



County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

Planning Commission Staff Report Agenda Item No. 4 September 9, 2021

SUBJECT: Unclassified Conditional Use Permit Application No. 3712

The Department of Public Works and Planning, Development Services Division is reviewing the subject application proposes to install an unmanned communications site with a corresponding solar array to provide wireless internet service in the AL-40 (Limited Agricultural, 40-acre minimum parcel size) Zone District. The parcel lot area is 40.34-acres. The project area size consists of a 30'x 30' fenced area with 10' posts to support a total of (9) horn antennas & (1) 2' dish antenna. Ground equipment will include (1) 2'x 3' equipment cabinet and (1) small solar system utilized for power.

LOCATION: The subject parcel is located on the northeastern corner of Shepard Ave. and N. Madsen Ave. (Address: 13638 E Shepard Ave) (APN: 150-070-90) (Sup. Dist. 5)

OWNER: Unwired Broadband Inc

APPLICANT: Sean Moss

STAFF CONTACT: Elliot Racusin Planner
(559) 600-9669

David Randall, Senior Planner
(559) 600-4052

RECOMMENDATION:

- Approve Unclassified Conditional Use Permit No. 3712 with recommended Findings and Conditions; and
- Direct the Secretary to prepare a Resolution documenting the Commission's action.

EXHIBITS:

1. Conditions of Approval and Project Notes
2. Location Map
3. Zoning Map
4. Land Use Map

- 5. Site Plans
- 6. Operational Statement & Elevations/Site Photos

EXISTING VIOLATION (Y/N) AND NATURE OF VIOLATION: None

ENVIRONMENTAL ANALYSIS:

It has been determined pursuant to Section 15303 of the California Environmental Quality Act (CEQA) guidelines (Construct /Conversion of Small Structures) that the proposed project will not have a significant effect on the environment and is not subject to CEQA.

PUBLIC NOTICE:

Notices were sent to 32 property owners within 1320 feet of the subject parcel, exceeding the minimum notification requirements prescribed by the California Government Code and County Zoning Ordinance.

PROCEDURAL CONSIDERATIONS:

An Unclassified Conditional Use Permit may be approved only if five Findings specified in the Fresno County Zoning Ordinance, Section 873-F are made by the Planning Commission.

The decision of the Planning Commission on an Unclassified Conditional Use Permit Application is final, unless appealed to the Board of Supervisors within 15 days of the Commission’s action.

BACKGROUND INFORMATION:

The proposal entails the construction of 30’ x 30’ fenced lease area for 9 horn antennas and 1 (one) 2’ dish antenna, a 2’ x 3’ equipment cabinet and a small solar system to provide power to the site. According to the Applicants Operational statement, the intent of the project is to expand service coverage and provide the area with enhanced wireless services.

Finding 1: *That the site of the proposed use is adequate in size and shape to accommodate said use and all yards, spaces, walls and fences, parking, loading, landscaping, and other features required by this Division, to adjust said use with land and uses in the neighborhood*

SITE DEVELOPMENT AND OPERATIONAL INFORMATION:

Criteria	Existing	Proposed
General Plan Designation	Sierra-North Regional Plan	No Change
Zoning	AL-40 (Limited Agricultural, 40-acre minimum parcel size)	No Change
Parcel Size	40.34-acres	No Change
Project Site	N/A	A 30’ x 30’ lease area
Structural Improvements	N/A	Fencing, equipment closet and small solar array.
Nearest Residence	900-feet	No Change

Criteria	Existing	Proposed
Surrounding Development	Single-Family Residences	No Change
Operational Features	N/A	Unmanned Wireless communications Facility
Employees	N/A	N/A
Customers	N/A	N/A
Traffic Trips	Residential Traffic	Residential Traffic and one maintenance visit per month.
Lighting	N/A	No Change
Hours of Operation	N/A	24 hours, 7 days a week

SITE DEVELOPMENT AND OPERATIONAL INFORMATION:

Reviewing Agency/Department Comments Regarding Site Adequacy:

No other comments specific to the adequacy of the site were expressed by reviewing Agencies or Departments.

Analysis Finding 1:

The proposed communications site meets all setback requirements of the AL-40 (Limited Agricultural) Zone District.

Recommended Conditions of Approval:

None.

Conclusion Finding 1:

Based on the above analysis, staff finds that the proposed use is adequate in size and shape to accommodate the proposed use. Finding 1 can be made.

Finding 2: *That the site for the proposed use relates to streets and highways adequate in width and pavement type to carry the quantity and kind of traffic generated by the proposed use*

		Existing Conditions	Proposed Operation
Private Road	No	N/A	No Change
Public Road Frontage	Yes	165-feet required	No Change
Direct Access to Public Road	Yes	Access to Shepherd Avenue	No Change

		Existing Conditions	Proposed Operation
Road ADT		N/A	No Change
Road Classification		Shepherd Avenue is a local road	No Change
Road Width		60-feet	No Change
Road Surface		N/A	No Change
Traffic Trips		One maintenance trip per month	No Change
Traffic Impact Study (TIS) Prepared	No	Dirt Access road	No Change
Road Improvements Required		N/A	No Change

Reviewing Agency/Department Comments Regarding Adequacy of Streets and Highways:

Fresno County Division of Road Maintenance and Operations: The subject property borders on E Shepherd Ave which is a county-maintained road.

Shepherd Ave is classified as a Local Road in the General Plan, with a recommended right-of-way width of 60 feet. Records for existing right-of-way show a right-of-way width for Shepherd Ave of 60 feet.

No other comments specific to the adequacy of streets and highways were expressed by reviewing Agencies or Departments.

Analysis Finding 2:

One round trip per (two one-way trips) per month will occur once the proposed site is constructed. The site will be accessed via an existing private driveway. No reviewing County agency expressed concerns regarding impacts on County-maintained roads.

Recommended Conditions of Approval:

None.

Conclusion Finding 2:

Based on the above information, staff finds that the roadways are adequate to support the proposed use. Finding two can be made.

Finding 3: *That the proposed use will have no adverse effect on abutting property and surrounding neighborhood or the permitted use thereof*

Surrounding Parcels				
	Size:	Use:	Zoning:	Nearest Residence:
North	40.4-acres	Orchard	AL-40	1,200-feet
South	9.25-acres	Single Family Residence	AL-40	1,370-feet
East	36.73-acres	Single Family Residence/ Grazing	AL-40	2,000-feet
West	406-acres	Grazing	AL-40	5,700-feet

The lot and surrounding area are designated Public Lands and Open Space in the Sierra North Regional Plan. The subject lot is located within a developed residential subdivision (Eagles Nest Condominium Subdivision).

Reviewing Agency/Department Comments:

Fresno County Division of Development Engineering: A grading permit or voucher may be required for any grading proposed with this application.

Fresno County Environmental Health Department: The Environmental Health Department reviewed the application and found that the possible noise impacts were not significant enough to warrant a noise impact study.

Fresno County Division of Road Maintenance and Operations: An encroachment permit is need from the Road Maintenance and Operations Division for any work done within the road right-of-way.

No other comments specific to land use compatibility were expressed by reviewing Agencies or Departments.

Analysis Finding 3:

Once construction is completed the surrounding landscape and fencing will effectively screen the project site from ground level. Staff believes that the fenced area will have less than a significant impact on the aesthetics of the surrounding properties.

Recommended Conditions of Approval:

None.

Conclusion Finding 3:

Based on the above information, staff believes the proposal will not have an adverse effect upon surrounding properties. Finding 3 can be made.

Finding 4: That the proposed development is consistent with the General Plan

Relevant Policies:	Consistency/Considerations:
Policy PF-J.1: The County shall encourage the provision of adequate gas and electric, communications, and telecommunication service and facilities to serve existing and future needs.	Staff acknowledge that the applicant intends to use the proposed solar array to power the proposed use. Therefore, is consistent with Policy PF-J.1

Reviewing Agency Comments:

Fresno County Policy Planning Unit: The subject parcel is designated Agricultural and is consistent with the Sierra-North Regional Plan.

No other comments specific to General Plan Policy were expressed by reviewing Agencies or Departments.

Analysis Finding 4:

Considering the subject parcel is designated Agricultural and is consistent with the Sierra-North Regional Plan, no further analysis required.

Recommended Conditions of Approval:

None

Conclusion Finding 4:

Based on the above information, staff believes the proposal is consistent with the Sierra-North Regional Plan. Finding 4 can be made.

Finding 5: That the conditions stated in the resolution are deemed necessary to protect the public health, safety, and general welfare.

Analysis Finding 5:

Normally proposed conditions of approval are developed based on studies and consultation with specifically qualified staff, consultants, and outside agencies. They are developed to address specific impacts of the proposed project and are designed to address the public health, safety, and welfare. Additional comments and project notes are included to assist in identifying existing non-discretionary regulations that also apply to the project.

CONCLUSION Finding 5:

Based on the factors cited in the analysis, staff believes the required Findings for granting the Unclassified Conditional Use Permit can be made.

SUMMARY CONCLUSION:

The project is appropriately sited and is consistent with the County General Plan's goals and Policies, zoning, and development standards. There have been no adverse comments from the public or responsible agencies. Staff therefore recommends approval of Unclassified Conditional Use Permit No. 3712, subject to the recommended Condition of Approval.

PLANNING COMMISSION MOTIONS:

Recommended Motion (Approval Action)

- Move to determine the required Findings can be made, based on the reasons described in the Staff Report and move to approve Unclassified Conditional Use Permit Application No. 3712, subject to the Conditions of Approval and Project Notes listed in Exhibit 1; and
- Direct the Secretary to prepare a Resolution documenting the Commission's action.

Alternative Motion (Denial Action)

- Move to determine that the required Findings cannot be made (state basis for not making each Findings) and move to deny Unclassified Conditional Use Permit No. 3712; and
- Direct the Secretary to prepare a Resolution documenting the Commission's action.

Recommended Conditions of Approval and Project Notes:

See attached Exhibit 1.

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EXHIBIT 1
Unclassified Conditional Use Permit Application No. 3712
(Including Conditions of Approval and Project Notes)

Conditions of Approval	
1.	Development of the property shall be in substantial accordance with the Site Plan, Elevations and Operational Statement approved by the Commission.

*MITIGATION MEASURE – Measure specifically applied to the project to mitigate potential adverse environmental effects identified in the environmental document. Conditions of Approval reference recommended Conditions for the project.

Notes	
The following Notes reference mandatory requirements of Fresno County or other Agencies and are provided as information to the project Applicant.	
1.	An encroachment permit is needed from the Road Maintenance and Operations Division for any work done within the road right-of way in Fresno County
2.	The proposed project is in the State Responsibility Area (SRA) and is required to comply with the SRA ordinance and fire safety regulations.
3.	The project may be required to annex into the Community Facilities District No. 2010-01 of the Fresno County Fire Protection District
4.	Staff recommends a Traffic Management Plan (TMP) to address potential impacts during the construction phase of this project. In addition to managing traffic flow, the TMP shall also address dust mitigation.

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EXHIBIT 1

EXHIBIT 2
LOCATION MAP

CUP 3712

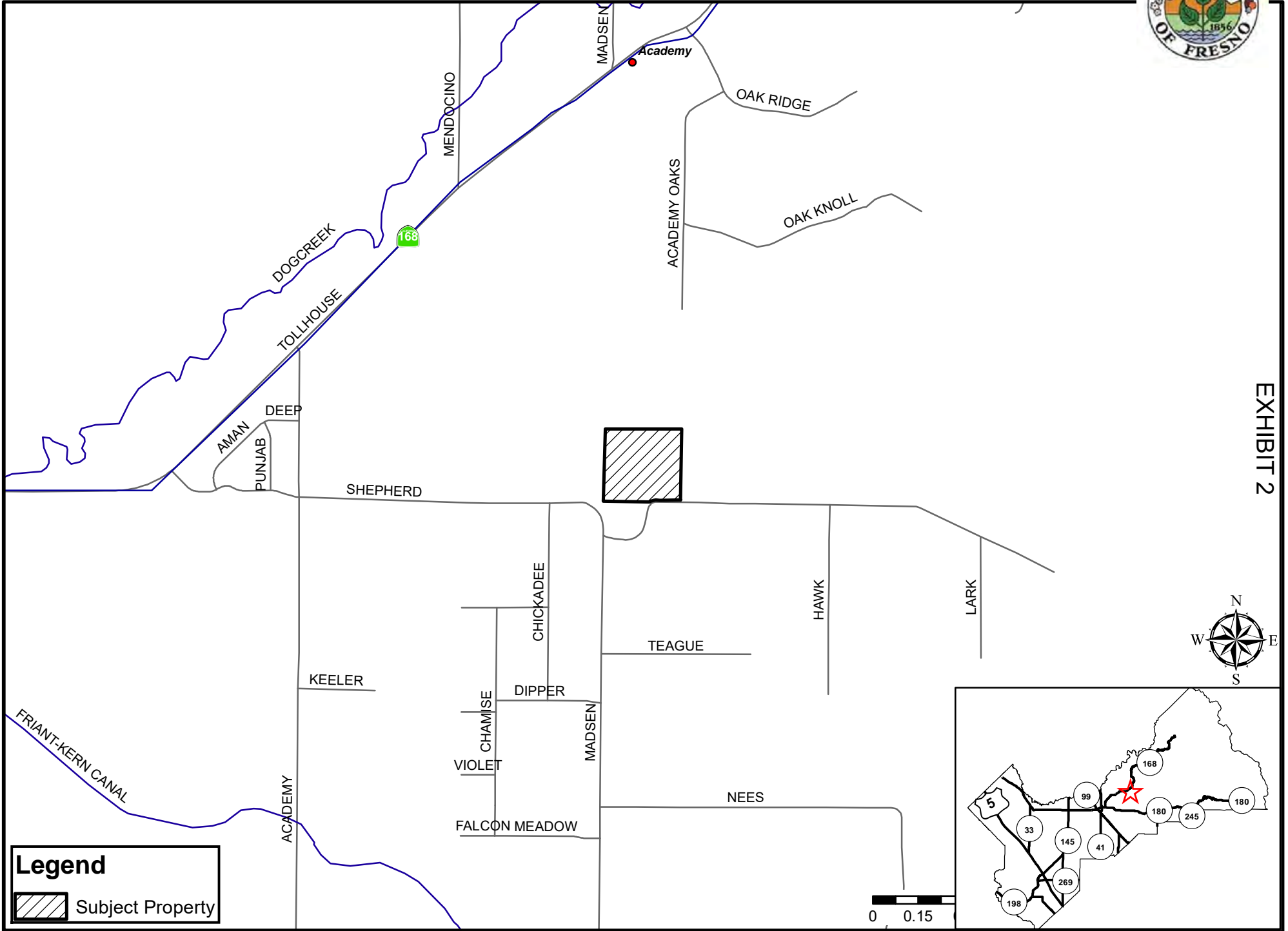
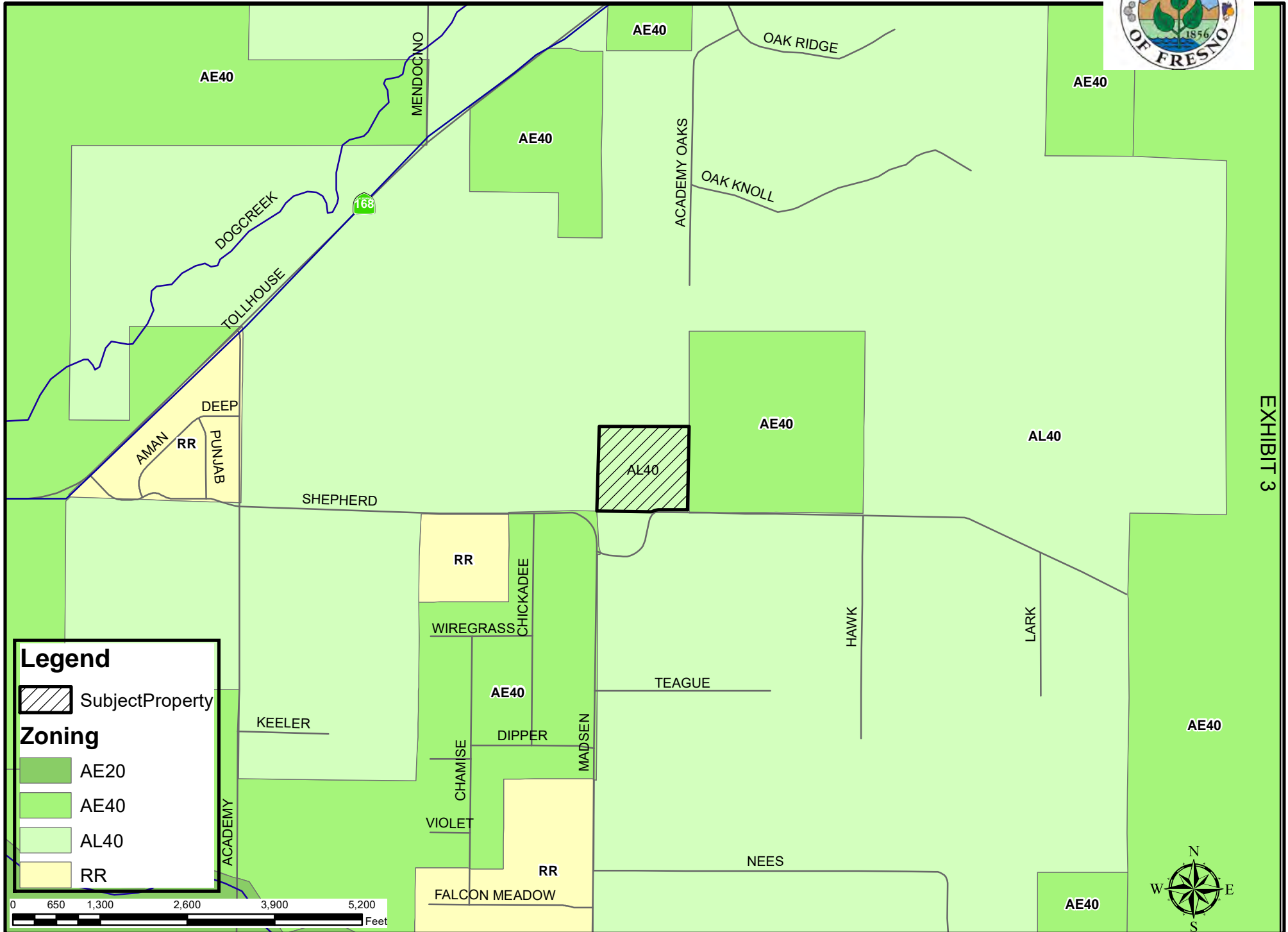



EXHIBIT 2





EXHIBIT 3
EXISTING ZONING MAP



Legend

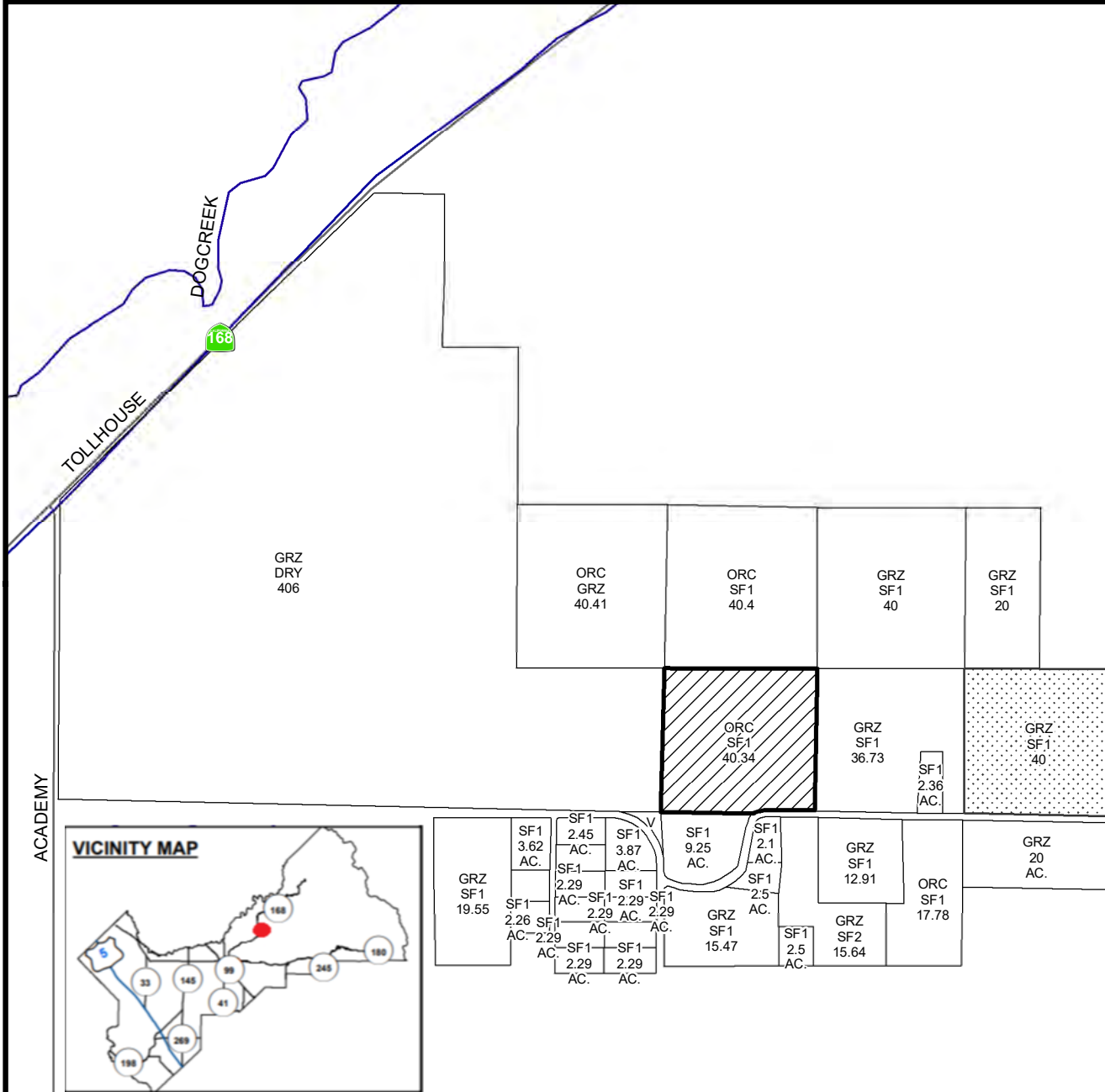
 SubjectProperty

Zoning

-  AE20
-  AE40
-  AL40
-  RR



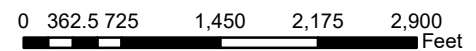
EXISTING LAND USE MAP



LEGEND
 DRY - DRY FARMING
 GRZ - GRAZING
 ORC - ORCHARD
 SF#- SINGLE FAMILY RESIDENCE
 V - VACANT

LEGEND:
 Subject Property
 Ag Contract Land

EXHIBIT 4

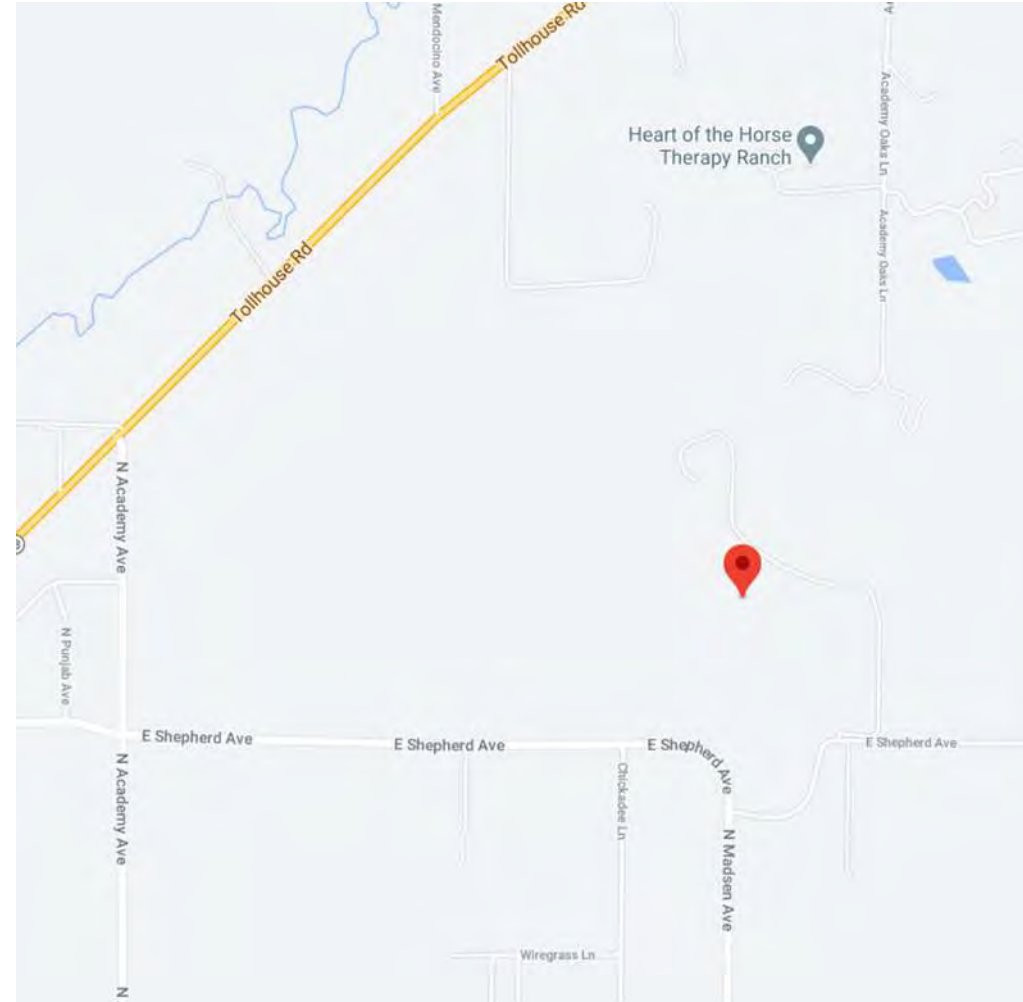


Map Prepared by: DM
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 Maps\Landuse\

Department of Public Works and Planning
 Development Services Division

WHISPERING HILLS RANCH MICROSITE

Site Location:
 GEO : 36.869847, -119.538688
 13638 E Shephard Ave, Clovis CA 93619
 New 30' x 30' Microsite



Project Information	
Jurisdiction:	Fresno County
APN:	150-070-90
Applicant:	UnWIRED Broadband Inc.
Contact:	UnWIRED Broadband Inc. 215 W Fallbrook Ave, Suite 203 Fresno, CA 93711 SEAN MOSS smoss@getunwired.com

Project Description	
The purpose of this project is to propose a Microsite location to provide Wireless Internet Services	
<ul style="list-style-type: none"> • Grade designated location to support a 30' x 30' fenced area. • Install (1) VHLP2-11W-6WH/A MW antenna, Azimuth 306* • Install (9) RF Elements HG3-TP-A20-30 Horn Antennas, Azimuths 75*/105*/135*/165*/195*/225*/255*/285*/315* • Install (11) new feedlines • Install new equipment enclosure on 3' x 4' concrete pad. • Install solar array with associated equipment 	

Sheet #	Drawing Index
	Sheet Description
T-1	Title Sheet
GN-1	General Notes
GN-2	General Notes
C-1	Compound Layout
C-2	Compound Elevation
C-3	Antenna Layout
C-4	AP Antenna Specifications
C-5	MW Antenna Specifications
C-6	Mounting Hardware Specifications
C-7	Antenna Mount Detail
C-8	Feedline Specifications
C-9	Enclosure Specifications

REV.	DESCRIPTION	DATE	BY
	unWired Broadband 215 West Fallbrook, Fresno, CA 93711		
	NETWORK OPERATIONS ANTENNA/EQUIPMENT INSTALL – WHISPERING HILLS RANCH MICROSITE		
S MOSS	SIZE A	FSCM NO	DWG NO T-1
09/28/20	SCALE NONE	SHEET	1 OF 12



UnWIRED Broadband Inc.
 215 W Fallbrook Ave, Suite 203
 Fresno, CA 93711



SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES, SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.
3. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE TOWER SITE) AND LATEST VERSIONS OF TIA 1019 "STANDARD FOR INSTALLATION, ALTERATION AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
4. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS.
5. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
6. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
7. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
9. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
11. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE PROJECT SPECIFICATIONS.
12. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
13. NOTICE TO PROCEED- NO WORK TO COMMENCE PRIOR TO COMPANIES WRITTEN NOTICE TO PROCEED- NO WORK TO COMMENCE PRIOR TO COMPANIES WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF A PURCHASE ORDER.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS OTHERWISE NOTED.
2. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4") CONNECTIONS ANDSHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
3. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" ASTM A307 BOLTSUNLESS NOTED OTHERWISE.
4. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. SLAB FOUNDATION DESIGN ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

 CONCRETE CAST AGAINST EARTH.....3 IN.
 CONCRETE EXPOSED TO EARTH OR WEATHER:
 #6 AND LARGER.....2 IN.
 #5 AND SMALLER & WWF.....1 1/2 IN.
 CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
 SLAB AND WALLS.....3/4 IN.
 BEAMS AND COLUMNS.....1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO. IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

MASONRY NOTES:

1. HOLLOW CONCRETE MASONRY UNITS SHALL MEET A.S.T.M. SPECIFICATION C90, GRADE N. TYPE 1. THE SPECIFIED DESIGN COMPRESSIVE STRENGTH OF CONCRETE MASONRY (F'm) SHALL BE 1500 PSI.
2. MORTAR SHALL MEET THE PROPERTY SPECIFICATION OF A.S.T.M. C270 TYP. "S" MORTAR AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
3. GROUT SHALL MEET A.S.T.M. SPECIFICATION C475 AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI.
4. CONCRETE MASONRY SHALL BE LAID IN RUNNING (COMMON) BOND.
5. WALL SHALL RECEIVE TEMPORARY BRACING. TEMPORARY BRACING SHALL NOT BE REMOVED UNTIL GROUT IS FULLY CURED.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR- _____
 SUBCONTRACTOR- GENERAL CONTRACTOR (CONSTRUCTION)
 CARRIER- UNWIRED BROADBAND
 TOWER OWNER- _____
 OEM- ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR AND CROWN CASTLE.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWINGS.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

ABBREVIATIONS AND SYMBOLS:

ABBREVIATIONS:		SYMBOLS:	
AGL	ABOVE GRADE LEVEL		SOLID GROUND BUS BAR
BTS	BASE TRANCEIVER STATION		SOLID NEUTRAL BUS BAR
(E)	EXISTING		
MIN.	MINIMUM		
N.T.S.	NOT TO SCALE		SUPPLEMENTAL GROUND CONDUCTOR
T.B.R.	TO BE REMOVED		
TYP	TYPICAL		2-POLE THERMAL-MAGNETIC CIRCUIT BREAKER
REQ	REQUIRED		SINGLE-POLE THERMAL MAGNETIC BREAKER
EGR	EQUIPMENT GROUND RING		CHEMICAL GROUND ROD
AWG	AMERICAN WIRE GAUGE		TEST WELL
MGB	MASTER GROUND BAR		DISCONNECT SWITCH
EG	EQUIPMENT GROUND		METER
BCW	BARE COPPER WIRE		
IGR	INTERIOR GROUND RING		
RBS	RADIO BASE STATION		

REV.	DESCRIPTION			DATE	BY
	unWired Broadband 215 West Fallbrook, Fresno, CA 93711				
	NETWORK OPERATIONS ANTENNA/EQUIPMENT INSTALL – WHISPERING HILLS RANCH MICROSITE				
	S MOSS	SIZE A	FSCM NO	DWG NO GN - 1	REV A
	09/28/20	SCALE	NONE	SHEET	2 OF 12

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C

EXHIBIT 5 Page 2

B

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D

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B

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ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC. HILTI EPOXY ANCHORS ARE REQUIRED BY CROWN CASTLE.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
5. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
6. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
8. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET & DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION WITH OUTER JACKET LISTED OR LABELED FOR THE LOCATION USED UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
21. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER).
22. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

ELECTRICAL INSTALLATION NOTES (CONT.):

23. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND RATED NEMA 1 (OR BETTER) INDOORS OR NEMA 3R (OR BETTER) OUTDOORS.
24. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
25. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
26. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
27. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.
28. INSTALL PLASTIC LABEL ON THE METER CENTER TO SHOW "UNWIRED".
29. ALL CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 AWG SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 FT. OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS, WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 TINNED SOLID IN 3/4" LIQUID TIGHT CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE LIQUID TIGHT CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

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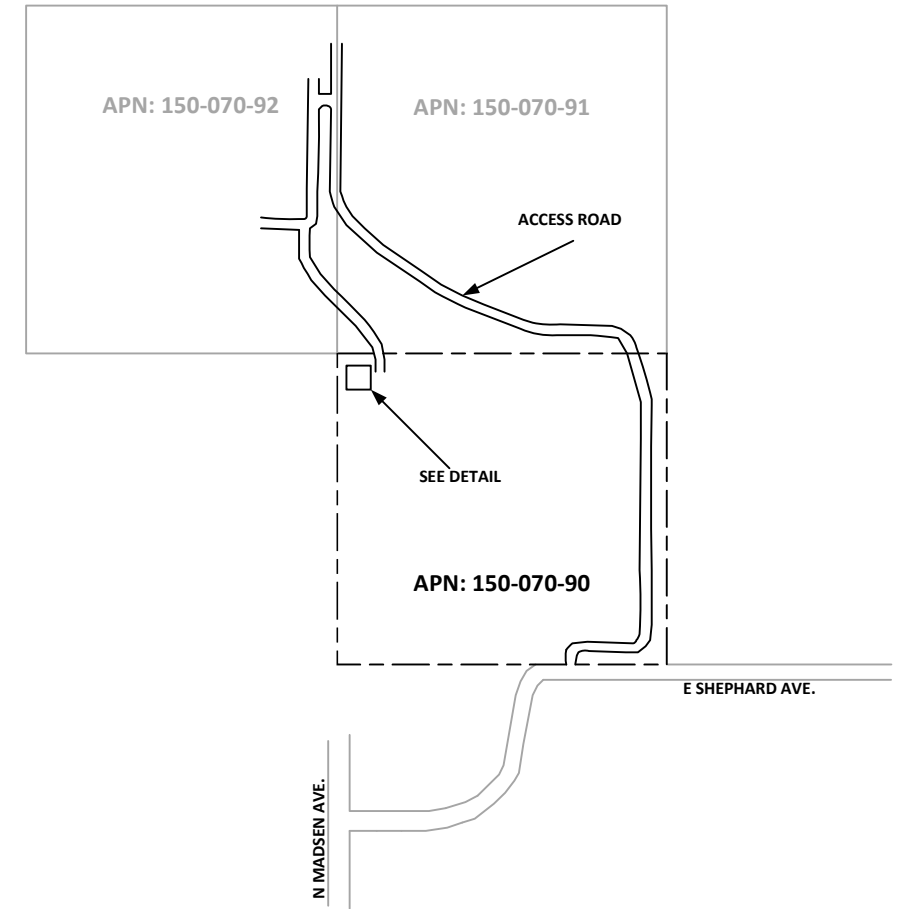
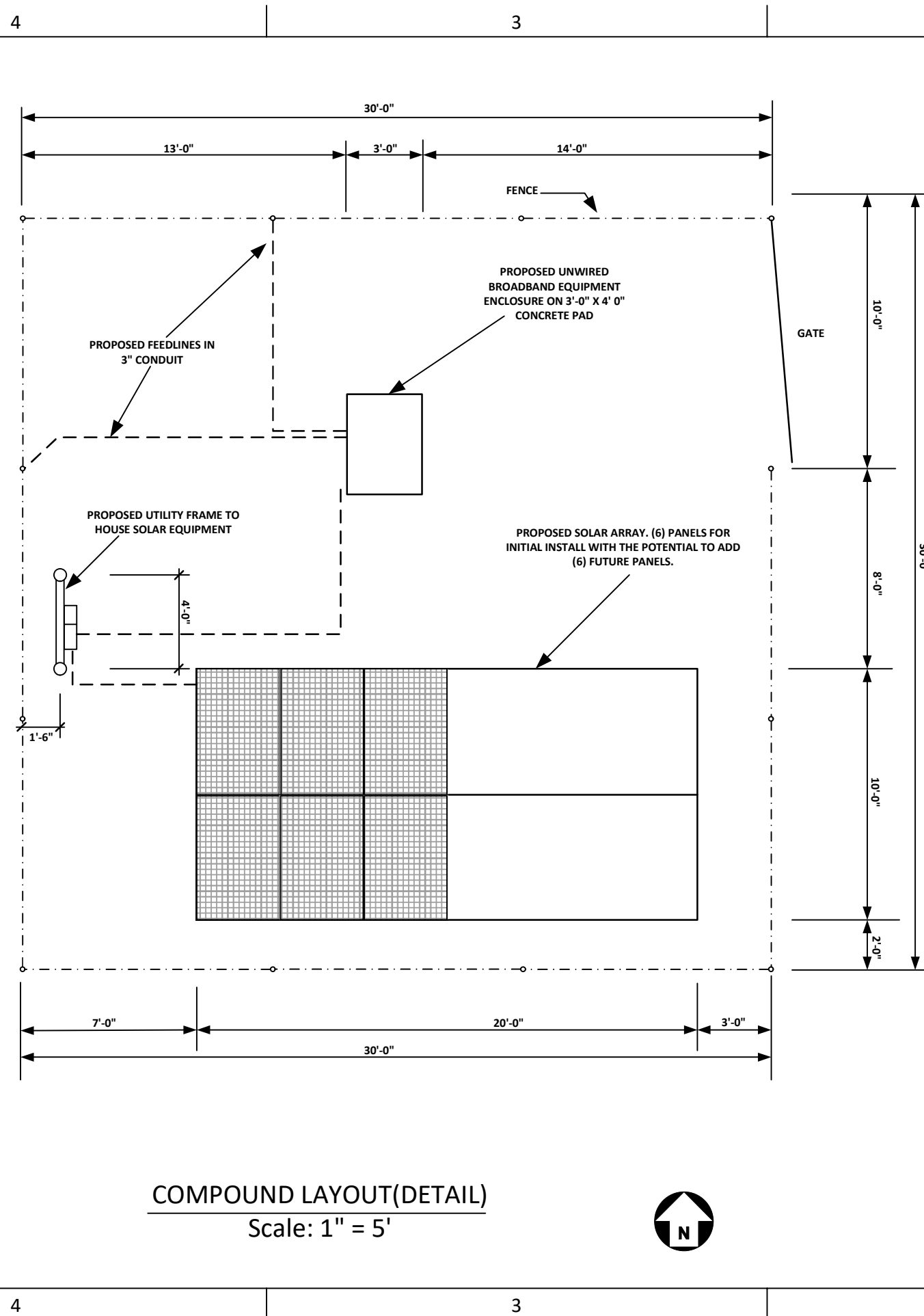
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REV.	DESCRIPTION			DATE	BY
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S MOSS	SIZE A	FSCM NO	DWG NO GN - 2	REV A	
09/28/20	SCALE	NONE	SHEET	3 OF 12	



SITE PLAN (APN 150-070-90)
Scale: N.T. S.



REV.	DESCRIPTION	DATE	BY
	unWired Broadband 215 West Fallbrook, Fresno, CA 93711		
	NETWORK OPERATIONS ANTENNA/EQUIPMENT INSTALL - WHISPERING HILLS RANCH MICROSITE		
S MOSS	SIZE A	FSCM NO	DWG NO C - 1
09/28/20	SCALE NONE		REV A
		SHEET 4 OF 12	

EXHIBIT 5

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EXHIBIT 5 Page 5

EXHIBIT 5

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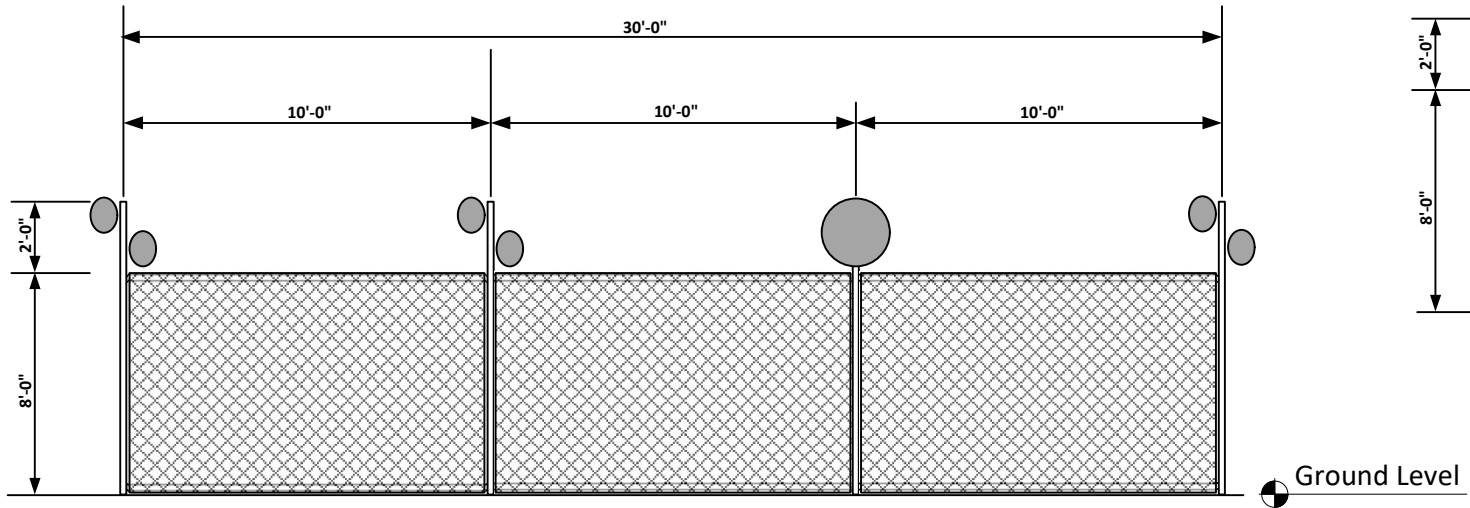
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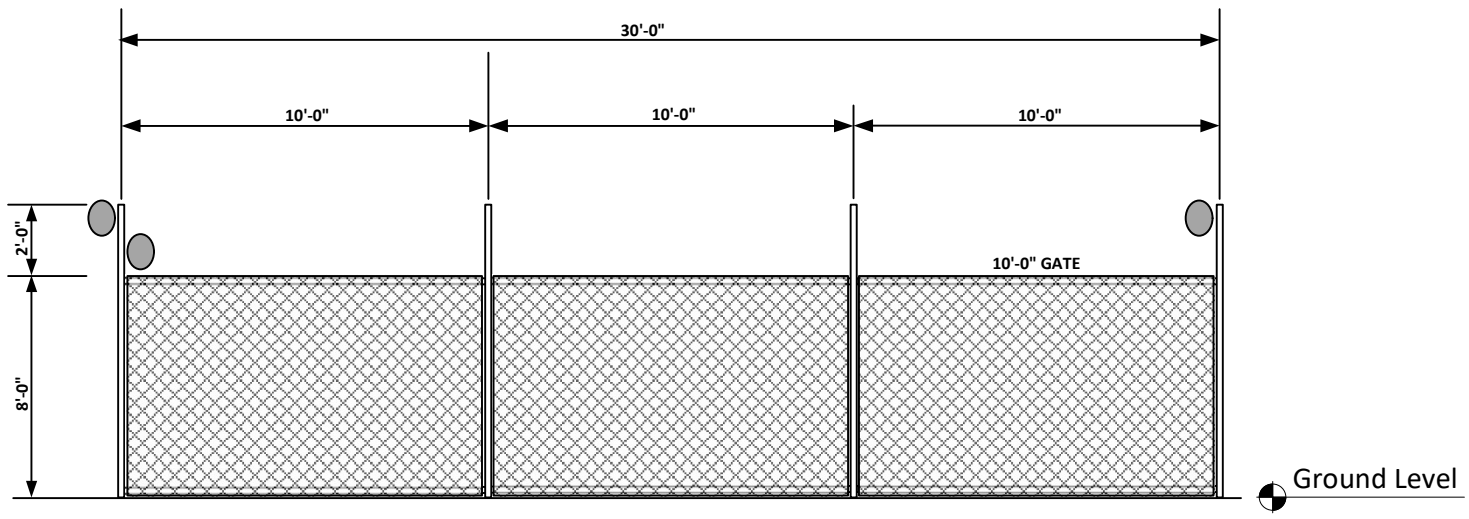
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NOTE:
INSTALL (6) RF Elements HG3-TP-A20-30 Horn Antennas & (1) VHLP2-11W-6WH/A Dish Antenna

NOTE:
INSTALL (3) RF Elements HG3-TP-A20-30 Horn Antennas



COMPOUND ELEVATION (WEST)
Scale: 1" = 5'



COMPOUND ELEVATION (EAST)
Scale: 1" = 5'

REV.	DESCRIPTION	DATE	BY
	unWired Broadband 215 West Fallbrook, Fresno, CA 93711		
	NETWORK OPERATIONS ANTENNA/EQUIPMENT INSTALL – WHISPERING HILLS RANCH MICROSITE		
S MOSS	SIZE A	FSCM NO	DWG NO C-2
09/28/20	SCALE NONE	SHEET	5 OF 12

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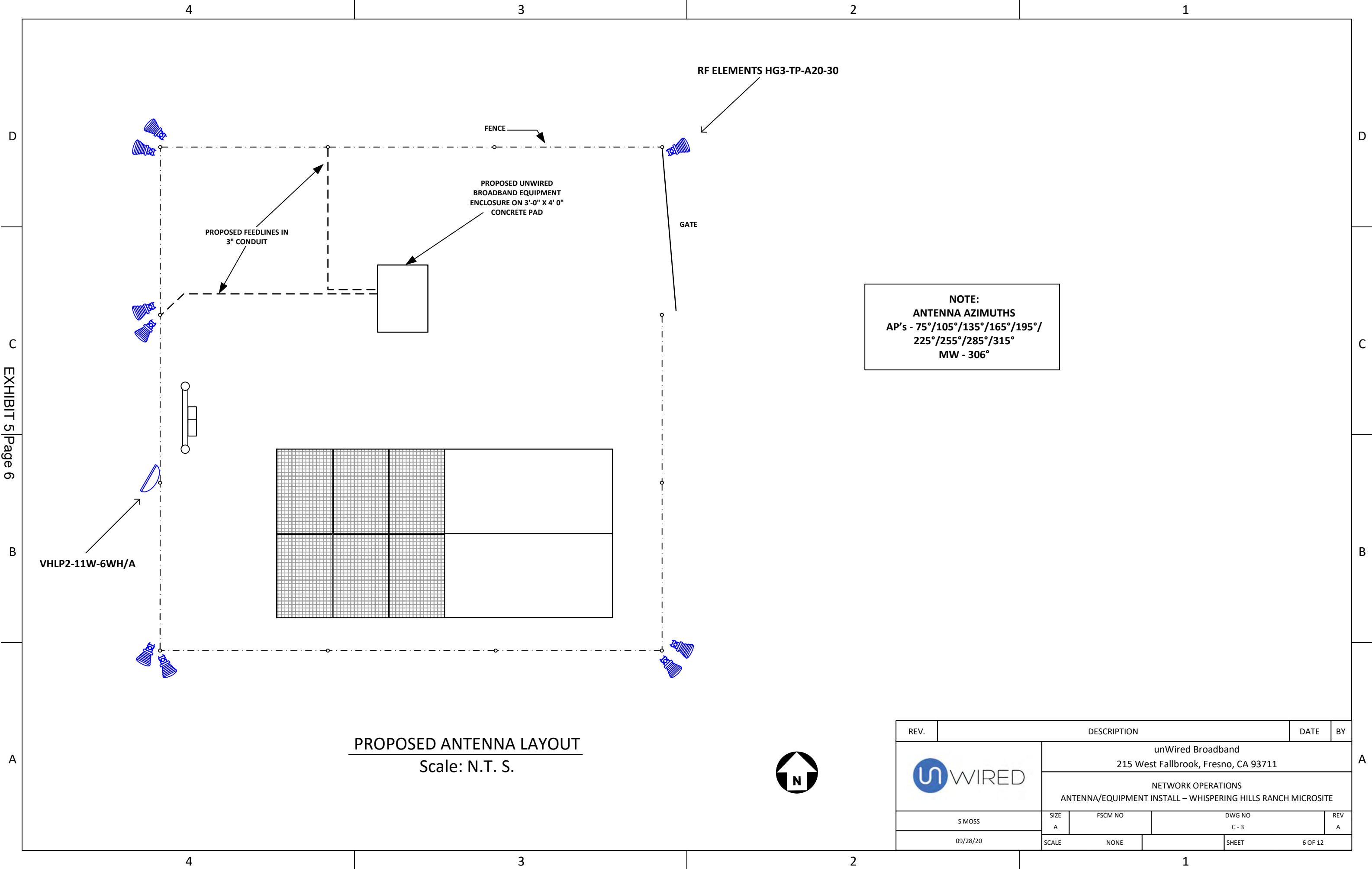



EXHIBIT 5 Page 6

REV.	DESCRIPTION			DATE	BY
				unWired Broadband 215 West Fallbrook, Fresno, CA 93711	
	NETWORK OPERATIONS ANTENNA/EQUIPMENT INSTALL – WHISPERING HILLS RANCH MICROSITE				
S MOSS	SIZE A	FSCM NO	DWG NO C-3	REV A	
09/28/20	SCALE	NONE	SHEET	6 OF 12	

Product Datasheet
Product ID: HG3-TP-A20-30



30° Asymmetrical Beam Antenna

HORN ANTENNA WITH TWISTPORT™ CONNECTOR

30° Asymmetrical Horn TP Antenna combines the best of both worlds - high gain of a traditional sector antenna and zero side lobes of a horn. Its radiation pattern is wide in azimuthal and narrow in elevation plane, greatly improving coverage planning options. 30° Asymmetrical Horn TP Antenna exceeds the traditional patch sector antenna thanks to high stability of gain and radiation pattern in the whole band of operation. Outstanding noise rejection and precision of radiation pattern favors 30° Asymmetrical Horn TP antenna for high-density AP clusters, in highly populated areas and dense co-location sites.

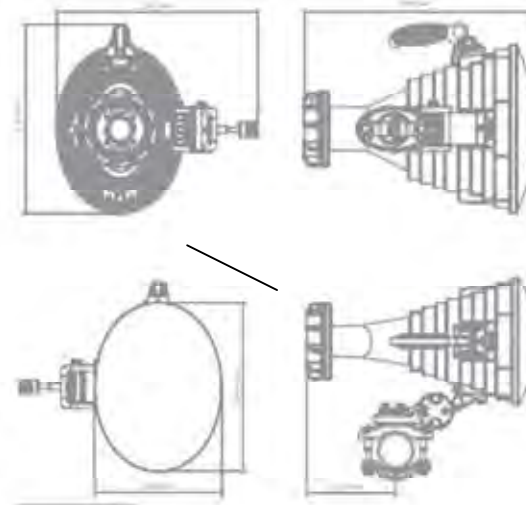


30° Asymmetrical Horn TP Antenna features our revolutionary TwistPort™ connector - a patent-pending twist-and-lock waveguide port. HG3-TP-A20-30 supports a wide range of third party mainstream radios with our TPA TwistPort™ Adaptor. BeamSwitch™ feature enables mounting the antenna with 90 degrees rotation by swapping the position of the handle and the bracket. HG3-TP-A20-30 can thus provide 20 degrees azimuth and 30 degrees elevation beam width.

TECHNICAL DATA

Antenna Connection	TwistPort™ - Quick Locking Waveguide Port
Antenna Type	Horn
Materials	UV Resistant ABS Plastic, Polycarbonate, HDPE, Aluminum, Stainless Steel
Environmental	IP55
Pole Mounting Diameter	22.80 x 80
Temperature	-20°C to +50°C, 1.219 to +131°F
Wind Survival	160 km/h Wind
Mechanical Adjustment	± 20° Elevation, ± 20° Azimuth
Weight	4.2 Kg (9.2 lbs) - single unit* 8.8 Kg (19.4 lbs) - single unit and bracket**
Single Unit	Net Wt. 41.5 x 36.0 x 25.0 cm**

PRODUCT DIMENSIONS



PERFORMANCE

Frequency Range	5.80 - 6000 MHz
Gain	26.5 dBi
Azimuth Beam Width -3 dB	± 21° / ± 21°
Elevation Beam Width -3 dB	± 15° / ± 15°
Azimuth Beam Width -6 dB	± 30° / ± 30°
Elevation Beam Width -6 dB	± 20° / ± 20°
Front-to-Back Ratio	30 dB

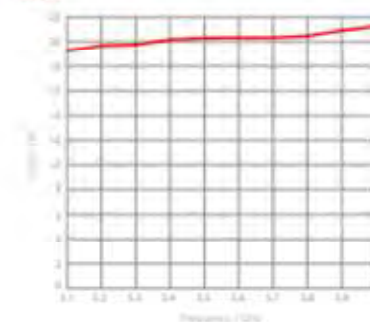
AZIMUTH PATTERN



ELEVATION PATTERN



GAIN



AP ANTENNA SPECIFICATIONS (RF ELEMENTS HG3-TP-A20-30)

Scale: N.T. S.

REV.	DESCRIPTION	DATE	BY
	unWired Broadband 215 West Fallbrook, Fresno, CA 93711		
	NETWORK OPERATIONS ANTENNA/EQUIPMENT INSTALL – WHISPERING HILLS RANCH MICROSITE		
S MOSS	SIZE A	FSCM NO	DWG NO C - 4
09/28/20	SCALE	NONE	SHEET 7 OF 12

EXHIBIT 5 Page 7

VHLP2-11W-6WH/A



0.6 m | 2 ft ValuLine® High Performance Low Profile Antenna, single-polarized, 10.000–11.700 GHz, CPR90G flange, white antenna, composite broadband gray radome without flash, compact pack—one-piece reflector

Product Classification

Brand ValuLine®
Product Type Microwave antenna


General Specifications

Antenna Type VHLP - ValuLine® High Performance Low Profile Antenna, single-polarized
Diameter, nominal 0.6 m | 2 ft
Packing Compact pack
Radome Color Gray
Radome Material Composite Broadband
Reflector Construction One-piece reflector
Antenna Input CPR90G
Antenna Color White
Antenna Type VHLP - ValuLine® High Performance Low Profile Antenna, single-polarized
Diameter, nominal 0.6 m | 2 ft
Flash included No
Polarization Single

Electrical Specifications

Operating Frequency Band 10.000 – 11.700 GHz
Beamwidth, Horizontal 3.3°
Beamwidth, Vertical 3.3°
Cross Polarization Discrimination (XPD) 30 dB
Electrical Compliance Brazil Anatel Class 2 | ETSI 302 217 Class 3 | US FCC Part 101A @ 10.55–10.7 GHz | US FCC Part 101B @ 10.7–11.7 GHz
Front-to-Back Ratio 61 dB
Gain, Low Band 33.7 dBi
Gain, Mid Band 34.3 dBi
Gain, Top Band 35.2 dBi
Operating Frequency Band 10.0 – 11.700 GHz
Radiation Pattern Envelope Reference (RPE) 7200A | 7201A
Return Loss 17.7 dB


MW ANTENNA SPECIFICATIONS (VHLP2-11W-6WH/A)
Scale: N.T. S.

REV.	DESCRIPTION			DATE	BY
					
	unWired Broadband 215 West Fallbrook, Fresno, CA 93711				
	NETWORK OPERATIONS ANTENNA/EQUIPMENT INSTALL – WHISPERING HILLS RANCH MICROSITE				
S MOSS	SIZE A	FSCM NO	DWG NO C - 5		REV A
09/28/20	SCALE	NONE	SHEET	8 OF 12	


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Product # PV-SA-SS 2"-3" Universal Stand Off Adapter with 3/4" Hole, (10)

	<p>Product Details</p> <p>Stand off tower adapters are for 2"-3" OD round members. Tower adapters can handle both standard and snap-in hangers and come with a 3/4" tapered hole. It's stainless steel construction is made for maximum durability and strength against environmental factors. Comes in a kit of 10 adapters.</p>
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Product # PV-RM-A350 Stainless Steel Hose Clamp, 3"-5", (10)

	<p>Product Details</p> <p>Stainless steel hose clamps are precision engineered for small hose applications. The slim band and low profile housing makes them easy to install in confined areas. Hose clamps are durable and easily adjusted to fit your needs.</p>
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Product # PV-SH-U214 Snap In Hangers for 2-1/4", (10)

	<p>Product Details</p> <p>Snap in hangers are designed to securely fasten 2-1/4" cables and trunklines. They are made of durable, 304 stainless steel and designed with smoothed edges to prevent cuts and make for easier installation.</p>
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Product # PV-AA-U SS Angle Adapter w/ 3/4" Hole For Snap In Hangers, (10)

	<p>Product Details</p> <p>Our SS Angle Adapters are made for heavy duty applications and can easily grip steel surfaces, making them ideal for snap-in adapters. The new design allows for greater flexibility and it's serated teeth make for a stronger fit. The adapters are made from 304 stainless steel, with two slots for 1/2" to 3/4" banding or hose clamps for non-traditional applications. The hardware includes the adapter, 3/8" square head bolt and fillister screw with a lock washer.</p>
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Product # UBC214 Univ. Barrel Cushion, 1 x 14-45mm, Fits 2-1/4" Hanger, (10)

	<p>Product Details</p> <p>Barrel cushions are designed for use with fiber, power elliptical, and coaxial cable. They are built for heavy duty use and are UV and flame resistant. Fits 2-1/4" cable widths.</p>
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MOUNTING HARDWARE SPECIFICATIONS-FEEDLINES

Scale: N.T. S.

Product Specifications



MS-100-SSH
Tapered Pipe-to-Pipe Adapter, adapts 1-1/2 in to 3-1/2 in OD pipe to 4 in to 9 in OD pipe

Dimensions

Mounting Diameter, maximum	88.9 mm		3 1/2 in
Mounting Diameter, minimum	38.1 mm		1 1/2 in
Height	50.8 mm		2.0 in
Length	406.4 mm		16.0 in
Mounting Diameter 2, maximum	228.6 mm		9 in
Mounting Diameter 2, minimum	101.6 mm		4 in
Weight	15.9 kg		35.0 lb
Width	304.8 mm		12.0 in

General Specifications

Product Type	Clamp set
Tower Taper	Tapered
Includes	Clamp halves Threaded rod
Material Type	Hot dip galvanized steel
Mounting	Pipe-to-pipe
Package Quantity	2

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

MOUNTING HARDWARE SPECIFICATIONS-ANTENNA

Scale: N.T. S.

REV.	DESCRIPTION			DATE	BY
	unWired Broadband 215 West Fallbrook, Fresno, CA 93711				
	NETWORK OPERATIONS ANTENNA/EQUIPMENT INSTALL – WHISPERING HILLS RANCH MICROSITE				
S MOSS	SIZE A	FSCM NO	DWG NO C - 6	REV A	
09/28/20	SCALE	NONE	SHEET	9 OF 12	

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EXHIBIT 5 Page 9

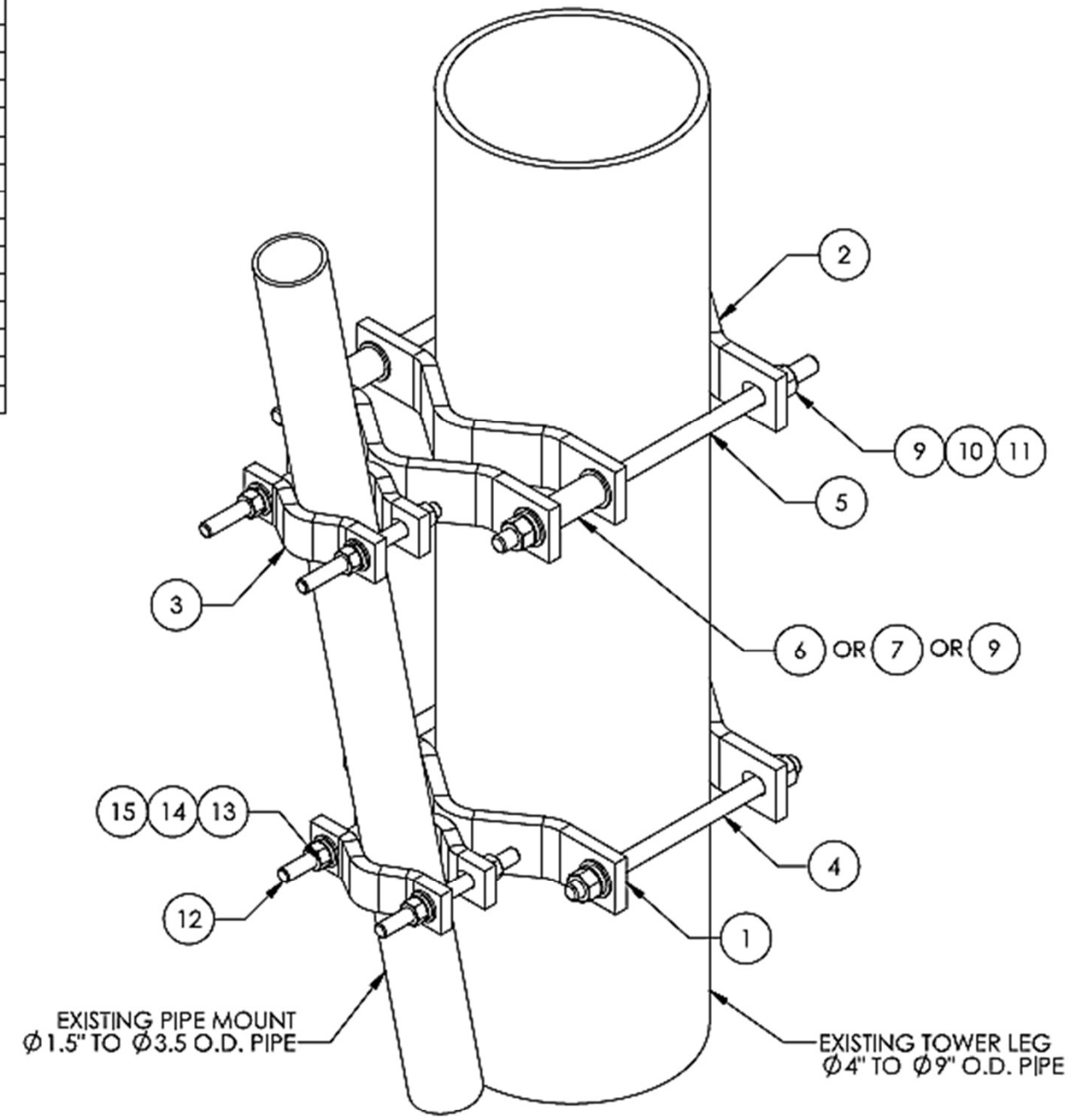
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ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT
1	MSA	MEDIUM TO SMALL PIPE ADAPTER	2	4.56 LBS
2	MCP10	MEDIUM CLAMP HALF	3	3.36 LBS
3	SCP10	SMALL DISH CLAMP HALF	2	1.20 LBS
4	MT-381-10	5/8" X 10" THREADED ROD	2	0.79 LBS
5	MT-382-14	5/8" X 14" THREADED ROD	2	1.12 LBS
6	OS234	3/4" X 2-1/4" OFFSET SLEEVE	2	0.22 LBS
7	OS334	3/4" X 3-1/4" OFFSET SLEEVE	2	0.31 LBS
8	HB5812	HARDWARE KIT (ITEMS 9-11)	1	
9	GN05A	5/8" GALV HEX NUT (A325)	12	0.08 LBS
10	GWL-05	5/8" GALV LOCK WASHER	12	0.09 LBS
11	GWFO5A	5/8" GALV FLAT WASHER (A325)	12	0.03 LBS
12	MT-379-6	1/2" X 6" GALV THREADED ROD	4	0.33 LBS
13	GN04A	1/2" GALV HEX NUT (A325)	8	0.08 LBS
14	GWL-04	1/2" GALV LOCK WASHER	8	0.09 LBS
15	GWFO4A	1/2" GALV FLAT WASHER (A325)	8	0.02 LBS



NOTE:
 1. INCLUDED SLEEVES (ITEMS 6 & 7) & NUT (ITEM 9) TO BE INSERTED IF REQUIRED FOR TOWER TAPER.
 2. OFFSET SLEEVES MAY BE CUT FOR DIFFERENT TAPER.

ANTENNA MOUNTING HARDWARE (DETAIL)

Scale: N.T. S.

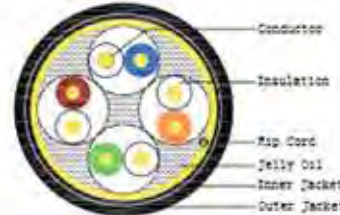
REV.	DESCRIPTION	DATE	BY
	unWired Broadband 215 West Fallbrook, Fresno, CA 93711		
	NETWORK OPERATIONS ANTENNA/EQUIPMENT INSTALL – WHISPERING HILLS RANCH MICROSITE		
S MOSS	SIZE A	FSCM NO	DWG NO C-7
09/28/20	SCALE NONE		REV A
		SHEET	10 OF 12

EXHIBIT 5 Page 10

CAT5E UTP/Outdoor/Direct Burial/Double Jacket/UV Rated/Gel Filled Cable
SHIREEN
 Item # DC-1020

12910 Cloverleaf Center Drive Germantown, MD USA Tel: 301-838-4380
 www.shireeninc.com

Cross Section



Electrical Characteristics(20°C)

Standard: ANSI/TIA/EIA-568-B.2 & IEC/ISO 11801

Test Item	Units	Spec
1. Conductor D.C. Resistance	Ω/100m	≤9.5
2. Unbalance of Pair DC Resistance	%	≤2.5
3. Dielectric Strength between Pairs	kV/min	≤1.0
4. Insulation Resistance	MΩ-km	>5000
5. Capacitance	nF/100m	≤5.6
6. Unbalance of Capacitance	pF/100m	≤330
7. Characteristic Impedance(1 to 100MHz)	Ω	100±15
(100 to 200MHz)	Ω	100±25
(200 to 350MHz)	Ω	100±35
8. Short or Open of the loop	—	None
9. Shield	—	—

Cable Description

1)Conductor	
Pairs	4
Total Conductor	8
AWG	24
Dia. of Conductor	Φ 0.50±0.01mm
Material	Solid Bare Copper
Elongation	≥15%
2)Insulation:	
Material	HDPE
Nom. Thickness	0.24mm
Dia.	Φ 0.95±0.05mm
Elongation	≥300%
Color Cord	White/Blue & Blue
	White/Orange & Orange
	White/Green & Green
	White/Brown & Brown
3)Paired:	
Length of Lay	< 30 mm
4)Cabling:	
Order of the pair	See the Cross Section
5) Flooding Compound:	
	with Gel-Filled
6)Sheath:	
Material	Inner: PVC Outer: LDPE
Rip Cord	200D×3
Nom. Thickness	Inner: 0.50±0.05mm
O.D.	Inner: Φ 5.20±0.2mm
	Outer: Φ 6.50±0.3mm
Color	Black
7)Packing:	
	1000ft Reel-in-a-Box
8)Temperature rating:	
	-40C to +85C
	UV Rated
	ASTM D1603 2.6%
	ASTM D3349 440 kAB/m

Frequency (MHz)	RL (dB)	SRL (dB)	ATTEN (dB/100m)	NEXT (dB/100m)
1	20.00	28.00	2.03	65.30
4	23.01	28.00	4.03	56.27
8	24.52	28.00	5.73	51.75
10	25.00	28.00	6.43	50.30
16	25.00	28.00	8.19	47.24
20	25.00	25.00	9.20	45.78
25	24.32	27.03	10.33	44.33
31.25	23.64	26.06	11.62	42.88
62.5	21.54	23.05	16.79	38.36
100	20.11	21.01	21.65	35.30
155	18.80	19.10	27.20	32.50
200	18.00	18.00	32.40	30.80
250	17.30	17.00	41.00	29.30
300	16.80	16.20	41.00	28.10
350	16.30	15.60	44.90	27.10

Frequency (MHz)	PSNEXT (dB/100m)	ELFEXT (dB/100m)	PSELFEXT (dB/100m)	Delay (ns/100m)
1	62.30	64.00	61.00	570
4	53.27	51.96	48.96	552
8	48.75	45.94	42.94	547
10	47.30	44.00	41.00	545
16	44.24	39.92	36.92	543
20	42.78	37.98	34.98	542
25	41.33	36.04	33.04	541
31.25	39.88	34.10	31.10	540
62.5	35.36	28.08	25.08	539
100	32.30	24.00	21.00	538
155	29.50	20.20	17.20	537
200	27.80	18.00	15.00	537
250	26.30	16.00	13.00	536
300	25.10	14.50	11.50	536
350	24.10	13.10	10.10	536

FEEDLINE SPECIFICATIONS
 Scale: N.T. S.

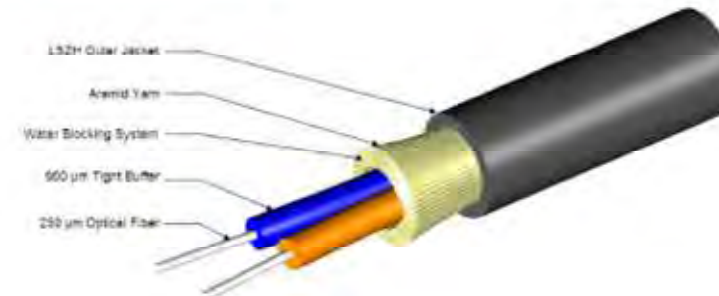
Product Specifications

COMMSCOPE™



760145300 | Z-002-IC-5L-F29BK
 Indoor/Outdoor Low Smoke Zero Halogen Riser Interconnect Cable

Representative Image



General Specifications

Cable Type	Cordage
Construction Type	Non-armored
Subunit Type	Gel-free

Construction Materials

Fiber Type Solution	LazrSPEED® 300, 50 μm multimode fiber (OM3)
Total Fiber Count	2
Fiber Type	LazrSPEED® 300, 50 μm multimode fiber (OM3)
Fiber Type, quantity	2
Jacket Color	Black
Jacket UV Resistance	UV stabilized

Dimensions

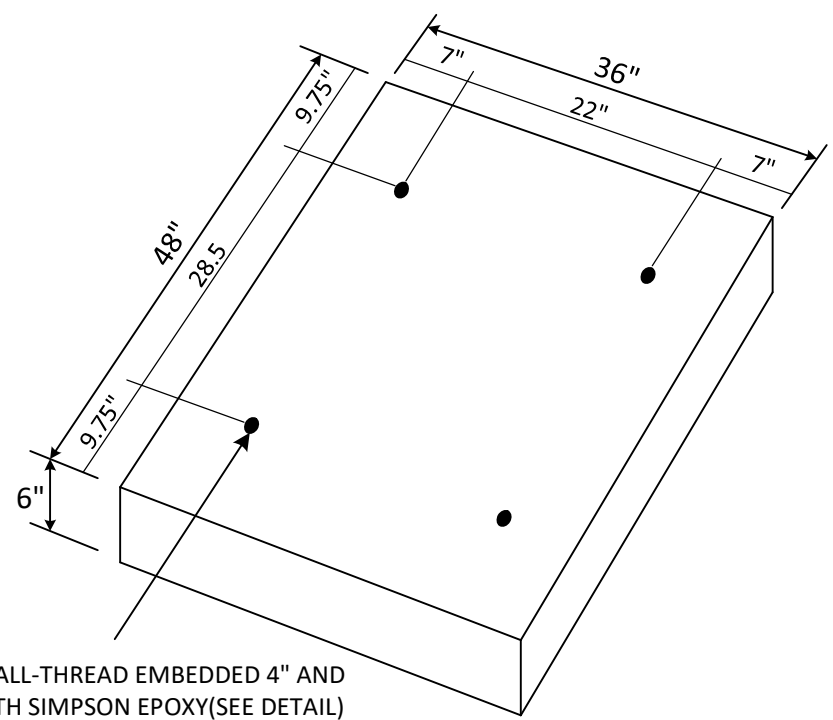
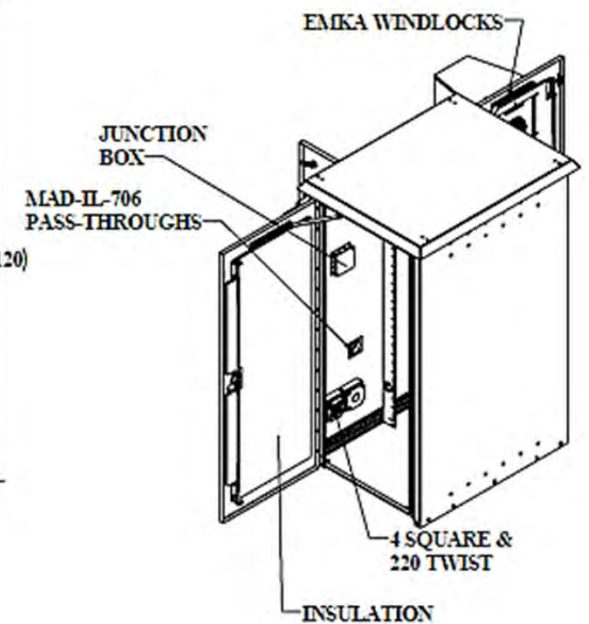
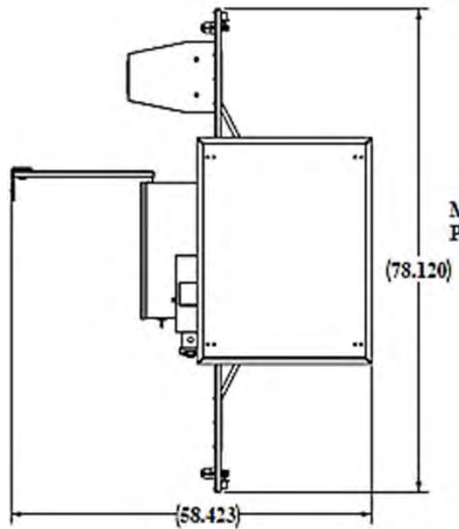
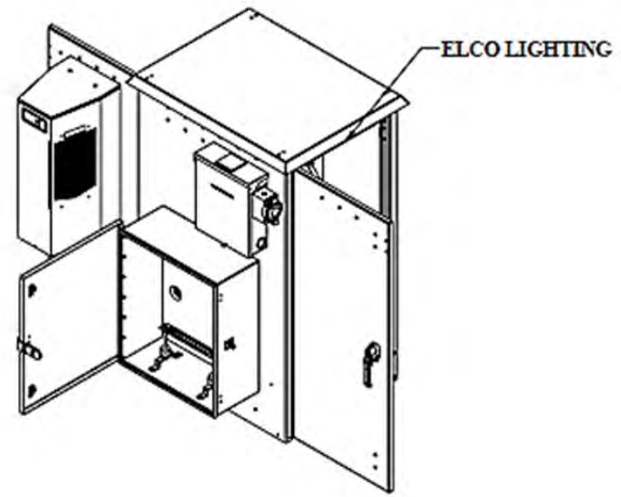
Cable Weight	5.0 lb/kft 7.4 kg/km
Diameter Over Jacket	2.90 mm 0.11 in

Physical Specifications

Minimum Bend Radius, loaded	5.0 cm 2.0 in
Minimum Bend Radius, unloaded	3.0 cm 1.2 in
Tensile Load, long term, maximum	21 lbf 93 N
Tensile Load, short term, maximum	311 N 70 lbf
Vertical Rise, maximum	500.0 m 1640.4 ft

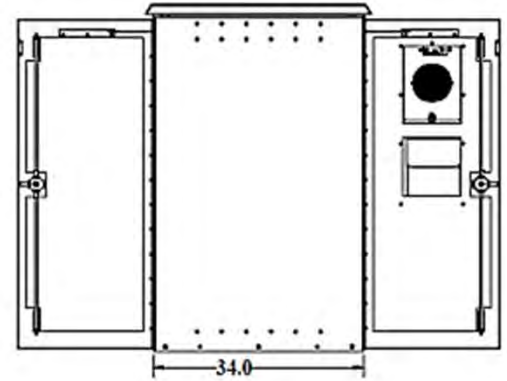
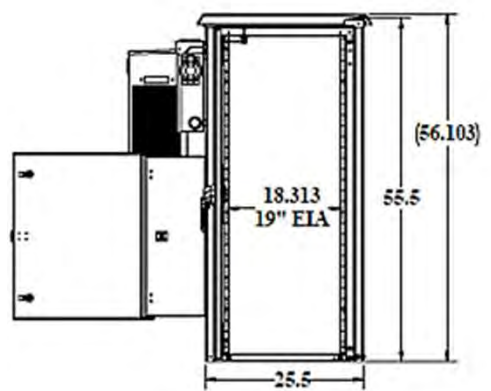
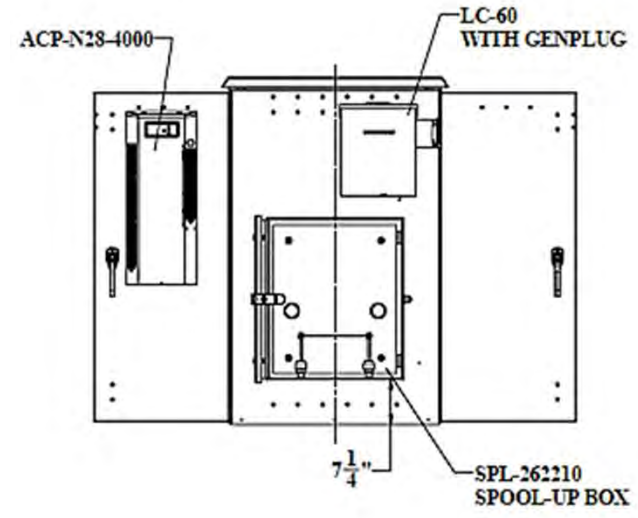
REV.	DESCRIPTION	DATE	BY
	unWired Broadband 215 West Fallbrook, Fresno, CA 93711		
	NETWORK OPERATIONS ANTENNA/EQUIPMENT INSTALL – WHISPERING HILLS RANCH MICROSITE		
S MOSS	SIZE A	FSCM NO	DWG NO C-8
09/28/20	SCALE NONE	SHEET	11 OF 12

EXHIBIT 5 | Page 11



1/2" HARDENED ALL-THREAD EMBEDDED 4" AND ANCHORED WITH SIMPSON EPOXY(SEE DETAIL)

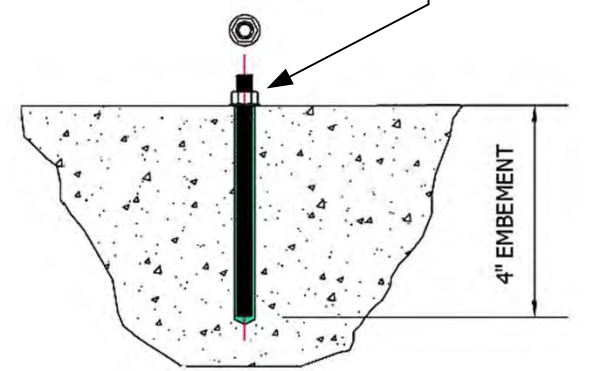
36"X48"X6" CONCRETE PAD
Scale: N.T. S.




(ANCHOR DETAIL)

1/2" Ø THREADED ROD ANCHORS* INSTALLED W/ SIMPSON STRONG-TIE SET-XP™ EPOXY-TIE ADHESIVE TO AN EMBEDMENT DEPTH OF 4" IN CONCRETE. INSTALL IN ACCORDANCE WITH MANUFACTURER'S LITERATURE AND ICC-ES ESR-2508.

*APPLICABLE STEEL TYPES INCLUDE: ASTM A307, GRADE C; ASTM A193, GRADE B7; ASTM A193, GRADE B6 (TYPE 410 SS); & ASTM A193, GRADE B8 (TYPE 304 SS)



REV.	DESCRIPTION	DATE	BY
			
unWired Broadband 215 West Fallbrook, Fresno, CA 93711			
NETWORK OPERATIONS ANTENNA/EQUIPMENT INSTALL – WHISPERING HILLS RANCH MICROSITE			
S MOSS	SIZE A	FSCM NO	DWG NO C-9
09/28/20	SCALE	NONE	SHEET 12 OF 12

UNWIRED BROADBAND PROJECT SUPPORT STATEMENT

Site Name: Whispering Hills Micro-Site

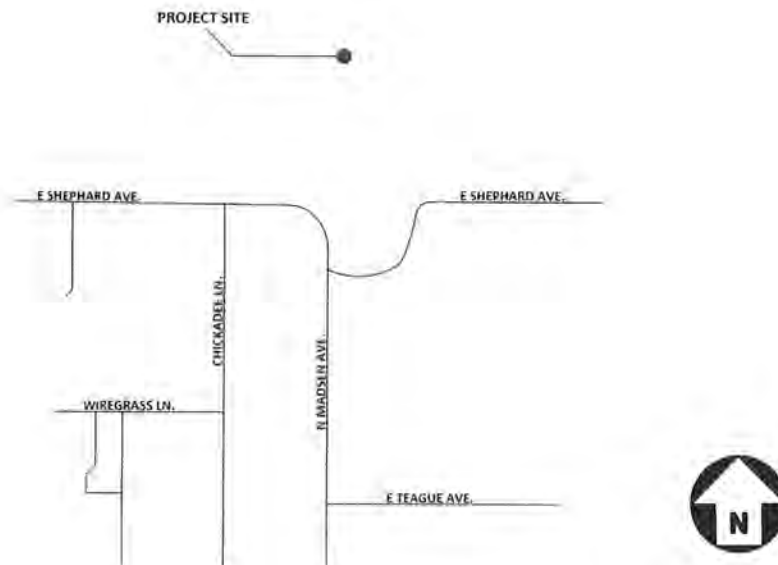
Site Address: 13638 E Shephard Ave, Clovis CA 93619

APN: 150-070-90

INTRODUCTION & FACILITY DESCRIPTION

The demand for wireless internet, in the rural communities across California, continues to grow. Access to the internet has become vital and individuals in underserved areas are continuously looking for reliable internet solutions. unWired Broadband constantly seeks to improve its wireless internet network, through industry advancements and innovative solutions. This proposal for a new wireless internet site, to provide service to rural areas in E Fresno, is an essential part of unWired Broadband's effort to improve our network and reach new customers. The facility is designed to comply with all wireless guidelines set forth by the County of Fresno.

This is a proposal for a wireless internet micro-site on the above referenced parcel in unincorporated Fresno County. The site is located off E Shephard Ave, just E of N Madsen Ave. The proposed facility consists of a 30' x 30' fenced area with 10' posts to support a total of (9) horn antennas & (1) 2' dish antenna. Ground equipment will include (1) 2' x 3' equipment cabinet & (1) small solar system, for power.





Location

The subject property is located within the County of Fresno and is zoned Limited Agriculture (AL-40). The property is used for both grazing and farming.



Design and Aesthetic Impacts

The area is rural and the majority of immediate adjoining properties are similarly zoned. However, there are residential properties in the surrounding areas.

As stated above, unWired Broadband is proposing a new micro-site location to provide high speed internet service to residents in this rural area of Fresno County. The facility is designed to have minimal aesthetic impact, with maximum antenna heights of only 10' above grade.

The facility will be placed on a 900 square foot leased area and will include a small equipment enclosure and solar array. Antennae will be mounted to the 8' fence, which will surround the compound area.

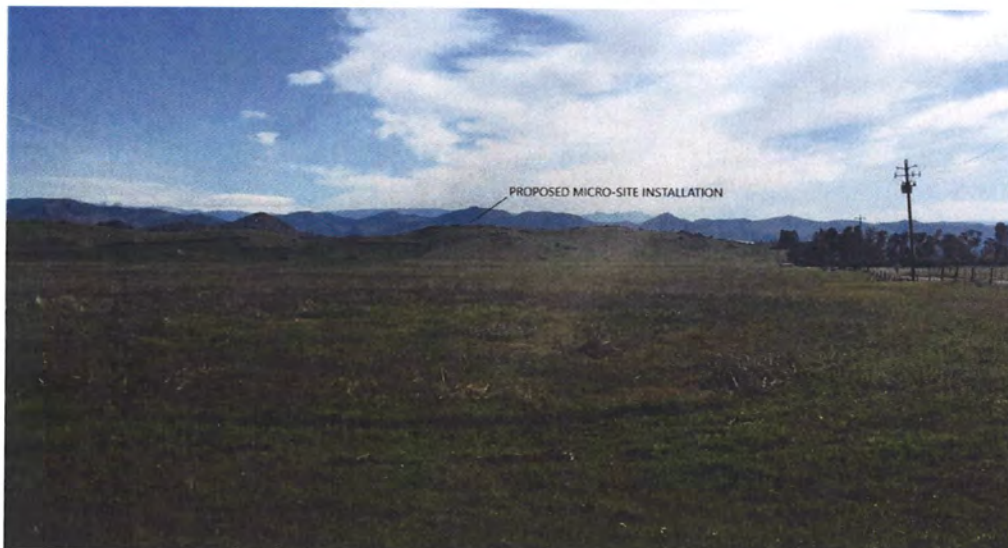
unWired Broadband will use the existing access roads serving the property but will add a turnoff to cover the remaining distance from the existing access road to the micro-site location.

In compliance with the County's wireless guidelines, the proposed facility has been placed to minimize the impact on any agricultural operations on the property. All equipment will be placed within the 30' x 30' footprint of the leased area.

View from E Shephard Ave

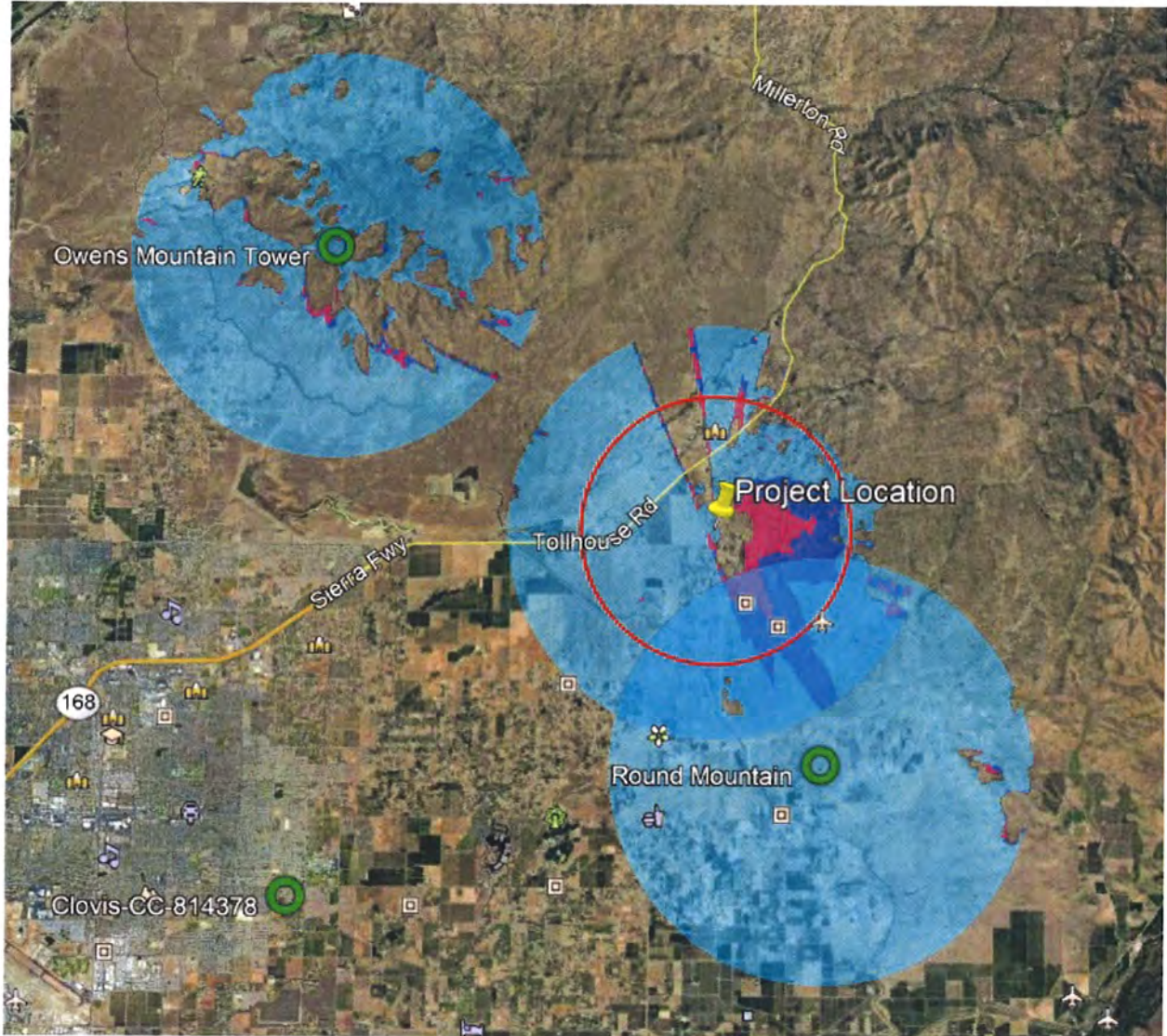


View from N Academy Ave Extd.



DESCRIPTION OF COVERAGE AREA

The objective of the proposed micro-site facility is to improve coverage and capacity in rural areas of east Fresno County. The new facility will allow unWired Broadband to increase bandwidth capacity on neighboring towers, while expanding our footprint to service additional households. The area identified in the map below shows our preferred location for such a site. When identifying potential micro-site locations, our RF Engineers consider factors, such as elevation, topography, current coverage areas, obstructions, etc. The only tower within a 5 mile radius is Round Mountain, where we are currently already collocated.



ALTERNATIVE SITES CONSIDERED

In identifying the most preferred site location, unWired Broadband begins its process by identifying a search area, then we determine if there is a location within that area, that can provide the elevation we need for appropriate coverage. In addition to location and elevation, each proposed site must meet certain minimum requirements, such as:

- A willing landlord
- Feasible construction
- Road access
- Satisfies coverage objectives, and
- Compliance with local zoning requirements

Methodology and Zoning Criteria

Wireless communication is a line-of-sight technology that requires facilities to be of sufficient height in order to effectively "see" the existing facilities which comprise the network. Each proposed site is unique and must be investigated and analyzed on its own terms.

Fresno County guidelines prefer colocations on existing structures wherever feasible. In this case, after researching all tower assets in the area, unWired Broadband Engineers were unable to identify an existing tower location that would adequately support this coverage area.

Maintenance

unWired Broadband performs routine maintenance on all its wireless locations, once a quarter. These maintenance inspections include, HVAC, Power(Battery), Solar System and Site Conditions. On occasion, during long periods of inclement weather or severe cloud cover, unWired may be required to deploy a portable generator to ensure batteries stay adequately charged. Following construction, proper signage will be installed to identify facility owner and a 24 hour emergency telephone number.

Parking and Traffic

The facility is unmanned and will operate 24 hours a day, seven days a week. A technician will occasionally visit the facility to service the equipment, approximately once every 3 months. There will be no other visitors or guests associated with the facility.

Construction Schedule

The construction of the facility will follow all local rules and regulations. The crew size will range from two to 4 individuals. The construction phase of the project will last approximately three weeks and will not exceed acceptable noise levels.

Compliance with FCC Standards

This project will not interfere with any TV, radio, telephone, satellite, or other signals. Any interference would be against federal law and a violation of unWired Broadband's FCC license.

Water Usage

As the facility is unmanned and no landscaping is proposed, there will be no impact to water usage on the property.