

## REGULAR & EXECUTIVE ADDENDUM NO. 1

**APRIL 7, 2025 -- 9:00 A.M.**

198 South Main Street, Yuma, Arizona

**CONSENT CALENDAR:** The following items listed under the Consent Agenda will be considered as a group and acted upon by one motion with no separate discussion, unless a Board Member so requests. In that event, the item will be removed from the Consent Calendar for separate discussion and action.

16. *County Administration:* Rescind the action taken by the Board on March 24, 2025 to approve Change Order #24-156-COR002 to the contract with eX2 Technology, LLC.

### EXECUTIVE SESSION ITEMS:

2. *County Attorney:* Discussion or consultation with the Yuma County Attorney for legal advice regarding the contract between Yuma County and eX2 Technology, LLC for the construction of Wireless Physical Structure Installation.

Chairman adjourns the Executive Session portion of the agenda and reconvenes in Regular Session.

**DISCUSSION AND ACTION ITEMS:** The Board will open each of the following items separately for discussion and action, as appropriate.

2. *County Administration:* a) Approve the First Amendment to the Contract Between Yuma County and EX2 Technology, LLC in the amount of \$1,684,849.45 for the Construction of Wireless Physical Structure Installation, and; b) Authorize the County Administrator to execute the First Amendment.

The Board may vote to hold an Executive Session for the purpose of obtaining legal advice from the Board's attorney on any matter listed on the agenda, pursuant to Arizona Revised Statute §38-431.03(A)(3).

Persons with disabilities may request reasonable accommodations by contacting Erica Lopez, Enterprise Risk Coordinator, at 928.373.1079 or by email at [erica.lopez@yumacountyaz.gov](mailto:erica.lopez@yumacountyaz.gov). Requests should be made as early as possible to allow time to arrange the accommodation.

Pursuant to A.R.S. §38-431.02(H), the public will have access to the meeting room at 8:15 a.m.

I hereby certify that this Meeting Notice and Agenda were posted within the 24-hour advance notice, in compliance with the Arizona Open Meeting Law.

ATTEST: DESIREE GUNDERMAN  
Clerk of the Board



**Addendum Regular & Executive Session****16.****Meeting Date:** 04/07/2025**Title:** CONSENT: Rescind action to approve Change Order #24-156-COR002 to the contract with eX2 Technology, LLC for Wireless Physical Structure Installation**Prepared by:** Joshua Scott**Department:** County Administration**Special District(s):****Strategic Priorities:**

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**1. REQUESTED BOARD ACTION:**

*County Administration:* Rescind the action taken by the Board on March 24, 2025 to approve Change Order #24-156-COR002 to the contract with eX2 Technology, LLC.

**2. SUMMARY:**

At the March 24, 2025 Board of Supervisors (Board) meeting the Board took action to approve Change Order #24-156-COR002 (Change Order 2) to the contract with eX2 Technology, LLC and to authorize the County Administrator to sign the change order; however, the County Attorney's Office has advised the Change Order was invalid and recommends the Board rescind the action taken.

**3. RECOMMENDED MOTION:**

Rescind the action taken by the Board on March 24, 2025 to approve Change Order #24-156-COR002 to the contract with eX2 Technology, LLC.

**4. FISCAL IMPACT: (Finance, OMB, & Human Res.)****5. COUNTY ATTORNEY:**

Approved as to form. M. Davy 04.04.25

**6. COUNTY ADMINISTRATOR:**

Approved J. Scott 04/04/25

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**Attachments**

Signed Change Order

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**Yuma County, Arizona**  
**Yuma County Administration**  
 198 S. Main Street, Yuma, Arizona

Project Name: **Wireless Physical Structure Installation**  
 Project Location: Yuma, AZ  
 Contractor: EX2 Technology, LLC.

**PURPOSE:**

Modifications to the Contract terms and conditions:

- 1) Add the revised Yuma County Specifications, sealed and dated 1/31/2025 ("Specifications"), and the revised Yuma County Site Plans, sealed and dated 1/31/2025 ("Plans"), to Article II, Contract Documents.

Modification of Areas of Work:

- 2) Specifications and Plans: eX2 acknowledges and accepts the revised Specifications and Plans presented by the Engineer of Record noted above. We have reviewed the changes, and the revised bid sheet incorporates the cost impacts. Review Attachment for the Specifications and Plans.
- 3) Additional Tower Funding: Request additional funding to design and install up to seven (7) additional tower sites at a total value \$1,684,849.07, to facilitate coverage and design requirements.

**DESCRIPTION:**

Change Order Request #24-156-COR002 - Revised Specifications and Plans presented by the Engineer of Record identified in "Specifications" and "Plans" establishes a cost impact (items 1, 2). Evaluation of tower delivery and design drives additional tower funding request due to quantity requirements without change of material types (item 3).

**COST ANALYSIS:**

| <u>Description</u>                    | <u>Qty</u> | <u>Amount</u>  |
|---------------------------------------|------------|----------------|
| Tower Site materials and construction | 7          | \$1,684,849.07 |

The original contract amount was..... \$3,775,135.00  
 The contract amount will be increased by this change order .....\$1,684,849.07  
 The new contract amount including this change order will be.... \$5,459,987.07

**Yuma County**  
 Date Approved:

Signature

Title County Administrator  
 Name Ian McGaughey

**eX2 Technology, LLC**  
 Date Approved:

Signature

Title Chief Operating Officer  
 Name Jay Jorgensen

**Addendum Regular & Executive Session****2.****Meeting Date:** 04/07/2025**Title:** EXECUTIVE SESSION - Contract between Yuma County and eX2 Technology, LLC for the construction of Wireless Physical Structure Installation**Submitted by Agency Head:** Bill Kerekes**Prepared by:**

Minda Davy

**Department:** County Attorney**Special District(s):****Strategic Priorities:**

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**1. REQUESTED BOARD ACTION:**

*County Attorney:* Discussion or consultation with the Yuma County Attorney for legal advice regarding the contract between Yuma County and eX2 Technology, LLC for the construction of Wireless Physical Structure Installation.

**2. SUMMARY:****3. RECOMMENDED MOTION:****4. FISCAL IMPACT: (Finance, OMB, & Human Res.)****5. COUNTY ATTORNEY:**

Approved as to form. M. Davy 04.03.25

**6. COUNTY ADMINISTRATOR:**Approved J. Scott 4/4/25

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**Addendum Regular & Executive Session****2.****Meeting Date:** 04/07/2025**Title:** DISCUSSION: Approve the First Amendment to the contract between Yuma County and eX2 Technology, LLC for the construction of Wireless Physical Structure Installation**Prepared by:** Joshua Scott**Department:** County Administration**Special District(s):****Strategic Priorities:**

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**1. REQUESTED BOARD ACTION:**

*County Administration:* **a)** Approve the First Amendment to the Contract Between Yuma County and EX2 Technology, LLC in the amount of \$1,684,849.45 for the Construction of Wireless Physical Structure Installation, and; **b)** Authorize the County Administrator to execute the First Amendment.

**2. SUMMARY:**

The Board of Supervisors (Board) awarded a contract to eX2 Technology, LLC in the amount of \$3,775,135.00 for the construction of wireless physical structure installation at the December 2, 2024 Board meeting. Yuma County and eX2 Technology, LLC then entered into a contract on December 19, 2024. On January 31, 2025 the project design engineer, HDR, Inc., issued revised project site plans and specifications to incorporate requirements from APS, Wellton-Mohawk Irrigation and Drainage District, and FEMA, as well as to add a service cabinet to each tower and provide clarification to the construction details for the project design.

The parties have determined that the technologies to be used on the towers may be different from what was in HDR's site plans and specifications. eX2 Technology, LLC initiated a radio frequency study which has identified that it is in the best interest of the County of Yuma that an additional seven towers be installed to ensure adequate coverage for the contemplated technologies for agricultural purposes.

The attached "First Amendment to the Contract Between Yuma County and eX2 Technology, LLC for the Construction of Wireless Physical Structure Installation" (First Amendment) amends the contract to include:

- Incorporation of the January 31, 2025 plans and specifications by HDR, Inc. and associated cost increases of \$484,770.28.
- Design and construction of seven additional towers at a total cost of \$1,200,079.17.
- A modified project completion date of July 31, 2026, to be in line with the terms of the Governor's Office grant (a separate agenda item amending Yuma County's IGA with the Governor's Office will be presented at a future Board meeting).
- A provision to allow eX2 Technology, LLC to bill for mobilization costs.

The total budget impact of the First Amendment is an additional \$1,684,849.45 for a new contract total of \$5,459,984.45. There is adequate budget in the project to support the requested contract cost increase.

**3. RECOMMENDED MOTION:**

- a)** Approve the First Amendment to the Contract Between Yuma County and EX2 Technology, LLC in the amount of \$1,684,849.45 for the Construction of Wireless Physical Structure Installation, and;  
**b)** Authorize the County Administrator to execute the First Amendment.

**4. FISCAL IMPACT: (Finance, OMB, & Human Res.)**

**5. COUNTY ATTORNEY:**

Approved as to form for posting purposes. M. Davy 04.04.25

**6. COUNTY ADMINISTRATOR:**

Approved J. Scott 4/4/25

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**Attachments**

First Amendment

Exhibit A - Revised Specifications

Exhibit B - Revised Site Plans

Exhibit C - Revised Project Costs

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**FIRST AMENDMENT TO THE  
CONTRACT BETWEEN YUMA COUNTY AND EX2 TECHNOLOGY, LLC  
FOR THE CONSTRUCTION OF  
WIRELESS PHYSICAL STRUCTURE INSTALLATION**

This First Amendment to the Contract for the Construction of Wireless Physical Structure Infrastructure (“First Amendment”) is entered by and between Yuma County, an Arizona political subdivision (“Yuma County”), and EX2 Technology, LLC, a Nebraska limited liability company (“Contractor”). Yuma County and Contractor are collectively referred to as the “Parties.”

**RECITALS**

The Parties entered into a contract for the construction of wireless physical structure installation (the “Project”) on or about December 19, 2024 (“Contract”);

On or about February 20, 2025, the Parties executed Change Order #1 to the Contract on February 20, 2025. On or about March 10, 2025, the Parties executed Amendment #1 to the Contract. The Parties acknowledge that Change Order #1 and Amendment #1 may not have been properly authorized by Yuma County. On March 24, 2025, the Yuma County Board of Supervisors approved Change Order #2, which was derived from Change Order #1. The Parties hereby agree that Change Order #1, Change Order #2 and Amendment #1 are invalid and are of no effect.

The Contract incorporated Specifications for Yuma County Wireless Tower Deployment sealed and dated September 4, 2024 that were completed by the design engineer (“Original Specifications”), which provided the construction details for twenty seven (27) towers in accordance with the design engineer’s Plans for Yuma County Wireless Broadband sealed and dated September 4, 2024 (“Original Site Plans”).

In order to incorporate requirements from utility companies and FEMA, as well as to add a service cabinet to each tower and provide clarification to the construction details for the Project, the design engineer updated the Original Specifications with the Yuma Co Wireless Tower Deployment sealed and dated January 31, 2025 (“Revised Specifications”), and the Original Site Plans with the Plans for Yuma County Wireless Broadband sealed and dated January 31, 2025 (“Revised Site Plans”).

The Parties desire to adopt and incorporate the Revised Specifications and Revised Site Plans into the Contract to replace the Original Specifications and Original Site Plans in their entirety.

The Parties have determined that the technologies to be used on the towers may be different from what was in the Revised Specifications and the Revised Site Plans. Contractor has initiated a radio frequency study which has identified that it is in the best interest of the County of Yuma that an additional seven (7) towers be included in the Project design to allow for more continuous coverage in focus areas for wireless broadband for agricultural purposes.

The Parties desire to have the Contractor conduct an engineering design for the seven (7) additional towers and to modify the Project to have Contractor construct seven (7) additional towers in accordance with the Revised Specifications and

To allow for completion of the Project in accordance with the Revised Specifications and Revised Site Plans, and for the design and construction of the additional seven (7) towers, the Parties desire to increase the costs for the Project and allow for mobilization, and to extend the completion date of the Project.

The Parties desire to amend the Contract accordingly, in accordance with the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants and agreements set forth in this First Amendment, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

### AMENDMENT

1. *Effective Date.* The effective date of this Amendment shall be the 7th day of April, 2025 (“Effective Date”).
2. *Project Design.* As part of the Project, the Contract provided for the Contractor to construct twenty seven (27) towers in accordance with the initial design. The Parties have determined it is necessary to construct an additional seven (7) towers in the County of Yuma. Therefore, the Project and the Contract is hereby amended throughout to provide for Contractor to construct a total of thirty four (34) towers in Yuma County. The defined term of Project shall hereinafter include construction of thirty four (34) towers.
3. *Specifications.* The Original Specifications are hereby replaced in their entirety with the Revised Specifications. The Revised Specifications are attached hereto as Exhibit A and incorporated herein as though fully set forth herein.
4. *Site Plans.* The Original Site Plans are hereby replaced in their entirety with the Revised Site Plans. The Revised Site Plans are attached hereto as Exhibit B and incorporated herein as though fully set forth herein.
5. *Scope of Work.* In addition to the scope of work provided for in the Contract, Contractor shall complete the radio frequency study, shall conduct an engineering design for the seven (7) towers, and, after review and approval of such design by the County Administrator, construct the additional seven (7) towers in conformity with the Revised Specifications and Revised Site Plans, and in accordance with the terms and conditions in the Contract and this First Amendment (collectively, “Revised Project Design”).
6. *Project Completion Date.* The Project completion date referenced in the Contract of 120 calendar days from the effective date in the Notice to Proceed is hereby replaced in its entirety with the following:

- a. The Project, as amended in the First Amendment, which includes the Revised Project Design, shall be completed in its entirety by the Contractor, on or before August 31, 2026; however, this is contingent upon the IGA between Yuma County and the State of Arizona, Office of the Governor being amended to provide for an extension of the grant funds to allow for this completion date.
7. *Project Cost.* The original amount for Contractor to construct the Project was \$3,775,135.00. In order to carry out the Revised Project Design, the original amount of the Contract shall be increased by \$1,684,849.45, to provide for a total cost for the Project of \$5,459,984.45 ("Revised Project Costs"). A breakdown of the Revised Project Costs is attached hereto as Exhibit C and incorporated herein as though fully set forth herein, which shall supplement the Bid Sheet in Appendix A of the Contract. Accordingly, Yuma County shall pay Contractor up to the amount of the Revised Project Costs for the work to perform the Revised Project Design, in accordance with the terms of the Contract and this First Amendment.
8. *Mobilization.* To provide for mobilization for the Contractor, ten percent (10%) shall be removed from each line item on the Revised Project Costs in Exhibit C and identified as mobilization. The third paragraph of Section 109.10, Payment for Mobilization/Demobilization, of the Yuma County Public Works Standard, Vol. I, is hereby amended to read in its entirety as follows: "Payment for mobilization/demobilization will be made at the contract lump sum price. Payment shall be made in one portion. The entire lump sum amount will be paid with the Contractor's initial billing."
9. *Code of Federal Regulations Termination.* The following provision is hereby incorporated into the Contract: The Parties acknowledge and agree that this Contract is subject to termination in accordance with 2 CFR 200.340.
10. *Capitalized Terms.* Capitalized terms not defined herein shall have the same meaning as provided in the Contract.
11. *Counterparts.* This First Amendment may be executed in counterparts (including by facsimile or other electronic transmission), all of which together shall constitute an agreement binding on the Parties.
12. *Contract in Full Force and Effect.* Except as expressly modified herein, all terms and conditions of the Contract shall remain unchanged and in full force and effect.

IN WITNESS WHEREOF, the Parties hereto have caused this First Amendment to be executed by its duly authorized representative, effective as of the Effective Date.

YUMA COUNTY

EX2 TECHNOLOGY, LLC

By: \_\_\_\_\_  
Ian McGaughey  
County Administrator  
Date: \_\_\_\_\_

By: \_\_\_\_\_  
Printed Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

# Exhibit A

## Revised Specifications

## SPECIFICATIONS FOR:

# YUMA CO WIRELESS TOWER DEPLOYMENT

These specifications are for the project to supply and install poles, footings, cabinets, conduit, fiber optics, electrical conductors, and other equipment in Yuma County, Arizona.

Payment will be made on a lump sum basis for each project site upon installation and acceptance by Yuma County.

Bidders should utilize Appendix A (YUMA COUNTY WIRELESS BROADBAND BID SHEET) to submit cost for each site. No other format is allowed.

Unless otherwise modified within this document, the controlling specifications for construction shall be the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction.

### **A. Definition of Abbreviations.**

AC – Alternating Current

ADOT- Arizona Department of Transportation

ASTM – American Society for Testing and Materials

AWG – American Wire Gauge

CSR – Combined Stress Ratio

EIA- Electronics Industry Alliance

EMT – Electric Metallic Tube

GFCI – Ground Fault Circuit Interrupter

GPS – Global Positioning Satellite

HDPE – High-Density Polyethylene

IP – Internet Protocol

ITU-T - International Telecommunications Union – Telecommunications Standardization Sector

LED – Light Emitting Diode

OSP – Outside Plant

OTDR- Optical Time Domain Reflectometer

PVC- Polyvinyl Chloride

RMS – Root Mean Square

RSC – Rigid Steel Conduit

SCTE - Society of Cable Telecommunications Engineers

SM – Single Mode



TIA- Telecommunications Industry Association

XHHW - Cross-linked Polyethylene, High Heat and Water Resistant

## **B. Special Requirements.**

1. Comply with National Electric Code (NEC), latest edition adopted by the State of Arizona.
2. Comply with Telecommunications Industry Association (TIA) latest editions.
3. Electronics Industry Alliance (EIA) latest editions.
4. Institute of Electrical and Electronics Engineers (IEEE) Standards and Practices.
5. American National Standards Institute (ANSI) Standards and Practices.
6. National Electrical Manufacturers Association (NEMA) Standards.
7. Underwriters Laboratories (UL) Standards.

## **C. Submittals**

### **1. Material List.**

- a. Complete and submit one electronic PDF of the materials list to the Engineer within 14 calendar days after award of the project contract. Include the name of the materials, supplier, and catalog number of each item listed.

### **2. Construction Schedule.**

- a. 14 calendar days after award of the project contract, submit to the Engineer one electronic PDF of the detailed construction schedule including dates of commencement for each major work item, duration of each major work item and completion of each major work item on each segment of the proposed construction.
- b. Major items of work to be included on the schedule shall include, but are not limited to the following:
  - Duration of material procurement,
  - Installation of conduit, Vaults,
  - Installation of device cabinets, foundations, and poles,
  - Installation and energizing of power,
  - Splicing and termination of fiber optic cables, and
  - Duration of fiber testing and submission of test reports.
- c. Upon acceptance of the schedule, the Contractor will be expected to adhere to these dates as proposed unless modified with the approval of the Engineer. Submittal and approval of the proposed construction schedule by the Engineer is required before the Contractor can commence construction activities.

### 3. Shop Drawings.

- a. Before any items are ordered or installation is started, submit the following list of shop drawings for approval:
  - Power Installed Pole Foundation.
  - Pole.
  - Transformer Base.
  - Pole Mount Cabinet Mounting Assemblies.
  - Cabinet.
  - HDPE Conduit.
  - PVC Conduit.
  - Rigid Steel Conduit.
  - Duct Plugs.
  - Duct Seal.
  - Vaults.
  - Ground Rods.
  - Exothermic Welding Kit.
  - Copper Cable (Power).
  - Copper Cable (Ground).
  - Tracer Wire.
  - Tracer Wire Splice Kit.
  - Fiber Optic Cable.
  - Meter Enclosure.
  - OTDR (Optical Time Domain Reflectometer) Meter with Calibration Certificate from Manufacturer within last year.
  - Fusion Splicer with Calibration Certificate from Manufacturer within last year.
  - Fiber Optic Splice Closure.
  - Fiber Optic Splice Tray.
  - Connector Adaptor Panel.
  - Fiber Connector and Pigtails.
- b. Additional drawings may be required on a project specific basis in accordance with the contract documents.
- c. Submittal for foundations shall include all structural calculations and be accompanied by a shop drawing that at a minimum illustrates a schematic of the foundation with a summary of the design criteria, material data, foundation data and orientation details. Design calculations and shop drawing for foundations shall be sealed by a Professional Engineer licensed in the State of Arizona.
- d. Submittal for poles shall include all structural calculations and be accompanied by a shop drawing that at a minimum illustrates a schematic of the proposed pole and transformer base with a summary of the design criteria, material data, pole data and details of handholes, pole top, pole base and pole orientation. Design calculations for poles and transformer bases shall be sealed by a Professional Engineer licensed in the State of Arizona.
- e. The Engineer will review the shop drawings/catalog cuts for the purpose of assuring general conformance with the project design concept and contract documents.
- f. The Engineer will provide approval or rejection of shop drawings within 14 calendar days of the Contractor's submission. Re-submit the shop drawings for approval within 7 calendar days of the Engineer's rejection.
- g. Provide written notice of any deviations from the requirements of the contract documents.

- h. Engineer's approval of shop drawings/catalog cuts does not relieve the Contractor of responsibility for providing satisfactory materials complying with the contract documents. Order all materials requiring production lead time greater than 4 weeks within 7 calendar days of receiving the approved shop drawing(s).
- i. Submit to the Engineer proof of material purchase order in electronic PDF.

**4. Warranty.**

- a. Transfer all required standard materials warranties on the date of final acceptance to Yuma County.
- b. Warranty periods shall not commence prior to final acceptance of the work and shall remain in effect until at least 1 year after the final acceptance for all cables and equipment furnished and installed for the project.

**5. As-Built Documentation.**

**a. General**

- i. Maintain written records of daily construction progress, areas worked, and quantities installed to aid in the completeness of as-constructed documentation.
- ii. Provide as-built documentation package with the following:
  - 1. Documentation of fiber cable sequentials at cabinets, and in/out of Vaults.
  - 2. Master record set of plans (maintained throughout construction) documenting any deviations from the design shown in the original contract documents.
  - 3. Confirmation that splicing was completed as planned or redline corrections of how it was spliced.

**b. GPS Data Recording Staking**

- i. The Contractor will be responsible for collecting GPS data of all installations including, but not limited to, conduit and/or cable routing and Vaults.
- ii. Collect GPS data every 25 feet of running line, including depth.
- iii. The cost of GPS data recording shall be included in the bid price at each Tower site.

## **MATERIALS**

### **A. General**

- i. Provide all items, equipment, or materials not specifically addressed in the contract documents which are required to provide a complete and functional system. The level of quality shall be consistent with other specified items as determined by Yuma County. All miscellaneous electrical equipment and materials shall be listed for its specific application.
- ii. For purposes of the specifications, the terms "tower" and "pole" shall be considered synonymous.

### **B. Construction Staking**

#### **i. General**

1. Seven (7) days prior to construction at each site, install lath at the location of all proposed towers, vaults, meter pedestals, and every 25' along conduit path for review by the Engineer. Lath shall be labelled with corresponding feature ID (vault ID, conduit ID, etc.). Provide wood lath that is approximately 3/8 inch thick by 1 1/2 inches wide by 48 inches long.

### **C. Foundation.**

#### **i. General**

1. This specification is for a power installed foundation compatible for use with, and support of, (49.5 ± 0.5) foot steel breakaway pole including the transformer base.
2. Foundations and baseplate should be of steel construction.
3. Ensure the foundation and baseplate are hot dip galvanized steel inside and out according to ASTM A153.
4. After galvanizing, the manufacturer identification and fabrication date shall be permanently stamped to the baseplate in minimum 1/2 inch letters.

#### **ii. Alternate Foundation Type**

1. Contractor may propose alternate foundation designs, stamped by a professional engineer licensed in the state of Arizona, for review by the owner's Engineer.

### **D. Fabrication Specifications.**

- i. All foundations shall be designed in accordance with the American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, current edition.
- ii. Mill certifications shall be supplied as proof of compliance with the specifications. The Fabricator shall be certified under Category I, Conventional Steel Structures, as set forth by the American Institute of Steel Construction (AISC) Quality Certification Program. All welding shall be in accordance to following:
  1. Current American Welding Society (AWS) standards in effect at the time of letting are applicable.
  2. Comply with ANSI/AWS D1.5 Structural Welding Code procedures and requirements for items listed in Article a below. Comply with ANSI/AWS D1.1 Structural Welding Code procedures and requirements for items in Articles "b" through "e" below.
    - b. Traffic Signal Components.
    - c. Sign Support Components.

- d. Lighting Structure Components.
  - e. Pre-Engineered Pedestrian Bridges.
- iii. Tackers and welders shall be qualified in accordance with AWS Standards. Tube longitudinal seam welds shall be free of cracks and excessive undercut, performed with automatic processes, and be visually inspected by the manufacturer prior to shipment. Longitudinal welds suspected to contain defects shall be magnetic particle inspected. All circumferential butt-welded pole and arm splices shall be ultrasonically or radiographically inspected.
  - iv. The baseplate shall be perpendicular to the shaft axis ( $\pm 1$  degree) and hole and concentric ( $\pm 0.188$  inches) to shaft axis.
  - v. Pilot point and shaft axis to be concentric ( $\pm 0.125$  FIM) and in line ( $\pm 2$  degrees)
  - vi. Preheat, tumbleblast, handgrind, and clean baseplate on all welded areas prior to galvanizing.
    - 1. All material is to be new, unused and mill traceable meeting the following specifications:
      - a. Baseplate: ASTM A36 (Latest Revision) Structural Steel (Conform to AASHTO Tech. Bul. No. 270)
      - b. Shaft: ASTM 252 (Latest Revision) Grade 2, steel pipe piles. Alternate material: ASTM A53 (Latest Revision) Type E or S, Grade B, steel pipe; OR  
ASTM A500 (Latest Revision), Grade B, structural steel tubing
      - c. Helix: ASTM A635 (Latest Revision) 1/2 inch thick hot rolled steel plate or coil.
      - d. Pilot Point: ASTM A575 (Latest Revision) 1 1/4 inch diameter hot rolled steel bar.
      - e. Two slots with minimum dimensions of 2.5 inches in width and 12 inches in length shall be cut into the shaft of the foundation, perpendicular to the base plate to allow for conduit entry during installation. The top of these conduit entryway openings shall be 12 inches from the bottom of the base plate.
      - f. The baseplate shall be permanently marked to indicate the conduit entryway openings in the shaft.
      - g. An 8 inch diameter hole shall be constructed in the baseplate to allow access between the shaft and pole foundation.
      - h. The bolt circle of the foundation shall be variable such that it will be compatible with the bolt circle of the pole design.
      - i. At a minimum, the foundation base plate thickness shall match the base plate thickness of the pole in the contract documents.

**E. Design Calculations.**

- i. The device loadings specified in this document shall be used in all AASHTO design calculations. Calculations and detailed drawings shall be submitted to the Engineer demonstrating compliance with the AASHTO specification.
- ii. Contractor responsible for investigation of soil properties at each pole location and confirmation of the suitability of helical foundations for tower support. Soil samples should be collected and tested consistent with the foundation manufacturer's requirements. If soils are determined to be insufficient for helical foundation installation, the Contractor may submit an alternate foundation solution.
- iii. Using the determined loads and soil profiles, the size of the foundation (shaft diameter, shaft length, base plate thickness, etc.) needed for adequate service shall be calculated using Broms Method for Lateral Pile Support.
- iv. A minimum factor of safety of 2.5 shall be used when recommending an adequate foundation.

**F. Poles****i. General**

1. All poles shall be tapered steel or non-tapered fiber glass,  $49.5 \pm 0.5$  feet in length (including the transformer base).
2. The poles shall be designed to satisfy deflection requirements.
3. The poles shall be provided with six handholes with removable covers. The handhole openings shall be reinforced and secured. The first three handholes shall be in-line and located 9, 12, and 15 feet above the base plate (measured from the center of handhole) and have minimum outside dimensions of 3 inches by 5 inches. The second three handholes shall be oriented directly above the first handholes but located 39, 43.5, and 48 feet above the baseplate (measured from the center of handhole) and have minimum outside dimensions of 3 inches by 5 inches.
4. Ensure each steel pole has a grounding provision for use during installation and that it is accessible and will function as intended after the galvanization process. Ensure the grounding lug is readily accessible through the handhole and from the bottom of the pole shaft.
5. Poles shall include a removable end cap at the top of the pole with a J-hook cable support above the upper handhole.
6. Ensure the poles and base plates are hot dip galvanized inside and out per ASTM A123.
7. Tracer wire will be coiled inside the transformer base for both fiber and electric conduits. Tracer wire will be identified with a labeled tag indicating the associated conduit use, such as power or fiber.

**ii. Pole Design Calculations and Fabrication Specifications.**

1. All poles shall be designed in accordance with the AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, current edition".
2. The device loadings specified in this document shall be used in all AASHTO design calculations and pole deflection evaluations and the poles shall be capable of withstanding winds up to 90 mph with a 1.14 gust factor without failure. Calculations and detailed drawings shall be submitted demonstrating compliance with the AASHTO specification.
3. Mill certifications shall be supplied as proof of compliance with the specifications. The Fabricator shall be certified under Category I, "Conventional Steel Structures" as set forth by the AISC Quality Certification Program. Proof of this certification will be required to ensure that the fabricator has the personnel, organization, experience, procedures, knowledge, equipment, capability and commitment to fabricate quality pole structures.
4. All welding shall be in accordance to the following:
  - a. Current AWS standards in effect at the time of letting are applicable.
  - b. Comply with ANSI/AWS D1.5 Structural Welding Code procedures and requirements for items in Article a below. Comply with ANSI/AWS D1.1 Structural Welding Code procedures.

**iii. Miscellaneous Items.**

1. Tackers and welders shall be qualified in accordance with ANSI/AWS D1.5. Tube longitudinal seam welds shall be free of cracks and excessive undercut, performed with automatic processes, and be visually inspected. Longitudinal welds suspected to contain defects shall be magnetic particle inspected. All circumferential butt-welded pole and arm splices shall be ultrasonically or radiographically inspected.
2. All poles shall be designed to support the equipment listed below. Pole design shall assume the following loadings. All mounting heights are measured from the base of foundation to bottom of equipment.
3. Radio Communication Equipment and Mounting Brackets (3)
  - a. Mounting Heights (Nominal Heights): 39, 43.5, and 48 feet
  - b. Weight: 60 pounds (20 pounds per attachment attachment height)
  - c. Surface Area: 9 square feet (3 square feet per attachment height)
4. Device Cabinet and Equipment
  - a. Mounting Heights (to center of cabinet): 9, 12, 15 feet
  - b. Weight: 420 pounds (140 pounds per attachment)
  - c. Surface Area: 12 square feet (4 square feet per attachment)
5. Close consideration must be given to the effective projected area of the equipment along with the weight when designing the pole to meet the specified deflection performance criteria. The calculations shall include a pole, base plate, and anchor bolt analysis. The pole calculations shall be analyzed at the pole base, at 5 foot pole intervals/segments and at any other critical pole section. At each of these locations, the following information shall be given:
  - a. The pole's diameter, thickness, section modulus, moment of inertia, and cross sectional area.

- b. The centroid, weight, projected area, drag coefficient, velocity pressure, and wind force of each pole segment.
  - c. The axial force, shear force, primary moment, total moment, axial stress, bending stress, allowable axial stress, allowable bending stress, and combined stress ratio (CSR).
  - d. The pole's angular and linear deflection.
  - e. All pole shafts shall have a minimum yield strength of 55 ksi and conform to ASTM A595 Grade A or ASTM A572 Grade 55. The shaft shall have a constant linear taper and contain only one longitudinal seam weld. Circumferential welded tube butt splices and laminated tubes are not permitted. Longitudinal seam welds within 6 inches of base plate welds shall be complete penetration welds.
  - f. Base plates shall conform to ASTM A36. Plates shall be integrally welded to the tubes with a telescopic welded joint or a full penetration butt weld with backup bar.
6. Anchor Bolts.
- a. Use straight full-length galvanized bolts.
  - b. Comply with ASTM F 1554, Grade 105, S4 (-20° F).
  - c. Threads are to comply with ANSI/ASME B1.1 for UNC thread series, Class 2A tolerance.
  - d. The end of each anchor bolt intended to project from the concrete is to be color coded to identify the grade.
  - e. Do not bend or weld anchor bolts.
7. Nuts.
- a. Comply with ASTM A 563, Grade DH or ASTM A 194, Grade 2H.
  - b. Use heavy hex.
  - c. Use ANSI/ASME B1.1 for UNC thread series, Class 2B tolerance.
  - d. Nuts may be over-tapped according to the allowance requirements of ASTM A 563.

#### **iv. Device Cabinets.**

##### **1. General.**

- a. Cabinets shall be dimensioned as identified in the contract documents.
- b. Cabinets shall be corrosion resistant, NEMA Type 3R compliant, constructed of welded sheet aluminum with a minimum nominal thickness of 1/8 inch.
- c. Cabinets shall be complete with all required internal components.
- d. Cabinets shall meet the requirements of ASTM B-209 for 5052 H-32 aluminum sheeting. The aluminum shall be smooth and the exterior shall be left in its unpainted natural color.
- e. The cabinet shall be effectively sealed to prevent the entry of rain, dust, and dirt.
- f. All exterior seams for cabinet and doors shall be continuously welded.
- g. Edges, seams, fittings, and hardware shall be finished free from burrs and sharp edges.
- h. Use Type 316 stainless steel for all mounting hardware.
- i. Use 3/4 inch wide and 0.03 inch thick banding for pole mounted cabinets.

**v. Cabinet Doors.**

1. The cabinet door shall be sturdy, torsionally rigid, and attached by a continuous heavy-duty stainless-steel butt hinge. The door shall substantially cover the full area of the front of the cabinet and have a stainless steel, pad-lockable handle.
2. The cabinet door shall be provided with a door stop catch mechanism to hold the door open at three positions: 90 degrees, 120 degrees and 180 degrees. Both the door and door stop mechanism shall be of sufficient strength to withstand a wind load of 5 pounds per square foot of door area applied to both inside and outside surfaces.
3. A closed-cell neoprene gasket shall be provided to act as a permanent and weather resistant seal at the cabinet door facing. The gasket material shall be of a non-absorbent material and shall maintain its resiliency after long-term exposure to the outdoor environment. The gasket shall have a minimum thickness of 1/3 inch. The gasket shall be located in a channel provided for this purpose either on the cabinet or on the door. An "L" bracket is acceptable in lieu of this channel if the gasket is fitted snugly against the bracket to insure a uniformly dust and weather resistant seal around the entire door facing.
4. LED cabinet light shall be provided and operated by door switch.
5. Each cabinet door shall be provided with a high-quality, heavy-duty tumbler-type lock. Two No. 2 keys for each tumble lock shall be provided for each cabinet. Keys shall be given to Yuma County. Do not attach keys to the exterior of the cabinet during storage or installation.
6. A heavy-duty clear plastic envelope shall be provided, securely attached to the inside wall of the cabinet or cabinet door, for stowing cabinet wiring diagrams and equipment manuals. Minimum dimensions shall be 9 inches wide by 12 inches deep.

**vi. Electrical Components, Connecting Cables and Wiring.**

1. Provide cabinets equipped and configured with internal power components as shown in the contract documents.
2. One four position service entrance terminal block with tin plated aluminum connectors, nickel plated steel screws, and a current rating up to 100 Amps.
3. One 60 Amp single pole breaker (Main).
4. One 20 Amp single pole breaker (Radio Equipment).
5. One 20 Amp single pole breaker (GFCI outlet).
6. One 10 Amp single pole breaker (In Cabinet Equipment- fan, LED light, etc.). One auxiliary four-terminal electrical block rated for a maximum 250 VAC RMS maximum voltage and 40 Amps current.
7. One 15 Amp GFCI receptacle in Ivory color.
8. One seven TAP Ground Bar.
9. One seven TAP Neutral Bar.
10. All miscellaneous wiring, harnesses connectors and attachment hardware.
11. All conductors used on the cabinet wiring shall be No. 12 AWG or larger with a minimum of 19 strands. Conductors shall conform to NEC.
12. Where indicated in the contract documents, supply a 240V to 120V; 5 kVA stepdown transformer mounted to the exterior of the cabinet.

**vii. Ventilation.****1. Vents.**

- a. Furnish cabinets containing a suitably designed rain tight vent or vents that:
- b. Are equipped with suitable screens or dust filters, and
- c. Allow the release of excessive heat and/or any explosive gases which may enter the cabinet.
- d. Ensure when filters are utilized, positive retainment is provided on all sides to prevent warpage and entry of foreign matter around the edges.
- e. The filters shall be dry type, removable and replaceable, and standard dimensions commercially available.

**2. Vent Fan.**

- a. A thermostatically controlled vent fan is furnished to provide air circulation within the cabinet.
- b. The thermostat controlling the fan is manually adjustable to turn on between 90°F and 150°F with a differential of not more than 10°F between automatic turn on and turn off.
- c. The fan is located with respect to the vent holes to direct the bulk of the air flow over the internal components within the cabinet.
- d. Ventilation fan shall be fused separately and wired after the main AC+ circuit breaker.

**3. Grounding.**

- a. The cabinet internal ground shall consist of one or more ground busbars permanently affixed to the cabinet and connected to the grounding electrode.
- b. Use bare stranded No. 6 AWG copper wire between busbars and between the busbar and grounding electrode.
- c. Each copper ground busbar shall have a minimum of 20 connector points. Each connector point shall be capable of securing at least one No. 6 AWG conductor.
- d. AC neutral and equipment ground wiring shall return to busbars.

**viii. Conduit.****1. High Density Polyethylene Conduit.**

- a. HDPE conduit shall be smooth wall and BLACK or GRAY in color for power.
- b. Comply with ASTM F 2160 (conduit) and ASTM D 3350 (HDPE material), minimum SDR 13.5
- c. Sequential foot markings printed on HDPE.
- d. Continuous reel or straight pieces to minimize splicing.
- e. For dissimilar conduit connections provide an adhesive compatible with both materials.
- f. Conduit intended to contain electrical conductors shall be 1.5" or 3" and BLACK or GRAY in color. Verify conduit color requirements with local electrical utilities.
- g. Conduit containing fiber optic cable shall be smooth wall 1.5" and ORANGE in color.

- h. Conduit for tracer wire shall be 1.25" GRAY in color.

**2. Polyvinyl Chloride Conduit.**

- a. PVC conduit shall be smooth wall and black in color. Verify conduit color requirements with local electrical utilities.
- b. Comply with ASTM F 2160 (conduit) and ASTM D-1785 (PVC material), minimum Schedule 80.
- c. Sequential foot markings printed on PVC.
- d. Continuous reel or straight pieces to minimize splicing.
- e. For dissimilar conduit connections provide an adhesive compatible with both materials.
- f. Conduit intended to contain electrical conductors shall be 1.5" or 3" and BLACK or GRAY in color. Verify conduit color requirements with local electrical utilities.
- g. Conduit containing fiber optic cable shall be 1.5" and ORANGE in color.
- h. Conduit for tracer wire shall be 1.25" GRAY in color.

**3. Rigid Steel Conduit**

- a. Rigid Steel Conduit shall meet the requirements of most current ADOT Standard Specifications Section 732-2.02

**ix. Vaults.**

**1. General.**

- a. Constructed of epoxy or polyester resin mortar with woven glass fiber reinforcement.
- b. Vault materials shall not support combustion when tested in accordance with ASTM D 635.
- c. Water absorption shall not exceed 2% of the original weight of material under test conditions per ASTM D 570.
- d. Functional without failure throughout a temperature range of -50°F to +170°F.
- e. Walls shall not deflect more than 0.24 inches per foot of length of box when installed and subject to an ASTM C 857 TIER 22 load.
- f. Meet or exceed ANSI/SCTE 77 requirements.
- g. Power vault lid strength shall be tested to 33,750 pounds (Tier 22).
- h. Tracer vault lid strength shall be tested to 22,500 pounds (Tier 15).
- i. Lid shall have skid resistant surface.
- j. Power vaults shall be minimum 24" x 36" x 24" (nominal)
- k. Vault lids shall be labeled 'YUMA COUNTY ELECTRICAL'.
- l. Electrical tracer wire shall be terminated in a 12X12X12 ANSI Tier 15 Vault.

**x. Ground Rod.**

- 1. Use copper bonded steel ground rod.
- 2. Ground rod shall be 5/8 inch by 8 feet.

**xi. Wire and Cable.**

**1. Power Wire.**

**a. Insulation.**

- i. Rated for 600-volts.

- ii. Thermosetting, cross-linked polyethylene meeting the requirements of ICEA S-95-658 (ANSI/NEMA WC 70).
- iii. UL listed for use at conductor temperatures of 167°F or higher in wet or dry locations.
- iv. Bears required UL labeling repeated throughout their length.
- v. UL Listed Type USE-2 per UL Standard 854 and Type RHH or RHW-2 per UL Standard 44.
- vi. Designed for underground installation within conduit.

**2. Conductors.**

- a. Annealed copper meeting the requirements of ASTM B 3.
- b. Sizes smaller than No. 8 AWG, may be solid or stranded.
- c. Sizes No. 8 AWG and larger are to be stranded and are to meet the requirements of ASTM B 8, Class B.

**3. Tracer Wire.**

- a. Single conductor copper clad steel, No. 12 AWG with orange colored HDPE jacket.
- b. No splicing of tracer wire allowed.

**4. Tracer Wire Tags.**

- a. Self-laminating polyester material.
- b. 1.5 inch by 0.75 inch.
- c. Black text with a white background.
- d. Specific for wire and cable applications.

**5. XHHW Wire.**

- a. Use annealed stranded bare copper conductors per ASTM B3 and B8.
- b. Use Class B stranding per ASTM B8.
- c. Use flame retardant cross-linked polyethylene insulation.
- d. Use UL listed wire.
- e. Wire shall be rated for 194°F (90°C) wet/ dry and -40°F (-40°C) operating temperatures.

**6. Grounding/Bonding.**

- a. Ground Rods: Provide 5/8 inch by 8-foot copper clad, steel ground rod at each pole and controller footing.
- b. Bonding Jumper or Connecting Wire: Provide No. 4 AWG bare conductor, copper wire.

## **7. Fiber Optic Cable.**

### **a. General.**

- i. The cable shall meet the latest applicable standard specifications by ANSI, EIA and TIA for the single-mode fiber cable of the size specified per the contract documents.
- ii. Provide all fiber optic cable for installation.
- iii. Provide the Engineer with the manufacturer's production test provided with the spool.
- iv. The buffer tubes shall be compatible with standard hardware and shall have 12 fibers per tube, the fibers shall not adhere to the inside of the buffer tube, each fiber shall be distinguishable by means of color coding in accordance with TIA/EIA-598-B "Optical Fiber Cable Color Coding" and be colored with ultraviolet (UV) curable ink.
- v. The cable core shall be water blocked with dry water blocking materials to improve access and handling of individual tubes.
- vi. The cables shall be designed for point-to-point applications, mid-span access, and provide a high-level of protection for fiber installed in the outside plant environment.
- vii. The optical fiber shall be fully capable of handling existing and legacy single-mode applications which traditionally operate in the 1310 nm and 1550 nm regions and shall also be designed to operate the full-spectrum from 1260 nm to 1625 nm for optical transmission.
- viii. The optical fiber shall be designed to provide optimum performance from 1260 nm to 1625 nm intended for 16 channel Course Wavelength Division Multiplexing applications.
- ix. The optical fiber glass shall be manufactured by a U.S. based manufacturing company.
- x. The Medium-density polyethylene (MDPE) jacket material shall be as defined by ASTM D1248, Type II, Class C, Category 4 and Grades J4, E7 and E8.
- xi. The jacket or sheath shall be free of holes, splits, and blisters.
- xii. Mark cable jackets with the manufacturer's name, month, and year of manufacturer, sequential foot markings, the symbol for communication cable as required by Section 350G of the National Electrical Safety Code (NESC), fiber count, and fiber type. The actual length of the cable shall be within -0/+1% of the length markings. The print color shall be white, with the exception that cable jackets containing one or more coextruded white stripes, which shall be printed in light blue. The height of the marking shall be approximately 2.5 mm (about 0.1 in).
- xiii. The maximum pulling tension shall be 600 pounds during installation (short term) and 200 pounds installed (long term).

- xiv. The shipping, storage, and operating temperature range of the cable shall be -40°C to +70°C (-40°F to 158°F). The installation temperature range of the cable shall be -30°C to +70°C (-22°F to 158°F).
- xv. Single-Mode, Fiber Optic OSP Cable – Dielectric Loose Tube.
- xvi. Fiber optic, single mode, graded loose tube dielectric cable constructed with industry standard 2.5 mm buffer tubes stranded around a central strength member.
- xvii. Single-mode, dispersion-unshifted fiber meeting International Telecommunications Union – Telecommunications Standardization Sector (ITU-T) G.652D/G.657.A1 requirements.
- xviii. Cables shall be sheathed with MDPE. The minimum nominal jacket thickness shall be 1.3 mm (about 0.05 in). Jacketing material shall be applied directly over cable core and water swellable tape. The polyethylene shall contain carbon black to provide ultraviolet light protection and shall not promote the growth of fungus.
- xix. The cable jacket shall contain no metal elements and shall be of a consistent thickness.

#### **8. Cable Identification Tags.**

- a. Use self-laminating rigid vinyl material rated for indoor/outdoor use. No adhesives.
- b. Use tags with yellow background and black legend colors.
- c. Pre-printed with "CAUTION/ FIBER OPTIC CABLE/ TYPE\_\_\_\_/ COUNT\_\_\_\_."
- d. Rated for use up to 176°F.
- e. 2 inches by 3.5 inch by 16 mil.
- f. Use indelible ink, etching, or a label maker which does not fade in sunlight, or in buried or underground applications. No handwriting.

#### **9. Meter Enclosures.**

- a. Verify requirements with local electrical utilities.
- b. Meter enclosures shall include a 200-amp, 120/240-volt circuit breaker (MAIN) and three 60 amp breakers (BRANCH) .
- c. Meter enclosures and power connections shall comply with the requirements of the NEC, contract documents, and electrical utility requirements for the electrical components and power terminations in the individual power source.

**xii. Fiber Optic Accessories and Hardware.****1. Fiber Optic Splice Closures.**

- a. Supply Coyote Dome 22' splice case with splice trays and necessary ancillary materials to support a minimum of 4 cables and 48 splices.
- b. The cost of splice case shall be incidental to the cost of splices at a tower location.

**2. Fiber Housing**

- a. Supply 12-port Clearfield cassette-style fiber housing with integrated splice tray.
- b. Connectors shall be SC APC type.

**2. CONSTRUCTION.****A. General Responsibilities.**

- i. Stake all Vaults, towers, and proposed conduit alignment per plan locations and coordinates provided in the contract documents a minimum of five (5) working days prior to construction and for approval by the Engineer. The Engineer will authorize any changes in location in writing before performing the installation. No additional compensation will be provided for additional work associated with or resulting from unauthorized changes to the contract documents.
- ii. Figured dimensions on the plans shall be taken as correct but shall be checked before starting construction. Bring any errors, omissions, or discrepancies to the attention of the Engineer and the Engineer's decision thereon will be final. Correction of errors or omissions on the drawings or specifications may be made by the Engineer when such correction is necessary for the proper execution of the work.
- iii. Assign a responsible staff member that will work with the Engineer on decisions regarding order of work and coordination as needed throughout the duration of this project.
- iv. Material and Equipment Storage and Construction Site Access.
- v. Secure a designated material storage area for this project. Any request to store material in the right-of-way (ROW) in order to complete the current work activity shall be approved by the Engineer.
- vi. Construction equipment may be stored within the ROW during non-working hours (overnight and weekends) if it is outside of the roadway clear zone, as far from the traveled way as practical and as approved by the Engineer. Do not store equipment at the toe of any roadway slope.
- vii. Park worker vehicles off-site or at a location acceptable to the Engineer.
- viii. Do not leave open holes or mounds of dirt unprotected during non-working hours.

**B. Finishing Activities.**

- i. Upon completion of the work at each project area, thoroughly clean the site and restore it to a condition at least equal to that existing prior to construction. Project area is defined as the approximate area disturbed during a normal week of work. During and after completion, employ appropriate measures for erosion control, where applicable. Coordinate with Yuma County Engineer for site remediation requirements.

**C. Power Installed Foundation.****i. General.**

1. Install the power installed foundations in accordance with the contract documents and the manufacturer's recommendations.
2. Contact the Engineer a minimum of seven (7) calendar days in advance to arrange a field review prior to placing the power installed foundation.
3. Notify the Engineer immediately if an obstruction conflicts with a proposed power installed foundation location. The Engineer will relocate or determine another effective means of supporting the structure to eliminate the conflict. Payment will not be made for re-work or extra work as the result of an unauthorized relocation of a power installed foundation.

**ii. Installation Details.**

1. Install all power installed foundations as approved by the Engineer and set level and to the proper elevation.
2. After power installed foundation is in place, hand dig with shovel in order to install conduits into the provided conduit entrances. Seal all conduit openings using duct plugs or as directed by the Engineer.
3. Install the number of conduits sized as indicated in the contract documents. Locate all conduits as indicated in the contract documents.

**iii. Improper Installation.**

1. Remove and reinstall, at no additional cost to the Yuma County, all power installed foundations improperly installed or with improperly installed anchor bolts, conduit, or any other foundations components as determined by the Engineer.

**D. Poles.****i. General.**

1. Install the pole in accordance with the contract documents and the manufacturer's recommendations.
2. Use properly sized wrenches or sockets, or both, designed for tightening nuts or bolts, or both, to avoid rounding or other damage to the nuts. Do not use adjustable end or pipe wrenches.
3. Ensure base plates, anchor rods, and nuts are free of all dirt or debris.
4. Apply stick wax or bees wax to the threads and bearing surfaces of the anchor bolt, nuts, and washers.
5. Tighten top nuts so they fully contact the base plate. Tighten leveling nuts to snug tight condition. Snug tight is defined as the effort of one person on a wrench with a length equal to 14 times the hole diameter but not less

than 18 inches. Apply full effort as close to the end of the wrench as possible. Perform tightening by leaning back and using entire body weight to pull firmly on the end of the wrench until the nut stops rotating. Perform a minimum of two separate passes of tightening. Sequence tightening in each pass so that the nut on the opposite side, to the extent possible, is subsequently tightened until all of the nuts in that pass have been tightened.

6. Tighten top nuts to snug tight as described for the leveling nuts.
7. Match-mark the top nuts and base plate using paint, crayon, or other means approved by the Engineer to provide a reference for determining the relative rotation of the nut and base plate during tightening. Further tighten the top nuts tightened in two passes, as listed in the Table 1, using a striking or hydraulic wrench. Follow a sequence of tightening in each pass so that the nut on the opposite side, to the extent possible, is subsequently tightened until all nuts in that pass have been turned. Do not allow the leveling nut to rotate during the top nut tightening.

**Table 1: Bolt Tightening**

| <u>Anchor Bolt Size</u>                   | <u>First Pass</u> | <u>Second Pass</u> | <u>Total Rotation</u> |
|-------------------------------------------|-------------------|--------------------|-----------------------|
| Less than or equal to 1 1/2 inch diameter | 1/6 turn          | 1/6 turn           | 1/3 turn              |
| Greater than 1 1/2 inch diameter          | 1/12 turn         | 1/12 turn          | 1/6 turn              |

8. Lubricate the jam nuts, place, and tighten to snug tight.
9. If pole has structural damage, do not erect and notify the Engineer.
10. Repair any surface damage to galvanized components using a zinc-rich paint acceptable to the Engineer.
11. After drilling holes, apply a zinc-rich paint acceptable to the Engineer to the bare metal.

**ii. Pole Erection.**

1. Erect poles and securely bolt to the power installed foundation base plate such that the pole is vertical to the centerline of the nearest adjacent major roadway.
2. Use leveling nuts on each anchor bolt installed below the pole flange. Adjust the pole's vertical position by adjusting both the upper and lower nuts.

**iii. Grounding**

1. Use a minimum of three copper bonded steel ground rods per steel pole to meet impedance requirements. Ground rod shall be 5/8 inch by 8 feet.
2. The maximum grounding resistance shall be 20 ohms or less.
3. All ground connections shall be exothermic weld.

**E. Equipment Cabinets.****i. General.**

1. Install cabinets and hardware in accordance with the contract documents and the manufacturer's recommendations.
2. Do not penetrate the top of any cabinets without prior authorization by the Engineer.
3. Do not allow screws used for mounting shelves or other mounting purposes to protrude beyond the outside wall of the cabinet.
4. All exterior connections shall be watertight.

**ii. Mounting.**

1. Orient cabinets as shown in the contract documents unless otherwise directed by the Engineer.
2. Ensure sufficient clamps, nuts, hardware, and all other equipment as required for the specified mounting type, are furnished with each cabinet.
3. Seal all conduit openings in the device cabinet using duct plugs or as directed by the Engineer.
4. Mounting heights shall be as indicated or at minimum requirement allowed under current applicable electrical codes, whichever is greater.

**F. Conduit.****i. High Density Polyethylene Conduit.****1. General.**

- a. Install conduit in accordance with the contract documents and the manufacturer's recommendations.
- b. Install conduit by plowing, boring, or other methods approved by the Engineer within the public ROW and in a manner that minimizes damage from construction operations.
- c. The minimum bending radius of HDPE conduit shall be the larger of 20 times the outside diameter or the HDPE manufacturer's recommendations for minimum bending radius.
- d. Open trench installation is only permitted within 25 feet of any Vault, structure, or other similar improvements, and any other requested locations approved by the Engineer.
- e. At the discretion of the Engineer, verify the integrity of the conduit structure in a manner acceptable to the Engineer.
- f. Tunneling under the pavement or water jetting shall not be permitted.
- g. No excavations are permitted to cross any roadways or any other paved or other similarly improved areas. At these locations, install conduits by boring method unless otherwise directed or approved in writing by the Engineer.
- h. Seal all conduit openings using duct plugs or as directed by the Engineer, at all conduit openings at the Vaults, foundations, and building entrances.
- i. Expose and protect at all times any existing conduit at locations identified in the contract documents.

**2. Installation Clearances.**

- a. Existing utilities are not shown on the plans, it is the contractors responsibility to locate and protect all existing utilities. Any damage to existing utilities resulting from the contractor's failure to properly locate and protect existing utilities shall be repaired by the contractor at no additional cost to Yuma County.
- b. Depth of all conduit installation shall be a minimum of 36 inches unless otherwise specified in the contract documents.
- c. Maintain the typical offsets from referenced locations as shown in the contract documents.
- d. Maintain the minimum depth throughout the length of all conduit installations.
- e. Maintain a minimum of 2 feet of separation when underground conduits parallel an existing facility.
- f. Maintain a minimum of 2 feet vertical separation when crossing existing utilities.
- g. Maintain a minimum of 5 feet vertical separation from bottom of culvert when crossing existing culverts, unless otherwise specified in the contract documents.

**3. Conduit Splicing.**

- a. No conduit splicing shall be allowed without advance approval of the Engineer.

**4. Facilities Protection.**

- a. The Contractor is responsible for protecting, locating, and maintaining the conduit throughout construction and until final acceptance.
- b. Prior to final acceptance and transition of ownership, meet with the Engineer to demonstrate the locate system is working properly throughout the entire locate system.
- c. If more than 48 hours lag is expected behind a segment installation, install additional protective measures acceptable to the Engineer.

**5. Backfilling.**

- a. Backfill trenches and other excavations in lifts of 6 inches or less in compacted depth. Compact each layer thoroughly before placing subsequent layers.
- b. Remove all cinders, broken concrete, or other hard or abrasive materials in the backfill material before commencing backfilling operations.
- c. Remove and dispose of surplus and unsuitable materials upon completion of the backfilling operations in the area.
- d. Place and carefully hand tamp backfill under and around the structures in lifts not to exceed 4 inches in loose thickness. Use a suitably sized mechanical tamper for all areas inaccessible to rollers.
- e. Perform operations in a manner that minimizes soil erosion and employs appropriate storm water pollution prevention measures during all construction operations.
- f. Maintain work areas in a neat, clean, and orderly condition at all times.

- g. Upon completion of conduit/cable placing operations and any other work in an area, remove all debris, materials, tools, and equipment from the area and restore the disturbed area(s) to original or better condition within 24 hours or as soon as practicable as determined by the Engineer. Backfill all excavations and grade all disturbed areas during the restoration process.
- h. Remove and dispose of rock and debris excavated and remaining after backfilling as directed by the Engineer.

**6. Surface Restoration.**

- a. Replace or reinstall features removed as a part of the work, such as sidewalks, driveways, curbs, roadway pavement, unpaved areas, or any other items.
- b. Immediately repair or replace any unauthorized disturbance or damage. Replace improved landscaping, lawns, scrubs, and hedge removed or damaged during construction in a manner acceptable to the Engineer. Re-sod damaged lawns using like grasses.
- c. Complete restoration according to the requirements of Yuma County.

**7. Multiple Duct Installation.**

- a. Install multiple ducts, in continuity, at locations indicated in the contract documents unless authorized in writing by the Engineer.

**8. Plowed Conduit Installation.**

- a. Use equipment and construction methods subject to the approval of the Engineer that cause minimal displacement of the soil.
- b. Furnish competent supervision at all times at the site of plowing operations to assure compliance with the contract documents.
- c. The equipment shall be capable of extending the plow in order to maintain the required minimum depths under all terrain conditions.
- d. The reel carrier shall be of adequate size and be configured so that the reel sizes being used can be safely handled.
- e. Avoid damaging any paved surfaces, ditches, or other similar surface features. Immediately repair any damage to such features to the satisfaction of the Engineer and at no additional cost to Yuma County.
- f. Perform plowing in accordance with standard industry practices using a prime mover with hydrostatic type steering and a vibratory plow. The design of the plowshare shall be such that the buried conduit passing through the plow shall not bind and shall not be bent in a radius less than 20 times the outside diameter of the conduit and maintains the structural integrity of the conduit. The feed chute shall have a removable gate for the purpose of inspection and to allow the conduit to be removed from or inserted into the feed chute at any intermediate point between splice locations. The conduit path inside the feed chute shall have low friction surfaces and be free of burrs and sharp edges to prevent damage to the conduit as it passes through. Smooth any welds before use. Internal guide rollers shall not be used. Exercise care during the plowing operation to avoid conduit damage. Feed the conduit into the ground through the plow loose and at no tension.

- g. Excavate as needed start and finish pits and pits at points of intersection in advance of plowing. Expose ends of casings and crossings of foreign utilities before the start of plowing operations for a conduit segment. Exercise care in the use of trenching and excavating tools and equipment to avoid damaging installed and intersecting conduits or other facilities.
- h. Restore plow furrowed areas to conform to the surrounding terrain using a rubber-tired tractor or heavy truck or a vibratory roller having a weight of 3 tons and a drum width between 4 and 6 feet or by other suitable means approved by the Engineer.

**9. Conduit in Trench.**

- a. Use equipment and construction methods subject to the approval of the Engineer that cause minimal displacement of the soil.
- b. Excavate open trench straight as practicable. Shape the trench to be smooth, free from any sharp edges, and clear of debris and loose rock. Excavate only gradual grade changes.
- c. Do not leave trenches unattended at any time or open during non-working hours unless approved in writing by the Engineer. Install barriers or other protective measures when appropriate to prevent livestock or persons from falling into an open trench .
- d. Notify the Engineer immediately if solid rock is encountered at any location. Excavate rock trenches using a rock saw or other suitable equipment. The excavation, backfill, and road crossings in solid rock areas shall conform to the requirements stated above unless specifically exempted in this section.
- e. Rock excavation will be considered extra work and payment will be negotiated by change order. Obtain approval from the Engineer before commencing any rock excavation.

**10. Bored Conduit Installation.**

- a. Use equipment and construction methods subject to the approval of the Engineer that cause minimal displacement of the soil.
- b. Bore all crossings beneath roadways, streets, other paved surfaces, railroads, or other structure in accordance with requirements and regulations of the authority having jurisdiction and as directed in the contract documents.
- c. Locate bore pits a minimum of 2 feet from the edge of pavement or shoulder unless otherwise directed by the Engineer.

**ii. Vaults.****1. Vault Installation.**

- a. Install Vaults in accordance with the contract documents and the manufacturer's recommendations.
- b. Install the type and size of Vaults at the locations indicated in the contract documents.
- c. Set top of all Vaults level and flush with the pavement or soil grade.
- d. Install aggregate bedding a minimum of 12 inches below and 6 inches beyond the outside edges of the Vault as identified in the contract documents. Aggregate material shall meet No. 57 Aggregate Gradation of the Arizona Department of Transportation (ADOT) Standard Specifications for Road and Bridge Construction, current edition.
- e. Conduit shall enter the Vault from the bottom and extend conduit ends between 4 and 6 inches above the aggregate bedding.
- f. Seal around any penetrations of sidewalls to prevent inflow of surrounding materials as approved by the Engineer.
- g. Install ground rods as indicated in the contract documents.
- h. Seal all conduit openings using duct plugs, or as directed by the Engineer, at all conduit openings at the Vaults after cable installation.
- i. Rodent proof all Vaults per the contract documents.
- j. Do not install lid bolts.

**iii. Wire and Cable.****1. General.**

- a. Install wire and cable in accordance with the contract documents and the manufacturer's recommendations.
- b. All installations and connections shall comply with the NEC, contract documents, and electrical utility requirements.
- c. The Engineer will resolve all conflicts.

**2. Tracer Wire.**

- a. Install tracer wire inside dedicated conduit as indicated on the contract documents.
- b. Where new tracer wire is installed:
  - i. No splicing of tracer wire is allowed.
  - ii. Leave 2 foot coil of tracer wire in all transformer bases at tower locations.
  - iii. Leave 2 foot coil of tracer wire in all tracer vaults.
- c. Test all tracer wire for continuity, with approval by the Engineer prior to final acceptance.
- d. Labeling Requirement: Place tags on all tracer wire identifying the direction of the tracer wire at vaults and towers.
- e. At existing fiber vaults, terminate tracer wire in existing above ground locate terminals.

**3. XHHW Wire.**

- a. Install XHHW wire inside conduit as indicated on the contract documents.

**4. Grounding/Bonding.**

- a. Ground all installations as indicated in the contract documents.

- b. Installation of grounds is incidental to the cost of the connected items of work.
- c. Ground all installations in accordance with the requirements of NEC. Supply and install additional grounding rods and equipment as necessary to satisfy such requirements at no additional cost to Yuma County.

**5. Fiber Optic Cable.**

**a. General.**

- i. Remove fiber optic cable from the reel in accordance with the manufacturer's recommendations.
- ii. Do not twist or bend the fiber optic cable in excess of the limits recommended by the manufacturer.
- iii. Protect at all times all proposed cables, cable ends, and any exposed portions of fiber optic cable from damage including water intrusion.
- iv. Replace in kind any existing pull tape or tracer wire that is used as a pull rope for fiber optic cable installation. The cost of any tracer wire or pull tape replacement will be subsidiary to the fiber optic cable installation.
- v. Expose and protect at all times any existing buried fiber optic cable at locations identified in the contract documents for splicing.

**b. Fiber Optic Cable Testing.**

- i. Visually inspect fiber optic cable prior to installation. Report any defects to the Engineer.
- ii. Replace, as directed by the Engineer, any defect discovered during final acceptance at no additional cost to the Yuma County. Consider a defect to be any cable with an OTDR measured length that differs from the actual cable footage, excluding manufacturer's helicity.
- iii. Test all terminated strands uni-directionally from the cabinet through the Contractor's splicing to the end of the cable, including any cable spliced to that strand.
- iv. Utilize a launch cable with a minimum length of 500 meters or twice the deadzone of the OTDR meter, whichever is greater. The deadzone of the OTDR meter is defined as the distance (or time) where the OTDR cannot detect or precisely localize any event or artifact on the fiber link.
- v. All test equipment shall be factory certified within the last year. Provide copies of the certification ten (10) calendar days prior to testing.
- vi. Test results will be recorded on a form supplied by the Contractor, with data compiled in PDF through the meter manufacturer's software. No additional alteration using software from the Contractor beyond the meter manufacturer's software will be allowed. Submit test results in a format approved by the Engineer. Hand completed test forms on each fiber over to the Engineer. Provide native test

(electronic version) with no alterations and meter software for viewing of fiber traces. At a minimum, show the following:

1. Cable and fiber identification (as approved by the Engineer).
2. Operator Name.
3. Date and Time.
4. Setup and test parameters including wavelength, pulse width, range, scale and ambient temperature.
5. Test results for OTDR test in both directions for total fiber trace, splice loss/gain (dB), connector loss (dB), all events greater than 0.05 dB, measured length from cable markings and total length from OTDR.
6. Test results for attenuation test including measured cable length (cable marking), total length (from OTDR test), number of splices (from as-built) and total link end-to-end attenuation in each direction and the bidirectional average.
7. OTDR testing shall use a launch cable.

**c. Fiber Optic Cable Installation.**

- i. Utilize a suitable cable feeding method between the cable reel and the face of the duct and conduit to protect the cable and guide it into the duct.
- ii. Utilize dynamometers and breakaway pulling swings to ensure that the pulling line tension does not exceed 600 pounds.
- iii. The mechanical stress placed on a cable during installation shall not be such that the cable is twisted or stretched. To prevent the cable from twisting, attach a pulling eye and swivel to the cable. Use the pulling eye and swivel to pull the cable through the conduit.
- iv. Do not force cables around sharp corners and take precautions during installation to prevent the cable from being kinked, gouged, or crushed.
- v. Minimum bending radius during installation shall not be less than 20 times the outside diameter of the cable or as recommended by the manufacturer, whichever is greater.
- vi. Pulling of the cable shall be hand assisted.
- vii. Approved installation methods include pulling, high air speed blowing, air- assist, push/pull installation, and air blown cable. Installation shall comply with all manufacturers' recommendations for cable installation including pulling tensions, bending radii, and methods, including use of rollers.
- viii. Carefully inspect the cable for jacket defects. If defects are noticed, immediately stop the pulling operation and notify the Engineer. The Engineer will make a determination of acceptability or will reject the cable.

- ix. No splices will be allowed unless indicated in the contract documents or approved in writing by the Engineer.
- x. Seal all conduit openings using duct plugs or as directed by the Engineer, at all conduit openings at the Vaults after cable installation.

**d. Facilities Protection.**

- i. In the event it is suspected that cable damage has occurred prior to final acceptance, test the cable with an OTDR within 72 hours after notification and submit a copy of the OTDR test to the Engineer upon completion.
- ii. Replace or repair, as directed by the Engineer, any damage occurring before final acceptance at no additional cost to the Yuma County. Perform any repairs or replacements as soon as reasonably possible unless otherwise approved by the Engineer.
- iii. Replace or repair any defect in the installed cable at no additional cost to the Yuma County. Consider a defect to be any condition resulting in a negative or adverse effect on current or future operations of the completed fiber optic communication system as determined by the Engineer.
- iv. Replace or repair any existing wiring that is damaged during fiber optic cable installation, as directed by the Engineer, at no additional cost to the Yuma County.

**e. Slack Coils.**

- i. 1) Leave a minimum of 75 feet of slack in each fiber vault.
- ii. 2) Foot marker and cable size text shall be legible on the cable jacket coiled in the Vault.
- iii. 3) Neatly coil slack cable in Vaults. Bind the slack coils at a minimum of 3 points around the coil perimeter.
- iv. 4) Secure and support cables at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames and terminals.
- v. 5) For storage purposes, the minimum bending radius shall not be less than 10 times the outside diameter of the cable or as recommended by the manufacturer, whichever is greater.

**f. Cable Identification.**

- i. Place tags on all fiber optic cable identifying the owner and direction of the cable at each entry point of the vault.
- ii. Use tags to label fiber optic cable in every cabinet, transformer base, and Vault.
- iii. Engineer will approve tag content before installation.

**6. Meter Enclosures.**

- a. Install meter enclosures and power connections in accordance with the contract documents, the manufacturer's recommendations, NEC, and all requirements of the local electrical utility having jurisdiction.
- b. Coordinate installations in advance as noted on the contract documents.
- c. Provide all conduit, breaker enclosures, circuit breakers, wiring and accessories, neutral bars and accessories, ground bars and accessories, terminations and grounding in the power source.
- d. Coordinate and schedule all locally required inspections of electrical work prior to putting a location into service.
- e. Coordinate with the Engineer and power provider to request that electrical service at a device location be initiated.
- f. Meter enclosures shall be mounted on a 4 inch by 4 inch (4"x4") treated wood post meeting UC4B rating for ground contact per Yuma County standards. Bottom of enclosures shall be mounted a minimum of four feet (4') above surrounding grade. Posts shall be installed a minimum of 36 inches (36") below grade.

**7. Fiber Optic Splicing.**

- a. Fusion Splices.
  - i. Use fusion splices to splice all continuous fiber runs in splice closures and factory terminated connector pigtails.
  - ii. Splices shall be allowed only in the splice closures as located in the contract documents.
  - iii. Maximum attenuation per splice as estimated by the fusion splicer shall not exceed 0.1 dB. Any splice exceeding 0.08 dB, as estimated by the OTDR at the time of splicing shall be re-spliced.
  - iv. Splice shall provide three axis core alignment using light injection and loss measurement techniques.
  - v. No mechanical splices of fiber cable will be allowed.
  - vi. All fusion splice equipment shall be factory serviced within the last year. Provide copies of factory service 10 calendar days prior to splicing.
  - vii. Maintain on site at all times all materials necessary to immediately install temporary and/or permanent repairs to active fiber damaged during the course of work, including availability of additional splicing equipment.
- b. Fiber Optic Cable Acceptance Testing.
  - i. Test splicing termination to termination per the contract documents with an OTDR at 1310 nm and 1550 nm to verify attenuation and continuity of strands for the entire length of cable. Provide the Engineer with up to two copies of any software required for viewing electronic files of the OTDR traces.
  - ii. Each splice is to have an averaged loss value of 0.1 dB or less when measured bi-directionally with an OTDR at 1310 nm

and 1550 nm. Splice test results submitted to the Engineer that exceed the 0.1 dB or less specification will be identified as Out of Specification.

- iii. Each connector is to have an averaged loss value of 0.3 dB or less when measured uni-directionally with an OTDR at 1310 nm and 1550 nm. Connector test results submitted to the Engineer that exceed the max loss of 0.3 dB specification will be identified as Out of Specification.
- iv. All test equipment shall be factory certified within the last year. Provide copies of the certification 10 calendar days prior to testing.
- v. Test results will be recorded on a form supplied by the Contractor, with data compiled in PDF through the meter manufacturer's software. No additional alteration using software from the Contractor beyond the meter manufacturer's software will be allowed. Submit test results in a format approved by the Engineer. Supply the Engineer with completed test forms on each fiber. Provide native test (electronic version) with no alterations and meter software for viewing of fiber traces. At a minimum, show the following:
  - 1. Cable and fiber identification (as approved by the Engineer).
  - 2. Operator Name.
  - 3. Date and Time.
  - 4. Setup and test parameters including wavelength, pulse width, range, scale, and ambient temperature.
  - 5. Test results for attenuation test including measured cable length (cable marking), total length (from OTDR test), number of splices (from as-built) and total link end-to-end attenuation in each direction and the bidirectional average.
- vi. OTDR testing shall use a launch and receiving cable. Each cable shall be a minimum 500 meters or twice the the dead zone for the OTDR used for this test, whichever is larger.

APPENDIX A  
YUMA COUNTY WIRELESS BROADBAND  
BID SHEET

| TOWER SITE ID           | LUMP SUM COST |
|-------------------------|---------------|
| 1                       |               |
| 2                       |               |
| 3                       |               |
| 4                       |               |
| 5                       |               |
| 6                       |               |
| 7                       |               |
| 8                       |               |
| 9                       |               |
| 10                      |               |
| 11                      |               |
| 12                      |               |
| 13                      |               |
| 14                      |               |
| 15                      |               |
| 16                      |               |
| 17                      |               |
| 18                      |               |
| 19                      |               |
| 20                      |               |
| 21                      |               |
| 22                      |               |
| 23                      |               |
| 24                      |               |
| 25                      |               |
| 26                      |               |
| 27                      |               |
| <b>TOTAL BID AMOUNT</b> |               |

PROVIDE A LUMP SUM PRICE FOR EACH SITE LISTED ABOVE. CONTRACT AWARD WILL BE MADE TO LOWEST RESPONSIVE BID FOR THE TOTAL BID AMOUNT.

BIDDER \_\_\_\_\_  
 BY \_\_\_\_\_  
 TITLE \_\_\_\_\_  
 DATE \_\_\_\_\_

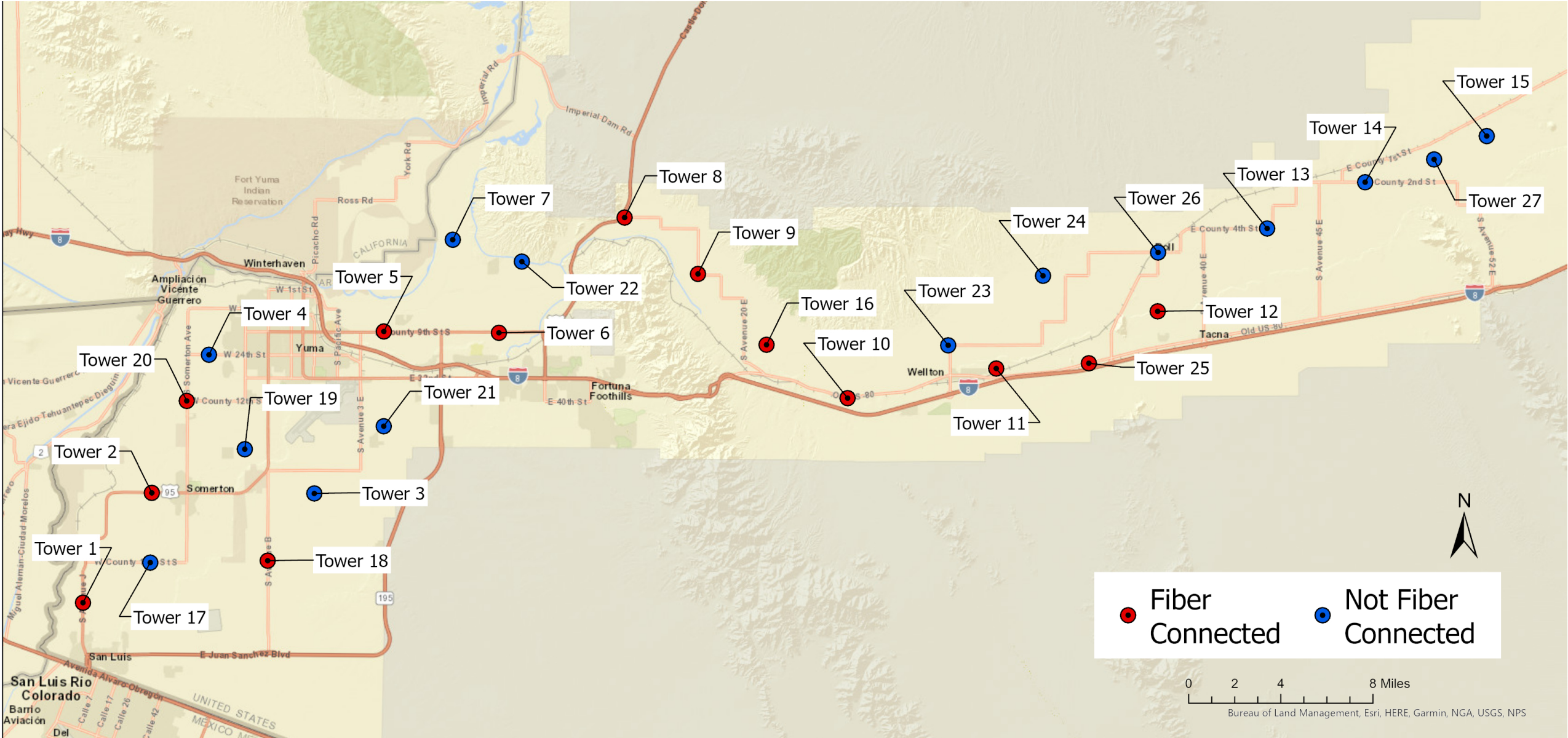
## Exhibit B

### Revised Site Plans

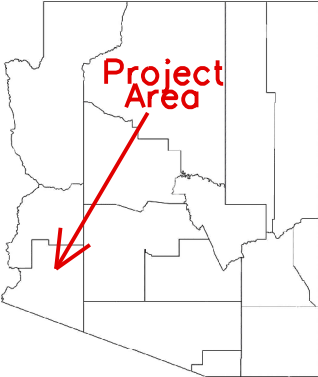
STATE OF ARIZONA

YUMA COUNTY

PLANS FOR YUMA COUNTY WIRELESS BROADBAND



SITE MAP



# YUMA COUNTY WIRELESS BROADBAND

## NO. SHEET INDEX

|                                           |              |
|-------------------------------------------|--------------|
| 1. COVER SHEET                            | 18. TOWER 12 |
| 2. SHEET INDEX, LEGEND AND GENERAL NOTES  | 19. TOWER 13 |
| 3. QUANTITIES SHEET                       | 20. TOWER 14 |
| 4. RADIO EQUIPMENT CABINET                | 21. TOWER 15 |
| 5. POLE MOUNTED EQUIPMENT                 | 22. TOWER 16 |
| 6. TYPICAL CONDUIT AND VAULT INSTALLATION | 23. TOWER 17 |
| 7. TOWER 1                                | 24. TOWER 18 |
| 8. TOWER 2                                | 25. TOWER 19 |
| 9. TOWER 3                                | 26. TOWER 20 |
| 10. TOWER 4                               | 27. TOWER 21 |
| 11. TOWER 5                               | 28. TOWER 22 |
| 12. TOWER 6                               | 29. TOWER 23 |
| 13. TOWER 7                               | 30. TOWER 24 |
| 14. TOWER 8                               | 31. TOWER 25 |
| 15. TOWER 9                               | 32. TOWER 26 |
| 16. TOWER 10                              | 33. TOWER 27 |
| 17. TOWER 11                              |              |

## ABBREVIATIONS

|      |                                      |       |                                                |
|------|--------------------------------------|-------|------------------------------------------------|
| ADOT | ARIZONA DEPARTMENT OF TRANSPORTATION | GPS   | GLOBAL POSITIONING SYSTEM                      |
| AMP  | AMPERE                               | HDPE  | HIGH-DENSITY POLYETHYLENE                      |
| APS  | ARIZONA PUBLIC SERVICE               | OP    | OVERHEAD POWER SOURCE                          |
| AWG  | AMERICAN WIRE GUAGE                  | PC    | POWER CONDUIT                                  |
| C    | CONDUIT                              | PS    | POWER SUPPLY ASSEMBLY                          |
| CT   | COUNT                                | PV    | POWER VAULT                                    |
| EMP  | ELECTRICAL METER ENCLOSURE           | PVC   | POLYVINYL CHLORIDE                             |
| ES   | ELECTRICAL SUPPLY ASSEMBLY           | RSC   | RIGID STEEL CONDUIT                            |
| FC   | FIBER CONDUIT                        | SMFO  | SINGLE MODE FIBER OPTIC CABLE                  |
| FB   | FIBER HOUSING                        | T     | TOWER                                          |
| FV   | FIBER VAULT                          | WMIDD | WELTON-MOHAWK IRRIGATION AND DRAINAGE DISTRICT |

## GENERAL NOTES

- ALL MATERIALS AND CONSTRUCTION HEREON SHALL CONFORM TO THE CONTRACT SPECIFICATIONS AND SHALL BE IN ACCORDANCE WITH THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY REGULATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION AND FURNISHING TO THE ENGINEER OF AS-BUILT RECORD DRAWINGS. THE CONTRACTOR SHALL OBTAIN ONE SET OF PLANS FROM THE ENGINEER AND SHALL COLLECT AND RECORD GPS COORDINATES FOR AS-BUILT INFORMATION CONTAINING LATITUDE AND LONGITUDE FOR ALL VAULTS, TOWERS, METER ENCLOSURE CABINETS AND POWER SOURCES. CONTRACTOR SHALL ALSO COLLECT GPS LOCATION DATA OF ALL CONDUIT INSTALLED. DATA SHALL BE COLLECTED EVERY 10 LINEAR FEET AND INCLUDE HORIZONTAL AND VERTICAL DATA. SUB-FOOT HORIZONTAL ACCURATE GPS DATA SHALL BE SUBMITTED IN A FORMAT APPROVED BY THE ENGINEER.
- ANY DEFECTIVE MATERIAL OR WORKMANSHIP SHALL BE REPLACED AND/OR REPAIRED PRIOR TO FINAL ACCEPTANCE OF WORK BY YUMA COUNTY.
- PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH ALL PROPOSED PROJECT MATERIAL DATA SHEETS AND SHOP DRAWINGS. MATERIAL SUPPLIED NOT IN CONFORMANCE WITH THE CONTRACT SPECIFICATIONS WILL BE REJECTED.
- THE CONTRACTOR IS RESPONSIBLE, IN ACCORDANCE WITH ARIZONA REVISED STATUTES, TO NOTIFY ARIZONA 811 AT (602) 659-7500 AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF COMMENCING CONSTRUCTION ACTIVITIES. UTILITY LINES SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR MUST VERIFY THE LOCATIONS IN THE FIELD AND TAKE NECESSARY PRECAUTIONS. ANY DAMAGE TO A UTILITY SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR SHALL MAINTAIN DUST ABATEMENT ACTIVITIES FOR THE DURATION OF THE PROJECT, INCLUDING WEEKENDS AND HOLIDAYS. THE CONTRACTOR SHALL MAINTAIN ADEQUATE MOISTURE LEVELS IN THE SURFACE MATERIALS TO ELIMINATE BLOWING DUST FROM THESE MATERIALS. ALL HAUL TRUCKS, WHETHER INVOLVED IN DELIVERY OR REMOVAL ACTIVITIES, SHALL BE COVERED AND/OR TARPED IN ORDER TO NEGATE THE REMOVAL OF MATERIALS FROM TRUCKS BY WIND, EITHER NATURAL OR CAUSED BY THE MOVEMENT OF THE TRUCK.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING SIGNS, BARRICADES, AND WARNING LIGHTS TO CONTROL THE TRAFFIC AND TO ASSURE THE PUBLIC'S HEALTH, WELFARE AND SAFETY. ALL DEVICES MUST CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSPECTION OF ALL TRAFFIC CONTROL INSTALLATIONS USED IN CONJUNCTION WITH THIS PROJECT AND SHALL INSPECT, AT LEAST TWICE DAILY, TO ENSURE CONFORMANCE WITH THE TRAFFIC CONTROL PLAN.
- OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) STANDARD FOR CONSTRUCTION (TITLE 29, CODE OF FEDERAL REGULATIONS, PART 1926 AS AMENDED) AND CITY OF YUMA SAFETY REGULATIONS ARE APPLICABLE FOR THE COMPLETION OF THE WORK ON THIS PROJECT.
- THE CONTRACTOR SHALL GUARANTEE THE WORK COMPLETED AGAINST DEFECTIVE MATERIAL AND/OR WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE GRANTED BY YUMA COUNTY.
- ANY SURVEY MONUMENT DISTURBED DURING CONSTRUCTION ACTIVITIES SHALL BE REPLACED IN ACCORDANCE WITH YUMA COUNTY STANDARD DETAILS BY THE CONTRACTOR AT NO EXTRA COST TO THE OWNER. CONTRACTOR SHALL UTILIZE A REGISTERED LAND SURVEYOR TO ASSURE PROPER PLACEMENT OF SAID MONUMENT.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONDUCT INVESTIGATIVE EXCAVATION OF ALL POTENTIAL POINTS OF CONFLICT BETWEEN NEW UTILITIES AND EXISTING UTILITIES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF DISCREPANCIES EXIST BETWEEN DESIGN INFORMATION AND ACTUAL FIELD CONDITIONS.
- CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS AND CALCULATIONS SEALED BY A LICENSED ARIZONA PROFESSIONAL ENGINEER OF TOWER POLES, AND FOUNDATIONS DEMONSTRATING STRUCTURAL SUFFICIENCY OF TOWERS FOR TYPICAL SOIL AND WIND CONDITIONS OF THE PROJECT AREA THAT COMPLY WITH THE REQUIREMENTS IN THE CONTRACT SPECIFICATIONS.
- CONTRACTOR SHALL INVESTIGATE RIGHT OF WAY AND ENSURE ALL WORK IS COMPLETED WITHIN YUMA COUNTY RIGHT OF WAY.
- ALL EQUIPMENT INSTALLED SHALL BE CRASH WORTHY PER AASHTO REQUIREMENTS: 16 FEET FROM EDGE OF TRAVEL WAY FOR ROADWAYS WITH 55 MPH SPEED LIMIT, 14 FEET FROM EDGE OF TRAVEL WAY FOR ROADWAYS WITH 40-45 MPH SPEED LIMIT, AND 10 FEET FROM EDGE OF TRAVEL WAY FOR ROADWAYS WITH 35 MPH SPEED LIMIT.

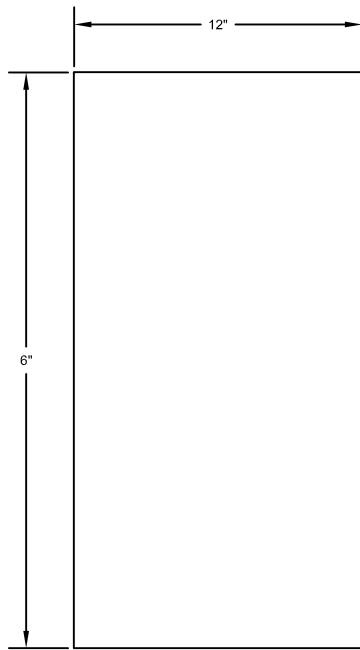


| YUMA COUNTY<br>ENGINEERING DEPARTMENT |  |                |
|---------------------------------------|--|----------------|
| PLAN DATE: JAN 2025                   |  | DRAWN BY: MPS  |
| YUMA COUNTY WIRELESS BROADBAND        |  |                |
| SHEET INDEX, LEGEND AND GENERAL NOTES |  | SHEET NO.<br>2 |

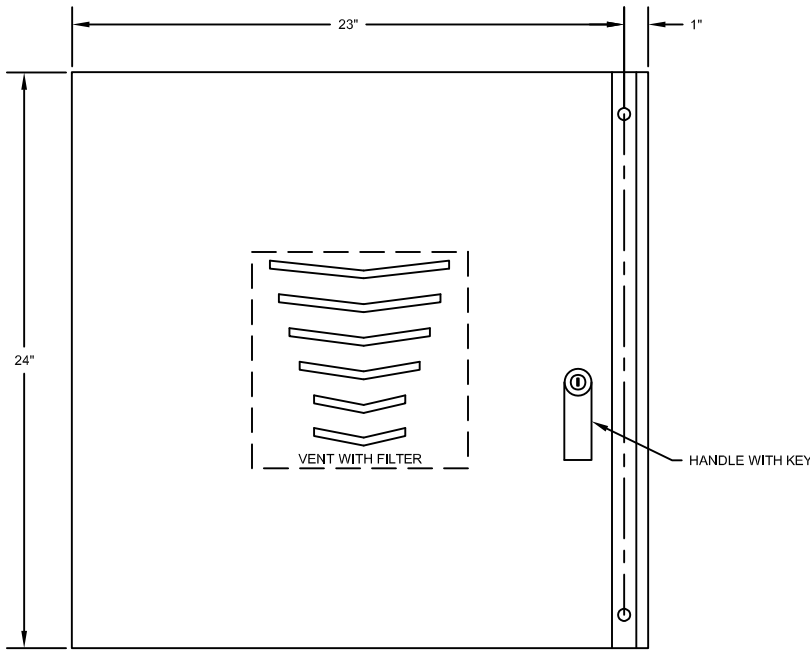
\* CONDUIT GRAND TOTALS INCLUDE 10% ALLOWANCE FOR VERTICAL AND BENDS.  
 \*\* CONDUCTOR QUANTITIES INCLUDE ALLOWANCES FOR SLACK IN VAULTS, WITHIN TOWERS, AND AT METER PEDESTALS.



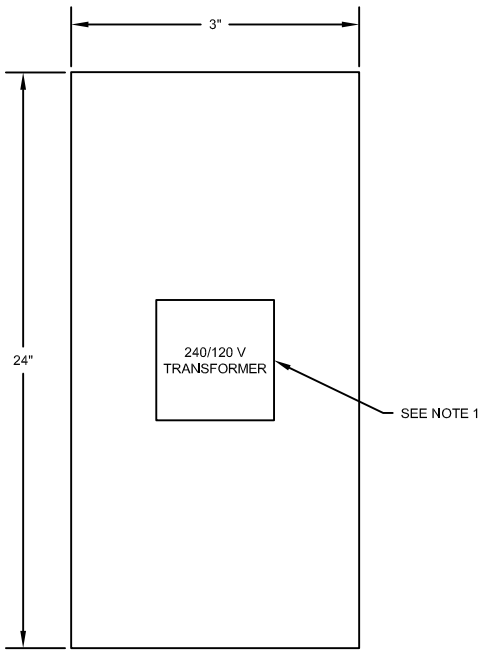
|                                                                                                              |                |
|--------------------------------------------------------------------------------------------------------------|----------------|
| <h1 style="text-align: center;">YUMA COUNTY</h1> <h2 style="text-align: center;">ENGINEERING DEPARTMENT</h2> |                |
| PLAN DATE: JAN 2025                                                                                          | DRAWN BY: MPS  |
| YUMA COUNTY WIRELESS BROADBAND                                                                               |                |
| Quantities Sheet                                                                                             | SHEET NO.<br>3 |



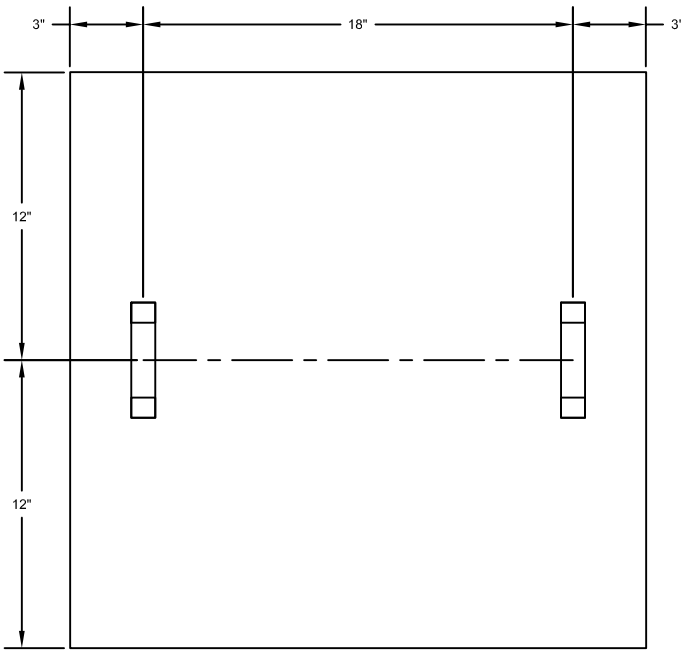
OUTSIDE LEFT



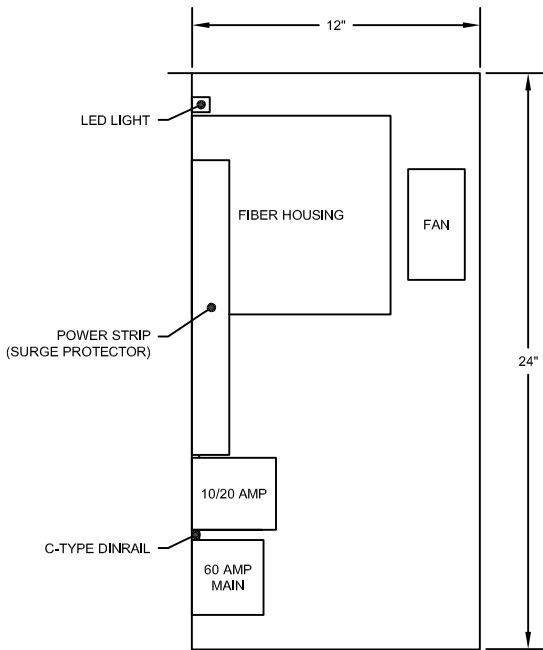
OUTSIDE FRONT



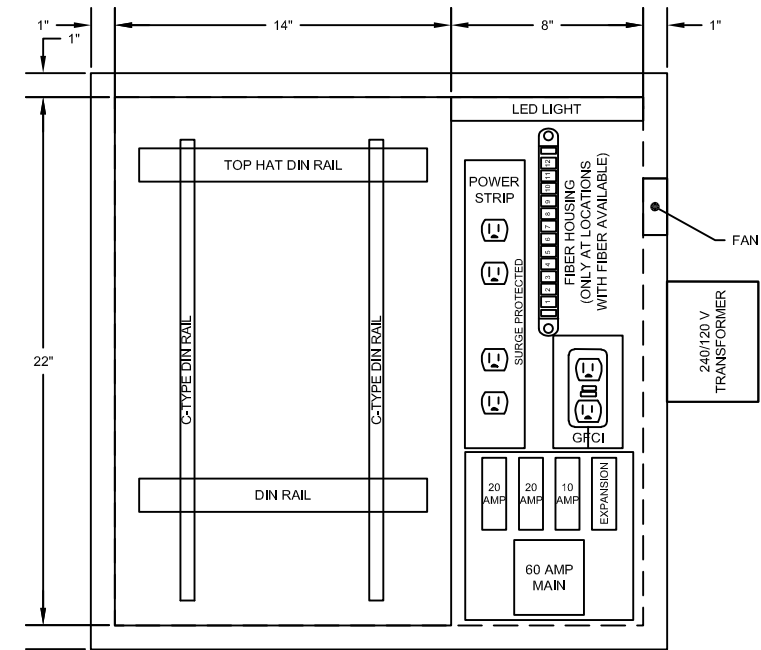
OUTSIDE RIGHT



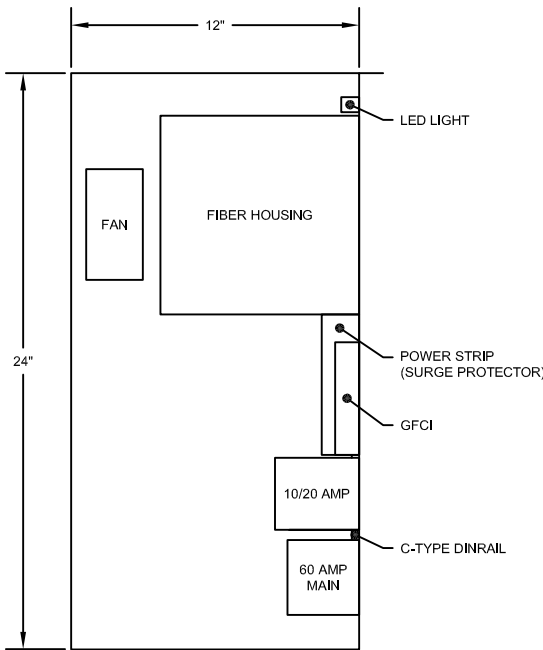
OUTSIDE BACK



INSIDE LEFT



INSIDE FRONT



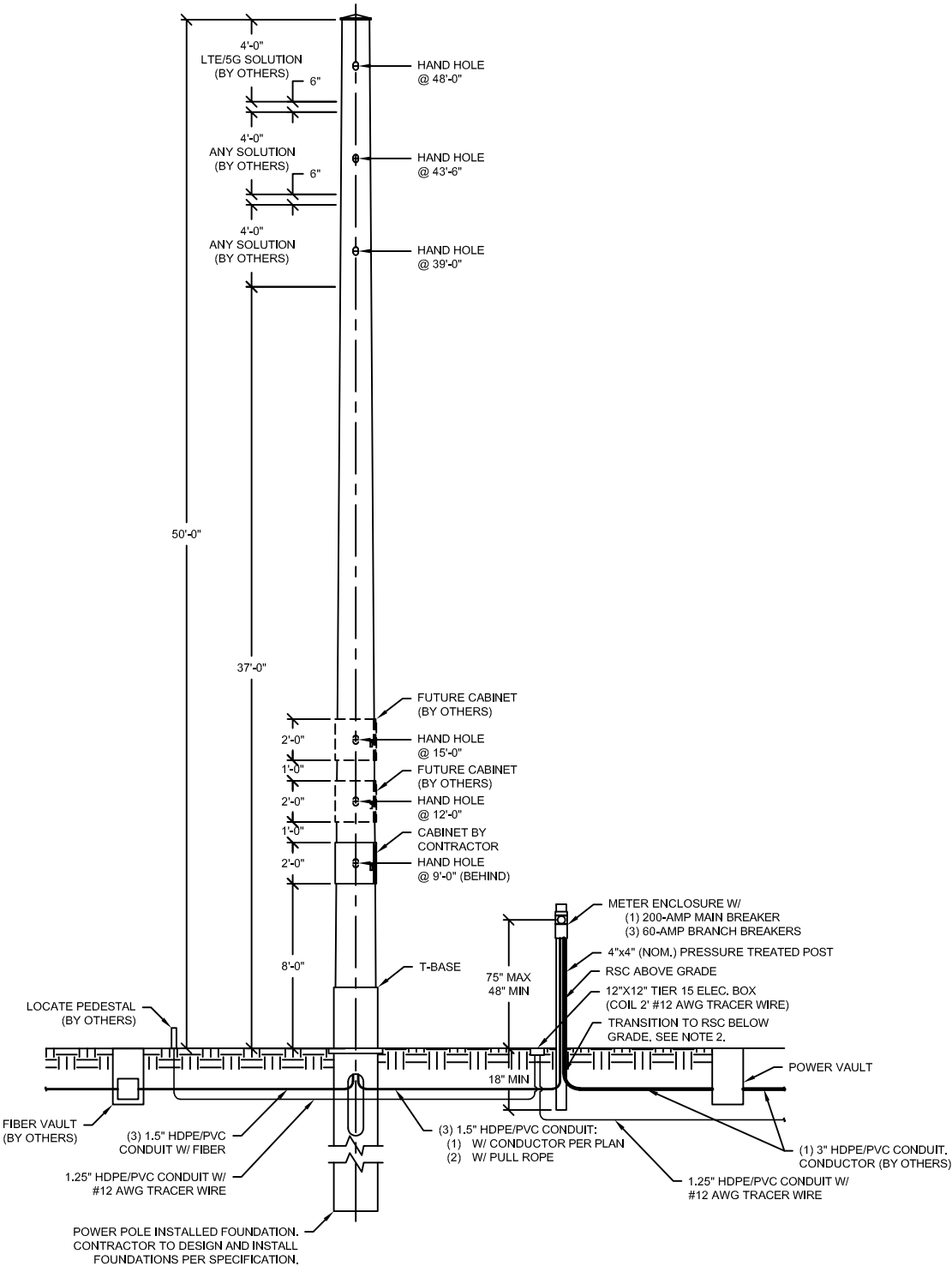
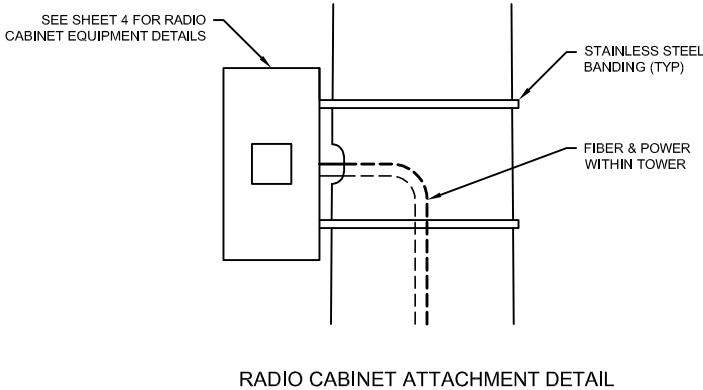
INSIDE RIGHT

**NOTE:**  
1. INSTALL 240/120 STEP DOWN TRANSFORMER WHERE INDICATED IN THE CONTRACT DOCUMENTS.



| YUMA COUNTY<br>ENGINEERING DEPARTMENT |  |                |
|---------------------------------------|--|----------------|
| PLAN DATE: JAN 2025                   |  | DRAWN BY: MPS  |
| YUMA COUNTY WIRELESS BROADBAND        |  |                |
| RADIO EQUIPMENT CABINET               |  | SHEET NO.<br>4 |

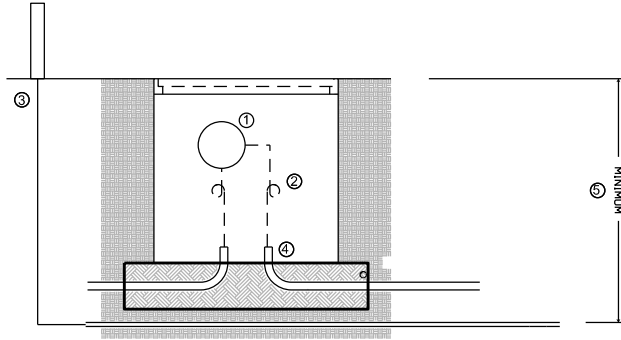
- NOTES:
- COORDINATE WITH ARIZONA PUBLIC SERVICE (APS) AND WELTON-MOHAWK IRRIGATION AND DRAINAGE DISTRICT (WMIDD) FOR STANDARD METER ENCLOSURE REQUIREMENTS.
  - WHEN CONNECTION IS MADE TO STEEL CONDUIT, THE COUPLING USED WILL BE A PVC FEMALE ADAPTOR PER ADOT SPEC: 2021 STANDARD SPECIFICATION 732-3.01.



GENERAL NOTES:  
DETAILS ARE NOT TO SCALE

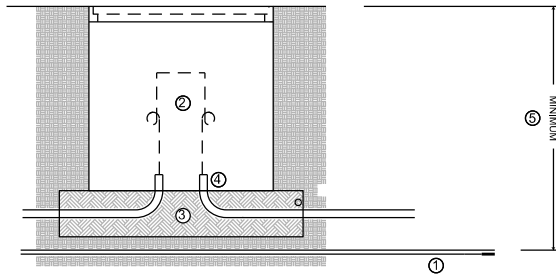


| YUMA COUNTY<br>ENGINEERING DEPARTMENT |  |                |
|---------------------------------------|--|----------------|
| PLAN DATE: JAN 2025                   |  | DRAWN BY: MPS  |
| YUMA COUNTY WIRELESS BROADBAND        |  |                |
| POLE MOUNTED EQUIPMENT                |  | SHEET NO.<br>5 |



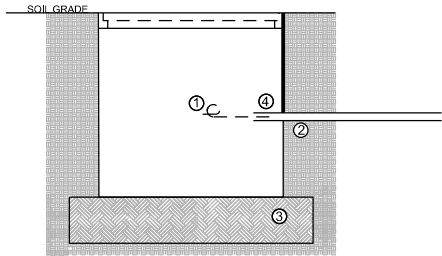
FIBER VAULT (BY OTHERS)

- KEY NOTES:
1. PLACE EXISTING FIBER (BY OTHERS) AND 12 SMFO IN DOME-TYPE SPLICE ENCLOSURE.
  2. COIL 75 LINEAR FEET OF 12 SMFO WITHIN EACH FIBER VAULT.
  3. EXTEND TRACER CONDUIT AND TERMINATE TRACER WIRE IN ABOVE GROUND PEDESTAL BY OTHERS.
  4. EXTEND CONDUIT 4" TO 6" ABOVE AGGREGATE BASE AND 4" TO 6" FROM THE NEAREST EXTERIOR WALL.
  5. MINIMUM DEPTH OF TRACER SHALL BE 6" BELOW CRUSHED ROCK BASE.



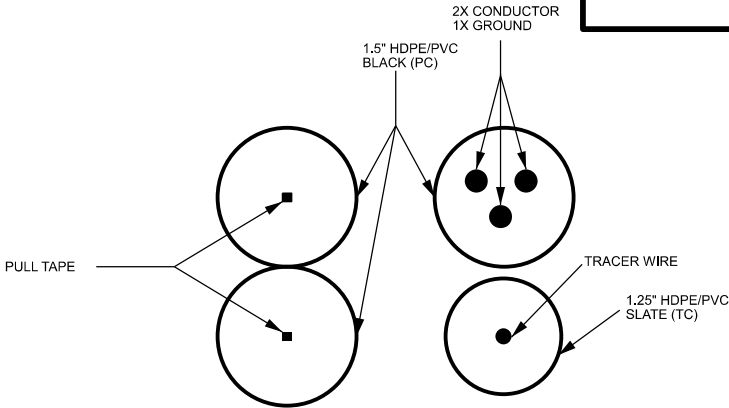
POWER VAULT (24"x36"x24")

- KEY NOTES:
1. TRACER WIRE CONDUIT (TC) SHALL BYPASS POWER VAULT WITHOUT ENTERING.
  2. COIL A MINIMUM OF 5 LINEAR FEET OF EACH CONDUCTOR (APS ONLY).
  3. INSTALL AGGREGATE BEDDING PER THE PROJECT SPECIFICATIONS.
  4. EXTEND CONDUIT 4" TO 6" ABOVE AGGREGATE BASE AND 4" TO 6" FROM THE NEAREST EXTERIOR WALL.
  5. MINIMUM DEPTH OF TRACER SHALL BE 6" BELOW CRUSHED ROCK BASE.

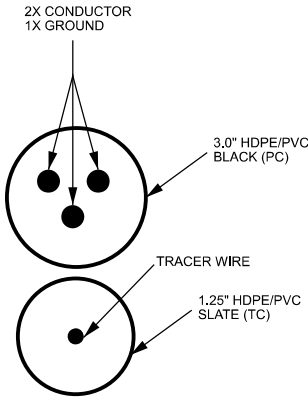


TRACER VAULT (12"x12"x12")

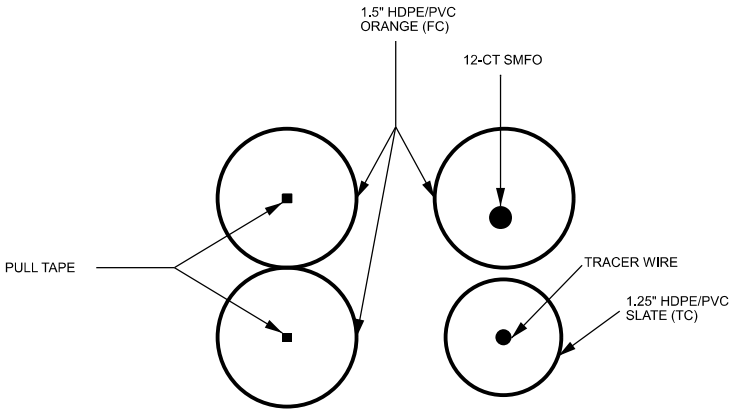
- KEY NOTES:
1. COIL MINIMUM 24" OF TRACER WIRE WITHIN VAULT.
  2. SEAL COMPLETELY AROUND CONDUIT ENTRY INTO VAULT AS APPROVED BY THE ENGINEER.
  3. INSTALL A MINIMUM OF 6" AGGREGATE BEDDING UNDER TRACER VAULT AND 6" BEYOND PERIMETER OF VAULT WALL.
  4. EXTEND CONDUIT 2" TO 4" BEYOND EDGE OF VAULT WALL.



TYPICAL POWER CONDUIT (PC) AND TRACER CONDUIT (TC) INSTALLATION

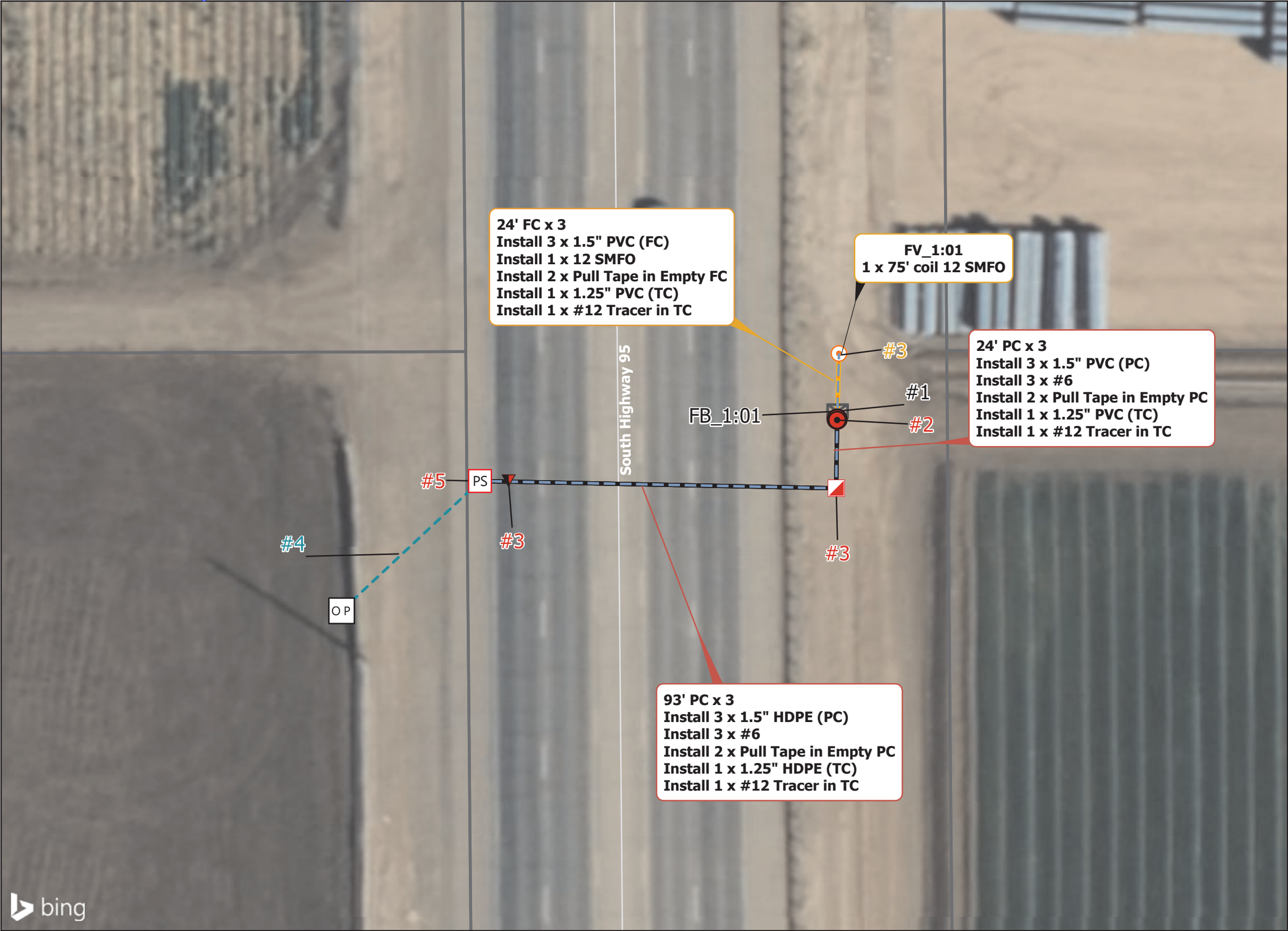


POWER CONDUIT (PC) AND TRACER CONDUIT (TC) INSTALLATION FROM TRANSFORMER TO ELECTRIC METER - WMIDD SITES ONLY



TYPICAL FIBER CONDUIT (FC) AND TRACER CONDUIT (TC) INSTALLATION

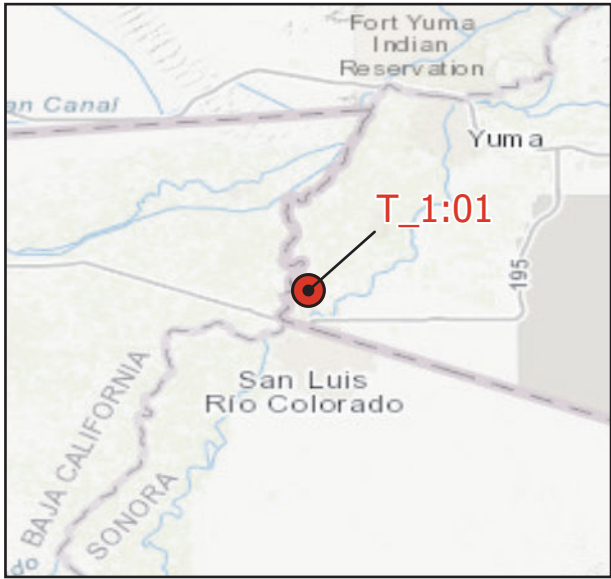
- GENERAL NOTE:
1. DETAILS ARE NOT TO SCALE.
  2. REFER TO CONTRACT SPECIFICATIONS FOR CONDUIT INSTALLATION REQUIREMENTS.



## Legend

- Fiber Housing
- Wired Pole
- Fiber Vault (By Others)
- ▼ Tracer Vault
- ▢ Power Vault
- PS Electric Meter Enclosure
- ⊠ Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- - - Tracer Conduit
- - - Power Conduit by Others
- Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



### YUMA COUNTY WIRELESS

Tower 1

-114.786551 W, 32.526941 N  
US-95, Somerton, Arizona, 85350

Sheet No. 7



0 50 Feet



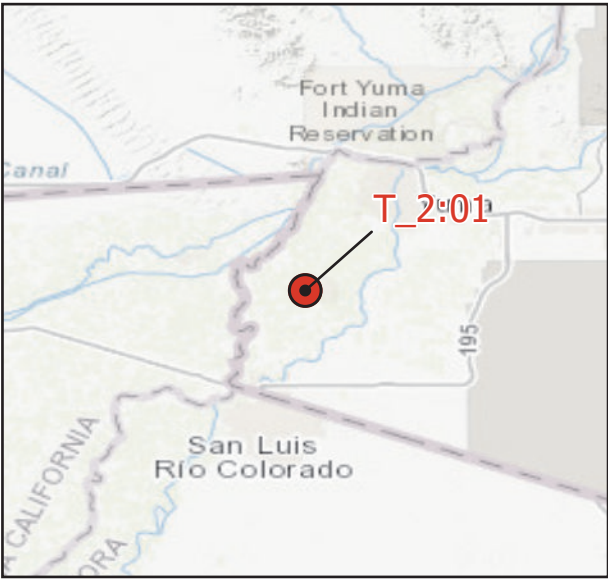
- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by APS. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per APS Standards



Legend

- Fiber Housing
- Wired Pole
- Fiber Vault (By Others)
- ▼ Tracer Vault
- ▣ Power Vault
- PS Electric Meter Enclosure
- ⊠ Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- - - Tracer Conduit
- - - Power Conduit by Others
- ▭ Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



0 50 Feet



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by APS. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per APS Standards



YUMA COUNTY WIRELESS

Tower 2

-114.736117 W, 32.596512 N

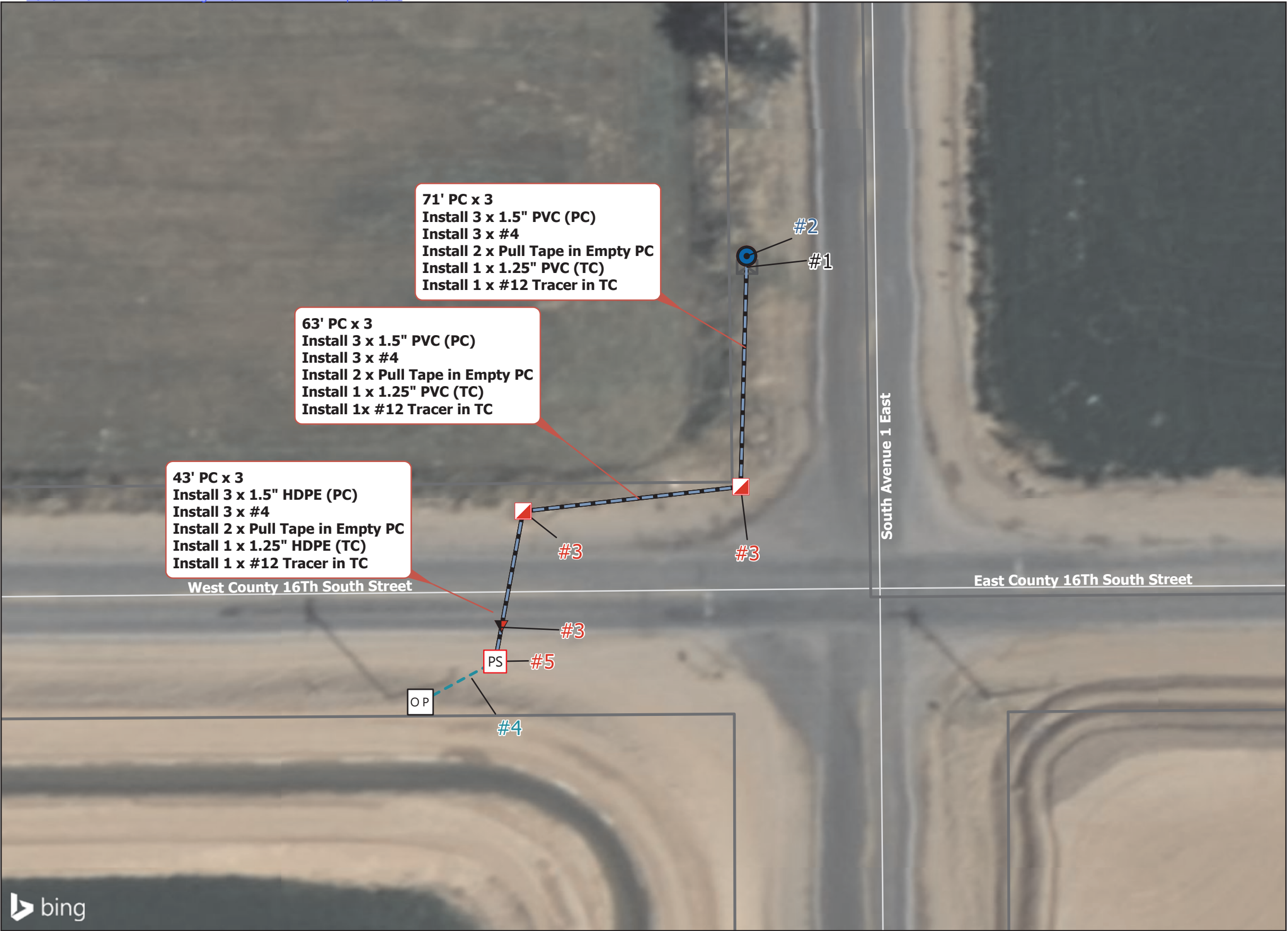
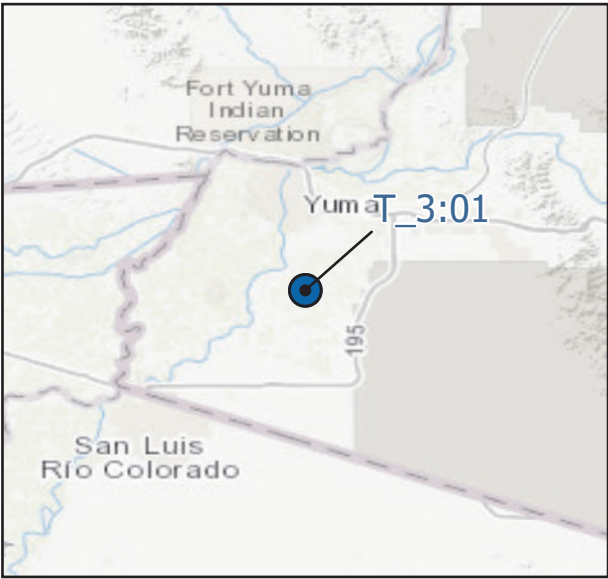
145 West County 16th Street, Somerton, AZ, 85350

Sheet No. 8

Legend

- Fiber Housing
- Wireless Pole
- Fiber Vault (By Others)
- ▼ Tracer Vault
- ▢ Power Vault
- PS Electric Meter Enclosure
- ⊠ Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- - - Tracer Conduit
- - - Power Conduit by Others
- Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



71' PC x 3  
Install 3 x 1.5" PVC (PC)  
Install 3 x #4  
Install 2 x Pull Tape in Empty PC  
Install 1 x 1.25" PVC (TC)  
Install 1 x #12 Tracer in TC

63' PC x 3  
Install 3 x 1.5" PVC (PC)  
Install 3 x #4  
Install 2 x Pull Tape in Empty PC  
Install 1 x 1.25" PVC (TC)  
Install 1x #12 Tracer in TC

43' PC x 3  
Install 3 x 1.5" HDPE (PC)  
Install 3 x #4  
Install 2 x Pull Tape in Empty PC  
Install 1 x 1.25" HDPE (TC)  
Install 1 x #12 Tracer in TC



0 50 Feet



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by APS. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per APS Standards

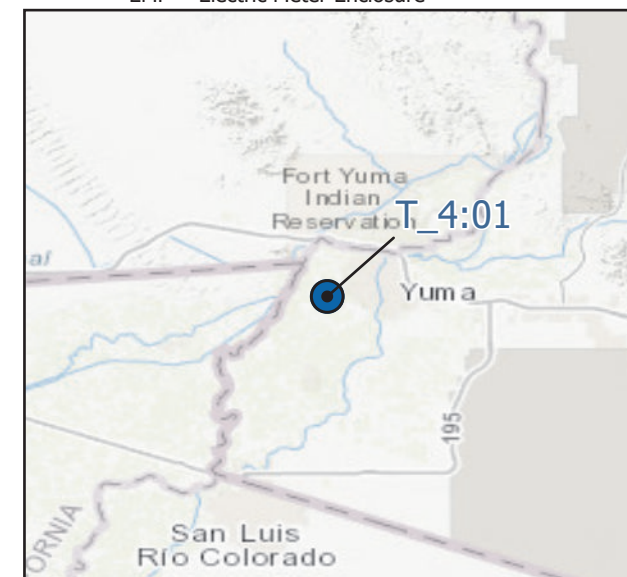


YUMA COUNTY WIRELESS  
Tower 3  
-114.615190 W, 32.597056 N  
15542-15998 S Avenue 2 E, Yuma, Arizona, 85365

## Legend

-  Fiber Housing
-  Wireless Pole
-  Fiber Vault (By Others)
-  Tracer Vault
-  Power Vault
-  Electric Meter Enclosure
-  Radio Equipment Cabinet
-  Electrical Service
-  Power Conduit
-  Fiber Conduit
-  Tracer Conduit
-  Power Conduit by Others
-  Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure

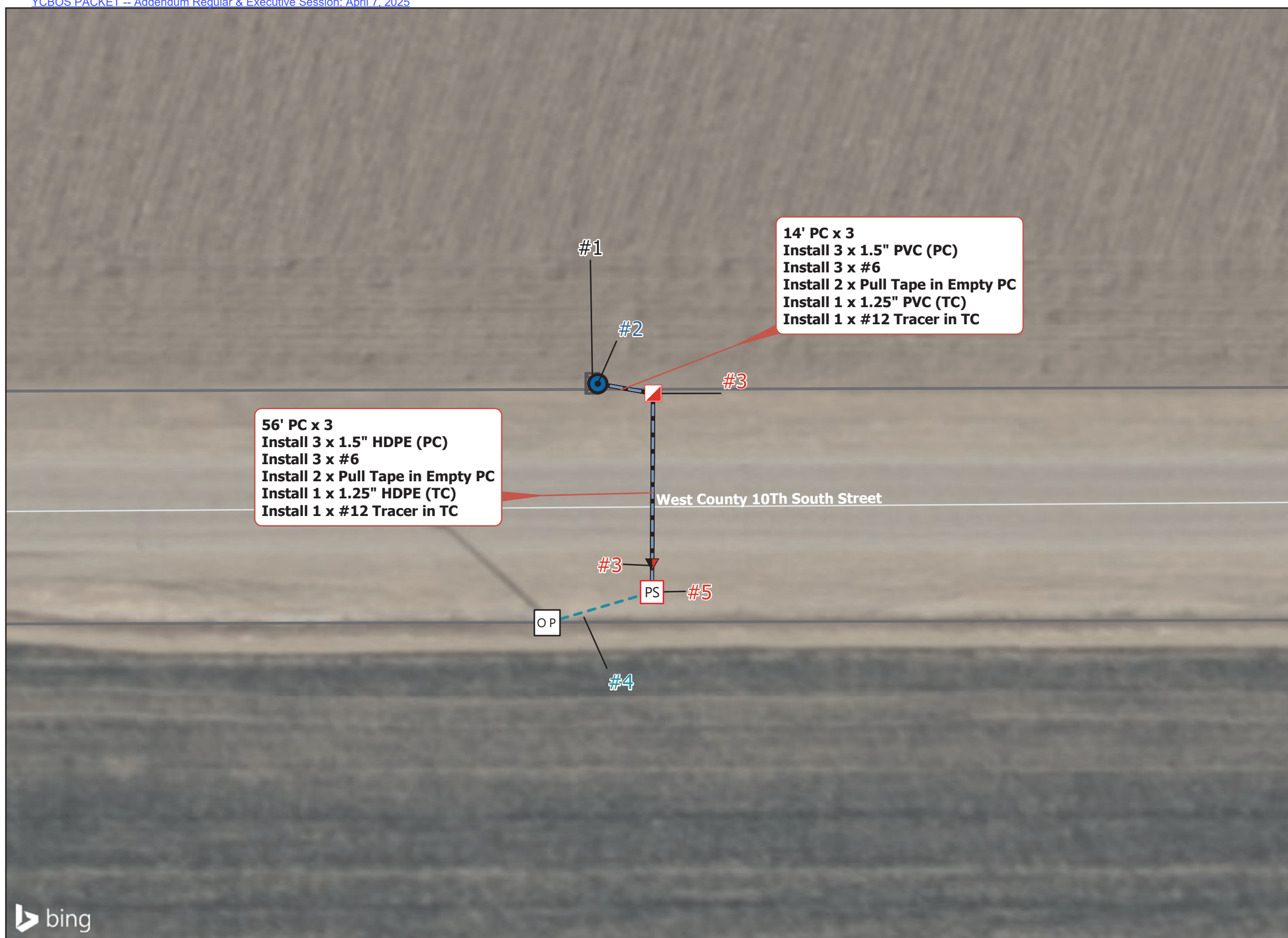


**YUMA COUNTY WIRELESS**

Tower 4

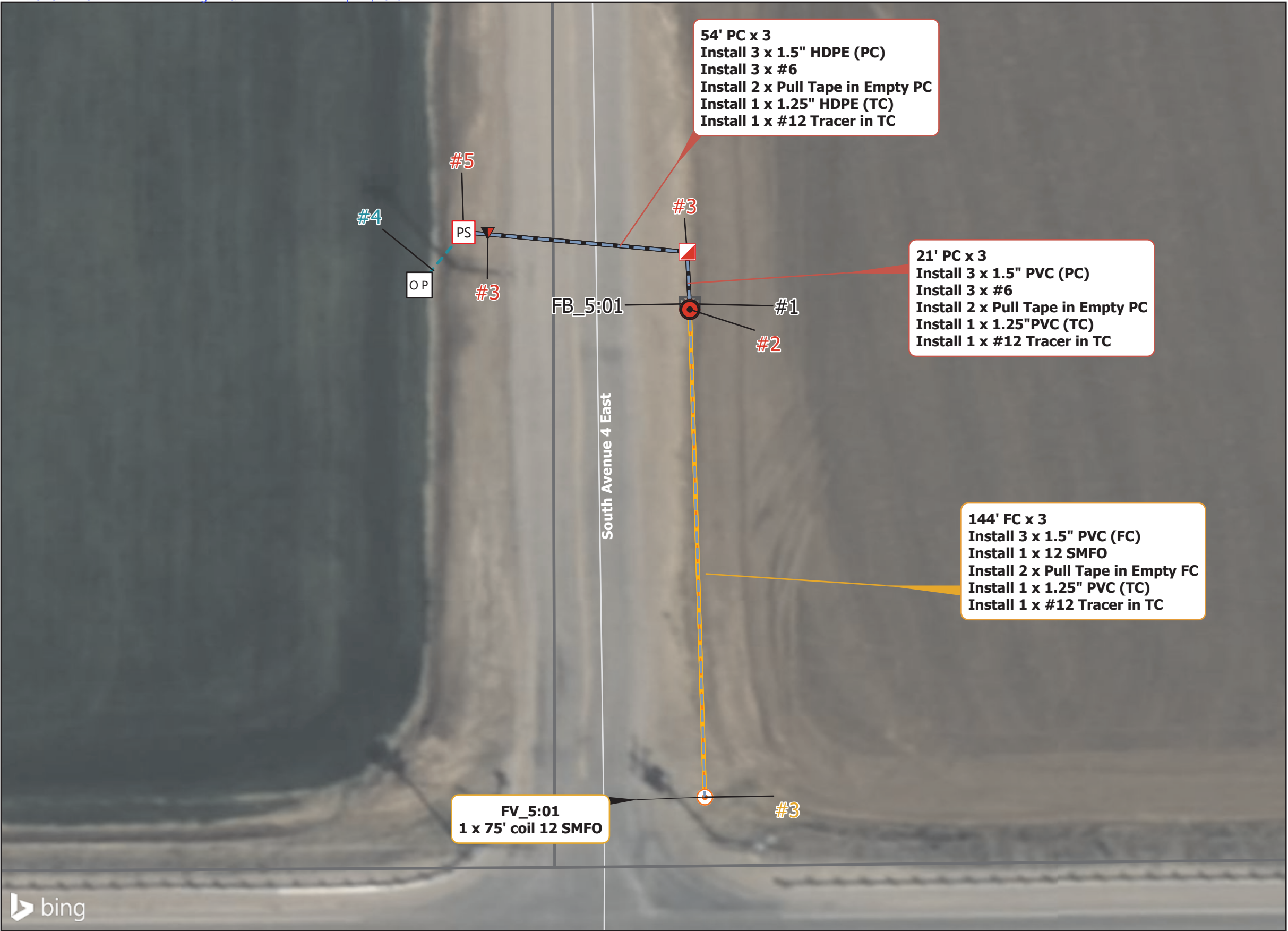
-114.694504 W, 32.683840 N  
5494 W 24th St, Yuma, AZ 85364

Sheet No. 10



#1 Install Radio Equipment Cabinet per Details on Sheet 4  
#2 Install Pole and Equipment per Details on Sheet 5  
#3 Install Conduit and Vault per Details on Sheet 6  
#4 Service Drop from Transformer to Meter by APS. Stub up 1 x 3" PC 6" above grade at Electrical Service  
#5 Install Electric Meter Enclosure per APS Standards





# Legend

- Fiber Housing
- Wired Pole
- Fiber Vault (By Others)
- Tracer Vault
- Power Vault
- PS Electric Meter Enclosure
- Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- Tracer Conduit
- Power Conduit by Others
- Yuma County Parcel Boundaries

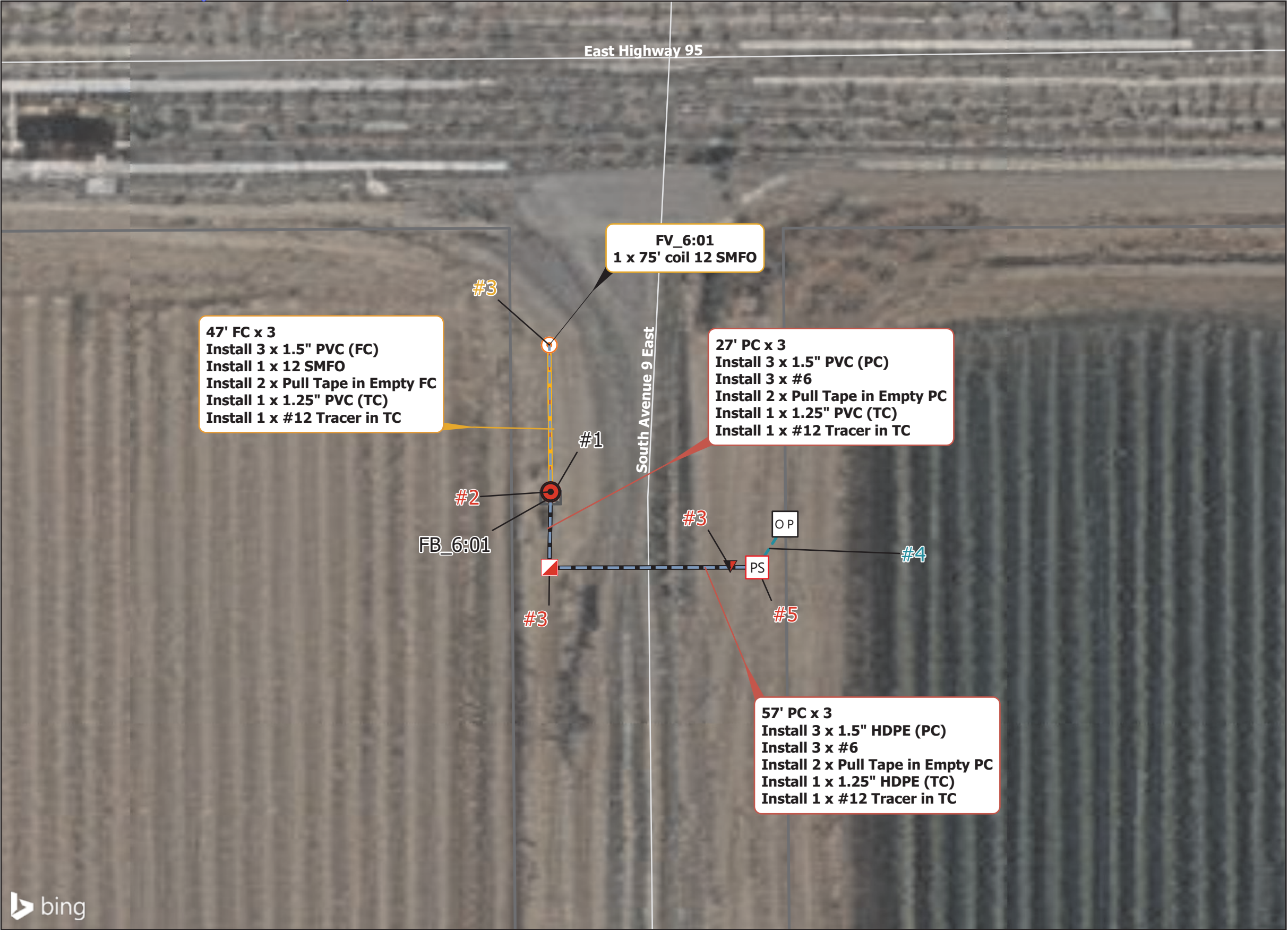
PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by APS. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per APS Standards



**YUMA COUNTY WIRELESS**  
Tower 5  
-114.564345 W, 32.699428 N  
8954 S Avenue 4 E, Yuma, Arizona, 85365



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by APS. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per APS Standards



**YUMA COUNTY WIRELESS**  
Tower 6  
-114.478583 W, 32.699092 N  
9024 S Avenue 9 E, Yuma, AZ 85365

## Legend

-  Fiber Housing
-  Wireless Pole
-  Fiber Vault (By Others)
-  Tracer Vault
-  Power Vault
-  Electric Meter Enclosure
-  Radio Equipment Cabinet
-  Electrical Service
-  Power Conduit
-  Fiber Conduit
-  Tracer Conduit
-  Power Conduit by Others
-  Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



**YUMA COUNTY WIRELESS**

Tower 7

-114.513478 W, 32.757500 N  
S Laguna Dam Rd, E County 5th st

Sheet No. 13

**68' PC x 3**  
**Install 3 x 1.5" HDPE (PC)**  
**Install 3 x #6**  
**Install 2 x Pull Tape in Empty PC**  
**Install 1 x 1.25" HDPE (TC)**  
**Install 1 x #12 Tracer in TC**

**19' PC x 3**  
**Install 3 x 1.5" PVC (PC)**  
**Install 3 x #6**  
**Install 2 x Pull Tape in Empty PC**  
**Install 1 x 1.25" PVC (TC)**  
**Install 1 x #12 Tracer in TC**

## South Laguna Dam Road

## East County 5Th South Street



0

50 Feet



#1 Install Radio Equipment Cabinet per Details on Sheet 4  
#2 Install Pole and Equipment per Details on Sheet 5  
#3 Install Conduit and Vault per Details on Sheet 6  
#4 Service Drop from Transformer to Meter by APS. Stub up 1 x 3" PC 6" above grade at Electrical Service  
#5 Install Electric Meter Enclosure per APS Standards

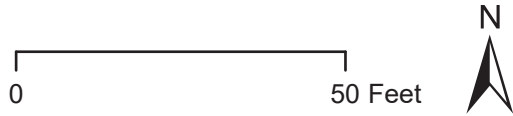
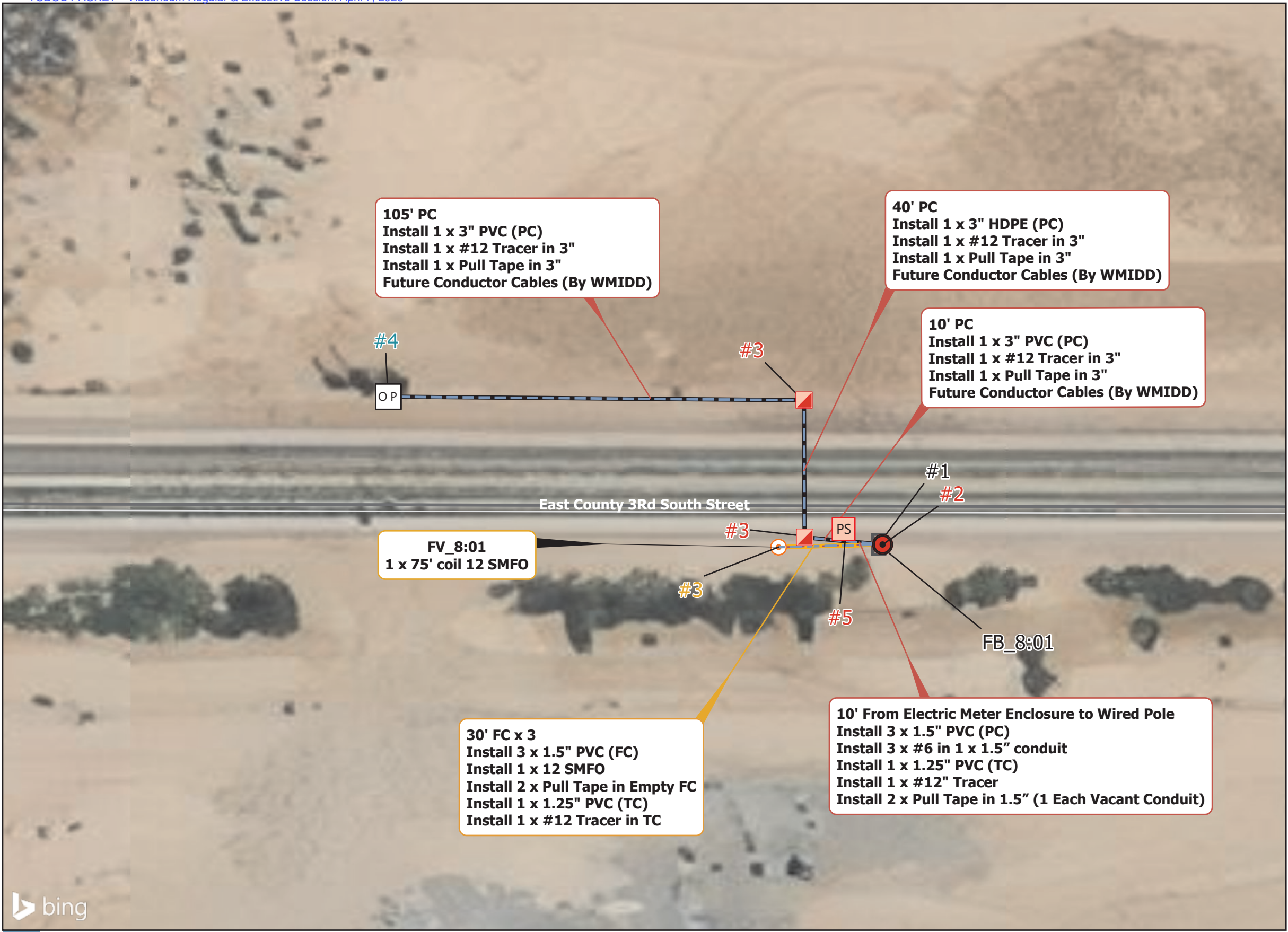
\\KSCPI-FS04\DATA\1\YUMA LAST MILE\HDR GIS STANDARDS 001 FOLDER STRUCTURE (1)\HDR GIS STANDARDS 001 FOLDERS FINAL\MAP\_DOCS\DRAFT\YUMA WORKING\YUMA WORKING.APRX DATE: 1/31/2025



Legend

- Fiber Housing
- Wired Pole
- Fiber Vault (By Others)
- ▣ Power Vault
- PS Electric Meter Enclosure
- ⊠ Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- - - Tracer Conduit
- - - Power Conduit by Others
- ▭ Yuma County Parcel Boundaries

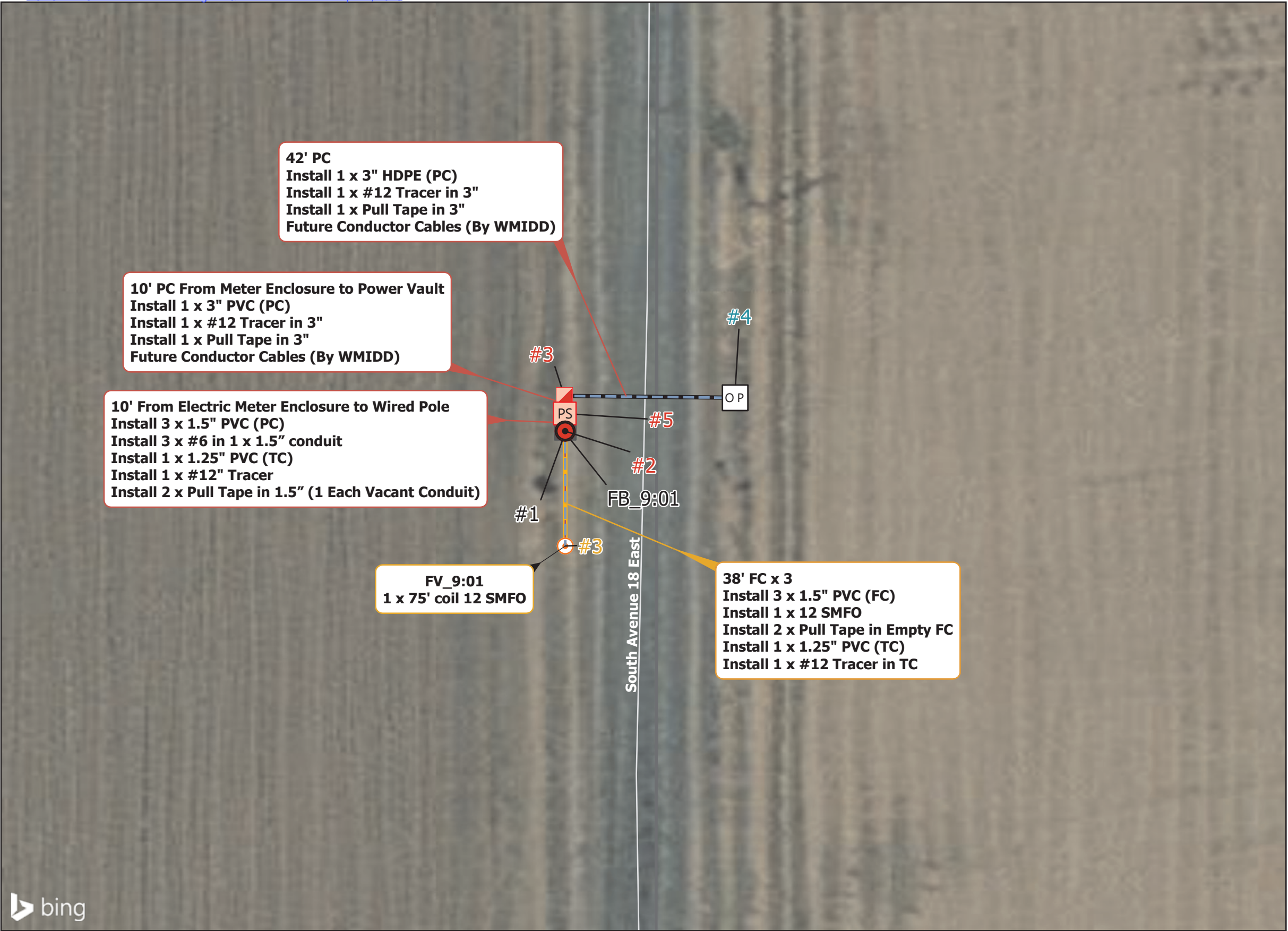
PC = Power Conduit  
FC = Fiber Conduit  
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TC = Tracer Conduit  
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FV = Fiber vault  
EMP = Electric Meter Enclosure



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by WMIDD. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per WMIDD Standards



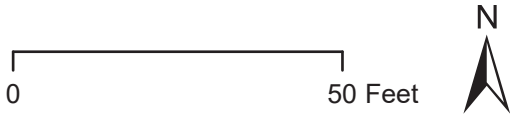
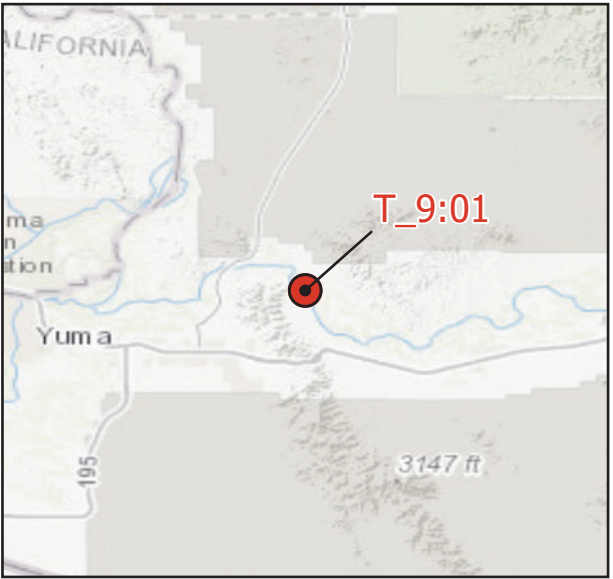
**YUMA COUNTY WIRELESS**  
Tower 8  
-114.386312 W, 32.772208 N  
15221 E County 3rd St. Yuma, AZ 85365



Legend

- Fiber Housing
- Wired Pole
- Fiber Vault (By Others)
- Power Vault
- PS Electric Meter Enclosure
- Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- Tracer Conduit
- Power Conduit by Others
- Yuma County Parcel Boundaries

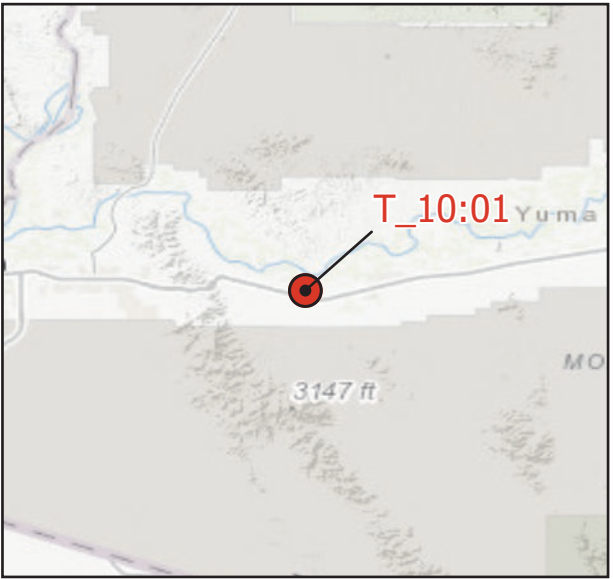
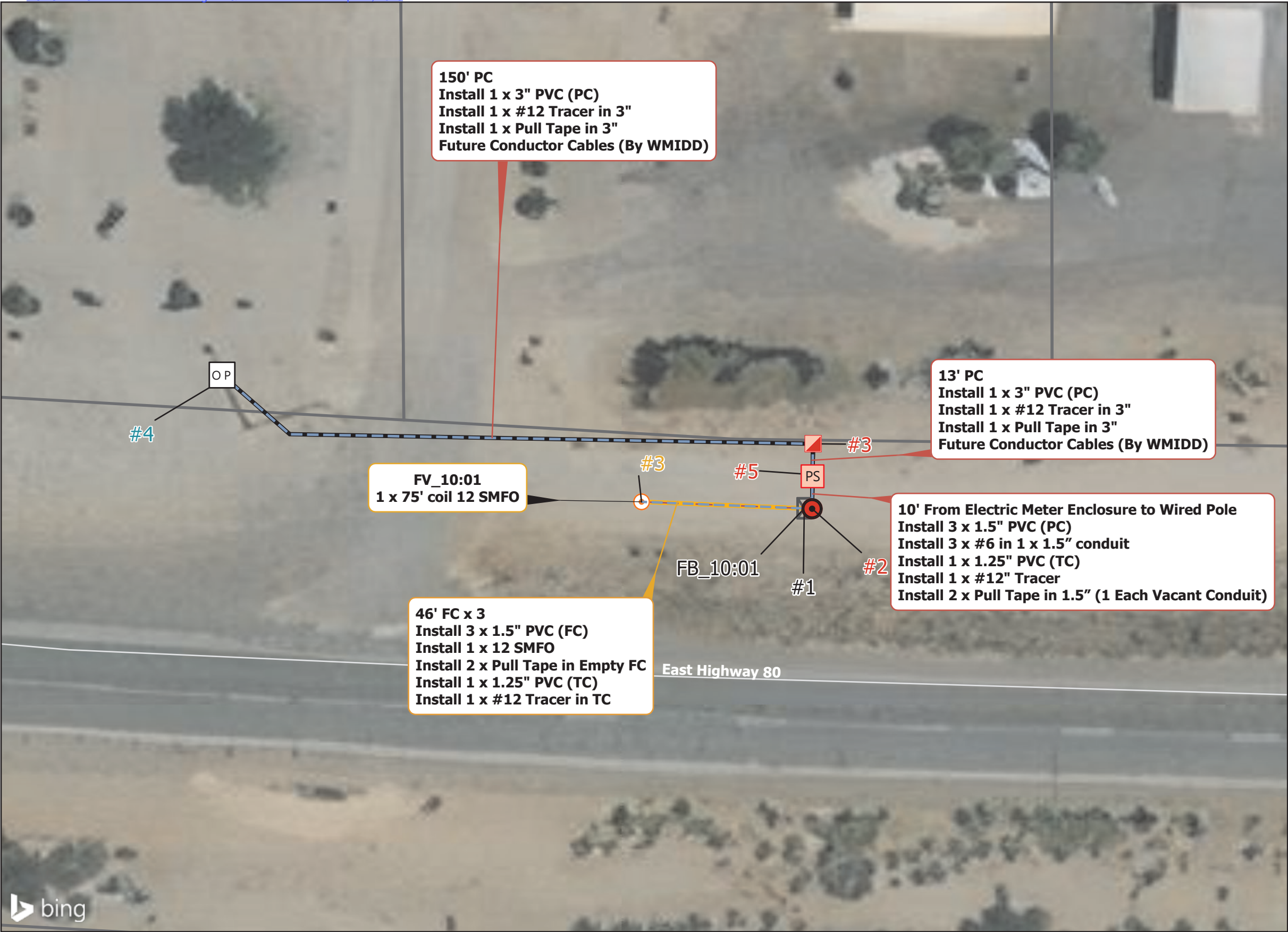
PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by WMIDD. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per WMIDD Standards



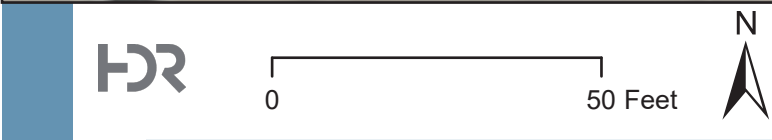
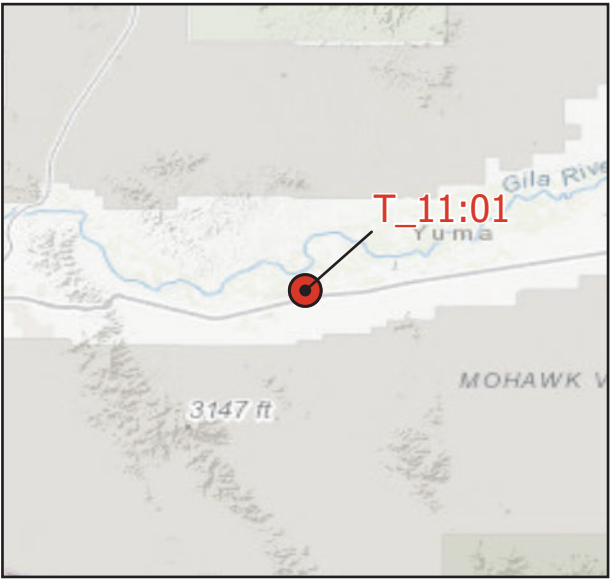
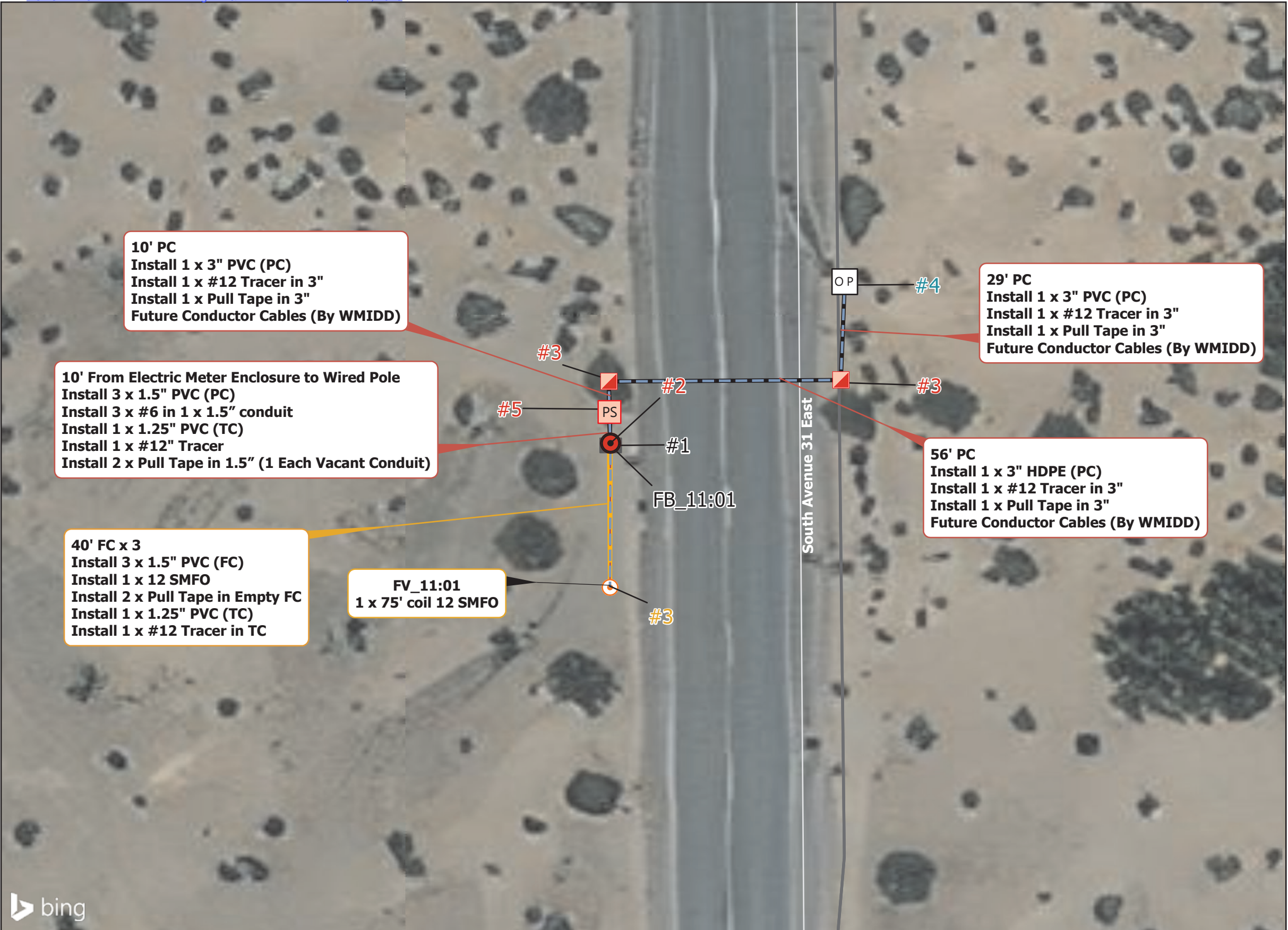
**YUMA COUNTY WIRELESS**  
Tower 9  
-114.330496 W, 32.736930 N  
5700-6998 S Avenue 18 E



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by WMIDD. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per WMIDD Standards



**YUMA COUNTY WIRELESS**  
Tower 10  
-114.218525 W, 32.659185 N  
24510 East Highway 80



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by WMIDD. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per WMIDD Standards

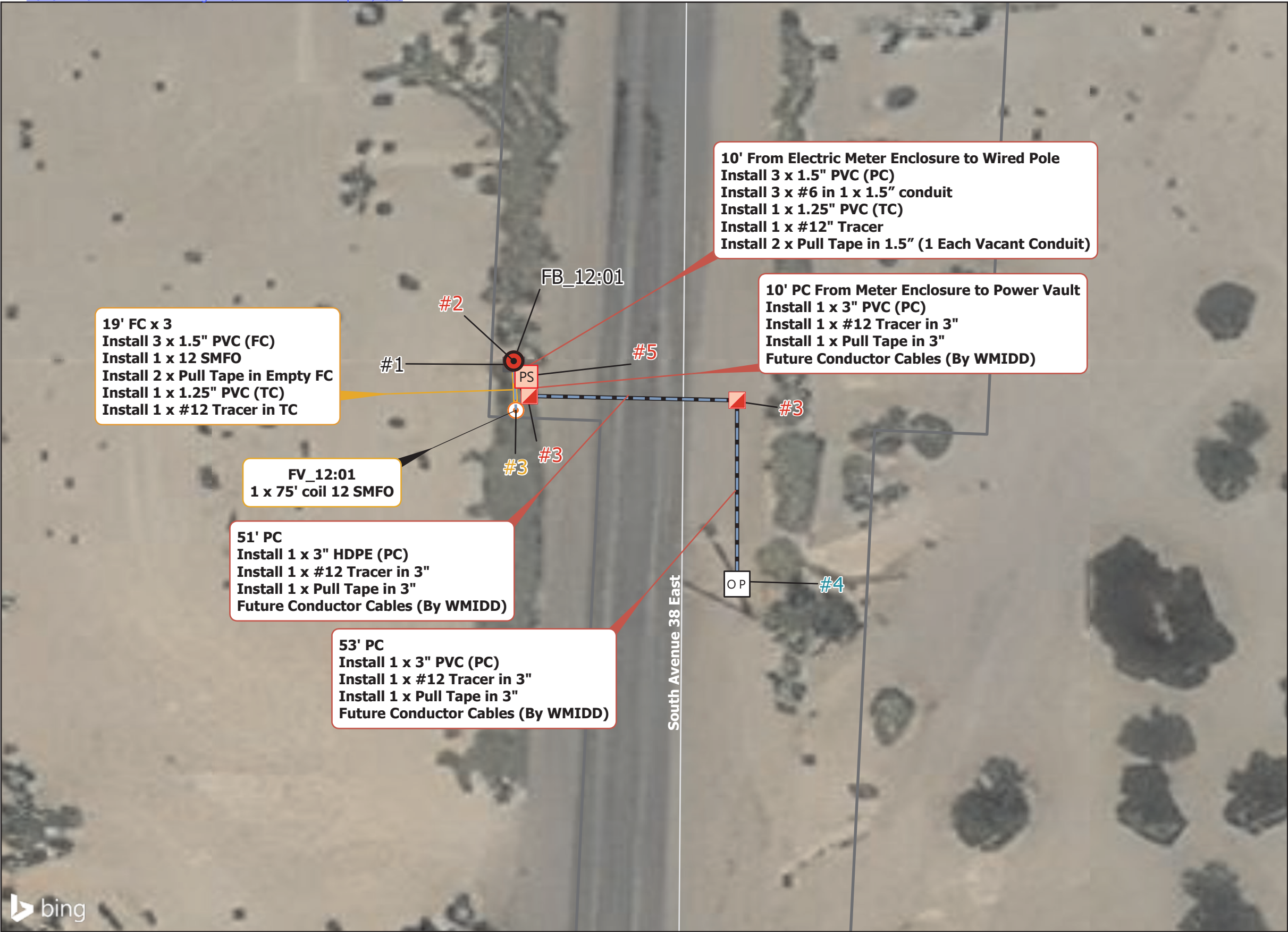


YUMA COUNTY WIRELESS

Tower 11

-114.107963 W, 32.679162 N  
10386 S Avenue 31 E Welton, AZ

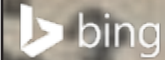
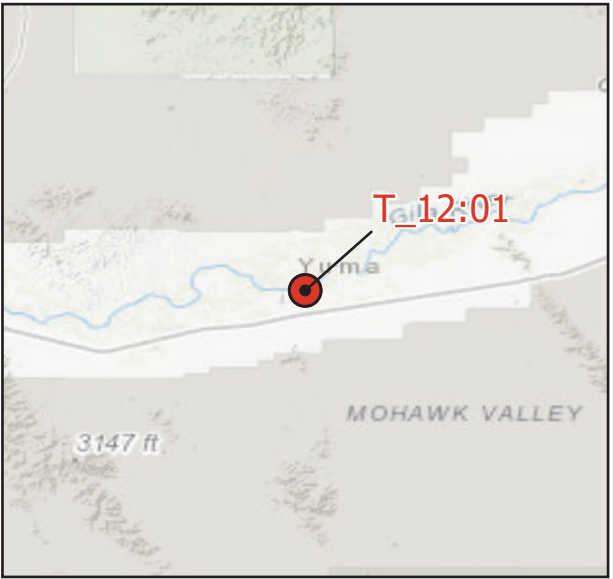
Sheet No. 17



## Legend

- Fiber Housing
- Wired Pole
- Fiber Vault (By Others)
- ▣ Power Vault
- PS Electric Meter Enclosure
- ⊠ Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- - - Tracer Conduit
- - - Power Conduit by Others
- ▭ Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



0 50 Feet



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by WMIDD. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per WMIDD Standards



YUMA COUNTY WIRELESS

Tower 12

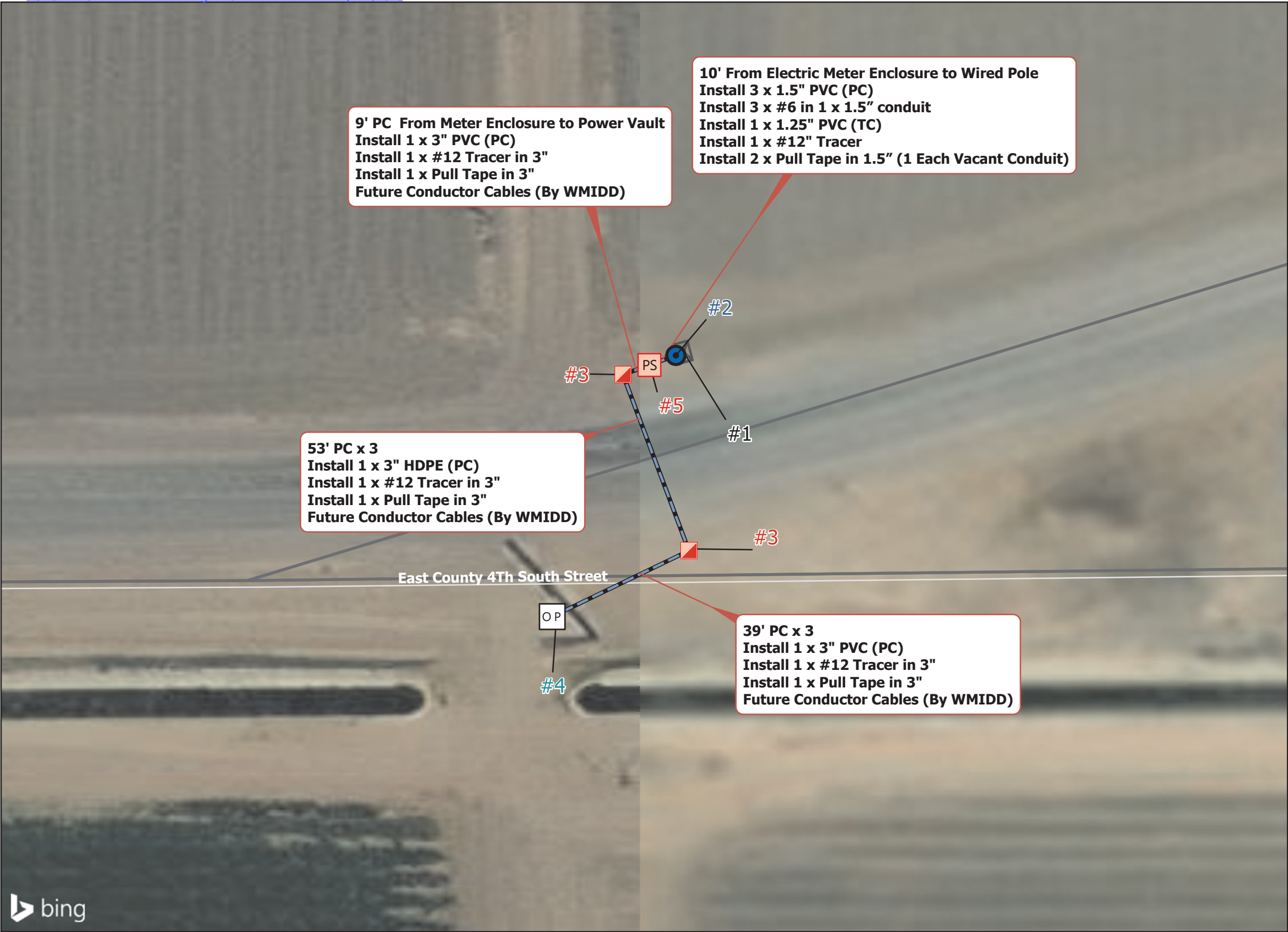
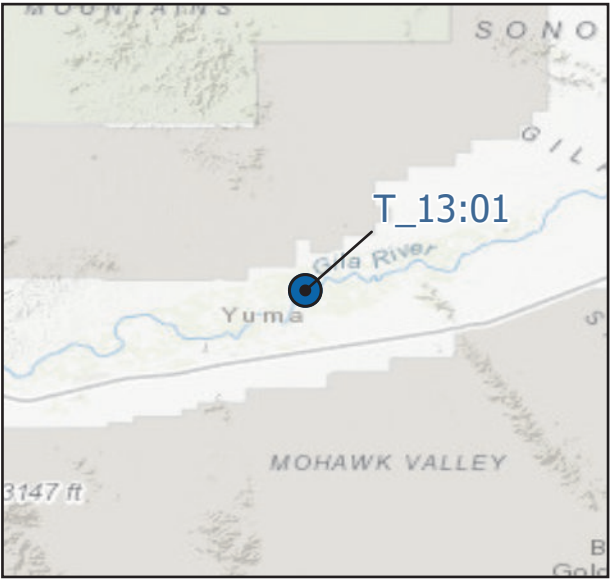
-113.987725 W, 32.714509 N  
7746 S Avenue 38 E, Welton, AZ 85356

Sheet No. 18

Legend

- Fiber Housing
- Wireless Pole
- Fiber Vault (By Others)
- ▣ Power Vault
- PS Electric Meter Enclosure
- ☒ Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- - - Tracer Conduit
- - - Power Conduit by Others
- ▭ Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
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- #4 Service Drop from Transformer to Meter by WMIDD. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per WMIDD Standards

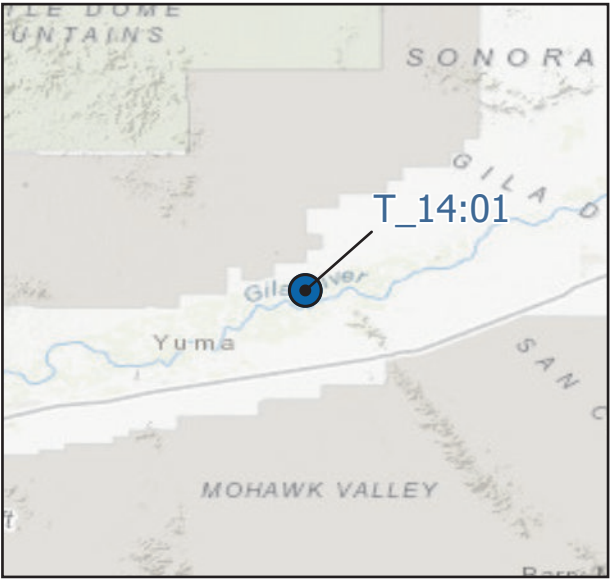


YUMA COUNTY WIRELESS  
Tower 13  
-113.906222 W, 32.766817 N  
E County 4th St, S Ave 43 E

Legend

- Fiber Housing
- Wireless Pole
- Fiber Vault (By Others)
- Power Vault
- PS Electric Meter Enclosure
- Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- Tracer Conduit
- Power Conduit by Others
- Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



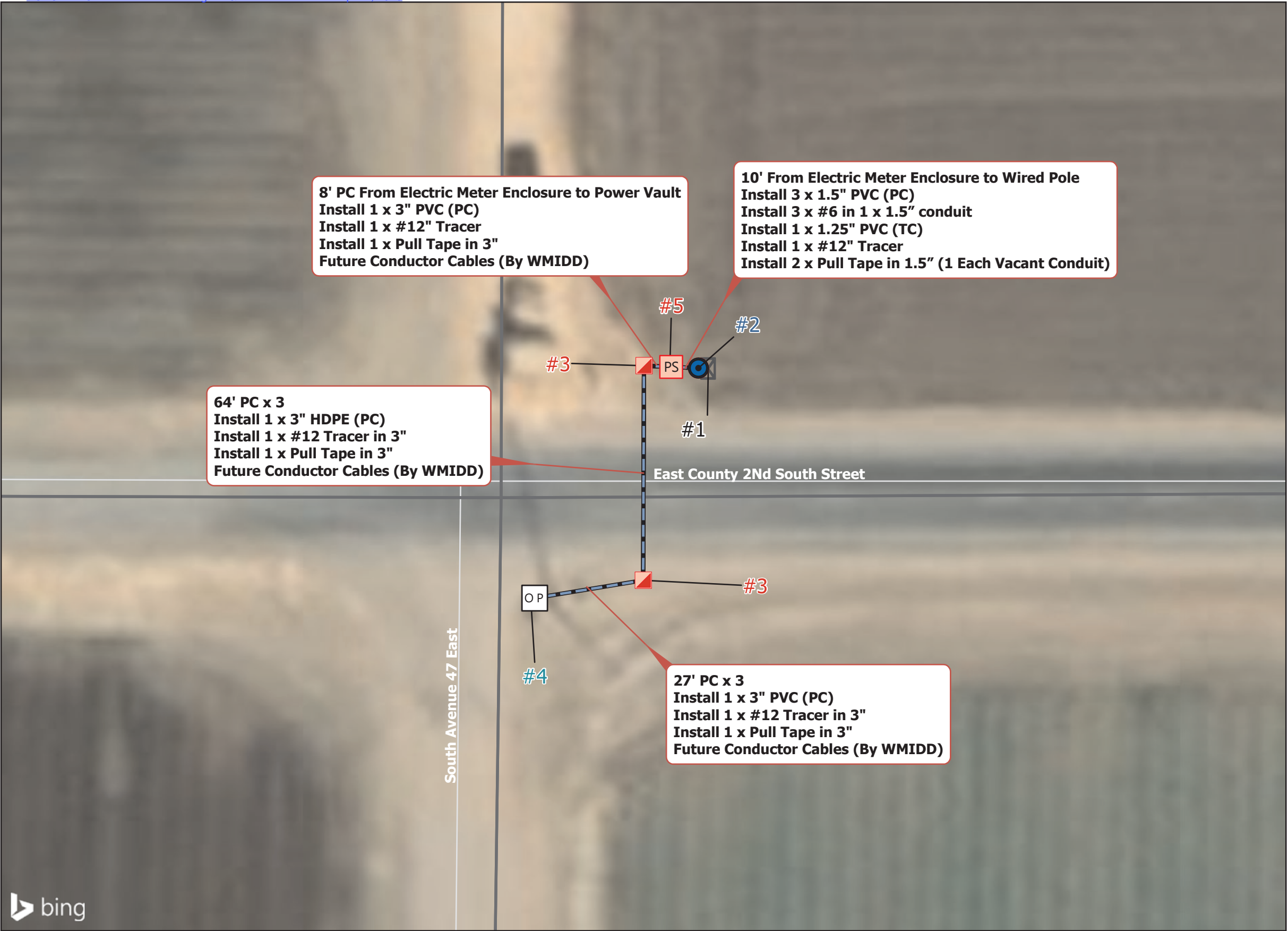
YUMA COUNTY WIRELESS

Tower 14

-113.833156 W, 32.796017 N

E County 2nd St, S Ave 47 E

Sheet No. 20



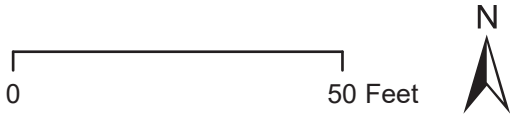
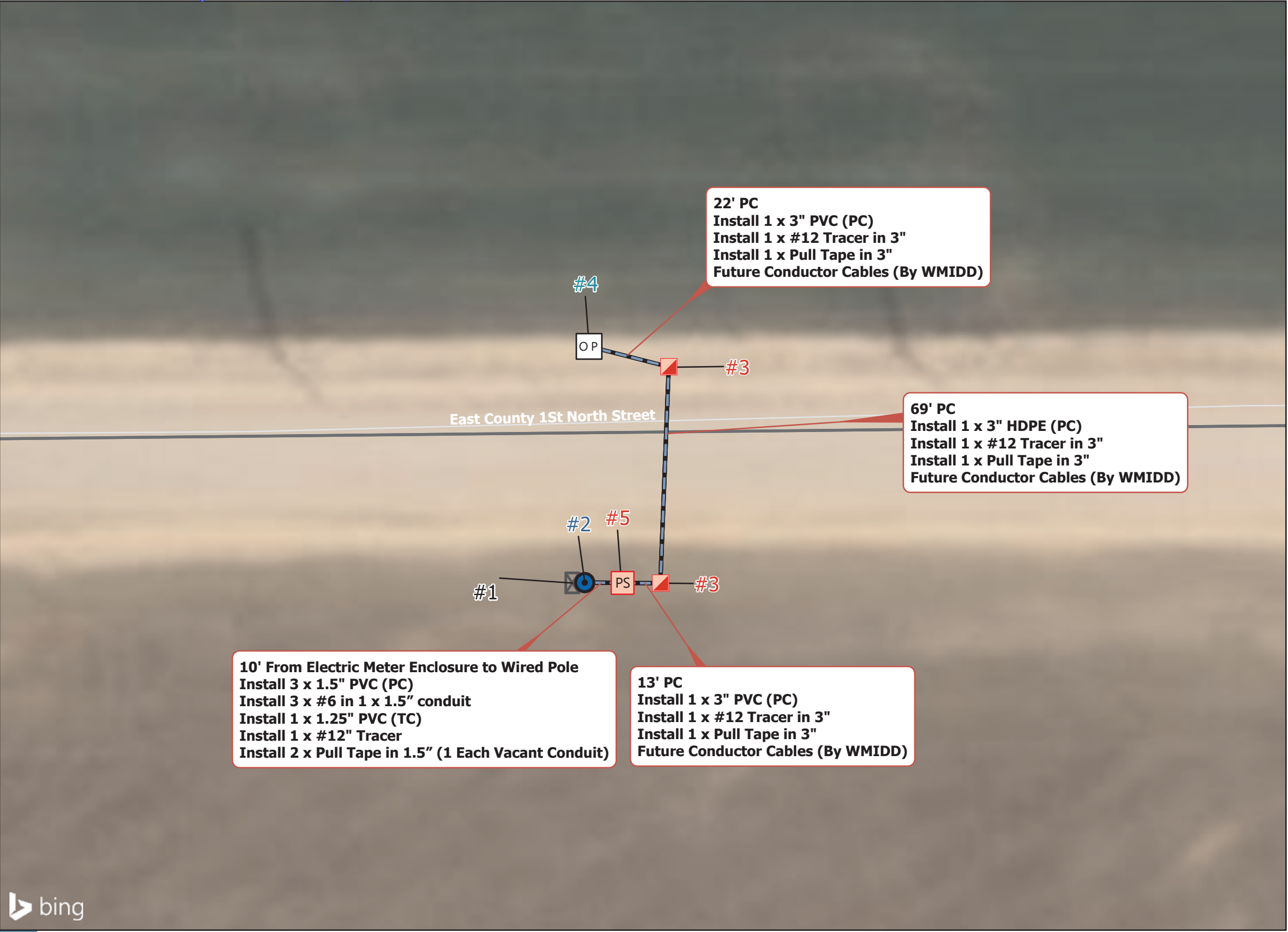
- #1 Install Radio Equipment Cabinet per Details on Sheet 4
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- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by WMIDD. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per WMIDD Standards



Legend

- Fiber Housing
- Wireless Pole
- Fiber Vault (By Others)
- Power Vault
- PS Electric Meter Enclosure
- Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- Tracer Conduit
- Power Conduit by Others
- Yuma County Parcel Boundaries

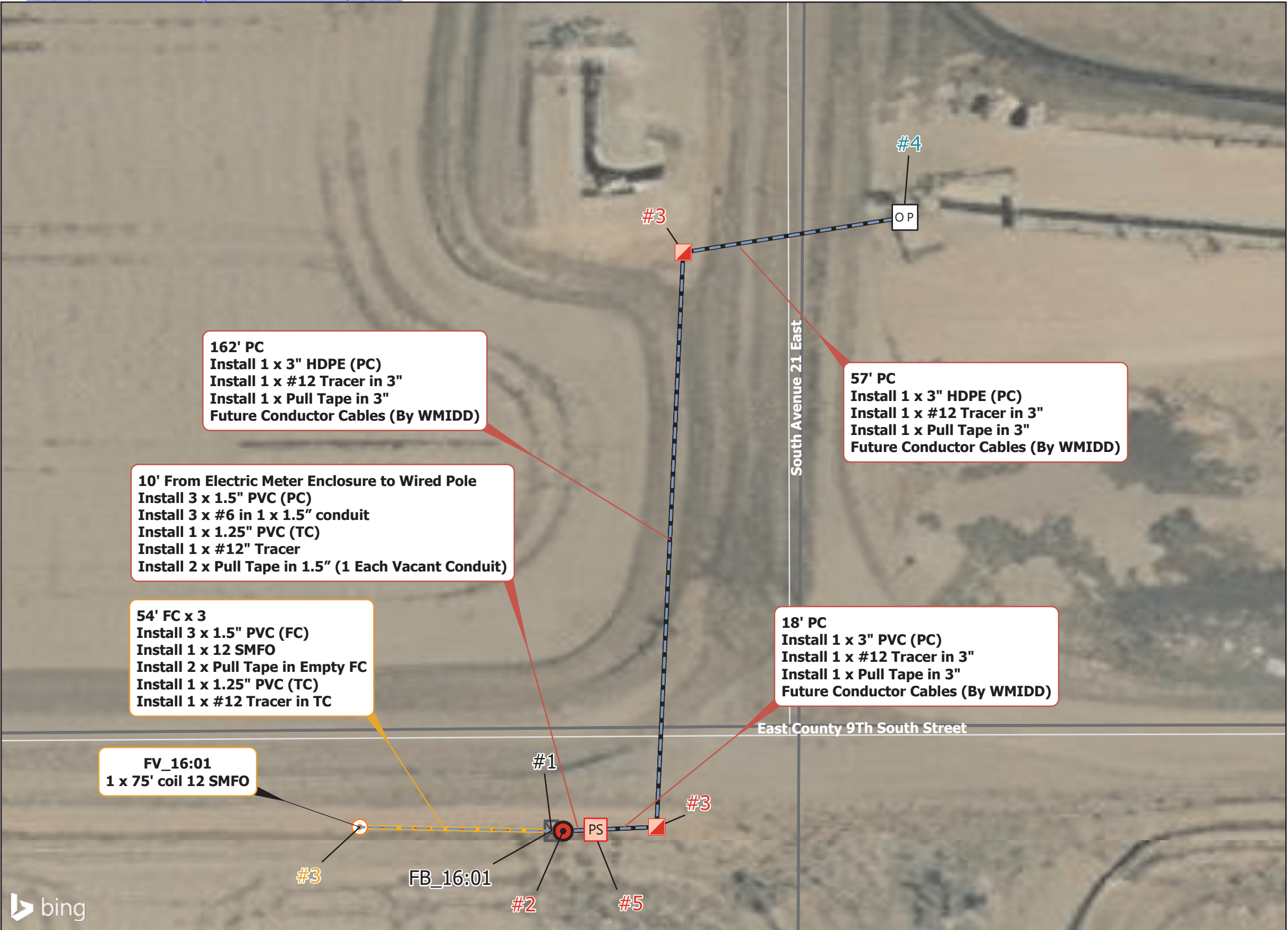
PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
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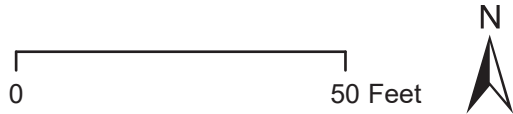
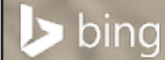
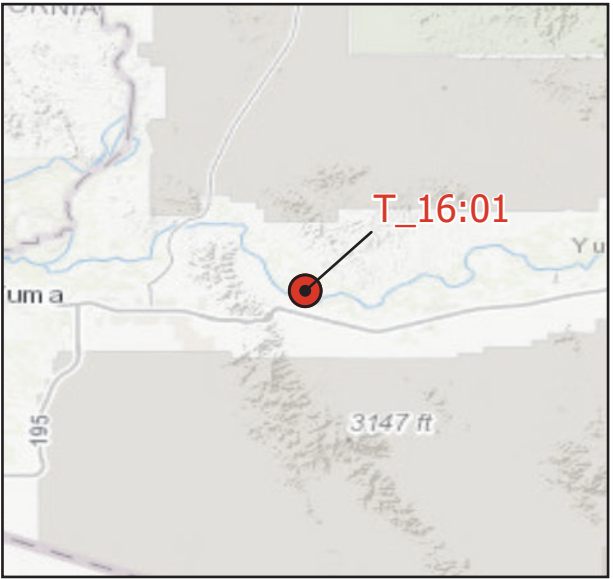
**YUMA COUNTY WIRELESS**  
Tower 15  
-113.742436 W, 32.825111 N  
County 1st Street, Avenue 52E



## Legend

- Fiber Housing
- Wired Pole
- Fiber Vault (By Others)
- ▣ Power Vault
- PS Electric Meter Enclosure
- ⊠ Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- - - Tracer Conduit
- - - Power Conduit by Others
- Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
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- #4 Service Drop from Transformer to Meter by WMIDD. Stub up 1 x 3" PC 6" above grade at Electrical Service
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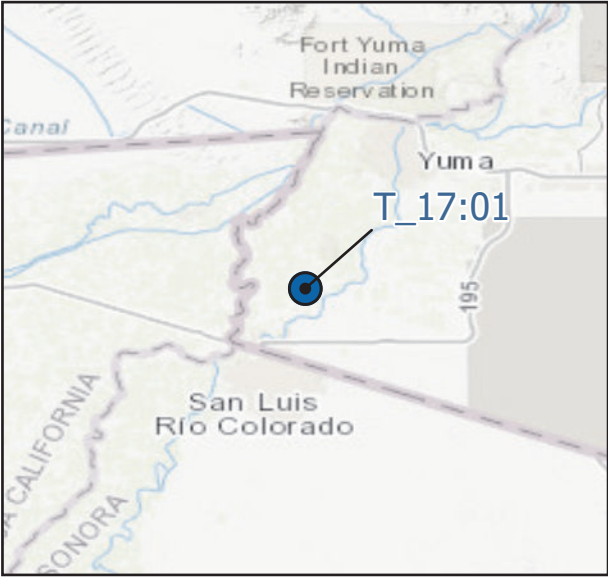


**YUMA COUNTY WIRELESS**  
Tower 16  
-114.279136 W, 32.692562 N  
9708 E County 9th St, Welton, AZ, 85365

Legend

- Fiber Housing
- Wireless Pole
- Fiber Vault (By Others)
- Tracer Vault
- Power Vault
- PS Electric Meter Enclosure
- Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- Tracer Conduit
- Power Conduit by Others
- Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure

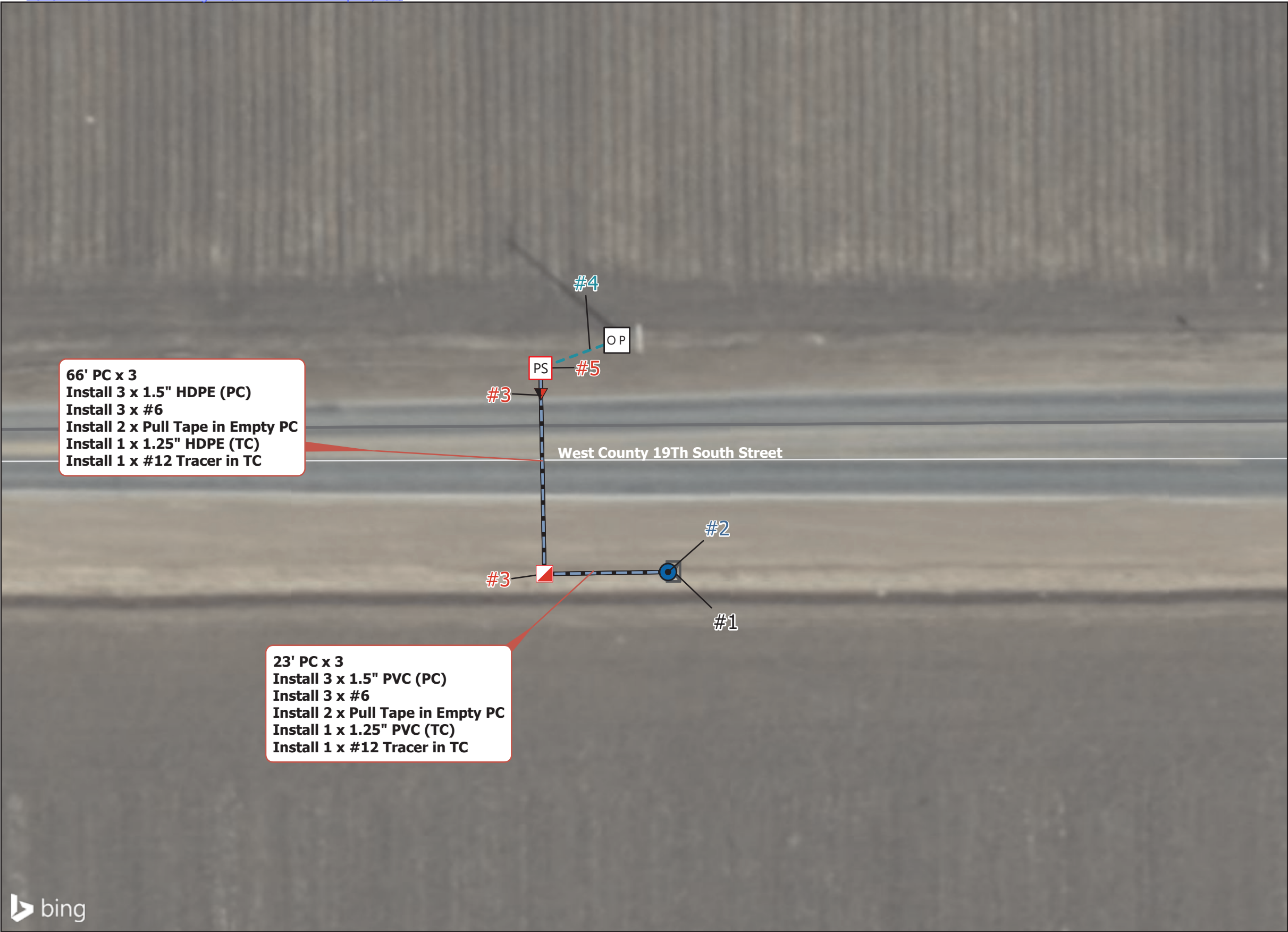


YUMA COUNTY WIRELESS

Tower 17

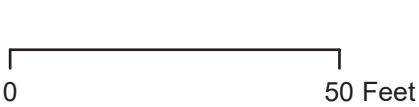
-114.736796 W, 32.552608 N  
19048 S Avenue G, Somerton, AZ 85350

Sheet No. 23



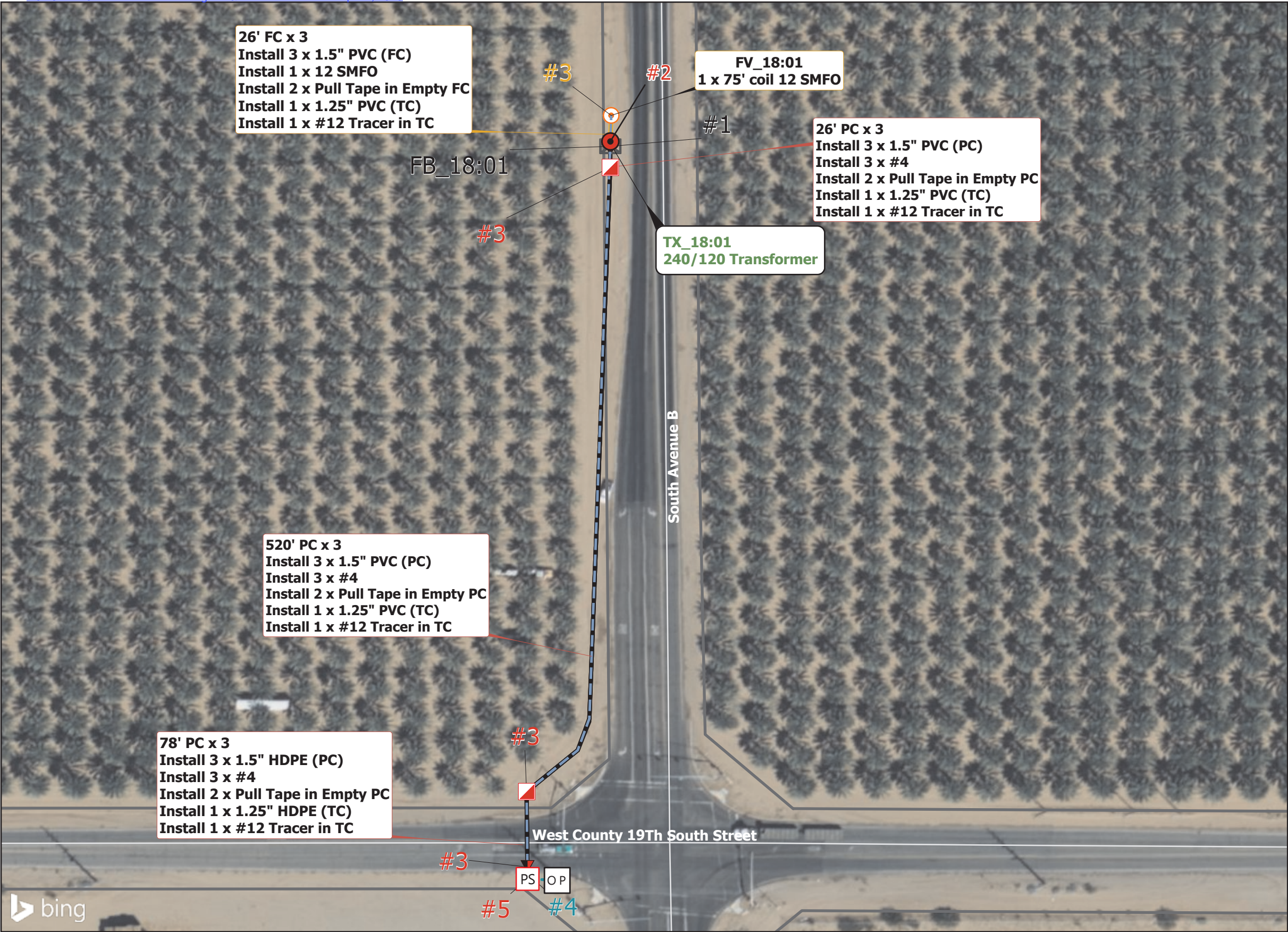
66' PC x 3  
Install 3 x 1.5" HDPE (PC)  
Install 3 x #6  
Install 2 x Pull Tape in Empty PC  
Install 1 x 1.25" HDPE (TC)  
Install 1 x #12 Tracer in TC

23' PC x 3  
Install 3 x 1.5" PVC (PC)  
Install 3 x #6  
Install 2 x Pull Tape in Empty PC  
Install 1 x 1.25" PVC (TC)  
Install 1 x #12 Tracer in TC



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by APS. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per APS Standards





## Legend

- Fiber Housing
- + Transformer
- Wired Pole
- Fiber Vault (By Others)
- ▼ Tracer Vault
- ▢ Power Vault
- PS Electric Meter Enclosure
- ⊠ Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- - - Tracer Conduit
- - - Power Conduit by Others
- Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



0 140 Feet



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by APS. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per APS Standards



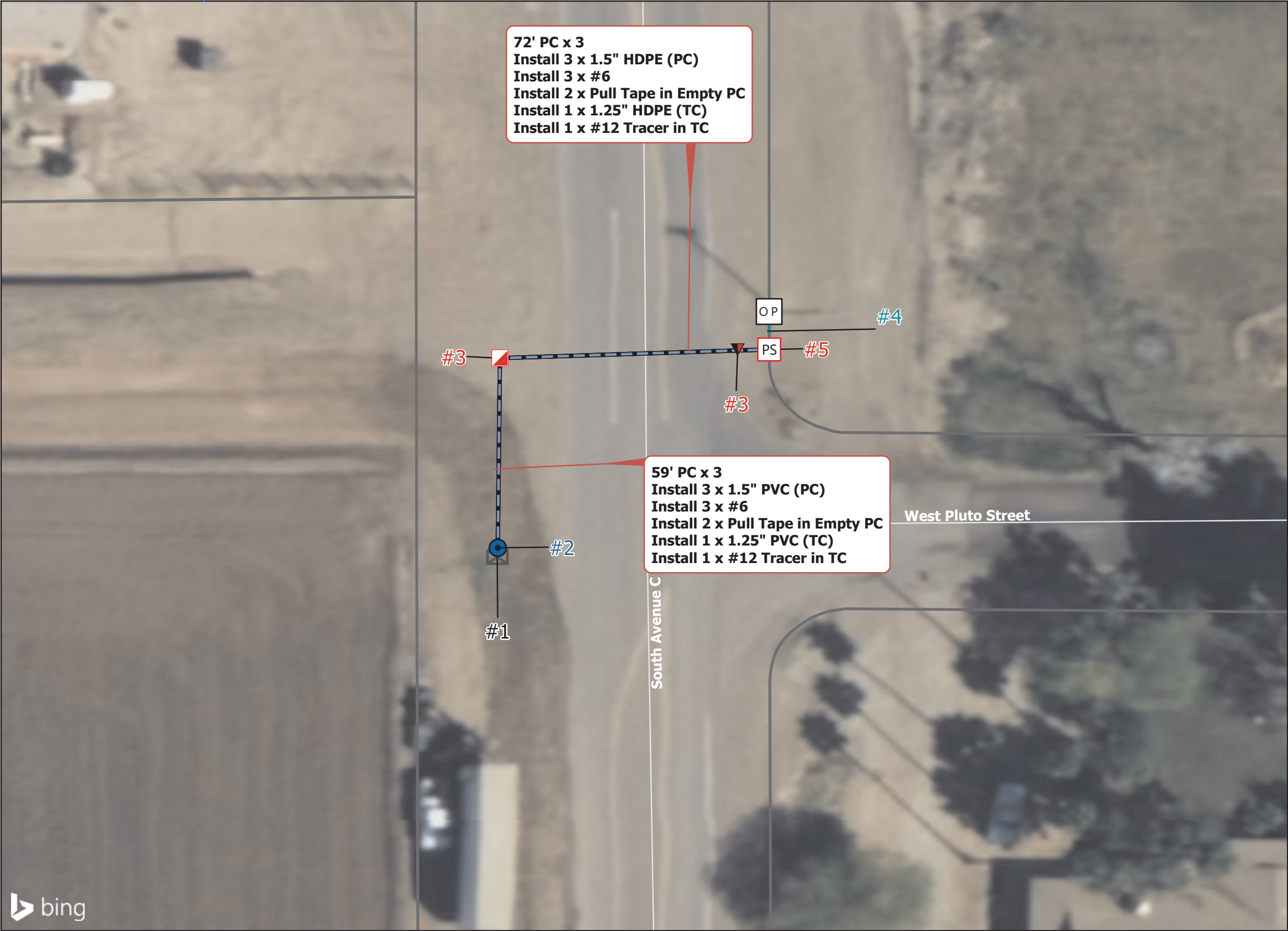
YUMA COUNTY WIRELESS

Tower 18

-114.649467 W, 32.554477 N

3895 W County 19th St, Somerton, AZ 85350-8296

Sheet No. 24



# Legend

- Fiber Housing
- Wireless Pole
- Fiber Vault (By Others)
- Tracer Vault
- Power Vault
- PS Electric Meter Enclosure
- Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- Tracer Conduit
- Power Conduit by Others
- Yuma County Parcel Boundaries

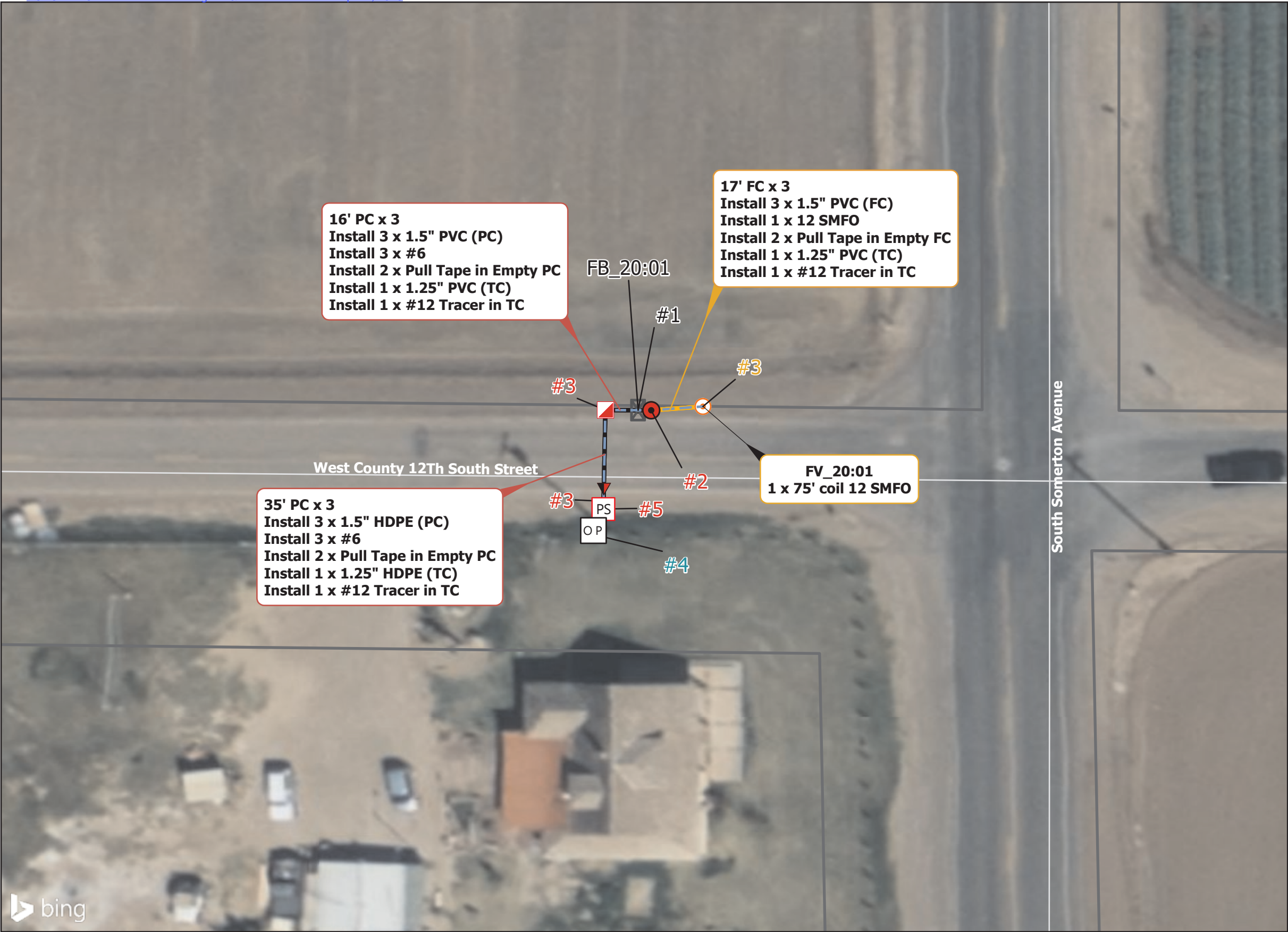
PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by APS. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per APS Standards



**YUMA COUNTY WIRELESS**  
Tower 19  
-114.667201 W, 32.624553 N  
3887 W Pluto St, Somerton, AZ 85350



Legend

- Fiber Housing
- Wired Pole
- Fiber Vault (By Others)
- ▼ Tracer Vault
- ▤ Power Vault
- PS Electric Meter Enclosure
- ⊠ Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- - - Tracer Conduit
- - - Power Conduit by Others
- Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by APS. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per APS Standards



**YUMA COUNTY WIRELESS**  
Tower 20  
-114.710739 W, 32.654647 N  
12120 S Somerton Ave, Yuma, AZ 85365

Legend

- Fiber Housing
- Wireless Pole
- Fiber Vault (By Others)
- Tracer Vault
- Power Vault
- PS Electric Meter Enclosure
- Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- Tracer Conduit
- Power Conduit by Others
- Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure

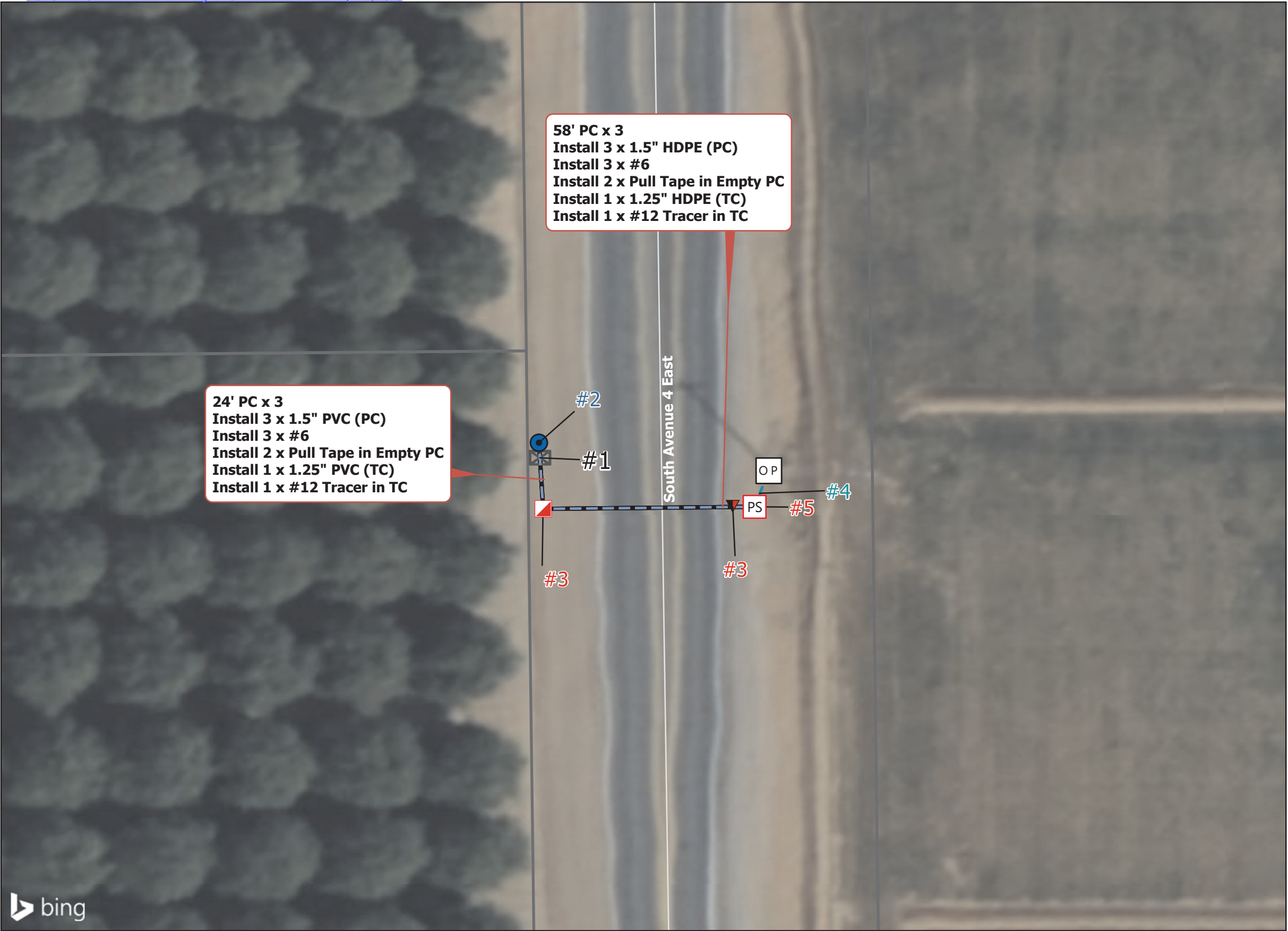


YUMA COUNTY WIRELESS

Tower 21

-114.563906 W, 32.639720 N  
3885 E County 13Th St, Yuma, AZ, 85365

Sheet No. 27



0 50 Feet



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by APS. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per APS Standards





Legend

- Fiber Housing
- Transformer
- Wireless Pole
- Fiber Vault (By Others)
- Tracer Vault
- Power Vault
- PS Electric Meter Enclosure
- Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- Tracer Conduit
- Power Conduit by Others
- Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by APS. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per APS Standards

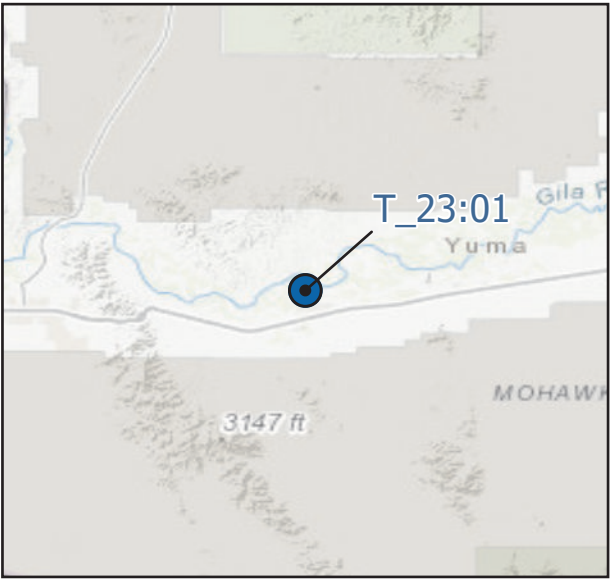


YUMA COUNTY WIRELESS  
Tower 22  
-114.461862 W, 32.744029 N  
6180 Avenue 10E, Yuma, AZ 85365

Legend

- Fiber Housing
- Wireless Pole
- Fiber Vault (By Others)
- Power Vault
- PS Electric Meter Enclosure
- Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- Tracer Conduit
- Power Conduit by Others
- Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure

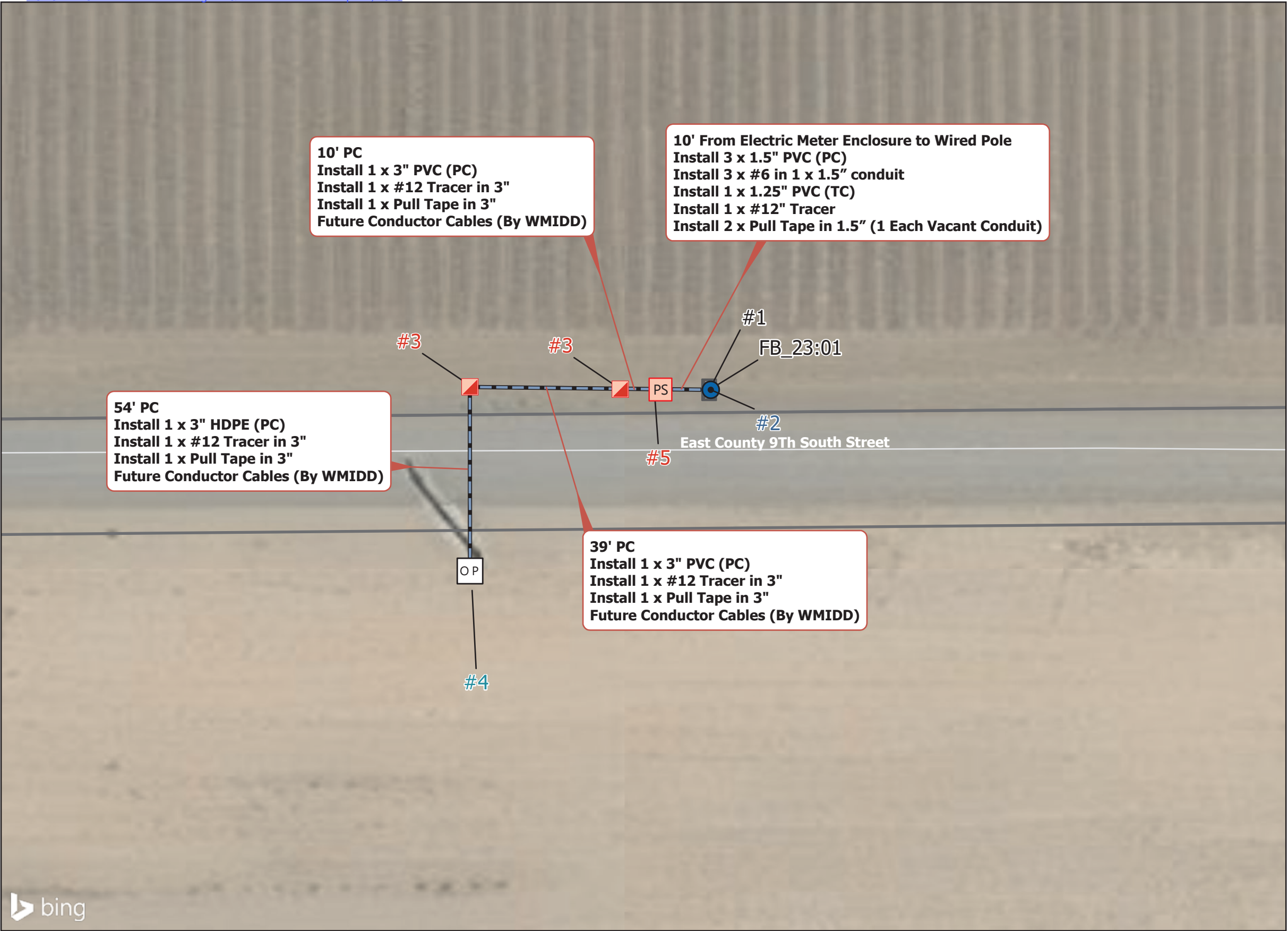


YUMA COUNTY WIRELESS

Tower 23

-114.143762 W, 32.692695 N  
24068 E County 9th St, Wellton, AZ 85356

Sheet No. 29

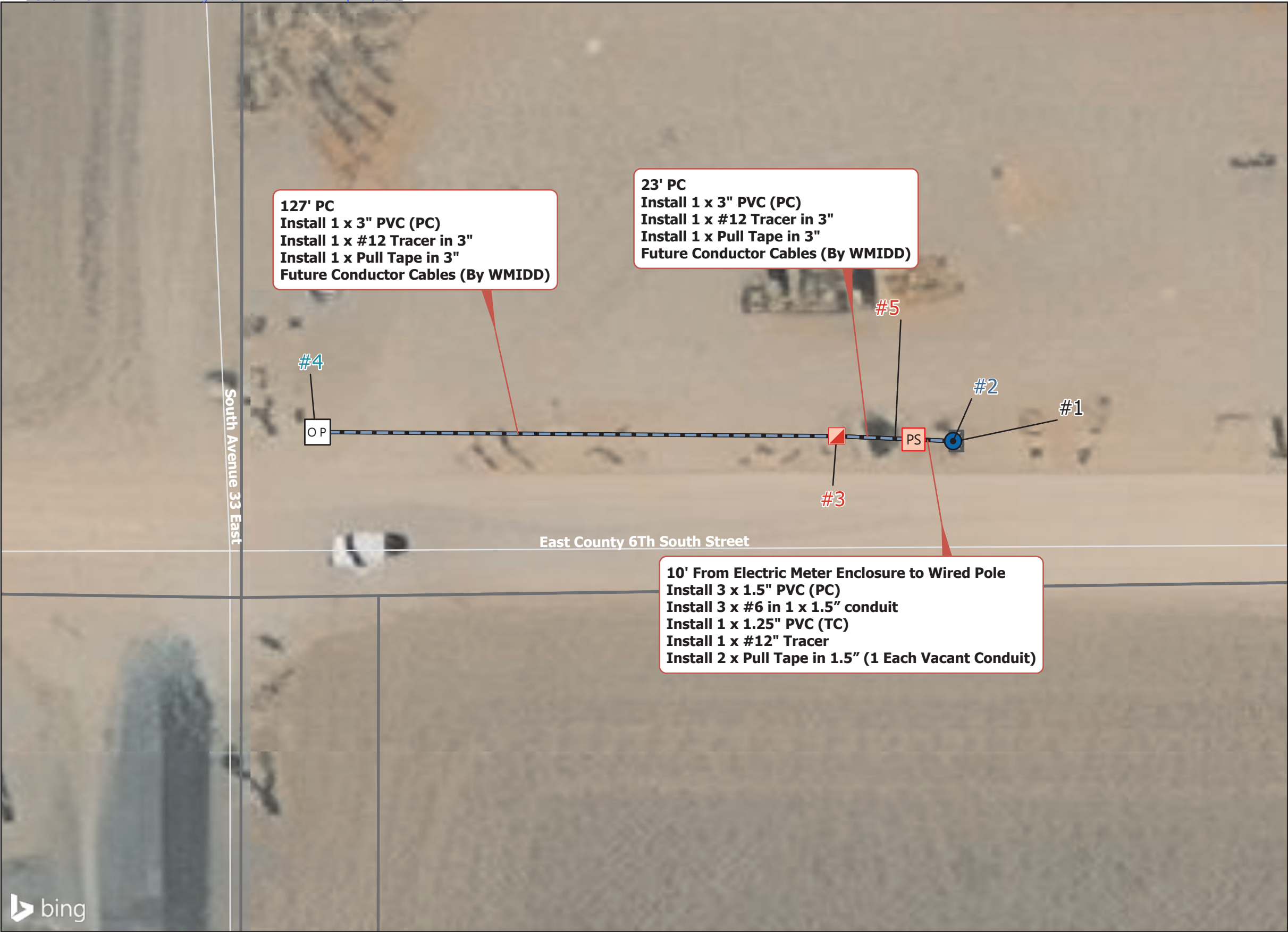


0 50 Feet

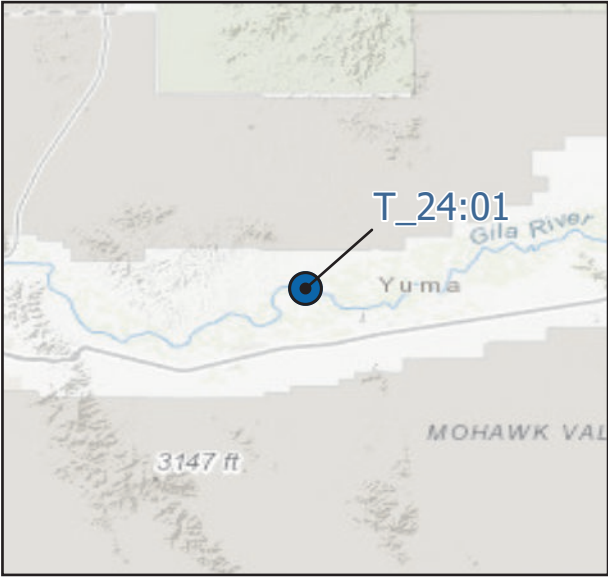


- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by WMIDD. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per WMIDD Standards





PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



YUMA COUNTY WIRELESS

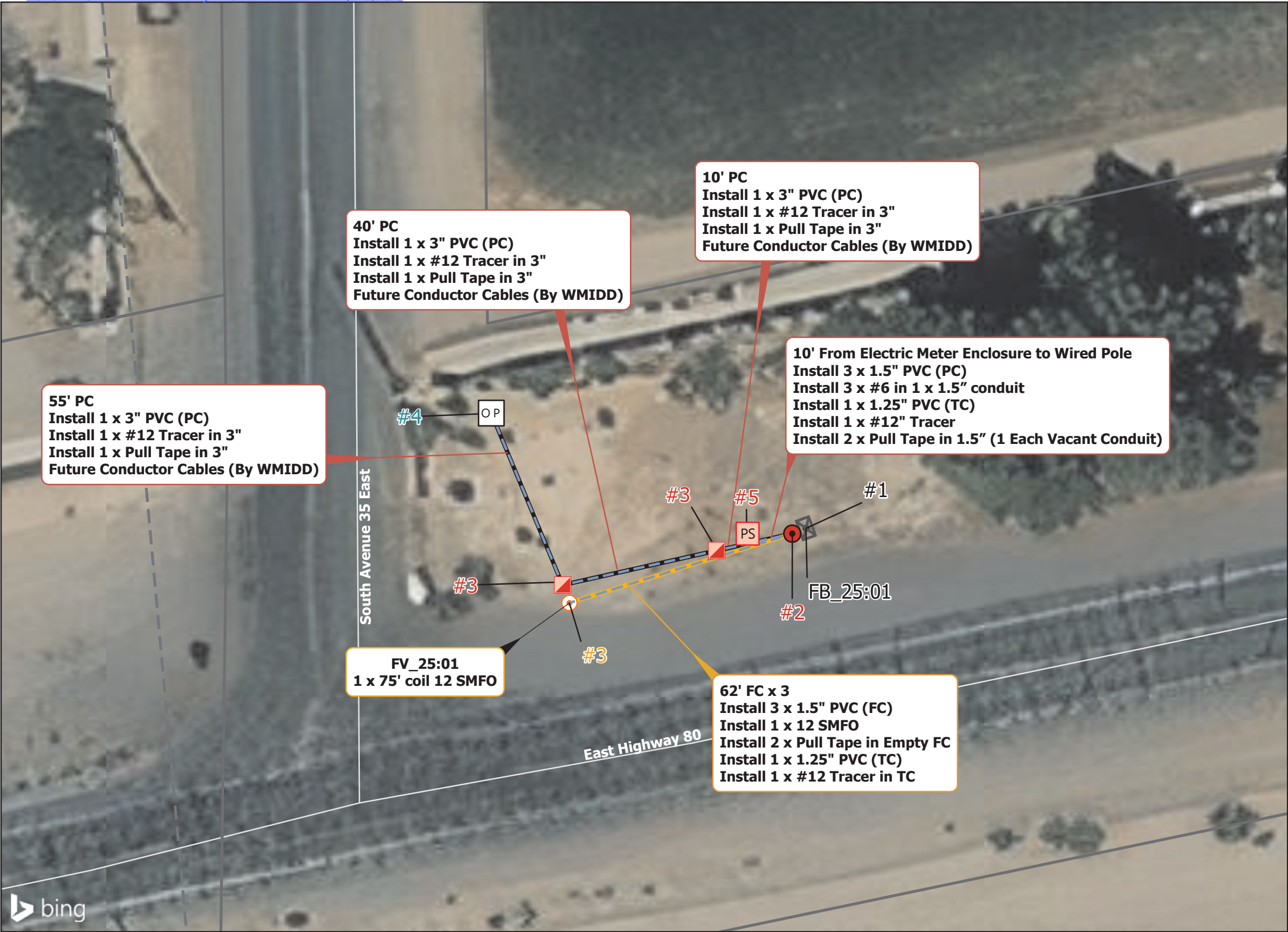
Tower 24

-114.073242 W, 32.736705 N  
E County 6th St, Welton AZ 85356

Sheet No. 30

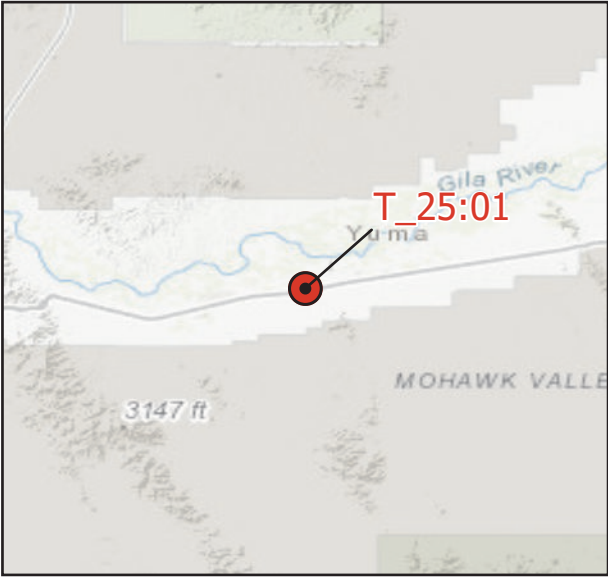
- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by WMIDD. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per WMIDD Standards





- ### Legend
- Fiber Housing
  - Wired Pole
  - Fiber Vault (By Others)
  - Power Vault
  - PS Electric Meter Enclosure
  - ☒ Radio Equipment Cabinet
  - OP Electrical Service
  - Power Conduit
  - Fiber Conduit
  - - - Tracer Conduit
  - - - Power Conduit by Others
  - Yuma County Parcel Boundaries

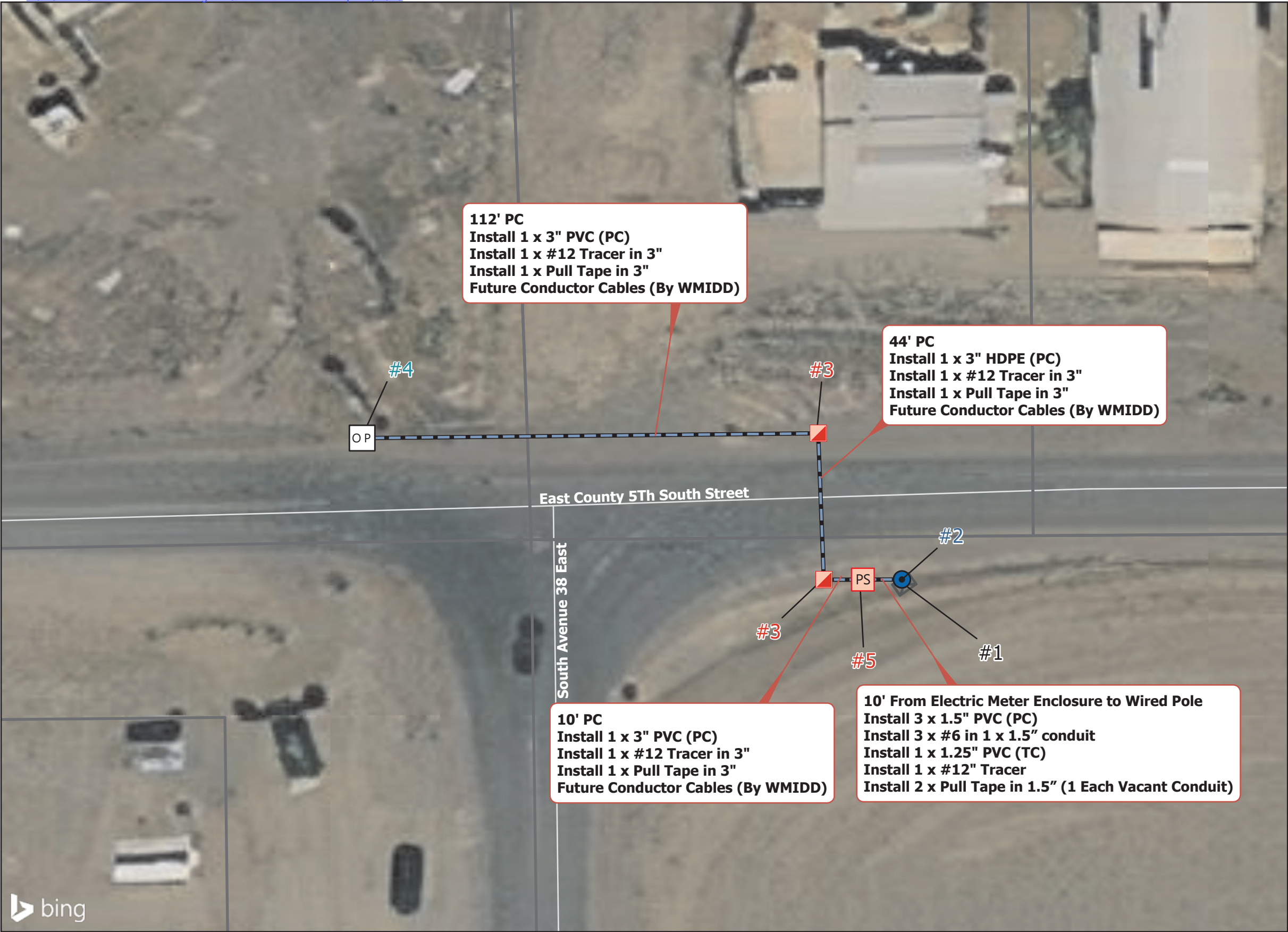
PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by WMIDD. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per WMIDD Standards

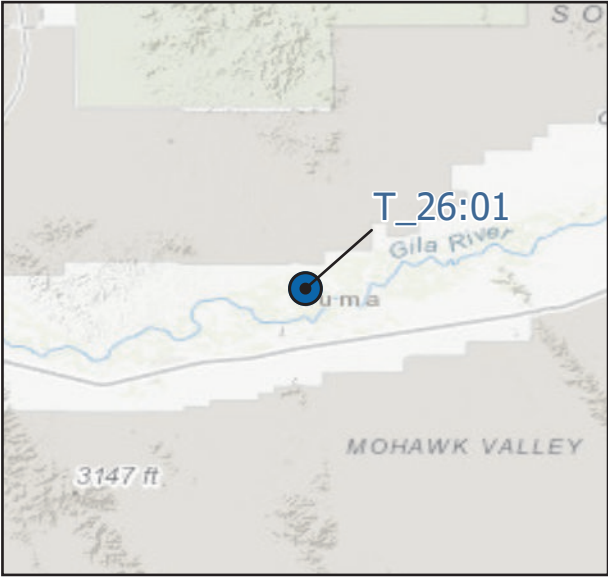


**YUMA COUNTY WIRELESS**  
Tower 25  
-114.038923 W, 32.681702 N  
9714 S Avenue 25 E, Welton, AZ 85356-6550



- ### Legend
- Fiber Housing
  - Wireless Pole
  - Fiber Vault (By Others)
  - Power Vault
  - PS Electric Meter Enclosure
  - Radio Equipment Cabinet
  - OP Electrical Service
  - Power Conduit
  - Fiber Conduit
  - Tracer Conduit
  - Power Conduit by Others
  - Yuma County Parcel Boundaries

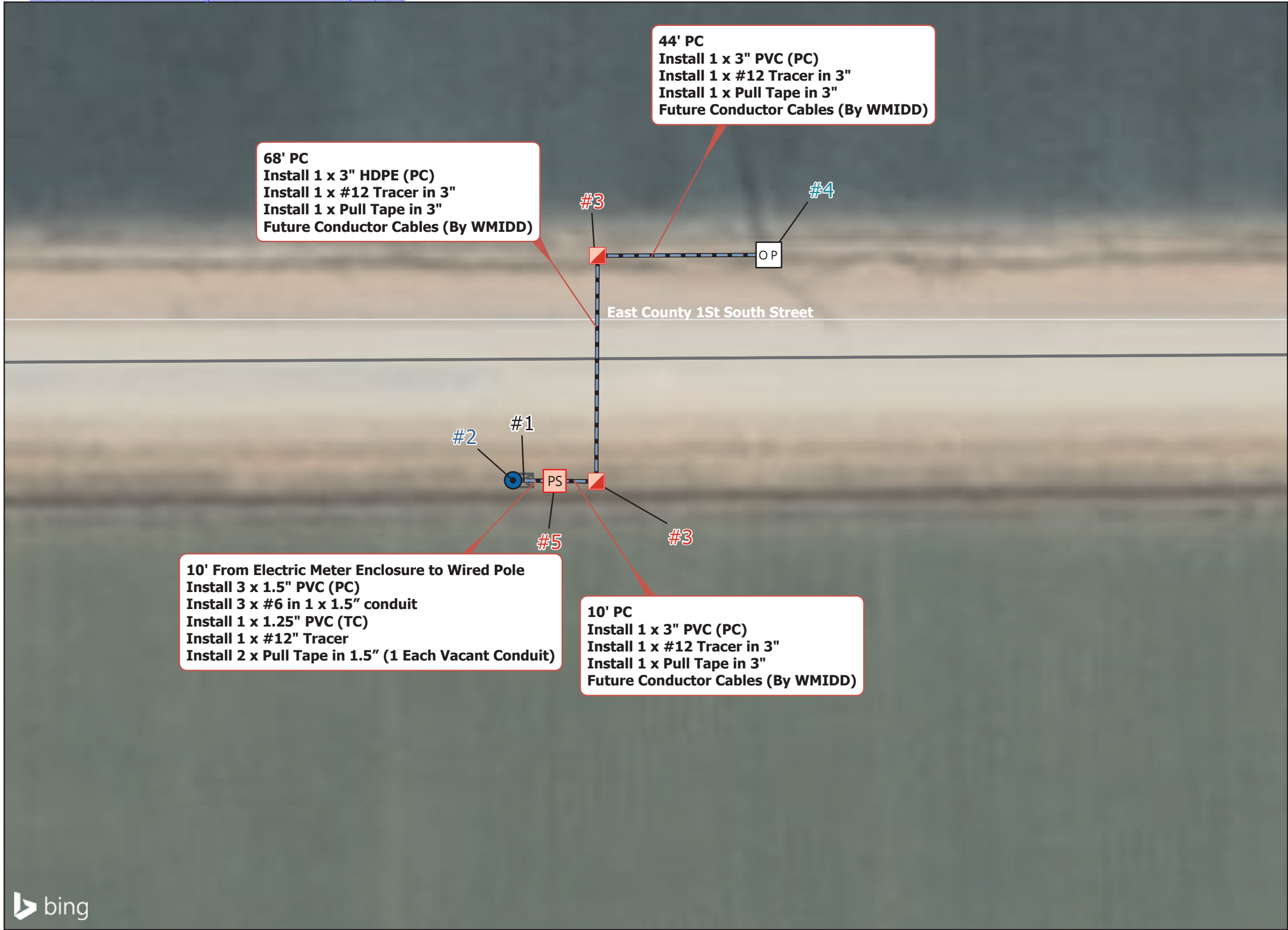
PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by WMIDD. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per WMIDD Standards



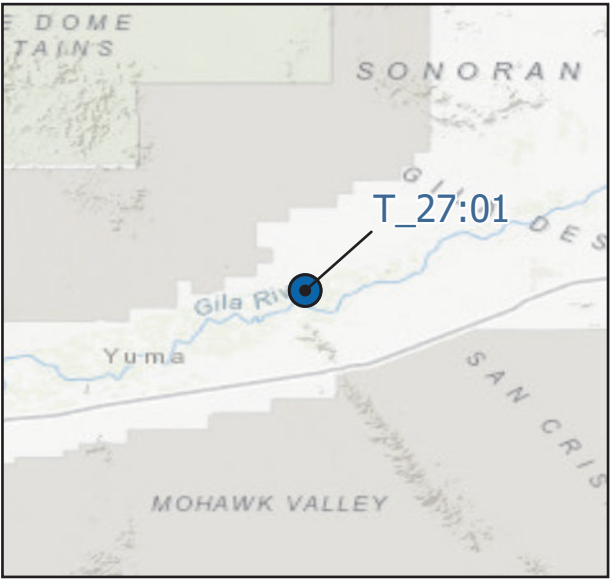
**YUMA COUNTY WIRELESS**  
Tower 26  
-113.987514 W, 32.751584 N  
4855 S Avenue 38 E, Roll, AZ 85347



Legend

- Fiber Housing
- Wireless Pole
- Fiber Vault (By Others)
- ▣ Power Vault
- PS Electric Meter Enclosure
- ⊠ Radio Equipment Cabinet
- OP Electrical Service
- Power Conduit
- Fiber Conduit
- - - Tracer Conduit
- - - Power Conduit by Others
- ▭ Yuma County Parcel Boundaries

PC = Power Conduit  
FC = Fiber Conduit  
FB = Fiber Housing  
TC = Tracer Conduit  
PV = Power vault  
FV = Fiber vault  
EMP = Electric Meter Enclosure



- #1 Install Radio Equipment Cabinet per Details on Sheet 4
- #2 Install Pole and Equipment per Details on Sheet 5
- #3 Install Conduit and Vault per Details on Sheet 6
- #4 Service Drop from Transformer to Meter by WMIDD. Stub up 1 x 3" PC 6" above grade at Electrical Service
- #5 Install Electric Meter Enclosure per WMIDD Standards



**YUMA COUNTY WIRELESS**  
Tower 27  
-113.780151 W, 32.810400 N  
49850 E County 1st St, Roll, AZ 85347-9622

## Exhibit C

### Revised Project Costs

| Revised Project Costs       |                                         |                                             |                      |
|-----------------------------|-----------------------------------------|---------------------------------------------|----------------------|
| Tower Number                | Revised Price With Mobilization Removed | Original Price Without Mobilization Removed | HDR Changes          |
| Tower 1                     | \$ 143,444.10                           | \$ 138,298.00                               | \$ 21,084.33         |
| Tower 2                     | \$ 135,798.51                           | \$ 129,552.00                               | \$ 21,335.23         |
| Tower 3                     | \$ 144,198.20                           | \$ 143,980.00                               | \$ 16,240.22         |
| Tower 4                     | \$ 133,251.93                           | \$ 128,995.00                               | \$ 19,062.70         |
| Tower 5                     | \$ 147,647.94                           | \$ 146,172.00                               | \$ 17,881.27         |
| Tower 6                     | \$ 141,876.95                           | \$ 136,950.00                               | \$ 20,691.06         |
| Tower 7                     | \$ 134,795.77                           | \$ 129,539.00                               | \$ 20,234.08         |
| Tower 8                     | \$ 143,911.09                           | \$ 134,317.00                               | \$ 25,584.21         |
| Tower 9                     | \$ 136,971.36                           | \$ 132,922.00                               | \$ 19,268.40         |
| Tower 10                    | \$ 142,636.01                           | \$ 145,003.00                               | \$ 13,481.45         |
| Tower 11                    | \$ 141,217.69                           | \$ 135,290.00                               | \$ 21,618.54         |
| Tower 12                    | \$ 140,715.28                           | \$ 137,892.00                               | \$ 18,458.31         |
| Tower 13                    | \$ 134,543.93                           | \$ 128,669.00                               | \$ 20,824.25         |
| Tower 14                    | \$ 134,430.15                           | \$ 129,430.00                               | \$ 19,936.83         |
| Tower 15                    | \$ 134,660.75                           | \$ 130,082.00                               | \$ 19,541.05         |
| Tower 16                    | \$ 148,679.42                           | \$ 160,227.00                               | \$ 4,972.36          |
| Tower 17                    | \$ 134,944.75                           | \$ 131,060.00                               | \$ 18,878.61         |
| Tower 18                    | \$ 192,691.88                           | \$ 209,312.00                               | \$ 4,790.09          |
| Tower 19                    | \$ 138,528.48                           | \$ 134,320.00                               | \$ 19,600.53         |
| Tower 20                    | \$ 136,304.34                           | \$ 127,733.00                               | \$ 23,716.27         |
| Tower 21                    | \$ 134,278.78                           | \$ 128,995.00                               | \$ 20,203.64         |
| Tower 22                    | \$ 172,432.39                           | \$ 182,125.00                               | \$ 9,466.54          |
| Tower 23                    | \$ 134,637.63                           | \$ 131,930.00                               | \$ 17,667.37         |
| Tower 24                    | \$ 134,877.28                           | \$ 135,190.00                               | \$ 14,673.64         |
| Tower 25                    | \$ 143,256.14                           | \$ 141,120.00                               | \$ 18,053.49         |
| Tower 26                    | \$ 137,662.25                           | \$ 137,689.00                               | \$ 15,269.06         |
| Tower 27                    | \$ 135,521.78                           | \$ 128,343.00                               | \$ 22,236.75         |
| Tower 28 - Additional Tower | \$ 154,295.89                           |                                             |                      |
| Tower 29 - Additional Tower | \$ 154,295.89                           |                                             |                      |
| Tower 30 - Additional Tower | \$ 154,295.89                           |                                             |                      |
| Tower 31 - Additional Tower | \$ 154,295.89                           |                                             |                      |
| Tower 32 - Additional Tower | \$ 154,295.89                           |                                             |                      |
| Tower 33 - Additional Tower | \$ 154,295.89                           |                                             |                      |
| Tower 34 - Additional Tower | \$ 154,295.89                           |                                             |                      |
| Mobilization                | \$ 545,998.49                           |                                             |                      |
| <b>Total</b>                | <b>\$ 5,459,984.45</b>                  | <b>\$ 3,775,135.00</b>                      | <b>\$ 484,770.28</b> |

HDR Changes reflect costs associated with changes to the plans and specifications from the bid set to the January 31, 2025 set, including:

- Revised conduit specification (PVC/trench installation vs HPDE/boring installation) increased installation and material cost
- Additional electrical conductor linear footage
- Additional electrical conduit linear footage
- Elevated electrical equipment to comply with floodplain regulations
- Revised pedestal specification increased installation and material cost