



Referral Early Consultation

Date: May 30, 2024

To: Distribution List (See Attachment A)

From: Kristen Anaya, Associate Planner
Planning and Community Development

Subject: STAFF APPROVAL PERMIT APPLICATION NO. PLN2024-0028 – T-MOBILE
– CLOVER AVENUE

Respond By: June 14, 2024

******PLEASE REVIEW REFERRAL PROCESS POLICY******

The Stanislaus County Department of Planning and Community Development is soliciting comments from responsible agencies under the Early Consultation process to determine: a) whether or not the project is subject to CEQA and b) if specific conditions should be placed upon project approval.

Therefore, please contact this office by the response date if you have any comments pertaining to the proposal. Comments made identifying potential impacts should be as specific as possible and should be based on supporting data (e.g., traffic counts, expected pollutant levels, etc.). Your comments should emphasize potential impacts in areas which your agency has expertise and/or jurisdictional responsibilities.

These comments will assist our Department in preparing the conditions for a Staff Approval. Therefore, please list any conditions that you wish to have included as well as any other comments you may have. Please return all comments and/or conditions as soon as possible or no later than the response date referenced above.

Thank you for your cooperation. Please call (209) 525-6330 if you have any questions.

Applicant: Bill Lewis, Assurance Development, Inc.

Project Location: 16319 Clover Avenue, between Bartch Avenue and Poppy Avenue, in the Patterson area

APN: 048-038-010

Williamson Act Contract: N/A

General Plan: Agriculture

Current Zoning: General Agriculture (A-2-20)

Project Description: Request to establish a wireless communications facility on a 4.81± acre parcel in the General Agriculture (A-2-20) zoning district. The proposal includes the installation of a 130-foot-tall, “monopine” style monopole with a 10-foot-tall lightning rod, within the southwestern portion of the parcel. The facility will include the installation of appurtenant ground equipment consisting of: a cable ice bridge, two equipment cabinets, lighting, an intersect cam-lok, and fire extinguisher cabinet on a raised concrete platform. The project lease area will be up to 1,600± square feet in size and enclosed by a six-foot-tall chain-link fence. Access to the facility will be provided via 12-foot-wide graveled access road within a proposed 20-foot-wide non-exclusive access and utility easement. The facility will be unmanned; however, up to two technicians are anticipated to access the site one day per month for routine maintenance. The site is currently

improved with a single-family dwelling. The proposed monopole will meet all applicable siting standards outlined under Stanislaus County Code Section 21.91.030 – *Siting Standards*. The project site is located within the City of Patterson’s Sphere of Influence.

Full document with attachments available for viewing at:
<http://www.stancounty.com/planning/pl/act-projects.shtm>



DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

1010 10TH Street, Suite 3400, Modesto, CA 95354

Planning Phone: (209) 525-6330 Fax: (209) 525-5911

Building Phone: (209) 525-6557 Fax: (209) 525-7759

STAFF APPROVAL PERMIT APPLICATION NO. PLN2024-0028 – T-MOBILE – CLOVER AVENUE

Attachment A

Distribution List

X	STAN CO BUILDING PERMITS DIVISION
X	STAN CO HAZARDOUS MATERIALS
X	CITY OF: PATTERSON
X	STAN CO PUBLIC WORKS
X	FIRE PROTECTION DIST: WEST STANISLAUS
X	IRRIGATION DIST: PATTERSON
X	SURROUNDING LAND OWNERS
X	PACIFIC GAS & ELECTRIC
X	STAN CO SUPERVISOR DIST 5: C CONDIT
X	STANISLAUS FIRE PREVENTION BUREAU

**STANISLAUS COUNTY
CEQA REFERRAL RESPONSE FORM**

TO: Stanislaus County Planning & Community Development
1010 10th Street, Suite 3400
Modesto, CA 95354

FROM: _____

SUBJECT: STAFF APPROVAL PERMIT APPLICATION NO. PLN2024-0028 – T-MOBILE – CLOVER AVENUE

Based on this agency's particular field(s) of expertise, it is our position the above described project:

- Will not have a significant effect on the environment.
- May have a significant effect on the environment.
- No Comments.

Listed below are specific impacts which support our determination (e.g., traffic general, carrying capacity, soil types, air quality, etc.) – (attach additional sheet if necessary)

- 1.
- 2.
- 3.
- 4.

Listed below are possible mitigation measures for the above-listed impacts: *PLEASE BE SURE TO INCLUDE WHEN THE MITIGATION OR CONDITION NEEDS TO BE IMPLEMENTED (PRIOR TO RECORDING A MAP, PRIOR TO ISSUANCE OF A BUILDING PERMIT, ETC.):*

- 1.
- 2.
- 3.
- 4.

In addition, our agency has the following comments (attach additional sheets if necessary).

Response prepared by:


Name	Title	Date
------	-------	------

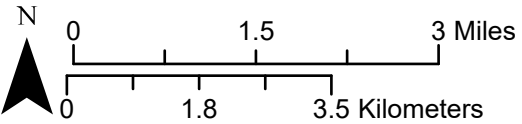
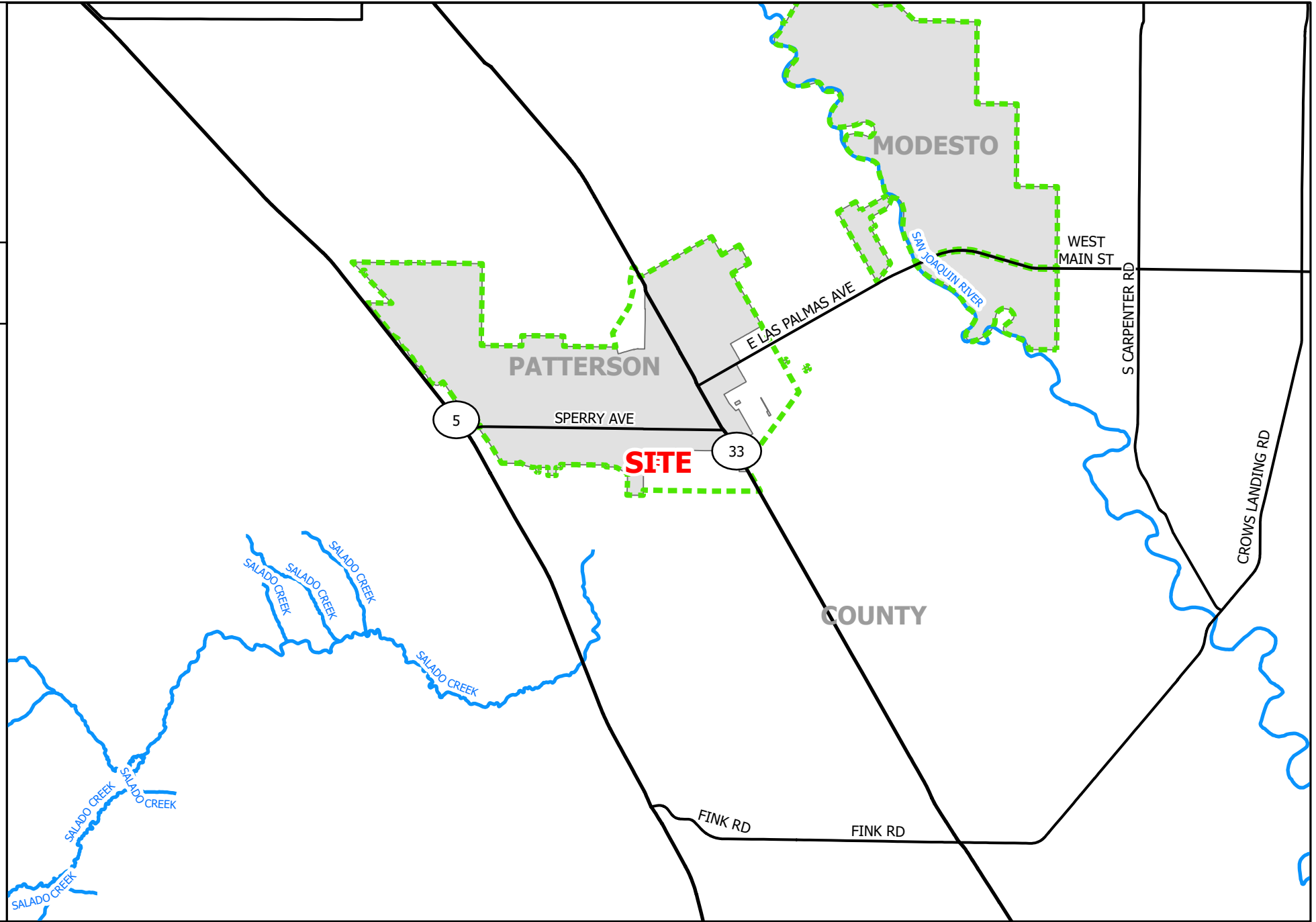
ASSURANCE DEVELOPMENT

SAA PLN2024-0028

AREA MAP

LEGEND

-  Project Site
-  Highway
-  Major Road
-  River
-  Sphere of Influence









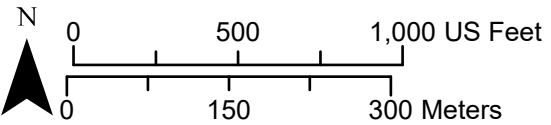
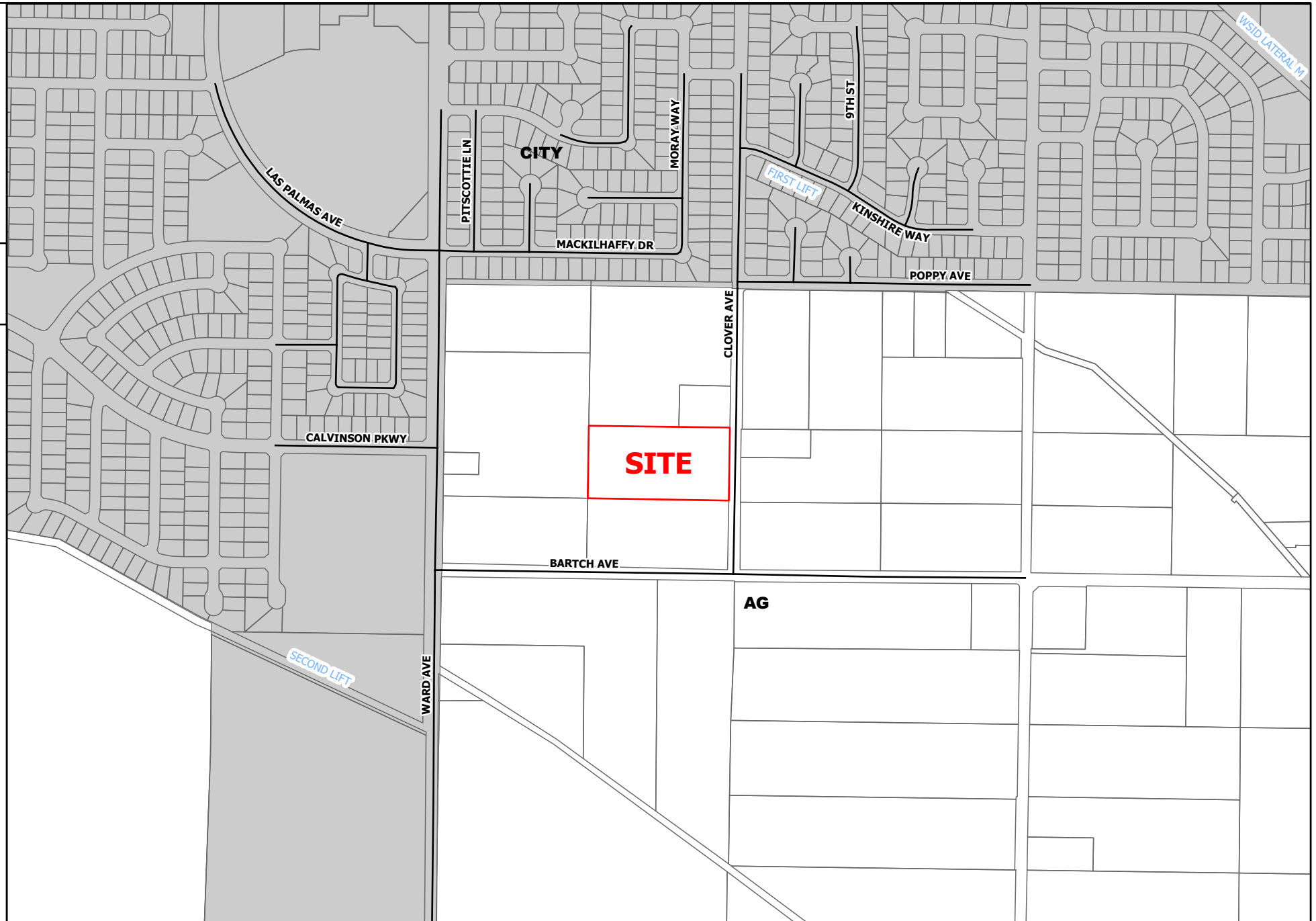
ASSURANCE DEVELOPMENT

SAA PLN2024-0028

GENERAL PLAN MAP

LEGEND

-  Project Site
-  Parcel
-  Canal
-  Agriculture
-  City
-  Street



ASSURANCE DEVELOPMENT

SAA PLN2024-0028

ZONING MAP

LEGEND

 Project Site

 Parcel


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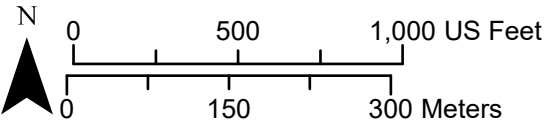
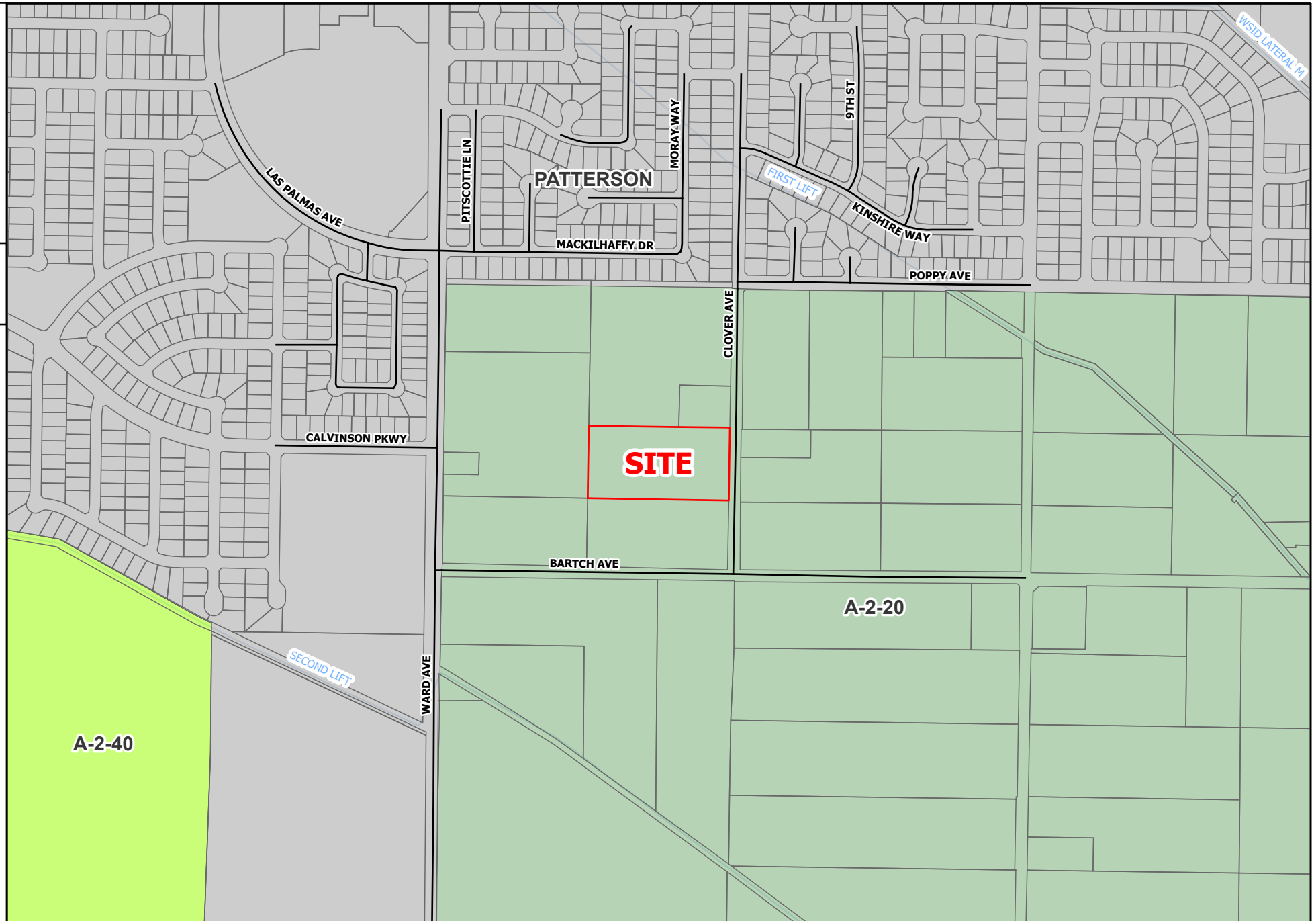
Zoning Designation

 General Agriculture 20 Acre

 General Agriculture 40 Acre

 City

 Street







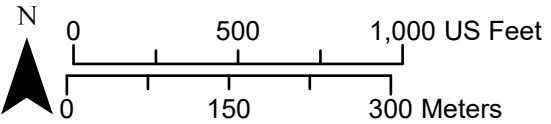
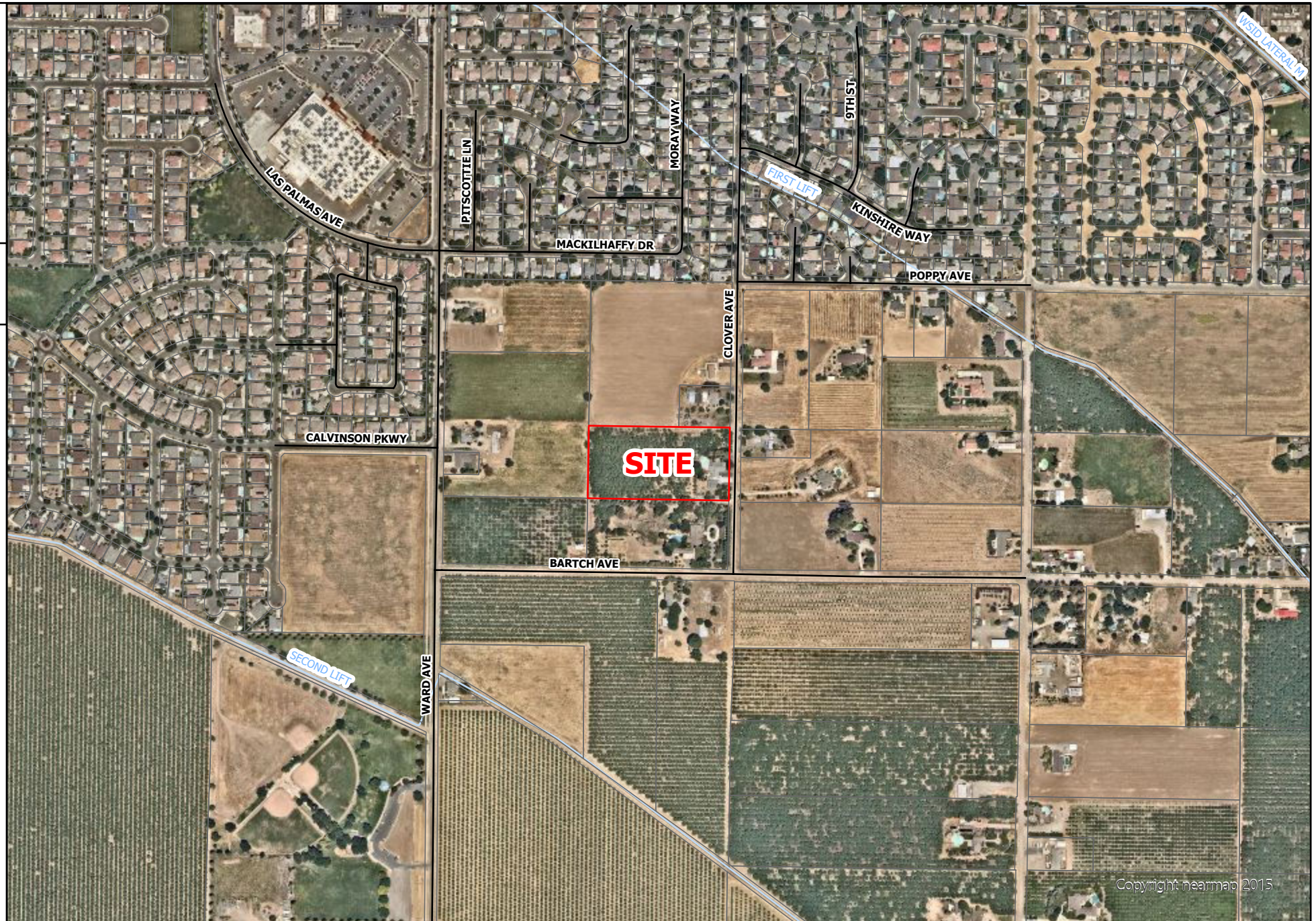
ASSURANCE DEVELOPMENT

SAA PLN2024-0028

2023 AERIAL AREA MAP

LEGEND

-  Project Site
-  Parcel
-  Canal
-  Street






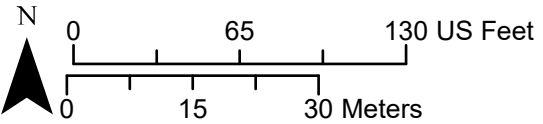
ASSURANCE DEVELOPMENT

SAA PLN2024-0028

2023 AERIAL SITE MAP

LEGEND

-  Project Site
-  Parcel
-  Street



SITE ACQUISITION

AD
ASSURANCE
DEVELOPMENT

1499 HUNTINGTON DR. | SUITE 305
 SOUTH PASADENA, CA | 91030
 626.765.5079

NO.	SUBMITTAL / REVISION	BY	DATE
1	PLAN CHECK COMMENTS	JR	04/04/24
0	ISSUED FOR ZONING	JR	01/02/24
A	ISSUED FOR REVIEW	CV	12/23/23

DRAWN: CV
 DESIGNED: CV
 CHECKED: APP

PROJECT NUMBER: US-CA-5392

PROJECT TITLE:

US-CA-5392
SC60191B
PITSCOTTIE
 16319 CLOVER AVE
 PATTERSON, CA 95363

ENGINEER STAMP:

DRAWING TITLE:
ENLARGED
SITE PLAN

DRAWING SCALE:
 AS NOTED

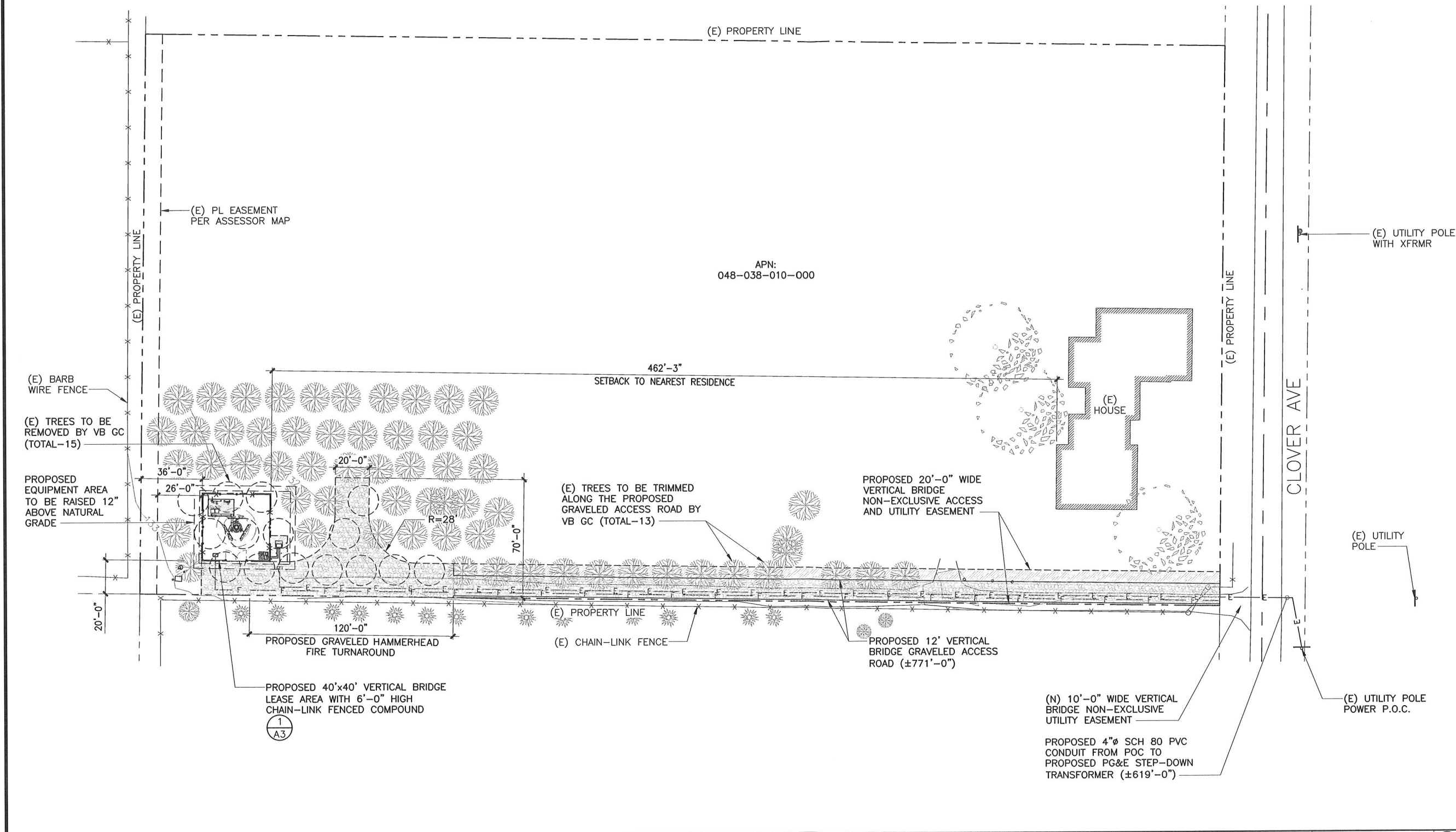
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DATE:
 12/23/23

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DRAWING NUMBER:

A2



ENLARGED SITE PLAN

SITE ACQUISITION



1499 HUNTINGTON DR. | SUITE 305
 SOUTH PASADENA, CA | 91030
 626.765.5079

NO.	SUBMITTAL / REVISION	BY	DATE
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DRAWING SCALE:
AS NOTED

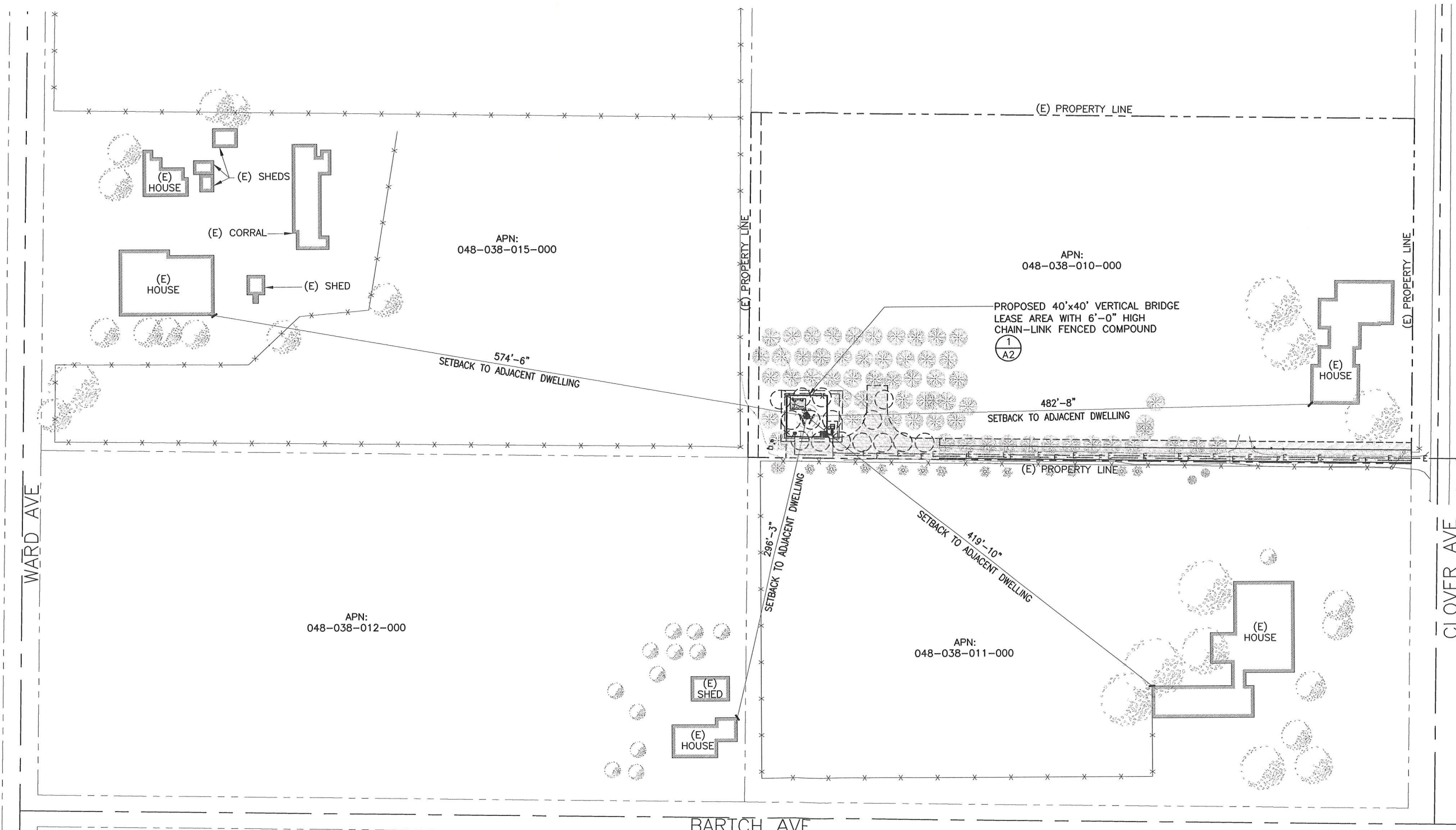
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DATE:
12/23/23

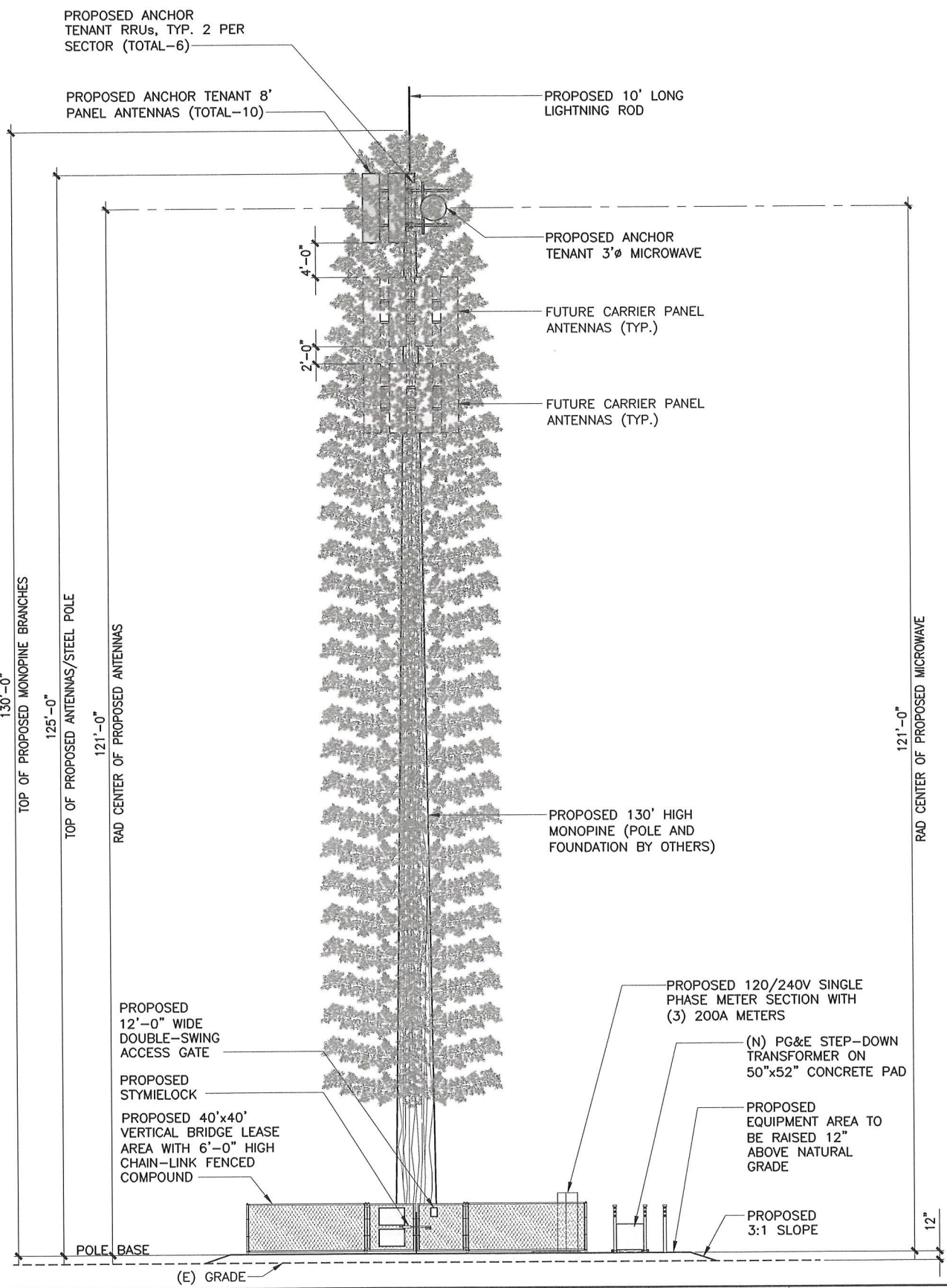
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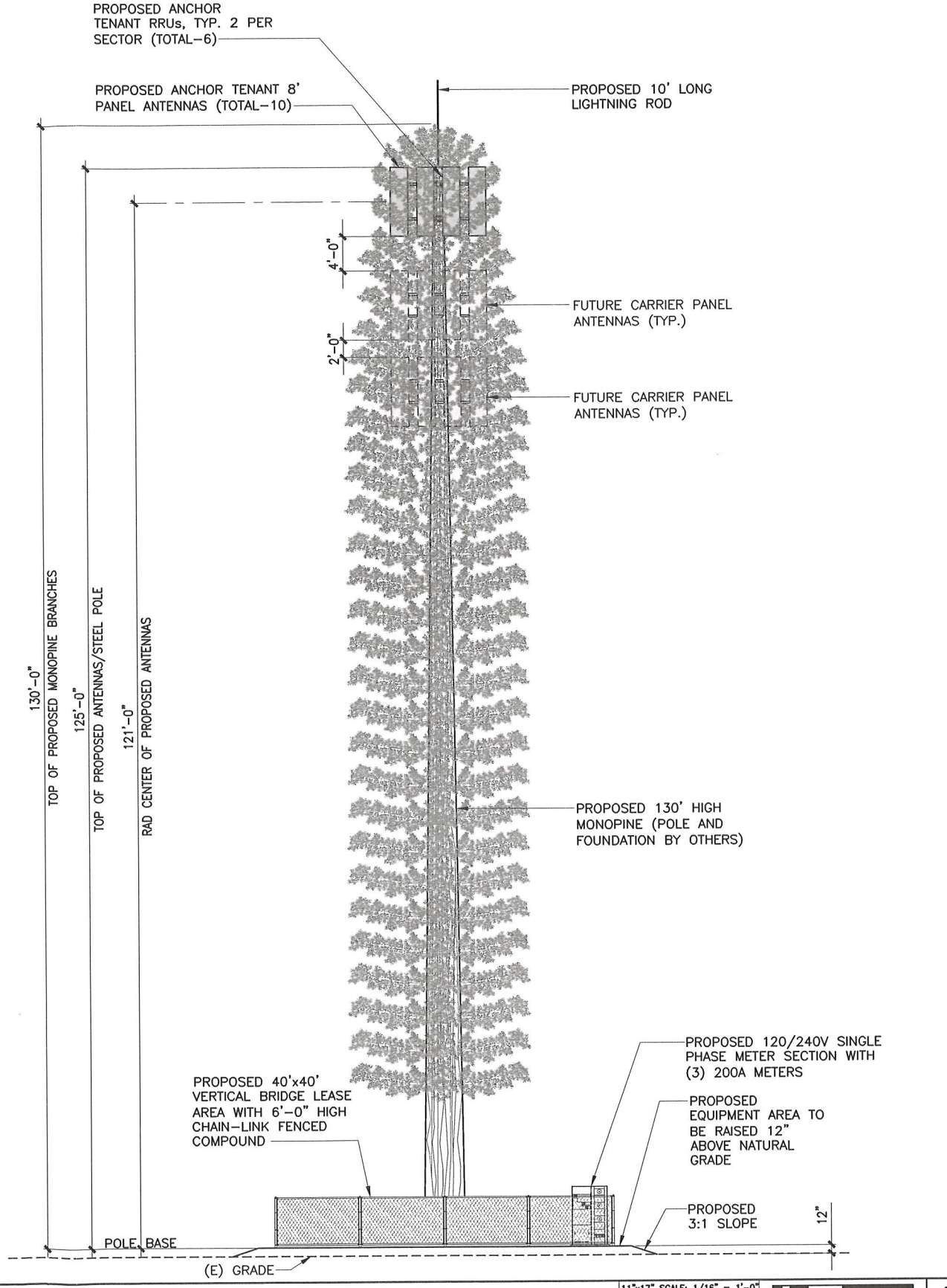
NOTES:
1. ANTENNAS AND RRUS TO BE PAINTED GREEN TO MATCH MONOPINE.



SOUTH ELEVATION

11'x17" SCALE: 1/16" = 1'-0"
24'x36" SCALE: 1/8" = 1'-0"
0 2' 4' 8' 16'

NOTES:
1. ANTENNAS AND RRUS TO BE PAINTED GREEN TO MATCH MONOPINE.



WEST ELEVATION

11'x17" SCALE: 1/16" = 1'-0"
24'x36" SCALE: 1/8" = 1'-0"
0 2' 4' 8' 16'

CLIENT
verticalbridge
750 PARK OF COMMERCE DR.
SUITE 200 | BOCA RATON, FL | 33487
561.948.6367

SITE ACQUISITION
AD
ASSURANCE DEVELOPMENT
1499 HUNTINGTON DR. | SUITE 305
SOUTH PASADENA, CA | 91030
626.765.5079

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US-CA-5392
SC60191B
PITSCOTTIE
16319 CLOVER AVE
PATTERSON, CA 95363

ENGINEER STAMP:

DRAWING TITLE:
ELEVATIONS

DRAWING SCALE:
AS NOTED
ZD
DATE: 12/23/23

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DRAWING NUMBER:
A5

AERIAL MAP



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EXISTING



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NO.	DATE	REVISIONS	BY
0	1/11/2024	ISSUED FOR SUBMITTAL	JFY



US-CA-5392
PITSCOTTIE
 16319 CLOVER AVENUE
 PATTERSON, CA 95363

VIEW	SHEET
A	1 / 4

AERIAL MAP



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DRAFTLINK
 CONTACT: JOYCE HU
 EMAIL: 158@DRAFTLINK.COM
 PHONE: 949-232-5045
 WWW.DRAFTLINK.COM

AD
 ASSURANCE
 DEVELOPMENT

NO.	DATE	REVISIONS	BY
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US-CA-5392
PITSCOTTIE
 16319 CLOVER AVENUE
 PATTERSON, CA 95363

VIEW	SHEET
B	2 / 4

AERIAL MAP

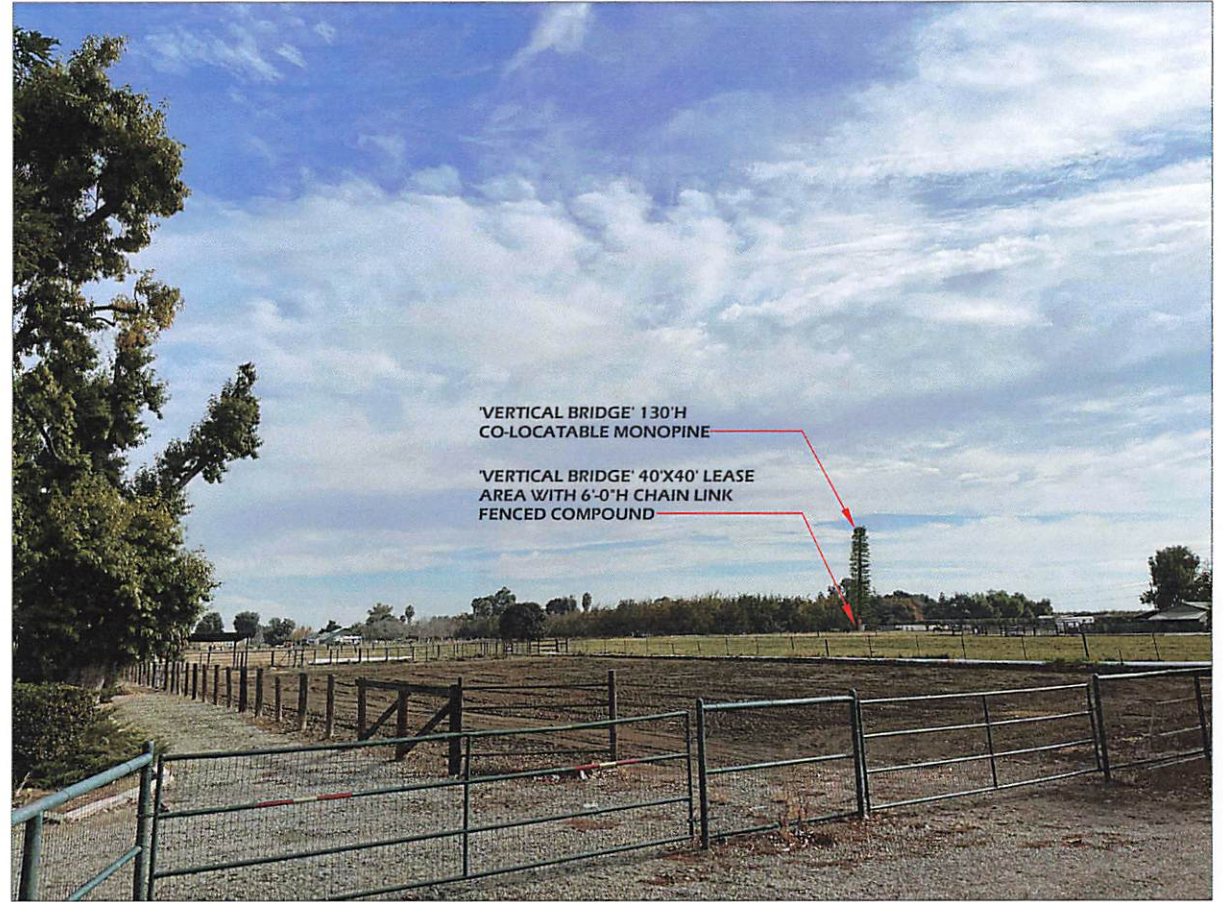


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0	1/11/2024	ISSUED FOR SUBMITTAL	JFY



US-CA-5392
PITSCOTTIE
16319 CLOVER AVENUE
PATTERSON, CA 95363

VIEW	SHEET
C	3 / 4

AERIAL MAP

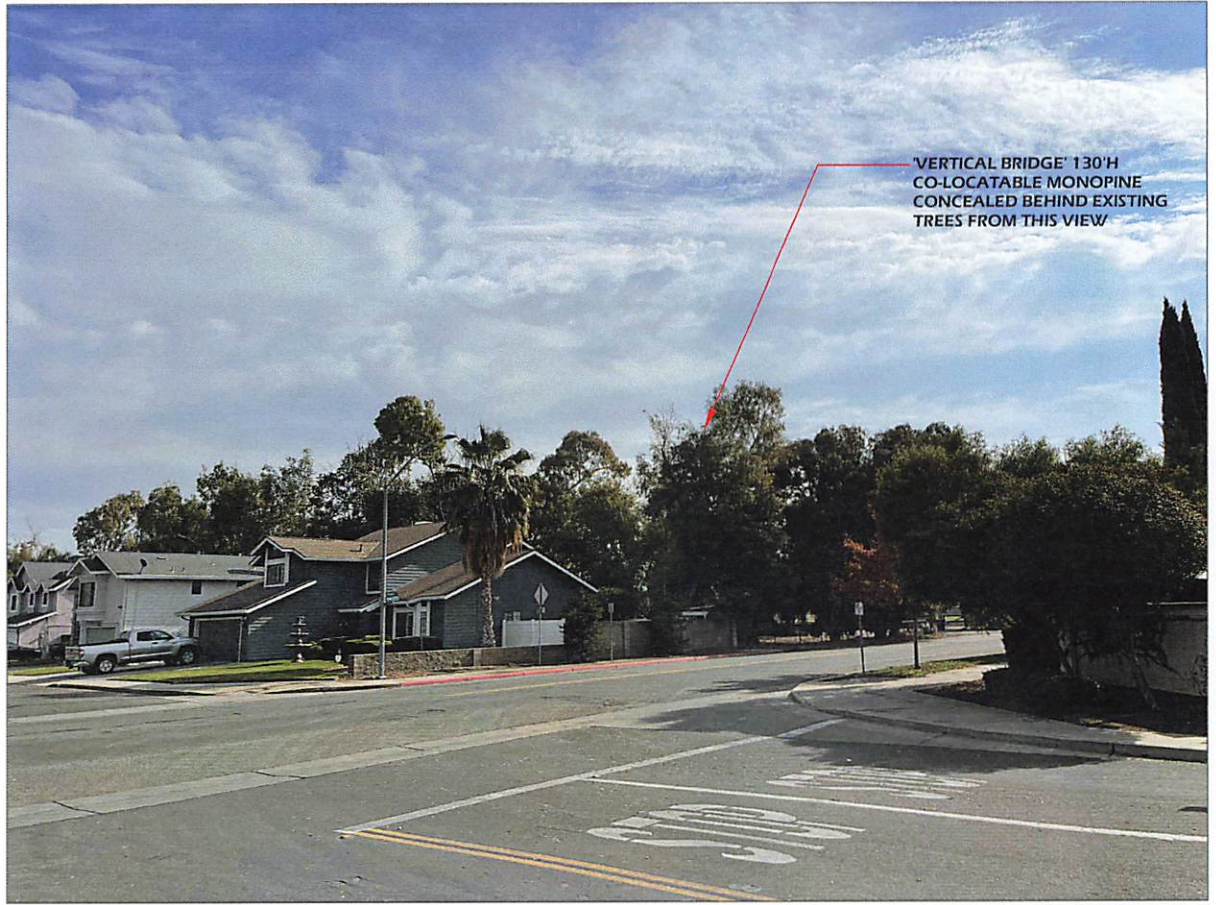


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AD
ASSURANCE
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NO.	DATE	REVISIONS	BY
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US-CA-5392
PITSCOTTIE
16319 CLOVER AVENUE
PATTERSON, CA 95363

VIEW	SHEET
D	4 / 4



S	<u>31</u>	T	<u>5</u>	R	<u>8</u>
ZONE	<u>A-2-20</u>				
RECEIVED	<u>3/16/24</u>				
APPLICATION NO.	<u>PLN2024-0028</u>				
RECEIPT NO.	<u>574329</u>				

STAFF APPROVAL PERMIT APPLICATION

The undersigned hereby makes application for a Staff Approval Permit in accordance with the provisions of the Stanislaus County Code, Chapter 21.100 and any amendments to the same, and submits the following information for consideration:

1. NAME OF APPLICANT: (a) Bill Lewis, Assurance Development, obo VB BTC II LLC (Verital Bridge)
 Name of firm or person

(b) 1499 Hutington Dr, #305 (c) South Pasadena, CA 91030 (d) _____
 Address City, Zip Phone

(e) blewis@assurance-group.com
 Email address
2. NAME OF PROPERTY OWNER: (a) Carlos Castaneda
 Name of firm or person

(b) 16319 Clover Ave (c) Patterson, CA 95319 (d) _____
 Address City, Zip Phone
3. LOCATION OF PROPERTY: 16319 Clover Ave, Patterson, CA 95319
 Address
4. A DETAILED WRITTEN DESCRIPTION OF USE REQUESTED: _____
New Vertical Bridge WTF consisting of a 130' monopine and associated equipment at grade
5. ASSESSMENT NO. & ACREAGE OF PROPERTY: 1.3
6. LIST THE NUMBER AND USE OF ALL EXISTING STRUCTURES ON PROPERTY:
Agricultural and residential
7. A DETAILED SKETCH SHOWING THE APPROXIMATE LOCATION OF ANY PROPOSED AND EXISTING STRUCTURES ON PROPERTY OR LAND IMPROVEMENTS WITH RESPECT TO ROAD INTERSECTIONS, EXISTING BUILDINGS AND/OR SIGNS.
8. IF THE STAFF APPROVAL NEEDS TO BE REFERRED OUT TO OTHER AGENCIES, A FILING FEE IN THE AMOUNT OF ONE THOUSAND, ONE HUNDRED, AND SIXTY-TWO DOLLARS (\$1,162.00).

a. IF THE STAFF APPROVAL IS FOR A SINGLE-FAMILY RESIDENCE IN THE AG ZONE, OR THE STAFF APPROVAL DOES NOT NEED TO BE REFERRED TO OTHER AGENCIES, A FILING FEE IN THE AMOUNT OF THREE HUNDRED AND SIXTY-NINE DOLLARS (\$369.00).

**Vertical Bridge • Site No. US-CA-5392
T-Mobile West LLC • Proposed Base Station (Site No. SC60191B)
16319 Clover Avenue • Patterson, California**

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by Vertical Bridge, a wireless telecommunications facilities provider, to evaluate the T-Mobile West LLC base station (Site No. SC60191B) proposed to be located at 16319 Clover Avenue, Patterson, California, for compliance with appropriate guidelines limiting human exposure to radio frequency (“RF”) electromagnetic fields.

Executive Summary

T-Mobile proposes to install antennas on a tall pole, configured to resemble a pine tree, to be sited at 16319 Clover Avenue in Patterson. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standard

The U.S. Congress requires that the Federal Communications Commission (“FCC”) evaluate its actions for possible significant impact on the environment. A summary of the FCC’s exposure limits is shown in Figure 1. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. The most restrictive limit for exposures of unlimited duration at several wireless service bands are as follows:

Wireless Service Band	Transmit Frequency	“Uncontrolled” Public Limit	Occupational Limit (5 times Public)
Microwave (point-to-point)	1–80 GHz	1.0 mW/cm ²	5.0 mW/cm ²
Millimeter-wave	24–47	1.0	5.0
Part 15 (WiFi & other unlicensed)	2–6	1.0	5.0
C-Band	3,700 MHz	1.0	5.0
CBRS (Citizens Broadband Radio)	3,550	1.0	5.0
BRS (Broadband Radio)	2,490	1.0	5.0
WCS (Wireless Communication)	2,305	1.0	5.0
AWS (Advanced Wireless)	2,110	1.0	5.0
PCS (Personal Communication)	1,930	1.0	5.0
Cellular	869	0.58	2.9
SMR (Specialized Mobile Radio)	854	0.57	2.85
700 MHz	716	0.48	2.4
600 MHz	617	0.41	2.05
[most restrictive frequency range]	30–300	0.20	1.0

Vertical Bridge • Site No. US-CA-5392
T-Mobile West LLC • Proposed Base Station (Site No. SC60191B)
16319 Clover Avenue • Patterson, California

General Facility Requirements

Base stations typically consist of two distinct parts: the electronic transceivers (also called “radios”) that are connected to the traditional wired telephone lines, and the antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The transceivers are often located at ground level and are connected to the antennas by coaxial cables. Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward the horizon, with very little energy wasted toward the sky or the ground. This means that it is generally not possible for exposure conditions to approach the maximum permissible exposure limits without being physically very near the antennas.

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, “Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation,” dated August 1997. Figure 2 describes the calculation methodologies, reflecting the facts that a directional antenna’s radiation pattern is not fully formed at locations very close by (the “near-field” effect) and that at greater distances the power level from an energy source decreases with the square of the distance from it (the “inverse square law”). This methodology is an industry standard for evaluating RF exposure conditions and has been demonstrated through numerous field tests to be a conservative prediction of exposure levels.

Site and Facility Description

Based upon information provided by T-Mobile, including zoning drawings by Assurance Development, dated January 2, 2024, it is proposed to install ten directional panel antennas – three CommScope Model FFVV-65C-R3-V1, three Ericsson Model AIR6419, and four inactive antennas* for future operation – on a 125-foot pole, configured to resemble a pine tree,† to be sited about 470 feet behind the single-story residence located at 16319 Clover Avenue in Patterson. The CommScope and Ericsson antennas would employ up to 13° and up to 19° downtilt, respectively, would be mounted at an effective height of about 121 feet above ground, and would be oriented in identical pairs toward 55°T, 185°T, and 310°T, to provide service in all directions. The maximum effective radiated power in any direction would be 35,780 watts, representing simultaneous operation

* It is recommended that the RF exposure conditions be re-evaluated for compliance with FCC limits at such time as these antennas are to be put into service.

† Foliage atop the pole puts the overall height at about 130 feet above ground.



Vertical Bridge • Site No. US-CA-5392
T-Mobile West LLC • Proposed Base Station (Site No. SC60191B)
16319 Clover Avenue • Patterson, California

at 14,230 watts for BRS,[†] 6,200 watts for AWS, 10,860 watts for PCS, 950 watts for 700 MHz, and 3,540 watts for 600 MHz service. Also proposed to be located on the pole, at an effective height of about 121 feet above ground, is a 3-foot microwave “dish” antenna, for interconnection of this site with others in the T-Mobile network. There are reported no other wireless telecommunications base stations at the site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed T-Mobile operation, including the contribution of the microwave dish, is calculated to be 0.034 mW/cm², which is 4.3% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building[§] is 5.1% of the public exposure limit. It should be noted that these results include several “worst-case” assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

RF Safety Plan

Due to their mounting location and height, the T-Mobile antennas would not be accessible to unauthorized persons, and so no measures are necessary to comply with the FCC public exposure guidelines. It is presumed that T-Mobile will, as an FCC licensee, take adequate steps to ensure that its employees or contractors receive appropriate training and comply with FCC occupational exposure guidelines whenever work is required near the antennas themselves.

Conclusion

Based on the information and analysis above, it is the undersigned’s professional opinion that operation of the base station proposed by T-Mobile West LLC at 16319 Clover Avenue in Patterson, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations.

[†] T-Mobile reports maximum effective radiated power in this band of 59,310 watts, to which a duty cycle of 75% is applied; a statistical factor of 32% is also included, to account for spatial distribution of served users, based on the United Nations International Telecommunication Union ITU-T Series K, Supplement 16, dated May 20, 2019.

[§] Including the residences located at least 400 feet away, based on photographs from Google Maps.

Vertical Bridge • Site No. US-CA-5392
T-Mobile West LLC • Proposed Base Station (Site No. SC60191B)
16319 Clover Avenue • Patterson, California

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration Nos. E-13026 and M-20676, which expire on June 30, 2025. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.



William F. Hammett

William F. Hammett, P.E.
707/996-5200

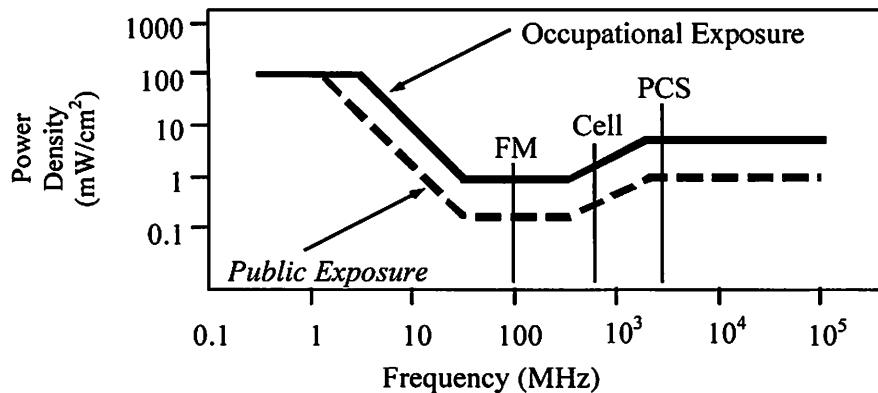
February 9, 2024

FCC Radio Frequency Protection Guide

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission (“FCC”) to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The FCC adopted the limits from Report No. 86, “Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” published in 1986 by the Congressionally chartered National Council on Radiation Protection and Measurements (“NCRP”). Separate limits apply for occupational and public exposure conditions, with the latter limits generally five times more restrictive. The more recent standard, developed by the Institute of Electrical and Electronics Engineers IEEE C95.1-2019, “Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz,” includes similar limits. These limits apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

As shown in the table and chart below, separate limits apply for occupational and public exposure conditions, with the latter limits (in *italics* and/or dashed) up to five times more restrictive:

Frequency Applicable Range (MHz)	Electromagnetic Fields (f is frequency of emission in MHz)					
	Electric Field Strength (V/m)		Magnetic Field Strength (A/m)		Equivalent Far-Field Power Density (mW/cm ²)	
0.3 – 1.34	614	<i>614</i>	1.63	<i>1.63</i>	100	<i>100</i>
1.34 – 3.0	614	<i>823.8/f</i>	1.63	<i>2.19/f</i>	100	<i>180/f²</i>
3.0 – 30	1842/f	<i>823.8/f</i>	4.89/f	<i>2.19/f</i>	900/f ²	<i>180/f²</i>
30 – 300	61.4	<i>27.5</i>	0.163	<i>0.0729</i>	1.0	<i>0.2</i>
300 – 1,500	3.54√f	<i>1.59√f</i>	√f/106	<i>√f/238</i>	f/300	<i>f/1500</i>
1,500 – 100,000	137	<i>61.4</i>	0.364	<i>0.163</i>	5.0	<i>1.0</i>



Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits, and higher levels also are allowed for exposures to small areas, such that the spatially averaged levels do not exceed the limits. Hammett & Edison has incorporated conservative calculation formulas in the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) for projecting field levels in a computer program capable of calculating, at thousands of locations on an arbitrary grid, the total expected power density from any number of individual radio frequency sources. The program allows for the inclusion of uneven terrain in the vicinity, as well as any number of nearby buildings of varying heights, to obtain more accurate projections.



RFE.CALC™ Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

Hammett & Edison has incorporated the FCC Office of Engineering and Technology Bulletin No. 65 (“OET-65”) formulas (see Figure 1) in a computer program that calculates, at millions of locations on a grid, the total expected power density from any number of individual radio frequency sources. The program uses the specific antenna patterns from the manufacturers and allows for the inclusion of uneven terrain in the vicinity, as well as any number of nearby buildings of varying heights, to obtain accurate projections of RF exposure levels. The program can account for spatial-averaging when antenna patterns are sufficiently narrow, and time-averaging is typically considered when operation is in single-frequency bands, which require time-sharing between the base station and the subscriber devices.

OET-65 provides this formula for calculating power density in the far-field from an individual RF source:

$$\text{power density} \quad S = \frac{2.56 \times 1.64 \times 100 \times \text{RFF}^2 \times \text{ERP}}{4 \times \pi \times D^2} \quad \text{in mW/cm}^2$$

where ERP = total Effective Radiated Power (all polarizations), in kilowatts,
RFF = three-dimensional relative field factor toward point of calculation, and
D = distance from antenna effective height to point of calculation, in meters.

The factor of 2.56 accounts for the increase in power density due to reflections, assuming a reflection coefficient of 1.6 ($1.6 \times 1.6 = 2.56$). This factor is typically used for all sources unless specific information from FCC filings by the manufacturer indicate that a different reflection coefficient would apply. The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units of power density.

Because antennas are not true “point sources,” their signal patterns may not be fully formed at close distances and so exposure levels may be lower than otherwise calculated by the formula above. OET-65 recommends the cylindrical model formula below to account for this “near-field effect”:

$$\text{power density} \quad S = \frac{180}{\theta_{\text{BW}}} \times \frac{0.1 \times P_{\text{net}}}{\pi \times D \times h} \quad \text{in mW/cm}^2$$

where P_{net} = net power input to antenna, in watts,
 θ_{BW} = half-power beamwidth of antenna, in degrees,
D = distance from antenna effective height to point of calculation, in meters, and
h = aperture height of antenna, in meters.

The factor of 0.1 in the numerator converts to the desired units of power density.

OET-65 confirms that the “crossover” point between the near- and far-field regions is best determined by finding where the calculations coincide from the two different formulas, and the program uses both formulas to calculate power density.

