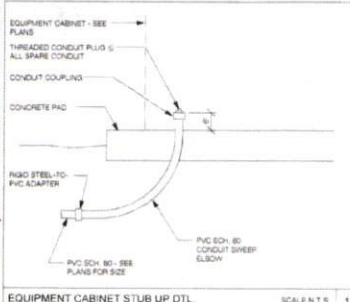
SHEET TITLE  
**POLE ELEVATION, PROPOSED**

SHEET NUMBER: A1.2  
PAGE: 6 OF 14

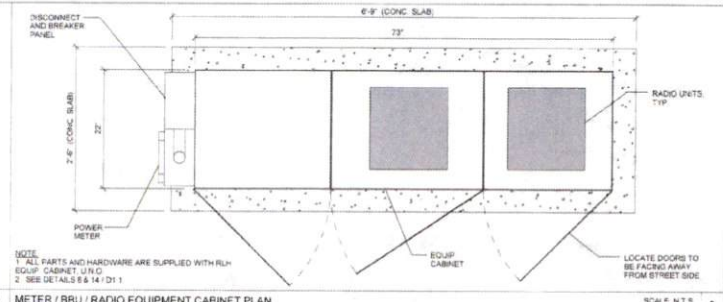
PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"

C:\Users\ruebe\_000\Documents\AAA - CROWN CASTLE Houston Cinco Ranch Expansion\Sites\Cinco Ranch Expansion - Detail Sheets - 12.14.15.rvt

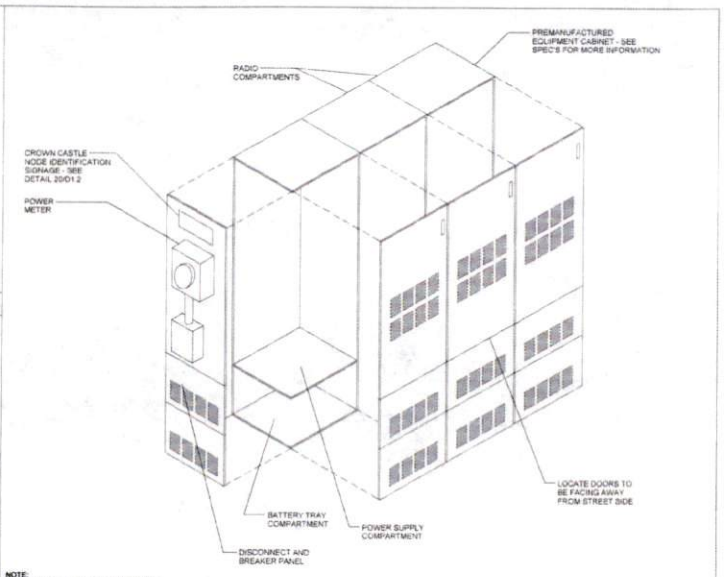
10/17/2016 3:28:55 PM



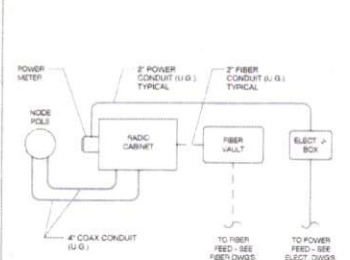
EQUIPMENT CABINET STUB UP DTL. SCALE N.T.S. 1



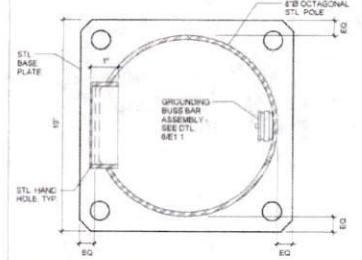
METER / BBU / RADIO EQUIPMENT CABINET PLAN. SCALE N.T.S. 5



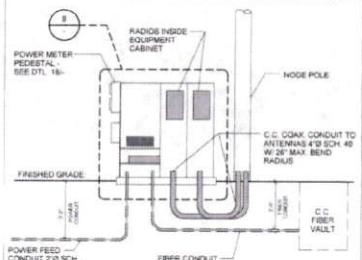
EQUIPMENT CABINET WITH METER ISOMETRIC. SCALE N.T.S. 18



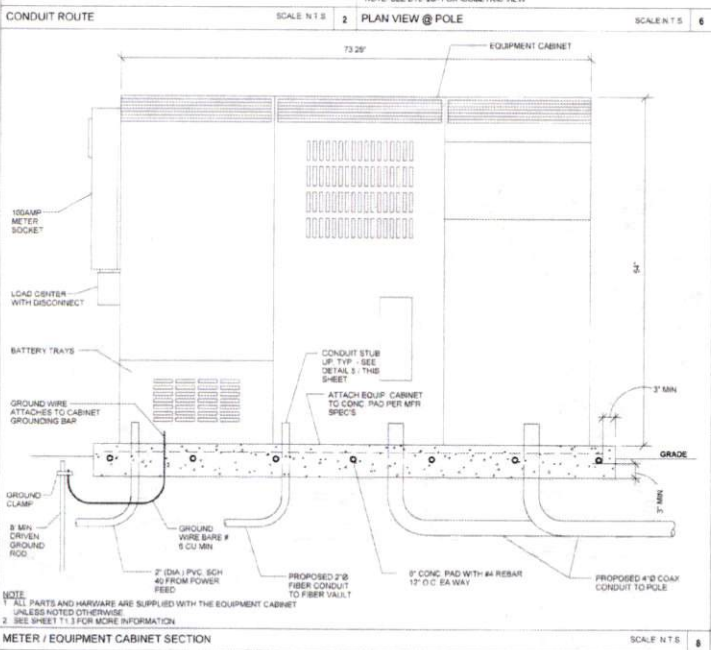
CONDUIT ROUTE. SCALE N.T.S. 2



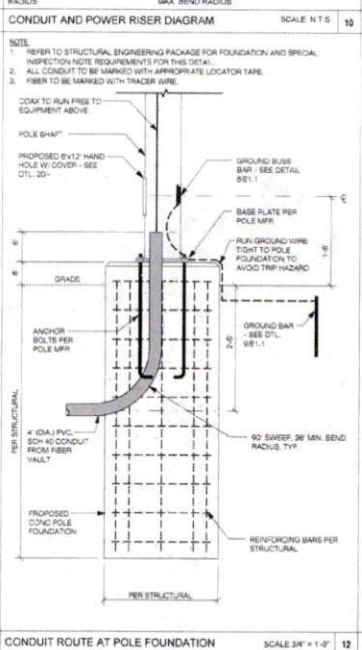
PLAN VIEW @ POLE. SCALE N.T.S. 6



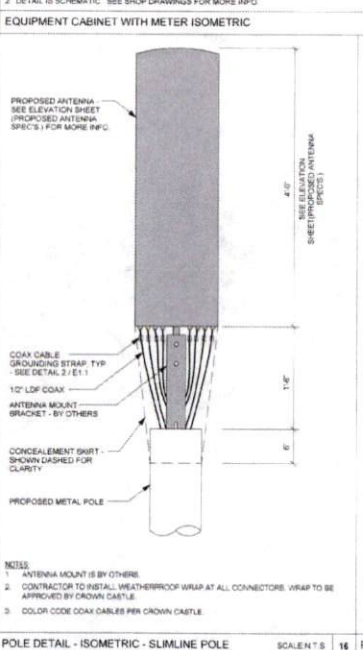
CONDUIT AND POWER RISER DIAGRAM. SCALE N.T.S. 10



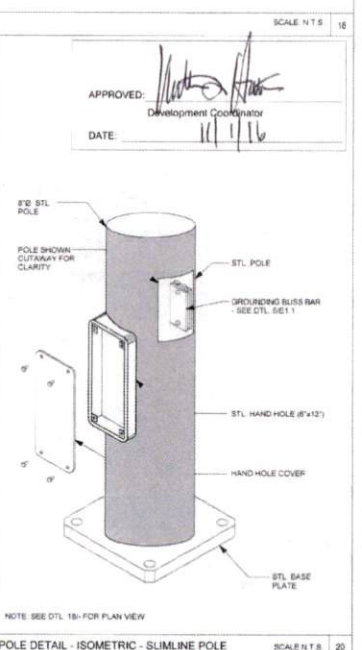
METER / EQUIPMENT CABINET SECTION. SCALE N.T.S. 8



CONDUIT ROUTE AT POLE FOUNDATION. SCALE 3/4\"/>



POLE DETAIL - ISOMETRIC - SLIMLINE POLE. SCALE N.T.S. 16



POLE DETAIL - ISOMETRIC - SLIMLINE POLE. SCALE N.T.S. 20



CROWN CASTLE  
800 E. JOHN CARPENTER Pkwy  
SUITE 300  
IRVING, TX 75062

RECORD DRAWINGS ISSUE DATE: 10.18.16



Shift Companies, LLC  
7331 E. FORT WORTH BLVD  
SCOTTSDALE, ARIZONA 85251  
PH: 480.341.8500  
SH: 480.341.0553

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RELEASE	
DATE	SUBMITTAL
6/03/16	1ST CITY SUBMITTAL
10/16/16	2ND CITY SUBMITTAL

REVISIONS		
NO.	DATE	COMMENT

PROJECT NAME  
**CINCO RANCH EXPANSION**

HUB AREA  
**CINCO RANCH - HGCW**

SHIFT JOB NUMBER: **150602** IN HOUSE  
DRAWN BY: **AK** CHECKED BY: **CM**

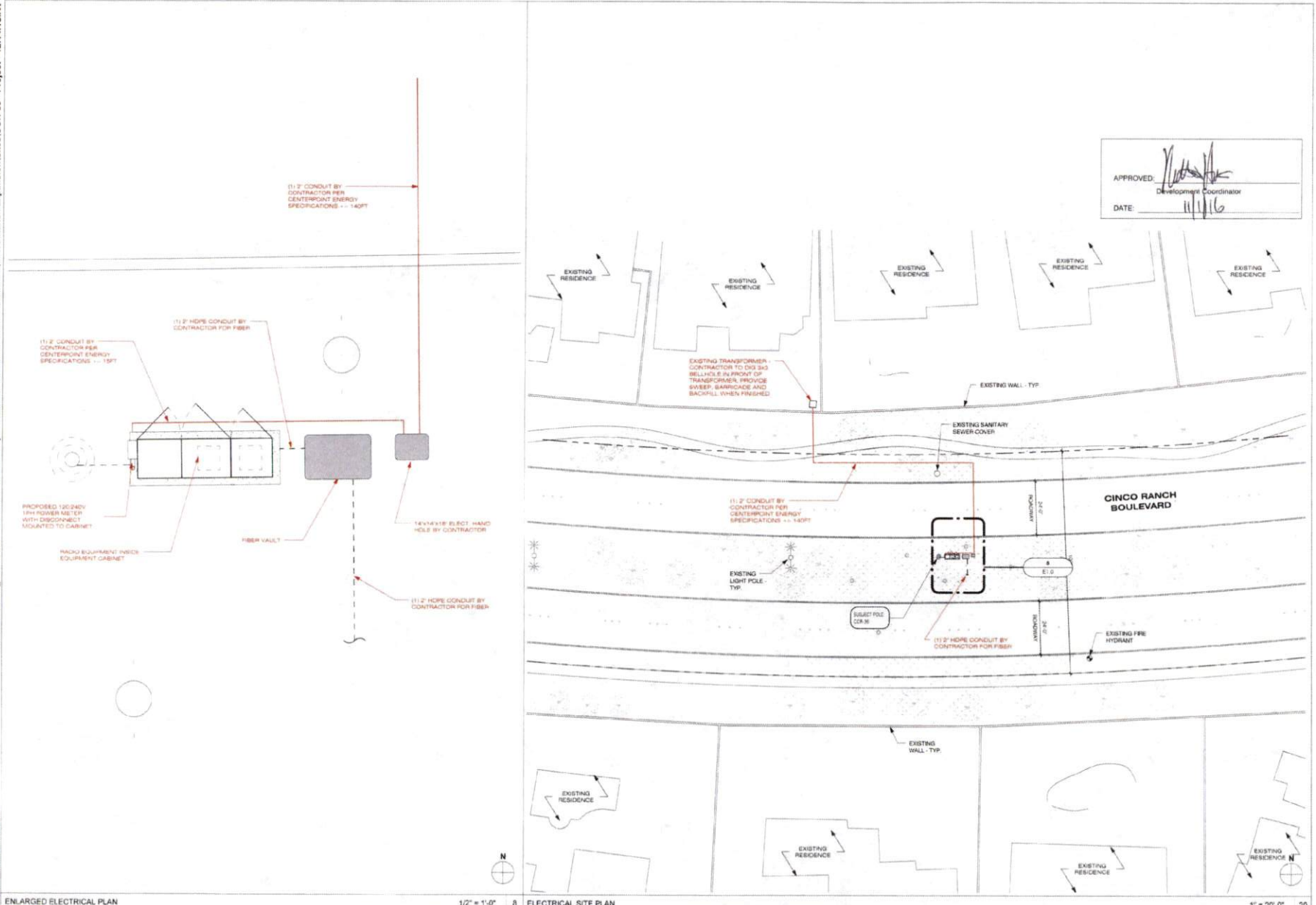
SHEET TITLE  
**CONSTRUCTION DETAILS**

SHEET NUMBER: **D1.1** PAGE: **7 OF 14**

PLOT SCALE: 1:1 @ 24\"/>

PLAN CHECK # CASE #





ENLARGED ELECTRICAL PLAN

1/2" = 1'-0" 8

ELECTRICAL SITE PLAN

1" = 20'-0" 20

APPROVED: *[Signature]*  
Development Coordinator  
DATE: 11/1/16



**CROWN CASTLE**  
800 E. JOHN CARPENTER FWY  
SUITE 300  
IRVING, TX 75062

RECORD DRAWINGS ISSUE DATE: 10/18/16



**SHIFT**  
Shift Companies, LLC  
13111 L. HOWE WY #140  
SCOTTDALE, ARIZONA 85257  
PH: 480.284.0000  
FX: 480.284.0333

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8/25/16	1ST CITY SUBMITTAL
10/18/16	2ND CITY SUBMITTAL

REVISIONS NO.	DATE	COMMENT
10/18/16		CITY COMMENTS

PROJECT NAME  
**CINCO RANCH EXPANSION**

HUB ADDRESS  
**CINCO RANCH BLVD AND MIDDLEWOOD MANOR LN**

NODE #:**CCR-36**

CINCO RANCH BLVD AND MIDDLEWOOD MANOR LN

HUB AREA  
**CINCO RANCH - HGCV**

SHIFT JOB NUMBER **150602** IN HOUSE  
DRAWN BY: RA  
CHECKED BY: CM

SHEET TITLE  
**ELECTRICAL PLANS**

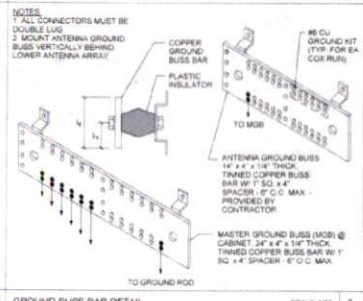
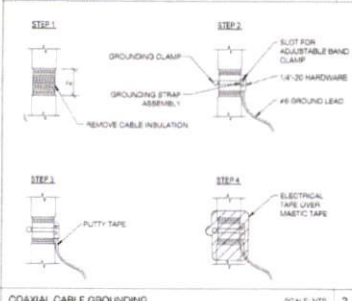
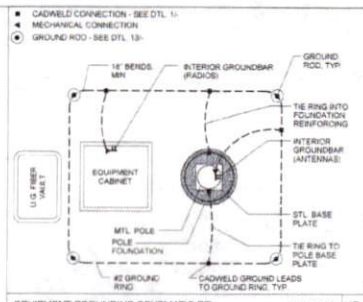
SHEET NUMBER **E1.0** PAGE **9 OF 14**

PLOT SCALE: 1/1" @ 24"x36", 1/2" @ 11"x17"

PLAN CHECK #

CASE #

C:\Users\mab\_000\Documents\AAA - Crown Castle Houston\Cinco Ranch Expansion\Sites\Cinco Ranch Expansion - Detail Sheets - 12.14.15.rvt



**PANEL A** FED FROM TRANSFORMER NEMA 3R VOLTAGE 240/120V 2P 3W BUS AMPS 60 MAXIMUM 100%

NO.	CB	CIRCUIT DESCRIPTION	KVA LOAD		NO.	CB	CIRCUIT DESCRIPTION	KVA LOAD	
			A	B				A	B
1	-	SPACE	0.00		2	201	RADIO EQUIPMENT	1.25	
3	-	SPACE	0.00		4	201	RADIO EQUIPMENT	1.05	
5	-	SPACE	0.00		6	201	SPACE	0.00	
7	-	SPACE	0.00		8	-	SPACE	0.00	
TOTAL CONNECTED KVA BY PHASE			1.25	1.05	TOTAL CONNECTED AMPS BY PHASE			11.8	11.8
LUGTING			0	0 (125%)	CONTINUOUS			0	0 (125%)
LARGEST FACTOR			0	0 (125%)	HEATING			0	0 (100%)
OTHER FACTORS			0	0 (125%)	NONCONTINUOUS			2.1	2.1 (107%)
NEE/FACILES			0	0	TOTAL AMPS			3.82	3.82

LEGEND:  
 UG-FIND 0  
 LARGEST FACTOR 0  
 OTHER FACTORS 0  
 NEE/FACILES 0

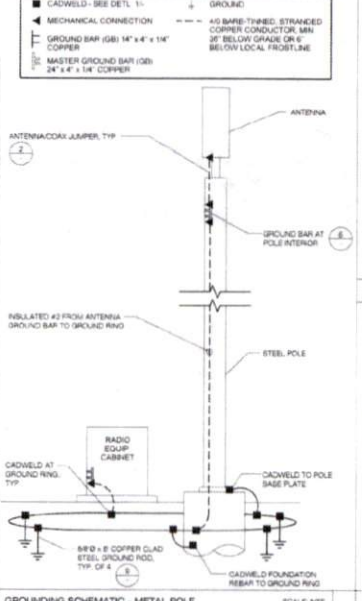
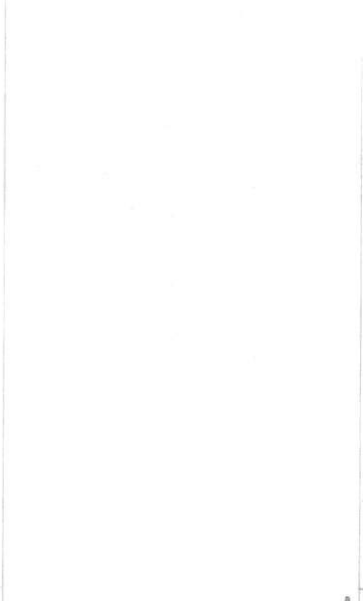
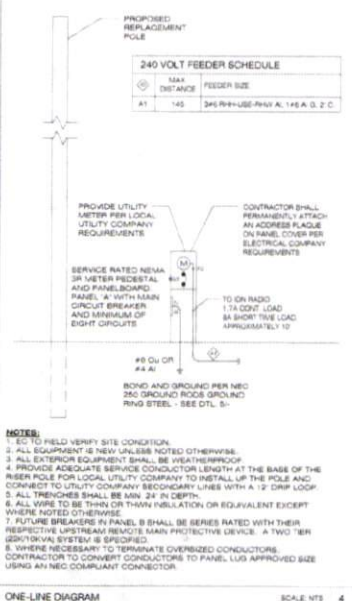
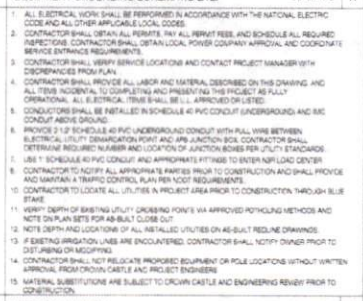
CONDUCTORS SHALL BE 1/2" SCHEDULE 40 PVC UNDERGROUND CONDUIT WITH PULL WIRE BENEATH ELECTRICAL UTILITY DEMARCATION POINT AND ARE JUNCTION BOX. CONTRACTOR SHALL DETERMINE REQUIRED NUMBER AND LOCATION OF JUNCTION BOXES PER UTILITY SPECIFICATIONS.  
 1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND ALL OTHER APPLICABLE LOCAL CODES.  
 2. CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY ALL PERMIT FEES, AND SCHEDULE ALL REQUIRED INSPECTIONS. CONTRACTOR SHALL OBTAIN LOCAL POWER COMPANY APPROVAL AND COORDINATE SERVICE ENTRANCE REQUIREMENTS.  
 3. CONTRACTOR SHALL VERIFY SERVICE LOCATION AND CONTACT PROJECT MANAGER WITH DISCREPANCIES FROM PLAN.  
 4. CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL DESCRIBED ON THIS DRAWING AND ALL ITEMS INCIDENTAL TO COMPLETING AND PRESERVING THE PROJECT AS FULLY OPERATIONAL. ALL ELECTRICAL TRIM SHALL BE 1" APPROVED SH-100 SERIES.  
 5. CONDUCTORS SHALL BE INSTALLED IN SCHEDULE 40 PVC CONDUIT (UNDERGROUND) AND SH-100 CONDUIT ABOVE GROUND.  
 6. PROVIDE 1/2" SCHEDULE 40 PVC UNDERGROUND CONDUIT WITH PULL WIRE BENEATH ELECTRICAL UTILITY DEMARCATION POINT AND ARE JUNCTION BOX. CONTRACTOR SHALL DETERMINE REQUIRED NUMBER AND LOCATION OF JUNCTION BOXES PER UTILITY SPECIFICATIONS.  
 7. USE 1" SCHEDULE 40 PVC CONDUIT AND APPROPRIATE FITTINGS TO ENTER NEAR LOAD CENTER.  
 8. CONTRACTOR TO NOTIFY ALL APPROPRIATE AGENCIES PRIOR TO CONSTRUCTION AND SHALL PROVIDE AND MAINTAIN A TRAFFIC CONTROL PLAN PER NOT REQUIREMENTS.  
 9. CONTRACTOR TO LOCATE ALL UTILITIES A PROJECT AREA PRIOR TO CONSTRUCTION THROUGH BLUE STAKE.  
 10. VERIFY DEPTH OF EXISTING UTILITY GROUNDING POINTS VIA APPROVED POT-HOLDING METHODS AND NOTE ON PLAN SETS FOR AS-BUILT CLOSE-OUT.  
 11. NOTE DEPTH AND LOCATION OF ALL RECALLED UTILITIES ON AS-BUILT REDLINE DRAWINGS.  
 12. IF EXISTING IRRIGATION LINES ARE ENCLOSED, CONTRACTOR SHALL NOTIFY DRAINS PRIOR TO DISTURBING OR MODIFYING.  
 13. CONTRACTOR SHALL NOT RELY ON EXISTING EQUIPMENT OR POLE LOCATIONS WITHOUT WRITTEN APPROVAL FROM CROWN CASTLE AND PROJECT ENGINEER.  
 14. MATERIAL SUBSTITUTIONS ARE SUBJECT TO CROWN CASTLE AND ENGINEERING REVIEW PRIOR TO CONSTRUCTION.

**ELECTRICAL PANEL SCHEDULES** SCALE: NTS 14

LENGTH	SIZE (AWG/KCMIL)	GROUND SIZE	CONDUIT SIZE
360	2	4	2"
360	1	4	2"
470	1/0	2	2"
550	2/0	2	2"
480	3/0	2	2"
800	4/0	1	2"
1000	250	1/0	2 1/2"
1080	300	2/0	2 1/2"

**FEEDER SCHEDULE** SCALE: NTS 15

Fault Point	Panel Transformer	Source (Fault Point)	Source I (amps)	Conduit Type	Wire/Bus Size	C' value	E (volts)	L (length)	f	M	inc	AC Rating
1	UTILITY WARRIOR'S PEDESTAL	1	25000	NM	1 Sets of 2	3750	240	20	0.851	0.54	11884	22 000
2	Panel-A @ 20'	1	25000	NM	1 Sets of 2	3750	240	100	4.256	0.19	4185	10 000
3	Panel-A @ 100'	1	25000	NM	1 Sets of 2	3750	240	150	6.385	0.14	2679	10 000
4	Panel-A @ 200'	1	25000	NM	1 Sets of 2	3750	240	200	8.513	0.11	2313	10 000



**POWER FEEDER SCHEDULE**

LENGTH	SIZE (AWG/KCMIL)	GROUND SIZE	CONDUIT SIZE
360	2	4	2"
360	1	4	2"
470	1/0	2	2"
550	2/0	2	2"
480	3/0	2	2"
800	4/0	1	2"
1000	250	1/0	2 1/2"
1080	300	2/0	2 1/2"

**FEEDER SCHEDULE** SCALE: NTS 15

Fault Point	Panel Transformer	Source (Fault Point)	Source I (amps)	Conduit Type	Wire/Bus Size	C' value	E (volts)	L (length)	f	M	inc	AC Rating
1	UTILITY WARRIOR'S PEDESTAL	1	25000	NM	1 Sets of 2	3750	240	20	0.851	0.54	11884	22 000
2	Panel-A @ 20'	1	25000	NM	1 Sets of 2	3750	240	100	4.256	0.19	4185	10 000
3	Panel-A @ 100'	1	25000	NM	1 Sets of 2	3750	240	150	6.385	0.14	2679	10 000
4	Panel-A @ 200'	1	25000	NM	1 Sets of 2	3750	240	200	8.513	0.11	2313	10 000

**FAULT CURRENT CALCULATION** SCALE: NTS 20

**RELEASE**

DATE	SUBMITTAL
6.05.16	1ST CITY SUBMITTAL
10.18.16	2ND CITY SUBMITTAL

**REVISIONS**

NO.	DATE	COMMENT
10	10.18.16	CITY COMMENTS

**PROJECT NAME**  
 CINCO RANCH EXPANSION

**HUB AREA**  
 CINCO RANCH - HGCV

**SHEET JOB NUMBER**  
 150602

**SHEET TITLE**  
 ELECTRICAL DETAILS

**SHEET NUMBER**  
 E1.1

**PAGE**  
 10 OF 14

**PLOT SCALE**  
 1:1 @ 24x36, 1:2 @ 11x17

**CROWN CASTLE**  
 800 E. JOHN CARPENTER Pkwy  
 SUITE 300  
 HAVANA, TX 75662

RECORD DRAWINGS ISSUE DATE: 10/18/16

**SHIFT**  
 Shift Companies, LLC  
 7311 FORT WORTH ROAD  
 SOUTHWEST, MEMPHIS, TN 38117  
 PH: 901.294.0000  
 FAX: 901.294.0100

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**PROJECT NAME**  
 CINCO RANCH EXPANSION

**HUB AREA**  
 CINCO RANCH - HGCV

**SHEET JOB NUMBER**  
 150602

**SHEET TITLE**  
 ELECTRICAL DETAILS

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 E1.1

**PAGE**  
 10 OF 14

**PLOT SCALE**  
 1:1 @ 24x36, 1:2 @ 11x17

PLAN CHECK